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Dataquest

a company of The Dun & Bradstreet Corporation

June 1989

CAD/CAM INDUSTRY SERVICE
FILING INSTRUCTIONS

TITLE:	2.1 Geography and Demographics
VOLUME:	European Markets
TAB:	Benelux
FILING INSTRUCTIONS:	Insert this new service section dated April 1989, pages 2.1-1 through 2.1-8, directly behind the Benelux tab.

TITLE:	2.2 Government, Trade, and Economic Forces
VOLUME:	European Markets
TAB:	Benelux
FILING INSTRUCTIONS:	Insert this new service section dated April 1989, pages 2.2-1 through 2.2-2, directly behind 2.1 Geography and Demographics.

TITLE:	2.3 Doing Business in the Benelux Countries
VOLUME:	European Markets
TAB:	Benelux
FILING INSTRUCTIONS:	Insert this new service section dated April 1989, pages 2.3-1 through 2.3-28, directly behind 2.2 Government, Trade, and Economic Forces.

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TITLE:	3.1 Geography and Demographics
VOLUME:	European Markets
TAB:	France
FILING INSTRUCTIONS:	Insert this new service section dated April 1989, pages 3.1-1 through 3.1-2, directly behind the France tab.

TITLE:	3.2 Government, Trade, and Economic Forces
VOLUME:	European Markets
TAB:	France
FILING INSTRUCTIONS:	Insert this new service section dated April 1989, pages 3.2-1 through 3.2-2, directly behind 3.1 Geography and Demographics.

TITLE:	3.3 Doing Business in France
VOLUME:	European Markets
TAB:	France
FILING INSTRUCTIONS:	Insert this new service section dated April 1989, pages 3.3-1 through 3.3-12, directly behind 3.2 Government, Trade, and Economic Forces.

TITLE:	4.1 Geography and Demographics
VOLUME:	European Markets
TAB:	German Region
FILING INSTRUCTIONS:	Insert this new service section dated April 1989, pages 4.1-1 through 4.1-8, directly behind the German Region tab.

TITLE:	4.2 Government, Trade, and Economic Forces
VOLUME:	European Markets
TAB:	German Region
FILING INSTRUCTIONS:	Insert this new service section dated April 1989, pages 4.2-1 through 4.2-2, directly behind 4.1 Geography and Demographics.

TITLE:	4.3 Doing Business in the German Region
VOLUME:	European Markets
TAB:	German Region
FILING INSTRUCTIONS:	Insert this new service section dated April 1989, pages 4.3-1 through 4.3-28, directly behind 4.2 Government, Trade, and Economic Forces.

TITLE:	**5.1 Geography and Demographics**
VOLUME:	**European Markets**
TAB:	**Italy**
FILING INSTRUCTIONS:	**Insert this new service section dated April 1989, pages 5.1-1 through 5.1-2, directly behind the Italy tab.**

TITLE:	**5.2 Government, Trade, and Economic Forces**
VOLUME:	**European Markets**
TAB:	**Italy**
FILING INSTRUCTIONS:	**Insert this new service section dated April 1989, pages 5.2-1 through 5.2-2, directly behind 5.1 Geography and Demographics.**

TITLE:	**5.3 Doing Business in Italy**
VOLUME:	**European Markets**
TAB:	**Italy**
FILING INSTRUCTIONS:	**Insert this new service section dated April 1989, pages 5.3-1 through 5.3-22, directly behind 5.2 Government, Trade, and Economic Forces.**

TITLE:	**6.1 Geography and Demographics**
VOLUME:	**European Markets**
TAB:	**Scandinavia**
FILING INSTRUCTIONS:	**Insert this new service section dated April 1989, pages 6.1-1 through 6.1-10, directly behind the Scandinavia tab.**

TITLE:	**6.2 Government, Trade, and Economic Forces**
VOLUME:	**European Markets**
TAB:	**Scandinavia**
FILING INSTRUCTIONS:	**Insert this new service section dated April 1989, pages 6.2-1 through 6.2-2, directly behind 6.1 Geography and Demographics.**

TITLE:	**6.3 Doing Business in Scandinavia**
VOLUME:	**European Markets**
TAB:	**Scandinavia**
FILING INSTRUCTIONS:	**Insert this new service section dated April 1989, pages 6.3-1 through 6.3-28, directly behind 6.2 Government, Trade, and Economic Forces.**

TITLE:	**7.1 Geography and Demographics**
VOLUME:	**European Markets**
TAB:	**United Kingdom**
FILING INSTRUCTIONS:	**Insert this new service section dated April 1989, pages 7.1-1 through 7.1-2, directly behind the United Kingdom tab.**

TITLE:	**7.2 Government, Trade, and Economic Forces**
VOLUME:	**European Markets**
TAB:	**United Kingdom**
FILING INSTRUCTIONS:	**Insert this new service section dated April 1989, pages 7.2-1 through 7.2-2, directly behind 7.1 Geography and Demographics.**

TITLE:	**7.3 Doing Business in the United Kingdom**
VOLUME:	**European Markets**
TAB:	**United Kingdom**
FILING INSTRUCTIONS:	**Insert this new service section dated April 1989, pages 7.3-1 through 7.3-14, directly behind 7.2 Government, Trade, and Economic Forces.**

TITLE: 8.1 Geography and Demographics

VOLUME: European Markets

TAB: Rest of Europe

FILING INSTRUCTIONS: Insert this new service section dated April 1989, pages 8.1-1 through 8.1-12, directly behind the Rest of Europe tab.

TITLE: 8.2 Government, Trade, and Economic Forces

VOLUME: European Markets

TAB: Rest of Europe

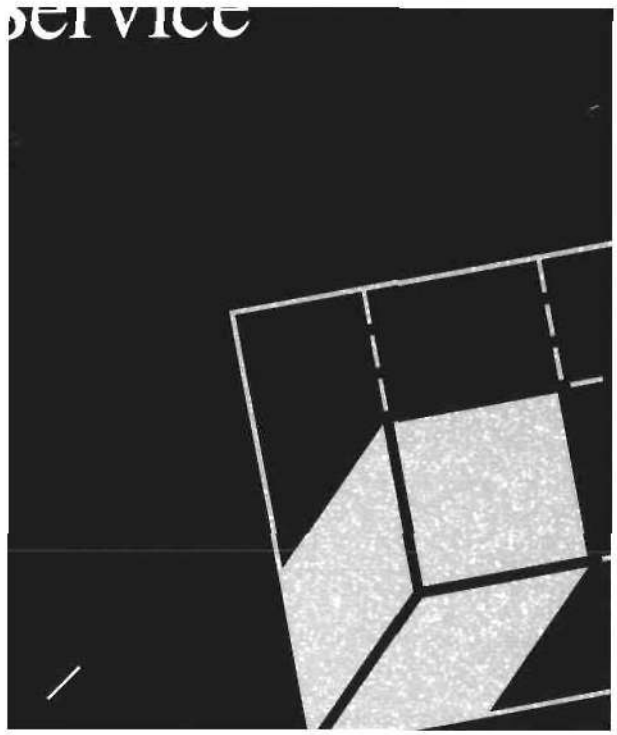
FILING INSTRUCTIONS: Insert this new service section dated April 1989, pages 8.2-1 through 8.2-2, directly behind 8.1 Geography and Demographics.

TITLE: 8.3 Doing Business in Other European Countries

VOLUME: European Markets

TAB: Rest of Europe

FILING INSTRUCTIONS: Insert this new service section dated April 1989, pages 8.3-1 through 8.3-18, directly behind 8.2 Government, Trade, and Economic Forces.



CAD/CAM Industry Service

Introduction to the Service

Dataquest

a company of
The Dun & Bradstreet Corporation

Published by Dataquest Incorporated

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December 1988

Introduction to the CAD/CAM Industry Service

Welcome to the CAD/CAM Industry Service

As the CAD/CAM industry matures, with the compound annual growth rate (CAGR) slowing to the 8 percent range as we enter the nineties, the decision-making process is becoming increasingly more complex for CAD/CAM professionals.

Significant mergers and acquisitions and general market attrition have dramatically changed the competitive nature of the CAD/CAM industry over the past two years. Now more than ever a need persists for information on a global scale. A resource that can offer comprehensive worldwide research and analysis of the markets, products, trends, technologies, and participants in the CAD/CAM industry is an essential ingredient to the development of sound product and marketing strategies in the wake of this industry shakeout.

Dataquest's CAD/CAM Industry Service (CCIS) is that resource.

CCIS provides clients with qualitative insight into integral issues and trends that develop in the CAD/CAM industry. Qualitative analysis is supported by extensive quantitative data on shipments, installed base, forecasts, history, market shares, market segmentation, and company performance. Exhaustive research provides all levels of personnel at our client companies with the information and analysis they require to make informed, timely business decisions.

For example, CCIS provides tools to help you do the following:

- Identify effectively the most appropriate target markets
- Gain a realistic understanding of end-user requirements
- Analyze the effect of contributing technology trends on your future product plans
- Evaluate competitors' marketing strategies and product offerings
- Position your products properly in relation to your competitors

CCIS has a highly professional research staff with an in-depth background in the CAD/CAM industry and research techniques. Augmenting the skills of the CCIS staff are the resources of other Dataquest syndicated services. Worldwide dedicated research in more than 25 technology areas enables Dataquest to provide an unparalleled picture of the total electronics industry. In addition, Dataquest brings to bear the vast resources of its parent company, information industry giant Dun & Bradstreet. Through its

relationship with D&B, Dataquest is uniquely positioned to assess the impact of external influences such as economic, political, and monetary trends that may effect the electronics industry.

Service Structure

Dataquest's CAD/CAM Industry Service has two major components: the core (or general) service and the application-specific segments. The service has been structured in this manner to provide clients with both a comprehensive overview of the CAD/CAM industry and an in-depth vertically focused view of the primary application markets.

Core Service

The core service represents a macro view of the entire CAD/CAM market, with information and analyses relevant to all CAD/CAM industry participants. Core service is rendered by a staff of industry and research experts. The core service is provided to all CCIS clients. It consists of the following elements:

- **Industry overview data base notebook.** This notebook contains analyses of the macro industry parameters, including summaries of the major CAD/CAM market segments. (Forecast data bases are also available to clients in electronic format upon request.)
- **Research Studies.** Research studies are event-driven publications that provide a continual flow of timely information and analyses on major industry events and issues.
- **Inquiry privilege.** This feature is designed to meet the unique information needs of each client, enabling the client to communicate directly with the CCIS research staff. Through this vehicle, questions concerning information in the data base notebooks, the impact of new product announcements, technical trends, and issues that will affect the general business environment, are addressed on a timely basis. Inquiries can be made in person or via telephone, fax, or telex.
- **Industry conference.** An annual conference brings together industry decision makers to review the state of the CAD/CAM industry and to discuss major issues in an open forum. Clients are entitled to one free conference seat, and seats must be reserved in advance.
- **Research libraries.** Clients have access to Dataquest's extensive libraries offering a broad range of reference materials in our San Jose, Boston, London, Paris, Munich, and Tokyo offices.
- **CAD/CAM industry directory.** Clients receive one free copy of the annually updated directory containing pertinent information on more than 600 CAD/CAM suppliers and their products.
- **Demographics and economic reports.** These reports present in-depth analyses of external influences on the electronics industry.

- **International support.** International support is provided through access to the Dataquest research staffs in our London, Paris, Munich, and Tokyo offices.

Application-Specific Segments

The application-specific segments are available to CCIS clients who need detailed information on a specific CAD/CAM application market. The following application segments are available:

- Mechanical CAD/CAM (MCAD)
- Electronics Design Automation (EDA)
- Facilities Design and Mapping (FD&M)

Each segment contains information and analyses particular to the specific application, including research studies and other event-driven publications, market overview, detailed market segmentation, forecasts, market shares, both vendor and end-user surveys, and specialized research reports. Each application segment is supported by a staff of CCIS analysts with experience in the specific application.

Detailed analyses and data are provided down to the design phase within each application specific segment. The following design phases are covered within the respective segments:

- **Mechanical CAD/CAM (MCAD)**
  - MCAE
  - Drafting
  - Design
  - FEM/FEA
  - Numerical control
  - Solid modeling
  - Process simulation
- **Electronic Design Automation (EDA)**
  - ECAE
  - IC
  - PCB
  - Compilation
  - Test
  - Logic design automation
  - Simulation

- **Facilities Design and Mapping (FD&M)**
  - Architectural
  - Facilities management
  - Process design
  - Mapping
  - Geographic information systems
  - Structural
  - HVAC and piping

CCIS also provides three additional information segments:

- **European Markets.** The European Markets segment provides the country-by-country data and analyses required to effectively penetrate the markets of Europe. European Markets offers insight into the market-specific parameters, coupled with an in-depth review of the government, trade, and economic forces that shape the European marketplace. Detailed information and analyses are available for the following regions:
  - United Kingdom
  - France
  - Italy
  - German region
  - Scandinavia
  - Benelux
  - Rest of Europe
  - Total Europe
- **Asian Markets.** The Asian Markets segment offers comprehensive coverage of the fastest-growing, yet most complicated, marketplace in the world. Similar to the European Market segment (and its coverage of the markets of Europe), the Asian Markets segment provides in-depth coverage of the dynamics of the individual markets that make up Asia. Detailed information and analyses are available of the following regions:
  - Japan
  - Taiwan
  - Korea
  - Singapore

- — Hong Kong
- — China
- — Rest of Asia
- — Total Asia

- **Personal CAD: Markets at the Low End.** With the dramatic decline in CAD/CAM workstation selling prices, the continued blurring of the distinction between a personal computer and a technical workstation, and the realization by traditional turnkey vendors of the necessity of offering a scalable solution, the market for low-end CAD/CAM solutions (under $15,000) has experienced explosive growth.

  As the price of low-end turnkey systems drops below the $15,000 mark, it will become increasingly difficult to profitably sell low-end solutions utilizing traditional sales channels. This is a challenge that all turnkey vendors currently are, or soon will be, facing. It is imperative that all vendors understand the complexities and competitive nature of the new low-end markets and delivery mechanisms. The Personal CAD segment will help you to confront the distribution challenges of the low end and to understand thoroughly the competitive pressures being exerted by PC-based solutions that offer competitive performance capabilities.

Figure 1 shows the total CAD/CAM Industry Service segmentation.

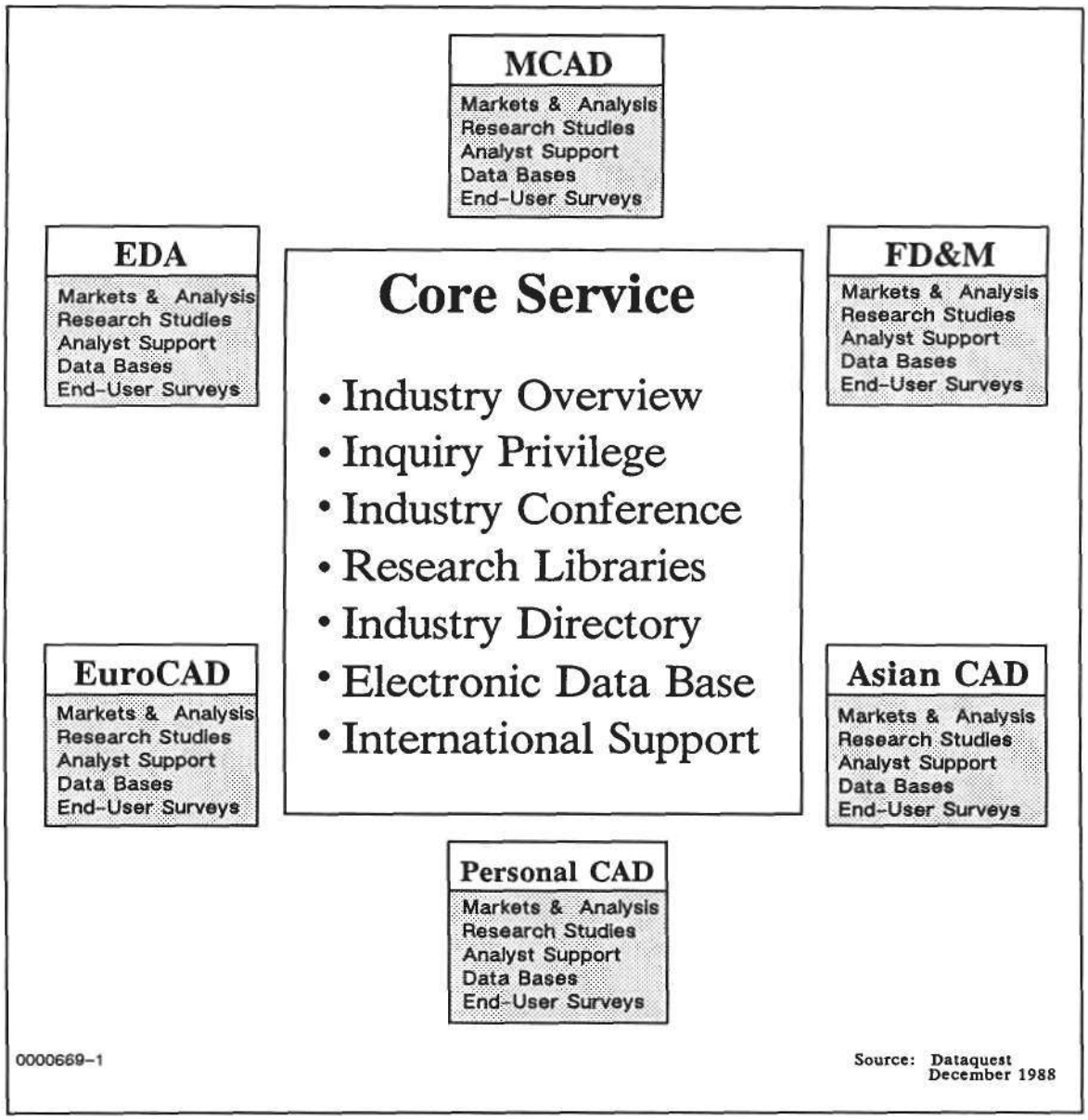


Figure 1. Total CAD/CAM Industry Service segmentation

Information Structure

The information available to CAD/CAM Industry Service clients is structured to provide data and analyses that are easily accessible and clearly defined. Figure 2 illustrates the CCIS information model. The components of the information model are defined on a macro level in the Industry Overview Data Base Binder and on an application-specific basis in each of the respective application segments.

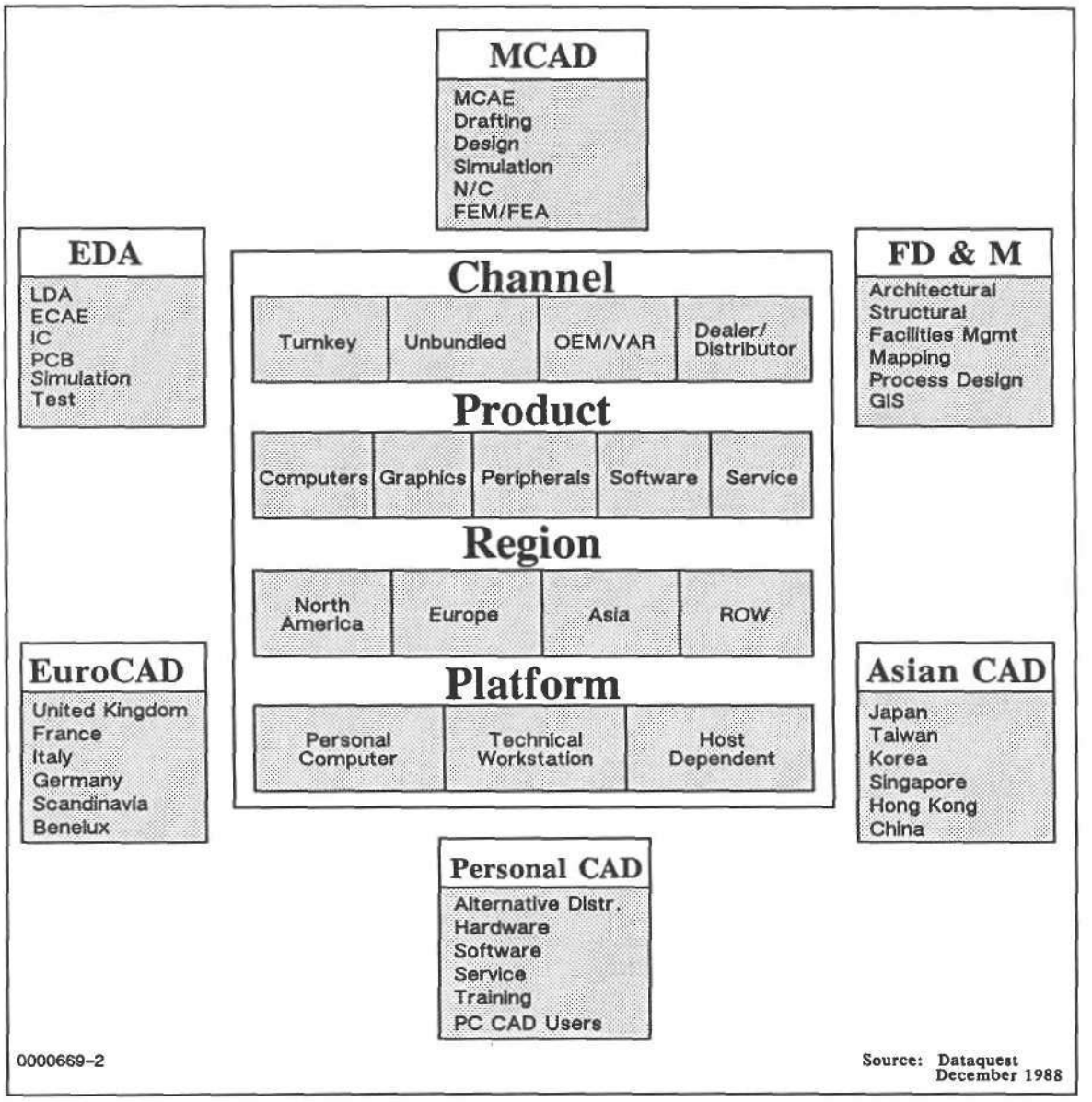


Figure 2. CCIS information model

Channel

Channel, the first of the data base models, identifies how CAD/CAM systems ultimately reach the end user. This tier will help you distinguish the various distribution channels and marketing arrangements used to bring products to market. These include the following:

- **Turnkey.** The turnkey channel encompasses the sale of complete CAD/CAM systems. A complete system is defined as CPU, graphics device, operating system, application software, and basic peripherals.

Turnkey vendors also typically offer complete service, training, and maintenance programs for the systems they sell.

- **Unbundled.** The unbundled channel comprises the sale of CAD/CAM system components, such as application software or hardware, sold independently of one another. Unbundled components may be sold by either a company that specializes in that particular component, such as a software-only company or a computer manufacturer, or by a turnkey vendor selling its software independent of the system.
- **OEM/VAR.** The original equipment manufacturer (OEM) and the value-added reseller (VAR) channel consist of companies that sell their products to other companies for resale. Resale may be to another tier in the distribution channel or to the ultimate end user. An example of companies in this tier are the computer manufacturers that sell their systems to turnkey vendors, who then bundle the hardware with applications software and resell the computers to end users.
- **Dealer/Distributor.** This growing channel is made up of a group of companies that resell products developed by other companies. Although not limited to personal computers, the majority of CAD/CAM products moving through this channel reside on this platform.

Product

The product tier tracks the dollar volume of sales from major subsystems of a turnkey CAD/CAM system. Subsystems covered include the following:

- Computers
- Graphics terminals
- Peripherals (such as plotters and printers used in CAD/CAM applications)
- Application software
- Service

In addition to dollar volume, unit volume is also identified for the computer and graphics terminal segments.

Region

The regional segment of the CAD/CAM Industry Service data base defines four regions into which CAD/CAM systems are sold. This segmentation will aid in your understanding of the geographic characteristics of the global CAD/CAM industry. The following geographic regions and regional segmentation are covered:

- **North America**
  - — United States

  - Canada
  - Mexico
- **Europe**
  - United Kingdom
  - France
  - German region
  - Italy
  - Benelux
  - Scandinavia
  - Rest of Europe
- **Asia**
  - Japan
  - Taiwan
  - Korea
  - Singapore
  - Hong Kong
  - People's Republic of China (PRC)
- **Rest of World (ROW).** This segment includes the sale of CAD/CAM systems into categories not included in the North American, European, or Asian regions.

Platform

Platform segmentation identifies three major architectures being delivered into the CAD/CAM market. This segmentation will help you understand the trends related to the type of systems being purchased.

The three types of systems are personal computers, technical workstations, and host-dependent systems. The major distinction among these product types is that personal computers and technical workstations contain their own CPUs and operating systems and therefore are classified as being fully distributed systems. Host-dependent systems, however, are considered shared-logic systems because their CPUs and operating systems are used as shared resources. For counting purposes, Dataquest treats personal computers and technical workstations as both CPU units and workstation units. This approach allows comparison between total distributed versus shared-logic CPUs, along with comparison of the total number of workseats that reside in the personal computer and technical workstation class versus total seats on

host-dependent systems. Platforms are further distinguished by the following characteristics:

- **Personal computer**
  - DOS, OS/2, or OS operating system
  - Single processing capability
- **Technical workstation**
  - Resident operating system
  - Full virtual operating system, such as UNIX or VMS
  - Multitasking
  - Networked communications support
  - Integrated graphics
- **Host dependent**
  - CPU external from the workstation
  - No local operating system at the workstation level
  - Conditioned environment requirement

Forecasting Methodology

Fundamental to the way Dataquest conducts its research is an underlying philosophy that says the best data and analyses come from a wellbalanced program. This includes balance between primary and secondary collection techniques; balance between supply-side and demand-side analysis; balance between focused, industry-specific research and coordinated, "big picture" analysis aided by integration of data from the more than 25 separate high-technology industries Dataquest covers; and balance between the perspectives of experienced industry professionals and rigorous, disciplined techniques of seasoned market researchers.

The CAD/CAM industry market estimates and forecasts are derived using the following research techniques:

- **"Bottom up" aggregation.** This method involves adding all relevant vendor contributions to arrive at total market estimates for all historical data.
- **Segment forecasting.** For each application segment tracked by CCIS, individual forecasts are derived following the basic information model defined previously. Specifically, each design phase covered within each application is segmented by channel, product, region, and platform. In this way, each application segment incorporates its own set of unique assumptions.
- **Demand-based analysis.** Market growth is tracked and forecast in terms of the present and anticipated demand of current and future

users. This requires the development of a total available market (TAM) model and a satisfied available market figure to accurately assess the levels of penetration. In addition, Dataquest analysts factor in the acceptance or ability for users to consume new technology.

- **Capacity-based analysis.** This method involves identifying future shipment volume constraints. These constraints, or "ceilings," can be the result of component availability, manufacturing capacity, or distribution capacity. In any case, constraint is capable of keeping shipments below the demand level.

Dataquest's revenue and shipment estimates are based on the following sources:

- Information supplied by company management or gathered from publicly available published sources
- Large-scale end-user surveys
- Information supplied by other Dataquest industry services relating to components/ subsystems of CAD/CAM
- Information provided by OEMs or resellers of the manufacturers' products
- Senior staff estimates based on reliable historical data and in-depth understanding of a company's products and strategies

CCIS data are based on revenue and unit data of systems sold to end users. Rigorous cross-checking is undertaken to assure that no double counting exists in our unit and revenue numbers. To augment your understanding of the information structure, we offer these caveats regarding the interpretation of the data:

- Certain assumptions, definitions, or conventions implicit in our forecasts may differ from those of others. Please refer to our Industry Overview and Application notebooks for definition of forecasting terms, and analysis and interpretation of the data.
- Our shipment estimates of systems and workstations include only those delivered to paying customers, not the total that is manufactured (the backlog).
- Revenue and average selling price estimates are based on transaction prices, not on list prices.
- All data elements have been adjusted to reflect the forecast period, which is the calendar year.
- Manufacturers do not release their actual unit sales, application distribution, geographic distribution, or platform distribution. In order to provide our clients with the most accurate forecasts, we have given careful consideration to estimating these companies' data.

- Prior to 1983, Dataquest did not segment revenue geographically other than into U.S. and non-U.S. markets. To accommodate the expanded geographic segmentation, we added all non-U.S. data into the ROW segment for 1981 and 1982.
- Prior to 1983, Dataquest did not differentiate products based on hardware type. To accommodate our expanding platform segmentation, we have grouped all platforms prior to 1983 into the host-base category. Although not all systems shipped prior to 1983 were of the host-based variety, the vast majority were.

Figure 3 is a pictorial summary of the information compendium offered by the Dataquest CAD/CAM Industry Service.

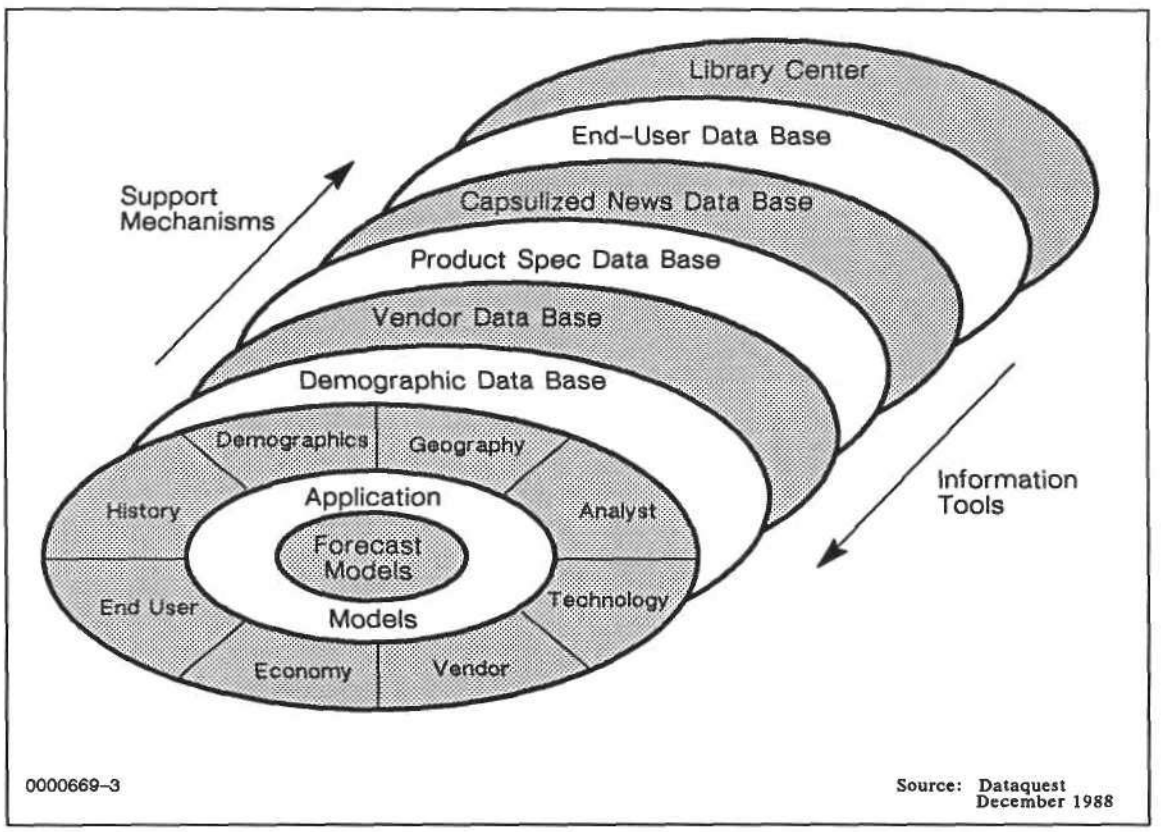


Figure 3. A pictorial summary of the information compendium offered by the Dataquest CAD/CAM Industry Service

Companies

CCIS continues to expand the number of companies included in our forecast model. The model consists of two groups of companies: those listed individually, or "main companies," and those consolidated into the "other" category. A company is listed individually only if its total CAD/CAM end-user revenue is $15 million or more. Conversely, a company is in the "other" category if its total CAD/CAM end-user revenue is less than $15 million.

Main Companies

- Apollo Computer
- Apple Computer
- Asahi Optical
- Autodesk
- Auto-Trol
- C. Itoh Techno-Science
- CADAM
- CISIGRAPH
- Cadnetix
- Calay Systems
- Calma
- Cimlinc
- Compaq Computer
- Computervision
- Control Data
- Daisy Systems
- Dassault Systems
- Digital Equipment
- ECAD
- ESRI
- Exapt
- Ferranti Infographics
- Fujitsu
- Futurenet
- Gerber Systems
- Hewlett-Packard
- Hitachi
- Hitachi Zosen
- Holguin
- IBM
- ICL
- ISICad
- Info. Services Int'l. Dentsu
- Intergraph
- ItalCAD
- MacNeal-Schwendler
- Matra Datavision
- McDonnell Douglas
- Mentor Graphics
- Mitsubishi Electric
- Mutoh Industries
- NEC
- Nippon Univac Kaisha
- Norsk Technovision
- Olivetti
- PAFEC
- PDA Engineering
- Personal CAD Systems
- Prime Computer
- Racal-Redac
- Robo Systems
- SDA

- SDRC
- Schlumberger (Applicon)
- Scientific Calculations
- Seiko Instruments
- Sharp System Products
- Siemens
- Silicon Compiler Systems
- Silicon Graphics
- Silvar-Lisco
- Sun Microsystems
- Swanson Analysis Systems
- Synercom Technology
- Syscan
- Technodia
- Tektronix
- Tokyo Electron
- Toshiba
- Unisys
- Valid Logic Systems
- ViewLogic Systems
- Zenith
- Zuken
- Zycad

Other Companies

- A/SA Software
- ACDS
- Accel Technologies
- Accugraph
- Advanced Geographics Systems
- Aida Engineering
- Albert Nestler
- Algor Interactive Systems
- Altera
- American Int'l Systems
- American Small Business Computers
- Analog Design Tools
- Andor
- Aptos Systems
- Aries Technology
- Asahi Giken
- Assigraph
- Autokon CIM Systems
- Automated Systems
- Automated Technology Products
- BV Engineering
- BYG
- Bentley
- Bishop Graphics CAD Systems
- CAD Centre

- CAD Lab
- CAD Software
- CADKEY
- CPU
- Cade
- Caeco
- Cambridge Interactive Systems
- Cascade Graphics Development
- Case Technology
- Century Research Center
- Challenger Software
- Cognition
- Cubicomp
- DFI
- Datagraph
- Dennis Klein & Associates
- Design Automation
- ECAD
- ECS
- EESOF
- EIE
- ERDAS
- ESRI
- Engineered Software
- European Silicon Structures
- Evans & Sutherland Computer
- Evolution Computing
- Exapt
- Foresight Resources
- Gateway Design Automation
- Generic Software
- Genrad
- Geobased Systems
- Geographic Data Technologies
- Geomath
- Geovision
- Gerber Scientific
- Graphtec Engineering
- HHB Systems
- HOK/CSC
- Hakuto
- Harris Computer
- Hitachi Seiko
- ICAD
- ISYKON Software
- Ikos Systems
- Infinite Graphics
- Info. Services Int'l Dentsu
- Innovative Data Design
- Integrated Information Systems
- ItalCAD
- Ithaca Software
- Kanematsu Semiconductor
- Kork Systems

- LSI Logic
- Logic Automation
- MAGI
- MARC
- MATC CAD
- MDSI
- MPSI Systems
- Manufacturing Consulting Services, Inc.
- Mapinfo
- Maptech
- Marconi CAE Systems
- Marubeni Hytech
- Mechanical Dynamics
- Mega CADD
- Meta-software
- Micro CAD/CAM
- Microsim
- Mitsui Engineering
- Olivetti
- Omation
- Orcad Systems
- Pafec
- Point Line Company
- Quadtree
- Quantic Laboratories
- Quwat (Shukosha)
- Rikei
- Robocom
- SDA
- Seattle Silicon Technology
- Secagraphics
- Secmai
- Shape Data
- Sigma Design
- Simucad
- Skok Systems
- Sony
- Strategic Locations Planning
- Sukosha
- Sumisho Electronics
- Sumitomo Electric Industries
- Supercads
- Superdraft
- TT Solutions
- Tangent Systems
- Technodia
- Teradyne
- Terr-Mar
- Test Systems Strategies
- The Great Softwestern Co.
- Thom 6
- Tokyo Keiki
- Toyo Information Systems
- Toyoelectric Manufacturing

- Transformer CAD
- Uchida Yoko
- Unicad
- Univac Information Systems
- Ustation
- VLSI Technology
- Vamp
- Versacad
- Via Systems
- ViewLogic Systems
- Visionics
- WPS Development
- Wacom
- Wild Heerbrugg Systems
- Xerox
- Yamashita Electric Design
- Yokogawa Electric
- Ziegler Instruments GmbH
- Zycor

Other Dataquest Services

The CAD/CAM Industry Service is just one of more than 30 high-technology services offered by Dataquest. The following is a list of other Dataquest services that may benefit your company:

- Semiconductors
  - — Products, Markets, and Technology
  - — ASIC and Standard Logic
  - — Analog IC
  - — Memory
  - — Microcomponents
  - — Digital Signal Processing
  - — Gallium Arsenide
- European Semiconductors
- Japanese Semiconductors
- Asian Semiconductor and Electronics Technology
- Semiconductor Equipment and Materials
- Semiconductor User Information
- Semiconductor Application Markets
- European Semiconductor Application Markets
- Japanese Semiconductor Application Markets
- MilAero Technology
- Personal Computers
- European Personal Computers
- Technical Computer Systems
  - — Minisupercomputers
  - — Technical Workstations
- Business Computer Systems
- European Computers
- Superperformance Computing
- Office Systems

- UNIX Systems Software
- Software
- CIO Advisor
- Telecommunications
- European Telecommunications
- Graphics and Imaging
- Manufacturing Automation
  - Computers and Software
  - Material Handling and Robotics
- Computer Storage
  - Tape
  - Rigid
  - Flexible
  - Optical
  - Subsystems
- Display Terminals
  - European Display Terminals
- Electronic Printers
- Western European Printers
  - European Pricing
- Electronic Publishing Market Analysis
- Copying and Duplicating
- Electronic Typewriter
- Imaging Supplies

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May 1991

CAD/CAM/CAE SERVICE

FILING INSTRUCTIONS

MAY 2 9
DATAQUEST, INC.

TITLE:	European Forecast Tables
VOLUME:	European Markets
TAB:	Forecast Data Base
FILING INSTRUCTIONS:	These forecast tables replace the existing tables, which should now be discarded.

ABOUT THIS UPDATE

For European Binders Only

Due to the significant changes in Eastern Europe in 1989, Dataquest has changed the definition of the German Region for 1990 reporting purposes. Previously, the German Region included Germany, Austria and Switzerland. As of 1990, the German Region will represent East and West Germany only. Austria and Switzerland have been added to the Rest of Europe category. (This shift amounts to about 16 percent of the German Region's sales for 1989). This change should allow Dataquest to more accurately track the growth forecasted to occur in Germany over the next few years. Due to these changes the growth rates shown in the European forecast tables may be slightly skewed.

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March 1991

CAD/CAM/CAE INDUSTRY SERVICE

ERRATA

Dear Client:

Due to an error in printing the European Market Share tables 47 through 99 have erroneous information. Please remove and discard the original tables 47 through 99 in your European Markets binder, and replace them with the corrected tables enclosed.

We apologize for any confusion this may have caused.

Pam Shook
Operations Coordinator

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February 1991

CAD/CAM/CAE INDUSTRY SERVICE
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TITLE:	European Market Share Tables
VOLUME:	European Markets
TAB:	Market Share Data Base
FILING INSTRUCTIONS:	These market share tables replace the existing tables, which should now be discarded.

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TITLE:	European Forecast Tables
VOLUME:	European Markets
TAB:	Forecast Data Base
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CAD/CAM/CAE INDUSTRY SERVICE
FILING INSTRUCTIONS

TITLE:	European CAD/CAM/CAE Industry Overview
VOLUME:	European Markets
TAB:	Industry Overview
PAGES:	18
FILING INSTRUCTIONS:	This section replaces the existing document, which should now be discarded.

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TITLE:	European Forecast Tables
VOLUME:	European Markets
TAB:	Forecast Data Base
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TITLE:	European Historical Company Data Tables
VOLUME:	European Markets
TAB:	Company History
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TITLE:	European Market Share Tables
VOLUME:	European Markets
TAB:	Market Share Data Base
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November 1989

CAD/CAM INDUSTRY SERVICE
FILING INSTRUCTIONS

TITLE:	European CAD/CAM Industry Overview
VOLUME:	European Markets
TAB:	Industry Overview
FILING INSTRUCTIONS:	Remove and discard European CAD/CAM Industry Overview service section dated July 1989, pages 1 through 16. Insert revised service section dated November 1989, pages 1 through 16.

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CAD/CAM INDUSTRY SERVICE
FILING INSTRUCTIONS

TITLE:	European CAD/CAM Industry Overview
VOLUME:	European Markets
TAB:	Industry Overview
FILING INSTRUCTIONS:	Insert this new service section dated July 1989, pages 1 through 16, behind the Industry Overview tab.

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CAD/CAM INDUSTRY SERVICE
FILING INSTRUCTIONS

VOLUME:	European Markets
FILING INSTRUCTIONS:	Remove and discard entire contents of the European Markets binder. Insert the enclosed Tabs, Forecast, Market Share and Historical Company Data tables as packaged directly in the binder.

NOTE

All other updates for your binder will be mailed to you shortly.

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CAD/CAM Industry Service
European Markets

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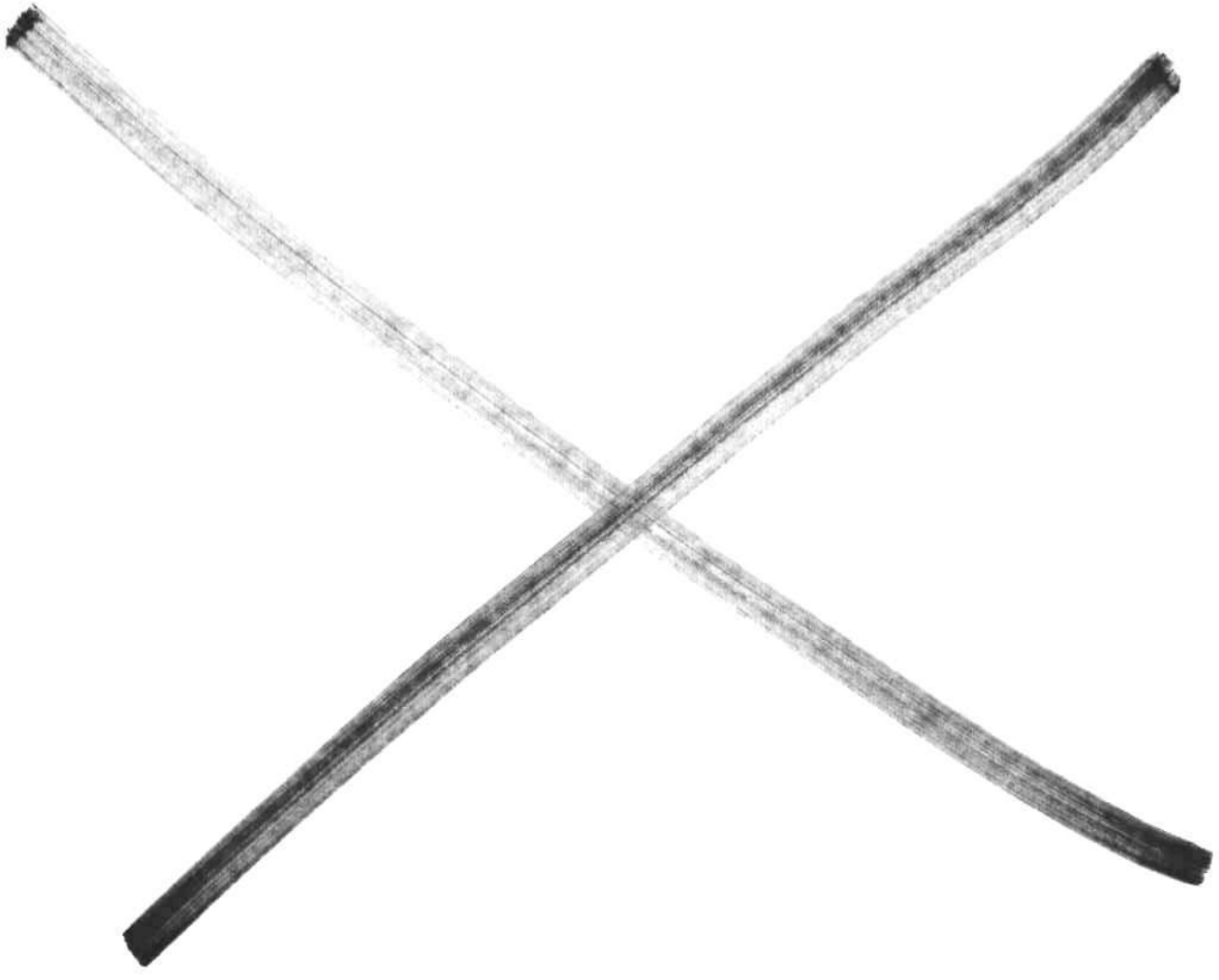
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European CAD/CAM/CAE Industry Overview

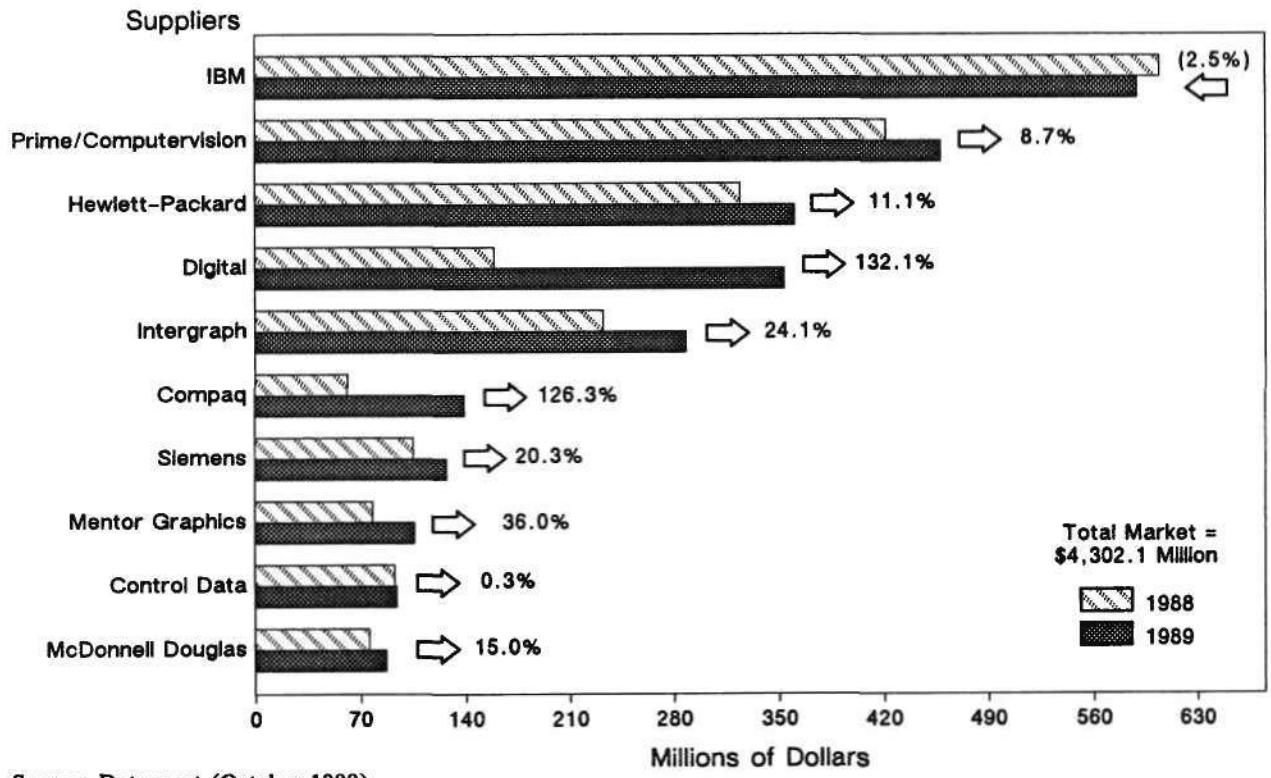
SUMMARY

Europe is CAD/CAM/CAE's largest market outside North America and the fastest-growing CAD/CAM/CAE market worldwide. In 1989, Europe grew by 15 percent in dollar revenue to $4.3 billion (see Figure 1). (When currency is adjusted, growth in real terms was approximately 7 percent less; see Table 1 for actual exchange rates.) Currency appreciated at 3 percent in 1989—significantly slower than the 13 percent rate in 1988. Dataquest expects currency fluctuations that complicated the picture in recent years to stabilize.

A more meaningful measure of market growth, and the real strength of Europe, is in the growth of workstation shipments. The year-to-year growth in shipments from 1988 to 1989 was 36 percent, contrasted with 43 percent growth from 1987 to 1988. Shipment growth in 1990 is expected to slow down even further, to about 18 percent. This slowdown is one indication that the European CAD/CAM/CAE market is beginning to mature. The fact that workstation shipments are growing faster than overall revenue underscores a continuing trend toward price erosion.

Figure 1

European CAD/CAM/CAE Market Leaders 1988-1989 Total Revenue and Growth (Millions of Dollars and Percent Change)



Source: Dataquest (October 1990)

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Table 1

European Exchange Rates for US$1

Austria	13.24
Belgium	39.44
Denmark	7.32
Finland	4.30
France	6.39
Ireland	0.71
Italy	1,373.60
Luxembourg	39.44
Netherlands	2.12
Norway	6.91
Portugal	157.62
Spain	118.55
Sweden	6.45
Switzerland	1.64
United Kingdom	0.61
West Germany	1.88

Source: Dataquest (October 1990)

Currently, Europe accounts for 35.0 percent of the total worldwide CAD/CAM/CAE market, compared with its 34.0 percent share in 1988. Dataquest projects that Europe not only will retain this market share during the next five years, but will increase it slightly. As 1992 and the reality of a unified European market approach, emerging CAD/CAM/CAE opportunities in Europe's developing regions will only bolster this already robust market. Dataquest believes that the European market growth will continue and reach $8.3 billion in 1994 at a compound annual growth rate (CAGR) of 14.1 percent. This rate will be somewhat slower than the region's 15.0 percent growth in 1989 and the 17.0 percent growth forecast for 1990, mainly because of the predominance in all markets of PCs and low-cost workstations, but it still is slightly higher than the worldwide average.

EUROPEAN MARKET LEADERS

Table 2 lists the top vendors in the European market. US vendors control about 80 percent of Europe's CAD/CAM/CAE, while European vendors account for 20 percent of sales. The top five European market leaders—IBM, Computervision/Prime, Digital, Hewlett-Packard (HP), and Intergraph—control 48 percent of the European market in terms of revenue. The remaining vendors hold such relatively similar market shares that their positions could easily shift because of one or two sales. The more significant issue is that, across all regions in Europe, the top ten vendors account for about 61 percent of the market.

On balance, however, these figures confirm the trend that the top vendors are losing their grip on the lion's share of the market, as a greater proportion of the market is available for the smaller vendors. As with most maturing markets, the number of competitors is increasing. A point worth noting is that the new HP/Apollo entity, plus all its OEMs, represents the most serious competitive challenge to IBM in Europe in 1990.

A discussion of the top ten vendors follows.

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Table 2

1989 Top 20 CAD/CAM/CAE Vendors
(Millions of Dollars and Actual Units)

	Revenue	Units	Revenue Share	Units Share
IBM	588.9	20,113	13.7%	13.7%
Computervision/Prime	458.0	3,851	10.6	2.6
Hewlett-Packard	368.5	21,459	8.6	14.6
Digital	359.8	2,612	8.4	1.8
Intergraph	288.4	2,944	6.7	2.0
Compaq	139.0	23,166	3.2	15.8
Siemens	127.1	2,819	3.0	1.9
Mentor Graphics	105.8	1,400	2.5	1.0
Control Data	93.7	1,000	2.2	0.7
McDonnell Douglas	86.9	1,499	2.0	1.0
Schlumberger (Applicon)	70.4	738	1.6	0.5
Sun	66.3	4,450	1.5	3.0
Autodesk	57.9	0	1.3	0
Dazix	55.3	551	1.3	0.4
PAFEC	51.4	0	1.2	0
Matra Datavision	51.3	560	1.2	0.4
Apple Computer	49.9	9,600	1.2	6.5
Norsk Data	47.7	521	1.1	0.4
Valid	43.5	475	1.0	0.3
Racal-Redac	43.3	163	1.0	0.1
Others	1,149.0	48,959	16.7	33.3
All Companies	4,302.1	146,879	100.0%	100.0%
All US-Based Companies	3,440.1	131,060	80.0%	89.2%
All Asia-Based Companies	0	0	0	0
All Europe-Based Companies	862.0	15,819	20.0%	10.8%
All Hardware Companies	1,244.4	107,075	28.9%	72.9%
All Turnkey and Software	3,057.7	39,804	71.1%	27.1%

Source: Dataquest (October 1990)

IBM

IBM continued to lead 1989 CAD/CAM/CAE sales in Europe with revenue of $589 million and a market share of 13.7 percent. However, IBM's market share slipped by almost 4.0 percentage points in 1989 after a 3.0 percent gain in 1988. This slip was largely because of the lack of a technical workstation offering and the strong position of most of its rivals. However, Dataquest expects IBM to improve its percentage of market share in 1990 as it steps up its efforts in the CAD/CAM area with the takeover of CADAM, the acquisition of a stake in Thomson Digital Image and Valid Logic, and the introduction of the RISC System 6000 and a low-cost offering, IBM CAD. IBM continues to hold the number-one position in the mechanical and host/server categories.

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Computervision/Prime

Compared with 1988, Computervision/Prime improved its performance in 1989. Computervision/Prime's sales grew 8.7 percent to $458 million; the company had 10.6 percent of the market. Computervision/Prime was able to concentrate on improving business after fighting off the hostile takeover bid from MAI Basic Four, with the help of J.H. Whitney, and on regaining the market share it lost in 1988. The resurrection of the powerful Computervision brand name also contributed to its success. The company holds the number-one position in the technical workstation and software revenue areas.

Hewlett-Packard

Of the leading vendors, only Hewlett-Packard/Apollo showed significant positive growth, a conclusion reinforced by an examination of year-to-year changes in the company's revenue. HP's sales grew 132.1 percent (largely because of the acquisition of Apollo) to over $368.5 million. HP had 8.6 percent of the market in 1989. Hewlett-Packard's growth rate also exposes Computervision/ Prime's relatively vulnerable position in the European market. The company holds the number-two position in technical workstation revenue and overall workstation shipments.

Digital

Digital increased its market share by 1.6 percent to 8.4 percent of the market, which indicates to some extent that it is at last coming to grips with the workstation market. The company had sales of $359.8 million and holds the number-one position in the IC layout and PCB layout application areas. Digital's positive position, however, is largely because of servicing of its installed base and the significant number of replacement machines it installed during 1989.

Intergraph

Intergraph's sales increase 24.1 percent in 1989 to $288.4 million. The company had 6.7 percent of the market. Intergraph holds the number-one position in the AEC and GIS/mapping areas; in mapping, the company is twice as large as its nearest competitor, Siemens.

Compaq

Compaq's market position improved drastically in 1989; the company had 3.2 percent of the market in sales and moved from being number 13 in the market in 1988 to number 6 in the market in 1989. Compaq had sales of $139 million, an increase of 126.3 percent over 1988. The company holds the number-one position in the PC market with a 19.0 percent market share, more than twice the size of its nearest competitor, IBM. Compaq also holds the number-one position in overall workstation shipments.

Siemens

Siemens dropped to number seven in the market in 1989. The company had sales of $127.1 million and a 3 percent share of the market. Siemens rose to the number-two position in the GIS/mapping market.

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Mentor Graphics

Mentor had sales of $105.8 million in 1989, a 36 percent increase over 1988. Mentor holds the number-one position in the EDA and ECAE areas.

Control Data

Control Data's sales in 1989 were relatively flat at $93.7 million. The company dropped two places in 1989 to become number nine in the market.

McDonnell Douglas

McDonnell Douglas had sales of $86.9 million in 1989, a 15 percent increase over 1988. The company moved up one place to number ten in the market.

EUROPEAN FORECAST BY APPLICATION

The proportional split of the 1989 market by application is similar to that of 1988 in distribution, with actual percentages varying only by one or two points from last year's picture or from the general worldwide pattern. The following discussion is based on the data contained in Table 3.

Mechanical CAD/CAM/CAE (MCAD)

The MCAD segment grew 16.0 percent in 1989. This application area is predicted to continue to grow but at a slower rate. The forecast CAGR for revenue for 1989 through 1994 is 9.8 percent. The apparent strength in mechanical CAD is because of continued growth in several key market segments. Of these, mechanical computer-aided engineering (MCAE) shows the strongest growth potential—in particular the industrial design, styling, and conceptual analysis applications. Real 3-D applications are vastly underutilized. Drafting remains the most popular function. Interest in real 3-D solids-modeling applications will continue to increase. Knowledge-based engineering tools are expected to see significant growth supporting concurrent engineering applications.

AEC

The AEC market rose 12.4 percent in 1989. This application market is expected to grow slightly faster over the next few years; CAGR for revenue from 1989 through 1994 will be 17.1 percent. More and more European architectural professionals will embrace computer automation tools on a regular basis.

GIS/Mapping

GIS/mapping revenue grew 40.3 percent in 1989. This market continues to hold many opportunities. The forecast CAGR for revenue from 1989 through 1994 is 26.7 percent. With the general availability of digital mapping systems, geographic information systems (GISs) are becoming far more popular on a worldwide basis. These systems possess significant potential across all markets in Europe—particularly in the highly centralized government markets of countries such as those in Scandinavia and the United Kingdom.

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Table 3

Estimated European CAD/CAM/CAE Market by Application
(Millions of Dollars and Actual Units)

	1989	1990	1991	1992	1993	1994	CAGR 1989-1994
All Applications							
Revenue	4,302	5,041	5,701	6,379	7,227	8,313	14.1%
Systems	132,783	165,030	200,910	235,860	271,130	307,170	18.3%
Workstations	146,866	178,650	213,410	246,540	280,440	315,420	16.5%
Mechanical							
Revenue	2,619	2,979	3,237	3,455	3,815	4,185	9.8%
Systems	65,791	80,880	96,490	111,250	126,540	138,470	16.0%
Workstations	75,839	90,420	105,280	118,920	133,710	145,220	13.9%
AEC							
Revenue	511	625	727	834	961	1,126	17.1%
Systems	27,553	35,330	44,000	52,740	61,270	71,000	20.8%
Workstations	28,931	36,690	45,160	53,630	61,920	71,470	19.8%
GIS/Mapping							
Revenue	349	467	597	731	902	1,137	26.7%
Systems	12,111	16,560	22,530	28,610	33,440	38,850	26.3%
Workstations	13,231	17,730	23,650	29,520	34,140	39,360	24.4%
Electronic CAE							
Revenue	449	535	636	778	892	1,095	19.5%
Systems	19,356	23,070	26,960	30,100	33,290	38,630	14.8%
Workstations	19,941	23,610	27,370	30,410	33,500	38,820	14.3%
IC Layout							
Revenue	62	79	95	113	134	172	22.5%
Systems	976	1,330	1,740	2,140	2,480	2,840	23.8%
Workstations	958	1,330	1,740	2,140	2,480	2,840	24.3%
PCB Layout							
Revenue	312	357	408	468	523	598	13.9%
Systems	6,997	7,850	9,180	11,010	14,120	17,390	20.0%
Workstations	7,966	8,870	10,220	11,930	14,700	17,700	17.3%

Source: Dataquest (October 1990)

EDA

The ECAE and PCB market segments in 1989 grew 7.3 percent and 16.9 percent, respectively. The IC market declined over 25.0 percent in 1989. In the electronics arena, PCB design tools are the hottest application opportunity. In this stage of evolution in the CAD industry, it is critical that new tools be integrated with existing EDA technology. Logic design automation is a prime example of this new generation of tools. The forecast five-year CAGR for the EDA segments is as follows: 19.5 percent for ECAE, 22.5 percent for IC layout, and 13.9 percent for PCB layout.

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EUROPEAN FORECAST BY REGION

Table 4 shows specific regional application forecasts.

Table 4

Estimated Application by Region
(Millions of Dollars and Actual Units)

	1989	1990	1991	1992	1993	1994	CAGR 1989-1994
Europe							
Revenue	4,302	5,041	5,701	6,379	7,227	8,313	14.1%
Systems	132,783	165,030	200,910	235,860	271,130	307,170	18.3%
Workstations	146,866	178,650	213,410	246,540	280,440	315,420	16.5%
Benelux							
Revenue	309	385	436	492	562	652	16.1%
Systems	12,097	15,420	18,940	22,620	26,360	30,280	20.1%
Workstations	13,201	16,600	20,030	23,560	27,190	31,040	18.6%
France							
Revenue	673	739	836	923	1,028	1,165	11.6%
Systems	20,642	27,250	33,460	39,120	44,540	50,050	19.4%
Workstations	23,059	29,390	35,450	40,820	46,020	51,350	17.4%
German Region							
Revenue	1,481	1,751	1,984	2,200	2,450	2,784	13.4%
Systems	45,865	54,390	66,830	78,350	89,370	100,830	17.1%
Workstations	50,034	58,920	71,000	81,900	92,410	103,510	15.6%
Italy							
Revenue	439	527	601	683	791	922	16.0%
Systems	13,419	17,330	21,240	25,160	29,450	33,790	20.3%
Workstations	14,995	18,750	22,550	26,290	30,440	34,680	18.3%
Scandinavia							
Revenue	415	479	537	600	675	775	13.3%
Systems	13,217	16,649	20,017	23,336	26,541	29,909	17.7%
Workstations	14,868	18,016	21,261	24,398	27,465	30,728	15.6%
United Kingdom							
Revenue	789	854	927	1,017	1,140	1,283	10.2%
Systems	21,794	26,968	31,199	35,503	40,095	44,141	15.2%
Workstations	24,686	29,264	33,207	37,173	41,518	45,354	12.9%
Rest of Europe							
Revenue	192	307	379	466	581	732	30.6%
Systems	5,749	7,021	9,230	11,769	14,786	18,164	25.9%
Workstations	6,022	7,711	9,913	12,401	15,393	18,763	25.5%

Source: Dataquest (October 1990)

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German Region

The $1.5 billion German Region market (which includes Austria, Switzerland, and West Germany) leads Europe with 34.0 percent of the market. This region grew by 14.3 percent in 1989, a growth that for the first time was below the European average, indicating the maturity of Europe's leading market.

The leading vendors in Germany in 1989 (in terms of revenue) were IBM (12.7 percent market share), Hewlett-Packard (9.4 percent), Computervision/Prime (8.1 percent), Digital (7.1 percent), and Siemens (6.2) percent. In contrast with the less mature European regions, the top five vendors account for only 46.0 percent and the top ten vendors for just 65.0 percent of the total German CAD/CAM/CAE market, which again points to the maturity of the market.

The driving force behind the German CAD/CAM/CAE market is the automotive and automotive supplier industry, which predominantly uses mechanical CAD applications. Electro-technical applications also are significant and are dominated by local solutions from Siemens, Wiechers & Partner, and Debis (former GEI). AEC applications until recently did not play an important role in Germany. This lack of importance was mainly because of a reluctance among architects to use CAD/CAM solutions. In 1989, however, the demand for AEC solutions soared, which can be directly attributed to a boom in the construction industry to provide housing for immigrants from East Germany and ethnic Germans from other Eastern European countries. This influx actually began in mid-1989, when Austria replaced its border controls with Hungary, thus allowing East Germans into West Germany via Hungary and Austria. In November 1989, the Berlin Wall was finally breached.

Real gross national product (GNP) in Germany rose by 4.0 percent in 1989, compared with 3.6 percent in 1988. Almost all of this acceleration is attributable to growth in capital spending and exports. Reunification with East Germany will be the major determinant of German growth during the next few years. Overall, adding the East to the West is expected to boost the German GNP growth rates by about one-half a percentage point over the next three years or so. In addition, inflation and interest rates should also be about one-half a percentage point higher over the same period as a result of reunification.

The good news for the economy is that, during 1989 and the first part of 1990, over 1 million immigrants entered the West German labor force. Most found jobs, so the unemployment rate actually declined almost a full percentage point to its March level of 7.2 percent. The resulting investment and consumer spending will account for much of the one-half a percentage point improvement mentioned. The bad news is the threat of inflation. Reunification also calls for expensive new fiscal spending programs to finance East German pensions, health insurance, unemployment insurance, infrastructure investment, and pollution controls. The tab for this bill could run as high as $20 billion—about 10 percent of the entire federal budget.

United Kingdom

The $789 million United Kingdom market was equivalent to an 18.4 percent share of the overall European CAD/CAM/CAE market in 1989. This regional share represents a slight decrease, with growth being below the average at 11.0 percent. The leading vendors (in revenue terms) in the United Kingdom are Computervision/Prime (12.3 percent), closely followed by IBM (12.0 percent), Intergraph (9.9 percent), Digital (9.1 percent), and, surprisingly, Compaq (5.6 percent).

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Although electronics vendors were plagued by merger and acquisition activity during 1989, most vendors appeared to prosper despite the market uncertainty. Overall, electronics companies make up the second largest industrial sector in the United Kingdom, after machinery. The strongest growth area, however, was in the architectural sector. Although the United Kingdom is mature relative to other markets in Europe, approximately 88 percent of all potential desktops in the United Kingdom are still without a CAD/CAM/CAE system.

CAD/CAM/CAE software developed in the United Kingdom is an important export. Many UK-developed software packages are exported worldwide, either as standalone systems or embedded in other systems, representing a large, global user base. Internationally known products such as Medusa, Visula, Romulus, GNC, and PDMS are key packages in this category. Although more than $2 million to $3 million are spent each year on solutions based around these packages, very little money finds its way back to the developers because of the complicated distribution system for this software and the fact that most of these products are now owned by US companies.

Real gross domestic product (GDP) growth in the United Kingdom slowed to 2.3 percent in 1989, down from 4.6 percent in 1988. A continued deceleration of growth is expected in 1990, with real GDP falling to between 1.5 and 2.0 percent. Persistently high interest rates will continue to hinder consumer spending and capital investment projects. These high rates have two goals: first, to fight inflation, which lingers in the range of 7.0 to 8.0 percent—still high, but down from the 8.3 percent peak reached during mid-1989; and second, to narrow the United Kingdom's stubbornly large trade deficit by limiting the demand for imported goods.

France

France had a 16.0 percent share ($673 million) of the European CAD/CAM/CAE market in 1989. Growth in 1989 was 14.9 percent, which was stronger than in the other major European regions, indicating that France still represents a buoyant market. Leading vendors (in terms of revenue) in France in 1989 were IBM (14.9 percent), Computervision/Prime (14.2 percent), Digital (9.3 percent), Hewlett-Packard (6.2 percent), and Compaq (4.8 percent).

Traditionally, the French market has been a French-speaking CAD/CAM/CAE market exclusively, with the major French CAD/CAM/CAE developers dominating the market. A major sector in France is the military sector, and since the 1986 election, the more liberal attitudes of the government have affected the way the military sector selects CAD/CAM/CAE systems. The resulting liberalization has led to an increase in the number of US-based CAD systems being purchased by the French military. Except for Dassault, French CAD/CAM vendors lost market share in 1989 to the major US vendors. Approximately 65 percent of CAD/CAM spending in France is for mechanical, electromechanical, and molding applications, with just slightly less than 19 percent spent on electronic applications and only about 16 percent on AEC and mapping applications. The architectural market in France had a particularly disappointing growth rate because most of the AEC installations were PC solutions. French PC-CAD vendors such Batisoft did comparatively well. However, overall, this market segment is dominated by the major US vendors.

For 1989 as a whole, French GDP growth edged down to 3.7 percent from 3.8 percent in 1988. Growth is expected to slow further to the 3.0 to 3.5 percent range in 1990. In 1989, consumer spending expanded 2.9 percent, roughly the same as in each of the past two years. However, better-than-expected growth in Germany, an important export market for France, together with the recovery of the dollar against the franc during mid-1989, helped boost French exports and capital spending. In 1990, investment and exports again will be the main sources of growth. Consumer

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spending and retail sales currently are slightly higher than levels a year ago on a real basis, but could change in either direction as tax cuts are offset by increased social security program charges. These reductions include VAT rate reductions and reduced payment requirements for many social security programs.

Inflation should abate slightly as the still-high unemployment rate and decent productivity growth help keep unit labor costs in check, although spot skilled-labor shortages may occur. One negative factor is that increased interest rates in Germany may migrate across the Rhine and hinder growth by reducing capital spending and keeping the franc overly strong, hurting export growth. However, the Bank of France reduced its tender rate and its rate on five- to ten-day repurchases by 25 basis points in early April. French short-term interest rates have remained about 2.5 percentage points over similar rates in West Germany—much less than the difference in inflation rates. This "strong franc" policy by the government should lead to reduced inflation but also will limit the gains of the investment and trade sectors.

Italy

For the last several years, Italy has had a constant 10 percent share of the market, with strong growth in 1989 of 18 percent and revenue of $439 million. It was very much "business as usual" in Italy during 1989—the economy was strong and growing nicely; all sectors of industry that are traditional CAD/CAM/CAE consumers prospered. The European Community (EC) is a very important market for Italy—the lira is part of the European Monetary System and Italy seems to prosper under the influence of Brussels.

The leading vendors (in terms of revenue) in Italy in 1989 were IBM (17.4 percent), Digital (10.4 percent), Hewlett-Packard (10.0 percent), Computervision/Prime (8.0 percent), and ItalCAD (5.5 percent). Italy is a very strong marketplace for PC- and workstation-based software. Electronic applications also experienced strong growth in 1989. Italy still is dominated by the dealer distributor channel, as demonstrated by the presence of ItalCAD among the top five vendors.

Like most of the other European economies, the Italian economy slowed somewhat in 1989, with an estimated GDP growth rate of 3.3 percent, down from 3.9 percent in 1988. However, the consumer and industrial sectors remain fundamentally sound. Much of this deterioration came from a widening of the Italian merchandise trade deficit. In 1989, the Italian federal budget deficit stood at over 10 percent of GDP—proportionally over three times the deficit in the United States. This high level of government borrowing is one major reason why long-term interest rates remain stubbornly high at around 14 percent.

Because of these high interest rates, investment spending and industrial production will be reduced during 1990. But the recent three-year deterioration in the current account will be tempered by two special considerations: the World Cup soccer competition held this past summer in Italy and the high degree of penetration Italian companies are making inside Eastern Europe. All in all, real GDP growth in Italy will likely remain near 3.0 percent through 1991.

Scandinavia

Scandinavia has steadily increased its market share over the last couple of years and again experienced a healthy growth of 19 percent in 1989 to $415 million, which is almost on par with Italy. The leading vendors in the Scandinavian region are IBM (16.8 percent) followed by Computervision/Prime (11.0 percent), Digital (10.4 percent), Hewlett-Packard (10.4 percent), and Intergraph (10.0 percent).

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User preferences differ from country to country in Scandinavia. In Denmark, 2-D drafting applications are strong, but in Norway 3-D predominates. In Sweden, the strongest application type is sculptured surfaces.

The preferences are really a reflection of the types of industry in the different regions. Denmark concentrates on the production of high-quality products, such as the world-renowned Danish furniture, which is based on traditional manufacturing techniques and materials from nature. Because of this, drawings are far more important than automated manufacture. Thus, there is a tendency to focus on 2-D applications rather than 3-D.

The automotive sector is the strongest in Sweden, with companies such as Volvo and Saab dominating and thus accounting for the preference in Sweden for surface techniques. Mapping is very strong in Norway. SysScan, a Norwegian company, is one of the few remaining European computer graphics companies that sell European software in the international marketplace.

Benelux

The Benelux countries (Belgium, the Netherlands, and Luxembourg), although at the bottom of the table in terms of market share in 1989, experienced strong growth of 13.4 percent over 1988, with revenue swelling to $309 million, which is about 7 percent of the total European CAD/CAM market. The leading vendors in the Benelux region are Computervision/Prime (15.7 percent), IBM (15.3 percent), Hewlett-Packard (10.2 percent), Intergraph (8.8 percent), and Digital (8.5 percent).

Rest of Europe

In 1989 the major markets lost market share, benefiting the developing regions. The Rest of Europe, dominated by activity in the Spanish market, grew 40 percent in 1989 to $192 million. The Spanish market grew 44 percent in dollar revenue terms, which is significantly higher than the average market growth of 15 percent for the whole of Europe. As is often the case in new and developing markets, the computer companies in Spain, which use existing distribution channels rather than the specialists, tend to dominate the market. US computer vendors that have served the market from the German headquarters base, such as Hewlett-Packard and Control Data, have had exceptional success.

The top five vendors have 54.9 percent of the Spanish CAD/CAM/CAE market, and the top ten vendors account for 70.6 percent of the market, leaving less than 30.0 percent for the remaining vendors. The leading vendors in Spain in 1989 in terms of revenue were Hewlett-Packard (24.3 percent), IBM (9.4 percent), Computervision/Prime (9.0 percent, excluding the PCBU business), and Intergraph (8.6 percent). Hewlett-Packard's incredibly high market share is because, unlike in the other European markets, it sells its workstations directly into the Spanish market. This direct selling occurs because most of HP's OEM partners and independent software vendors (ISVs) sell only their software via distributors into Spain.

Spain is not fully integrated into the EC, and it has a number of tariff and nontariff barriers, including a provision that terminals and software must be capable of properly printing anomalous Spanish-language punctuation and orthography, such as the inverted question mark and cedilla, to help preserve Spanish language and culture. A centralized planning regime has created the National Plant for Electronics and Informatics (REDINSER), which is generated by a regional network of CAD/CAM/CAE awareness centers. A trade association with a strong user bias called ASCAD is active in Spain, which is a traditional gateway to the Latin American market.

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Eastern Bloc

Sweeping changes in Eastern Europe occurred in 1989. Many companies consider the Eastern European countries to be strong opportunities for expansion. A substantial amount of IBM and VAX clones are in the Eastern Bloc countries, mainly Hungary and East Germany. There also is an opportunity for software development in the Eastern Bloc because labor cost is much cheaper. We will analyze the following Eastern European countries at a macro level: Bulgaria, Czechoslovakia, German Democratic Republic (GDR), Hungary, Poland, Romania, and the Soviet Union.

Bulgaria

Thus far the reform process in Bulgaria seems to have been taking its cue from the Soviet Union. Communist leaders retain political control and continue to issue proclamations that seldom see any practical application, while remaining establishment bureaucrats sabotage whatever little progress has been made. Mass demonstrations have been calling for democracy and abolition of the Communist party's leadership role, and free elections are promised this year. No clear-cut program for radical economic reform exists, with authorities now discussing various forms of restructuring efforts, most of which are likely to prove of little significance, as is the case in the Soviet Union.

The overall economic situation in Bulgaria is fairly dismal, with growth stagnating, consumer goods in short supply, the budget in deficit, and huge subsidies constantly needed. Agriculture is reported to be more efficient than in the Soviet Union, but agricultural output in 1989 registered the steepest decline among the group of seven countries, with the exception of Poland. The decline has averaged 3 percent per year since 1986. International trade is structurally weak both in terms of commodities (one-third of income is derived from exports of refined Soviet crude oil) and trade partners (60 percent of shipments go to the Soviet Union, developing Middle Eastern countries are significant purchasers, but only negligible amounts are exported to Organization for Economic Cooperation Development, or OECD, countries). Recent trade results confirm the deterioration that has been occurring—exports to nonsocialist countries fell by nearly 26 percent in 1989, while imports declined by about 10 percent.

Czechoslovakia

A much brighter picture emerges for Czechoslovakia, essentially because strong traditions of democracy and industrial development that predate World War II helped shield the country from some of the negative influences of Marxist economics. The overall effort to institute economic reform is being well planned. The new changes will permit state enterprises to sell shares to workers and allow Czech citizens to start their own businesses. Foreign investors will be permitted to own up to 100 percent of a Czech company. The thrust of the currently emerging policy is to demonopolize the economy via subsidy reductions while pursuing tight money and fiscal policies to continue squeezing the state monopolies. Meanwhile, foreign competition will be permitted and encouraged in order to improve the competitiveness of Czech goods worldwide as part of the strategy of reorienting Czech trade toward the West. The goal is to achieve a Western style free market economy within three years, with annual economic growth of 3 to 6 percent.

Czechoslovakia is in relatively sound shape for successfully handling the transition toward economic reform. The supply/demand imbalance in consumer goods is much less severe than elsewhere in the region; as is the threat of Polish-style inflation. Labor is relatively cheap and well skilled, and, together with the likelihood of a stable and reasonable political environment, should

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make the country appealing for foreign investors. There already is interest on the part of the Western corporations in sectors in which the Czechs have previously shown expertise—such as autos, machinery, glass, and leather manufacturing—with current emphasis on production for export.

German Democratic Republic (GDR)

In view of the rapid move to reunification with its western counterpart, East Germany occupies an obviously unique position in Eastern Europe. Although its position practically assures it of ultimate economic success, the GDR is by no means superior in all respects to its former East European brethren. Issues indigenous to the unification process and the functioning of the new, reunited entity could spawn some entirely unique problems. Two seemingly paradoxical developments to emerge are that the Communist party seems to enjoy a significant amount of genuine popular support and that very little planning has gone into outlining economic reform. More than one-half of the GDR's trade occurs with West Germany, and last year total exports with the nonsocialist world again were surpassed by imports, producing a modest trade deficit. The debt service ratio, at 70, is the second highest in the group of Eastern Bloc countries, however, and expected massive debt service repayments in the early 1990s will pressure these reserves significantly.

Hungary

Because the country flirted with liberalizations in 1968, Hungary's reform process is the most mature in the Eastern Bloc, but it is by no means complete. An embryonic free market financial structure already exists—including a stock market—but successful demonopolization and creation of medium-size and smaller businesses is yet to be achieved. Legislation is being proposed to give the Central Bank greater autonomy to manage the financial environment. Bankruptcy legislation already is in place and unemployment benefits are paid. The commercial bank structure will be overhauled. It seems likely that the reorganization and privatization of enterprises will quicken this year. Currently, only about 15 percent of total output and just 5 percent of industrial production is provided by the private sector. Residents and foreigners are permitted to set up joint stock companies employing up to 500 people, and up to 100 percent of a joint venture can be owned by foreigners. Once they have been transformed into joint stock corporations, existing enterprises can be 100 percent privately owned by residents or foreigners. Overall economic growth has not responded and has continued to stagnate. There is no shortage of consumer goods (the ratio of consumption to investment is the highest, at 7.4). Further fiscal austerity is planned, and hard currency imports have been encouraged. Price inflation rose to a 17 percent pace last year and has nearly doubled to 30 percent in recent months.

Poland

Alone among the group of seven East European countries, Poland—the second largest economy in the region after the Soviet Union—has chosen the "cold turkey" method toward economic reform. A freely elected government already is in place. By the end of last year, the government dropped all remaining socialist trappings and approved a comprehensive program for implementing a free market economy. The program has the approval of the International Monetary Fund (IMF). Prices have been freed from government control, and subsidies on most goods and services are being cut. The Polish zloty is being devalued on a continuing basis to bring it into line with the

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black market rate, which soon could lead to some form of convertibility. Meanwhile, wages have been indexed at below the inflation rate, and excess wages are taxed. The tax system is being overhauled, and unemployment insurance is being set up. The financial system is in the process of total restructuring, with state-owned banks being permitted to dispense credit on a commercial basis toward profitable areas and away from inefficient enterprises, and a capital market and stock exchange are being set up.

An active policy of demonopolization is being pursued with deficit-ridden enterprises being closed, new business promoted, privatization vigorously pursued, and the cooperative sector reorganized. Anti-inflationary money and fiscal policies are being pursued: huge interest rate increases to encourage savings and reduce credit demand and substantial budget cuts. As a result, inflation has soared, sizzling in December 1989 at a 900 percent rate over a year earlier. Real income is dropping in the meantime and is expected to decline by some 20 percent this year, while unemployment is rising.

Romania

The Romanian economy is probably closest to that of a genuine Third World country, because of many years of absurd Ceaucescu regime policies that promoted huge, inefficient industrial and prestige projects at the expense of relatively more efficient agriculture. Moreover, the move toward genuine political democracy is proving more difficult than elsewhere. The interim National Salvation Front is still headed by communists and is a source of deep resentment for much of the population. Pressure for economic reform exists, but there is no comprehensive, practical plan except for pleas for sorely needed aid from abroad. The only obvious bright spot is the absence of any foreign debt. Some stabs at reform have been made. For example, there has been a move to a single-tier exchange rate system. Also, a law has been passed to permit individuals and families to establish businesses limited to employing just 20 workers. Joint ventures with foreigners are expected to be allowed, but 100 percent foreign ownership is not likely.

Soviet Union

In the Soviet Union the ongoing change is internal, truly profound at the psychological and political levels, but fairly meaningless thus far from the perspective of real economic reform. The process of economic change thus far has consisted of proclamations of intent and subsequent backsliding. For example, the much-touted private land law was announced, but what really exists is that land remains in collective or state ownership, with individuals permitted only to lease it, and which land is to be leased is up to the collective. The essential problem with the economic reform process so far is that there is no real plan—only a vague concept of moving toward a "socialist market" economy, whatever that means. This current state tends to reflect the fact that the country desperately needs and wants the fruits of a free market economy but is as yet unwilling to yield any real responsibilities to the only market system that can provide them.

(Information in this section is based on the *Dun & Bradstreet Global Watch*, "Monitoring Changes in Eastern Europe," April 1990.)

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EUROPEAN FORECAST BY PLATFORM

The following discussion is based on data contained in Table 5. In 1989, the European technical workstation market grew over 33.0 percent, the PC market grew 26.7 percent, and the host-based market declined 8.2 percent.

Workstation shipments in Europe will grow at a CAGR of 16.5 percent, to approximately 315,000 units in 1994. Technical workstation shipments are expected to grow by 32.5 percent compounded annually, largely at the expense of host-dependent system shipments, which are expected to decline by 8.0 percent CAGR, underlining the worldwide trend toward distributed architecture. PC shipments are expected to slow to 8.3 percent growth.

Table 5

Estimated European CAD/CAM/CAE Market by Platform
(Millions of Dollars and Actual Units)

	1989	1990	1991	1992	1993	1994	CAGR 1989-1994
All Platforms							
Revenue	4,302	5,041	5,701	6,379	7,227	8,313	14.1%
Systems	132,783	165,030	200,910	235,860	271,130	307,170	18.3%
Workstations	146,866	178,650	213,410	246,540	280,440	315,420	16.5%
Technical Workstation							
Revenue	2,191	2,831	3,483	4,253	5,178	6,307	23.5%
Systems	38,863	54,480	73,190	95,340	125,040	158,970	32.5%
Workstations	38,863	54,480	73,190	95,340	125,040	158,970	32.5%
Host-Dependent/Server							
Revenue	1,393	1,379	1,291	1,128	1,012	940	(7.6%)
Systems	4,404	4,790	4,860	4,580	4,340	4,180	(1.0%)
Workstations	18,487	18,410	17,360	15,260	13,650	12,420	(7.6%)
Personal Computer							
Revenue	717	830	927	998	1,037	1,066	8.3%
Systems	89,516	105,760	122,860	135,940	141,740	144,020	10.0%
Workstations	89,516	105,760	122,860	135,940	141,740	144,020	10.0%

Source: Dataquest (October 1990)

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EUROPEAN AVERAGE SELLING PRICE

The average selling price (ASP) for CAD/CAM/CAE continued to fall in 1989 (see Table 6). Dataquest forecasts that the ASP in Europe will decline by 6.0 percent compounded annually, to $17,200 in 1994, compared with $23,400 in 1989. Overall, ASPs in all categories are expected to decline. However, the ASPs for PC hardware-only remain relatively flat and the PC turnkey ASPs show a slight increase.

Table 6

Estimated European CAD/CAM/CAE Average Selling Price
(Thousands of Dollars)

	1989	1990	1991	1992	1993	1994	CAGR 1989-1994
Turnkey and Hardware-Only							
Technical Workstation	38.6	34.9	31.1	28.5	25.8	24.3	(8.8%)
Host-Dependent/Server	247.4	226.0	207.9	192.0	180.0	172.2	(7.0%)
Personal Computer	5.7	5.6	5.3	5.1	5.0	4.9	(3.0%)
All Platforms	23.4	21.6	19.6	18.2	17.4	17.2	(6.0%)
Turnkey							
Technical Workstation	54.1	51.4	49.3	48.0	47.4	47.3	(2.7%)
Host-Dependent/Server	333.0	315.1	297.8	281.1	270.0	264.3	(4.5%)
Personal Computer	14.9	16.1	16.5	17.0	17.2	17.6	3.4%
All Platforms	61.7	58.9	56.2	53.8	52.3	51.8	(3.4%)
Hardware-Only							
Technical Workstation	15.6	14.6	13.6	12.9	12.6	12.5	(4.3%)
Host-Dependent/Server	182.0	166.9	154.3	141.8	130.2	119.2	(8.1%)
Personal Computer	4.9	4.9	4.9	4.8	4.7	4.7	(0.8%)
All Platforms	11.0	10.4	9.8	9.2	9.1	9.2	(3.5%)

Source: Dataquest ((October 1990)

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EUROPEAN REVENUE SOURCE

Trends in revenue are shown in Table 7. One important general trend is the increase in the number of repeat buyers. First-time buyers are beginning to dwindle; the market is becoming more penetrated and sophisticated. Many of the leading vendors are reporting between 50.0 and 80.0 percent repeat business. Increased buyer/user sophistication also is reflected in the high growth of software revenue. Technical workstation hardware and software revenue shows the strongest growth, with CAGRs of 23.8 percent and 23.9 percent, respectively.

Table 7

Estimated European CAD/CAM/CAE Revenue Source
(Millions of Dollars)

	1989	1990	1991	1992	1993	1994	CAGR 1989-1994
All Platforms							
Hardware	2,512	2,973	3,292	3,587	3,960	4,443	12.1%
Software	1,070	1,235	1,462	1,719	2,034	2,430	17.8%
Service	705	833	948	1,074	1,233	1,439	15.4%
Total	4,302	5,041	5,701	6,379	7,227	8,313	14.1%
Technical Workstation							
Hardware	1,090	1,524	1,833	2,189	2,630	3,165	23.8%
Software	656	750	966	1,231	1,537	1,914	23.9%
Service	431	557	683	834	1,011	1,227	23.3%
Total	2,191	2,831	3,483	4,253	5,178	6,307	23.5%
Host-Dependent/Server							
Hardware	938	890	831	723	640	583	(9.1%)
Software	221	259	246	218	205	202	(1.8%)
Service	233	230	214	187	167	155	(7.8%)
Total	1,393	1,379	1,291	1,128	1,012	940	(7.6%)
Personal Computer							
Hardware	484	558	628	676	691	696	7.5%
Software	193	227	250	269	291	314	10.3%
Service	40	45	50	53	55	57	7.0%
Total	717	830	927	998	1,037	1,066	8.3%

Source: Dataquest (October 1990)

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EUROPEAN FORECAST BY DISTRIBUTION CLASS

The growing popularity of unbundled purchase channels is depicted in Table 8. Unbundled software revenue is forecast to grow at a CAGR of 26.2 percent, over three times faster than turnkey software revenue. Unbundled workstation shipments are forecast to grow at a CAGR of 18.9 percent, twice as fast as turnkey shipments.

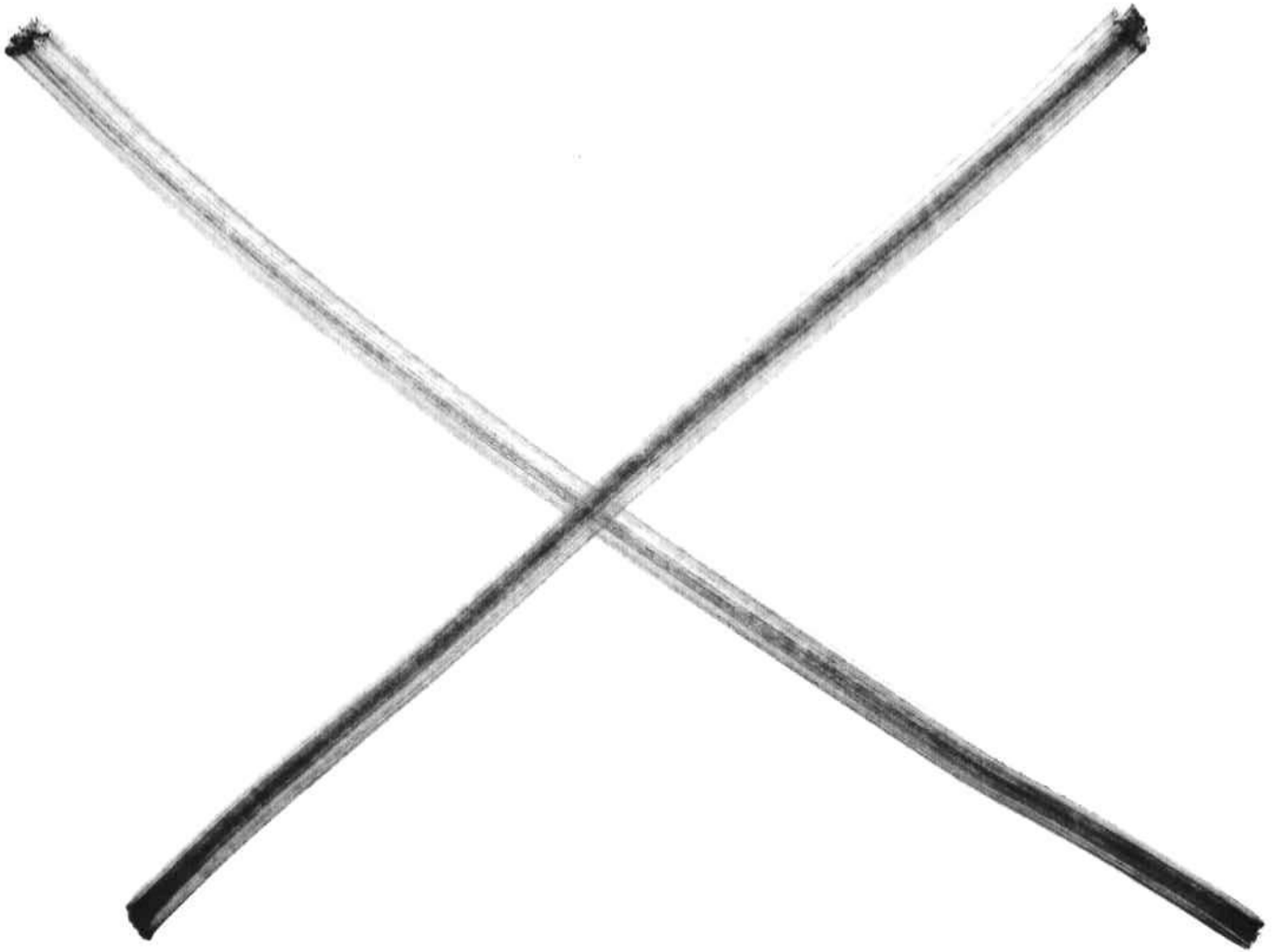
Table 8

Estimated European Turnkey versus Unbundled Revenue and Shipments (Millions of Dollars and Actual Units)

	1989	1990	1991	1992	1993	1994	CAGR 1989-1994
Total Hardware and Software Revenue							
Turnkey	1,986	2,313	2,468	2,628	2,812	3,095	9.3%
Unbundled	1,596	1,895	2,286	2,678	3,182	3,779	18.8%
Total	3,582	4,208	4,753	5,306	5,994	6,873	13.9%
Hardware Revenue							
Turnkey	1,412	1,714	1,819	1,929	2,054	2,249	9.8%
Unbundled	1,101	1,259	1,473	1,659	1,906	2,195	14.8%
Total	2,512	2,973	3,292	3,587	3,960	4,443	12.1%
Software Revenue							
Turnkey	575	599	649	700	758	846	8.0%
Unbundled	495	636	813	1,019	1,276	1,584	26.2%
Total	1,070	1,235	1,462	1,719	2,034	2,430	17.8%
Workstation Shipments							
Turnkey	39,790	44,700	48,190	51,960	56,000	61,330	9.0%
Unbundled	107,075	133,950	165,220	194,580	224,440	254,090	18.9%
Total	146,866	178,650	213,410	246,540	280,440	315,420	16.5%

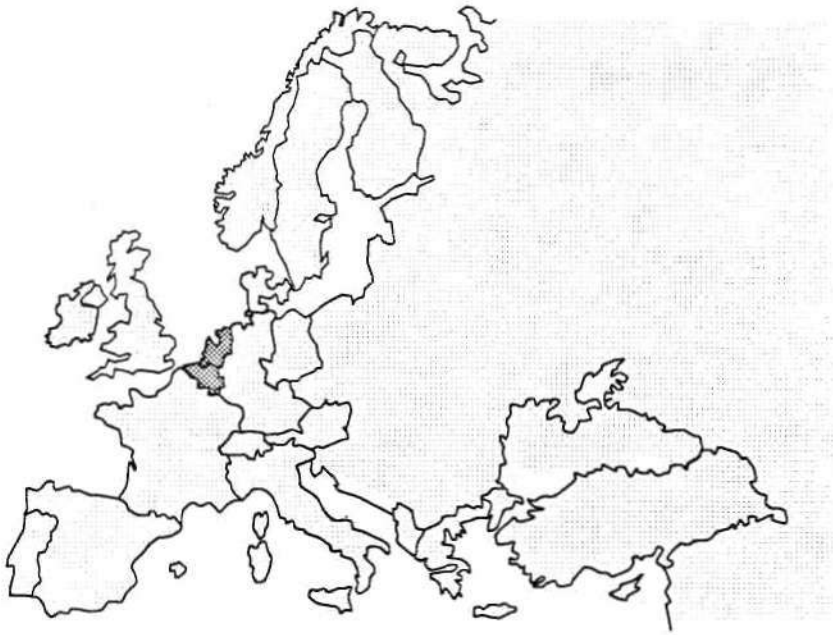
Source: Dataquest (October 1990)

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2.1 Geography and Demographics

Benelux

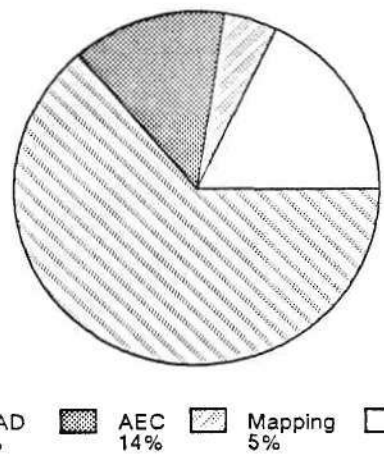


Regional Statistics	
Total engineers	119,785
Electrical/electronic	N/A
Mechanical	N/A
Chemical/biological	N/A
Metallurgical/materials	N/A
Civil/architectural	N/A
Others	N/A

N/A = Not Available

CAD/CAM-Related Data	
1988 Market size	
Revenue (millions)	$243
Workstations shipped	9,483
Installed base	20,493

1988 Revenue Mix by Applicaton

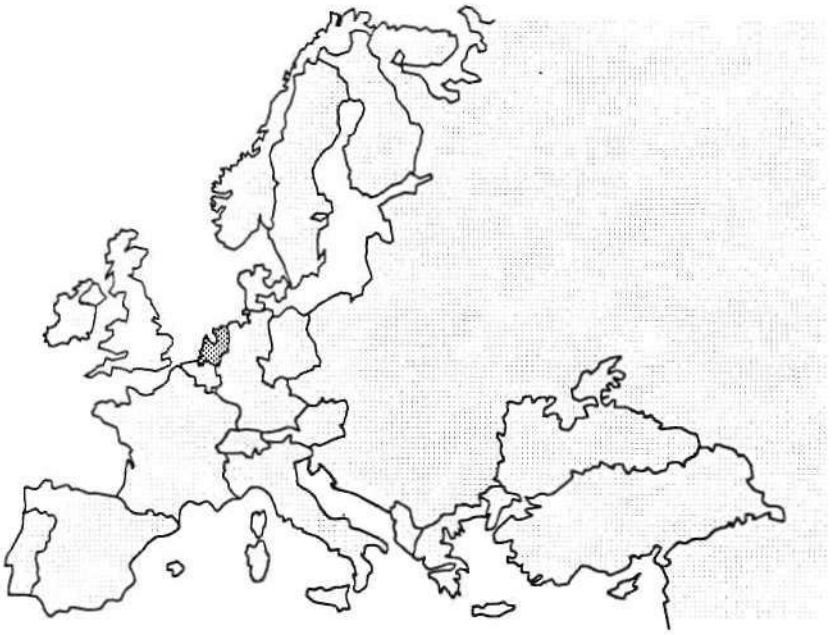


0003846-1

Source: U.S. Department of Commerce
The World Bank
Dataquest
April 1989

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The Netherlands



Country Statistics			
Total population (millions)	14.56	1988 Exchange rate (F/US$)	1.96
Area (square kilometers)	40,844		
Population density	356:1	1988 Unemployment rate (%)	11.2
Trade balance (US$-billions)	1.8	Total engineers	70,000
1988 GDP (1980 US$-billions)	189.9	Electrical/electronic	N/A
1988 GDP (1980 F-billions)	377.1	Mechanical	N/A
1989 real GDP growth rate (% est.)	3.0	Chemical/biological	N/A
Structure of production (% 1985 GDP)		Metallurgical/materials	N/A
Agriculture	4	Civil/architectural	N/A
Industry	34	Others	N/A
(Manufacturing = N/A)			
Service	62		
		N/A = Not Available	

0003846-2

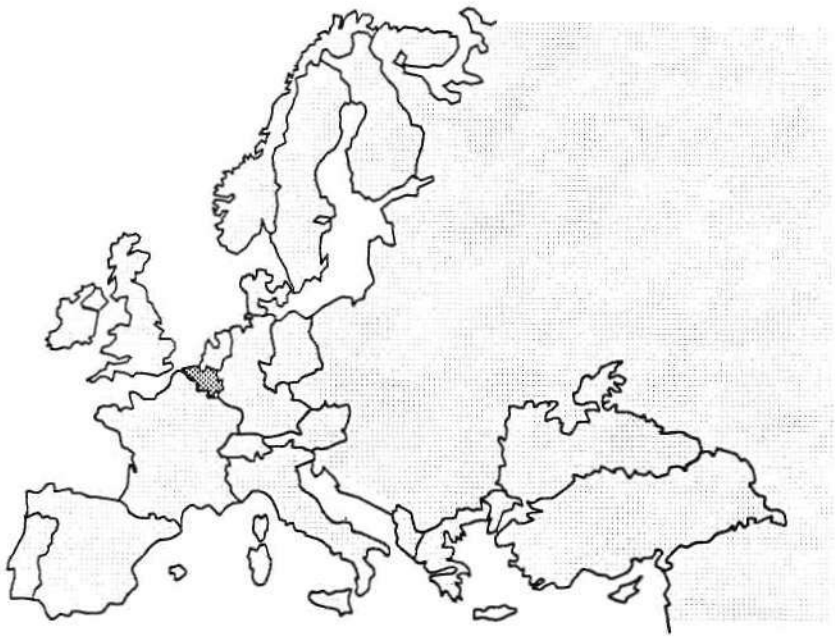
Source: U.S. Department of Commerce
1988 Statistical Yearbook (UNESCO)
The WEFA Group
Dataquest
April 1989

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Belgium



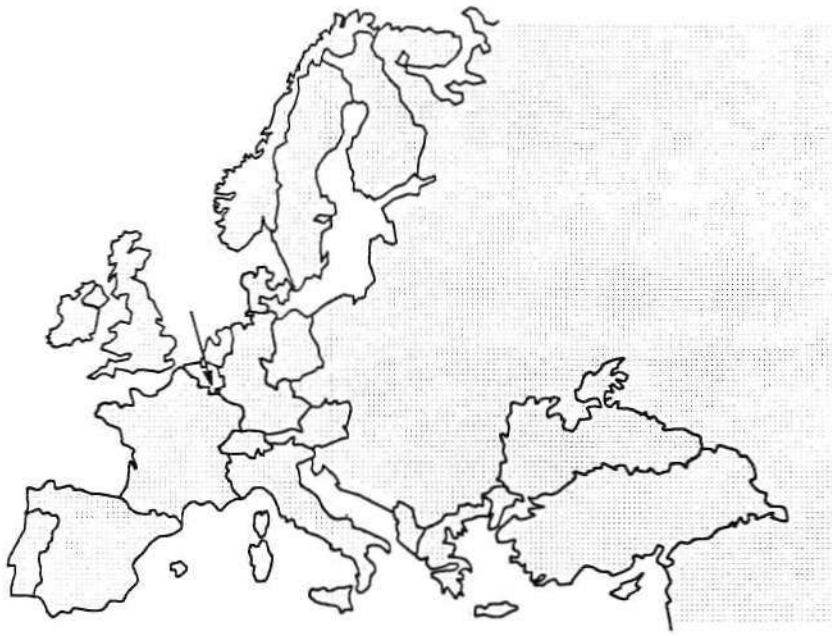
Country Statistics			
Total population (millions)	9.91	Exchange rate (BF/US$)	37.04
Area (square kilometers)	30,513		
Population density	325:1	1987 unemployment rate (%)	9.6
Trade balance (US$-billions)	(1.0)	Total engineers	48,000
1988 GDP (1980 US$-billions)	134.4	Electrical/electronic	N/A
1988 GDP (1980 BF-billions)	3,919.6	Mechanical	N/A
1989 real GDP growth rate (% est.)	2.7	Chemical/biological	N/A
Structure of production (% 1985 GDP)		Metallurgical/materials	N/A
Agriculture	2	Civil/architectural	N/A
Industry	33	Others	N/A
(Manufacturing = 23%)			
Service	64	N/A = Not Available	

0003846-3

Source: U.S. Department of Commerce
1988 Statistical Yearbook (UNESCO)
The WEFA Group
Dataquest
April 1989

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Luxembourg



Country Statistics			
Total population (millions)	0.366	1988 Exchange rate (BF/US$)	37.04
Area (square miles)	2,586		
Population density	139:1	1987* Unemployment rate (%)	10.9
Trade balance (US$-billions)	N/R	Total engineers	1,785
1987* GDP (1980 US$-billions)	5.3	Electrical/electronic	N/A
1988 GDP (1980 BF-billions)	N/A	Mechanical	N/A
1989 real GDP growth rate (% est.)	N/A	Chemical/biological	N/A
Structure of production (% 1985 GDP)		Metallurgical/materials	N/A
Agriculture	2	Civil/architectural	N/A
Industry	33	Others	N/A
(Manufacturing = 23%)			
Service	64		

*1988 data not available at publication

N/A = Not Available
N/R = Not Relevant (Luxembourg trade statistics are conventionally included with Belgian statistics.)

0003846-4

Source: U.S. Department of Commerce
1988 Statistical Yearbook (UNESCO)
The WEFA Group
Dataquest
April 1989

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2.2 Government, Trade, and Economic Forces

EXECUTIVE OVERVIEW: BENELUX

The following summary highlights this region's major economic and political developments of 1988, and presents 1989 economic projections. It is based on reports from The WEFA Group (Wharton Econometric Forecasting Associates).

Belgium

- The year 1988 was one of continuous, investment-led growth in a noninflationary climate. Inflation ran to a moderate 2 percent.
- The Belgian Franc (BF) now appears strongly linked to the deutsche mark, and interest rate fluctuation in Belgium is thus related to West German monetary policy.
- Belgium's revised constitution was accepted and is transferring increased authority to the three regional governmental bodies.
- Forecasts for 1989 indicate a continuation of moderate economic growth, with more rapid growth in employment and industrial production.

The Netherlands

- Dutch GDP rose 3.1 percent in the first half of 1988 and averaged 2.2 percent for the year as a whole, with net exports and manufacturing leading this growth. Through August 1988, manufacturing climbed at an average of 4 percent and the trade balance reached F 11.4 billion.
- Despite low inflation, interest rates rose in 1988. The Nederlandsche Bank increased three key interest rates in mid-December but was unable to stem the weakening of the gulden versus both the mark and the dollar.
- In order to prepare for increasing intra-EC integration, the Dutch government is faced with the challenge of curtailing government spending.
- The corporate taxation rate was reduced from 42 to 35 percent, and may signal a gradual shift from years of relatively austere government economic policy to more expansionary policies in the future.
- In 1989, government austerity, relatively low personal consumption, and a tight monetary policy will keep Dutch growth below the average European forecast.

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2.3 Doing Business in the Benelux Countries

BACKGROUND ON THE NETHERLANDS

General Considerations

Domestic industry in The Netherlands should be viewed in the light of the Dutch trading tradition. More than 60 percent of the Dutch gross national product (GNP) stems from trade. This compares with 29 percent for West Germany, 20 percent for France, 13 percent for Japan, and 6 percent for the United States.

Historically driven by a strong agricultural base, the Dutch domestic economy is still dominated by the food, drink, and tobacco industries. Taken together, these groups account for 18 percent of the total turnover of Dutch industry. Following this, the chemical and petroleum industries account for another 17 percent. The predominance of the petroleum sector stems from the discovery of one of the world's largest natural gas deposits in The Netherlands in the early 1960s. As a result, natural gas has become one of the key Dutch export commodities. The changing value of natural gas among international energies has recently played a major part in Dutch economic performance.

In order of industrial turnover, the remaining primary industrial activities are:

- Electrical engineering (14 percent)
- Printing (9 percent)
- Mechanical engineering (8 percent)
- Metal products (8 percent)
- Vehicles, shipbuilding, and aerospace (6 percent)

These industries benefit from the very high literacy rates of the Dutch people. Of those who complete higher education, 45 percent study engineering and scientific subjects. According to Dutch government statistics, there are 100,000 scientists and engineers in the nation.

Recent Economic Developments

With more than 60 percent of The Netherlands' GNP dependent on trade, the Dutch economy acts as a barometer of international trade developments. Since the Dutch gulden (guilder) has appreciated against the dollar and other European currencies, The Netherlands has effectively lost competitiveness in international trade. This situation is perpetuated by slowing economic growth not only in the world but in The Netherlands' main trading partner, West Germany.

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THE NETHERLANDS GOVERNMENT POLICIES

Known for its exceptionally stable political environment, The Netherlands supports a constitutional monarchy, currently headed by Queen Beatrix. However, political power stems from a democratic parliamentary system having a written constitution that protects individual liberties. It is extremely difficult for any single party to get a majority vote in this parliament, because of the large number of political parties in The Netherlands. Thus, the interests represent a broad base of coalitions, a factor that further stabilizes the political atmosphere.

Economic Policies

The current economic program is directed by the center-right coalition of Christian Democrats (CDA) and Liberals (VVD). Led by the prime minister, Ruud Lubbers, the government has focused on these three issues:

- Reduction of government borrowing
- Reduction of unemployment
- Stimulation of Dutch economic growth

Reduction of Government Borrowing

The Dutch government's top economic priority continues to be reduction of the budget deficit. This deficit, which in 1987 was at 6.4 percent of gross domestic product (GDP), continues unabated because debt service costs are growing faster than GDP. The Dutch Finance Ministry exercised greater control over the 1988 budget as a result of various ministries exceeding their 1987 spending ceilings by a total of 4 billion guilders (F4 billion). The main reason for the increase in government borrowing has been the drop in state revenue from natural gas sales. Given the abundance of gas on European markets as well as the price competitiveness of other fossil energy sources (oil and coal), this situation is expected to worsen, which means that further cuts in government spending programs are anticipated if the Dutch deficit is to be reduced.

Reduction of Unemployment

Following its postwar peak of 14.5 percent of the labor force in 1984, unemployment has fallen steadily, despite the government's employment programs. The necessary sustaining of government austerity programs, spurred by the need to reduce the spending deficit, will mean that this situation is not likely to improve significantly in the short term.

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Stimulation of Dutch Economic Growth

The Dutch economy, like the economies of much of the European community, experienced a period of slow growth from the second quarter of 1987. In order to increase net disposable incomes, the 1988 budget called for a F 11.35 billion tax reduction. This included reducing corporate rates between 7 percent and 35 percent. However, it is unclear when the Dutch deficit situation will ease enough to finance these tax cuts.

The tax cuts stand in place of salary increases which are the usual mode of increasing disposable income. This is part and parcel of a Dutch wage control policy to contain labor costs—hence, production costs—and thereby regain a competitive Dutch export position.

Monetary Policy

The primary aim of Dutch monetary policy is to link the guilder's exchange rate to the West German deutsche mark. In order to do this, The Netherlands Central Bank manipulates interest rates and influences money creation by the commercial banks.

Trade Policies

As a member of the European Community (EC), the Dutch follow the regulations of the EC regarding trade treaties, preferences, import regulations, customs duties, and import quotas. The primary rules of the EC in these areas are summarized in the following discussion.

Preferential Trade Treaties

The Netherlands, like all EC members, does not negotiate its own international trade treaties but acts through the EC Commission. Exports from EC countries ship duty free to a large market. Those countries with rights to preferential duties include the following:

- Other EC member countries (Belgium, Denmark, France, Federal Republic of Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, and the United Kingdom)
- European Free Trade Association (EFTA) members (Austria, Finland, Iceland, Norway, Sweden, and Switzerland)
- Turkey
- Mediterranean/Middle East (10 countries)

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- Africa/Caribbean/Pacific (ACP) (66 countries)
- Approximately 100 developing countries

Import Licenses and Controls

In general, import licenses are not required in The Netherlands. For CAD/CAM equipment (hardware or software), the only restrictions would be those regarding merchandise of unknown origin or merchandise originating from Japan, Hong Kong, the People's Republic of China, or the USSR or other socialist countries. Even where licenses are required, not all products are subject to quota restrictions.

An application for a license must be submitted by the Dutch importer, not the foreign supplier, to the Central Import and Export Office (Central Dienst voor Inen Uitvoer, CDIU) in Groningen.

Export Licenses

Export licenses apply only to strategically important or specially designated goods. For goods stored in a bonded warehouse or passing through in transit, no license whatsoever is needed.

Customs Duties

The member countries of the EC have adopted a shared external tariff for "third-party" countries. To classify all merchandise in a single, unified way across EC countries, the Customs Cooperation Council Nomenclature (CCCN) is used.

No import duty is payable on any movement of goods in free circulation between The Netherlands and its EC partners. This is also true for movement of goods between EC partners and EFTA countries, provided the goods originate from an EFTA country.

The customs value of merchandise is of particular importance, because most import duties are ad valorem. This means that duties are levied on the basis of the transaction value—i.e., the price actually paid or payable.

Determination of Origin in International Trade

From the above rules, it is clear that EC-originated goods have the advantage of requiring zero duty tax. It is therefore of some interest to view the rules for determining origin. Generally speaking, goods are regarded as being of EC origin if:

- They have been wholly produced in one of the member countries of the EC
- They incorporate material not entirely produced in the EC, but such material has been subject to sufficient transformation (Generally, this means that the tariff classification of the exported product differs from that of its parts.)

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Other Duties and Taxes

Whether from EC countries or elsewhere, all imports into The Netherlands are subject to a value-added tax (VAT) at 20 percent, the rate imposed on domestic Dutch goods.

Intellectual Property Protection

Patents

Patents may be transferred or licensed and remain in force for 20 years from the date of application. One may obtain a patent in The Netherlands by several means. Two are discussed here.

First, The Netherlands is a signatory to the Paris Convention for the Protection of Industrial Property. This means that a patent application submitted in most industrialized nations establishes a one-year priority in The Netherlands. Consequently, within one year, a foreign inventor may claim a patent in The Netherlands according to the date of the original filing.

Second, The Netherlands is party to the European Patent Convention (EPC, Munich 1973) and the Patent Cooperation Treaty (PCT, Washington, D.C., 1970). These organizations specify procedures that also provide Dutch patent rights.

Copyrights

Copyrights give protection for the life of the author, plus 50 years. Like many other EC members, The Netherlands is party to the Bern Convention for the protection of Literary and Artistic Works and to the Universal Copyright Convention. By the conventions, copyright in The Netherlands is granted for works published in other countries that belong to these conventions.

Designs

Since 1975, the Uniform Benelux Design Law has been in effect in The Netherlands, Belgium, and Luxembourg. The law addresses the appearance of a product "with a utility function" and provides exclusive rights to a design in all three countries for up to three five-year periods.

Corporate Taxation

Corporations are subject to corporate income tax (vennootschapsbelasting) on their worldwide income. Nonresident entities must pay this tax only on Dutch sources of income.

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THE NETHERLANDS' FOREIGN RELATIONSHIPS

Relationship to the United States

The Netherlands has been a receptive market for U.S. exports as well as an important investment partner. The United States is the largest source of foreign direct investment in The Netherlands, with 1986 holdings of nearly $12 billion, and more than 1,000 U.S. companies have offices in The Netherlands.

An unusually happy trading relationship exists between the two countries. The Dutch provide the second largest source of foreign direct investment in the United States. Furthermore, they are the source of a large U.S. bilateral trade surplus ($3.5 billion in 1986). With the depreciation of the dollar with respect to the Dutch guilder, however, U.S. exports are expected to be more competitive on Dutch markets.

The Netherlands' major imports from the United States in 1986 were:

- Specialized machinery and transportation equipment ($693 million)
- Chemicals ($414 million)
- Business and data processing equipment ($268 million)
- Alcoholic beverages--beer ($227 million)

Leading exports to the United States were:

- Machinery and transportation equipment ($965 million)
- Data processing equipment and parts ($661 million)
- Chemicals ($554 million)
- Oilseeds ($361 million)

The depreciation of the dollar in comparison with the Dutch guilder in 1987 had strengthened the position of U.S. exporters into the Dutch market.

INVESTMENT CONSIDERATIONS IN THE NETHERLANDS

The Netherlands benefits from more than three centuries of experience as a major trade center, a position stemming partly from its geographical location and partly from its open trading environment. The open trade policy is reflected in the lack of serious

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barriers, tariff or nontariff, to U.S. exports. Notably, the U.S. Department of Commerce reports that few specific complaints regarding trade practices are registered by U.S. companies operating in The Netherlands.

Because of the Dutch government austerity programs, driven by a budget deficit and an unemployment problem, reviews of business opportunities in The Netherlands are mixed. On the one hand, there are reasons to be optimistic. The Dutch have a strong open trading policy, making The Netherlands a good investment location for businesses geared toward international trade—particularly the West German, U.K., and Scandinavian markets. Furthermore, the appreciating gulden (guilder) strengthens the position of foreign competitors in the Dutch market.

On the other hand, the slow growth in domestic inflation and costs places a limit on income growth. Because of these factors, there is a consensus that Dutch consumer demand and government demand will fall below the Organization for Economic Cooperation and Development (OECD) country trend.

Direct Foreign Investment

With an economy very dependent on trade, the Dutch actively encourage foreign investment. An estimated 3,500 foreign companies currently have a presence in The Netherlands, with the United States representing the largest share. The United States, West Germany, and the United Kingdom invest heavily in The Netherlands. Figure 2.3-1 shows the approximate number of foreign companies in The Netherlands, broken down by country of origin. Numbers in parentheses indicate the number of companies represented by that country in The Netherlands.

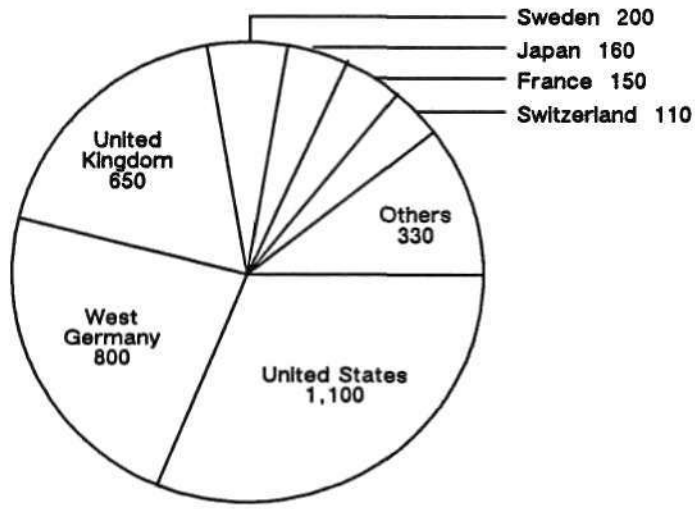
The U.S. Department of Commerce, through the U.S. Embassy in The Hague, has identified a number of key industrial sectors. Those of particular relevance to CAD/CAM vendors are the following:

- Aircraft, avionics, and parts
  - In 1986, the Dutch market for aircraft, avionics, and related parts was estimated at US$714 million.
  - U.S. exports of these products are expected to grow at an annual rate of 30 percent over the next three years, and a good share of this growth is related to KLM's decision to purchase American aircraft.
- Artificial Intelligence
  - Although 1986 Dutch investments in Artificial Intelligence (AI) amounted to only US$20 million, a recent study forecasts that the top Dutch companies will invest $250 million in AI by 1990.

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Figure 2.3-1

Foreign Companies in The Netherlands



0003585-1

Source: The Netherlands Foreign Investment Agency
Dataquest
July 1988

- Computers and software

  - The U.S. Department of Commerce estimated that the total Dutch market for computer equipment was US$1.8 billion in 1986, with an (estimated) average annual growth rate over the next three years of 20 percent.

  - Total imports were US$3.8 billion in 1986.

  - This discrepancy is due to the fact that The Netherlands serves as a major distribution center and acts purely as a relay station for much of this computer equipment.

  - Dataquest believes, however, that Dutch industry's drive toward automation will promote computer investment; small and medium-size Dutch businesses are of particular interest because it is estimated that they are only 20 percent automated.

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Investment Incentives

As a world financing center, The Netherlands offers foreign manufacturing companies a wide range of financing and investment incentives. These include the following:

- The Netherlands Bank and commercial banks
  - The Netherlands Bank is the country's central bank and the sole bank of currency issue; in addition to other services, The Netherlands Bank may allow a foreign company to borrow in the Dutch market.
  - In general, commercial banks play a lesser role in foreign financing.
    - Most commonly, short-term financing is provided through overdraft facilities.
    - However, medium-term loans may be made to finance extended export contracts or the purchase of machinery and equipment.
- The National Investment Bank
  - The National Investment Bank, usually providing medium-term credits, normally is prepared to take greater risks than the commercial banks and is willing to finance new companies and innovative enterprises.
  - The bank generally makes loans of at least F250,000.
- Venture capital
  - The major sources of venture capital are private and institutional investors, banks, and government institutions.
  - Actively promoted by the government, the MIP Equity Fund (Maatschappij voor Industriele Projecten) was funded in 1972 and is 57 percent government owned.
    - The MIP usually invests in large projects, leaving smaller ventures to the private investors.
    - To date, there are 60 private investment companies—the Dutch equivalent of venture capital funds.
  - A detailed description of investment criteria may be obtained from the Dutch Association of Participation Companies (see the "Regulatory Agencies and Trade Associations" section of this document).

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There are also several government grant opportunities. These investment incentives fall into the following categories:

- General investment incentives
  - To encourage investment in fixed assets, this class of tax-free grants is offset against corporate tax assessments.
- Regional incentives
  - This group consists of a system of grants to encourage industrial development in economically weak regions (the northeastern provinces of Groningen, Friesland, Drente, the northern part of Overijssel, and the southern part of Limburg province).
  - Depending on the amount invested, grants consist of 15 percent to 35 percent of the investment in land, buildings, and equipment.
- Special incentive programs
  - These consist of six-month grants, designed to fund research projects investigating new products, processes, systems, and services.

OTHER BUSINESS CONSIDERATIONS IN THE NETHERLANDS

Corporate Law

Under Dutch corporate law, the types of business organizations that may be registered in The Netherlands are the following:

- Private limited companies (Besloten Vennootschap met beperkte aansprakelijkheid or BV)
  - Private companies are the most common form of foreign business; minimum paid-in capital for a BV is presently F40,000.
- Public companies (Naamloze Vennootschap or NV)
  - Public companies are the business entity used to form capital publicly, whether based on the stock exchange or not; minimum capital for the NV is F 100,000.
- Foreign subsidiaries (Bijkantoor or Filiaal)
  - The branch of a foreign company takes on the legal status of the parent company.

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Exports

Three principal organizations deal with export information in The Netherlands:

- The Netherlands Foreign Trade Agency (EVD), part of the Ministry of Economic Affairs
- The Dutch Center for Trade Promotion (NCH), a mixed governmental and private organization
- Fenedex, The Federation of Dutch Exporters (Federatie voor de Nederlandse Export)

Regulatory Agencies and Trade Associations

The following are addresses of regulatory agencies and trade associations in The Netherlands:

- Netherlands Foreign Investment Agency
  One Rockefeller Plaza
  New York, New York 10020
  Telephone: 212-246-1434
- Netherlands Foreign Investment Agency, Head Office
  91 Bezuidenhoutseweg (Postbox 20101)
  2500 EC The Hague, The Netherlands
  Telephone: (31) (70) 797233-797125
- Dutch Association of Participation Companies (Nederlandse Vereniging voor Participatiemaatschappijen - NVP)
  Princess Beatrixlaan 5 (Postbox 93093)
  2509 AB The Hague, The Netherlands
  Telephone: (0) 70-471111

BACKGROUND ON BELGIUM

General Considerations

Like that of The Netherlands, the Belgian economy is based on long-held trading traditions. As of 1986, Belgium exported more than 80 percent of the its GNP. In fact, exports to Belgium are frequently reexported, both with and without value added.

The domestic industrial structure of Belgium is quite different from The Netherlands', however, being traditionally dominated by the textile, coal, and steel industries. In the 1970s, the depression of these industries initiated a prolonged period of economic stagnation in which Belgium's GNP grew by only 1 percent.

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The country entered the 1980s with three major problems:

- A 4 percent deficit on the current account (as a percent of GNP)
- A 12 percent unemployment rate
- A runup in public debt that grew to a level higher than the GNP itself

The increase in public debt has been a factor in keeping real interest rates high, with the consequent risk of crowding out private investment. The explosion of debt, illustrated by Figure 2.3-2, was due in large part to the self-sustaining nature of the deficits caused by interest payments.

Certainly, the high foreign trade exposure of the Belgian economy made it particularly susceptible to the oil shocks of the 1970s. Nevertheless, OECD economists suggest that it is primarily domestic reasons that sustained the imbalances. First, the structure of production at the time of the first oil shock did not match the demand, the declining sectors accounting for a larger share of activity than in competing countries. Second, trade was largely concentrated with Europe, where growth has been slower than world demand. However, the main cause has been the rise in wage costs, which were excessive in relation to the trend in productivity. The surge of wage costs began as of the early 1970s with an explosion of real wages that was then consolidated by a system of rigid indexation. This situation forced corporate incomes to bear the brunt of adjusting to the terms of trade wrought by the two oil shocks. All in all, real per capita labor costs increased by more than 5 percent per year during the 1970s.

In an economy that is highly exposed to foreign trade and has extensively indexed incomes, Belgian exchange rate policy, prices, and income policy are very closely linked. Because Belgium largely has to align its export prices with those of its main trading partners, enterprises in the exposed sector were unable to pass the increase in their costs through to prices. They were forced therefore to improve their productivity and to shut down loss-generating plants, which contributed to the steep rise in unemployment. Businesses also had to accept a sharp drop in profits; this drop, in turn, led to reduced investment. In summary, the 1970s and early 1980s were characterized by a regenerative loop of negatively reinforcing economic variables.

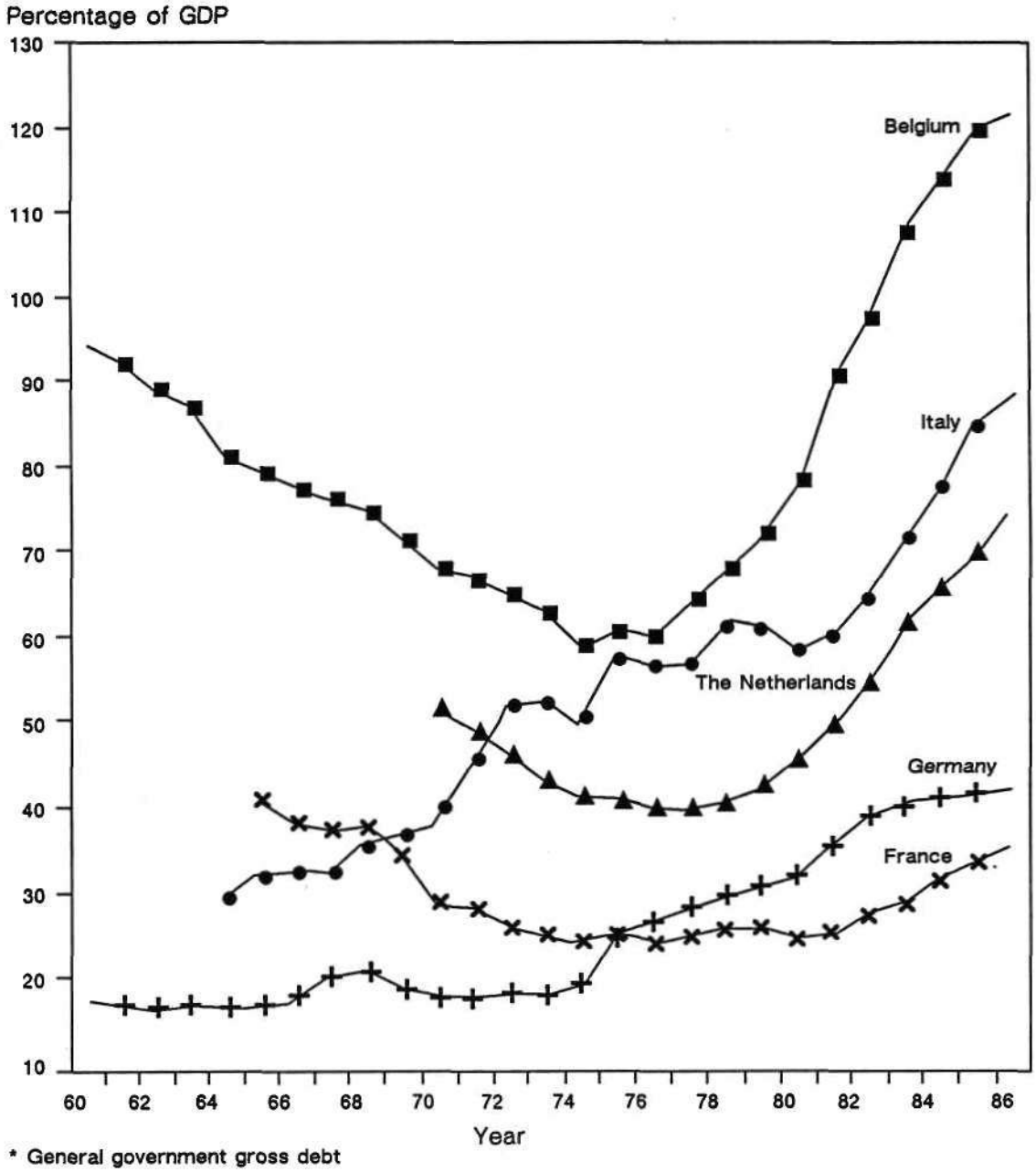
Tax Reform

The 1989 tax reform is aimed at a substantial reduction in the Belgian personal income tax rates, targeting a 1993 maximum marginal rate of 50 percent, versus the current 72.5 percent, one of the highest in Europe. By 1993, this plan is expected to cost some F89 billion. Because government revenue cannot be tapped, it is anticipated that compensation will be made through new revenue sources, such as imposing a minimum tax on all companies. To date, however, corporate taxation remains virtually untouched by this plan.

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Figure 2.3-2

Gross Public Debt in Belgium
(As a percentage of GDP)



* General government gross debt

0003585-2

Source: OECD Secretariat estimates
Dataquest
July 1988

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Limited Privatization

Although public sector ownership is not as widespread in Belgium as in other western European nations, there are many areas where the public sector has a quasi monopoly: gas, steel, coal, electricity, telecommunications, and public transport. Since the coalition partners in the Belgian government could not agree on the size of the privatization plan, a limited plan was put in place. To start, the Brussels Airport Authority, Distrigaz (a gas distributor), and the Caisse Generale d'Epargne et de Retraite (a savings bank) were sold. Estimates of the total sum the Belgian government could harvest through privatization of most of its public-sector enterprises vary between F 60 billion and F 100 billion.

A major event at the beginning of 1988 was the attempted raid on the Societe Generale, a holding company with dominant interests in large parts of Belgian industry, by the Italian investor Benedetti. So far, this attempt seems to have failed, although the situation is still unclear. However, a side effect of this attempt has been a greater awareness and concern about the future competitiveness of Belgian companies, which strive to be more dynamic entrepreneurial organizations.

BELGIAN GOVERNMENT POLICIES

Like The Netherlands, Belgium is nominally ruled by a constitutional monarchy. The effective ruling body is Belgium's house of representatives. Currently, the government is controlled by a coalition of principally Socialists, Christian-Socialists, and Liberals.

Belgium continues to experience political instability. In October 1987, King Baudoin accepted the Belgian government's resignation over a politically sensitive linguistic dispute between Dutch and French speakers. As a result, an interim government (Martens VII) was formed with the same Christian-Democratic/Liberal coalition partners whose mandate was to prepare a revision of certain articles of the constitution, aimed at greater federalization of the Belgian state. Although the elections held in 1987 maintained this group, there is a long-term danger of preoccupation with linguistic issues, at the expense of concentrating on the budget deficit.

Monetary Policy

Traditionally, Belgium has linked the stability of its currency, the Belgian franc, to other European currencies. However, with the loss of corporate competitiveness in the early 1980s, the franc was devalued in 1982 by 8.5 percent against all the European Monetary System (EMS) currencies except the Luxembourg franc and the Danish kroner. Belgium did not restore traditional linkage to the EMS until 1986, and today the Belgian franc is strong against most other European currencies.

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The Belgian inflation rate is stabilized at 1.7 percent. This rate compares very favorably on an international basis. Only The Netherlands, Japan, and West Germany have lower inflation rates according to the OECD.

Trade and Economic Policies

Foreign trade has always played a major part in the Belgian economic structure. As a member of the EC, Belgium follows trade policies much like those described earlier for The Netherlands.

Intellectual Property Protection

Patents

Belgium subscribes to the International Convention for the Protection of Industrial Property and to the European Convention relating to the formalities required for patent applications.

Belgian patents are granted for a period of 20 years from the date of application (convention), on payment of an annual renewal fee. Prior to convention, the product must not have been described, patented, or used anywhere. An invention that has become known abroad as a result of official publication by foreign patent offices can be protected in Belgium by a patent of importation, which expires at the same time as the original foreign patent.

A patented invention should be used in Belgium within one year of its first commercial application abroad. An invention covered by a patent of importation should be used within four years of the grant in Belgium.

Trademarks

The Benelux Trademark Law came into force on January 1, 1971. By its terms, the first applicant for a trademark is entitled to exclusive use of the trademark upon registration. A registration lasts for 10 years, and it may be renewed if application is made within a period of six months prior to expiration. However, failure to make normal use of a mark during the first three years after registration will lead to its cancellation.

BELGIUM'S FOREIGN RELATIONSHIPS

Relationship to the United States

Much like The Netherlands, Belgium has been a highly active trading partner with the United States. Belgium is one of the few European countries with which the

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United States maintains a balanced trade. The major imports from the United States in 1986 were:

- Coal
- Soybeans
- Diamonds
- Aircraft
- Data processing machinery

The major exports to the United States in 1986 were:

- Diamonds
- Passenger motor vehicles
- Films
- Silver
- Spare parts (motors)
- Iron

Again, as in The Netherlands, if the U.S. dollar remains low, imports of U.S. goods can be expected to increase.

LUXEMBOURG

According to the OECD, Luxembourg's macroeconomic performance has remained highly satisfactory. Its growth rate continues to be around the European average, and the country's unemployment and inflation records are among the best in the OECD area. However, as is the case in Luxembourg's sister country, Belgium, the steel industry has not done well recently.

As in Belgium, the steel industry is an important element in the Luxembourg economy. Unlike Belgium, however, Luxembourg adjusted much more quickly to the changing worldwide steel demand that shook the Belgian economy. This easy adjustment was due in part to a prescient restructuring program began in 1974. At a time when other European steel producers were expanding capacity, Luxembourg embarked on an industrial diversification program that reduced its reliance on any one industrial sector. Since 1977, the Luxembourg government has concentrated on expanding the country's banking and financial sectors.

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Unlike Belgium, Luxembourg does not have a massive budget deficit. The current account balance, which was already equivalent to 6 percent of GDP in 1970, was up to 33 percent in 1985.

Although financial activity is expanding, the stock market crisis has introduced new uncertainty into the Luxembourg economy. With industry sector problems exacerbated by the slowdown in foreign demand, growth could well slacken appreciably in 1989.

INVESTMENT CONSIDERATIONS IN BELGIUM

Direct Foreign Investment

At the heart of a European market approaching 320 million affluent customers, Belgium was chosen as the natural headquarters for the European Community, and more than 1,000 leading businesses have followed suit. The Belgian labor force has a reputation for being one of the most productive in the world, while remaining cost-competitive with other industrialized countries. Because Belgium exports more than 80 percent of its gross national product (GNP), compared with 6 percent for the United States and 14 percent for export-oriented Japan, Belgium has little to gain from protectionism. Special attention is being given to attracting future-oriented industries such as biotechnology, microelectronics, and new materials. A highly qualified work force and excellent transportation connections across Europe encourage such industries as aerospace, robotics, and telematics. Today, Belgium has the greatest concentration of foreign investors on earth.

As part of its policy of welcoming foreign investment, the Belgian government offers various public incentives for business, open to all corporations operating in Belgium, be they Belgian or foreign.

Investment Incentives

A general investment subsidy is available, ranging in value to a maximum of 24 percent of the eligible investment. This subsidy may be granted as an interest rebate, a capital grant, or a combination of both. The size of the enterprise, the strategic impact of the project, and job creation are factors influencing the final subsidy.

Specific Tax Incentives

A group establishing a coordination center in Belgium is granted a special tax status for a period of 10 years, subject to compliance with certain conditions. These conditions include the following:

- That the center be incorporated as a company in Belgium or a branch of a foreign corporation

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- That the center form part of a multinational group with subsidiaries in at least four other countries
- That the center employ at least 10 persons within two years of the start of its operations
- That the center be located at one of six tax-free employment zones (Tessenderlo, Geel-Punt, Ieper, Liege, Marche-en-Famenne, or Hainaut)
- That the operations be in research and development of high-technology products or connected with one of the following:
  - Advanced information technology
  - Software technology
  - Micro/optical electronics
  - Office automation
  - Robotics
  - Telecommunications
  - Biological engineering
  - Other "spearhead" technologies

Tax benefits are also granted to companies involved in innovation projects and to businesses located in reconversion areas (coinciding with existing development zones). Regardless of its activity or legal form, a company will be able to deduct a percentage of its research and development costs and energy conservation expenditure up to a maximum of 20 percent.

Research and Development (R&D) Incentives

Interest-free advances can be granted for prototype and R&D projects to help with salaries, equipment, operational expenses, patent licensing costs, and a limited number of prototypes. Subsidies can also be provided to cover a proportion of all the expenditures incurred by a company in a research project.

Employment and Training Incentives

In addition to the higher investment subsidy for creating jobs, there are three other forms of incentive related to employment:

- Reduction in salary and social security costs for projects linked to development of new products or production processes, to export promotion, or to energy/raw materials savings

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- Tax cuts for additional jobs
- A tax-free reserve to cover possible redundancy costs

Newly established enterprises can receive training grants, covering up to 50 percent of the wage and social security costs on the basis of once-per-trainee per job. Living and traveling expenses are also allowable. Fully unemployed persons receiving unemployment benefits can be eligible for individual training schemes. The National Employment Office (ONEM-RVA) can be used, free of charge, for personnel selection from the unemployed pool.

These incentives are available to all companies operating in Belgium, whether Belgian or foreign, and cumulation possibilities exist according to the region where the investment is made.

Investment Opportunities

More than 900 U.S. companies have operations in Belgium, nearly 400 of which are regional headquarters. The U.S. Department of Commerce, through the U.S. Embassy in Brussels, has identified a number of key industrial sectors for trade opportunity. In particular, U.S. computer vendors have great opportunities in Belgium. While the following discussion describes the Belgian computer market as a whole, it does provide an indirect indication of hardware purchasing trends for the CAD/CAM industry in Belgium.

The estimated value of the Belgian computer hardware market in 1987 was $932 million (assuming that F 37 equals US$1), more than 70 percent of this revenue coming from hardware sales. Annual real growth of 15 percent is expected through 1990.

In terms of hardware platforms, U.S. equipment dominates host and non-UNIX workstations, while PCs are increasingly imported from European manufacturers. PC clones from the Far East are also gaining a secure foothold. Local industry sources have stressed that the mainframe market is saturated.

At present, the minicomputer market, with an estimated 55 percent share of the total installed base, is the most promising sector for hardware manufacturers. PCs are also enjoying considerable popularity. For Belgium, a country with few large enterprises and many small to medium-size companies, minicomputers, and particularly PCs, are more affordable.

Belgium is almost totally dependent upon foreign suppliers for its computer-related needs. U.S. products will continue to dominate the hardware market in Belgium, although there is increasingly stiff competition from producers of lower-end machines and the newly introduced UNIX-compatible minis. In a multiuser/multitasking minicomputer sector, the market is considerably more fragmented and offers greater promise

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to European computer manufacturers. In the PC market as a whole, the sale of IBM PC clones accounted for 30 to 40 percent of the Belgian market in 1986 and potentially could rise to 50 percent in 1987.

OTHER BUSINESS CONSIDERATIONS IN BELGIUM

Company Law

Companies incorporating in Belgium have the option of operating as a subsidiary (incorporated under Belgian law) or as a branch of a company (incorporated under foreign law). Though Belgian law recognizes various forms of enterprise, the most common is, in EC parlance, the Public Limited Company (PLC, or Naamloze Vennootschap in Flemish). This is the most usual form for foreign investors. There must be at least two shareholders, who may be individuals or companies (resident or non-resident) and are responsible for the capital that they contribute. Minimum capital may not be less than F1,250,000, and this must be completely underwritten.

Branches are governed by the same rules as Belgian companies for management and operation in Belgium. The foreign-registered company must deposit a copy of its Articles of Association, and its Resolution to set up a Belgian branch with the Clerk of the Commercial Court.

Often, a good approach for a foreign investor is to seek establishment by the takeover of an existing company or by a joint venture or merger with a company already active in the field. For the latter, no prior authorization is required; for a takeover, however, the person or company making the bid is required to lodge particulars with the Banking Commission 15 days before the bid is made.

Taxation

Belgium has four main forms of taxation:

- Income tax
- Company tax
- Taxes on nonresidents
- Value-added tax

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Income Tax

No income tax is payable on income below F 100,000. Although the top rate of tax is 76.32 percent on income over F 4 million, the total income tax on any one individual cannot exceed 71.55 percent.

Company Tax

Company tax currently is 43 percent, but reduced rates are applied to low taxable profits (below F 16.6 million). Foreign-source income that is not exempted by intergovernmental treaty is subject to one-quarter of the normal corporate income tax rates if it is earned and taxed abroad.

Taxes on Nonresidents

The Belgian branch of a foreign company is normally subject to nonresident income tax at 48 percent on all profits attributable to it, so the branch will often maintain separate accounting records from the parent company. Reductions are sometimes available if double taxation treaties exist between the relevant governments. A branch qualifies for between 90 and 95 percent exclusion on intercorporate dividend income.

Value-Added Tax

Value-added tax, calculated on the c.i.f. value plus any other excise duties that may have been levied, is payable upon entry into the country. Five possible rates for the tax on goods are 6 percent (mainly for foodstuffs), 17 percent, 19 percent (standard rate), 25 percent (luxury tax), and 33 percent (special tax).

INVESTMENT AND OTHER BUSINESS CONSIDERATIONS IN LUXEMBOURG

Direct Foreign Investment

The 1977 policy of industrial diversification was a major factor accounting for Luxembourg's relatively stable economic position today. Through public investment incentives and an active policy of prospecting for opportunities for direct foreign investment, more than 70 new ventures have been established in Luxembourg since 1975, alongside the 200 to 250 old-style industrial businesses. On the balance, the jobs created by the new industries since the 1960s have more than made up for the job losses in steel since 1974. The depreciation of the U.S. dollar could, however, diminish the appeal of Luxembourg for foreign investors, particularly American investors. The 1986 frame law on economic expansion, which will offer large subsidies for businesses promoting new industries (e.g., high technology), is expected to attract new investments.

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Other Business Considerations

Specific business practices and corporate tax incentives resemble those for Belgium.

CAD/CAM

All the major worldwide CAD/CAM vendors are present in the Benelux region and have been for some years. Many U.S. vendors have selected The Netherlands as the location of their European headquarters. Belgium is relatively underdeveloped, with the main development occurring since the arrival of the European Parliament. There are few local vendors.

The Netherlands, where English is the second language, is a natural alternative to the United Kingdom for U.S. vendors. From a language point of view, the Benelux areas are complex. Dutch, English, and German are spoken in The Netherlands; French, Flemish and German are spoken in Belgium, although there are no obvious boundaries. In Belgium, it is important to recognize these traditions. A sale can be lost if the salesman speaks to the prospect in the wrong language.

The Dutch CAD/CAM industry is very mature, with extensive expertise in the market and high standards.

REGULATORY AGENCIES AND TRADE ASSOCIATIONS

The Netherlands

CAD/CAM Industry Information

Two principal agencies specialize in CAD/CAM activities in The Netherlands. They are CIAD and Vifka. In addition, a journal called *CAD/CAM* also provides general information on CAD/CAM activities, and information regarding CAD/CAM vendors in The Netherlands may be obtained by requesting a catalog of Industriele Automatiserings Beurs from the RAI at Amsterdam. The organizations, their addresses, and their functions are listed in Table 2.3-1.

General Business Information

Information on business and investment in The Netherlands is available from the following organizations:

- Netherlands Foreign Investment Agency
  One Rockefeller Plaza
  New York, NY 10020
  Tel: 212-246-1434

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- Netherlands Foreign Investment Agency
  Head Office
  91 Bezuidenhoutseweg
  P.O. Box 20101
  2500 EC The Hague
  Netherlands
  Tel: 011-31-70-797233

- Dutch Association of Participating Companies
  (Nederlandse Vereniging voor Participatiemaatschappijen - NVP)
  Princess Beatrixlaan 5
  Postbox 93093
  2509 AB The Hague
  Netherlands
  Tel: 011-31-70-471111

Table 2.3-1

CAD/CAM-Related Business Organizations—The Netherlands

Agency	Address	Functions
CIAD	P.O. Box 74 2700 AB Zoetermeer, Netherlands	CAD/CAM Society; also publishes *Ciadscope*
Vifka	CAD/CAM Division Kampeuringweg 45, 2803 PE Gouda, Netherlands	Information on CAD/CAM trade fairs and events
VNU Business Publications	Bedrijf, Rijnsburgstraat 11, 1059 Amsterdam, Netherlands Tel: 011-31-20-5102878	Publishes *CAD/CAM*, the main journal
Cape Congress	Gebouw BV Europaplein 1978 GZ Amsterdam Tel: 011-31-20-5491212 Telex: 16017	Publishes CAD/CAM vendor catalog

Source: Dataquest
April 1989

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In addition, the following three principal organizations deal with export information in The Netherlands:

- The Netherlands Foreign Trade Agency (EVD), which is part of the Ministry of Economic Affairs
- The Dutch Center for Trade Promotion (NCH), which is a mixed governmental and private organization
- Fenedex, which is the Federation of Dutch Exporters (Federatie voor de Nederlandse Export)

Information regarding these organizations may be obtained by writing The Netherlands Foreign Investment Agency.

Belgium

General Belgian business information is available from the sources shown in Table 2.3-2.

Luxembourg

At this date, no trade association or business agency information is available for Luxembourg.

STANDARDS

At this date, information is quite limited regarding standards organizations in The Netherlands and Luxembourg. For Belgium, export agencies such as the British Technical Help for Exporters (THE) will provide current information concerning statutory requirements and technical specifications. The service can also provide technical translations, for which there may be a charge. The address is The British Standards Institution, Linford Wood, Milton Keynes, MK14 6LE (Tel: 0908 320033).

Table 2.3-2

Business Information Sources—Belgium

Source	Address
B.O.T.B.	EEB Belgium Desk Department of Trade & Industry 1 Victoria Street London SW1H OET Tel: 011-44-01-215-5486

(Continued)

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Table 2.3-2 (Continued)

Business Information Sources—Belgium

Source	Address
Ministry for Economic Affairs	23 Square de Meeus 1040 Brussels Belgium Tel: 011-32-2-5111930
Belgian Embassy	103 Eaton Square London SW1W 9AB Tel: 011-44-01-235-5422
Institut National de Statistique	Rue de Louvain 44 B-1000 Brussels Belgium
Generale Bank	Economic Studies Montagne du Parc 3 1000 Brussels Belgium
British Embassy	Rue Joseph II 28 B-1040 Brussels Belgium Tel: 011-32-2-2179000 Telex: (46) 22703
OECD Economic Surveys: Belgium & Luxembourg	Head of Publications Service OECD 2, rue Andre´Pascal 75775 Paris Cedex 16 France
Foreign Economic Trends and Their Implications for the United States Belgium (FET 88-03)	U.S. Department of Commerce International Trade Administration Washington, DC 20230

Source: Dataquest
July 1988

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CAD/CAM PUBLICATIONS

The Netherlands

The main CAD/CAM trade journal in The Netherlands is *CAD/CAM*. However, CIAD, an industrial automation society, also publishes the journal *Ciadscope* for its members. Addresses for these organizations can be found in the "Regulatory and Business Agencies" section of this chapter.

Belgium

Table 2.3-3 lists the CAD/CAM publications available in Belgium, along with the addresses and telephone numbers of their publishers.

Table 2.3-3

CAD/CAM Publications—Belgium

Publication	Address	Telephone
Datanews	Diligentia Av du Houx 42 B-1170 Brussels	010-32-2-673 8170
Technische Revue	Hanzestraat 1 NL-7000 BA Doetinchem	010-31-8340-49 271
Technology-Transfer-Express	Bertemsebaan 1 B-3008 Veltem-Beisem	010-32-16-489 536
CAD/CAM Benelux	Belgotronic av. du Saphir 3 B-1420 Braine 1'Alleud	010-32-2-354 0168
Technisch Management	De Sikkel Media Nijverheidsstraat 8 B-2150 Malle	010-32-3-312 4761
HCC Nieuwsbrief	Special Media Postbus 3300 NL-1001 CA Amsterdam	010-31-20-222 366

Source: Dataquest
April 1989

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Luxembourg

At this date, no information on CAD/CAM publications is available for Luxembourg.

TRADE FAIRS

The Netherlands

The Industrial Automation trade fair held in Amsterdam in mid-March received good reviews in 1987. Information on this event and locations of other CAD/CAM-related activities may be obtained from the CIAD and Vifka organizations. (See Table 2.3-1.)

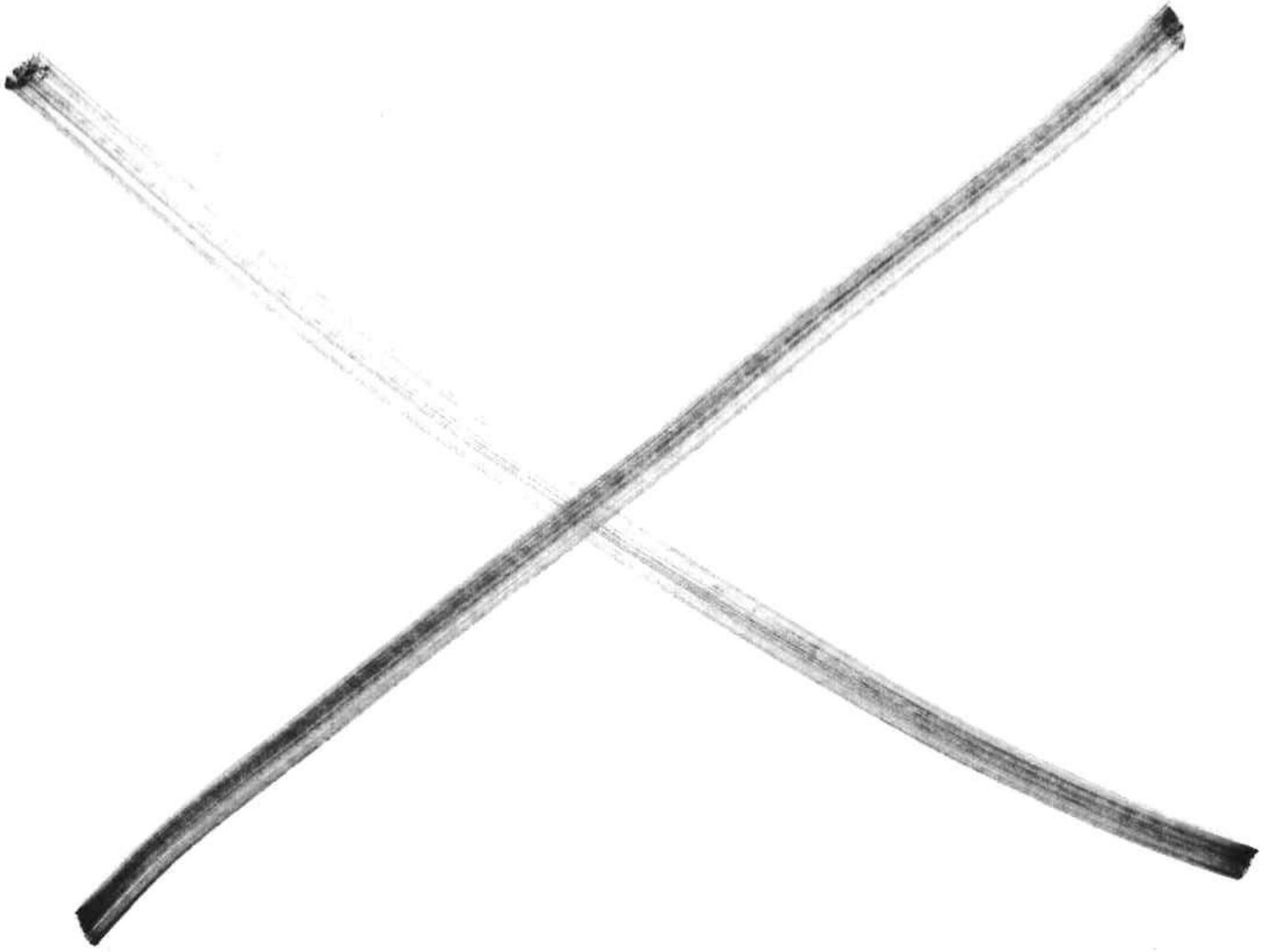
Belgium

At present, there is only one specific CAD/CAM trade fair in Belgium. It is the "CAD/CAM Beurs," which takes place usually from November 22 through 24 in The Hallen in Kortrijk.

Luxembourg

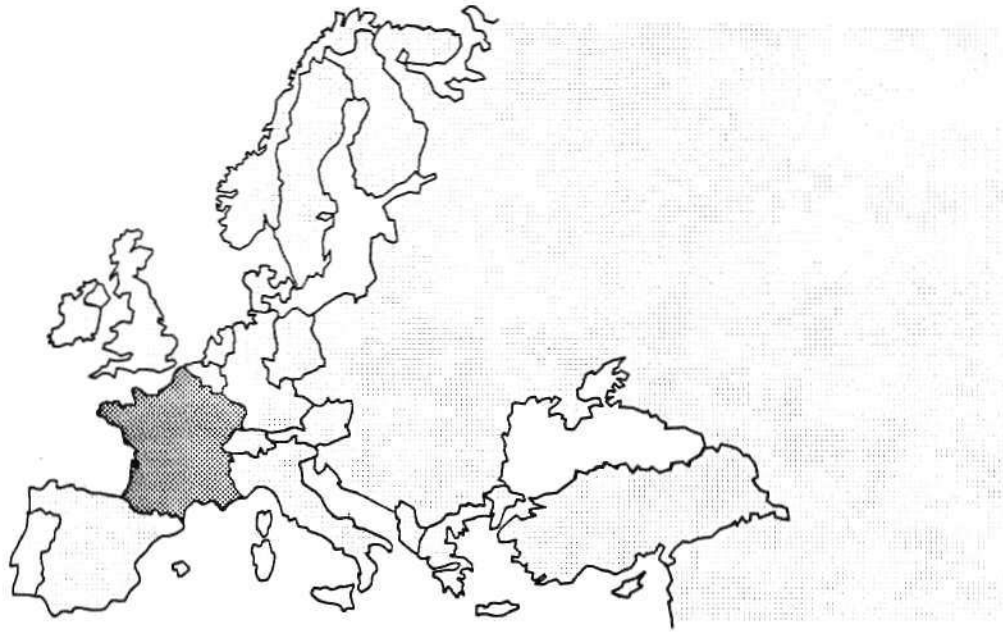
At this date, no information on CAD/CAM trade fairs is available for Luxembourg.

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3.1 Geography and Demographics

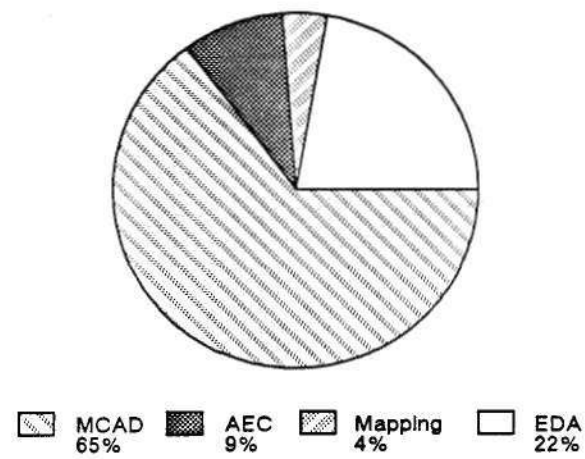
France



Country Statistics	
Total population (millions)	55.39
Area (square kilometers)	547,026
Population density	101:1
Trade balance (US$-billions)	(0.6)
1988 GDP (1980 US$-billions)	774.2
1988 GDP (1980 FFr-billions)	3,266.8
1989 real GDP growth rate (% est.)	2.6
Structure of production (% 1985 GDP)	
Agriculture	4
Industry (Manufacturing = 25%)	34
Service	62
1988 Exchange rate (FFr/US$)	5.92
1988 Unemployment rate (%)	10.5
Total engineers	232,760
Electrical/electronic	55,200
Mechanical	52,900
Chemical/biological	30,130
Metallurgical/materials	11,270
Civil/architectural	37,030
Others	46,230

CAD/CAM-Related Data	
1988 Market size	
Revenue (millions)	$531
Workstations shipped	14,977
Installed base	41,456

1988 Revenue Mix by Application



0003842-1

Source: U.S. Department of Commerce
1988 Statistical Yearbook (UNESCO)
The WEFA Group
Dataquest
April 1989

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3.2 Government, Trade, and Economic Forces

EXECUTIVE OVERVIEW: FRANCE

The following summary highlights this region's major economic and political developments of 1988, and presents 1989 economic projections. It is based on reports from The WEFA Group (Wharton Econometric Forecasting Associates).

- According to government statistics, France's 1988 GDP growth reached 3.6 percent, fueled mainly by business investment. Despite slow growth in personal income, real consumer spending surged 7.2 percent.

- The sharp decline in the dollar that followed the U.S. presidential election caused strong downward pressure on the French franc vis-a-vis the deutsche mark.

- France's 3 percent rate of inflation, although below the EEC average (4.1 percent), remains higher than Germany's inflation rate of 1.6 percent.

- The French government remains committed to a tight budgetary policy and to liberalizing the economy. The government has pledged to avoid any tax increase, except for a so-called "wealth tax," and to lift all international capital transfer controls. Its main priorities are employment, education, and industrial competitiveness.

- The French economy is forecast to grow at a more moderate 2.6 percent growth rate in 1989, fueled by a combination of investment and external demand.

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3.3 Doing Business in France

BACKGROUND ON FRANCE

General Considerations

In 1986 and 1987, the economic climate was suitable for France to begin a slow expansion, which had not been possible since 1982. The French government, headed by President Francois Mitterrand and Prime Minister Jacques Chirac, pursued a liberal policy of privatizing large enterprises nationalized by the previous government, in an effort to ease the control of management and to bring down interest rates and taxes.

Wage-growth restrictions continued in 1987 and 1988. Share participation schemes offered by many larger concerns have helped to keep unrest among the work force at bay, while keeping the wage bill down. High unemployment persists, despite government-support initiatives. A temporary acceleration in inflation has been brought under control, and government borrowing remains at approximately 2.75 percent of GDP. Exports remain the most disquieting feature of the French economy, however. Negative net exports significantly slowed GDP growth, which is among the lowest of the major OECD (Organization for Economic Cooperation and Development) countries.

Industrial Development

France is a world leader in aerospace, banking, and high technology, particularly telecommunications. The following discussion highlights the status of those industries of particular interest to the CAD/CAM market.

Telecommunications

A total of 1.3 million home and office terminal telephones (minitels) had been installed by the end of 1985, part of a FFr 15 billion project by the French telecommunications authority, the PTT. Currently, the French PTT's Direction Generale des Telecommunications is establishing a nationwide integrated services digital network, which could make France the first country to offer nationwide telecommunications services. The network will eventually cover the Paris area and will be extended to include the cities of Rennes, Lille, Lyons, and Marseilles. The network currently supports some 300 users. Because of geographical limitations, the network currently is restricted to corporate communications. Some users are considering intercompany data and image exchange, and France's ambitions in this area have led recently to the construction of "intelligent buildings"—buildings with built-in networks.

In the field of telecommunications, France has seemingly adopted a policy of radical discontinuity, whereby areas of national excellence are developed to exploit and fill niches in the world market.

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Aerospace/Defense

France continues to be a force in aerospace, an industry accounting for more than FFr 50 billion of sales in 1986, most of which were foreign-based. France serves as the hub of several important international aerospace projects, including:

- The Airbus consortium promoting commercial sales of wide-body aircraft
- The Ariane satellite program
- Hermes, the French-led space shuttle project in competition with the U.S. manned space program

Automotive

While the French are among the top five automakers in Europe, foreign manufacturers hold the greater share of the market (more than 40 percent of 1987 car sales). Since 1985, the French automakers have invested heavily in automation, however, following much the same pattern as U.S. automakers with the adoption of Japanese operating techniques. Also like the United States, France is focusing on increasing its market share in Asian markets.

Construction/Civil Engineering

The French construction industry continues to operate in a slump: Since 1985, new housing starts stabilized at approximately 295,000 units with very little growth anticipated in the short term. Nonetheless, the French support several major civil engineering projects, including the cross-Channel tunnel link with England as well as the extension of the nation's high-speed train network.

Electronics

The outlook for the French market for electronic components and production and test equipment is for real growth of 10 to 12 percent annually through 1989, with total demand reaching nearly US$7 billion. The French are very motivated to achieve self-sufficiency in production of electronic components. This motivation is fueled by the need not only to ensure an adequate supply for France's defense industry but also to ensure international competitiveness in telecommunications, France's most nurtured high-technology product.

Industrial Equipment/Machinery/Shipbuilding

France ranks fourth in foreign export of industrial machinery, after West Germany, the United States, and Japan. Following the general upturn in the European shipbuilding industry, France is currently restructuring this sector to capitalize on growth activity.

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GOVERNMENT POLICIES

The Economy

The current weakness of the French economy has been attributed to two primary forces: the overexpansionary policies of the period from 1981 through 1983 (designed to stimulate activity with higher real incomes) and an inherently rigid economic structure. Rigidity here refers to the tendency of most big companies, whether in industry, banking, or insurance, to be controlled by the state. To the outside view, the French economy appears almost to be a centrally planned economy; certainly the role of the state was enhanced during the socialist regime of 1981.

To many, the current weakness reflects these earlier policies. Since 1983, however, the French government has pushed an austerity program—one which effectively lifts the hand of the state from the economy. Some of the primary policies put forth in this plan were:

- Privatization
- Deregulation of French retailing practices
- Release of bank credit controls
- Release of foreign exchange controls

First, in 1986 and 1987, more than 13 state-owned firms were sold by the government. These included some nationalized by the socialist government: Saint-Gobain, Compagnie Generale d'Electricite, Paribas, Suez, and two major financial holdings groups. With some of the FFr 67 billion grossed from sales, the government financed tax cuts and public works.

Second, the government also cut back on professional business regulations. Most notably, the government now has a hands-off policy regarding interfering with domestic takeovers (although it still retains the power to veto mergers).

Third, the elimination of credit rationing has effectively increased competition among the banks. Moreover, the banks must now compete with money markets for credit business.

Finally, the French monetary authorities no longer control the French banks' lending of francs abroad.

These policies all signal a split from the rigidities of central control. Although improving the French economy is still an ongoing process, there are indeed measurable positive effects that can be traced to these changes.

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Finances

The budget deficit was reduced in 1987 for the second consecutive year—to 2.4 percent of GDP from 3.3 percent in 1985. Over the same period, taxes were reduced by FFr 40 billion. Opposing this, growth of spending was curbed by layoffs, slower wage growth, and reductions in subsidies and interest-rate relief. The growing number of privatizations yielded an additional FFr 50 billion in 1987, 30.0 percent of which was devoted to equity funding for public enterprises. The budget for 1988 proposed a further reduction in the deficit (to FFr 115 billion) and provided for tax cuts of FFr 32 billion; in particular, the corporation tax rate was reduced to 42.0 percent. In the future, telecommunications will be subject to value-added taxation (VAT), which will be beneficial to business enterprises because communications costs will become tax deductible.

The social security system continues its steep growth in expenditures. Although increased personal contributions have resulted in a considerable reduction in this deficit, it is expected to widen again (to FFr 34 billion) unless policy is changed. A further increase in contributions to match the projected deficit looks likely.

Employment

Employment-support policy will continue to be one of the most important components of budget expenditure, with the emphasis on youth-integration schemes and assistance to the long-term unemployed. Training courses to initiate young people into working environments produced approximately 100,000 jobs during 1987, and the aim now is for 250,000 new traineeships, to include those who have been unemployed for longer than one year. Efforts are being made to achieve greater labor flexibility, and regulations governing working hours have been considerably relaxed. In 1970, average weekly hours worked were 44.7. In 1985, the work week had decreased to 39.0 hours. Furthermore, companies making investments that serve to promote regional development may qualify for partial or total exemption from local business taxes for up to five years.

Government R&D Projects

Compared with other leading industrial nations, France does not take an aggressive stance on nonmilitary research and development (R&D). The government spends only 1.8 percent of GDP on R&D projects, compared with 2.5 percent in West Germany and 2.6 in Japan. Moreover, France has fewer scientists and engineers (400,000) than Britain (700,000) and West Germany (600,000).

However, the government continues to support certain key high-technology areas, especially telecommunications and research-industrial parks.

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Orleans, the Technopolis

The French government continues to promote the Orleans area as a high-quality technology and industrial center. More than 25 percent of the industrial companies in the area are owned by foreign investors, and the wide variety of industrial activities has encouraged development of the banking sector. More than 20 banks and financial institutions are represented, including the French Bank of Foreign Trade (BFCE), which specializes in helping companies with their import-export operations.

The demographics of the Orleans industrial sector are shown in Table 3.3-1.

Located 70 miles south of Paris, Orleans has a population of more than 250,000 people and houses the University of Orleans, a number of research centers, and the Technology Innovation Center.

Table 3.3-1

Structure of Orleans Industry

Industrial Activity	Number of Companies	Number of Employees	Work Force Percentage
Electricity/ Electronics	114	12,317	21.7%
Mechanics/Automobiles/ Aeronautics	200	11,411	20.1
Metallurgy	173	6,179	10.9
Chemistry	227	13,751	24.2
Food/Agribusiness	435	5,354	9.4
Printing/Wood Products	271	4,739	8.3
Textiles/Leather	90	2,777	4.9
Energy	10	302	0.5
Total	1,520	56,830	100.0%

Source: French Ministry of Transport

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University of Orleans. The university, with an enrollment of approximately 8,000 students, specializes in economics, accounting, international marketing, management, law, and the physical sciences. In 1983, the University of Orleans created a department of economic relations that acts as a liaison between research teams and industry. By 1985, more than 100 contacts had been negotiated with industry.

The university has approximately 665 scientists and researchers involved in both fundamental and applied research. The following fields of research are of particular interest to the CAD/CAM industry:

- Automation
- Computer science
- Energy and materials
- Chemistry

Research Centers. In addition to the university, Orleans is the home of several other research centers, including the following:

- National Center of Scientific Research (CNRS)
- Geological and Mine Research Bureau (BRGM)
- School of Material and Energy Engineering (ESEM)
- National Institute for Agronomical Research (INRA)
- National Audio-Visual Institute (INA)

CNRS (consisting of 10 specific laboratories), BRGM, and INRA span a wide range of scientific research areas. As of 1987, their research personnel included approximately 1,600 people with an annual budget the equivalent of US$83 million.

The Technology Innovation Center. To promote exchange between the research centers and industry, Orleans has created the Technology Innovation Center, which includes office space for high-technology companies.

The center will offer the following services to companies:

- Serve as a base for technology transfer, coordinating contracts between the research centers and industry
- Provide technical training centers, especially for:
  - Automation

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  - CAD/CAM
  - Communications
- Provide administrative and marketing services, especially for innovative products and technologies
- Provide a high-technology park (The Orleans Espace, located in a landscaped area to the northeast of the university, will provide space for about 30 companies.)

Lorraine—Emerging Technology Center

The French border province of Lorraine, once the heart of the steel industry, has recently been promoted as another high-technology center. Lorraine's principal advantage stems from its geographical position. Set at a European crossroads, the province has highways and railways radiating to other parts of France as well as neighboring Belgium, Germany, Italy, and Switzerland. Moreover, an international airport is soon to be built at Louvigny.

Another lure for foreign businesses has been the generous French subsidies from the Lorraine Industrial Development Association, a joint effort by France's central and local government authorities in partnership with regional businessmen. In addition, Lorraine is also recognized for the quality of the local work force; the people are very industrious and, in many cases, speak both French and German. This linguistic advantage is well appreciated by foreign companies. Although currently no local source of engineering and technical talent exists, the future University of Nancy, planned to be the largest university in eastern France, will soon be a ready source for high-technology businesses.

Two prominent CAD/CAM vendors in this area are Computervision and France's Thomson SA. Computervision uses its Lorraine facility to integrate assemblies from the U.S. plant with subassemblies made by European original equipment manufacturers (OEMs).

FRANCE'S RELATIONSHIP WITH THE UNITED STATES

U.S.-French Industrial Relations

U.S.-French trade totaled nearly $20 billion in 1987, with the United States having an estimated $8 billion investment in France. The greatest investment opportunity is for small to medium-size companies. This opportunity is fueled principally by the French government's support of small U.S. businesses. In 1987, sales of small to medium-size

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U.S. companies grew 12 times faster than those of larger companies; many of these were established in France. Therefore, continued efforts are encouraging industry relations not only through government-sponsored programs but also through tax incentives.

French-American Cooperation and Entrepreneurship and Technology

The French-American Cooperation and Entrepreneurship and Technology (FAC-ET) program was established in 1986, principally to help small and medium-size high-technology firms enter the U.S. market or the European Economic Community, chiefly using France as a gateway.

For U.S. companies, the government provides help in the form of access to data bases or networks of possible partners, to industry experts, and to financial institutions and venture capitalists for funds. This program is principally designed for small companies with the following (ideal) qualifications:

- Has between 30 and 300 employees
- Has an innovative technology application
- Has no previous involvement with a foreign joint venture
- Has no more than 49 percent of its capital held by a large corporation

This program is led jointly by the U.S. Department of Commerce and the French government research agency, ANVAR.

U.S.-French Income Tax Treaty

In early 1988, U.S. and French officials met to revise the income tax treaty of 1967. The negotations included tax law changes made in the 1986 Tax Reform Act, such as the branch profits tax and the antitreaty shopping rules. The revisions addressed the French taxation of certain U.S.-based investment income of the U.S. citizens residing in France.

INVESTMENT CONSIDERATIONS

Direct Foreign Investment

Any nonresidential investor who wishes to make a direct investment in France must file a Prior Declaration with the Ministry of Economy, which sets out all details of the proposed transaction, and await authorization to proceed. Generally, the Ministry of Economy will authorize the foreign investment within two months of the date of the Prior Declaration.

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The Prior Declaration should be filed with one of the following:

- The Bank of France (for real estate businesses)
- Ministry of Economy (for all other businesses)

Forms are available at the DATAR (French Industrial Development Board) offices. The addresses of the Bank of France, the Ministry of Economy, and DATAR are listed in Table 3.3-2.

Table 3.3-2

Investment Contacts in France

Entity	Address	Comments
Ministry of Economy	Ministere de l'Economie Direction du Tresor 151 Rue St. Honore 75001 Paris	To file for a business license
The Bank of France	Banque de France Service des Autorisations Financiers 39 Rue Croix des Petits Champs 75001 Paris	To file for a business license (real estate only)
French Industrial Investment Board	Mr. Pierre Bourgoin DATAR 21-24 Grosvenor Place London SWIX 7HU Tel: 01-235-5148	For information on investment incentives

Source: Dataquest April 1989

However, nonresidents of the EC are exempt from filing a Prior Declaration under the following circumstances:

- When the investor expands or creates new branches of an existing business
- When the investor participates in a new business to create lasting economic ties (for an existing business)
- When the investor participates in an existing business to create lasting economic ties, provided that the investment does not exceed FFr 10 million and that the existing business is not already under foreign control

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Investment Incentives

The French investment incentives system is designed to encourage industrial projects that will contribute to a better and more-balanced growth in France. Investment incentives include the following:

- Regional Development Grants—Available for industrial, nonindustrial, and research operations of between FFr 35,000 and FFr 50,000 per job
- Small Business Grants—Available for assisting new, small businesses to create jobs or for existing ones to increase their staffs (For each of the first 30 new jobs created or preserved, the grant is between FFr 10,000 and FFr 40,000, depending on the location.)
- Tax Concessions—Available for companies that make investments promoting regional development (These companies may be eligible for partial or total exemption from the local business tax for up to five years, for a reduction in transfer taxes, and for accelerated depreciation of new construction.)
- Low-Interest Loans—Subsidized by the French government; designed to help in the acquisition of tangible assets
- Job-Training Subsidies

For detailed information on any of the above subjects, one should contact the local office of DATAR (Delegation a l'Amenagement du Territoire et a l'Action Regionale) (see Table 3.3-2).

OTHER BUSINESS CONSIDERATIONS

Company Law

The two types of companies most frequently used by investors in France are as follows:

- Societé Anonyme (SA)
- Societé a Responsabilite Limitee (SARL)

The latter is easier to set up and involves fewer formalities. Only two members are required, and the minimum capital necessary is FFr 50,000. In contrast, an SA must have a minimum of seven shareholders and available capital of FFr 250,000.

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Taxation

Corporation tax, currently 50 percent, is payable on gross profits, but proposals are in effect to reduce it to 42 percent. A minimum corporation tax is payable, even if the company is not profitable. The tax ranges from FFr 4,000 to FFr 17,000, depending on revenue. Other taxes levied include capital gains, registration duty (payable at the time of incorporation), value-added tax, business expense tax (in an effort to encourage enterprises to reduce certain nonessential expenditures), and local taxes.

CAD/CAM Business Development Agencies

The principal agency providing investment information for France is the Agence Nationale du Development de la Productique (ADEPA). In addition, information on French regional markets is available from country and commodity specialists at the International Economic Policy Desk (IPD) of the U.S. Department of Commerce.

Table 3.3-3 lists the address of the ADEPA, along with the addresses of other helpful agencies.

French Standards Institution

The French standards institution is the AFNOR (Association Francaise de Normalisation). It determines standards and arranges to have products new to the French market tested. A procedure known as "homologation" may be required if no norms exist that are covered by AFNOR or legal specifications. (See Table 3.3-3.)

Table 3.3-3

CAD/CAM Business Contacts in France

Entity	Address	Comments
CAD/CAM Business Development Agency	ADEPA 17 Rue Perier 92120 Montrouge France Tel: 010-33-14-657-1270	President: Michel Barba
French Standards Institute	AFNOR Address not available.	
French Patent Office	INPI Division des Marques 32 Rue des 3 Fontanot 92016 Nanterre Cedex	

Source: Dataquest April 1989

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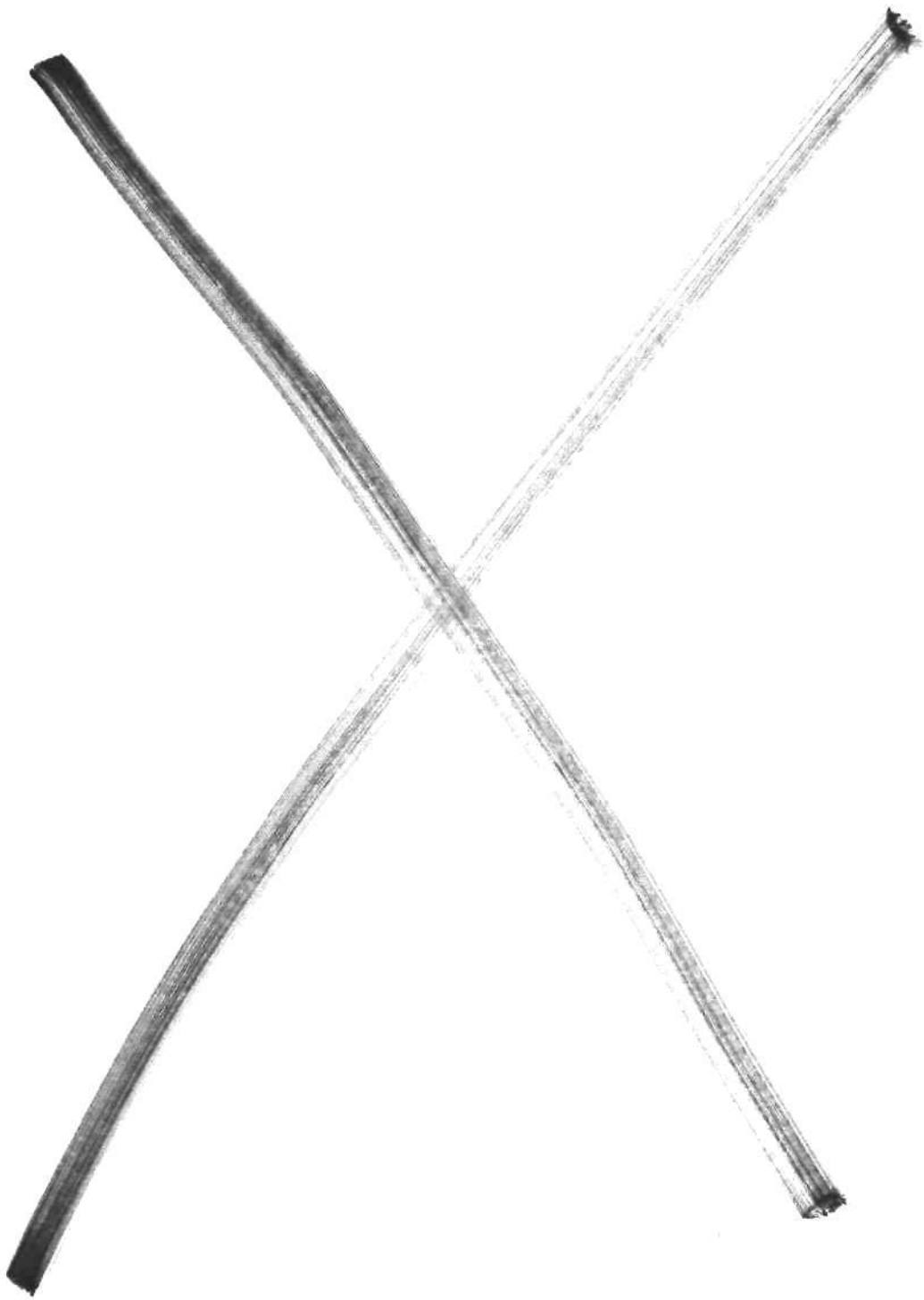
Patents and Trademarks

Applications to register a patent in France should be made in French to the L'Institut National de la Propriete Industrielle (INPI). An application should contain the following:

- The formal document asking for registration
- Two copies of a full description of the invention
- Two copies of any necessary designs
- A brief summary of the invention (maximum of 15 lines) for publication purposes
- Models or samples

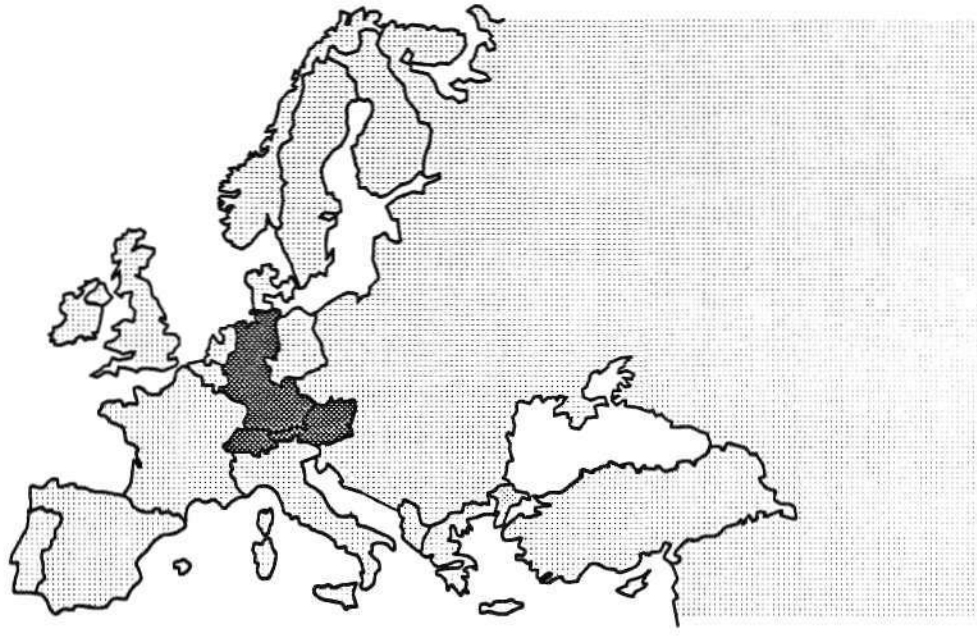
See Table 3.3-3 for the addresses of the trademark office and INPI.

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4.1 Geography and Demographics

German Region

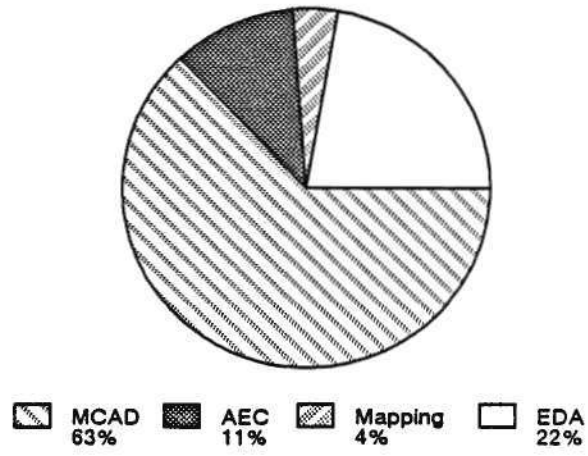


Regional Statistics	
Total engineers	635,100
Electrical/electronic	N/A
Mechanical	N/A
Chemical/biological	N/A
Metallurgical/materials	N/A
Civil/architectural	N/A
Others	N/A

N/A = Not Available

CAD/CAM-Related Data	
1988 Market size	
Revenue (millions)	$1,183
Workstations shipped	39,590
Installed base	84,029

1988 Revenue Mix by Application

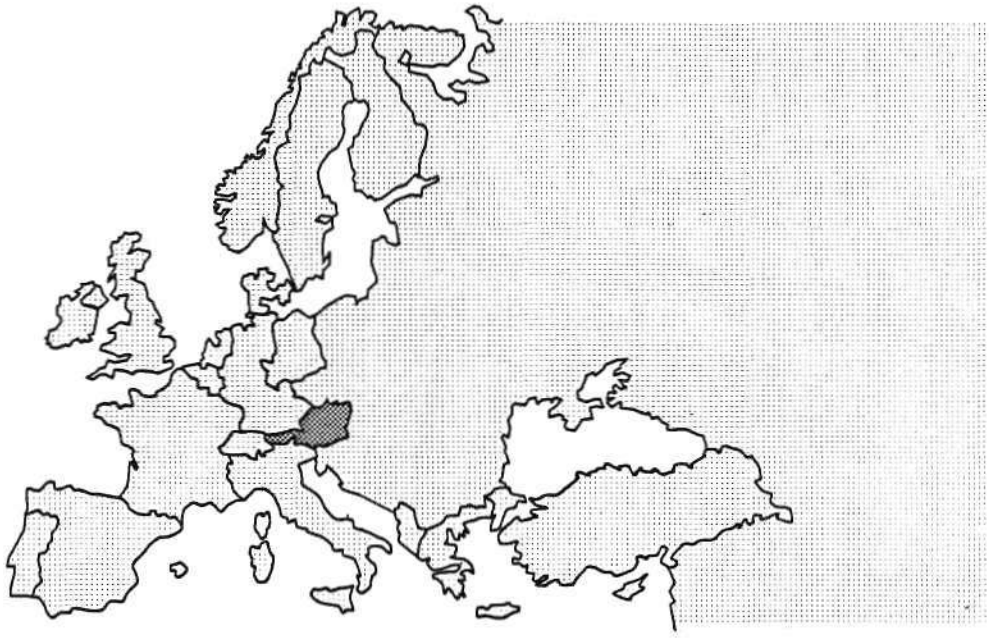


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Source: U.S. Department of Commerce
The World Bank
Dataquest
April 1989

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Austria



Country Statistics			
Total population (millions)	7.56	1988 Exchange rate (S/US$)	12.35
Area (square kilometers)	83,849		
Population density	90:1	1988 Unemployment rate (%)	3.8
Trade balance (US$-billions)	(7.0)	Total engineers	67,700
1988 GDP (1980 US$-billions)	88.7	Electrical/electronic	13,464
1988 GDP (1980 S-billions)	1,145.2	Mechanical	7,401
1989 real GDP growth rate (% est.)	2.5	Chemical/biological	687
Structure of production (% 1985 GDP)		Metallurgical/materials	3,639
Agriculture	3	Civil/architectural	20,407
Industry	38	Others	22,102
(Manufacturing = 28%)			
Service	59		

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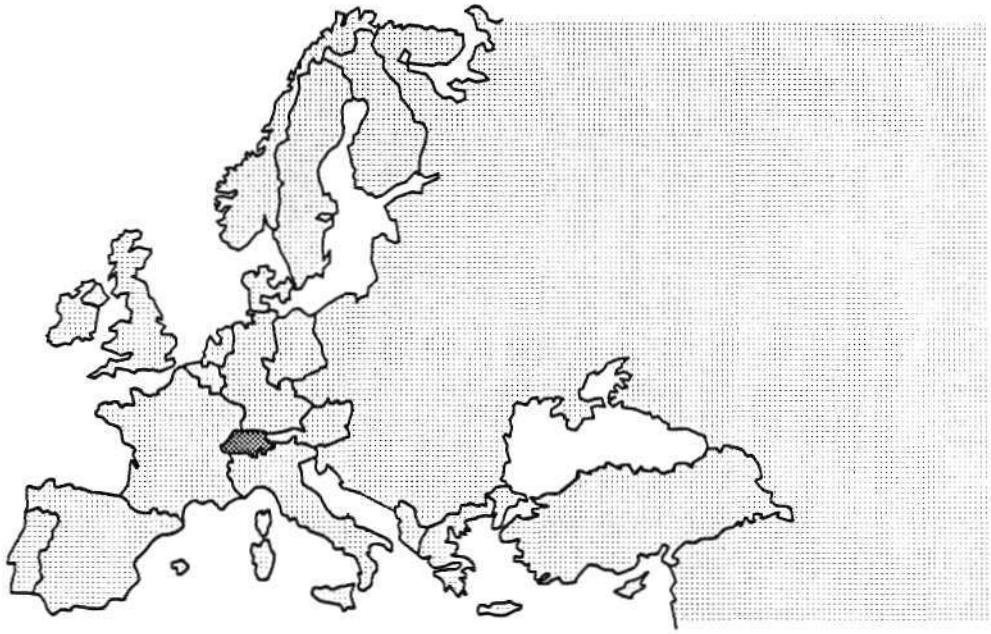
Source: U.S. Department of Commerce
1988 Statistical Yearbook (UNESCO)
The WEFA Group
Dataquest
April 1989

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Switzerland



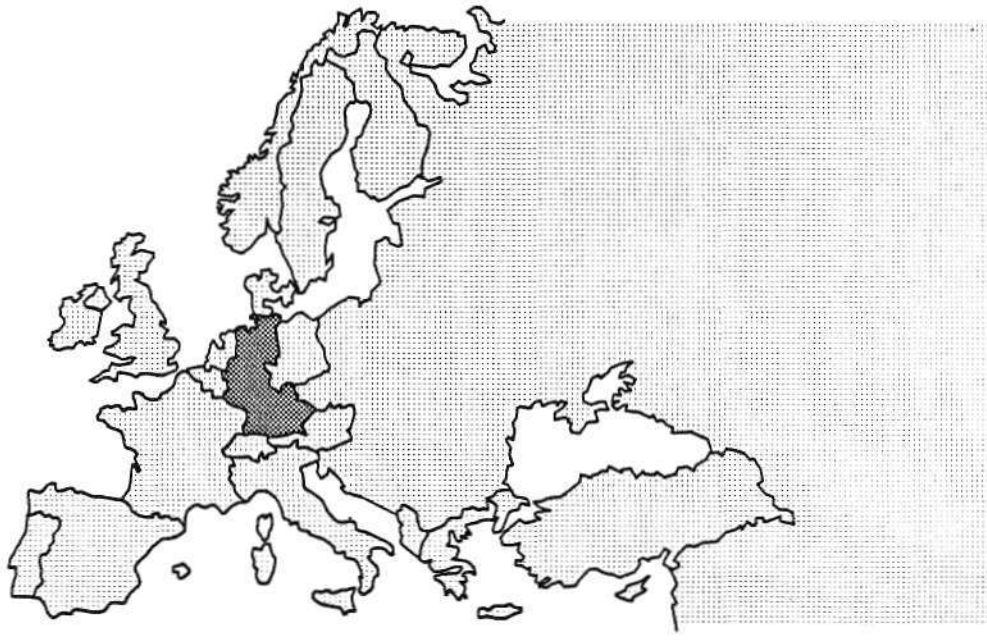
Country Statistics			
Total population (millions)	6.5	1988 Exchange rate (SFr/US$)	1.45
Area (square kilometers)	41,293		
Population density	157:1	1988 Unemployment rate (%)	0.6
Trade balance (US$-billions)	(7.1)	Total engineers	60,000
1988 GDP (1980 US$-billions)	117.4	Electrical/electronic	N/A
1988 GDP (1980 SFr-billions)	196.5	Mechanical	N/A
1989 real GDP growth rate (% est.)	2.5	Chemical/biological	N/A
Structure of production (% 1985 GDP)		Metallurgical/materials	N/A
Agriculture	NA	Civil/architectural	N/A
Industry	NA	Others	N/A
(Manufacturing NA)			
Service	NA	N/A = Not Available	

0003843-3

Source: U.S. Department of Commerce
1988 Statistical Yearbook (UNESCO)
The WEFA Group
Dataquest
April 1989

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Federal Republic of Germany



Country Statistics			
Total population (millions)	61.05	1988 Exchange rate (DM/US$)	1.75
Area (square kilometers)	248,577		
Population density	246:1	1988 Unemployment rate (%)	8.8
Trade balance (US$-billions)	66.0	Total engineers	507,400
1988 GDP (1980 US$-billions)	933.3	Electrical/electronic	80,500
1988 GDP (1980 DM-billions)	1,693.4	Mechanical	77,900
1989 real GDP growth rate (% est.)	2.5	Chemical/biological	N/A
Structure of production (% 1985 GDP)		Metallurgical/materials	N/A
Agriculture	2	Civil/architectural	147,900
Industry	40	Others	N/A
(Manufacturing = 31%)			
Service	58		

N/A = Not Available

0003843-4

Source: U.S. Department of Commerce
1988 Statistical Yearbook (UNESCO)
The WEFA Group
Dataquest
April 1989

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4.2 Government, Trade, and Economic Forces

EXECUTIVE OVERVIEW: GERMAN REGION

The following summary highlights this region's major economic and political developments of 1988, and presents 1989 economic projections. It is based on reports from The WEFA Group (Wharton Econometric Forecasting Associates).

Germany

- According to the Federal Statistical Office, Germany's 1988 growth rate, at 3.4 percent, was the highest since 1979.
- Despite this growth, certain sectors of the economy, such as private consumption, are exhibiting a slowdown. These declines, however, are being fully offset by increases in investment activities, particularly in residential investment.
- Export performance is expected to remain strong in both the long and medium terms, due to Germany's low inflation rate. Because approximately half of Germany's exports currently go to other EC countries, and because EC exchange rates remain relatively stable for long periods, the deutsche mark (DM) is effectively devalued. The result is a relative competitive advantage for Germany.
- It is a widely held belief that the only way German industry can lower costs and compensate for competitiveness lost due to the strong deutsche mark is to increase productivity by investing in modern equipment and streamlining production in such a way as to minimize capital costs. This belief also implies that the government must lighten tax pressure on German companies facing intensified global competition.
- Private consumption remains the only negative force acting upon Germany's growth rate, forecast at 2.5 percent for 1989, down from 3.4 percent growth in 1988.

Austria

- Domestic and international demand surged in 1988, and Austria's GDP growth rate soared to 3.9 percent, up from 1987's 1.3 percent growth.
- In an about-face, the Austrian government has decided to apply for EC membership in spring 1989. The single point of negotiation is Austria's firm obligation to retain its neutrality.
- The Austrian shilling remains closely tied to the deutsche mark, and this is regarded as the best anti-inflationary insurance.

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- Another high growth rate for Austria's domestic economy is expected in 1989, as the economy is strengthened by tax reforms. Domestic and external demand will be the complementary engines of growth in the economy.

Switzerland

- Real GDP increased 2.5 percent in 1988, supported by a 3.8 percent rise in investment in plant and equipment, a 2.6 percent rise in exports, and a relatively small 2.6 percent gain in imports.
- The financial community continues to press for reform of the Stamp Act, fearing loss of business to other financial centers such as London.
- A more restrictive monetary policy is reflected in the Swiss National Bank's announcement of a 2 percent target for money supply growth in 1989.
- Growth is anticipated to continue in 1989 at a 2.5 percent rate.

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4.3 Doing Business in the German Region

BACKGROUND ON WEST GERMANY

General Considerations

The FRG, commonly called West Germany, is one of the most prosperous countries in the world. It has a good record of economic stability, low inflation, and comparatively harmonious labor relations, all of which have helped to make it the world's largest exporter of manufactured goods.

Unemployment continues to plague West Germany's economy. Although the economic growth over the past years has also led to an increase in the total number employed, this increase accounted for a bare 0.5 percent in 1987. The estimated 70,000 new jobs that were created in 1988 will probably not be enough to stop unemployment from rising again without significant intervention. West German companies are reportedly becoming more and more pessimistic about the economic outlook; some are considering cutting back on jobs, according to the Association of German Chambers of Commerce (DIHT).

Many companies have been investing abroad to offset worsening export prospects—particularly in the dollar area. Against this gloomy backdrop, the government in Bonn has taken the initiative in the steel-producing area of the Ruhr and has agreed to find another DM 400 million to help create jobs, making the total subsidy to the industry DM 1 billion. The government also has promised to allow a toll-free harbor in Duisburg and to encourage heavier investment by government departments.

Since 1982, West German industrial production has risen only 8.3 percent. When the construction sector activity is excluded, German industrial production grew at about the same rate as the EC's total industrial production, but it was well below the OECD's total of 17 percent for this same period. Although production reached its lowest level in the 1982 recession, the only sectors to remain depressed have been mining and construction. (See Table 4.3-1.)

This industrial index provides a rough indication of the demand for different CAD/CAM application sectors in West Germany. High-production industries would be expected to have a stronger demand for industrial automation tools.

Domestic concern is being expressed over Germany's competitiveness in the global marketplace. Not only has the country's GNP growth slowed relative to the United States, Britain, and Japan, but the level of fixed-asset investment in West Germany has been below the international average.

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Table 4.3-1

Percentage Change in German Industrial Output (1982-1987)

Industrial Sector	Output Percentage Change
Electrical Engineering	26.0
Chemicals	18.2
Vehicles	14.3
Electricity and Gas Supply	13.3
Textiles	4.5
Mechanical Engineering	2.2
Construction	(4.7)
Mining	(11.1)
Iron and Steel	(12.3)

Source: Bundesbank
Dataquest
April 1989

The Federation of German Industry has been particularly concerned about the state of both engineering and manufacturing in the country. West German engineering productivity is undoubtedly affected by the fact that West Germany has the shortest working hours in the world. The federation has estimated that a Japanese engineer works 500 hours more per year than a West German engineer. Some fear that ultimately this difference translates into loss of productivity. Government officials have realized recently that West Germany's high labor costs, the short work weeks, and some of the highest levels of corporate taxation, also affect Germany's attractiveness as a choice for a manufacturing location.

Government Structure

The Federal Republic of Germany (FRG) is composed of 10 *laender* (states), and each has its own constitution, parliament, and government. West Berlin retains a separate status. Defense, foreign affairs, and finance apart, the states are virtually autonomous. The country has a two-house parliamentary regime. The upper house, the Bundesrat (Federal Council), has 45 seats—41 from the state governments and 4 with limited voting rights appointed by the West Berlin senate. The lower house, the Bundestag (Federal Assembly), is the country's main legislative body. It has 520 deputies, 498 of whom are elected every 4 years by a mixed system of voting and proportional representation; the remaining 22 deputies, again with limited voting rights, are nominated by the West Berlin house of representatives. The president is the constitutional head of state, but, like a king or queen in a monarchy, has little influence on government. The effective head of state is the federal chancellor, who is normally the leader of the party that is dominant in the lower house.

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The main political parties in the FRG are the following:

- The Social Democratic Party of Germany (SPD)
- The Christian Democratic Union (CDU)
- The Christian Social Union of Bavaria (CSU)
- The Free Democratic Party (FDP)
- The Greens (the Ecology Party)

During Dr. Konrad Adenauer's chancellorship of 1949-1963, and with the direction of economics minister Dr. Ludwig Erhart, the Federal Republic rebuilt itself rapidly to become one of the most affluent and economically dynamic states in Europe. The CDU/CSU formed the government from 1949 through 1966—for the most part, in coalition with the FDP. Between 1966 and 1969, the country was governed by the "Grand Coalition" of the CDU/CSU and SPD. After the general election in 1969, a new coalition of SPD and FDP under the chancellorship of Willy Brandt formed the government until Mr. Brandt's replacement in 1974 by Helmut Schmidt. In 1982, Mr. Schmidt lost a vote of confidence; at that time, a new coalition of CDU/CSU/FDP was formed with Dr. Helmut Kohl as chancellor.

GOVERNMENT POLICIES IN WEST GERMANY

Monetary Policy

Currency and Inflation

Starting in 1950, the deutsche mark (DM) appreciated steadily against the U.S. dollar for nearly 30 years. Overall, however, the deutsche mark remains one of the most stable currencies in Europe, with the currencies of many European countries linked to its value.

West Germany historically has exerted a tight monetary policy. Having experienced hyperinflation in the past, the German government continues to pursue its cautious monetary policies in order to avoid inflation.

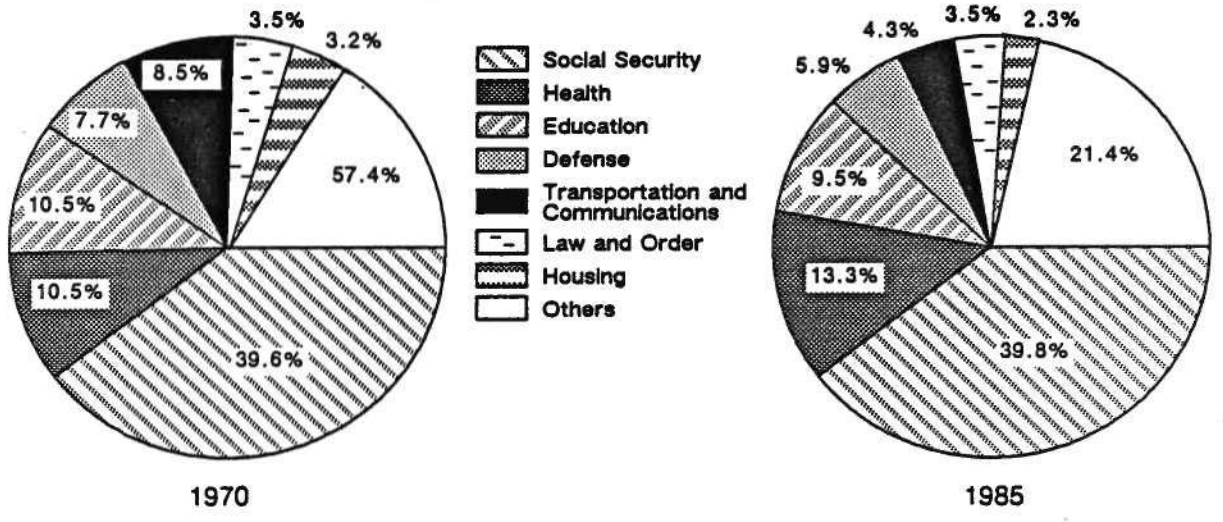
Public Sector and Public Debt

As in much of Western Europe, the public sector has grown markedly in the Federal Republic of Germany. Figure 4.3-1 shows how the West German government apportions its expenditures. The "Health" category includes the country's high expenses for energy and environmental protection.

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Figure 4.3-1

West Germany Government Expenditures by Category



0003588-1

Source: Dataquest April 1989

As in other European countries, public debt has increased also. In 1973, public debt was 17 percent of GNP; in 1987, public debt rose to 45 percent of GNP. At the end of 1986, West German public debt exceeded DM 800 billion. This debt is not expected to be corrected any time soon. In fact, further budget deficits have been encouraged in order to increase domestic demand in the country. The United States has encouraged this situation because of the falling dollar and the trade imbalance with West Germany.

Foreign creditors continue to play a major role in financing Germany's public debt. For instance, of the DM 41 billion increase in the 1986 public debt, 85 percent was funded by foreign creditors.

Privatization

In contrast to countries like France and Italy, government ownership is on a much smaller scale in West Germany. Most of the government holdings sold since 1983 (some 50 companies) realized less than DM 1 billion. The largest remaining holdings are 16 percent of Volkswagen and 80 percent of Lufthansa. Both companies were offered for sale in 1987, but various political reasons have delayed the sales.

Trade Policy

Trade has become one of the cornerstones of the West German economy: Export trade accounted for more than 30 percent of the 1986 GNP, compared with less than 7 percent for the United States. Despite the slowing of world economic growth, West Germany recorded a trade surplus of well over DM 100 billion in 1986.

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The greater share of the country's exports (53 percent) go to other EC countries, with the lion's share to France. However, the United States is West Germany's second largest trading partner.

Intellectual Property Protection

Patents and Trademarks

To protect their industrial property rights, exporters should obtain professional advice about protection for patents, designs, and trademarks in any country where they have a market. If patent coverage is required in more than three countries, it is more cost-effective to apply under the European Patent Convention of 1978, designating each country on one application.

The Federal Republic of Germany, like most other major trading countries, subscribes to the International Convention for the Protection of Industrial Property. Within six months of registering a patent application, an exporting company may test the market in a convention country and decide for itself whether any protection is necessary. Disclosure of an invention or design during this period does not jeopardize the application for a patent. Advice on any of these matters can be gained from agents specializing in patents, designs, and trademarks. Names and addresses of these agents will be supplied for a small fee by the Chartered Institute of Patents.

INVESTMENT CONSIDERATIONS IN WEST GERMANY

Direct Foreign Investment

Financial investment from foreign sources is permitted in West Germany; for current advice, the overseas branch of any bank should be consulted. Under the Treaty of Rome, any European Economic Community (EEC) national can set up a business in the countries of the community, provided that the laws applying to the relevant sector in that country are observed. However, certain industries are subject to control in order to safeguard health and to restrict unqualified persons. Proof of professional qualification or, in some cases, proof-of-experience certificates are generally required. These can be obtained from the Department of Trade and Industry.

Investment Incentives

Incentives are available to businesses wishing to set up a factory or office in many areas of West Germany. The individual states all have separate business development agencies run by businessmen, to whom inquiries should be directed. Further information is available from the local chambers of commerce and banks in each state.

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OTHER BUSINESS CONSIDERATIONS IN WEST GERMANY

Company Law

The foreign investor will normally have to choose between two types of company setup in Germany:

- Partnership (OHG, KG, or GmbH & Co.KG)
- Corporate (GmbH or AG)

The main differences among these company types are in taxation principles.

OHG (Offene Handelsgesellschaft)

This is a general partnership in which all partners are jointly and severally liable for all liabilities of the partnership.

KG (Kommanditgesellschaft)

This is a limited partnership. The limited partners are liable for only their own contribution. There must be at least one general partner.

GmbH & Co.KG

This is a limited partnership in which only the general partner is a limited liability company. It is widely used in Germany because it combines the advantageous taxation of individuals with limited liability. The tax advantage is less for nonresident partners, but it can still sometimes be a worthwhile consideration.

GmbH (Gesellschaft mit beschrankter Haftung)

This form of company can be set up in one to six weeks, and the shareholders are liable for only their capital contribution. Its shares are not physically represented by a piece of paper; they are merely rights against the other shareholders, transferred by notarial deed. Minimum capital requirement at present is DM 20,000, but the requirement is expected to be raised to DM 50,000.

AG (Aktiengesellschaft)

This style of company requires at least five founders, with a minimum capital requirement of DM 100,000. Some businesses insurance, for example, can be conducted only by an AG; however, in many cases, this company form will be chosen mainly for its prestigious status. Foreign investors rarely choose it.

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Taxation

Corporation Tax

West German companies are subject to corporation tax at the rate of 56 percent on predividend profits and 36 percent on post-dividend profits. For branches of foreign-based corporate entities, the rate is a flat 50 percent.

Trade Income Tax

Gross trade income tax varies between 14.0 and 22.5 percent, depending on where the business is based.

Value-Added Tax

Value-added tax (VAT) is charged at 14.0 percent and 6.5 percent, excluding some kinds of transactions altogether—mainly those connected with sales and services outside the EEC, lease and rental proceeds, and insurance or bank transactions.

Capital Investment Tax

Capital investment tax is levied whenever capital is introduced into a company or when the value of shares is increased.

BACKGROUND ON AUSTRIA

General Considerations

Following the signing of the State Treaty of Vienna in May 1955, Austria became truly independent, especially after the passing of the constitutional law on the country's permanent neutrality in October 1955. The permanent neutrality and the guarantee of human rights have given Austria much international respect. This respectability has lost credibility recently, however, as a result of allegations that Austria's president, Kurt Waldheim, had been involved in war crimes under the Third Reich.

Government Structure

Austria is a democratic republic established as a federal government consisting of nine laender (states). The country is headed by a president (bundesprasident) who is elected directly by the people. The legislative and executive powers are divided between the laender and the bund (federation). Each state has its individual democratic institutions—the landtag (elected by the people) and the landesregierung (elected by the landtag). Whereas the bund is entitled to legislate, the laender are responsible for the

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implementation of such legislation. This legislative power of the bund is exercised by the nationalrat (National Council) jointly with the bundesrat (federal council). The nationalrat consists of 183 members who are elected every four years. The bundesrat, representing the states, elects a total of 58 members. The government consists of the chancellor, who is chosen by the president; the vice chancellor; and the ministers.

The main political parties in Austria are the following:

- Osterreichische Volkspartei (OVP)—(Austrian People's Party)
- Sozialistische Partei Osterreichs (SPO)—(Socialist Party of Austria)
- Freiheitliche Partei Osterreichs (FPO)—(Freedom Party of Austria)
- Vereinigte Grune Osterreichs (VGO)—(Green Party of Austria)
- National Demokratische Partei (NDP)—(National Democratic Party)
- Kommunistische Partei Osterreichs (KPO)—(Communist Party of Austria)

Relationship to Major International Agencies

Austria is an active member of the United Nations, and, because of its position at the center of Europe, it has become a link between the East and West. There can be found the headquarters of several international institutions, such as the International Atomic Energy Agency (IAEA), the United Nations Industrial Development Organization (UNIDO), and the Organization of Petroleum Exporting Countries (OPEC). Moreover, Austria is a member of the General Agreement on Tariffs and Trade (GATT), the Organization for Economic Cooperation and Development (OECD), and the European Free Trade Association (EFTA). It is linked to the EC by a free-trade agreement.

Industrial Structure

Austria's industry consists mainly of small to medium-size companies. As per 1987 data, the total number of industrial and trading concerns was about 230,000, of which 97 percent employed less than 50 people. Only 140 private companies employed more than 1,000 people. The nationalized industries employed 115,000 people.

The computer market in Austria continues to expand rapidly. Hardware turnover exceeds S 10 billion a year with an installed base of approximately 450,000 computers as of 1988. More than 300 companies are involved in the software sector—both domestic and foreign companies being represented—with annual turnover estimated near S 9 billion. Computer-aided design, computer-aided manufacture, and computer-integrated manufacture (CAD/CAM and CIM) are areas of increasing importance.

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Economic Development

Over the past two decades, Austria's economic base has been transformed from an agricultural to a modern industrial one. The world economic setbacks and cycles have not affected the Austrian economy to the same extent as other European nations. During the 1970s, inflation rates ran about 2.5 percent below the OECD average while economic growth was about 1 percent above. This resulted from the combination of monetary and income policies with a strict currency exchange. Labor relations and the strike record continue to be enviable.

Nevertheless, after an unprecedented period of prosperity lasting some 15 years, the economy is now at a turning point. The country has enjoyed a higher rate of growth, lower inflation, and lower unemployment than most other Western countries in the 1970s and 1980s; however, over the past few years, it has become apparent that the comprehensive welfare system, the high cost of wages, and a large and inefficient state industrial sector have become prohibitive. (Austria has probably the highest state control level in Western Europe. The public sector contains all forms of energy, telecommunications, coal, steel, railways, and three banks.)

Mainly due to industrial rationalization programs, the unemployment rate is starting to edge up. Moreover, the country's exports have been adversely affected by the weaker dollar as well as the slump in the market demand in OPEC countries and Eastern Europe.

The growth of real GDP declined from an annual rate of 6 percent between 1968 and 1973, to 3 percent between 1973 and 1979, and to 1.75 percent between 1979 and 1986, falling finally to 1 percent 1987 and 1988. This rate is expected to continue in 1989. The budget deficit has increased to about 5 percent of GDP over the last few years. As a result, debt repayments have been rising by leaps and bounds, from only S 9 billion in 1973. The total debt/GDP ratio has more than quadrupled during the same period, to 43 percent. According to those projections, the federal budget deficit would increase progressively from 5 to 9 percent of GDP by 1992, and the debt/GDP ratio would grow to 70 percent.

GOVERNMENT POLICIES IN AUSTRIA

Monetary Policy

The Austrian government has acknowledged the need for fiscal restraint. The aim is to reduce the federal budget deficit from 5 percent of GDP to 2.5 percent by 1992. The government has decided to bring down the budget deficit by cutting the public-sector spending rather than by increasing taxation; however, the taxation will be restructured. The highest income tax brackets will be reduced from 62 percent to 50 percent, and the

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lowest will be reduced from 21 percent to 10 percent. To cover the 10 percent difference, tobacco has been taxed by a further 5 percent and the tax on gambling increased by a further 10 percent. The tax on interest earned on bonds and savings will be 10 percent. This new tax reform, to be implemented in 1989, will be the first overhaul of the tax system since World War II.

Measures to decrease the budget deficit include:

- Reduction in recruitment for the civil service
- Delays in the wage round for government employees
- Postponement of the adjustment of pensions (Last year, the government contribution to total pension benefits exceeded 30 percent.)
- Introduction of fees for some social services
- Reduction or abolition of certain family allowances
- No increases in farm subsidies

Voest Alpine has announced a restructuring program that will result in eliminating 9,500 jobs by 1990. Also, there is talk of privatization of several of the nationalized industries. The aim of these drastic measures is to put Austria back on a strong growth path in the next decade.

Trade Policies

The Austrian economy has strong ties to the Federal Republic of Germany (FRG). Austria's leading trade partner, the FRG receives approximately 40 percent of all Austrian exports. Moreover, the Austrian schilling is linked with the West German deutsche mark. More than 63 percent of all Austrian exports went to EEC countries in 1987, while 68 percent of imports came from the EEC. At the same time, Austria's exports to the East European countries and the OPEC nations have been decreasing. This situation results partly from the agreement that was signed in 1972 between the EEC and the EFTA. The agreement is due to change in 1992, however, when the EEC's internal market will come into existence. Unless steps are taken to associate fully with the EEC's internal market, a loss of 1.5 percent of Austria's market share in the EEC is feared. At this stage, the Austrian government has left open the option of an application for full community membership in case efforts to take part in the internal market are not successful.

Intellectual Property Protection

Manufacturers and traders are strongly recommended to patent their inventions in Austria and to register their trademarks. Applications should be made through a patent or trademark agent—either in the country of residence or in Austria. Austria subscribes to the International Convention for the Protection of Industrial Property.

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Patents

Patents are granted for a period of 18 years from the date of publication of the application, subject to annual renewal fees. If the patented invention is not worked to a prerequisite degree within three years of the date of when the patent is granted, then the patentee may be ordered to grant licenses.

Trademarks

Trademarks can be registered for goods and services. The first applicant is entitled to registration and exclusive use of a trademark for 10 years. Then the trademark may be renewed for similar periods not earlier than 1 year before, or later than 6 months after, the expiration date. If a prior user wishes to apply for cancellation of a trademark, this must be done within three years of the initial registration.

INVESTMENT CONSIDERATIONS IN AUSTRIA

Direct Foreign Investment

Austria has one of the lowest unemployment rates and one of the lowest strike rates in Europe. These two points, plus the experience Austria has to offer in trading links with Eastern Europe, make the country a favorable target for overseas investors. The Austrian government recognizes this by treating both Austrian and foreign investors in the same manner, apart from a few formalities. These differences include the following:

- A non-Austrian citizen may establish businesses if there are intergovernmental agreements in operation to allow for it or if an Austrian enterprise is not subject to any unfavorable constraints in operation of a business in the expatriate's own country.
- The foreign investor who is not from a member state of the European Free Trade Association (EFTA) will require an operating permit issued by the relevant provincial governor.
- A non-Austrian citizen wishing to purchase property must obtain a permit to do so, and a foreign investor who is not resident in Austria must appoint a representative who is. However, this is the extent of Austrian involvement in the running of an overseas-owned company as required by law.
- A nonresident wishing to buy into an already established Austrian venture must apply to the National Bank for a permit to import capital.
  - If the proposal will enhance business in a development area, contribute jobs, or aid technology and research, it is unlikely to be refused.
  - If it appears that the foreigner is applying for control over an Austrian business, however, the application is less likely to succeed.

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Investment Incentives

Incentives for investments are operated at the federal, provincial, and local levels. They are used to control economic expansion, to provide employment, and to develop areas in need of assistance (usually the more rural districts). Applications are usually made through the investor's bankers. All loan schemes are subject to change, depending on economic circumstances, and potential investors are encouraged to contact one of the Austrian banks for the latest details.

Among the many investment incentive schemes covering a wide range of activities, the major ones are highlighted in the following paragraphs.

Industrial Site Development

For development of industrial sites, the Oesterreichische Kommunal Kredit AG will grant loans for up to 15 years at 7.5 percent interest. The applicant is expected to provide one-third of the total funds required.

Product Sector Growth

Loans are granted to increase investment in specific product sectors such as for microelectronics projects or CAD/CAM ventures. CAD/CAM ventures can be allocated up to S 10 million over 8 years at 5 percent interest. In this case, the applicant should provide 25 percent of the total costs.

Plant, Machinery, and Buildings

Funds are available from the European Relief Plan (ERP Credits), at 5 percent interest over 5 years for plant and machinery. Loans for buildings are extended for 10 years.

CAD/CAM

Austria has no special development agency for CAD/CAM. However, it is possible to get government support for special research projects that can involve CAD/CAM. It is also possible to get a loan from the Oesterreichische Invest-Kredit Bank for investments in CAD/CAM (maximum 75 percent of the total investment) with very low interest rates (4 percent).

In cases where CAD/CAM is part of a CIM project, such as investments, to improve production facilities (NC machines, shop floor management systems), it is possible to receive a government grant called "Microelectronic Promotion."

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OTHER BUSINESS CONSIDERATIONS IN AUSTRIA

Company Law

Any newly formed business must notify the Commercial Registry of its establishment and deposit its constitutional documents with the registry. Any subsidiary company must produce evidence of the existence and viability of a parent. The Registry is open to the public, and it is located at the commercial court.

Following the German pattern of establishment, Austrian legislation provides for the following forms of organization:

- GmbH (Gesellschaft mit beschraenkter Haftung)—Limited company (The minimum capital required is S 500,000.)
- AG (Aktiengesellschaft)—Stock corporation (The minimum capital required is S 1,000,000.)
- Genossenschaften—Cooperatives/partnerships
- GmbH & Co.KG—Limited partnership, with a limited company or corporation as general partner
- OHG (Offene Handelsgesellschaft)—General partnership
- KG (Kommanditgesellschaft)—Limited partnership
- Silent partnership
- Partnership under civil law

Experience shows that the GmbH, AG, and GmbH & Co.KG forms are preferred by foreign investors, mainly for tax reasons.

Taxation

The Austrian tax system is based on the German tax reforms of the 1920s, which became law in Austria in 1938, although there have been some amendments.

Main Direct Taxes

Income Tax. Every individual is taxed separately on income; there is no joint taxation of married couples. Nonresidents are subject only to taxation on certain income within Austria, and can claim only expenses directly related to that income.

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Wage Tax. This is a special kind of income tax, payable at source and deducted by the employer. It carries certain benefits in that "additional payments," such as thirteenth and fourteenth monthly salaries (salaries paid in advance), can be tax free.

Capital-Yields Tax. This is a tax on profit shares and on interest from shares, bonds, and receipts from any business enterprise earned as a silent partner.

Corporation Tax. Corporation tax is levied on the profits of legal entities, including permanent establishments of foreign companies in Austria. It is determined by means of a sliding scale from 30 percent for profits up to S 200,000, to 55 percent of profits more than S 1,140,000. This tax applies to postdividend profits.

Commercial Tax. Trading profits, trade capital, and total wages are subject to assessment for this tax, which can amount to 15 percent of trading profit and 1.5 percent of working capital.

Property Tax. This tax is levied on individuals and on legal entities. It is less important than the other taxes, and is levied at a rate of 1 percent of total taxable net assets.

Main Indirect Taxes

Value-Added Tax (VAT). The VAT was introduced in Austria in 1973. It is levied on the amount invoiced by any person carrying out an independent business activity for goods and services rendered and levied on imported goods, as is the import turnover tax, whether customs duties are payable or not. However, if duty is paid, VAT is calculated on the duty-paid value. The exact amount depends upon the goods in question, but the general rate is 20 percent. The VAT is levied on imports at 0.3 percent of the carriage/insurance/freight (c.i.f.) value at customs clearance points.

Property Transfer Tax. Transfers of property or real estate are taxed at 8 percent, except when transferred in exchange for shares. Then the tax rate is 6 percent.

Stamp Duty. This tax is levied on legal documents at several rates up to 2 percent.

Special Interest Tax. A rate of 5 percent of interest yield is levied on bank deposits and securities issued in Austrian currency.

Business Development Agencies

Austria has no special development agency for CAD/CAM. However, it is possible to get government support for special research projects that can involve CAD/CAM. It is also possible to get a loan with very low interest rates (4 percent) from the Oesterreichische Invest-Kredit Bank for investment in CAD/CAM (maximum 75 percent of the total investment).

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In cases where CAD/CAM is part of a CIM project—i.e., investments to improve production facilities (NC-machines, shop-floor management systems)—it is possible to receive a government grant referred to as "Microelectronic Promotion."

BACKGROUND ON SWITZERLAND

General Considerations

Switzerland is often thought of as being divided into three main regions: the German-speaking, French-speaking, and Italian-speaking regions. The two main parts of Switzerland are the French, or Romande, region and the German-speaking region. The German-speaking region boasts the largest banks and corporations and contains 74 percent of the population. The French-speaking region identifies with neighboring France, as very few Swiss French speak German. This region contains 20 percent of the Swiss population, and the Italian-speaking region has 6 percent.

The Swiss trademarks of efficiency, conservatism, and a service-based business approach have been the forces behind Switzerland's becoming a major world financial power. The health and soundness of the Swiss economy have given its inhabitants one of the highest standards of living in the world and the highest in Europe. The majority of people are employed in the service sector, which is mainly composed of the banking and hotel trade. Industry provides close to 40 percent of all jobs.

Switzerland's major "industry" is services, and the dominant service sector in Switzerland is primarily made up of the banking and tourism trades. The diversity between regions and the service mentality of the Swiss have made Switzerland Europe's first tourist area. Switzerland was the birthplace of the hotel industry. The banking confidentiality that has earned Switzerland the reputation of the banking capital of the world is based on a penal system for bank employees who disclose information about clients. Magistrates have no power to demand information about bank clients, unless the information concerns a criminal offense. Furthermore, tax evasion is not a crime in Switzerland. Only recently, with growing international competition and a further integration of Swiss banks into international markets, have these laws experienced some revision.

Two of the major industries in Switzerland are chemicals and pharmaceuticals. The largest, pharmaceuticals, has become the third largest in the world by concentrating on a sophisticated product line. Such companies as Ciba-Geigy and Brown Bovery are mainly large international concerns, dependent on export markets. Smaller industries in Switzerland include the luxury watchmaking industry, which has a worldwide reputation, and the textile industry. Although both are very much dependent on export markets, they have, in the long run, proved to be the most resilient industries in the country.

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Given the geographic layout of the country, agriculture in Switzerland plays a minor role in the overall economy. Recently, this sector has been characterized by a decreasing number of people employed; however the decrease in workers has been offset by increased efficiency. Swiss agricultural output, which lacks diversity, creates yearly surpluses that must be disposed of at a cost to Swiss taxpayers.

GOVERNMENT POLICIES IN SWITZERLAND

Financial Affairs and Politics

Switzerland's desire to stay on the leading edge of technology and to keep up with the international financial and industrial world has led the country to make adjustments in its financial affairs in order to remain adaptable to the internationalization of financial markets. Conversely, strong environmentalist concerns have surfaced regarding the negative effects and social limits to growth. Growth and change come slowly to neutral Switzerland, a country with a high respect for the status quo and a long decision-making process in which public debate is encouraged.

Intellectual Property Protection

Switzerland subscribes to the International Convention for the Protection of Industrial Property and the European Patent Convention (EPC). It is advised that manufacturers and traders patent their inventions and register their trademarks in Switzerland. Applications should be made through the relevant agents in either Switzerland or the country of residence.

Patents

Patents are granted for a period of 20 years from the date of application on payment of an annual renewal fee. An invention covered by a patent should be worked within three years of the grant; otherwise, an order to grant licenses may be issued. Prior to convention, the product must not have become known in Switzerland or been published anywhere. Once a patent is granted in Switzerland, it is also valid for Liechtenstein.

Trademarks

The first user of a trademark is entitled to registration and exclusive use of it. Registration lasts for 20 years and may be renewed for similar periods, provided application is made not later than 6 months after expiration. Failure to make use of a trademark for three consecutive years may lead to its cancellation.

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The address of the Swiss office for both patents and trademarks is Bundesamt fur geistiges Eigentum, Einsteinstrasse 2, CH-3003 Berne, Switzerland.

INVESTMENT CONSIDERATIONS IN SWITZERLAND

Direct Foreign Investment

The right to freedom of trade and industry is part of the Swiss constitution. It permits foreigners to trade, establish a company, or open a branch office in Switzerland. Foreign-owned enterprises are allowed the same legal status as Swiss-owned ones. However, special authorization is required for direct foreign investment in the following sectors: banking, insurance, investments, restaurants, hotels, medicine, law, and pharmacology. The purchase of property is restricted for foreigners also; permission has to be obtained from the cantonal authorities.

When contemplating setting up a business in Switzerland, one must remember that Switzerland applies strict rules on the admission of foreign employees. Furthermore, due to the extremely low unemployment rate, it is very difficult to find specialist workers in Switzerland itself.

Further information on government policies toward foreign investments can be obtained from the Federal Office for Industry, Trade, and Labor and the Swiss Office for the Development of Trade.

Investment Incentives

The two main areas for which the Swiss government offers investment incentives are the following:

- The rural cantons
- The declining industries

In order to attract the establishment of new factories in the rural cantons, which are less developed, land is offered rent-free for a stipulated period. In these areas, public land can be made available at a concessionary rate.

The steel, textile, and watch industries are declining. To attract foreign companies to invest in these declining industries, land, finance, and tax incentives are available. For example, the government provides guarantees for investment credits and contributions to investment credit interest.

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OTHER BUSINESS CONSIDERATIONS IN SWITZERLAND

Company Law

The investor can choose from the following three different types of company setups in Switzerland:

- AG (Aktiengesellschaft) or SA (Societe Anonyme)—This style of company is a joint stock company with not more than one founding member. It has a minimum capital requirement of SFr 50,000 and a minimum par value per share requirement of SFr 100. A majority of the directors have to be of Swiss nationality and reside in Switzerland.
- GmbH (Gesellschaft mit beschrankter Haftung) or SARL (Societe a responsibilite limitee)—This type of company is equivalent to a private limited company. The minimum capital requirement for a GmbH is SFr 20,000, with SFr 10,000 to be paid at the time of incorporation.
- Branch office—A branch office is advisable only for companies with a fairly small volume of business. A branch office has certain disadvantages; it can be taxed proportionally to the sales revenue of the parent company. Also, the person running the branch office has to be resident in Switzerland, although not necessarily of Swiss nationality.

Taxation

The Swiss Tax System

The tax system in Switzerland is very complex because taxes are levied at all three levels of government and income and capital taxes are calculated at progressive rates. In all cases, minimum and maximum rates are set.

The federal government is entitled to levy turnover tax, stamp duties, and direct federal tax. The most important taxes the cantons levy are income and assets taxes and capital taxes. The taxes that the political communities can levy fall within a narrow range and are mainly a supplement to cantonal taxes.

Details of tax incentives for potential investors can be obtained from the Federal Administration of Contributions.

Federal Turnover Tax

The Federal Turnover Tax (Warenumsatzsteuer—WUST), which was introduced in 1941, is levied on the domestic turnover (revenue) and importation of most goods. Services are excluded from this tax. It is normally payable only once during the process of manufacturing and selling any product, and both manufacturers and wholesalers are liable for Federal Turnover Tax. The rates are 9.3 percent on the income from sales to the retail trade and 6.2 percent on the income from sales to other customers.

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BUSINESS INFORMATION SOURCES

West Germany

Business information sources for West Germany are listed in Table 4.3-2.

Table 4.3-2

Business Information Sources—West Germany

Source	Address
Federation of Industry	Bundesverband der Deutschen Industrie Gustav-Heinemann-Ufer 84-88 5000 Cologne 51 Deutschland
B.O.T.B	FOCUS GERMANY B.O.T.B 1 Victoria Street London SW1H 0ET
Financial Times	Daily Editions January-March 1988 London
Statistics Office	Statistisches Bundesamt Gustav-Stresemann Ring 11 D6200 Wiesbaden Deutschland
British Embassy	Mr. Eric Jenkinson Bonn Tel: 010-49-228-234061 x 283
German Embassy	23 Belgrave Square London SW1 Tel: 01-235-5033
VDI	Verein Deutscher Ingenieure Bezirksverein Frankfurt-Darmstadt 71 Flughafenstrasse 100 Frankfurt

Source	Edition
IMF World Economic Outlook	October 1987
OECD Economic Outlook	December 1987
Eurostatistics	January 1988
European Economy	November 1987
IMF International Financial Statistics	January 1988
Prudential-Bache International Research	February 1988

Source: Dataquest April 1989

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Austria

Business information sources for Austria are listed in Table 4.3-3.

Table 4.3-3

Business Information Sources—Austria

Source	Address
Austrian Trade Commission	Mr G.Stock 11 Hyde Park Gate London SW7 5ER Tel: 011-44-01-584-4411
Girozentrale u.Bank der Oesterreichischen Sparkassen AG	Walter Waschiczek Schubertring 5 A-1010 Wien Vienna
Oesterreiches Statistisches Zentralamt	Ms. M. Doerfler Hintere Zollamtstrasse 2b 1033 Wien Postfach 9000 Vienna Tel: 011-43-222-6628 Tlx: 132600
B.O.T.B Austria Desk	EEB Department of Trade and Industry 1-19 Victoria Street London SW1H 0ET Tel: 01-44-01-215-4798
Financial Times British Embassy, Austria	London Editions January-April 1988 Tel: 010-43-1-731575

Source	Edition
IFS	January 1988
OECD Economic Outlook	December 1987
Eurostat Eurostatistics	January 1988
European Economy	November 1987
IMF World Economic Outlook	October 1987

Source: Dataquest April 1989

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Switzerland

No business information source data are available for Switzerland.

BUSINESS DEVELOPMENT AND REGULATORY AGENCIES

West Germany

Business development and regulatory agencies for West Germany are listed in Table 4.3-4.

Table 4.3-4

Business Development and Regulatory Agencies—West Germany

Agency	Address	Type of Information
British Chamber of Commerce	BCCG Secretariat Heumarkt 14 D-5000 Cologne 1 Deutschland	Corporate tax incentive
Chartered Institute of Patents	Staple Inn Buildings High Holborn London WC1V 7PZ United Kingdom Tel: 011-44-1-405-9450	Patents, designs, and trademarks
The Department of Industry	European Policy Division 1 Victoria Street London SW1H OET United Kingdom Tel: 011-44-1-215-5354	EEC investment trade and incentives
Ausstellungs- und Messeausschuss der Deutschen Wirtschaft	Lindenstrasse D-4000 Cologne Deutschland	German CAD/CAM trade fairs

Source: Dataquest
April 1989

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Switzerland

Business development and regulatory agencies for Switzerland are listed in Table 4.3-5.

Table 4.3-5

Business Development and Regulatory Agencies—Switzerland

Agency	Address	Type of Information
Federal Office for Industry, Trade and Labor	Bundesgasse 8 CH-3000 Berne Switzerland Tel: 011-41-31-612 111	Foreign investment policies
Swiss Office for the Development of Trade	Rue Bellefontaine 18 CH-1003 Lausanne Switzerland Tel: 011-41-21-20 32 31	Foreign investment policies
Federal Administration of Contributions	Eigerstrasse 65 CH-3003 Berne Switzerland Tel: 011-41-31-61 71 96	Tax incentives
Swiss Standards Institute	Schwizerischer Elektrotechnischer Verein Seefeldstrasse 301 CH-8008 Zurich Switzerland Tel: 011-41-1-384-9111	Standards
Swiss Patent Office	Bundesamt fur geistiges Eigentum Einsteinstrasse 2 CH-3003 Berne Switzerland	Patents and trademarks

Source: Dataquest April 1989

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STANDARDS ORGANIZATIONS

West Germany

In the United Kingdom, only one organization, the British Standards Institute, publishes national standards. In West Germany, a number of organizations create and publish standards. The German Association of Electrical Engineers (VDE) is responsible for electrical standards. The Institute of Mechanical Engineers (VDI) publishes mechanical standards, and so on. Once accepted, all these standards are incorporated into the catalog of the Deutsche Industrie Normen (DIN), or German Industrial Standards.

Products can be tested for compliance with the requisite standards by most of the bodies producing standards. An inspection of the manufacturer's production methods is usually necessary, followed by tests on samples and further periodic surveillance. Once any particular product has been passed, the manufacturer is entitled to apply the relevant mark to each item produced.

West Germany has no laws stating that technical equipment must be tested and certified. Professional expertise is well respected, however, and the opinion of a recognized expert is highly prized.

Austria

If a company's goods meet German standards, Austrian specifications are unlikely to be a problem. Exporters of chemical and pharmaceutical goods must, however, be prepared for long testing periods prior to approval of any innovation.

Switzerland

Information on standards in Switzerland may be obtained from the Swiss Standards Institution.

CAD/CAM PUBLICATIONS

West Germany

Table 4.3-6 lists some CAD/CAM publications and the addresses of their publishers.

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Table 4.3-6

CAD/CAM Publications—West Germany

Publication	Address
Computer Graphik Markt CAD-CAM Report	Dressler Verlag GmbH Heidelberg Hauptstrasse 29 6900 Heidelberg Deutschland Tel: 011-49-6221-160081
MEGA	Guenther Klascher (Editor) Franzis-Verlag Postfach 37 02 80 8000 Munich 37 Deutschland
Computerwoche	Dieter Eckbauer (Editor) Postfach 400 429 Rheinstrasse 28 8000 Munich 40 Tel: 010-49-89-360860
Markt & Technik PC-Magazin	Eduard Heilmayr (Managing Editor) Markt & Technik Verlag AG Hans-Pinsel-Strasse 2 8013 Haar nr Munich Tel: 011-49-89-46130

Source: Dataquest
April 1989

Austria

Austria has no magazines specializing in CAD/CAM topics; however, some industry magazines contain CAD/CAM sections. Also, Austrian businesspeople read the German trade and technical press in addition to their own. The most popular Austrian magazines that contain CAD/CAM sections are:

- Technik Report
- Dispo
- Tech-Markt
- COM

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- Output
- A3 Volt

Information on other trade and technical publications available may be obtained from the Landesinnung Wien des Wirtschaftlichen Werbewesens. (See the "Business Development and Regulatory Agencies" section of this chapter.)

Switzerland

Swiss CAD/CAM publications, along with the addresses of their publishers, are listed in Table 4.3-7.

Table 4.3-7

CAD/CAM Publications—Switzerland

Publication	Address
Polyscope Computer & Elektronik	Verlag Binkert AG CH-4335 Laufenburg Switzerland
Micro- und Kleincomputer	Informa Verlag AG Postfach 1401 CH-6000 Lucerne 15 Switzerland
Elektronika	AT-Fachschriftenverlag Bahnhofstrasse 39-43 CH-5001 Aarau Switzerland
Output	Hans Wittwer, Chief Editor Seeblick CH-9327 Tubach
Technische Rundschau	Hallwag AG Nordring 4 Postfach 2665 CH-3001 Berne Switzerland Tel: 010-41-31-423 131

Source: Dataquest
April 1989

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Other magazines not dedicated to CAD/CAM topics but including a CAD/CAM section are the following:

- Der Elektroniker
- Elektro-Revue
- Sysdata
- Bau & Architektur
- Computerworld
- Bilanz
- Industrie e Tecnique
- CAD/CAM Report

TRADE FAIRS

West Germany

The three major CAD/CAM trade fairs in West Germany are shown in Table 4.3-8.

Further details of German trade fairs are published by the Ausstellungs-und Messeausschuss der Deutschen Wirtschaft. (The address is listed under "Business Development and Regulatory Agencies" in this section.)

Table 4.3-8

Major CAD/CAM Trade Fairs—West Germany

Name	Time of Year	Location
CeBit	March	Hannover
CAT	May/June	Stuttgart
Systec	October	Munich

Source: Dataquest July 1988

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Austria

Trade fairs are of particular importance in establishing business contacts, and participation in a trade fair should always be part of any integrated marketing plan. The following Austrian trade fairs are of special interest for foreign exhibitors:

- Vienna International Spring Fair
  Wiener Messe AG
  Vienna

- Autumn Fair
  Messeplatz 1
  Vienna

Switzerland

Switzerland has the following three main CAD/CAM trade fairs:

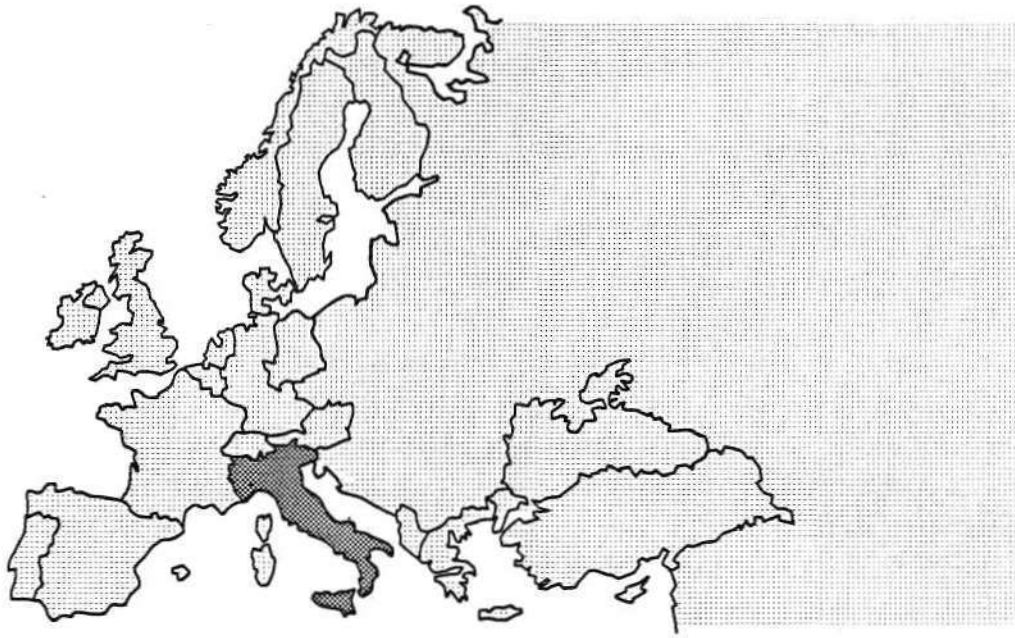
- Computer '89—Lausanne, May
- Swissdata—Basel, September
- Computergraphics—Zurich

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5.1 Geography and Demographics

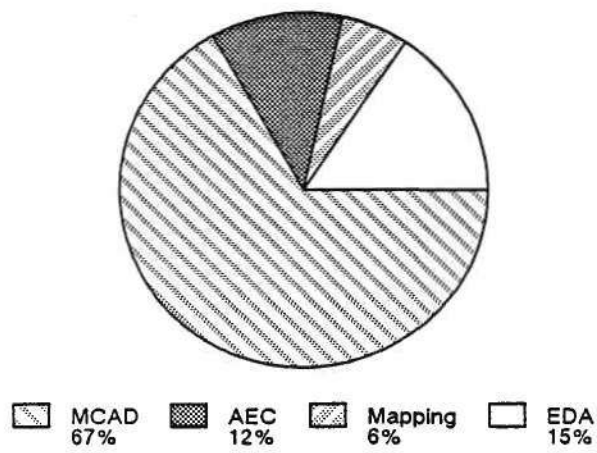
Italy



Country Statistics	
Total population (millions)	57.22
Area (square kilometers)	301,225
Population density	190:1
Trade balance (US$-billions)	(22.0)
1988 GDP (1980 US$-billions)	545.3
1988 GDP (1980 Lit-trillions)	446.1
1989 real GDP growth rate (% est.)	3.4
Structure of production (% 1985 GDP)	
Agriculture	5
Industry	39
(Manufacturing N/A)	
Service	56
1988 Exchange rate (Lit/US$)	1,295.34
1988 Unemployment rate (%)	12.2
Total engineers	412,000
Electrical/electronic	82,000
Mechanical	52,000
Chemical/biological	N/A
Metallurgical/materials	N/A
Civil/architectural	233,700
Others	45,000

CAD/CAM-Related Data	
1988 Market size	
Revenue (millions)	$333
Workstations shipped	12,117
Installed base	29,119

1988 Revenue Mix by Application



N/A = Not Available

0003844-1

Source: U.S. Department of Commerce
1988 Statistical Yearbook (UNESCO)
The WEFA Group
Dataquest
April 1989

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5.2 Government, Trade, and Economic Forces

EXECUTIVE OVERVIEW: ITALY

The following summary highlights this region's major economic and political developments of 1988, and presents 1989 economic projections. It is based on reports from The WEFA Group (Wharton Econometric Forecasting Associates).

- Italy's GDP is forecast to grow 3.4 percent in 1989, down slightly from the preceding year, and to average 3.2 percent growth through 1993. The ongoing upswing in the Italian economy continues to be fueled by the expansion of both industrial production and domestic demand.

- This slackening GDP growth is expected to impact manufacturing and service sectors, while the building and construction industry will remain vigorous. However, capital accumulation will continue to be outstanding through investment in machinery and equipment.

- Unemployment statistics reflect the disparities that exist between the northern and southern portions of the country. Northern Italy enjoys one of the highest employment rates in Europe, contrasted with the south, which suffers from one of the highest unemployment rates.

- Italian monetary policy remains tight in order to forestall the feared over-expansion of total domestic credit.

- The consumer price index is forecast to rise by 5.2 percent in 1989 and by 4.9 in 1990. Larger capital inflows and a positive surplus on services should help maintain the current account deficit at 1 percent of GDP.

- The lira is forecast to strengthen against the U.S. dollar and to depreciate slowly against both the yen and deutsche mark.

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5.3 Doing Business in Italy

BACKGROUND ON ITALY

General Considerations

The Italian economy presents a dramatic play of extremes. With 2.75 percent GDP (gross domestic profit) growth in 1987, Italy pulled past Britain and France to rank as the fourth largest capitalist economy, behind the United States, Japan, and West Germany. The fastest annual growth rate among major European countries in the last decade has generated much talk of an Italian economic miracle. Inflation has dropped to 5 percent, down from 21 percent in 1980. Thousands of new small businesses have sprung from the fertile ground of a high household savings rate, 23 percent of disposable income, and plenty of individual entrepreneurial drive. Dispersed outsourcing of production to these small businesses is common, enabling the smaller subcontractors to contribute substantial added value to the finished products of big companies.

Beneath the gleam of GDP growth lie economic fault lines, however. As in the United States, the two largest problems are the balance of trade and the government budget deficit.

The Italian international trade balance, which popped into a surplus condition in 1986, dropped back to the deficit side in 1987. Imports of manufactured goods, energy, and food shot up 6.25 percent, occupying an increasing share of the domestic market. At the same time, Italian exports were weak, declining 1 percent in aggregate value shipped. Domestic demand will grow in 1989 at a faster rate than GDP, because imports will continue to outpace exports and therefore detract from the total GDP figure. Unemployment seems destined to climb from the 1987 level of 10.75 percent to 11.5 percent within the next two years.

A disproportionate share of Italian exports are low-technology manufactured goods. For example, 14 percent of the 1987 total was clothing and textiles, which will become increasingly vulnerable to future competition from newly developing countries. In the high-technology sector, Olivetti is the largest Italian data processing equipment company and tenth largest worldwide, but it is the only Italian company within the industry's top 100 firms.

Higher relative unit labor costs and slow productivity growth in the 1980s continue to hamper the competitive position of Italian manufacturers. Given the foregoing, Dataquest projects that the Italian trade deficit will continue to widen through 1989 as a result of heavy import traffic and only modest export growth.

In the United States, where credit cards are quite common, many consumers know firsthand how difficult it can be to recover from a large accumulated debt. Monthly payments to reduce the debt and cover interest must be squeezed from cash that otherwise would go to normal monthly activities. The debt-to-income ratio determines the degree of constraint in selecting options. On a national scale, Americans can easily see the problems posed by the U.S. budget deficit.

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By comparison, Italy has a GDP one-sixth the size of the U.S. GNP but a 1987 budget deficit two-thirds the size of the U.S. deficit. The accumulated Italian government debt is equal to 93 percent of the annual GDP. By another measure, the debt is equivalent to $628 billion, or one-fourth the size of the huge U.S. public debt.

The tightly regulated Italian financial system, which severely restricts competition for financial assets, has thus far enabled government securities to sell very well in the domestic economy. However, as a member of the European Economic Community (EEC), Italy must bring its banking and financial systems into accord with the other nations by 1992. The pending liberalization of capital flows means that the government must ultimately increase the yield on its securities and come to grips with the deficit size. The most realistic hope for progress lies in a series of reductions in government spending.

Investment Incentives

No information on investment incentives in Italy is available at this time.

Strategy for Industrial Development

Italy's postwar governments have always had intimate relations with industry. Often the government economic policy has been a delicate balancing act addressing both state and private industry concerns.

The Italian State Industries

Most of the government-controlled enterprises are affiliates of four giant holding companies, namely:

- Industrial Reconstruction Institute (IRI)
- Manufacturing and Financial Holding Agency (EFIM)
- National Hydrocarbons Agency (ENI)
- Electric Power Agency (ENEL)

The two largest state industries are IRI and ENI, in that order. The "mixed economy" that characterizes Italy is witnessed and complicated by the well-recognized political affiliations of these groups. IRI remains very much under the influence of the Christian Democrats, while ENI's chairman is associated with the Socialists.

Although the Italy of the 1980s has never had an explicit privatization program, the early 1980s were characterized by implicit activity in this area. At that time, IRI may have sold off as many as 23 companies, raising as much as $5.7 billion from these sales.

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These privatization sales were a way of restructuring and reducing debt burdens. The uniquely Italian route to privatization took three principal forms:

- Sale of nonstrategic industries—The two most notable examples of this activity were IRI's sale of Alfa Romeo to Fiat in 1986 and ENI's sale of Lanerossi (a textile producer) to Marzotto in 1987.

- Sale of minority holding shareholdings in private companies—ENI's sale of Saipem (oil pipelaying and drilling) and Nuovo Pignone (engineering) are examples, as are IRI's sale of Alitalia SIP (the telephone utility) and IRI bank shares.

- The formation of joint ventures with Italian or foreign subsidiaries—Examples of joint ventures include ENI's joining with ICI of Britain for PVC production and IRI's merger of SGS, its semiconductor subsidiary, with Thomson of France.

For IRI, a major priority is to reorganize the telecommunications sector and form a global alliance connecting the SIP national telephone service and the Italtel telecommunications equipment maker into one company.

The Italian Private Industries

The Italian economy is strongly guided by the interests of a powerful private sector. The three flagship companies are Fiat, Ferruzz-Montedison, and Olivetti—companies whose combined revenue totals about US$65 billion.

The power of the key participants in this sector can be appreciated by a closeup view: Gianni Agnelli, who runs Fiat and other industrial and financial companies, controlled 26 percent of the capitalization of the entire Italian stock exchange at May 1988 share prices.

The network of control exercised by the three heads of the flagship companies—Gianni Agnelli (Fiat), Carlo de Bendetti (Ferruzz-Montedison), and Raul Gardini (Olivetti)—can be appreciated from Figure 5.3-1, which shows the controlling interests of each group.

The De Mita government is under some pressure to provide antitrust legislation that would minimally address the power over the newspaper and television media held by these groups.

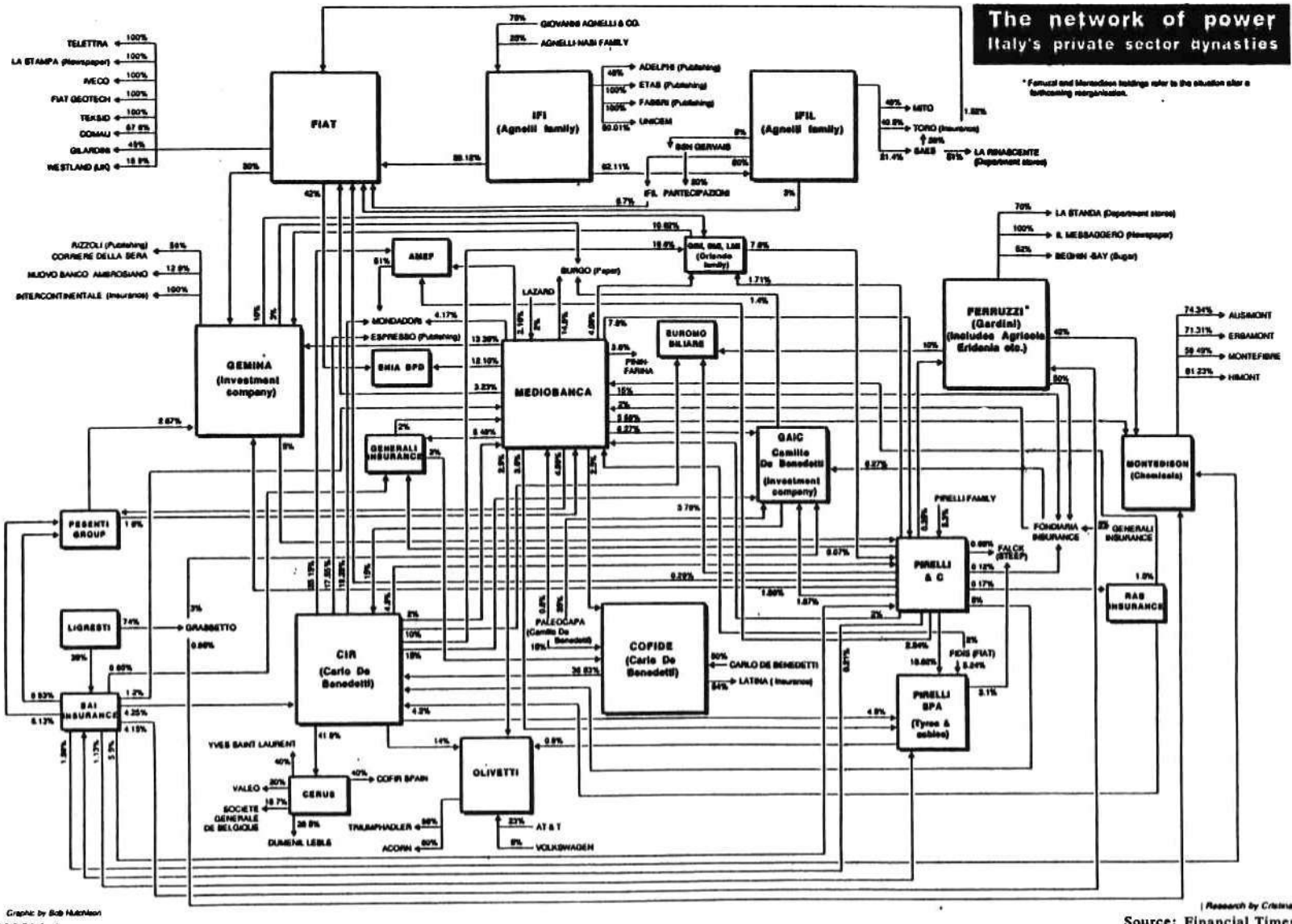
Specific CAD/CAM-Related Industry Sectors

Electronics. In electronics, the state-owned IRI group is developing a plan to spin off new technology companies from its present holding companies whenever individuals conceive promising ideas.

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Figure 5.3-1

The Structure of Italy's Private Industries



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CCIS Euro
0003586

Olivetti continues to form international technological alliances. In early 1986, Olivetti joined Micro Age, the U.S. chain of personal computer shops, to launch Micro Age Europe, a network of personal computer and software retail outlets in Italy, France, the United Kingdom, and West Germany. Olivetti owns 89.5 percent of the joint venture, and Micro Age owns 10.5 percent. For the record, Olivetti has a 46.0 percent shareholding in Micro Age.

Also in 1986, Olivetti acquired Volkswagen's office equipment subsidiary, Triumph-Adler. This is considered the most important transaction since the 1984 alliance with AT&T. The Olivetti-AT&T alliance has been renegotiated and replaced with a 10-year agreement. The new accord would see AT&T phasing out all of its U.S. production of personal computers and handing over exclusive responsibility for this section of its business to Olivetti.

At the beginning of 1987, Olivetti and Electronic Data Systems (EDS), a General Motors subsidiary and one of the largest software and computer services companies, announced a joint venture to enter the market for computer integrated systems for manufacturing companies. The joint venture, Integrated Systems Management, will be based in Milan. EDS will use Olivetti's contacts to build its operations in Italy and the rest of Europe.

Olivetti has also announced a joint venture with Canon of Japan to make copiers, laser printers, and facsimile transmitters.

The SGS-Thomson merger of semiconductor manufacturing interests of both companies was approved by the Italian government. STET (part of the IRI group, which owns SGS) and Thomson will jointly own the new semiconductor company. It will be the largest semiconductor group in Europe, after Philips, with 3 percent of the world market and sales of $800 million. The Italian government will continue to support the merged venture, but the two companies financed approximately 50 percent of the group's R&D in 1987.

In memory technology, SGS and Thomson have already agreed on a joint $400 million research project under the auspices of the Eureka research program, with the aim of producing a 4Mb DRAM chip. This new venture is indicative of the strategic thinking behind the development of SGS over the past seven years. While SGS's headquarters are in Italy, most of its manufacturing activities are carried out elsewhere in the world, in locations such as Malta, Malaysia, and Singapore, where labor costs are lower.

SGS continues its investment in new products. It spends more than the average of world semiconductor manufacturers on R&D, devoting between 10 percent and 16 percent of sales per annum over the last five years to this area. In the summer of 1987, SGS opened the large new Lit 150 billion laboratory at its headquarters in Agrate. This research center will be devoted to VLSI technology, and half the cost of this research program will be borne by state funds. The Italian government is also likely to back another Lit 150 billion laboratory, which SGS is now planning in cooperation with the University of Catania in Sicily.

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Earlier in 1986, SGS and AT&T made a five-year agreement under which SGS will help develop and market AT&T bipolar integrated circuits and high-voltage circuits. All products will be distributed by SGS on a worldwide basis, under the SGS trademark.

Telecommunications. In the telecommunications sector, Italy has been laying the foundations for a major rationalization of its fragmented telecommunications industry. In spring 1987, the Italian government approved the merger between the state-owned Italtel and Telettra, the Fiat-owned transmission equipment company. Unfortunately, this venture collapsed in late 1987, and the two companies were examining alternative strategies for the future. Italtel currently has 52 percent of the Italian telephone exchange equipment market, with the reminder in the hands of foreign-based groups.

The new company, Telit, is likely to start formal talks with GEC and Plessey on an Anglo-Italian alliance, which might then seek to involve AT&T, Ericsson, Northern Telecom, and Siemens.

According to a report from the Telecommunications Industry Research Center, Italy will spend 8.7 percent more on telecommunications equipment in 1987 than in 1986.

Defense. Defense is a sector where Italy's electronics industry has generally reached an advanced level of autonomy and technological sophistication. The state is heavily involved through the Selenia-Elsag subsidiaries of the holding corporation IRI. In 1985, 51 percent of Selenia's turnover of Lit 698 billion came from defense systems. A similar portion of Elsag's sales of Lit 207 billion in 1985 came from systems and equipment in the defense sector. Italy's leader in electronic countermeasure (ECM) continues to be Elettronica, the Rome-based company in which Plessey has a 35 percent share.

Computers. The Italian computer hardware industry is dominated by Olivetti, the number two European-headquartered data processing company, with 1986 DP revenue of $3.9 billion. AT&T owns about a quarter of Olivetti, and the two firms have several joint-marketing and technology-exchange activities. Traditionally strong in PCs and office systems, Olivetti is in the process of making a major push into superminicomputers and other systems, in part through OEM arrangements. For example, Olivetti sells Stratus' fault-tolerant systems and A&T's 3B superminicomputers. Italy has a substantial computer software and services industry, composed of thousands of small companies.

The Italian computer market has been one of the fastest-growing markets in all of Western Europe. Although growth is expected to slow down somewhat, Italy will remain an area with a growing market for several years.

The slowdown in computer industry growth will be most pronounced in the personal computer market, but the forecasts for midrange multiuser systems and systems used in integrated networks are bullish.

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Rome was recently selected by IBM as one of its new supercomputer research center sites.

Other. Sony Electronics will be the first Japanese company to build its own factory in Italy. It plans to open a plant in the Trentino region of northern Italy to produce 2 million magnetic cassette tapes a month. Twenty-five percent of Sony's Italian production will be for export, in part substituting production for the European market carried out in France.

Cap Gemini Sogeti, the French computer services group, purchased the Italian data processing company, Destione Dati, to complete its European network. The French group has taken an 80 percent stake in the Milan-based company, which provides computer services to industry and local government. Cap Gemini is eventually expected to take 100 percent control.

GOVERNMENT POLICIES

Italy is a parliamentary republic with two houses: a senate and chamber of deputies. The president is elected every seven years. He nominates the premier, who, in turn, selects the Council of Ministers (cabinet) from among members of the parliament. Members of both parliamentary houses are elected by popular vote for a maximum of five years.

A separate judiciary branch, based largely on Roman law, has partial judicial review of legislation. A constitutional court is roughly equivalent to, but not as strong as, the U.S. Supreme Court. The highly centralized government appoints executives for the 93 provinces and 20 regions that have limited government powers. The premier and his cabinet, the top vote getters from major parties, plan policies and make major decisions.

Financial Policy

Deficit

Italy continues to need a policy to reduce the country's high public-sector deficit. At 14.3 percent of GDP, this is one of the highest in Europe. Italy's cumulative state debt is roughly equal to the country's annual GDP. The public-sector deficit, which was Lit 110,000 billion in 1986, is forecast by the government to decrease to Lit 100,000 billion in 1987. The Bank of Italy, however, anticipates a budget deficit of closer to Lit 110,000 in 1987. The deficit problem will prevent Italian interest rates from falling.

Italy's state bureaucracy creates inefficiency and resulting high costs, and we do not believe that this situation will be helped by the high wage settlement for civil servants and local authority workers. The wage settlement provides for these workers' salaries to rise by 8 percent in 1986, 5 percent in 1987, and an additional 5 percent in 1988.

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Liberalization

In the summer of 1986, the Italian government relaxed its exchange control regulations. The compulsory noninterest-bearing deposits for investments abroad were reduced from 25 percent to 15 percent of the investment sum. In spring 1987, these deposits, which had to be lodged with the Bank of Italy, were abolished.

The liberalization measures also increased the amount of currency that Italians can take on foreign trips, from Lit 1.6 million to Lit 2.1 million. Restrictions on the use of credit cards abroad were removed.

Labor Costs, Inflation, and Employment

Inflationary expectations are declining, albeit slowly. Offsetting the beneficial effect of this trend on labor costs will be the effects of the retroactive pay adjustments upon conclusion of pending wage contract negotiations. Nominal wage increases in 1987 were higher than in 1986, and they will be still higher in 1988. This may boost the increase in the cost of living index.

In autumn 1986, the Italian government announced plans to spend Lit 7,500 billion over three years to create between 500,000 and 700,000 new jobs in the south of the country.

The unemployment rate dropped from 1986 to 1987. Higher growth and increased investment in capacity expansion should boost the rate of job creation.

Foreign Policy

In a novel financing scheme, Public Development Assistance (PDA) has become a major component of Italy's foreign policy. In 1988, the government earmarked Lit 4,500 billion for development assistance, compared with some Lit 300 billion a year ago. What is unique about this program is that 80 percent of the aid is procurement related. Moreover, the projects provide work for Italian factories, engineering firms, and construction companies.

Some of these projects include the following:

- An agricultural mechanization program in Morocco
- Introduction of a microwave digital transmission network in Costa Rica
- Construction of a radar system for the Chiang Mai Airport in Thailand
- Construction of a natural gas treatment center in Argentina

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Government R&D Projects

Funds for high-technology investment within the economy are limited, and R&D spending is half that of other major industrial economies. Much of the effective progress in technology has come through acquisitions and strategic partnerships with foreign companies. (See "Strategy for Industrial Development" in this document.)

Trade and Economic Policies

Trade Policy

Italy is a member of the European Economic Community (EEC), International Monetary Fund (IMF), Organization for Economic Cooperation and Development (OECD) and is a signatory to the General Agreement to Tariffs and Trade (GATT). In general, Italy has a liberal trade policy, with the exception of agricultural imports that are subject to the common agricultural policy of the EEC.

Because Italy has few domestic natural resources, it must depend on a heavy volume of imports in key areas of energy resources, capital goods, and food and agricultural products.

Import Tariff Structure

Customs charges in Italy are payable in the currency of the country into which the goods are imported. Traders may obtain currency quotations through their banks.

Common Customs Tariff (CCT) duty rates are applied to all dutiable products imported from non-EEC countries, except those governed by the Common Agricultural Policy (CAP) of the European Economic community. Trade among the EEC member states is duty free except with Spain and Portugal, which receive significant duty reductions.

Information regarding Italian import duties applicable to specific products may be obtained free of charge from the Office of European Community Affairs. Inquiries should contain a complete product description, including CCCN or BTN numbers, if known. The EEC employs the Customs Cooperation Council Nomenclature (CCCN), also known as the Brussels Tariff Nomenclature (BTN). As of January 1, 1988, the EEC began using the Harmonized System Nomenclature. This will involve some changes in classification and the duties imposed.

Third-country duty rates listed in the EEC's CCT are in two columns—autonomous and conventional. The latter are lower rates and are applied to imports of items from more than 80 GATT member states, including the United States, and to countries that have concluded agreements with the EEC incorporating the most-favored-nation (MFN)

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clause. The EEC countries grant MFN treatment to all countries. The higher autonomous rates are applied only where no conventional rates are listed. Duty rates are not excessive; manufactured goods fall within a range of 5 to 7 percent. However, some electronic products have duty rates of up to 14 percent.

The EEC members extend preferential tariff treatment under EEC agreements to imports from members of the African, Caribbean, and Pacific Convention of Rome, Turkey, Morocco, Tunisia, Algeria, Spain, Israel, Malta, Lebanon, Cyprus, Egypt, Jordan, Syria, and their overseas countries and territories. The EEC also grants tariff preferences to more than 100 developing countries and about 40 overseas territories under the EEC's Generalized System of Preferences. Imports of nearly all semi-manufactured and manufactured goods considered to originate in these countries and territories enter the community duty free. Annual duty-free quotas are established for those products considered to be "sensitive."

Free trade agreements have been concluded between the EEC and the European Free Trade Association (EFTA), which includes Finland, Austria, Norway, Iceland, Sweden, and Switzerland. Under the terms of these agreements, the EEC exempted most industrial products and certain processed agricultural products from import duties.

Basis of Duty Assessment. The applicable duties are imposed on the cost, insurance, and freight (c.i.f.) value of the shipment. Virtually all import duties listed are on an ad valorem basis; that is, percent charges levied on the dutiable value of the imported goods. As of July 1, 1980, Italy agreed to enact the Tokyo Round Trade Agreement on Customs Valuation.

Value-Added Tax. The value-added tax (VAT) is applied on the c.i.f. value plus the duty charged on the product. Important exempted services and items include transfer of shares and bank bonds, transfer of businesses and land, commissions paid on goods exported, the forwarding of goods abroad, property rental, banning and financial transactions, and insurance. The VAT is imposed as a flat rate, but the rate is much higher than the sales tax in the United States. The VAT is applied on domestically produced goods as well as on imports. The difference is either paid to the government or, in the case of a balance in favor of the seller, the amount can be carried forward and offset against future amounts payable. The consumer ultimately bears the full burden of the tax.

In Italy, the standard VAT rate applied on most industrial goods is 18 percent. An increased VAT of 20 to 38 percent is imposed on luxury items, such as perfumes, jewelry, stereo equipment, cameras, and private cars.

Import Controls. With the exception of a small group of hard core items, largely agricultural, practically all goods originating in the United States and most other free-world countries can be imported without import licenses and free of quantitative restrictions.

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Multilateral Trade Negotiations

The GATT Agreement on Government Procurement was one of seven nontariff barrier agreements concluded during the Tokyo Round negotiations in 1979. The United States and Italy (through the EEC) are 2 of the 21 countries that signed the agreement or code, which was implemented in 1981.

To ensure that U.S. suppliers are given an equal opportunity to bid on code-covered procurement contracts, a uniform set of procurement procedures was developed. These procedures must be followed during all stages of the procurement process. Code provisions include requirements for how code-covered procurement contracts must be advertised, evaluated, and awarded. In general, an Italian contract will be covered by these provisions if it is awarded by 1 of the 18 Italian ministries obligated to follow the provisions of the agreement. In addition, the contract must be worth more than 130,000 Special Drawing Rights (SDRs) (roughly $148,000 in 1987).

U.S. companies' competitiveness in signatory procurement markets should improve based on new amendments agreed upon in 1986. For example, the bid submission period (that is, the amount of time between the date the solicitation notice is published and when the bid must be submitted) has been increased from 30 to 40 days. Also, U.S. subsidiaries in code-signatory countries should be treated as domestic companies, and information on winning bids (including the price of the bid and the name of the successful tenderer) will be published.

A new round of multilateral trade negotiations, known as the Uruguay Round, was launched at a GATT ministerial meeting at Punta del Este in September 1986. The agenda covers the traditional area of trade in goods, as well as new areas not currently subject to GATT rules.

The Uruguay Round negotiations in goods will cover a wide range of industries, including aerospace, automotive and consumer goods, basic industries, capital goods, and consumer electronics. Aside from the traditional topics, there will be three new issues on the agenda: services, intellectual property rights, and investment. Moreover, separate negotiations will focus on improving both the functioning of the GATT system as a whole, and its dispute-settlement process in particular.

Free Trade Zones and Warehousing

There are two free zones located at Trieste and Venice. Goods of foreign origin may be brought into the free trade zones without the payment of customs duties and remain free of all such duties while held in the zones or if subsequently transshipped or reexported. They may be freely negotiated, manipulated, and processed industrially. Operations authorized include loading, unloading, mixing, warehousing, and cargo handling. Retail sale is prohibited; there are no free ports in Italy.

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Italy also has more than 800 general warehouses that are similar to a bonded warehouse of the United States. More limited facilities are available in free depots located in 10 port cities.

No limitations exist as to the type or origin of merchandise that can be stored in either free trade zones or bonded or customs warehouses.

Intellectual Property Protection

Italy is a member of the "Paris Union" International Convention for the Protection of Industrial Property (patents and trademarks) to which the United States and about 85 other countries adhere. Thus, U.S. citizens are entitled to the same treatment in acquiring and maintaining patent and trademark protection in Italy as are Italians. In addition, after filing a patent application in the United States, a U.S. citizen is entitled to a 12-month period within which to file a corresponding application in Italy and receive there the benefit of his or her first U.S. filing date (rights of priority). The priority right filing period for trademarks is 6 months.

Italy is a member of the Berne Copyright Union and also adheres to the Universal Copyright Convention to which the United States and 50 other countries are signatories. U.S. authors can thereby obtain copyright protection in Italy for their works first copyrighted in the United States merely by placing on the works their names, the dates of first publication, and the symbol "C" in a circle. Italian authors have the same rights in the United States for their works first copyrighted in Italy.

Patent and trademark applications and inquiries should be addressed to the Ministero dell'Industria e Commercio. Inquiries concerning copyrights should be addressed to the Presidenza del Consiglio dei Ministri.

Patents

Patents are granted for 15 years from the effective filing date of application. They are assignable and transferable. A patent can be subject to compulsory licensing if not used within 3 years from date of grant or 4 years from the filing date of application, whichever is later.

Licensing and technical assistance agreements with foreign companies are encouraged by the government approval. The foreign exchange necessary to effect payment abroad (including the United States) of bona fide royalties and/or technical assistance fees can be obtained simply upon application to the Italian Exchange Office through a bank.

Annual taxes must be paid throughout the period an Italian patent is in force. These taxes are progressive and range from Lit 1,000 for year 1 to Lit 35,000 for year 15.

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Copyrights

Executive recognition in the form of copyright protection to the author is accorded intellectual creations pertaining to science, literature, music, decorative arts, architecture, the theater, and motion pictures. Copyright protection for an author's work exists for the life of the author, plus 50 years after his or her death. In the case of motion pictures, protection is limited to 30 years from the date of the first public screening. Anonymous works are protected for 50 years after publication.

Trademarks

Some types of terms are not registrable as trademarks, such as those deemed to be generic, those containing false indications of quality or origin of goods, and those similar terms already registered by others in Italy or for which applications are pending. For some goods, geographic names may not be used in trademarks, nor can the portraits of persons be registered without their consent. Surnames, other than those of the applicant for registration, cannot be registered if they reflect unfavorably upon the persons who have the right use to the names.

Trademark applications are examined for acceptability of their format and consistency with the above criteria. If an application is in order, the mark will be registered. No opportunity is provided for opposition, and the first applicant is entitled to registration. However, any other person who claims to be the first user of the mark in Italy can have the prior registration canceled, provided one can prove the claim. No prior-use claim can be rendered after the registered mark is five years old.

Trademarks are registered for 20 years from the effective application filing date and are renewable for similar periods. Failure to use a mark within 3 years after its registration can result in cancellation. Trademarks may be assigned, provided that such action involves no deceptive trade practice.

Taxation

This section describes the principal forms of Italian taxation, including income tax, corporate tax, capital gains tax, and double tax relief. This discussion does not include other taxes levied, such as local tax, registration tax (for increased capital, mergers, and leasing) and stamp tax.

Income Tax

Resident Companies. Resident and nonresident corporations pay corporation income tax (IRPEG) and local income tax (ILOR). Corporations having their statutory domicile, principal management, or main activity in Italy are treated as resident companies and are subject to corporation income tax on worldwide income.

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Taxable income is based, for both corporation and local income tax purposes, on net profits realized in the accounting year, in accordance with the profit and loss account, as adjusted for tax purposes. Local income tax is generally chargeable only on income from Italian sources.

Nonresident Companies. Nonresident companies are subject to corporation income tax and local income tax on income derived from a permanent establishment in Italy; interest; dividends; income from real property; and royalties and rents from Italian sources.

Corporation Tax

The corporation income tax rate is 36 percent, and the local income tax rate is 15 percent plus a temporary surcharge. The latter is deductible in computing corporation income tax, giving an effective overall corporation tax rate of 46.4 percent. Dividends are subject to a 10 percent withholding tax that is creditable against corporation income tax.

Capital Gains Tax

Capital gains are subject to corporation and local income taxes in the same way as income, insofar as they are connected with a commercial activity in Italy. However, tax on gains credited to a special reserve and reinvested in fixed depreciable assets within the two following years may be deferred. A special local tax applies to increases in value of real property.

Double Tax Relief

In the absence of a tax treaty, foreign income tax is credited against corporation income tax payable on the same income. The credit is limited to the proportion of the Italian tax corresponding to that borne by the foreign income to total income. It is granted on a reciprocal basis, within the same limits as in the source country. If the source country grants neither credit nor exemption, a credit of 90 percent of the maximum is granted for business income and a credit of 50 percent of the maximum is granted for other income.

ITALY'S FOREIGN RELATIONSHIPS

Relationship to the United States

The United States and Italy enjoy close trading ties, with the trade balance traditionally in the United States' favor. In 1987, Italy imported $11.7 billion in U.S. goods, whereas it exported only $5.5 billion. Dataquest expects excellent opportunities

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for U.S. exporters to continue, based on the declining dollar. As of May 1988, the U.S. dollar was 40 percent weaker against the lira than in 1985, allowing significantly lower priced U.S. products for Italian purchases.

An analysis of Italy's total trade shows that the United States is Italy's third most important source of imports and third most important destination for exports. In turn, Italy is the United States' tenth most important export destination and seventh most important source of imports.

Italy's major imports from the United States in 1986 were:

- Typewriters
- Calculators
- Computers
- Food and agricultural products
- Coal and coal products
- Transportation equipment
- Jet aircraft and parts

Italy's leading exports to the United States in 1986 were:

- Mechanical products
- Leather shoes
- Silver, gold, and platinum
- Transportation equipment
- Cars and car parts

According to 1984 Bank of Italy data (f.o.b.c.i.f.), the United States accounts for 8.9 percent of total Italian trade (imports plus exports), after West Germany (16.4 percent) and France (13.2 percent) but before the United Kingdom (5.9 percent) and Switzerland (3.9 percent).

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INVESTMENT CONSIDERATIONS

Direct Foreign Investment

Italy's general policy toward inward foreign investment has been consistently favorable, motivated by the belief that foreign investment contributes to economic growth, employment, and the level of technology. With few exceptions, Italy does not limit the extent of foreign ownership in an Italian corporation or other business entity. The Italian government's stance is nondiscriminatory, either in favor of or against foreign investment, as compared with domestic investment. The United States has been the leading foreign investor in Italy for more than a decade.

Italy no longer generally requires that all new industrial plants be authorized by the Ministry of Industry and Commerce. However, major industrial investments are required to be submitted to CIPE (Interministerial Committee for Economic Planning) to verify that the proposed investments conform to the objectives set forth in the government's economic plan. (The primary objectives of this plan are job creation and overall economic development, avoiding the overconcentration of industry in northern and central Italy.) Specifically, investments subject to verification are those with a capitalization of more than Lit 5 billion (about $8 million) or any investment project in excess of Lit 7 billion ($11.2 million).

Investment Opportunities

The U.S. Department of Commerce, through the U.S. Embassy in Italy, has identified a number of key industrial sectors for foreign exporters. Those of particular interest to the CAD/CAM industry are:

- Computer hardware and software
- Energy systems and technology

Computer Hardware and Software

Italy trails other European countries in expenditures for EDP hardware (automated electronic equipment and data processing systems), but it is catching up. Local production still cannot meet local demand, however, and the Italian market for imported EDP hardware will grow at an estimated 14.3 percent through 1989. Minicomputers are in greatest demand, but demand for mainframes and large systems is strong also. U.S. EDP manufacturers enjoy an excellent reputation in Italy. Imports also play a major role in Italy's software market. While Italian-produced software is becoming more competitive, U.S. and other imports will continue to find a most receptive market in Italy.

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Energy Systems and Technology

The 1985-1986 revisions of the Italian National Energy Plan (NEP) called for reducing dependency on petroleum. Particular attention is being given to planning new coal-fired plants. As this plan is implemented over the next three years, new investment by ENEL (the National Electric Board) and upgrading of the national railway system are expected to sustain high demand for imported energy systems and technologies, as well as equipment. U.S. suppliers of highly sophisticated, innovative products and services will find good marketing prospects for nuclear components, licenses, and technical cooperation; coal-handling equipment; industrial and residential energy-saving equipment; and systems for exploitation of renewable sources of energy. This market is complementary to the facilities design and management market.

OTHER BUSINESS CONSIDERATIONS

Corporate Law

Under the corporate laws of Italy, there are eight types of business organizations, namely:

- Individual or sole proprietorship
- Simple partnership
- General or unlimited partnership
- Limited partnership
- Limited liability company
- Cooperative
- Joint venture
- Corporation

Definitions and details of each of these business forms are provided in the following paragraphs.

Individual or Sole Proprietorship

An individual proprietorship established for the production or exchange of goods and services is responsible for its operation to the extent of the proprietor's business assets and personal property.

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Simple Partnership

A partnership is a group of two or more persons conducting trade jointly. The simple partnership (Societa Semplice) can be established without any particular formalities. It is set up either through the joint operation of a business or by contract.

Each member of the company is liable for any business debts, unless otherwise specified and publicized, to the full extent of his or her personal assets. A partner's share of profits and losses is proportional to that person's contribution of capital.

General or Unlimited Partnership

In an unlimited partnership (Societa in Nome Collectivo—S.n.c.), all partners are jointly liable without limitation for partnership obligations. An unlimited partnership may not issue bonds, and any of the partners may be appointed to serve as directors.

Limited Partnership

Liability in a limited partnership (Societa in Accomandita Semplice—S.a.s.) is joint, several, and unlimited for the general partners. Limited partners are liable only to the extent of their original capital investment. A limited partnership may not issue bonds, and subscribed capital cannot be represented by shares. Only general partners may participate in the management.

Limited Partnership with Shares

A limited partnership with share (Societa in Accomandita per Azioni—S.a.p.A.) has the same structure as a limited partnership, except that holdings of the partners are represented by shares. Companies limited by shares may issue bonds, within the limits provided for the joint stock companies in the limited partnership. Liability is joint, several, and unlimited for general partners, while limited partners are liable to the extent of the original capital invested. Many of the regulations governing corporations are applicable to this form of business.

Limited Liability Company

Owners in a limited liability company (Societa a Responsibility Limitata—S.r.l.) are not personally liable for company obligations beyond their subscription quotas. Unlike a corporation, a limited liability company does not have quotas represented by shares of stock. Such a company cannot issue bonds, and a limited liability company must have minimum capital of Lit 20 million.

Cooperative

Cooperatives (Societa Cooperative) and a mutual insurance or assurance company may be established to carry out such activities as production, marketing, banking, and insurance. Cooperatives are subject to various restrictions and to governmental

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supervision. Each partner may not hold more than $400 in shares, and the board of directors must approve assigning of shares and admission of new members.

Joint Venture

A joint venture (Associazione in Partecipazione) involves the participation by the supplier of capital in the profits of the business. The operator manages the business and is solely responsible for the obligations he or she assumes toward third parties. The person furnishing capital is responsible for any loss in direct proportion to his or her share in the net profit, limited to the amount of the original investment.

Corporation

The Italian corporation (Societa per Azioni—S.p.A.) is similar in form to the corporation in the United States and is usually the most suitable form for large enterprises. Participation quotas are represented by shares of stock, and personal liability is limited to the amount of shares owned. The corporation is a legal person—an entity separate from its shareholders—and is liable for its obligations only to the extent of its assets.

A corporation must have at least two shareholders. A minimum of Lit 200 million is required for incorporation, 30 percent of which must be deposited with Banca d'Italia in a noninterest bearing account until organization formalities are completed. The entire capital stock of the company must be subscribed. If the original stock exceeds Lit 2 billion, the Ministry of Treasury must give special authorization.

CAD/CAM

Distribution Channels

Foreign Suppliers

Although at present there are relatively few indigenous Italian hardware or software products that have an established market share, there are a host of dealers/distributors of American and northern European products.

Although the larger non-European companies—in particular, the turnkey vendors and computer/workstation manufacturers—have their own subsidiaries, the more specialist companies cannot yet justify an Italian office and so are represented by dealers. Many of these are small, but they often have a good blend of technical and commercial skills and usually will sell a fairly diverse range of hardware and software products. A good and typical example is 3D Advanced Computer Modeling, based in

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Bergamo. This company distributes Cambridge Computer Graphics products; the architectural packages Rucaps and Sonata from the U.K. company t2 Solutions (ex. GMWC); and software from a Dutch company, Design Computing Ltd. 3D Advanced Computer Modeling is small (6 employees), it sells aggressively in each of the different markets in which it is active, and it is constantly open to the possibility of increasing its portfolio of imported products.

Italian Suppliers

Among Italian companies selling their own products, Olivetti has the most substantial market share. Other native vendors of note are Brain, Cadlab, FIMI (an Italian subsidiary of the Philips group that produces graphics and industrial terminals), Infotronic (which markets high performance graphics boards), Italcad, and VDS.

Italy has entered the CAD/CAM and CIM markets late; because of this, it is likely that Italy will benefit from entering the market seriously, as a new generation of improved products is being released. Therefore, Italy will be in a position to exploit workstations, knowledge-based systems, and other new technologies as they become available.

CAD/CAM Publications

A large number of general-purpose computer journals are available in Italy. As elsewhere, some of these carry articles about CAD/CAM. The two most important specialized CAD/CAM/graphics journals are *Computer Grafica* and *Pixel*. Table 5.3-1 lists the Italian CAD/CAM publishers' addresses.

Table 5.3-1

Italian CAD/CAM Publishers

Publisher	Address	Comments
Alca Publications S.n.c.	Via delle Brughiere 6 20024 Garbagnate Milanese (M1) Italia	
Azzurra Editrice S.r.l.	Via della Moscova 49 20121 Milano (M1) Italia	
Computer World	Via Vida 7 20127 Milano (M1) Italia	A weekly general-computing tabloid paper
Edit Promotion Service	Via Donatello 1 20133 Milano (M1) Italia	

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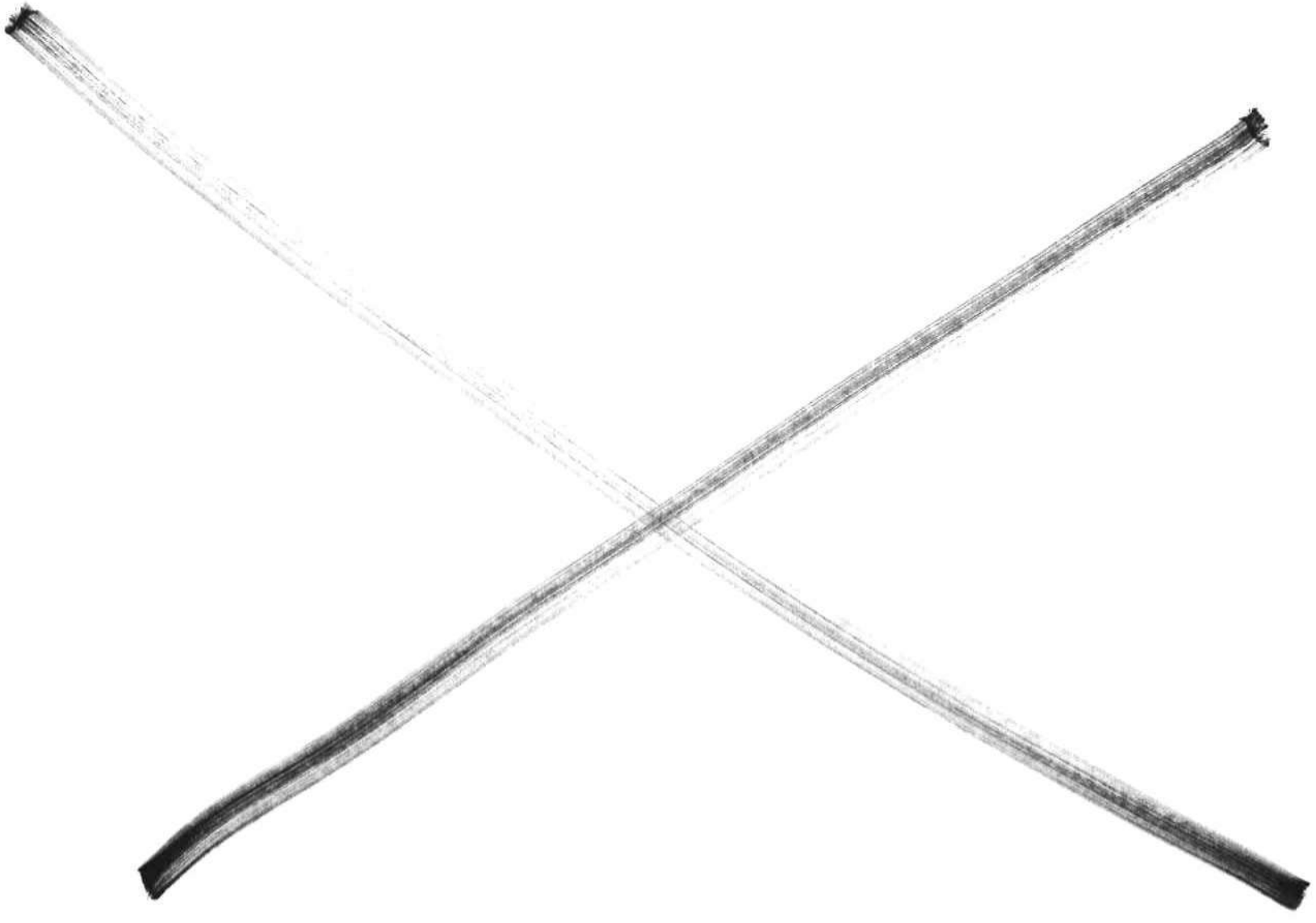
Table 5.3-1 (Continued)

Italian CAD/CAM Publishers

Publisher	Address	Comments
Editrice il Rostro S.a.s.	Di Giovene Alfonso EC Via Donatello 1 20133 Milano (M1) Italia	Publications include *Pixel*
Esse S.r.l. Edizionie Distribuzioni	Via Cherubini 6 20154 Milano (M1) Italia	Various technical publications including *Interfacia*, *Progettare*, and *Il Nuove Cantiere*
Fae Riviste Franco Anglei Editore Riviste S.r.l.	Viale Monza 106 20127 Milano (M1) Italia	
Gruppo Alfa Linea S.r.l.	Via Guerrini 5 20133 Milano (M1) Italia	
Gruppo Editoriale Jackson S.p.A.	Via Rosellini 13 20124 Milano (M1) Italia	Various technical publications including *Computer Grafica*, *Informatica*, and *Olivetti Prodest User*
Gruppo Editorial JCE	Via Ferri 6 20092 Cinisello Balsamo (M1) Italia	
Tecnoimprese	Viale Stelvio 21 20159 Milano (M1) Italia	
Ufficio Stile	Viale Stelvio 21 20159 Milano (M1) Italia	
Flexible Industrial Automation	c/o CEU - Centro Esposizioni UCIMU Vioale Fulvio Testi 128 20092 Cinisello Balsamo (M1) Italia	

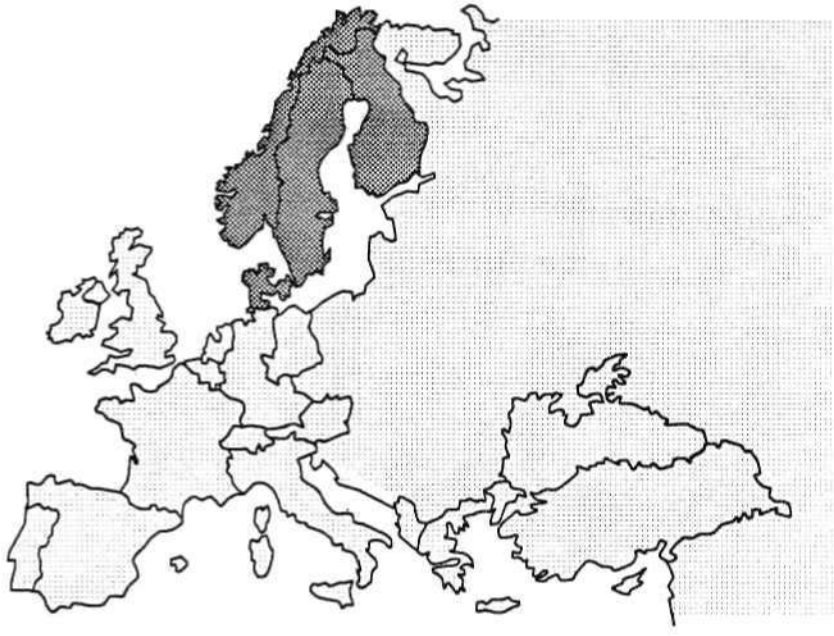
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6.1 Geography and Demographics

Scandinavia



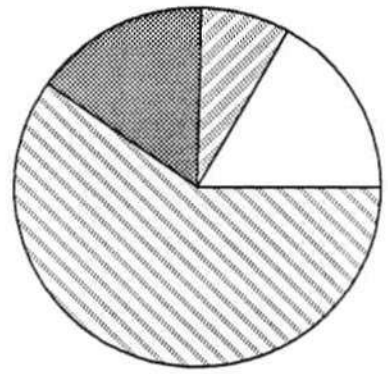
Regional Statistics	
Total engineers	180,949
Electrical/electronic	N/A
Mechanical	N/A
Chemical/biological	N/A
Metallurgical/materials	N/A
Civil/architectural	N/A
Others	N/A

N/A = Not Available

CAD/CAM-Related Data

1988 Market size	
Revenue (millions)	$319
Workstations shipped	10,730
Installed base	24,275

1988 Revenue Mix by Application

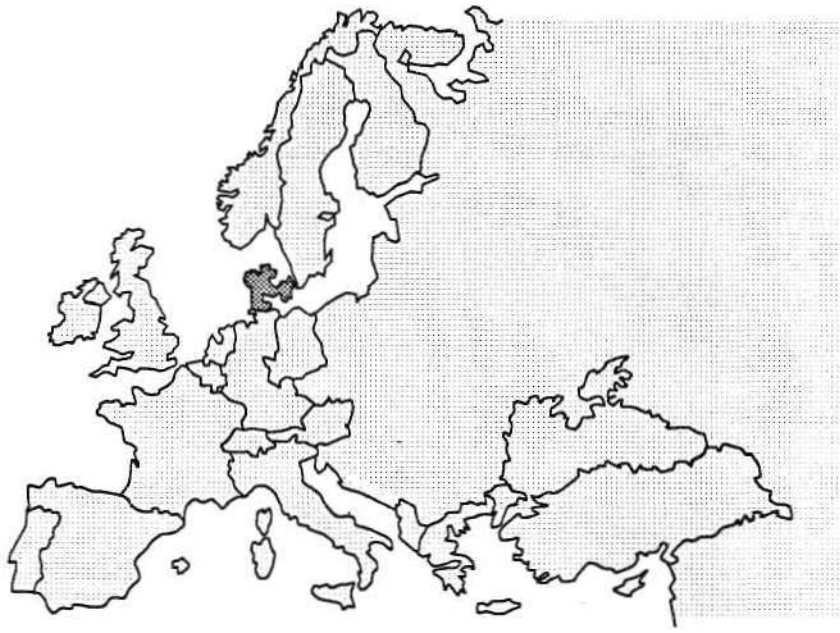


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Source: U.S. Department of Commerce
The World Bank
Dataquest
April 1989

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Denmark



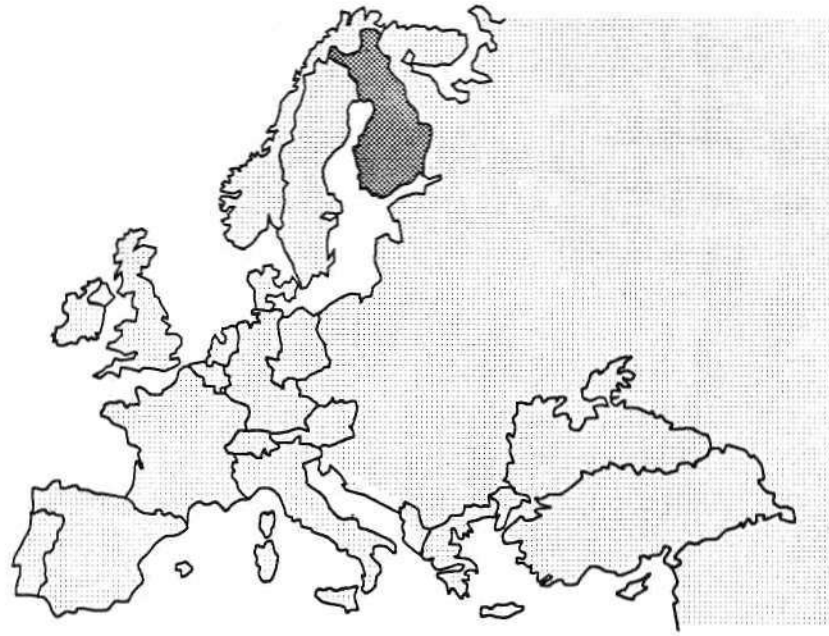
Country Statistics			
Total population (millions)	5.12	1988 Exchange rate (DKr/US$)	6.69
Area (square kilometers)	43,069		
Population density	119:1	1988 Unemployment rate (%)	8.7
Trade balance (US$-billions)	(2.2)	Total engineers	N/A
1988 GDP (1980 US$-billions)	76.6	Electrical/electronic	N/A
1988 GDP (1980 DKr-billions)	431.1	Mechanical	N/A
1989 real GDP growth rate (% est.)	(1.5)	Chemical/biological	N/A
Structure of production (% 1985 GDP)		Metallurgical/materials	N/A
Agriculture	5	Civil/architectural	N/A
Industry	24	Others	N/A
(Manufacturing = 17%)			
Service	71	N/A = Not Available	

0003845-2

Source: U.S. Department of Commerce
1988 Statistical Yearbook (UNESCO)
The WEFA Group
Dataquest
April 1989

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Finland



Country Statistics			
Total population (millions)	4.92	1988 Exchange rate (Fmk/US$)	4.16
Area (square kilometers)	337,032		
Population density	15:1	1988 Unemployment rate (%)	4.8
Trade balance (US$-billions)	2.2	Total engineers	N/A
1988 GDP (1980 US$-billions)	76.6	Electrical/electronic	N/A
1988 GDP (1980 Fmk-billions)	244.9	Mechanical	N/A
1989 real GDP growth rate (% est.)	2.0	Chemical/biological	N/A
Structure of production (% 1985 GDP)		Metallurgical/materials	N/A
Agriculture	7	Civil/architectural	N/A
Industry	33	Others	N/A
(Manufacturing = 23%)			
Service	60	N/A = Not Available	

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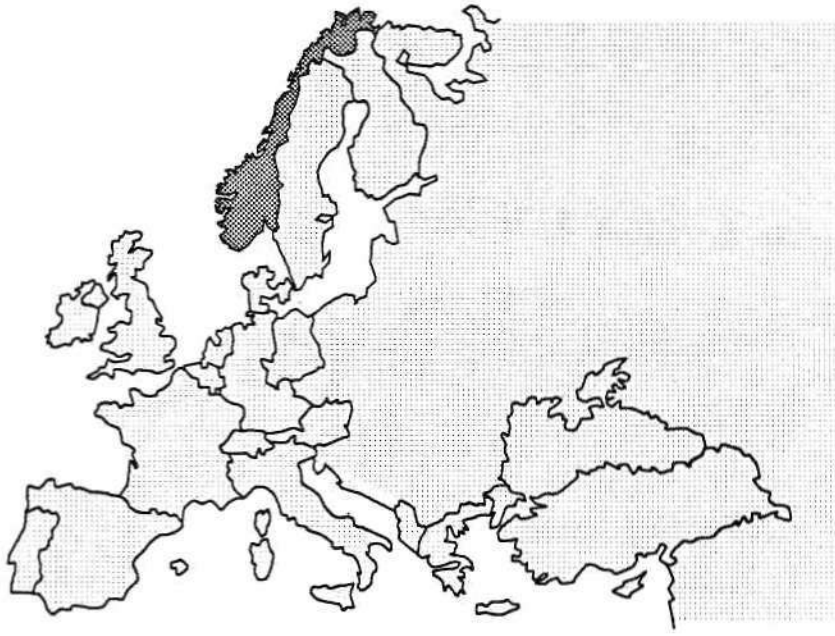
Source: U.S. Department of Commerce
1988 Statistical Yearbook (UNESCO)
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Norway



Country Statistics			
Total population (millions)	4.17	1988 Exchange rate (NKr/US$)	6.49
Area (square kilometers)	324,219		
Population density	13:1	1988 Unemployment rate (%)	1.9
Trade balance (US$-billions)	(5.0)	Total engineers	N/A
1988 GDP (1980 US$-billions)	72.3	Electrical/electronic	N/A
1988 GDP (1980 NKr-billions)	356.8	Mechanical	N/A
1989 real GDP growth rate (% est.)	2.0	Chemical/biological	N/A
Structure of production (% 1985 GDP)		Metallurgical/materials	N/A
Agriculture	4	Civil/architectural	N/A
Industry	43	Others	N/A
(Manufacturing = 14%)			
Service	54	N/A = Not Available	

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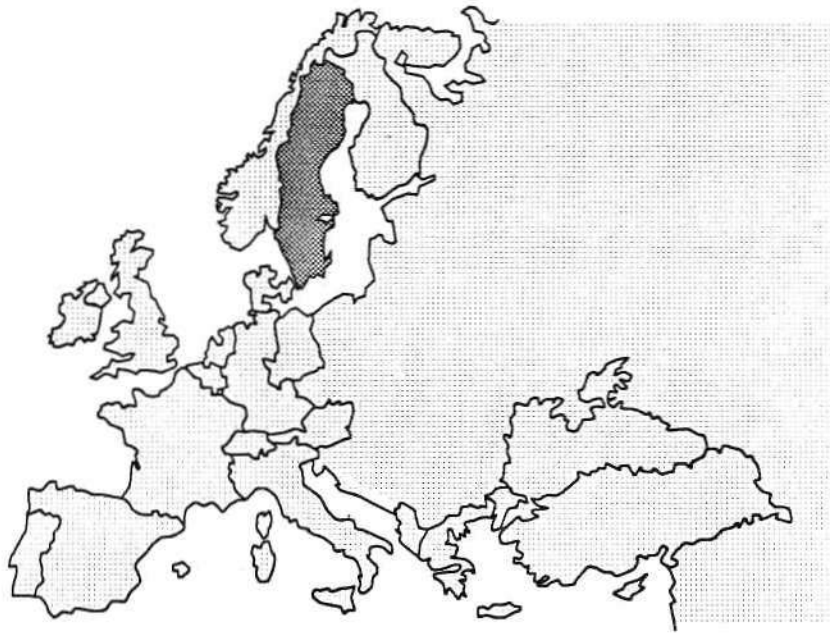
Source: U.S. Department of Commerce
1988 Statistical Yearbook (UNESCO)
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Sweden



Country Statistics			
Total population (millions)	8.37	1988 Exchange rate (SKr/US$)	6.11
Area (square kilometers)	449,964		
Population density	19:1	1988 Unemployment rate (%)	1.8
Trade balance (US$-billions)	4.8	Total engineers	N/A
1988 GDP (1980 US$-billions)	144.2	Electrical/electronic	N/A
1988 GDP (1980 SKr-billions)	609.7	Mechanical	N/A
1989 real GDP growth rate (% est.)	2.4	Chemical/biological	N/A
Structure of production (% 1985 GDP)		Metallurgical/materials	N/A
Agriculture	3	Civil/architectural	N/A
Industry	31	Others	N/A
(Manufacturing = 21%)			
Service	66	N/A = Not Available	

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Source: U.S. Department of Commerce
1988 Statistical Yearbook (UNESCO)
The WEFA Group
Dataquest
April 1989

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6.2 Government, Trade, and Economic Forces

EXECUTIVE OVERVIEW: SCANDINAVIA

The following summary highlights this region's major economic and political developments of 1988, and presents 1989 economic projections. It is based on reports from The WEFA Group (Wharton Econometric Forecasting Associates).

Denmark

- The GDP fell 0.2 percent in 1988, reflecting a decline both in domestic demand and gross fixed investment. Unemployment rose sharply in 1988, and inflation began to level off.
- The merchandise trade surplus widened in 1988, with export values rising 5.9 percent to DKr 135.6 billion and imports growing only 3.3 percent to DKr 129.7 billion in the first three quarters.
- Flat growth is forecast for the near term, but an expected increase in domestic demand should produce 1989 GDP growth of 2.2 percent. In the longer term, the early 1990s should see strong growth in investment as a number of infrastructure projects come on stream.

Finland

- The Finnish economy continued its expansion in 1988, with real GDP growth of 3.2 percent.
- The Finnish economy is experiencing a consumerism boom, led by consumer goods and personal travel. As a result, inflation continues to accelerate, and the current account balance is expanding.
- Concern about this external balance of the economy and domestic inflation has led the central bank to tighten its monetary policy.
- In 1989, growth is expected to slow to 2.0 percent, as both private consumption and investment also slow. This is due to Finland's declining competitiveness, a swelling current account deficit, and high inflation.

Iceland

- Following four years of steady, strong growth, Iceland's real GDP was virtually unchanged in 1988 (0.6 percent growth).
- The Icelandic economy is forecast to recover in 1989, with the GDP increasing 1.9 percent over 1988.

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Norway

- Norway's economic growth was largely static in 1988, with the GDP growing only 0.7 percent over 1987. Indications that the economy is slowing include rising unemployment and a decreasing demand for credit.

- The Norwegian government is attempting to restore economic balance by restructuring the economy. This may well involve the abolition of subsidies to inefficient industries.

- Slow, 2 percent growth is forecast for 1989, with productivity picking up in the short term as legislation limits wage growth.

Sweden

- Sweden's economic and consumption boom continued in 1988, with GDP growing 2.6 percent and disposable income growing 3.3 percent in the first half of the year.

- Inflation trended upward in 1988, and the Swedish government, anxious to ride out the boom, has been slow to address the "overheating" problem of the economy.

- Domestic demand is forecast to slow in 1989, as the brakes are applied to consumer spending by a reduction in the savings rate. Likewise, investment is forecast to grow more slowly as capacity constraints are alleviated and demand slows.

- Sweden's 1989 GDP growth rate is forecast to nearly match that of 1988—2.4 percent.

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6.3 Doing Business in Scandinavia

BACKGROUND ON DENMARK

General Considerations

Denmark is the only Nordic country that is part of the Economic Community (EC). As such, it benefits from the favorable trading conditions with the other EC countries. At the same time, it benefits from the historically strong ties developed with two other Scandinavian countries—Sweden and Norway. The upgrading of the Copenhagen airport, which established it as the main airport for the entire Scandinavian region, is crucial in this respect, because it reinforces the function of Denmark as a bridge between the Scandinavian hinterland and the other European economies. This bridge function of Denmark is further enhanced by the linguistic capabilities of the Danes. The Danish language is easily understood by the other Scandinavians and vice versa, and a widely spoken English, generally of a very high standard, further facilitates the integration with the rest of Europe.

Industrial Development

Transportation within the country and connecting Denmark with the rest of Scandinavia and Western Europe—whether by road, rail, or boat—is still somewhat difficult. However, the plans to build a network of bridges and roads between Sweden and West Germany, crossing Denmark, will solve the current problems and further integrate Denmark with the rest of Europe.

The industrial structure of Denmark consists, to a large extent, of small and very small companies and other organizations. Some 50 percent of all companies are one-man companies, with no further staff than the owner. Companies with one or two employees represent another large category. However, there exists also a nucleus of large companies that play an essential role in the export side of the Danish economy. Among these larger organizations, the government and the government-controlled sector represent a large share. This weight of the government reflects the concept of a welfare state, on which Denmark is based. In contrast to several other welfare state economies, however, the relation between the private sector and the public sector in Denmark appears rather balanced and has not been the subject of major political controversy.

In the past, the Danish economy was directed toward supplying high-quality specialty goods, performing well in terms of income, inflation, and employment. Nevertheless, during 1986 and 1987, the negative aspects of the wealth of the Danish citizens became apparent. The high average income of the Danes had led to a high level of imports; this, in turn, created a very negative trade balance. Up until recently, however, the trade deficit could always be financed on world financial markets, where Denmark could count on a generous confidence of the capital suppliers.

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During 1987, the situation further deteriorated. As the trade deficit became even higher and wage negotiations led to high salary increases and inflation, the political base lost its stability because the country was headed by a minority government. Investment, both by private individuals and by corporations, was discouraged and fell sharply.

GOVERNMENT POLICIES IN DENMARK

Intellectual Property Protection

Manufacturers and traders are strongly advised to patent their inventions and register their trademarks in Denmark. Applications should be made through a patent or trademark agent, either in the country of residence or in Denmark. Denmark subscribes to the International and European convention for the Protection of Industrial Property.

Patents

Patents are granted for a period of 20 years from the date of application. The terms are subject to the payment of renewal fees.

Trademarks

The first applicant is entitled to registration and exclusive use of a trademark, but a prior user may contest the registration within a period of 5 years. Registrations are granted for 10 years and may be renewed for similar periods. Application for renewal must be made not earlier than one year prior to and not later than six months after expiration of the trademark.

Taxation

The principal forms of Danish taxation include the following:

- Corporate income tax
  - Corporate income tax is levied on all companies resident in Denmark, as well as branches of foreign companies, at a flat rate of 50 percent of the taxable income. (Taxable income is equivalent to gross income less allowable deductions.)
  - All income received in Denmark and abroad is liable to taxation in Denmark.
- Personal income tax

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  - Any individual resident in Denmark is subject to personal income tax, which can consist of various types of taxes subject to income and place of residence.
  - The percentage of income tax ranges from 46.0 percent to 73.7 percent, and there are also wealth tax and church tax to be considered.
  - Total taxes, however, cannot exceed 78.0 percent of the taxable income.

- Hydrocarbon tax
  - This tax is levied on income in connection with hydrocarbon extraction.

- Value-added tax
  - Value-added tax (meromstningsafgift—MOMS) is levied at 22 percent of the net invoice price for the supply of all goods (both new and second-hand) and services, including gas, water, electricity, and heating.

Other taxes in Denmark include inheritance tax, gift tax, tax on real property, stamp duties, capital contribution duty, stock exchange transfer tax, special excise tax, motor vehicle road tax, and tax on pension funds.

INVESTMENT CONSIDERATIONS IN DENMARK

Direct Foreign Investment

Denmark is an attractive country for direct foreign investment, offering several advantages in the realm of both manufacturing and marketing. For more than a century, Denmark has had a tradition of openness in economic relations with the rest of the world. Foreign investment is allowed without special permit or approval up to a limit of DKr 10,000,000. Approval for investments above this limit, which is normally granted, must be obtained from the Ministry of Industry.

Investment Incentives

In order to boost Denmark's exports and to decrease the country's unemployment rate, the government offers various incentives that are available on an equal basis to both Danish and foreign-owned companies. These incentives include the following:

- The finance Institute for Industry and Trade A/S (Finansieringsinstituttet for Industri og Hndvrk A/S) grants loans for investments relating to export activities and import-substituting activities in the manufacturing and crafts industries.

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- The Danish Export Finance Fund (Dansk Eksportfinansieringsfond) grants loans for major contracts for the export of capital goods and services produced in Denmark.

- The Danish Export Credit Council (Eksportkreditrdet) guarantees loans granted to Danish exporters by banks in order to finance exports.

- The Danish Promotion Council (Eksportfremmerdet) grants financial support for the establishment of new Danish export markets.

- The Fund for Technical and Industrial Development (Teknologistyrelsen) finances research and development projects in Denmark for new products or production methods.

- The Danish International Development Agency (DANIDA) renders financial support for projects of Danish enterprises in developing countries.

- The Ship Credit Fund of Denmark (Skibskreditfonden) offers loans for vessels built in Danish shipyards.

- In order to improve Denmark's development areas, the Danish government has made investment subsidies and investment loans available. Special loans to companies setting up in these development areas are also available from the European Investment Bank.

In addition to these main government incentives, taxes on export subsidies will be removed and extra tax relief will be available for companies participating in international research and development projects. Most of the incentives are designed to improve Danish export competitiveness.

OTHER BUSINESS CONSIDERATIONS IN DENMARK

Company Law

The foreign investor will have to choose between two types of company setup: a partnership (public or private) or a branch office. The main differences are in taxation principles. Other differences include the following:

- A/S (Aktieselskab)

  — This style of company, which is a public limited company, requires at least three founders, two of whom must be resident in Denmark or an EC country.

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  - The minimum capital for such a company is DKr 300,000, which must be paid up before registration.

- ApS (Anpartsselskab)
  - An ApS is a private limited company and requires only one founder.
  - The minimum capital to be paid in is DKr 80,000, and no legal reserve fund is required.
  - This form of organization is preferred by small companies with limited liability.

- Branch office
  - Any foreign company which is registered in its home country may establish a branch in Denmark, although companies resident outside of the EC must first obtain permission from the Danish Ministry of Industry.
  - The branch manager should be a person resident in Denmark or the EC.
  - The registration fee for a branch office is DKr 1,800 plus 0.05 percent of the head office's share capital, which is payable upon registration.

BACKGROUND ON FINLAND

General Considerations

Over the past ten years, Finland has enjoyed continuous economic growth, and 1987 was no exception. Although the agricultural sector suffered a poor harvest due to weather conditions, Finland's gross domestic product (GDP) increased 3.5 percent. It was the good performance of the industrial sector that sustained the growth of the Finnish GDP. The larger corporations such as Neste, Nokia, and Valmet experienced an especially successful year, as is witnessed by the increased exports to the western countries. These more than compensated for the reduced absorption of Finnish products on the part of the U.S.S.R., a factor that affected the performance of the smaller companies sector. The drop of oil prices (evaluated in U.S. dollars) upset the bilateral agreement by reducing the value of Russian oil exports to Finland and, consequently, limiting the country's exports to the U.S.S.R.

Strategies for Industrial Development

Owing to the abundant forest resources and good-quality wood, the wood and paper industry still has a high profile in Finland. Today, however, the metal and engineering

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industry holds a 30 percent share; one in three workers is employeed in its service. Key products of mechanical engineering include agricultural and forest machinery and equipment; land vehicles; and various types of special ships (such as icebreakers), oil rigs, and so on, often adapted for special conditions.

GOVERNMENT POLICIES IN FINLAND

Higher corporate investment in R&D appears to be the result of a precise tax reduction strategy adopted by the Finnish government. Recent moves in this direction are strictly connected to the lower presence of socialists in the Parliament and a consequently lower emphasis on public service expenditure and the building up of a welfare state. Another important factor that throws light on the Finnish presence in some developing key markets is the recently established cooperation between higher education and major industrial concerns.

Trade Policy

Finland joined the European Free Trade Association (EFTA) as an associate member in 1961, becoming a full member on January 1, 1986. The trade agreements between the EC and EFTA allow the free circulation of most goods, but consumables require payment of duties, generally calculated as a percentage of carriage/insurance/freight (CIF).

Intellectual Property Protection

Patents

Finland does not subscribe to the European Patent Convention; it joined the International Patent Cooperation Treaty (PCT) in 1980. Manufacturers are strongly advised to patent their inventions and register their trademarks in Finland. Applications are only acceptable in Finnish or Swedish and should be made through a patent or trademark agent, who by law should be resident in Finland.

Patents are granted for a term of 20 years from the date of filing.

Trademarks

The first applicant may be entitled to a registration, but a prior user may contest it within 5 years from the date of registration. Registration lasts for 10 years and is renewable not earlier than 1 year before or later than 6 months after the expiration date. If a trademark has not been used for 5 years without good reason, it may be cancelled.

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Taxation

Finland's principal taxes are the following:

- Income tax
- Turnover tax
- Equalization tax

Income Tax

Income taxes are levied by the state, by the municipalities, and by the parishes of the Evangelical Lutheran and Orthodox Churches, as shown in Table 6.3-1.

Turnover Tax (LVV)

Finland has not yet adopted the value-added tax (VAT) system. Instead, Finland applies a turnover tax (LVV) of 16.0 percent of the value of the goods, including the tax itself. It is quite complicated, but the effective rate on all imports is 19.5 percent of the gross landed value (i.e., CIF value plus import duty and any other taxes), which is collected by customs on entry. A further 16.0 percent of the difference between wholesale and retail prices is levied at the retail stage.

Equalization Tax

An equalization tax is levied on most imported goods, the aim of which is to prevent imports of countries that do have a VAT system from enjoying a market advantage over domestically produced goods subject to Finnish turnover tax. The level of this tax varies from 1.4 to 6.8 percent of the CIF value.

Table 6.3-1

Types of Finnish Income Tax

Tax Type	Amount
National income tax	43.0 percent
Municipal income tax	14.0-18.5 percent
(e.g., Helsinki)	15.0 percent
Church income tax	1.0-2.0 percent
(e.g., Helsinki)	1.0 percent

Source: Danish Department of Trade and Industry

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INVESTMENT CONSIDERATIONS IN FINLAND

Direct Foreign Investment

Business in Finland is generally carried out through a local agent, preferably a Finnish national; even with an agent, however, regular visits are essential to maintain goodwill and good contacts in the marketplace. Many Finnish trading companies act as importers, as holding stocks, and as commission agents. Agents, importers, and wholesalers do not tend to specialize to the same extent as in other countries, due mainly to the relatively small population and the large geographical area to be covered. Also, for goods under license, a diversity of goods and suppliers is a useful safeguard for the agent. It should be noted that agents generally work on a hefty commission basis because their expenses can be high. The large size of many Finnish agency companies has natural advantages and disadvantages: Being big means that they can hold large stocks and maintain a staff of technical experts—at the loss of the intimacy that many business ventures prize.

It is possible to operate in Finland without the support of an agent, but probably only in areas where there are few potential customers and stocking and technical sales support are not essential. For success, this policy requires careful attention to visits. English is widely spoken and used in correspondence.

Investment Incentives

Foreign investment in Finland has contributed significantly to the economic success of the country, and the government encourages direct investment in most areas, notable exceptions being mining and the wood-processing and forestry industries. In matters of tax legislation and economic assistance from the state, foreign enterprises are treated in the same way as Finnish companies. Investment incentives are granted by the Finnish government for companies to penetrate the development areas in the northern and eastern parts of Finland. Incentives include assistance from the Ministry of Trade and Industry, loans from the Regional Development Fund (KERA), transportation subsidies, and tax relief.

OTHER BUSINESS CONSIDERATIONS IN FINLAND

Company Law

Most foreign-controlled businesses in Finland are private limited companies, designated OY from the Finnish "osakeyhtio." This is the only corporate form in Finland in which a shareholder's liability is limited. The company can be formed by one or more persons or corporate bodies, and the minimum share capital required is Fmk 15,000.

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Other business forms include the general partnership (avoin yhtio), limited partnership (kommandiittiyhtio, or KY), and cooperative societies. A foreign investor may also set up a branch office; however, because these are usually taxed at a higher rate, there is little advantage in doing this.

It is necessary to have permits for foreign-owned enterprises to buy or lease property and to appoint a foreign national as Managing Director. At present, total foreign ownership in Finnish companies may not exceed 20 percent, but plans are in progress to increase this to 40 percent.

All companies must register with the Registrar of Trade in Helsinki.

BACKGROUND ON NORWAY

Government Structure

Norway is a constitutional monarchy with a parliamentary form of government. King Olav V has only symbolic and representative functions as the country's head of state, giving formal approval to government changes recommended to him by the prime minister. The parliament (Storting) consists of an upper house (Lagting) and a lower house (Odelsting), totaling 157 seats. The members are elected in free elections for simultaneous four-year terms and according to a proportional representation system.

The main political parties in Norway are as follows:

- Socialist parties
  - — Socialist Left Party
  - — Progress Party
- Nonsocialist parties
  - — Conservative Party
  - — Christian People's Party
  - — Centre Party

As in the other Scandinavian countries, the Social Democrats have dominated Norwegian politics. In June 1983, however, a nonsocialist government consisting of three parties was formed under Mr. Kaare Willoch. At the last general election in September

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1983, this coalition maintained its power but only as a minority government. In May 1986, the government resigned and was replaced by a minority Labor Party government under Mrs. Gro Harlem Brundtland. The next general election is scheduled for September 1989.

Industrial Development

The major industries in Norway are oil and gas; shipbuilding and shipping; and the energy-intensive industries such as electrochemistry, electrometallurgy, paper and pulp, and light metals and alloys. The success of the energy-intensive industries results from Norway's development of cheap hydroelectric power.

The Norwegian economy depends very heavily on the oil industry, which contributes almost 20 percent of GDP. Norway is Europe's biggest oil producer after Britain. Because the petroleum business is dependent on international markets, however, it entails high risks. These risks became evident in 1986 when oil prices dropped by more than 50 percent within only a few months, dramatically affecting the Norwegian economy.

GOVERNMENT POLICIES IN NORWAY

Trade Policies

Norway is a member of EFTA and, like other EFTA member states, has signed a Free Trade Agreement with the EC. Moreover, the country is a contracting party of the GATT, a member of the OECD, the Nordic Council, and, unlike Sweden, also a member of NATO. However, Norway does not allow the prepositioning of nuclear weapons or the stationing of foreign military forces in the country in peacetime.

Norway's economy depends heavily on foreign trade. The country's main trading partners are Sweden, the EC countries (principally West Germany), and the United States. The EC is Norway's most important trade partner, accounting for more than 60 percent of all exports.

Intellectual Property Protection

Manufacturers and traders are strongly advised to patent their inventions and register their trademarks in Norway. Applications should be made through a patent or trademark agent, either in the country of residence or in Norway. Norway subscribes to the International and European Convention for the Protection of Industrial Property.

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Patents

Patents are granted for a period of 17 years from the date of application, subject to the payment of annual renewal fees. If the patented invention is not worked within 3 years of the grant of the patent or 4 years of the date of application, then the patentee may be ordered to grant licenses.

Trademarks

The first applicant is entitled to registration and exclusive use of a trademark for 20 years. It may be renewed for similar periods not earlier than 1 year before or later than 6 months after the expiration date. Any prior user of a trademark may oppose the registration within 5 years.

Taxation

Norway's principal tax systems are as follows:

- Income tax—Any person or legal entity resident in Norway for six months or more is liable to income tax on the worldwide income.
- Value-added tax (VAT)—Most goods and services are subject to VAT, which is currently 20 percent; for imports, VAT is levied on the duty-paid value plus any additional customs charges.
- Agricultural levy—An agricultural levy of 0.3 percent is charged on foodstuffs in addition to the VAT.
- Stamp duty—A stamp duty of 17.5 percent is levied on audio, visual, and recording equipment.

Other special taxes are levied on so-called luxury goods (e.g., tobacco, alcohol).

INVESTMENT CONSIDERATIONS IN NORWAY

Direct Foreign Investment

Apart from some exceptions, Norway welcomes direct foreign investment. Excellent opportunities for foreign companies exist in the information technology markets. There is a growing market in Norway for CAD/CAM systems suitable for small and medium-size companies and sophisticated automation systems for the engineering sector.

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In most cases, a permit from the Ministry of Industries has to be obtained before a company can be set up in Norway. Preference has to be given to Norwegian labor and materials. Certain sectors that are restricted to foreign investors include basic utilities, armaments and other strategic industries, and government monopolies. Furthermore, the takeover of existing Norwegian firms is not encouraged.

Investment Incentives

The Norwegian government and the local counties offer investment incentives for companies wishing to set up in Norway's development areas. These areas are the three northern counties of Finmark, Troms, and Nordland, as well as certain parts of the remaining 12 counties. The incentives include loans and loan guarantees, training and relocation grants, exemption from import duties, and reductions in corporate tax.

OTHER BUSINESS CONSIDERATIONS IN NORWAY

Company Law

Any company wishing to set up in Norway must register with the Register of Companies in the county where the business office is located. Before deciding on a specific type of company, it is advisable to contact a Norwegian business lawyer. The four types of companies most commonly used by foreign investors are the following:

- Joint stock company (Aksjeselskap, or A/S)
  - The A/S is equivalent to a joint stock company.
  - The minimum amount of share capital for an A/S is NKr 50,000, and at least 50 percent of the directors and the company's manager must have been resident in Norway for more than two years.
  - Each investor is liable for only the amount of the par value of shares owned.
- Limited partnership (Kommandittselskap)
  - A Kommandittselskap is a limited partnership in which at least the general partner has unlimited personal liability and the special partners' liability is limited to a certain amount.
  - The company name has to consist of the name of a general partner and the supplement indicating a partnership.

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- General partnership (Det ansvarlige Selskap)
  - This company form is equivalent to a general partnership.
  - In this type of company, each partner is personally liable.
  - The name of the company has to contain the name of at least one of the partners and the supplement to indicate a partnership.
- Branch office
  - A branch office must be duly established under the laws of its home country.
  - A director of the branch office of a joint stock company has the same liability as a director of a Norwegian company.

BACKGROUND ON SWEDEN

Government Structure

Sweden is a constitutional monarchy with a parliamentary form of government. King Carl Gustav XVI has only ceremonial functions as head of state. The parliament (Riksdag) consists of one chamber and is the decision-making and legislative body in Sweden. It has 349 members who are directly elected for simultaneous three-year terms according to a proportional representation system. Among the parliament's tasks are the approval of a proposed prime minister, all national taxes, annual budgets, and legislation. The decision-making powers of the parliament are without limitation. The cabinet, which holds the executive power, consists of 20 ministers, 13 of whom head ministries. The ministries prepare the bills for submission to parliament and issue instructions for the administrative boards through which the Swedish government operates. The actual administration is carried out by independent central agencies that are run by civil servants. These civil servants are observed by parliamentary ombudsmen. Other ombudsmen protect the public by observing business practices, consumer rights, ethnic and sex discrimination, and press ethics.

The main political parties in Sweden are the following:

- Nonsocialist parties
  - Moderata Samlingspartiet (Moderate Party)
  - Centerpartiet (Center Party)
  - Folkpartiet (Liberal Party)

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- Socialist parties
  - — Socialdemokratiska Arbetarepartiet (Social Democratic Party)
  - — Vansterpartiet Kommunisterna (Left Party Communists)

Industrial Development

Sweden is a member of the United Nations and its specialized agencies, the OECD, EFTA, GATT, IMF, IBRD, and the Council of Europe. Moreover, it forms part of the Nordic Council that was founded in 1952 by Sweden, Norway, Denmark, Finland, and Iceland. Due to Sweden's neutrality policy, it is neither a NATO nor an EC member; however, it has a free-trade agreement with the EC for industrial goods.

A quarter of Sweden's total production is exported. The country's main trading partners are the EC countries, led by West Germany; the Scandinavian countries; and the United States. U.S. exports to Sweden grew substantially in 1988, compared with a very low figure in 1987. This growth is mainly due to a weaker U.S. dollar, which is making U.S. products very competitive. The EC is Sweden's most important trade partner, accounting for 50 percent of all exports. Therefore, one of the main concerns for Swedish industrialists is the EC's formation of an internal market in 1992. The chance for Sweden to become an EC member has been ruled out on the grounds of its neutrality; however, discussions are under way for an agreement regarding cooperation in all areas but defense and foreign policy.

Sweden has rich natural supplies of forest, water power, iron ore, uranium, and other minerals. Unlike Norway, however, it lacks resources in oil and coal. These traditional basic industries have run into serious competition from abroad over the past 10 to 20 years. At present, engineering is the largest sector of the Swedish industry, exporting almost 70 percent of its production. This accounts for 45 percent of Sweden's total merchandise exports. Nevertheless, the forest industry is a larger net exporter because its imports are only negligible compared with the engineering industry, which imports 50 percent of its materials.

GOVERNMENT POLICIES IN SWEDEN

The Swedish government and cooperative societies such as the government holding company Procordia AB own 10 percent of the Swedish business sector, mainly for employment policy reasons. In order to keep the unemployment figure down—Sweden has one of the lowest unemployment figures in the world—the government has consistently spent money on employment services and adult training.

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Intellectual Property Protection

Manufacturers and traders are strongly advised to patent their inventions and register their trademarks in Sweden. Applications for both must be filed with the National Patent and Registration Office, which is controlled by the Department of Commerce.

Patents

Patents are granted for a period of 20 years from the date of application. Patents applied for in any country that is a member of the International Union for Protection of Industrial Property automatically have a one-year right of priority in Sweden. A Nordic patent can be applied for in Sweden, Norway, Denmark, or Finland and applies in all of these countries.

Trademarks

Trademarks are protected by law if they are registered with the National Patent and Registration Office or if they have become established by use. Registrations are granted for 10 years and may be renewed for similar periods.

Taxation

In Sweden, the National Tax Board (Riksskatteverket) is responsible for the implementation of tax laws and gives advice on tax matters. The total income of corporations and individuals is subject to national and municipal income tax. The Sweden tax system is as follows:

- National income tax (corporation tax)
  - For corporations and economic associations, the rate of national income tax is 52 percent; for other legal persons, it is 40 percent.
- Income tax (physical persons)
  - The national income tax is progressive for physical persons and ranges from 5 percent up to 45 percent.
  - The local income tax is proportional at an average rate of 30 percent; however, the total amount of taxes, cannot exceed 80 percent.
- Value-added tax (MOMS)
  - The rate of value-added tax is 19 percent of the price, including other tax. (So the effective rate is 23.46 percent.)

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— It is levied on almost all goods and services.

Additional taxes are levied on items such as tobacco, alcoholic beverages, new cars, motor fuels, and energy.

INVESTMENT CONSIDERATIONS IN SWEDEN

Direct Foreign Investment

In an effort to increase exports, the Swedish government is very anxious to encourage foreign investment and offers several incentives. Strong potential exists in the Swedish market for products such as data processing equipment, electronic components, medical equipment, electronic production and test equipment, computer software, and analytical instrumentation. Furthermore, the restrictions on foreign telecommunications equipment have been relaxed recently. Foreign companies who wish to invest in a Swedish enterprise or establish or acquire a subsidiary company first have to obtain the approval of the Bank of Sweden. The repatriation of capital and the repayment of foreign loans are subject to approval by the Bank of Sweden also. The Swedish government does not permit foreign ownership of Swedish periodicals, banks, credit-status-information operations, and manufacturers of war materials. It restricts foreign ownership of mines, forests, farmland, and property.

Investment Incentives

The Swedish government supports a comprehensive investment incentive program in order to keep the unemployment figure at a low level, to stimulate research and development projects, and to protect the environment. The banks, however, are the main providers of credit to industry. Certain tax incentives are available as well for the development of new businesses in Sweden.

OTHER BUSINESS CONSIDERATIONS IN SWEDEN

Company Law

The foreign investor in Sweden will have to choose one of four types of company organizations: limited company, trading partnership, limited partnership, or branch office. Among these, the limited company (Aktiebolag, or AB) is the most common form of enterprise.

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- Limited company (Aktiebolag, or AB)
  - In order to establish an AB, the founder has to be a Swedish resident.
  - An annual appropriation of 10 percent of the limited company's after-tax profit has to be placed in a reserve fund until the fund equals 20 percent of the capital, and a minimum capital investment of SKr 50,000 is required.
- Trading partnership (Handelsbolag)
  - A trading partnership has to be formed by at least two individuals or corporations, with each partner personally liable for the obligations and liabilities of the partnership.
  - Any foreign national (individual or legal entity) has to obtain a special permit from the Swedish authorities before joining a Swedish trading partnership as a partner.
  - The company name must include the term "Handelsbolag."
- Limited partnership (Kommanditbolag)
  - A limited partnership has to be formed by at least two individuals or corporations.
  - At least one partner has to be personally liable for the obligations and debts of the company; however, the remaining partners can limit their liability to their share of invested capital.
  - The restrictions on foreign nationals and company name are the same as for the trading partnership.
- Branch office
  - The establishment of a branch office requires prior approval from the Swedish authorities, and it may not begin operations before registration.
  - Any company wishing to set up a branch office in Sweden has to be properly established and registered in its country of origin.
  - The branch office has to be run by a managing director equipped with a power of attorney; moreover, the managing director has to be a Swedish resident, although not necessarily a Swedish national.

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BUSINESS INFORMATION SOURCES

Denmark

Table 6.3-2 lists business information sources for Denmark.

Table 6.3-2

Business Information Sources—Denmark

Source	Address
B.O.T.B.	EEB Denmark Desk Department of Trade & Industry 1 Victoria Street London SW1H 0ET United Kingdom Tel: 011-44-1-215 7877
Danish Embassy	55 Sloane Street London SW1 United Kingdom Tel: 011-44-1-235 1255
British Embassy	36-40 Kastelsvej DK-2100 Copenhagen Denmark Tel: 011-45-1-264 600
Copenhagen Handelsbank A/S	18 Cannon Street London EC4M 6GB United Kingdom Tel: 011-44-1-236 5000
Danmarks Statistik	Sejrogade 11 DK-2100 Copenhagen Denmark

Source: Dataquest
April 1989

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Finland

Table 6.3-3 lists sources of business information for Finland.

Table 6.3-3

Business Information Sources—Finland

Agency	Address
Finnish Embassy Trade Centre	30-35 Pall Mall London SW1Y 5LP United Kingdom Tel: 011-44-1-839-7262 Economist: Kai Vuori Tech. Attache: Juha Kasanen
Department of Trade & Industry, Finland Desk	1-19 Victoria Street London SW1H 0ET United Kingdom Tel: 011-44-1-215-4783
British Embassy	Mr. Bates Commercial Section British Embassy Uudenmaankatu 16-20 00120 Helsinki Finland Tel: 011-358-0-647922 Fax: 011-358-0-611747
British Council	Etelaesplanadi 22 A 00130 Helsinki Finland Tel: 011-358-0-640505 (for contacts in universities, education authorities, and cultural institutions)

Publication	Edition
ATLASECO 1987 *Financial Times*	N/A London Editions, January-May 1988

Source: Dataquest
April 1989

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Norway

Table 6.3-4 lists sources of business information for Norway.

Table 6.3-4

Business Information Sources—Norway

Agency	Address
B.O.T.B.	EEB Norway Desk Department of Trade and Industry 1 Victoria Street London SW1H 0ET United Kingdom Tel: 011-44-1-215 5140
Norwegian Embassy	Information Department 25 Belgrave Square London SW1X 8QD United Kingdom Tel: 011-44-1-235 7151
British Embassy	Commercial Department Thomas Heftyesgate 8 0264 Oslo 2 Norway Tel: 011-47-2-552400

Publication	Edition
Financial Times	March - May 1988 editions
World Economic Outlook, WEFA Group	December 1987
Business America	April 25, 1988

Source: Dataquest April 1989

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Sweden

Business information sources for Sweden are listed in Table 6.3-5.

Table 6.3-5

Business Information Sources—Sweden

Agency	Address
B.O.T.B.	EBB Scandinavian Desk Department of Trade and Industry 1 Victoria Street London SW1H 0ET United Kingdom Tel: 011-44-1-215 5140/4397
British Embassy	Commercial Department Skarpogatan 6-8 S-115 27 Stockholm Sweden Tel: 011-46-8-670 140
Swedish Embassy	Commercial Department 11 Montagu Place London W1H 2AL United Kingdom Tel: 011-44-1-724 2101

Publication	Edition
Financial Times	March - May 1988 editions
World Economic Outlook, WEFA Group	December 1987
Business America	April 25, 1988

Source: Dataquest April 1989

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BUSINESS DEVELOPMENT AND REGULATORY AGENCIES

Denmark and Finland

No data on engineering-related regulatory agencies in Denmark and Finland are available at this time.

Norway

The only address of a Norwegian regulatory agency available to us at this time is that of the patent office. It is Patentstyvet (Norwegian Patent Office), P. O. Box 8160 Dep, 0033 Oslo 1, Norway (Tel: 011-47-2-461-900).

Sweden

For information on regulatory agencies in Sweden, please contact the Institutet for Verkstadsteknisk Forsking (IVF) (Swedish Institute of Production Engineering Research) at one of the following addresses:

- Molndalsvagen 85
  412 85 Gothenburg
  Sweden
  Contact: Mr Jan Sjorgen
  Tel: 011-46-31-838 600 or 838 692

- Brinellvagen 81
  100 44 Stockholm
  Sweden
  Contact: Mr Berndt Holmer
  Tel: 011-46-8-213 174

STANDARDS ORGANIZATIONS

The agencies listed below provide information on engineering technical standards in Scandinavia.

Denmark

Information on technical standards for engineering in Denmark can be obtained from Dansk Standardiserintsrad, Aurehoejvej 12, 2900 Hillerup, Denmark (Tel: 011-45-1-623 200).

Finland

For Finland, information on technical standards can be obtained from the Finnish Electrical Inspectorate (Sahkotarkastuskeskus), Testing Section, P. O. Box 21, 00211 Helsinki, Finland (Tel: 011-358-0-69631).

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Testing for electrical safety is required by law in Finland, in regard to equipment for homes, offices, shops, and similar premises.

Norway

Two standards organizations to contact in Norway are the Norwegian Standards Association (NSE), Haakon VII gate 2, 0161 Oslo 1, Norway (Tel: 011-47-2-416 820) or the Ministry of Industry, P. O. Box 8014 Dep, 0030 Oslo 1, Norway (Tel: 011-47-2-349 090).

Sweden

In Sweden, most domestic electrical appliances must be approved for electrical safety before sale. The address of the Swedish Standards Institution (SIS) is Tegnergatan 11, Box 3295, S-103 66 Stockholm, Sweden (Tel: 011-46-8-230 400).

CAD/CAM PUBLICATIONS

Denmark

CAD/CAM industry developments are covered along with other computer industry topics in the Danish version of *Computerworld*. Its address is Computerworld Danmark A/S, Torvegade 52, 1400 Copenhagen, Denmark (Tel: 011-45-1-955 695).

Finland

Valokyna is the only magazine specializing in CAD/CAM in Finland. It is published by the CAD/CAM association four times a year. The address is VTT/ATK, Vuorimiehentie 5, 02150 Espoo, Finland (Contact: Mr Pirjo Lehtinen).

Norway

No specialized CAD/CAM trade journals are published in Norway, but the following leading engineering journals publish articles on the subject:

- Ingenior Nytt
  Hovfaret 17
  0275 Oslo 2
  Norway
- Teknisk Ukeblad
  Kronprinsensgt 17
  0251 Oslo 2
  Norway

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Sweden

Table 6.3-6 lists technical publications that cover general computer-industry information, including developments in CAD/CAM.

Table 6.3-6

Technical Publications—Sweden

Title	Address
Computer Sweden	Sodra Hamnvagen 22 115 41 Stockholm Sweden
Datavarlden	Box 3188 103 63 Stockholm Sweden
Datornytt	Box 200 172 25 Sundbyberg Sweden
Elektronik Varlden	Box 23 371 21 Karlskrona Sweden
Elteknik	Box 27 315 102 54 Stockholm Sweden
Industriell Datateknik	Box 27 315 102 54 Stockholm Sweden
Modern Elektronik	Box 200 172 25 Sundbyberg Sweden

Source: Dataquest
April 1989

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TRADE FAIRS

Denmark

Danish trade fairs are listed in Table 6.3-7. For more details and information on the dates of these exhibitions, please contact Industries Board of Trade Fairs, Kobmagergade 67, DK-1150 Copenhagen, Denmark (Tel: 011-45-1-144 346).

Finland

The Helsinki International Fair Center is the only permanent fair complex for exhibitions in Finland. It is at Pasila, approximately 3 miles from the center of Helsinki, and has a floor area of 35,000 square meters. Events there are organized by the Finnish Fair Corporation, Helsinki Fair Center, Rautatielaisenkatu 3, P. O. Box 21, 00521 Helsinki, Finland (Tel: 011-358-0-150 91, Fax: 011-358-0-142 358).

Table 6.3-7

Trade Fairs—Denmark

Trade Fair	Month	Address
Mikrodata	February	Bella Center A/S Center Boulevard DK-2300 Copenhagen Denmark Tel: 011-45-1-518 811
Elektronic	May	Bella Center Denmark
Computer & Office	September	Messecenter Herning DK-7400 Herning Denmark Tel: 011-45-7-126 000
Automatik	October	Bella Center Denmark

Source: Dataquest
April 1989

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The Finnish Fair Corporation organizes the following specialist fairs at regular intervals:

- FINN TEC—technical fair, annual
- KT—business machines and equipment, biannual
- HEPAC—heating, plumbing and air conditioning, every four years
- ELKOM—professional electronics, biannual

Norway

Norway has only one exhibition that specializes in CAD/CAM; it is called DAK/DAP. DAK/DAP will be held from November 8 through 11, 1988. The address of the fair organizers is: Messebyret A/S, Sandviksveien 184, 1301 Sandvika, Norway.

Sweden

Table 6.3-8 lists the trade fairs in Sweden. For more details and information on the dates of the Swedish trade fairs, please contact one of the following:

- Stockholmsmassan
  5-125 80 Stockholm
  Sweden
  Tel: 011-46-8-468 749
- Malmo Massan
  P. O. Box 19015
  200 73 Malmo
  Sweden
  Tel: 011-46-40-80030
- Svenska Massan Goteborg
  P. O. Box 5222
  402 24 Gothenburg
  Sweden
  Tel: 011-46-31-109 100

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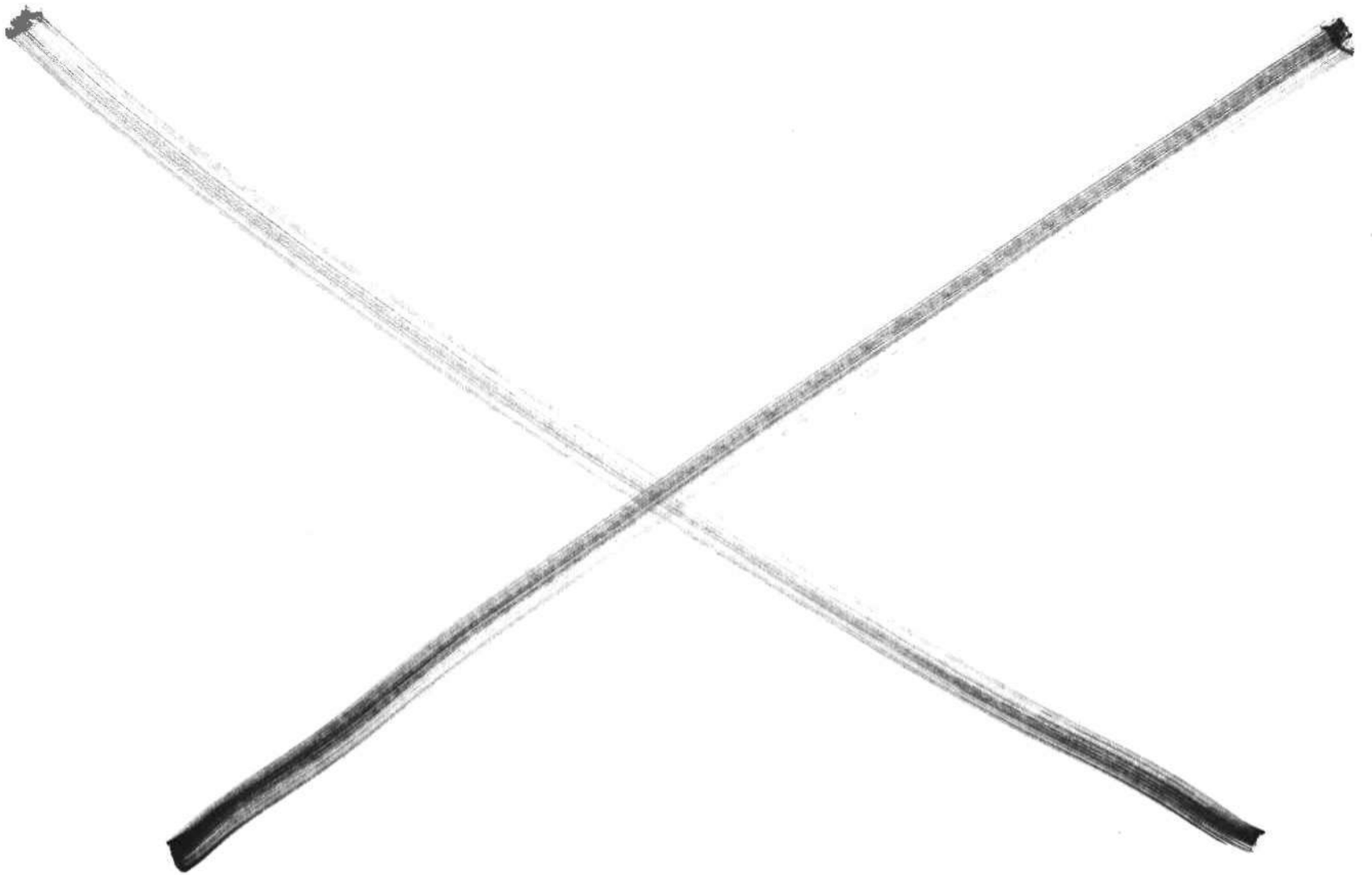
Table 6.3-8

Trade Fairs—Sweden

Trade Fair	Industry	Time of Year	Location
Malmo Tekniska Massa	Tools, industrial robots, electronics	March	Malmo
CIM	Computer-integrated manufacturing	April	Stockholm
Software	General software	April	Stockholm
IBM Systems Scandinavia	N/A	May	Stockholm
Verktygsmaskiner	Mechanical engineering	May	Gothenburg
INTEREX	International Assoc. of Hewlett-Packard computer users	June	Gothenburg
Stockholm Tech. Fair	Computer and office	October	Stockholm
SCANAUTOMATIC	Industrial automation	November	Gothenburg

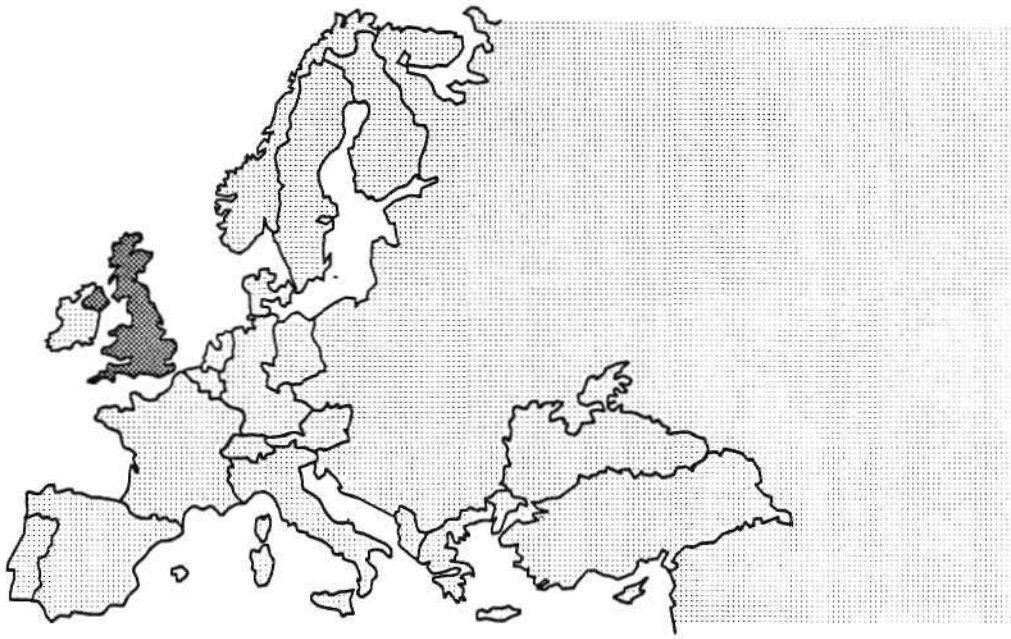
Source: Dataquest April 1989

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7.1 Geography and Demographics

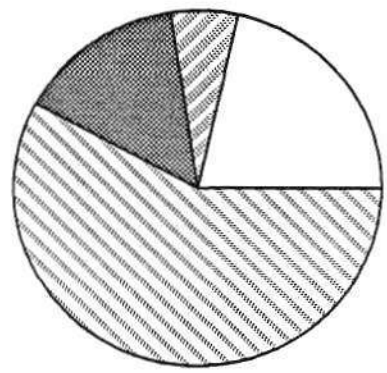
United Kingdom



Country Statistics	
Total population (millions)	56.76
Area (square kilometers)	244,046
Population density	233:1
Trade balance (US$-billions)	(24.7)
1988 GDP (1980 US$-billions)	648.2
1988 GDP (£-billions)	446.2
1989 real GDP growth rate(% est.)	2.7
Structure of production (% 1985 GDP)	
Agriculture	2
Industry	36
(Manufacturing = 22%)	
Service	62
1988 Exchange rate (£/US$)	0.56
1988 Unemployment rate (%)	8.3
Total engineers	533,400
Electrical/electronic	120,000
Mechanical	140,300
Chemical/biological	N/A
Metallurgical/materials	N/A
Civil/architectural	67,700
Others	205,400

CAD/CAM-Related Data	
1988 Market size	
Revenue (millions)	$683
Workstations shipped	13,238
Installed base	41,397

1988 Revenue Mix by Application



N/A = Not Available

0003841-1

Source: U.S. Department of Commerce
1988 Statistical Yearbook (UNESCO)
The WEFA Group
Dataquest
April 1989

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7.2 Government, Trade, and Economic Forces

EXECUTIVE OVERVIEW: UNITED KINGDOM

The following summary highlights this region's major economic and political developments of 1988, and presents 1989 economic projections. It is based on reports from The WEFA Group (Wharton Econometric Forecasting Associates).

- Output in the United Kingdom continued its rapid expansion in 1988. The third-quarter GDP (output) index topped 5 percent growth, led by manufacturing with a 6.9 percent jump. GDP growth for the entire year was roughly equivalent to that in 1987—approximately 4 percent.

- The main factor behind this continued growth is a consumer boom—a sharp 6 percent rise in domestic demand—coupled with an investment boom in which the growth rate has been even higher.

- Signs that the U.K. economy may be overheating can be seen in creeping inflation figures and rapid import growth.

- Despite current account deficits, the pound has remained strong, bolstered by the government's commitment to exchange rate stability and by wide interest rate differentials.

- The 3 percent growth forecast for 1989 largely depends on how effective the recent rises in interest rates are in slowing consumer spending. This level of growth should bring about a gradual improvement in the U.K.'s current account.

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7.3 Doing Business in the United Kingdom

BACKGROUND ON THE UNITED KINGDOM

General Considerations

The United Kingdom has been going through a painful process for the last eight years, attempting to transform itself from a protected welfare state to a nation with an economy led by high-technology industries. Policies of support grants, government subsidization, restrictive trade union practices, and ailing industries have all helped to weaken the United Kingdom's position in global world markets.

On the one hand, a good share of traditional U.K. industries have deteriorated (e.g., coal, steel, and shipbuilding), with a consequent increase in unemployment. The United Kingdom now has one of the highest rates of unemployment in the world. Furthermore, these employment problems are magnified by regional differences, with higher unemployment found in the poorly industrialized northern regions.

On the other hand, the United Kingdom has continued strength in the financial and service industries. Indeed, this backbone of the economy helped finance the small but powerful kernel of high-technology companies that empower the country today. This same financial base also underlies the fact that the United Kingdom has one of the highest installed bases of computer equipment in Europe.

Strategy for Industrial Development

In the 1980s, industrial growth in the United Kingdom has been characterized by the phasing out of the old world—the steel and coal industries—and the phasing in of a new world of high-technology industries. This change brought about two concurrent labor problems: an increase in the level of unemployed, unskilled workers and a lack of highly trained, skilled specialists for the high-technology industries.

For the most part, the U.K. government has devoted its attention to solving the "high-tech" knowledge gap, the chief vehicle being the offer of employee retraining programs. A recent study by the United Kingdom's Department of Employment showed that 10 percent of the employed were undergoing some form of job-related training. Radical changes in the U.K. labor force are reflected in recent government statistics showing that unionism, the traditional organization of the blue-collar class, decreased by twofold in four years.

The current government is credited with propelling the United Kingdom out of the economic stagnation of the 1970s and early 1980s—principally through its strategy of

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improving the supply side of the economy. The chief reforms that have contributed to this economic upswing are the following:

- Reform of trade union laws
- Privatization
- Encouragement of high-technology industry sectors

With the drive toward high technology, particular concern has arisen over the shortage of software engineers. Although this problem has eased somewhat since its recognition in the early 1980s, the industry itself continues to correct it by contributing to employee training. Recently, the Engineering Industry Training Board launched an on-the-job diploma to encourage companies that are educating their employees in this area. Retraining programs are, for the most part, subsidized by industry. The political opponents of the current Tory government have not missed the opportunity to point out the government's failure to provide equal relief to the employment problems of the unskilled.

In effect, the recent government policies have passed greater control to industry management, allowing it to adapt more quickly to changing global market variables. To a great extent, industries in the United Kingdom attribute the economic turn to the phasing in of high-technology industries; therefore, there are several indications that industry is channeling its resources to leverage this strength. For instance, investment in new capital equipment has a higher technology content than in the past. Moreover, despite the unemployment problems, industry continues to invest in manufacturing automation at the expense of job loss.

The two principal concerns of British industrialists regard government policies on currency and inflation. In particular, the Confederation of British Industry has voiced concern that the rise of the pound against both the dollar and the deutsche mark threatens the competitiveness of U.K. exports. Independent economic forecasters believe that the current government, with its main objective being to avoid domestic inflation, is willing to risk the United Kingdom's trade position.

Two conflicting needs exist: to correct the problems of the large population of unskilled, unemployed workers and to leverage the hidden strengths of the small, technically skilled worker population. This conflict is evident in recent debates between the incumbent Conservative government and the Labor Party over tax policy. (See this section's discussion of taxation.)

Despite its internal problems, it should be remembered that real economic growth in the United Kingdom has been consistently higher than in most other European nations over the past five years. However, there are several signs on the British economic landscape that bear watching. Most prominent is the deficit in the current balance of payments. This debt, viewed alongside the possibility of rising inflation, could result in increased interest rates. In turn, this could well suppress the domestic demand for foreign imports.

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GOVERNMENT POLICIES

Nominally, the United Kingdom is considered a constitutional monarchy; however, the Crown rules symbolically. Legislative power lies with the parliament and the cabinet, which is headed by the prime minister. Although Northern Ireland, too, has an independent parliament, it defers to the parliament of the United Kingdom on a wide range of legislative and fiscal powers—namely, those relating to foreign policy, trade, war, the armed forces, and most matters of taxation.

Monetary Policy

Prime Minister Margaret Thatcher's Tory government maintains consistent economic policies based on generally tight monetary and fiscal policies. In the past years, these policies have ignited economic growth and raised British consumer spending, with the government setting forth to channel the increasing domestic demand to domestic goods. In 1986, consumer debt rose 18 percent over 1985; however, this chiefly reflects the surge in demand for Britain's imports, up 9.2 percent from 1986.

The U.K. government's primary objective has been to avoid inflation at all costs. Current policy seems to indicate that the government is more interested in stabilizing exchange rates and sees the value of the pound against the dollar, whether high or low, as independent of this objective. Since early 1987, the government's policy has been to force the pound sterling to shadow the European Monetary System (EMS). In general, this policy has had mixed results in stabilizing the pound from advancing against the West German deutsche mark, an important point in terms of maintaining U.K. export trade competitiveness against other European countries.

In 1986, inflation in the United Kingdom was 3.5 percent, well above that of Britain's main competitors. Inflation rates have been creeping up since then, reaching more than 4 percent in 1987. The inflation rate rose close to 5 percent by the end of 1988.

Employment Policy

Unemployment continues to be a major problem for the United Kingdom, affecting almost 12 percent of the potential labor force. While the country has an opportunity to respond to this by increased export activity (hence, more jobs), there is the complicating problem of high labor costs. Unit labor costs in the United Kingdom rise faster than in most other countries, at an annual rate of about 5 percent.

In the past three years, the government has invested more in job training and employment aids to correct this problem. For instance, in 1986, the government began the Restart program followed by the Youth Training Scheme (YTS), both of which provide job interviews for the long-term unemployed.

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Government R&D Projects

The performance of research and development (R&D) in the United Kingdom is weakened by insufficient support from both the government and industry. In 1987, the U.K. government budget for civil and military R&D was 2.8 percent of the GDP, falling behind both of its main European competitors—France and West Germany.

Industry spending for R&D is low as well. In 1986, industry provided 30 percent of the total R&D spending of £6.6 billion. This compares with 50 percent in the United States and 60 percent in both West Germany and Japan. To correct this imbalance, government and industry have teamed together on several projects. A partial list of these projects and brief descriptions of their activities follow:

- New and Improved Technology Initiative (NIMTECH)
  - Supported by the government and universities, NIMTECH's core group is formed from 14 of Britain's leading companies (among them British Aerospace, BICC, British Telecom, Ferranti, GEC, ICI, and Mullard).
  - NIMTECH's chief objective is to identify small businesses developing new technologies so that large companies can provide venture capital; in addition, small companies are identified to provide contract work for the larger ones.
- Project Link
  - Link is a £420 million science research scheme, designed to link collaborations between university research and science-based industry.
  - The program is aimed at a broad spectrum of technology areas.
- Professional, Industrial, and Commercial Updating program (PICKUP)
  - The main objective of PICKUP is to channel university-trained people into industry.
  - As part of this program, nine technology centers were established in 1987, each receiving up to £100,000 to set up.
  - While a wide umbrella of technology is covered, government support is particularly interested in CAD/CAM development projects.
- Eureka incentives
  - To encourage participation in the Eureka projects, the United Kingdom offered several forms of support, starting in 1986.

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— Companies involved in Eureka projects can apply to the DTI for up to half their research costs and 25 percent of their development costs.

The following two major organizations support industry-related research in the United Kingdom:

- The Department of Trade and Industry (DTI)
- Science and Engineering Research Council (SERC)

DTI principally supports industry projects and SERC supports academic researchers. Recently, DTI formed an umbrella organization with SERC to oversee all electronics-related research. The goal is to strengthen links between industry and academia, with SERC promoting the downflow of academic research into industry and DTI encouraging high-technology research by companies.

Collaborations with other European countries are on the rise in both civilian and defense research. In civilian research, the United Kingdom is active in several high-technology consortia: X/Open, OSI, and Esprit. Recently, the United Kingdom has joined the Trigat development program, a joint effort of France and West Germany to develop a new antitank guided weapon system for the mid-1990s. The three countries will be equal partners, and the prime contractor will be a Paris-based consortium called Euromissile Dynamics Group. This consortium is composed of British Aerospace, France's Aerospatiale, and West Germany's Messerschmidt Bolow-Blohm. (It should be noted that the Eurotunnel, a project to provide an underwater tunnel connecting the United Kingdom and France, is not government sponsored.)

Trade and Economic Policies

Trade Policy

For the most part, the United Kingdom maintains a liberal trading policy. For instance, along with Belgium, the Irish Republic, and The Netherlands, Britain allows foreign shipping companies the full right to pick up and deliver goods between ports on its coastline. This is in contrast to several of the Mediterranean countries (Greece, Italy, and Spain) where such cabotage is restricted or completely barred. Even France and West Germany have partial restrictions.

Tariff Structure

The United Kingdom has been a member of the Economic Community (EC) since 1973, and, as such, was required to align its tariff structure with the EC. As part of the EC's open trade policy, all trade, including British exports of industrial goods to and imports from other EC nations, are duty free. Also included in the zero-duty zone are

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member nations of the EFTA (European Free Trade Association). In contrast, the imports of non-EC members, such as the United States and Japan, are subject to the EC's Common External Tariff (CXT).

Basis of Duty Assessment

For the most part, British levies on imports are assessed on an ad valorem basis. This means that the value is determined as the usual price of the goods at the time of importation. The price includes freight, insurance, commission, and all other costs, charges, and expenses incidental to the sale and delivery of the goods to the buyer (taxes excluded). Import duties are payable in British currency, with the exchange rate determined at the current U.K. selling rate at the time the goods are entered for consumption.

Value-Added Tax

The standard current rate of the United Kingdom's value-added tax (VAT), levied on nearly all high-technology import items, is 15 percent. The tax is assessed on the basis of the c.i.f. duty-paid value of the goods. Books (hence, computer documentation) are not subject to the VAT.

Small businesses are accorded some benefits, having no liability to pay VAT until payment for goods is received.

Import Controls

For high-technology items (both hardware and software), no licensing controls are imposed on imports from the United States and other free-world nations.

Intellectual Property Protection

As a member of the Paris Union International Convention for the Protection of Industrial Property, the United Kingdom provides protection for patents and designs. Applications for patents and other forms of design protection should be filed with the U.K. patent office. The following paragraphs briefly describe the specifics of U.K. design protection.

Patents

Under U.K. law, the basic patent is issued for a period of 16 years from the date of application. It is extendible for 5- to 10-year periods when the patentee has not been adequately remunerated. The patentee is required to apply the invention commercially within 3 years or a compulsory license must be ordered. However, the patentee may grant "licenses of right" to use the patent for receipt of royalties.

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Copyrights

Since both the United Kingdom and the United States signed the Universal Copyright Convention, copyright protection extends to either country in which the copyright is filed.

Recently, the House of Commons put forth a bill to restructure the Copyright Law, with special provisions to protect computer software copyrights. One of the issues under debate with the so-called Copyrights, Designs, and Patent Bill is the bill's creation of a rental right—giving copyright owners exclusive rights over their work for 12 months, then allowing others to pay royalties to rent them out without permission. Currently, the bill is under discussion, particularly with regard to what period of time is sufficient to protect the creator's rights, without stifling the transfer to commercial enterprises.

Trademarks

Trademarks are registered for 7 years from the date of application and are renewable for 14-year periods.

Industrial Design

From the date the application is filed, industrial designs are protected for five years and are renewable for two terms of five years each.

Taxation

Taxation in the United Kingdom may be assessed on income, capital, or expenditure. Income tax is charged on all income of residents of the United Kingdom as well as nonresidents whose income arises in the United Kingdom. In the revised March 1987 budget, the basic rate of income tax was reduced from 29 percent to 27 percent.

The corporation tax is charged on all company profits from all sources. The current rate is 35 percent for large companies and 27 percent for small companies.

Introduced by the Finance Act of 1975, the capital gains tax is charged at 52 percent. Only persons resident or carrying on business in the United Kingdom are subject to this tax.

Tax Concessions

As a complement to investment incentives, certain tax concessions have been made such that the cost of equipment not covered by the grants can be deducted from corporation tax.

In addition, the United States and the United Kingdom have signed the "United States-United Kingdom Double Tax Treaty." Briefly stated, this treaty allows that

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income from one country is exempt from taxation if the recipient is already taxed for the income in another country.

Recent Tax Developments

The tax burden in the United Kingdom has been raised in real terms by 15 percent since 1979. Recently, a bill has been introduced in the House of Commons to radically restructure the tax system. Instead of the current flat rate of taxation, the proposal envisions a 25 percent basic tax rate and a single 40 percent higher rate. On the one hand, the Labor Party has been particularly active on this because of the increased tax burden on low-income households. On the other hand, the government remains concerned that no disincentives are delved out to corporate management. Nonetheless, it is anticipated that the government will continue its supply-side incentives by providing tax reductions.

THE UNITED KINGDOM'S FOREIGN RELATIONSHIPS

Relationship to the United States

The United States and United Kingdom enjoy close trading ties, with the trade balance traditionally in the United Kingdom's favor. In 1986, the United Kingdom was the fifth largest purchaser of U.S. goods and services in the world. This figure must be revised upward, however, given that U.S. exports to the United Kingdom rose 24 percent to a record level of $14 billion in 1987. (However, U.K. trade figures were somewhat confused for 1987, due to the strike by the customs and excise officials in spring 1987.)

The U.S. export trade improvements were chiefly due to the dollar's decline against the pound sterling. In 1986, the dollar traded at $1.55 to the pound. In the second quarter of 1988, the dollar slipped further and was trading at $1.85 to the pound.

The United Kingdom's major imports from the United States in 1986 were:

- Petroleum and petroleum products
- Automobiles and auto parts accessories
- Jet aircraft and parts
- Specialized industrial machinery

Leading exports to the United States in 1986 were:

- Office machines and data processing equipment
- Electrical machinery

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- Scientific and control instruments
- Power generating machinery
- Specialized industrial machinery

Relationship to Other Countries

The major European import-trade partners of the United Kingdom are West Germany, France, and The Netherlands. In 1987, West Germany posted a 16.8 percent share of the U.K. import market, with France (9 percent) and The Netherlands (7.6 percent) in front of the United States (just slightly less than 7 percent).

The future of U.K. economic expansion is, like most of the major industrial economies, very much dependent on overseas demand and international competitiveness. Even with high demand, however, the flexibility of the government to position the currency for future trade advantage may be constrained by the necessity to handle the budget deficit.

INVESTMENT CONSIDERATIONS

Direct Foreign Investment

Although the United Kingdom admits foreign investment, its priorities center around strengthening its domestic industries. Nonetheless, U.K. company laws and regulations do not discriminate between nationals and foreigners. Domestic as well as foreign companies are subject to the same controls over plant location. Moreover, approval of foreign investment by the British exchange control authorities is usually granted freely. In particular, a foreign individual corporation establishing a British subsidiary will find no special requirements placed on directors and shareholders.

For foreign and domestic companies alike, the United Kingdom does encourage their location in less developed areas (e.g., Northern England, Scotland, and most of Wales and Northern Ireland). The government discourages companies from locating in heavily populated, industrialized sectors (e.g., the Midlands and Southeast England).

The United States and the United Kingdom invest directly in each other's economies on a large scale. Total U.S. investment in the United Kingdom at the end of 1986 was an extraordinary $38 billion; of that amount, $15 billion went to Great Britain.

In terms of U.S. exports, the United Kingdom is primarily interested in high-technology. One-half of all U.S. sales into the United Kingdom fall into the category of high-technology electronics. The U.S. Department of Commerce, through the U.S.

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Embassy in London, has identified a number of key industrial sectors for foreign exporters. Those of particular interest to the CAD/CAM industry are:

- Electronic components and production and test equipment
- Computers, peripherals, and software
- Industrial and process controls

Electronic Components and Production and Test Equipment

Relevant to electronic design automation are the electronic component and production and test equipment markets, with much of these products ultimately feeding into system design. The 1986 components market in the United Kingdom was valued at $5.5 billion, and 60 percent of these components were imported. Obviously, the nationality of electronic components determines the kind of component libraries needed by designers—an indirect but, nonetheless, real driver of EDA software requirements. In this regard, the United States claims a 40 percent share of imports; its nearest rival, Japan, claims a 25 percent share of the import market.

What types of designs were these components used in? In early 1986, much of these were applied to personal computer design; however, this application has fallen off somewhat. Nevertheless, the traditional consumers (potential end users of EDA tools) remain. They are computers; telecommunications; and the military, industrial, and consumer electronic product areas.

In the related electronic production and test equipment industry, the U.K. market has been estimated at some $1.2 billion. Imports account for more than half the market, with the United States and Japan as the major suppliers.

Computers, Peripherals, and Software

The U.K. market for all computer equipment reached $5 billion in 1986. This corresponds to a healthy 15 percent growth—a rate that is expected to continue.

The International Trade Administration has singled out CAD/CAM software, an area where U.S. vendors are dominant, as another area of high demand. CAD/CAM vendors should also be alerted that there is tremendous demand for high-performance output devices and mass storage, including optical disks.

Industrial and Process Controls

With the drive toward factory automation, CAD/CAM vendors worldwide are establishing increasing links to manufacturing automation. Thus, the industrial control market is a complementary industry that can impact CAD/CAM buying decisions.

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The market for industrial control equipment in the United Kingdom has been estimated to stand at about $2.8 million, with approximately 20 percent annual growth projected. Imports constitute about 60 percent of this market. According to the International Trade Administration, approximately 25 percent of these systems are subsequently incorporated into systems and exported by the major British engineering and construction companies. Although U.S. companies have held the technological edge in this area, West German and Japanese imports have begun to invade this territory recently.

Investment Incentives

To encourage both foreign and domestic investment, the United Kingdom offers a number of investment incentives. These investment incentives fall into the following categories:

- Economic incentives
- Tax incentives
- National incentives
- Regional incentives
- Finance incentives

Economic Incentives

As with any EC-based manufacturing site, any foreign investor who manufactures goods in the United Kingdom inherits the duty-free tariff advantages of the EC. Furthermore, producers of defense-related equipment from NATO countries inherit special NATO-based advantages. Finally, goods manufactured in the United Kingdom for export to other member nations of the British Commonwealth receive special privileges.

Tax Incentives

As a result of the extended recessionary period in the mid-1970s to early 1980s, the United Kingdom offers some very hospitable tax incentives, principally regarding capital equipment expenses. For instance, machinery, plant, and equipment expenses are 100 percent deductible in the year the expense is incurred. Expenditures on industrial buildings can be written off by 79 percent in the first year and 4 percent thereafter. All capital expenditure on R&D projects can be written off in the first year. Some additional provisions are particularly beneficial to start-up companies. For example, if profits are

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insufficient to absorb the tax allowances, the tax credits can be carried forward indefinitely, applied to other profits, or carried back against prior-year income. The net effect of all this is that a growing company could, in effect, pay no taxes as long as it continued to grow.

National Incentives

The U.K. Department of Industry gives grants to industrial-sector companies that will increase the industrial competitiveness of the United Kingdom. There are two primary classes of these grants. One class of grants is based on investment in certain industries, and one is based on investment in certain locations.

The first class of grants encourages product development in specific high-technology industry sectors. These include projects directly related to computer-integrated manufacturing (CIM) and indirectly related to CAD/CAM. The specific projects under which grants are awarded include the following:

- Product and Process Development Scheme
- Software Product Scheme
- Microelectronics Support Program
- Microprocessor Application Project
- Government Support for Industrial Robots

Regional Incentives

The second class of grants is slated for companies that locate in industrially weak regions. These grants are funds earmarked for capital expenditures on buildings, plants, and machinery. High-technology companies are particularly encouraged. No rates are set for these grants. Rather, each grant is individually tailored to a company by the government. The highest level of incentives of this kind are in Northern Ireland.

In addition, there are 11 so-called "enterprise zones." These zones are areas in which a company is exempt from certain tax burdens (e.g., development land tax, property tax).

Financial Incentives

Britain no longer has any exchange controls allowing profits, dividends, and capital to be remitted abroad without restriction.

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OTHER BUSINESS CONSIDERATIONS

Corporate Law

Under the corporate laws of the United Kingdom, there are three types of business organizations that may be registered:

- A partnership
- A private limited company
- A public company

In addition, foreign businesses may be conducted as branches or subsidiaries. All forms of business organization must be registered with the Companies Registration Office of the Department of Industry. The following paragraphs briefly describe each business organization.

A Partnership

The partnership is limited to 20 members and has unlimited liability that extends to all private assets of its partners. One advantage to a limited partnership is that the liability is limited by the individual contributions of the members. However, the business can be run only by partners with unlimited liability.

A Private Limited Company

Membership in a private limited company is restricted to between 2 and 50 people. This form of business must file its accounts with the Department of Industry, where they are available for public inspection. Such a company is not subject to inspection if it has an incorporated member or company on its board of directors.

A Public Company

British public companies must have a minimum of 7 members and, like their U.S. counterparts, may offer shares and debentures to the public. When quoted on the stock exchange, the transfer of these shares and debentures cannot be restricted.

A public company is formed by filing two documents: a memorandum of association and an article of association. The memorandum of association is essentially a company charter, and the article of association provides a draft of the business organization, shareholding practices, and accounting procedures of the company.

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A Branch

A company that establishes a branch in the United Kingdom must record its current organization and activities, including those of its non-British portion. However, government approval is not required before opening a branch; moreover, the company need not maintain a specified minimum of capital to retain the branch.

A Subsidiary

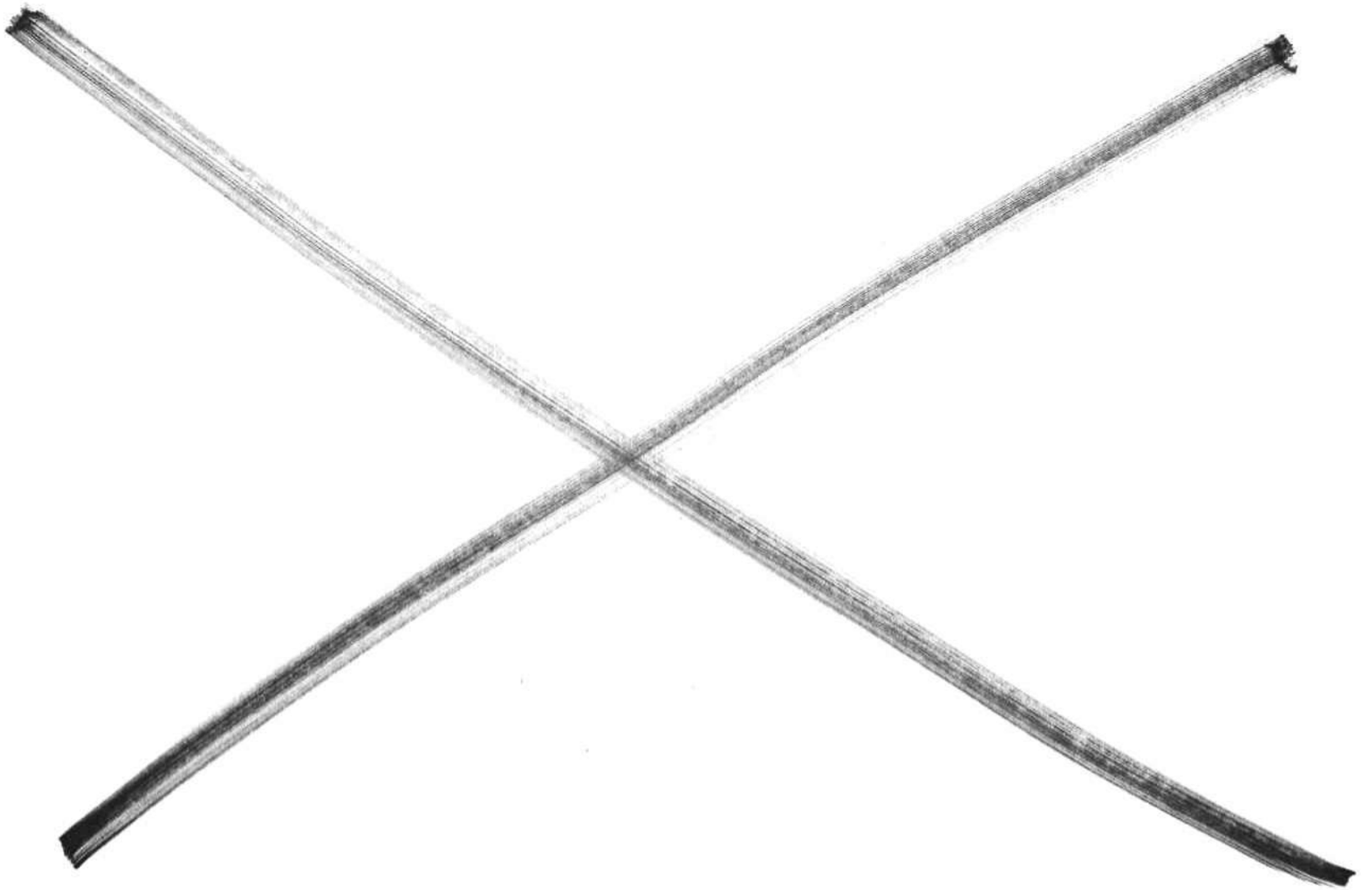
Regarded as a separate legal entity, the subsidiary provides a business organization that allows a foreign company the privacy of not disclosing its assets. Most U.S. enterprises adopt this form of business.

Recently, the Inland Revenue has been reexamining the tax structure of foreign subsidiaries in the United Kingdom. It has observed that some companies bypass U.S. taxes by financing their subsidiaries with debt. Because U.K. tax law provides that interest payments on debt are tax-deductible, this effectively allows profits to be transferred overseas untaxed. The U.K. tax experts are currently debating whether some of this debt should be redefined as equity for tax purposes. However, opponents of this tax reform argue that this move could well discourage direct investment in the United Kingdom.

Venture Capital

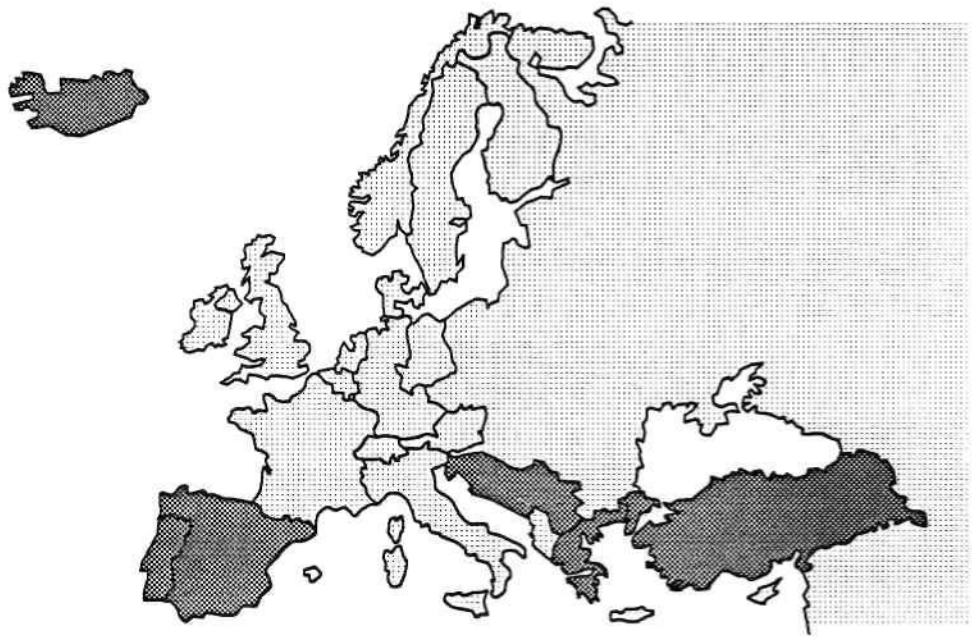
In association with the United Kingdom's major financial institutions, its venture capital industry is the largest in the EC. The United Kingdom channels 69 percent of its gross domestic product into venture capital. U.K. venture capitalists are extremely adverse to risk, however, and the lion's share of venture capital is going to management buy-outs of large established ventures with no technology risk.

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8.1 Geography and Demographics

Rest of Europe



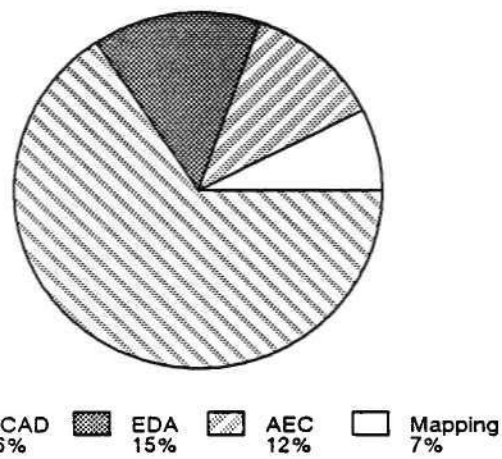
Regional Statistics	
Total engineers	715,506
Electrical/electronic	N/A
Mechanical	N/A
Chemical/biological	N/A
Metallurgical/materials	N/A
Civil/architectural	N/A
Others	N/A

N/A = Not Available

CAD/CAM-Related Data

1988 Market size	
Revenue (millions)	$ 91
Workstations shipped	2,275
Installed base	5,416

1988 Revenue Mix by Application



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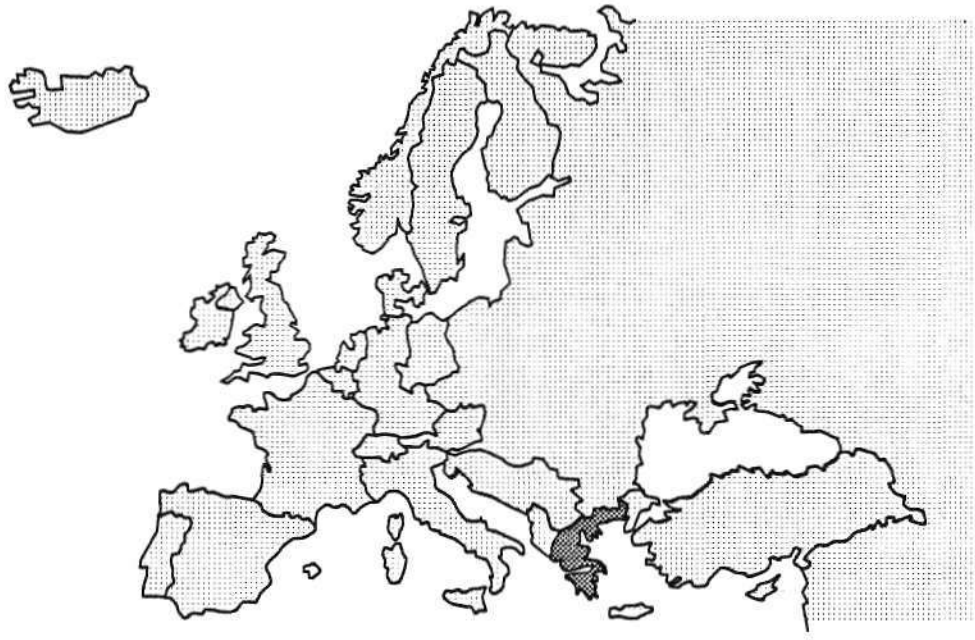
Source: U.S. Department of Commerce
The World Bank
Dataquest
April 1989

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Greece



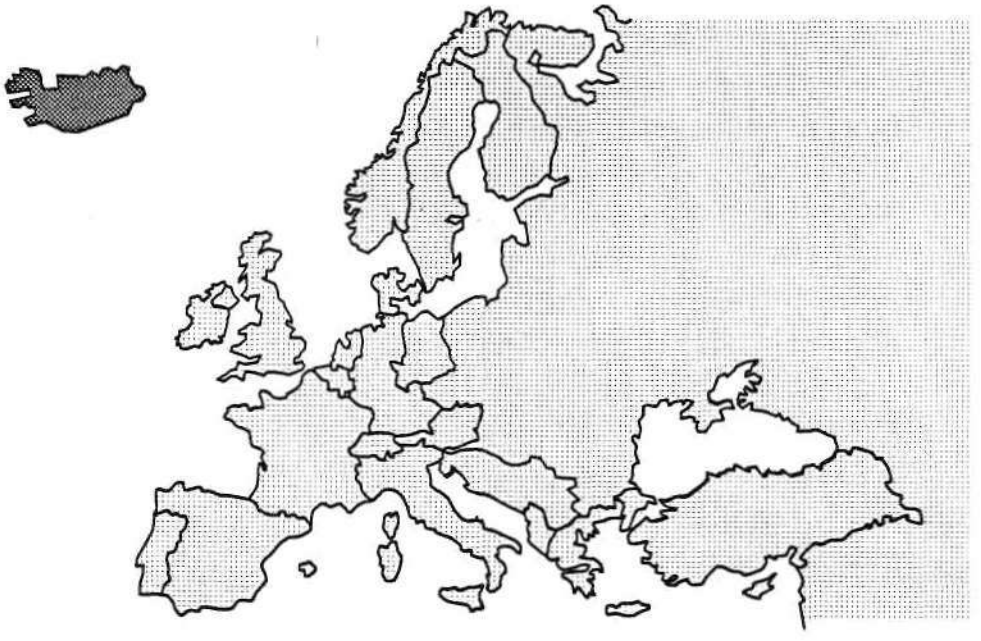
Country Statistics			
Total population (millions)	9.97	Structure of production (% 1985 GDP)	
Area (square kilometers)	131,944	Agriculture	17
Population density	76:1	Industry	29
		(Manufacturing = 18%)	
Trade balance (US$-billions)	(6.7)	Service	54
1988 GDP (1980 US$-billions)	44.4		
1988 GDP (Dr-billions)	1,887.7	1988 exchange rate (Dr/US$)	143
1989 real GDP growth rate (% est.)	13.1		
		1988 unemployment rate (%)	7.4

0003840-2

Source: U.S. Department of Commerce
1988 Statistical Yearbook (UNESCO)
The WEFA Group
Dataquest
April 1989

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Iceland



Country Statistics			
Total population (millions)	0.24	Structure of production (% 1985 GDP)	
Area (square kilometers)	103,000	Agriculture	N/A
Population density	2:1	Industry	N/A
		(Manufacturing = N/A)	
Trade balance (US$-billions)	(0.1)	Service	N/A
1988 GDP (1980 US$-billions)	4.1		
1988 GDP (1980 IKr-billions)	19.2	1988 Exchange rate (IKr/US$)	43.5
1989 real GDP growth rate (% est.)	1.9		
		1988 Unemployment rate (%)	0.6
		N/A = Not Available	

0003840-3

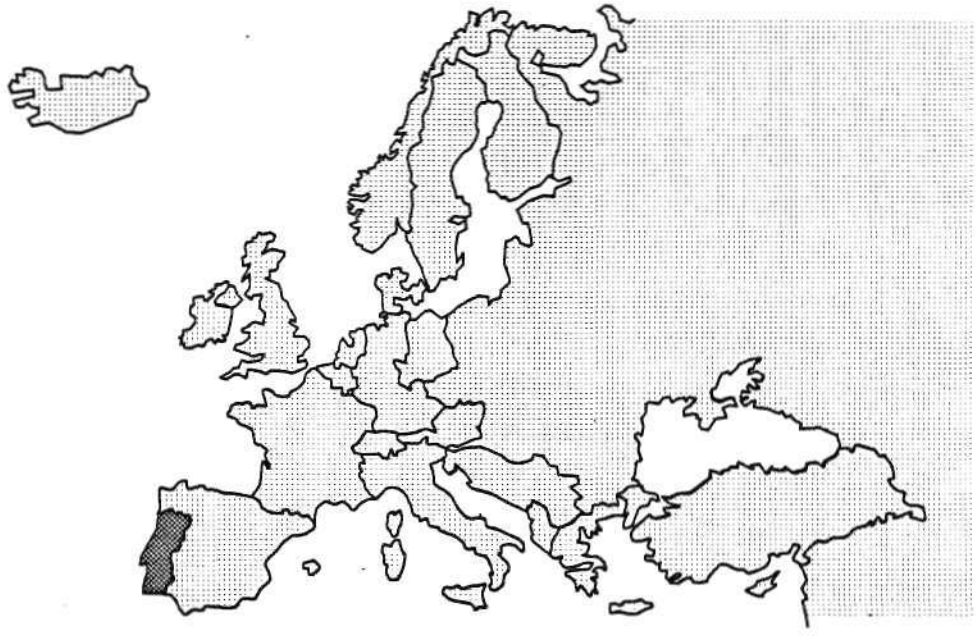
Source: U.S. Department of Commerce
1988 Statistical Yearbook (UNESCO)
The WEFA Group
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Portugal



Country Statistics			
Total population (millions)	10.29	Structure of production (% 1985 GDP)	
Area (square kilometers)	92,082	Agriculture	9
Population density	112:1	Industry	40
		(Manufacturing = N/A)	
Trade balance (US$-billions)	(3.7)	Service	51
1988 GDP (1980 US$-billions)	30.0		
1988 GDP (1980 Esc-billions)	1,500.3	1988 Exchange rate (Esc/US$)	142.9
1989 real GDP growth rate (% est.)	3.7		
		1988 Unemployment rate (%)	6.6

N/A = Not Available

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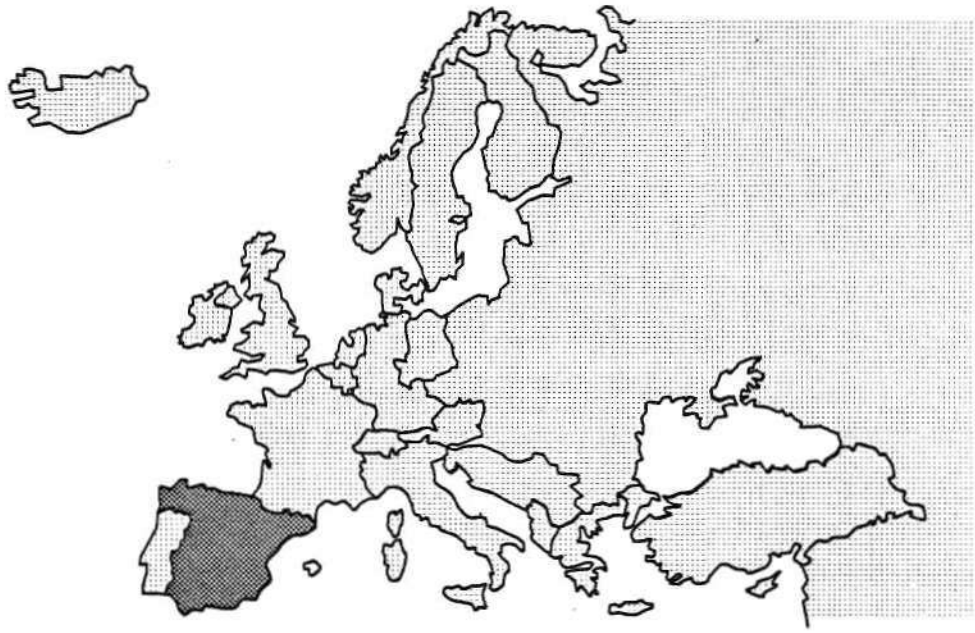
Source: U.S. Department of Commerce
1988 Statistical Yearbook (UNESCO)
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Spain



Country Statistics			
Total population (millions)	38.67	Structure of production (% 1985 GDP)	
Area (square kilometers)	504,782	Agriculture	15
Population density	77:1	Industry	36
		(Manufacturing = 25%)	
Trade balance (US$-billions)	(20.6)	Service	49
1988 GDP (1980 US$-billions)	259.1		
1988 GDP (1980 Pta-trillions)	18.5	1988 Exchange rate (Pta/US$)	116.58
1989 real GDP growth rate (% est.)	5.1		
		1988 Unemployment rate (%)	19.1

N/A = Not Available

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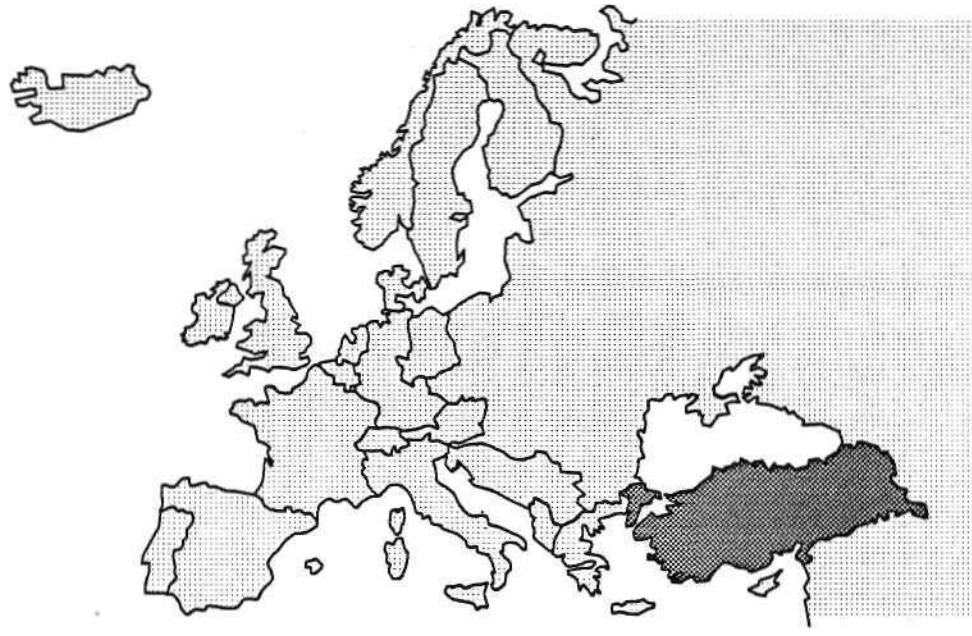
Source: U.S. Department of Commerce
1988 Statistical Yearbook (UNESCO)
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Turkey



Country Statistics			
Total population (millions)	50.3	Structure of production (% 1985 GDP)	
Area (square kilometers)	780,576	Agriculture	19
Population density	64:1	Industry	35
		(Manufacturing = 25%)	
Trade balance (US$-billions)	(4.0)	Service	46
1988 GDP (1980 US$-billions)	92.3		
1988 GDP (1980 Lt-billions)	6,810.4	1988 Exchange rate (Lt/US$)	2,000
1989 real GDP growth rate (% est.)	5.8		
N/A = Not Available		1988 Unemployment rate (%)	14.8

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Source: U.S. Department of Commerce
1988 Statistical Yearbook (UNESCO)
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8.2 Government, Trade, and Economic Forces

EXECUTIVE OVERVIEW: REST OF EUROPE

The following summary highlights this region's major economic and political developments of 1988, and presents 1989 economic projections. It is based on reports from The WEFA Group (Wharton Econometric Forecasting Associates).

Greece

- Steady economic recovery continues in Greece, with 1988 real GDP growth of 3.0 percent. Unemployment averaged 7.4 percent, and inflation, 13.5 percent. Data from 1988 represent a sharp contrast with that from 1987, when GDP declined by 0.5 percent, unemployment was higher than 8.0 percent, and inflation was higher than 15.7 percent.

- GDP growth in 1989 will moderate to the 2.0 to 2.5 percent range. In the longer term, GDP growth should not dip below 1.5 percent, as domestic investment increases and trade barriers between Economic Community (EC) countries are lifted.

- Inflow of nonloan private capital, mainly from the United States and other EC countries, continues to stimulate Greece's economic growth.

Portugal

- Portugal's economic performance in both 1987 and 1988 has been characterized by rapid growth rates in output, especially domestic demand, progress on inflation, and a significant deterioration in the trade balance.

- The GDP growth rate in 1988 was 3.8 percent and is forecast to remain within the 3.0 to 4.0 percent range in 1989, as both investment and private consumption continue to increase.

Spain

- Spain's economic boom, which began in mid-1985, is almost directly attributable to its membership in the EC. Rising domestic demand, reflected in the strong growth in merchandise imports, has been the engine of growth. Spain's GDP growth neared 5 percent in 1988.

- The Spanish government faces the economic dilemma of keeping the economic restructuring on track while curbing inflation, controlling money supply and interest rates, and continuing to reduce unemployment.

- The GDP is forecast to continue in the 4 to 6 percent range for the remainder of the forecast period. Domestic demand, in particular investment and private consumption, continues to drive the economy.

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- The GDP is forecast to continue in the 4 to 6 percent range for the remainder of the forecast period. Domestic demand, in particular investment and private consumption, continues to drive the economy.

- Longer-term prospects for Spain depend largely on the success of the goals set for European integration.

- Spanish business continues to move toward modernization, with major competitive restructuring for 1992. Other EC countries continue to represent a major source of new investment.

Turkey

- For the first time in 15 years, the Turkish economy witnessed a surplus, albeit small, in the current account balance in 1988. The improvement in the account balance is attributable to a high, but declining, rate of export growth, a slowdown in import growth, and record tourism earnings.

- GDP growth in 1988 was 6.2 percent and is forecast to increase at the relatively slower rate of 5.8 percent in 1989.

- A significant drop in the rate of inflation is also forecast for 1989, as is a continuing current trade account surplus.

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8.3 Doing Business in Other European Countries

BACKGROUND ON GREECE

General Considerations

Following seven years of military rule, Greece has been ruled by a parliamentary government since 1974. At that time the government was formed by the New Democracy Party pursuing center-right politics. In 1981, the Panhellenic Socialist Movement (PASOK) under Prime Minister Andreas Papandreou came to power and was reelected in June 1985. As the result of a conflict within PASOK in November 1987, Costas Simitis, the economy minister who was highly esteemed by the Economic Community (EC), resigned. His successor is the former trade minister, Panayiotis Roumeliotis. Since March 1985, after the resignation of Constantine Karamanlis, Christos Sartzetakis has been the president of the republic.

The main political parties in Greece are the following:

- Panhellenic Socialist Movement (PASOK)
- New Democracy
- Greek Communist Party (Moscow line)

Industrial Structure

Greece became a full member of the EC on January 1, 1981, having been an associate member for 20 years prior to that. Therefore, it is only natural that Greece's main trading partner is the EC, which accounts for more than 50 percent of all imports and exports.

One of the government's most serious concerns is the predominance of the Athens/Piraeus region, where more than 50 percent of Greek industry is located. Major industries in this region include oil refineries; steel works; shipyards; textiles; cement; chemicals; pharmaceuticals; electrical industries; and food, beverage, and cigarette manufacture. The only other important industrial area is Salonica in the north of Greece.

The most important economic sector in Greece is the services sector, which includes banking, shipping, and tourism. The major source of foreign exchange earnings is the Greek tourist industry. Another important economic sector is agriculture, where approximately 30 percent of the Greek work force is employed. The manufacturing sector, on the other hand, is weak. Manufacturing includes many small and medium-size family owned companies, and only a few industries are competitive on a European scale.

Greece's economic problems have resulted in a negative balance of payments, inflation, and lack of industrial investment. In order to combat these problems, the Greek government introduced a two-year austerity program in the last quarter of 1985.

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This austerity program included a devaluation of the drachma, a cut in real incomes, and the introduction of an import deposits scheme.

GOVERNMENT POLICIES IN GREECE

Taxation

Greece still operates a very complex system of indirect taxes. Value-added tax (VAT) was introduced only in 1987. The other indirect taxes will be either abolished or brought in line with the EC rules by 1989.

The following taxes apply in Greece:

- Personal income tax—People domiciled or resident in Greece are taxed on all their income, whereas nonresident foreigners pay tax only on their income derived in Greece.
- Corporate income tax—All undistributed annual profits of a company are subject to corporate income tax.

INVESTMENT CONSIDERATIONS IN GREECE

Direct Foreign Investment

As a result of the weak domestic manufacturing industry, a strong potential exists in the Greek market for many products and services. Investment possibilities include construction services and construction and mining equipment; food processing and packaging; telecommunications; computers, peripherals, and software; radio transmitting/receiving equipment; scientific and medical instruments; hospital equipment; and renewable energy systems.

Investment Incentives

In order to boost the country's exports and to encourage establishment of companies in areas other than the Athens/Piraeus area, the Greek government offers the following three types of investment incentives:

- Regional development incentives (Government grants are available for companies willing to set up operations in regions of low industry.)

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- Incentives for export-oriented operations (These incentives consist mainly of tax incentives in order to boost the country's exports.)

- Incentives for foreign companies establishing in Greece

To obtain more detailed information on the various types of incentives, the reader should contact the Hellenic Industrial Development Bank (ETVA) and the Ministry of National Economy.

OTHER BUSINESS CONSIDERATIONS IN GREECE

The following companies may be established under company law in Greece:

- Anonymous Etairia—This type of company is equivalent to the French societe anonyme. (A minimum capital of 5 million drachma has to be fully paid up.)

- Etairia Periorismenes Efthines—This type of company is the equivalent to the French societe a responsabilite limitee. (A minimum capital of 200,000 drachma has to be fully paid up.)

- Omorithmos Etairia and Eteroithmos Etairia—These company types are comparable to a general or limited partnership, respectively. (No rules are set for a minimum capital requirement.)

BACKGROUND ON ICELAND

Government Structure

The Republic of Iceland is a democratic state with a split power system. The president and the general assembly (althing) look after the legislation, and the prime minister and his cabinet are responsible for the administration. Elections are held every four years. The president is elected directly; the 60 members of the althing are elected by proportional representation. Of these members, 20 sit in the upper house and the remaining two-thirds sit in the lower house. The president of Iceland is Mrs. Vigdis Finnbogadottir, who has held this post since August 1980.

The main political parties in Iceland are:

- Independence Party

- Progressive Party

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- Citizens' Party
- Social Democratic Party
- People's Alliance
- SD Federation
- Women's Alliance

The last general election was held in April 1987. No party achieved an overall majority. The biggest party, the Independence Party, lost a considerable amount of votes due to a split within the party only one month prior to the election, resulting in the formation of the Citizens' Party. Six weeks after the election, a coalition government consisting of the Independence Party, the Social Democratic Party, and the Progressive Party was formed. Thorsteinn Palsson of the Independence Party was appointed as prime minister.

Industrial Structure

Iceland is a member of NATO, the United Nations, OECD, GATT, and EFTA, and it has signed a free-trade agreement with the EC.

Iceland's economy depends heavily on foreign trade. Exports of goods and services generally contribute to about 50 percent of gross domestic product (GDP). The economy is very much one-sided because it is oriented around the fishing industry, which accounts for approximately 75 percent of the total exports. This situation and the absence of natural resources make the country very vulnerable to international currency changes—especially falls in the dollar, on which most exports are calculated. The recent decline of the dollar has caused a considerable fall in Iceland's export revenue.

GOVERNMENT POLICIES IN ICELAND

Intellectual Property Protection

Manufacturers and traders are strongly advised to patent their inventions and register their trademarks in Iceland. Applications should be made through a patent or trademark agent, either in Iceland or in the country of residence. Iceland subscribes to the International Convention for the Protection of Industrial Property.

The first user of a trademark for both services and goods is entitled to registration and exclusive use of a trademark for 10 years. It may be renewed for similar periods.

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Taxation

The principal forms of taxation in Iceland include the following:

- Sales tax—A 25 percent sales tax is levied at the retail stage on all imported and locally produced goods apart from certain exceptions.
- Special goods tax—A wide range of imported and locally produced goods is subject to a temporary special goods tax that is 24 percent of the duty-paid value. A special rate of 30 percent is levied on luxury and semiluxury goods.
- Goods tax—Sugar and chocolate confectionary are subject to a 7 percent goods tax, and soft drinks and malt beer are subject to a 30 percent goods tax, which is levied on the duty-paid value.
- Car tax—Certain motor vehicles are subject to a car tax that ranges between 5 and 32 percent.
- Equalization tax—A 3 percent equalization tax is levied on the CIF value of all goods. For prefabricated buildings, this tax is 12 percent.

INVESTMENT AND OTHER BUSINESS CONSIDERATIONS IN ICELAND

Iceland is a good potential market for products such as automotive parts and accessories, computers and software, tools and hardware items, and sportswear and leisure equipment. Entry of foreigners and foreign capital into industry is very much restricted in Iceland, however. Most businesses have to be licensed, and usually only Icelandic nationals qualify for registration. Especially tight restrictions apply in the fishing, aviation, tourism, legal, medical, and real estate sectors.

BACKGROUND ON PORTUGAL

General Considerations

After 40 years of authoritarian regime under Antonio de Oliveira Salazar and a two-year period of revolution (1974 to 1976), Portugal became a constitutional democracy in 1976. The first constitutional government under the Socialist Party of Mario Soares was formed as a result of an election in April 1976. Since then, governments have been short-lived and largely ineffectual—Portugal has had 10 constitutional governments over the last decade. It wasn't until July 1987 that the Social Democratic Party under Anbal Cavaco Silva became the first party ever to achieve a majority in the Portuguese National Assembly. After this, Portugal can look forward to four years of stable government. The current president of Portugal is Mario Soares, who won the presidential elections in 1986.

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The main political parties in Portugal are:

- Social Democratic Party
- Socialist Party
- Communist Party of Portugal
- Center Democratic Party
- Monarchist Party
- Democratic Renewal Party

Industrial Structure

Portugal became a member of the EC on January 1, 1986, together with Spain. Unlike Spain, however, prior to joining the EC, Portugal already was a member of EFTA. This made it easier for Portugal to bring its duties and tariffs in line with the EC rules. The EC accession resulted in a great increase of imports from EC countries, which adversely affected U.S. exports into Portugal—in particular, agricultural products. U.S. exports to Portugal in 1987 declined by 9 percent to $581 million.

Following the EC accession and the stabilization of the Portuguese government, which won the elections on an electoral program of privatization and less state intervention in national life, the economy showed a remarkable turnaround.

GOVERNMENT POLICIES IN PORTUGAL

Intellectual Property Protection

Manufacturers and traders are strongly advised to patent their inventions and register their trademarks in Portugal. Doing this automatically will register them for Madeira and the Azores also. Because of the complexity of the legislation, it is advisable to use a trademark or patent agent in Portugal.

Taxation

A major form of taxation in Portugal is the value-added tax (VAT). Following Portugal's accession to the EC, all taxes and surcharges were abolished in January 1986 and replaced by the VAT. The rates are 0, 8, 16, or 30 percent for mainland Portugal and 0, 8, 12, or 21 percent for Madeira and the Azores. A special tax will be imposed on certain alcoholic beverages.

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INVESTMENT AND OTHER BUSINESS CONSIDERATIONS IN PORTUGAL

Since the EC accession in 1986, industry in Portugal has been undergoing a period of revitalization requiring new technology and top-level management skills. A strong potential exists in the Portuguese market for products such as computers, peripherals, and software; telecommunications equipment; metalworking equipment; medical equipment; and automotive parts. In order to provide more opportunities for private investment in the public sector, one of the government's priorities is to ease the legislation on nationalization. Also, recognizing the need for foreign investment, the government brought the law for this kind of investment in line with international practices in 1986.

BACKGROUND ON SPAIN

General Considerations

Joining the EC at the beginning of 1986 has been instrumental in Spain's process of modernization. In the presence of EC regulations, Spain was compelled to gradually cut down its high trade barriers and other measures aimed at protecting the national industries. As a result, local companies are confronted with many more foreign competitors tempted by the growth potential of the Spanish economy and its strategic position in the northern Mediterranean region.

The increased competition within Spain, combined with the outlook for potentially high export sales to the other EC member states, led to great concern among Spanish industrialists and policy makers about the competitiveness of Spanish industries and services, and action was taken to boost the efficiency and competitiveness of Spanish companies. The government, being of a moderately socialist persuasion, has been particularly active in adapting the industrial structure to the requirements of international competition. Structurally weak sectors such as shipbuilding, the steel sector, and several of the state-owned companies were completely turned around. In addition, Spanish as well as foreign entrepreneurs have started to restructure Spanish corporations, whereby the search for economies of scale for the small Spanish companies has been the driving force.

Despite the high economic growth rates of the past few years, the level of unemployment has remained significantly high—in fact, the highest in Europe. Although new jobs are being created at a rapid pace, the economy is still unable to absorb the large number of young, and often wrongly qualified, Spaniards.

Business Regions

Business in Spain is concentrated in and around the two largest cities in the country—Madrid and Barcelona. The capital city of Madrid houses the government bureaucracies and most of the headquarters of the multinational companies. Conversely,

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Barcelona and the surrounding region of Catalonia, known for its high level of entrepreneurship, are the locations for many small companies. (Barcelona will host the Olympic Games in 1992, resulting in upgrading of the city's infrastructure.) Other important business areas, although of less weight than Madrid and Barcelona, are the Basque region in the north of the country, the region around Valencia on the east coast, and the region around the town of Seville in the south.

Political Regions

During the past few years, Spain has embarked on an ambitious process of regionalization, whereby an average of three provinces are grouped together to form regions. These regions, 17 in total, enjoy a certain autonomy as far as educational and industrial policies are concerned. The northern regions of Galicia and the Basque country enjoy even more self-government than the other regions. This process of regionalization not only reflects the central government's need for a lighter administrative structure in a geographically vast country, but it also reflects the wide social and cultural differences between the Spanish regions. On top of this administrative structure, however, Madrid is increasingly developing its capital city status, integrating the regions, and housing most of the nationwide decision makers.

GOVERNMENT POLICIES IN SPAIN

Intellectual Property Protection

Manufacturers and traders are strongly advised to patent their inventions and register their trademarks in Spain. Applications should be made through a patent or trademark agent, either in the country of residence or in Spain. Spain subscribes to the International Convention for the Protection of Industrial Property.

Patents

Patents are granted for a period of 20 years from the date of grant. The terms are subject to the payment of annual renewal fees. If the patented invention has not been worked in Spain over a period of three years, the owner's right may cease. Prior to the date of application, the invention must not have received publicity. If an invention has been patented abroad, a patent can be granted in Spain for a period of 10 years.

Trademarks

The first applicant is entitled to registration and exclusive use of a trademark. In case a trademark has not been used for five consecutive years, it can be canceled.

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Taxation

The current Spanish tax system is complicated, and it is advisable to consult a lawyer or accountant for exact details. To avoid double taxation, an agreement exists based on the OECD model.

Spain has the following taxes:

- Personal income tax
  - This tax is assessed on the worldwide income of a person resident in Spain.
  - Nonresidents are taxed only on their Spanish-sourced income, and persons are considered to be nonresident in Spain if they remain in the country for less than 183 days per calendar year.
- Corporation tax
  - The current rate of corporation tax is 33 percent, which is levied on a company's worldwide income, including capital gains.
  - Foreign companies not established permanently in Spain are assessed only on their income arising in Spain.
- IVA (Impuesto sobre Valor Aadido)
  - IVA is the Spanish version of VAT, introduced in Spain when the country joined the EC.
  - It is not applicable in the Canary Islands, Ceuta, and Melilla.
  - The three different rates of IVA are 6 percent reduced rate, 12 percent standard rate, and 33 percent luxury rate.

INVESTMENT CONSIDERATIONS IN SPAIN

Direct Foreign Investment

The Spanish government encourages all types of investment by foreign companies in order to develop the Spanish economy and to gain access to modern technology. Various tax incentives and relocation grants are available for investment in the

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manufacturing industry and in areas of high unemployment. However, because of the high unemployment rate in Spain, it is extremely difficult for foreigners to obtain a work permit. In Spain, work is granted only if the job in question cannot be undertaken by a Spanish national.

Types of Investment

The Spanish legislation covers three types of investment:

- Unrestricted—It is possible to invest up to 50 percent in a Spanish company without the need for a formal agreement. The same applies to investment in portfolios, as long as the ownership of the company does not change; in real estate, with certain limits; and in housing.

- Semirestricted—A notice of intention to invest must be filed with the Spanish authorities in the case of majority participation in a Spanish company, investment in real estate above the limits of the unrestricted category, and investment in strategic/military areas.

- Restricted—It is essential to obtain prior permission from the authorities for majority capital participation in gambling, national defense, broadcasting, and air transport.

OTHER BUSINESS CONSIDERATIONS IN SPAIN

The following company types are the ones usually chosen by foreign investors:

- SA (Sociedad Anonima)

  — An SA, which is a joint stock company, is the most suitable and also the most common type of company for foreign investors.

  — The company must be established by at least three shareholders; however, it needs only one director who does not have to be a Spanish national.

  — All shares must be issued, and at least 25 percent must be paid up.

  — The registration cost for an SA amounts to approximately 3.8 percent of the registered capital.

- SRL (Sociedad de Responsabilidad Limitada)

  — An SRL, which is a limited-liability company, is in many ways similar to an SA.

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- An SRL must have at least 2 shareholders but not more than 50.
- The maximum permitted capital is Pta 50 million.

- Branch Office
  - A branch office must use the original name of the parent company, and must be 100 percent controlled by the parent company.
  - A branch office may not own property in Spain, and repatriation of the branch's capital and profits has to be authorized on each occasion.

- Joint Venture
  - Another way to enter the Spanish market is via a joint venture with a Spanish company.
  - The joint venture must have at least three shareholders, and these can be SAs, SRLs, or individuals.
  - In sectors important to the national economy, the Spanish National Institute of Industry (INI) often is prepared to enter into joint ventures with foreign companies.

All of these companies have to be registered at the Mercantile Registry of the Ministry of Justice on formation.

Other possible company types are: Sociedad Colectiva (Partnership), Sociedad Comanditaria (Limited Partnership) and Empresa Individual (Sole Trading).

BACKGROUND ON TURKEY

General Considerations

After three years of military rule, Turgut Ozal, the leader of the Motherland Party, was appointed prime minister as a result of the general election of November 1983. He was reelected for a five-year term in November 1987. The president of Turkey is Kenan Evren.

The main political parties in Turkey are:

- Motherland Party (ANAP)

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- Social Democrat Populist Party (SHP)
- True Path Party (TPP)

Since the reinstatement of a democratic government in 1983, Turkey has been gradually recovering from its severe problems. Prime Minister Ozal's measures to liberalize foreign trade and exchange control, to tighten the monetary policy, to restore positive interest rates, and to cut back subsidies to the State Economic Enterprises have resulted in an improvement in the balance of payments and an increase in gross national product (GNP) growth, which was 6.8 percent in 1987. However, the high inflation rate (currently 70 percent), foreign debts, and the availability of foreign exchange are still major problems. The high inflation rate is causing unrest among the working population because of declining living standards, and there are fears that this unrest could lead to isolated outbreaks of violence.

Affiliations

Turkey is a member of IMF, IBRD, GATT, UN, OECD, and NATO. With an army of 800,000, it has NATO's second largest army. Turkey also belongs to the Council of Europe and the Islamic Development Bank and has been an associate member of the EC since 1963. On April 14, 1987, Turkey filed an application for full EC membership; however, Greece is strongly opposed and will accept Turkey's inclusion in the EC only if Turkey commits to full troop withdrawal from Cyprus. At the EC meeting in April 1988, Turkey walked out because the EC stated formally that Turkey's relations with the EC were affected by the Cyprus issue. In order to improve the relations between Greece and Turkey on this and other issues, Turgut Ozal, as the first Turkish prime minister in 36 years, officially visited the Greek prime minister, Andreas Papandreou, in Athens in June 1988.

GOVERNMENT POLICIES IN TURKEY

Intellectual Property Protection

Manufacturers and traders are strongly advised to patent their inventions and register their trademarks in Turkey. Applications should be made through a patent or trademark agent in Turkey.

Taxation

The principal forms of Turkish taxation are the following:

- Value-added tax (VAT)

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  - Turkey introduced VAT on January 1, 1985; it is imposed on all imports, with few exceptions, at 12 percent.

- Municipal tax—The rate of municipal tax is currently 15 percent of customs duty.

- Housing fund tax—Housing fund tax is levied on certain goods and luxury items, and the proceeds are transferred into a housing fund.

- Stamp duty—A 6 percent stamp duty is levied on the CIF value of goods.

All of the above-mentioned taxes are in addition to customs duty.

INVESTMENT AND OTHER BUSINESS CONSIDERATIONS IN TURKEY

The Turkish government offers a number of investment incentives to foreign companies; these are generally in the form of exemption from customs duties and taxes. All major areas of industry are potentially open to foreign investors as long as they contribute to the country's economic development. In addition, the Turkish government has established free port/trade zones in Mersin, Antalya, Adana, and Izmir to encourage foreign investment and private enterprise.

Products and services with strong potential in the Turkish market include telecommunications; computers; aircraft and motor vehicles; chemicals; food processing and packaging; medical equipment; pollution-control equipment; and mining, engineering, and construction services. Opportunities for joint ventures with Turkish companies are good in the areas of agribusiness, power generation, defense-related products, mining, and tourism. Moreover, Turkey is on friendly terms with both Iran and Iraq, making the country an ideal gateway for foreign investors who want to deal with these two countries. The relevant embassies will provide addresses of Turkish companies trading in foreign goods with both countries and of Turkish firms willing to cooperate with foreign companies in joint ventures in third countries.

BACKGROUND ON YUGOSLAVIA

General Considerations

The socialist federal republic of Yugoslavia consists of 6 republics (Bosnia-Hercegovina, Croatia, Macedonia, Montenegro, Serbia, and Slovenia) and two autonomous provinces (Vojvodina and Kosovo) which are attached to Serbia. Since May 1986, Branko Mikulic has been president of the Federal Executive Council (prime minister). The state president of Yugoslavia is Ivo Vrandecic.

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In May, 1987, Mr. Mikulic had to face a vote of confidence because members of parliament from the six republics and the two provinces were critical of the government's handling of Yugoslavia's economic crisis. In 1987, the situation was marked by declining productivity and continuing massive price increases resulting in an inflation rate of 170 percent by the end of 1987. The decline in real wages caused by the high inflation rate is having a negative effect on the workers' morale and labor productivity. It has caused persistent strikes, which have seriously interrupted the manufacture of capital goods, textiles, footwear, and durable consumer goods.

In order to overcome its economic problems, the Yugoslav government has negotiated a standby agreement with the International Monetary Fund. This agreement will restructure the country's $20 billion debt and provide some relief from debt-servicing requirements. The Fund is prepared to grant this standby credit under the conditions that inflation will be reduced substantially, budgetary expenditure will be cut, and tight wage controls will be introduced. The government's economic package—which includes control of wages, liberalization of prices, and trade and foreign exchange regulations—is likely to face significant opposition within Yugoslavia, however.

Industrial Structure

In Yugoslavia, industry is organized by a system of social self-management. Enterprises are socially owned, meaning that they are not state owned but belong to the society as a whole. These enterprises are called Basic Organization of Associated Labor (OOUR) and can be just one factory. More often, however, a number of these OOURs form a Work Organization (RO) that, in turn, can form a Joint Organization of Associated Labour (SOUR) with other ROs. The workers in these enterprises manage them through a workers' council, which is elected by the workers. These senior managers can be held personally responsible for their proposals and decisions. The social accountancy service (SDK) is monitoring the activities of these enterprises.

GOVERNMENT POLICIES IN YUGOSLAVIA

Intellectual Property Protection

The Yugoslav law on the Protection of Invention, Technical Improvements, and Trademarks became effective on December 27, 1981. As a result, foreigners may patent their inventions and register their trademarks in Yugoslavia.

If an application for a patent is acceptable, it will be published 18 months after filing of the application. A patent is then granted for 7 years. If it is conscientiously worked, it can be renewed for similar 7-year periods.

There are no limits on the duration of a trademark.

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Taxation

In addition to customs duty, all imported goods are also subject to two other taxes in Yugoslavia. These taxes are an 8 percent special equalization tax and a 1 percent customs clearance charge.

INVESTMENT AND OTHER BUSINESS CONSIDERATIONS IN YUGOSLAVIA

Investment and Export

Yugoslavia's main trading partners are the Union of Soviet Socialist Republics, accounting for almost a quarter of total trade, followed by West Germany, Italy, and the United States. Foreign trade is handled exclusively by enterprises registered for import/export and representation activities.

The main barrier to exporting to Yugoslavia at present is the country's lack of foreign exchange. The ability of a Yugoslav enterprise to import depends on whether it has access to foreign exchange, which is fully controlled by the National Bank of Yugoslavia. Delays have occurred in payments for exports to Yugoslavia. The usual practice of Yugoslav companies, therefore, is to place commitment on foreign companies to enter into a counterpurchase contract when selling into Yugoslavia.

Corporate Law

The following three principal forms of business exist in Yugoslavia:

- Agency
  - A foreign manufacturing company (but not a trading firm) can obtain permission to appoint an agent in Yugoslavia; this agent must be an enterprise authorized for representation activities.
  - Foreign companies are not allowed to appoint individuals resident in Yugoslavia to act for them, and only one agent may be appointed.
- Joint venture
  - It is possible to enter into a joint venture with a Yugoslav company in all areas but insurance, commerce, and social services.
  - The foreign partner's equity holding can be between 10 and 49 percent.
  - Joint ventures need prior approval by the Federal Committee for Energy and Industry.

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- Representative office
  - A foreign company can obtain permission to set up a representative office if it has established a joint venture, a long-term business relation, a manufacturing cooperation, or a business technical cooperation with a Yugoslav company.
  - At least half of the staff in such a representative office must be Yugoslav.

CAD/CAM

The 1987 CAD/CAM market in the Rest of Europe (ROE) amounted to $56 million, representing more than 2 percent of the total European market and reflecting a growth of approximately 55 percent over 1986. This growth is significantly higher than the average market growth of 29 percent for the whole of Europe.

Distribution Channels

Most of the major worldwide CAD/CAM vendors operate in the ROE region, and there are significant growth areas. Most applications are represented in the same proportions as elsewhere. However, penetration is very low. The use of CAD/CAM is increasing, but the relatively high prices of specialist hardware and the lack of expert users are constraining rapid development.

Most vendors sell into the ROE areas via distributors or agents. Very few of the leading worldwide vendors have local representation in these countries, with the exception of Spain. Ties with Austria are strong, and shipments to Eastern Europe often pass through Austria.

For European vendors, there is significant opportunity in the COMECON territories, particularly in Czechoslovakia. The governments of these countries find it easier to deal with European vendors than with U.S. vendors. Therefore, the more European the local operation appears to be, the easier it is for it to win business in these areas. Companies such as Skoda are investing heavily in western CAD/CAM and automation technology.

Although vendors finally deal with individual companies, the influence of central government is never far away. In COMECON regions, companies must prepare a case for every purchase and petition the government for approval to spend currency abroad. Once approved, the sale cycle is very short compared with sales in freer parts of the European market. Sales cycles as short as six months from initial inquiry to installation have been reported.

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When vendors are invited to bid for business, such is the influence of central government and such is the high level of interaction with government that visas for visiting vendor personnel are often waived. In these cases, software vendors and turnkey vendors penetrate the COMECON markets by supporting such hardware vendors as Apollo and Digital Equipment Corporation.

It is easier to deal with countries like Turkey, Yugoslavia, and Czechoslovakia nowadays because of "glasnost" and the freer attitudes toward the West. Furthermore, these regions do have hard currency nowadays—horror stories of CAD vendors taking payment in shiploads of fish are unlikely to recur.

One caution should be noted, however. Countries that border Eastern Europe—i.e., Finland, Austria, and Yugoslavia—attract the attention of the U.S. Department of Commerce. Export licenses are essential in every case, and the "higher" the technology (e.g., 64-bit high-mips machines), the more difficult these licenses are to secure.

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TABLE NUMBER: 1
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Europe
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	45,564	78,247	95,762	130,097	164,750	201,730	243,140	283,820	323,620	358,990	29%	17%
Workstation Shipments	52,970	86,925	106,095	142,027	175,254	211,460	251,770	291,010	329,790	364,410	27%	16%
CPU Installed Base	66,508	143,504	234,207	350,171	485,487	637,080	830,180	1,064,390	1,338,470	1,648,130	49%	28%
Workstation Installed Base	82,607	168,332	269,486	397,646	544,113	706,590	909,480	1,151,850	1,433,050	1,749,080	46%	26%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	108.1	48.1	61.1	60.7	58.6	56.2	52.8	50.0	48.2	47.3	-12%	-4%
Hardware-Only ASP	12.6	11.8	12.5	11.2	9.5	9.0	8.4	8.1	8.1	8.3	-5%	-3%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	1,415	1,542	2,160	2,499	2,731	3,238	3,585	3,938	4,352	4,822	14%	12%
CPU Revenue	896	1,008	1,638	1,986	2,205	2,365	2,631	2,908	3,302	3,536	20%	10%
Workstation Revenue	331	307	172	216	179	212	202	179	158	134	-12%	-6%
Peripheral Revenue (Turnkey)	189	227	350	297	348	661	752	851	892	1,152	13%	27%
Software Revenue	456	814	948	1,056	1,291	1,391	1,650	1,956	2,321	2,751	23%	16%
Bundled	316	327	443	562	683	620	671	730	793	896	17%	6%
Unbundled	140	487	505	494	609	771	979	1,226	1,527	1,855	34%	25%
Service Revenue	186	456	612	716	870	987	1,110	1,252	1,422	1,627	36%	13%
Total Revenue	2,057	2,811	3,720	4,271	4,893	5,616	6,345	7,147	8,095	9,199	19%	13%
Increase over Prior Year	78%	37%	32%	15%	15%	15%	13%	13%	13%	14%		

Source: Dataquest
March 1991

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TABLE NUMBER: 2
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Europe
PLATFORM: Technical Workstation

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	7,796	15,805	25,183	39,180	48,549	63,280	80,750	102,240	129,810	162,120	44%	27%
Workstation Shipments	7,796	15,805	25,183	39,180	48,539	63,280	80,750	102,240	129,810	162,120	44%	27%
CPU Installed Base	12,049	27,706	52,272	89,610	133,758	188,080	259,960	353,380	474,370	627,670	62%	36%
Workstation Installed Base	12,049	27,706	52,272	89,610	133,758	188,080	259,960	353,380	474,370	627,670	62%	36%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	72.9	45.4	50.1	52.8	51.2	48.6	46.4	45.0	44.1	43.7	-7%	-3%
Hardware-Only ASP	31.3	24.7	24.4	17.4	16.9	15.5	14.4	13.7	13.4	13.3	-12%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	358	454	831	1,132	1,323	1,750	2,054	2,431	2,875	3,394	30%	21%
CPU Revenue	298	357	688	955	1,091	1,346	1,564	1,833	2,161	2,534	30%	18%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	60	97	142	177	232	403	490	598	714	860	31%	30%
Software Revenue	168	410	502	647	807	853	1,083	1,379	1,712	2,097	37%	21%
Bundled	144	185	246	401	491	413	481	564	641	743	28%	9%
Unbundled	24	225	256	246	316	440	602	815	1,071	1,354	67%	34%
Service Revenue	46	189	307	437	544	662	796	963	1,149	1,364	64%	20%
Total Revenue	572	1,053	1,639	2,216	2,674	3,265	3,933	4,773	5,736	6,854	36%	21%
Increase over Prior Year	136%	84%	56%	35%	21%	22%	20%	21%	20%	19%		

Source: Dataquest
March 1991

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TABLE NUMBER: 3
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Europe
PLATFORM: Host-Dependent/Server

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,729	3,918	5,113	4,946	5,638	6,110	6,210	5,930	5,680	5,440	27%	-1%
Workstation Shipments	9,135	12,595	15,445	16,877	16,152	15,840	14,850	13,120	11,840	10,870	12%	-8%
CPU Installed Base	3,826	7,734	12,779	17,459	22,460	27,410	32,470	37,430	42,160	46,660	42%	16%
Workstation Installed Base	19,926	32,563	48,057	64,934	81,086	96,920	111,770	124,900	136,740	147,610	32%	13%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	579.0	231.1	333.8	322.3	283.4	264.5	250.4	235.7	226.4	220.3	-13%	-5%
Hardware-Only ASP	497.4	241.5	125.6	137.7	104.1	96.5	89.7	82.6	76.5	70.7	-27%	-7%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	825	803	944	878	799	777	725	635	568	514	-1%	-8%
CPU Revenue	377	383	590	591	562	385	355	307	271	234	8%	-16%
Workstation Revenue	331	307	172	216	179	212	202	179	158	134	-12%	-6%
Peripheral Revenue (Turnkey)	117	113	182	72	59	179	168	149	139	146	-13%	20%
Software Revenue	201	261	280	199	232	229	215	191	180	183	3%	-5%
Bundled	144	116	170	133	165	167	155	136	124	124	3%	-6%
Unbundled	57	145	110	65	67	62	60	55	56	60	3%	-2%
Service Revenue	129	243	273	239	278	271	253	223	202	189	17%	-7%
Total Revenue	1,155	1,307	1,497	1,316	1,310	1,276	1,193	1,049	950	886	3%	-8%
Increase over Prior Year	42%	13%	15%	-12%	-0%	-3%	-7%	-12%	-9%	-7%		

Source: Dataquest
March 1991

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TABLE NUMBER: 4
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Europe
PLATFORM: Personal Computer

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	36,039	58,525	65,466	85,971	110,563	132,350	156,180	175,650	188,130	191,420	25%	12%
Workstation Shipments	36,039	58,525	65,466	85,971	110,563	132,350	156,180	175,650	188,130	191,420	25%	12%
CPU Installed Base	50,633	108,063	169,157	243,102	329,269	421,580	537,750	673,570	821,940	973,800	45%	24%
Workstation Installed Base	50,633	108,063	169,157	243,102	329,269	421,580	537,750	673,570	821,940	973,800	45%	24%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	18.7	8.6	12.8	18.4	20.0	26.2	27.0	27.3	27.4	27.9	1%	7%
Hardware-Only ASP	5.5	4.5	5.3	5.0	4.8	4.8	4.7	4.6	4.6	4.6	-3%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	232	284	386	488	609	712	806	872	909	914	21%	8%
CPU Revenue	220	268	360	440	552	633	712	767	870	769	20%	7%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	12	17	26	48	57	79	94	105	39	145	37%	21%
Software Revenue	86	142	167	211	252	310	352	387	429	471	24%	13%
Bundled	28	25	28	28	27	41	36	30	28	29	-1%	2%
Unbundled	58	117	139	182	225	269	316	356	400	442	31%	14%
Service Revenue	11	24	31	40	48	54	61	67	71	74	34%	9%
Total Revenue	330	451	584	738	908	1,075	1,219	1,325	1,408	1,459	22%	10%
Increase over Prior Year	243%	37%	30%	26%	23%	18%	13%	9%	6%	4%		

Source: Dataquest
March 1991

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TABLE NUMBER: 5
TITLE: Preliminary History and Forecast
APPLICATION: Mechanical
REGION: Europe
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	23,423	38,032	49,972	63,579	78,405	93,580	110,510	127,850	145,590	159,110	27%	15%
Workstation Shipments	29,335	45,172	58,266	72,168	86,002	100,520	116,660	133,020	150,270	163,470	24%	14%
CPU Installed Base	33,989	71,439	118,911	175,475	239,387	308,260	394,060	497,310	618,310	752,850	48%	26%
Workstation Installed Base	46,544	91,139	146,945	212,259	284,189	360,800	453,550	562,670	689,030	828,600	44%	24%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	124.4	54.9	67.6	66.6	64.2	61.0	57.3	54.2	52.6	52.4	-12%	-4%
Hardware-Only ASP	12.0	13.4	13.5	12.8	10.6	10.2	9.7	9.4	9.5	9.8	-2%	-2%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	863	927	1,337	1,517	1,613	1,818	1,926	2,022	2,192	2,359	13%	8%
CPU Revenue	485	568	972	1,176	1,277	1,309	1,394	1,476	1,599	1,706	21%	6%
Workstation Revenue	257	228	120	154	125	123	117	105	100	94	-13%	-6%
Peripheral Revenue (Turnkey)	121	131	245	187	210	385	414	441	492	559	12%	22%
Software Revenue	241	414	524	585	715	751	859	977	1,134	1,293	24%	13%
Bundled	177	186	292	345	416	371	378	379	394	416	19%	-0%
Unbundled	64	228	232	240	299	380	481	598	740	878	36%	24%
Service Revenue	112	277	372	435	528	573	617	660	732	807	36%	9%
Total Revenue	1,216	1,618	2,233	2,537	2,856	3,142	3,402	3,659	4,057	4,459	19%	9%
Increase over Prior Year	74%	33%	38%	14%	13%	10%	8%	8%	11%	10%		

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TABLE NUMBER: 6
TITLE: Preliminary History and Forecast
APPLICATION: AEC
REGION: Europe
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	9,628	15,644	18,513	26,489	34,397	43,170	53,150	63,200	71,560	79,420	29%	18%
Workstation Shipments	10,320	16,289	19,401	27,712	35,493	44,210	54,010	63,860	72,030	79,760	28%	18%
CPU Installed Base	14,583	29,851	47,071	70,274	98,163	130,680	173,210	225,950	287,060	356,030	46%	29%
Workstation Installed Base	16,211	32,125	50,243	74,706	103,771	137,460	180,980	234,480	296,150	365,550	45%	29%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	115.4	39.1	47.3	54.0	51.2	50.3	47.7	46.2	44.9	44.4	-15%	-3%
Hardware-Only ASP	10.7	6.9	9.6	7.5	6.6	6.2	5.7	5.4	5.2	5.1	-9%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	187	178	279	320	366	439	493	550	607	679	14%	13%
CPU Revenue	137	135	230	260	301	346	393	441	485	536	17%	12%
Workstation Revenue	34	24	20	19	18	25	21	17	12	8	-11%	-15%
Peripheral Revenue (Turnkey)	16	20	28	41	46	67	79	92	109	134	23%	24%
Software Revenue	41	85	100	118	146	168	204	249	298	358	29%	20%
Bundled	26	34	40	55	64	62	66	71	80	94	20%	8%
Unbundled	15	51	60	63	82	106	138	177	218	264	41%	26%
Service Revenue	23	60	77	77	91	103	113	125	141	162	32%	12%
Total Revenue	251	324	455	515	602	710	811	924	1,045	1,199	19%	15%
Increase over Prior Year	74%	29%	40%	13%	17%	18%	14%	14%	13%	15%		

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TABLE NUMBER: 7
TITLE: Preliminary History and Forecast
APPLICATION: GIS/Mapping
REGION: Europe
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	953	4,813	5,798	12,189	17,572	24,160	32,100	41,240	51,200	58,760	79%	27%
Workstation Shipments	1,366	5,245	6,649	13,139	18,572	25,150	33,020	42,050	51,870	59,290	69%	26%
CPU Installed Base	1,078	5,890	11,648	23,515	40,014	61,600	91,110	129,780	178,400	234,590	106%	42%
Workstation Installed Base	1,894	7,138	13,750	26,580	44,114	66,760	97,280	136,830	186,200	242,980	88%	41%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	194.4	60.7	83.1	60.2	52.9	49.4	46.5	44.2	42.6	41.9	-23%	-5%
Hardware-Only ASP	27.7	15.4	12.2	9.6	8.0	7.4	6.8	6.3	6.0	5.9	-22%	-6%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	80	125	150	214	276	388	498	627	777	936	28%	28%
CPU Revenue	44	83	115	171	226	300	387	490	684	713	39%	26%
Workstation Revenue	26	26	20	15	13	23	23	22	20	16	-13%	5%
Peripheral Revenue (Turnkey)	10	16	15	28	37	65	88	115	73	207	30%	41%
Software Revenue	21	33	61	87	118	143	190	244	313	392	42%	27%
Bundled	14	23	27	51	72	73	95	123	157	202	39%	23%
Unbundled	7	11	33	36	46	71	94	122	156	190	45%	33%
Service Revenue	13	26	44	62	84	113	147	186	234	290	45%	28%
Total Revenue	114	185	255	364	478	644	834	1,057	1,325	1,619	33%	28%
Increase over Prior Year	135%	62%	38%	43%	31%	35%	29%	27%	25%	22%		

Source: Dataquest
March 1991

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TABLE NUMBER: 8
TITLE: Preliminary History and Forecast
APPLICATION: Electronic Design Automation
REGION: Europe
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	11,560	19,757	21,479	27,840	34,376	40,810	47,380	51,530	55,270	61,690	24%	12%
Workstation Shipments	11,949	20,219	21,778	29,007	35,188	41,580	48,070	52,080	55,620	61,900	24%	12%
CPU Installed Base	16,858	36,323	56,578	80,907	107,924	136,530	171,800	211,350	254,700	304,670	45%	23%
Workstation Installed Base	17,958	37,929	58,548	84,101	112,040	141,570	177,670	217,870	261,670	311,950	44%	23%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	69.0	34.4	45.2	46.3	48.1	50.4	49.8	48.7	47.9	47.5	-7%	-0%
Hardware-Only ASP	14.9	12.8	13.3	12.5	11.0	10.4	9.9	9.8	10.0	10.8	-6%	-0%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	285	311	395	447	477	594	668	740	776	848	11%	12%
CPU Revenue	229	222	321	380	401	409	456	501	533	581	12%	8%
Workstation Revenue	14	29	11	27	22	41	40	35	26	16	10%	-6%
Peripheral Revenue (Turnkey)	41	60	62	41	54	144	171	203	217	251	6%	36%
Software Revenue	154	280	263	266	313	328	397	486	576	707	15%	18%
Bundled	99	83	84	112	131	114	131	157	163	184	6%	7%
Unbundled	54	197	180	154	182	214	266	329	413	523	27%	24%
Service Revenue	38	93	119	142	167	197	233	281	315	367	34%	17%
Total Revenue	477	684	777	855	957	1,120	1,298	1,506	1,667	1,922	15%	15%
Increase over Prior Year	81%	44%	14%	10%	12%	17%	16%	16%	11%	15%		

Source: Dataquest
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TABLE NUMBER: 9
TITLE: Preliminary History and Forecast
APPLICATION: Electronic CAE
REGION: Europe
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	6,763	10,362	11,455	18,435	22,766	27,150	31,600	34,780	37,180	41,370	27%	13%
Workstation Shipments	6,852	10,486	11,453	18,881	23,009	27,340	31,730	34,860	37,230	41,400	27%	12%
CPU Installed Base	10,483	20,621	31,236	47,491	66,008	86,260	111,010	139,020	169,480	204,220	44%	25%
Workstation Installed Base	10,699	21,003	31,669	48,385	67,177	87,670	112,600	140,730	171,270	206,070	44%	25%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	49.2	32.7	41.5	45.0	45.2	47.9	47.7	46.8	46.0	46.0	-2%	0%
Hardware-Only ASP	15.4	13.0	13.2	10.1	9.1	8.5	8.1	8.2	9.0	10.4	-10%	3%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	139	157	202	240	260	332	382	446	477	544	13%	16%
CPU Revenue	109	107	160	196	216	233	265	302	327	371	15%	11%
Workstation Revenue	4	9	4	11	7	14	12	10	7	6	13%	-4%
Peripheral Revenue (Turnkey)	25	41	38	33	37	85	105	134	143	167	8%	35%
Software Revenue	66	127	131	145	176	188	243	313	381	477	21%	22%
Bundled	42	39	43	61	68	58	70	90	90	94	10%	7%
Unbundled	24	88	88	83	107	130	173	223	290	383	35%	29%
Service Revenue	13	41	57	73	90	109	135	173	199	240	47%	22%
Total Revenue	218	326	389	458	526	628	760	932	1,057	1,260	19%	19%
Increase over Prior Year	55%	49%	20%	18%	15%	20%	21%	23%	13%	19%		

Source: Dataquest
March 1991

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TABLE NUMBER: 10
TITLE: Preliminary History and Forecast
APPLICATION: IC Layout
REGION: Europe
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	383	1,292	1,412	1,858	2,704	3,610	4,650	5,670	6,520	7,240	48%	22%
Workstation Shipments	396	1,319	1,431	1,831	2,693	3,610	4,650	5,670	6,520	7,240	47%	22%
CPU Installed Base	689	1,972	3,346	5,065	7,423	10,400	14,420	19,480	25,380	32,120	61%	34%
Workstation Installed Base	781	2,092	3,488	5,188	7,553	10,550	14,610	19,680	25,600	32,360	57%	34%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	107.2	28.9	59.2	39.8	58.3	63.0	60.7	65.1	66.7	67.2	-11%	3%
Hardware-Only ASP	46.7	25.5	24.1	20.9	18.3	16.0	14.1	12.9	12.0	11.5	-17%	-9%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	21	29	38	39	50	68	77	82	84	80	19%	10%
CPU Revenue	16	21	32	37	46	46	52	58	62	59	23%	5%
Workstation Revenue	1	3	2	1	1	5	5	5	3	2	-3%	6%
Peripheral Revenue (Turnkey)	3	5	5	2	3	17	20	19	19	19	-3%	48%
Software Revenue	19	37	33	25	37	37	42	51	63	77	14%	16%
Bundled	6	5	6	4	15	11	12	13	14	20	18%	5%
Unbundled	13	32	27	21	22	26	30	38	49	58	12%	21%
Service Revenue	4	9	15	14	18	20	23	26	29	30	37%	12%
Total Revenue	43	75	86	78	105	126	142	159	176	188	19%	12%
Increase over Prior Year	29%	74%	14%	-9%	34%	20%	13%	12%	11%	7%		

Source: Dataquest
March 1991

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TABLE NUMBER: 11
TITLE: Preliminary History and Forecast
APPLICATION: PCB/Hybrid/MCM
REGION: Europe
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	4,414	8,103	8,613	7,548	8,906	10,060	11,130	11,070	11,570	13,080	15%	8%
Workstation Shipments	4,701	8,413	8,894	8,296	9,486	10,630	11,690	11,550	11,880	13,250	15%	7%
CPU Installed Base	5,686	13,730	21,995	28,352	34,494	39,880	46,360	52,850	59,840	68,330	43%	15%
Workstation Installed Base	6,479	14,834	23,390	30,528	37,310	43,340	50,460	57,460	64,800	73,510	42%	15%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	95.2	37.3	48.5	48.6	50.4	52.1	51.3	50.6	49.1	48.4	-12%	-1%
Hardware-Only ASP	11.7	10.6	11.4	17.4	14.2	13.7	13.4	13.6	12.5	11.8	4%	-4%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	125	125	155	168	167	194	209	213	214	224	6%	6%
CPU Revenue	104	94	130	146	139	131	140	142	144	151	6%	2%
Workstation Revenue	9	16	5	16	14	21	23	21	15	8	10%	-10%
Peripheral Revenue (Turnkey)	13	14	19	6	15	42	46	50	55	65	2%	35%
Software Revenue	68	116	100	97	99	103	112	121	132	153	8%	9%
Bundled	51	38	35	46	48	45	49	54	58	71	-1%	8%
Unbundled	17	77	65	50	52	58	62	67	74	83	25%	10%
Service Revenue	21	43	47	55	60	68	75	82	87	97	23%	10%
Total Revenue	215	283	301	319	327	366	396	416	434	474	9%	8%
Increase over Prior Year	143%	32%	6%	6%	2%	12%	8%	5%	4%	9%		

Source: Dataquest
March 1991

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TABLE NUMBER: 12
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Benelux
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	3,278	5,793	7,146	9,364	11,577	14,130	16,730	18,970	21,010	22,530	29%	14%
Workstation Shipments	3,983	6,845	8,332	10,220	12,322	14,720	17,240	19,380	21,340	22,800	25%	13%
CPU Installed Base	4,319	10,065	16,925	25,362	34,887	45,420	58,550	73,920	91,330	110,270	52%	26%
Workstation Installed Base	5,391	12,188	20,235	29,534	39,828	51,020	64,720	80,570	98,370	117,640	49%	24%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	126.3	37.8	54.5	70.9	67.0	58.1	55.3	53.1	52.0	51.7	-12%	-5%
Hardware-Only ASP	12.4	11.8	12.2	10.8	10.0	9.3	8.7	8.3	8.3	8.5	-4%	-3%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	100	100	149	176	196	223	243	260	280	300	14%	9%
CPU Revenue	61	71	113	141	160	171	188	203	222	238	21%	8%
Workstation Revenue	26	16	15	16	14	17	16	14	12	11	-12%	-5%
Peripheral Revenue (Turnkey)	13	13	21	19	23	35	39	42	46	51	11%	17%
Software Revenue	29	60	65	63	73	70	81	93	106	122	20%	11%
Bundled	22	19	30	37	44	35	37	40	42	46	15%	1%
Unbundled	8	40	35	26	29	36	44	54	65	76	31%	21%
Service Revenue	12	36	47	52	63	68	75	82	90	99	40%	9%
Total Revenue	141	197	261	291	332	361	400	436	476	521	19%	9%
Increase over Prior Year	82%	39%	33%	11%	14%	9%	11%	9%	9%	9%		

Source: Dataquest
March 1991

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TABLE NUMBER: 13
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Benelux
PLATFORM: Technical Workstation

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	413	1,144	1,832	2,781	3,295	4,120	5,190	6,420	7,960	9,670	52%	24%
Workstation Shipments	413	1,144	1,832	2,781	3,295	4,120	5,190	6,420	7,960	9,670	52%	24%
CPU Installed Base	544	1,685	3,499	6,202	9,258	12,810	17,430	23,280	30,680	39,780	76%	34%
Workstation Installed Base	544	1,685	3,499	6,202	9,258	12,810	17,430	23,280	30,680	39,780	76%	34%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	78.8	41.6	44.0	56.7	54.9	52.5	50.4	49.1	48.7	48.8	-7%	-2%
Hardware-Only ASP	32.5	24.9	22.4	16.3	17.0	15.6	14.4	13.8	13.4	13.3	-12%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	19	30	57	80	92	122	140	160	185	212	37%	18%
CPU Revenue	15	23	46	68	76	98	112	128	149	172	38%	18%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	4	7	11	12	16	24	28	32	36	40	35%	21%
Software Revenue	10	35	33	41	47	41	52	65	78	91	35%	14%
Bundled	9	14	13	27	31	21	25	30	33	36	30%	3%
Unbundled	2	22	20	15	16	20	27	35	45	55	53%	28%
Service Revenue	3	16	25	33	39	46	54	63	73	83	72%	16%
Total Revenue	32	81	115	154	178	209	245	288	335	387	41%	17%
Increase over Prior Year	203%	155%	42%	33%	16%	17%	18%	17%	16%	15%		

Source: Dataquest
March 1991

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TABLE NUMBER: 14
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Benelux
PLATFORM: Host-Dependent/Server

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	124	290	506	352	415	430	440	410	390	360	27%	-3%
Workstation Shipments	878	1,341	1,692	1,208	1,160	1,020	950	810	710	630	6%	-12%
CPU Installed Base	194	484	990	1,337	1,728	2,090	2,460	2,810	3,130	3,420	55%	15%
Workstation Installed Base	1,267	2,608	4,300	5,509	6,669	7,690	8,640	9,450	10,170	10,800	39%	10%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	652.8	174.1	176.8	386.9	347.2	321.0	304.7	288.3	276.7	268.5	-12%	-5%
Hardware-Only ASP	467.4	239.4	137.6	126.9	111.8	102.4	94.5	86.6	79.6	73.2	-25%	-8%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	64	52	66	64	65	55	51	43	38	31	0%	-14%
CPU Revenue	29	30	42	43	46	28	26	22	18	14	10%	-22%
Workstation Revenue	26	16	15	16	14	17	16	14	12	11	-12%	-5%
Peripheral Revenue (Turnkey)	9	6	9	5	4	9	9	7	7	6	-13%	7%
Software Revenue	15	18	24	12	14	15	13	11	10	11	-0%	-5%
Bundled	11	5	16	9	12	12	11	9	8	9	1%	-5%
Unbundled	3	12	8	2	3	3	3	2	2	2	-5%	-3%
Service Revenue	8	19	21	17	22	19	18	15	13	12	21%	-12%
Total Revenue	87	88	111	93	101	89	82	70	61	54	3%	-12%
Increase over Prior Year	44%	1%	26%	-16%	9%	-12%	-8%	-14%	-13%	-11%		

Source: Dataquest
March 1991

Forecasts

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TABLE NUMBER: 15
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Benelux
PLATFORM: Personal Computer

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	2,742	4,359	4,808	6,231	7,867	9,580	11,100	12,140	12,660	12,500	23%	10%
Workstation Shipments	2,693	4,359	4,808	6,231	7,867	9,580	11,100	12,140	12,660	12,500	24%	10%
CPU Installed Base	3,580	7,896	12,436	17,823	23,900	30,510	38,650	47,830	57,530	67,060	46%	23%
Workstation Installed Base	3,580	7,896	12,436	17,823	23,900	30,510	38,650	47,830	57,530	67,060	46%	23%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	19.5	4.7	8.1	15.6	15.9	14.8	15.1	15.7	16.1	16.7	-4%	1%
Hardware-Only ASP	5.6	4.5	5.4	4.9	4.7	4.7	4.6	4.6	4.5	4.5	-3%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	18	19	26	32	39	46	53	56	58	57	17%	8%
CPU Revenue	17	18	25	30	37	45	50	53	55	53	17%	7%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	1	0	1	2	2	2	3	3	3	4	26%	10%
Software Revenue	4	7	8	9	12	15	16	17	19	20	22%	11%
Bundled	2	1	1	1	1	2	1	1	1	1	-15%	2%
Unbundled	2	6	7	8	11	13	15	16	18	19	37%	12%
Service Revenue	1	1	1	2	3	3	3	4	4	4	29%	7%
Total Revenue	23	27	36	44	54	64	72	77	80	80	19%	8%
Increase over Prior Year	223%	20%	31%	24%	21%	20%	13%	7%	4%	0%		

Source: Dataquest
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TABLE NUMBER: 16
TITLE: Preliminary History and Forecast
APPLICATION: Mechanical
REGION: Benelux
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,730	3,092	4,099	4,481	5,432	6,530	7,590	8,560	9,510	10,080	26%	13%
Workstation Shipments	2,356	3,984	4,893	5,126	5,994	6,950	7,950	8,850	9,760	10,290	21%	11%
CPU Installed Base	2,330	5,395	9,337	13,320	17,652	22,270	27,950	34,590	42,190	50,350	50%	23%
Workstation Installed Base	3,227	7,185	11,921	16,553	21,464	26,550	32,630	39,620	47,510	55,940	46%	21%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	145.4	36.2	54.4	80.1	75.7	63.7	60.2	57.3	56.0	55.9	-12%	-6%
Hardware-Only ASP	11.7	12.6	12.4	12.2	11.1	10.7	10.1	9.7	9.8	10.0	-1%	-2%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	66	59	91	106	113	125	130	133	140	146	12%	5%
CPU Revenue	35	42	68	83	90	94	99	103	110	115	21%	5%
Workstation Revenue	21	11	10	11	10	11	10	9	9	8	-14%	-4%
Peripheral Revenue (Turnkey)	9	7	13	12	13	20	21	21	22	23	7%	11%
Software Revenue	16	29	37	34	36	33	36	40	45	50	18%	7%
Bundled	14	9	20	22	25	18	18	18	19	20	13%	-4%
Unbundled	2	20	17	11	12	15	18	22	26	30	40%	21%
Service Revenue	8	23	28	31	37	38	40	41	44	46	36%	5%
Total Revenue	89	112	155	171	186	195	206	214	229	242	16%	5%
Increase over Prior Year	78%	25%	39%	10%	9%	5%	6%	4%	7%	6%		

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TABLE NUMBER: 17
TITLE: Preliminary History and Forecast
APPLICATION: AEC
REGION: Benelux
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	718	1,100	1,422	1,980	2,571	3,190	3,850	4,450	4,890	5,250	29%	15%
Workstation Shipments	743	1,168	1,556	2,063	2,652	3,260	3,910	4,490	4,920	5,270	29%	15%
CPU Installed Base	941	2,029	3,383	5,155	7,285	9,720	12,820	16,500	20,640	25,130	51%	28%
Workstation Installed Base	1,025	2,182	3,670	5,525	7,738	10,250	13,410	17,150	21,320	25,840	50%	27%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	151.0	38.5	46.6	55.7	55.4	46.2	44.1	42.9	41.9	41.6	-18%	-6%
Hardware-Only ASP	10.5	7.3	9.9	7.4	6.7	6.2	5.7	5.3	5.1	5.0	-9%	-6%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	14	13	24	23	28	31	34	37	40	44	16%	9%
CPU Revenue	10	10	19	19	23	25	29	31	34	36	19%	10%
Workstation Revenue	3	2	2	1	1	2	2	1	1	1	-11%	-16%
Peripheral Revenue (Turnkey)	1	1	3	3	4	4	4	5	5	7	24%	13%
Software Revenue	3	7	7	7	9	9	11	12	14	16	26%	13%
Bundled	2	2	3	3	4	3	3	3	3	3	16%	-3%
Unbundled	1	5	5	3	5	6	7	9	11	12	40%	22%
Service Revenue	1	6	8	6	7	7	7	8	8	9	38%	6%
Total Revenue	18	25	39	35	44	47	52	57	62	69	20%	10%
Increase over Prior Year	102%	44%	54%	-10%	24%	8%	11%	10%	9%	10%		

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TABLE NUMBER: 18
TITLE: Preliminary History and Forecast
APPLICATION: GIS/Mapping
REGION: Benelux
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	55	295	338	816	1,138	1,540	2,010	2,500	3,000	3,300	84%	24%
Workstation Shipments	78	336	467	867	1,190	1,600	2,060	2,540	3,040	3,330	72%	23%
CPU Installed Base	58	353	688	1,485	2,558	3,940	5,790	8,130	10,980	14,120	113%	41%
Workstation Installed Base	97	434	898	1,745	2,871	4,310	6,220	8,610	11,490	14,670	97%	39%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	264.9	60.5	92.8	75.8	68.3	63.3	59.6	57.1	55.5	54.8	-24%	-4%
Hardware-Only ASP	27.8	17.6	13.9	9.4	8.7	7.8	7.1	6.5	6.1	6.0	-21%	-7%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	4	7	10	14	20	27	35	43	52	60	37%	25%
CPU Revenue	2	5	6	11	16	21	28	34	42	48	48%	25%
Workstation Revenue	1	1	3	1	1	1	1	1	1	1	-8%	8%
Peripheral Revenue (Turnkey)	1	1	1	2	3	4	6	7	9	10	39%	30%
Software Revenue	1	2	4	5	6	7	9	11	13	17	44%	22%
Bundled	1	1	2	3	4	3	4	5	6	9	42%	17%
Unbundled	0	1	2	2	2	4	5	6	7	9	48%	30%
Service Revenue	1	2	3	4	7	9	11	14	17	20	58%	26%
Total Revenue	6	11	17	23	33	43	55	68	83	98	41%	25%
Increase over Prior Year	124%	82%	63%	33%	41%	32%	28%	24%	22%	19%		

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March 1991

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TABLE NUMBER: 19
TITLE: Preliminary History and Forecast
APPLICATION: Electronic Design Automation
REGION: Benelux
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	776	1,306	1,287	2,087	2,437	2,870	3,280	3,460	3,610	3,900	26%	10%
Workstation Shipments	806	1,356	1,415	2,165	2,487	2,910	3,320	3,500	3,630	3,910	25%	9%
CPU Installed Base	989	2,287	3,516	5,402	7,392	9,490	11,990	14,690	17,530	20,660	50%	23%
Workstation Installed Base	1,041	2,388	3,745	5,710	7,753	9,900	12,460	15,190	18,060	21,200	49%	22%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	68.3	38.7	52.8	53.5	50.5	47.9	47.7	47.3	46.7	46.5	-6%	-2%
Hardware-Only ASP	15.1	13.2	13.9	12.1	11.9	11.0	10.4	10.3	10.4	11.1	-5%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	17	21	25	33	35	40	44	47	47	51	16%	8%
CPU Revenue	14	15	20	28	30	30	32	34	36	39	17%	5%
Workstation Revenue	1	2	1	2	2	3	3	2	2	1	13%	-11%
Peripheral Revenue (Turnkey)	2	4	4	3	3	8	9	10	10	11	7%	29%
Software Revenue	10	22	18	18	21	22	26	31	34	39	17%	13%
Bundled	5	7	6	9	11	10	11	14	14	14	15%	6%
Unbundled	4	15	11	9	10	12	14	17	21	25	20%	19%
Service Revenue	2	6	8	11	14	15	17	20	21	23	48%	11%
Total Revenue	29	49	50	62	70	76	86	97	103	113	20%	10%
Increase over Prior Year	77%	72%	2%	23%	14%	9%	13%	12%	6%	10%		

Source: Dataquest
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Forecasts

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TABLE NUMBER: 20
TITLE: Preliminary History and Forecast
APPLICATION: Electronic CAE
REGION: Benelux
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	448	737	701	1,411	1,627	1,920	2,190	2,340	2,430	2,610	29%	10%
Workstation Shipments	456	757	747	1,440	1,642	1,930	2,200	2,350	2,430	2,610	29%	10%
CPU Installed Base	609	1,339	2,001	3,286	4,650	6,110	7,850	9,740	11,720	13,880	50%	24%
Workstation Installed Base	626	1,376	2,083	3,398	4,778	6,260	8,000	9,900	11,880	14,050	50%	24%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	49.2	33.9	43.1	47.4	44.1	45.9	46.0	45.1	44.3	44.1	-2%	0%
Hardware-Only ASP	15.6	12.9	13.6	9.9	9.6	8.8	8.4	8.4	9.2	10.5	-9%	2%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	9	11	12	18	19	22	24	27	28	31	17%	11%
CPU Revenue	7	7	9	15	16	17	19	20	22	24	17%	9%
Workstation Revenue	0	1	0	1	1	1	1	0	0	0	12%	-100%
Peripheral Revenue (Turnkey)	1	3	2	2	3	4	5	6	6	7	15%	22%
Software Revenue	4	10	8	9	11	13	16	20	22	26	23%	18%
Bundled	2	4	3	5	6	6	7	9	9	9	20%	10%
Unbundled	2	7	5	4	6	7	8	10	13	17	27%	24%
Service Revenue	1	3	3	6	7	8	10	12	13	15	63%	16%
Total Revenue	13	24	23	33	37	43	50	59	63	72	23%	14%
Increase over Prior Year	53%	79%	-3%	43%	13%	15%	17%	18%	8%	13%		

Source: Dataquest
March 1991

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TABLE NUMBER: 21
TITLE: Preliminary History and Forecast
APPLICATION: IC Layout
REGION: Benelux
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	24	65	72	153	198	260	340	400	450	480	53%	19%
Workstation Shipments	21	67	110	151	196	260	340	400	450	480	56%	20%
CPU Installed Base	35	100	170	317	500	730	1,040	1,400	1,820	2,270	70%	35%
Workstation Installed Base	34	100	210	355	535	770	1,070	1,440	1,860	2,310	74%	34%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	103.5	35.7	59.6	43.8	61.5	50.8	47.9	57.0	61.3	62.6	-10%	0%
Hardware-Only ASP	46.2	30.0	31.3	18.9	19.5	17.4	15.2	13.7	12.6	12.0	-16%	-9%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	1	2	2	3	4	5	5	6	6	6	26%	8%
CPU Revenue	1	1	2	3	3	3	4	4	4	4	29%	5%
Workstation Revenue	0	0	0	0	0	1	1	1	1	0	3%	30%
Peripheral Revenue (Turnkey)	0	0	0	0	0	1	1	1	1	1	8%	31%
Software Revenue	2	4	3	2	3	3	4	4	5	5	11%	11%
Bundled	0	0	0	0	1	1	1	1	1	1	35%	-2%
Unbundled	2	4	3	1	2	2	2	3	4	4	3%	17%
Service Revenue	0	1	1	1	2	2	2	2	2	2	60%	9%
Total Revenue	3	6	7	6	9	10	11	12	13	13	21%	9%
Increase over Prior Year	46%	99%	0%	-12%	49%	14%	11%	11%	8%	3%		

Source: Dataquest
March 1991

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TABLE NUMBER: 22
TITLE: Preliminary History and Forecast
APPLICATION: PCB/Hybrid/MCM
REGION: Benelux
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	304	505	515	523	612	690	750	720	730	800	15%	6%
Workstation Shipments	329	532	558	575	649	720	780	750	750	810	15%	5%
CPU Installed Base	345	848	1,345	1,799	2,243	2,640	3,110	3,540	3,990	4,510	45%	15%
Workstation Installed Base	381	912	1,452	1,957	2,440	2,880	3,380	3,850	4,310	4,840	45%	15%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	93.0	47.5	66.5	64.6	58.9	50.9	50.9	50.9	49.7	49.2	-9%	-4%
Hardware-Only ASP	11.9	12.0	11.7	16.5	15.9	14.9	14.6	14.8	13.5	12.5	6%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	7	8	11	12	13	13	14	14	14	14	12%	2%
CPU Revenue	6	6	9	11	11	9	10	10	10	10	14%	-2%
Workstation Revenue	1	1	0	1	1	1	1	1	1	1	14%	-10%
Peripheral Revenue (Turnkey)	1	1	1	0	0	3	3	3	3	3	-19%	64%
Software Revenue	4	8	7	7	7	6	6	7	7	8	13%	3%
Bundled	3	3	3	4	4	3	3	3	3	4	6%	-0%
Unbundled	1	5	4	3	3	3	3	3	4	4	29%	7%
Service Revenue	1	3	3	4	5	5	5	5	6	6	34%	4%
Total Revenue	12	19	20	23	24	24	26	26	26	28	15%	3%
Increase over Prior Year	132%	56%	9%	12%	6%	-1%	7%	2%	1%	5%		

Source: Dataquest
March 1991

Forecasts

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TABLE NUMBER: 23
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: France
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	8,433	13,495	14,409	21,833	28,354	35,010	42,160	48,470	53,690	56,730	27%	15%
Workstation Shipments	10,509	15,411	16,254	23,579	29,868	36,410	43,400	49,470	54,510	57,400	23%	14%
CPU Installed Base	11,611	24,965	38,573	57,928	81,101	107,480	141,010	180,850	225,940	274,130	48%	28%
Workstation Installed Base	14,774	30,045	45,499	66,616	91,370	119,310	154,250	195,250	241,330	290,350	44%	26%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	129.9	61.7	85.3	77.3	70.4	62.5	58.9	55.8	53.9	53.0	-12%	-6%
Hardware-Only ASP	11.5	10.8	12.1	10.4	9.1	9.1	8.6	8.3	8.2	8.5	-5%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	233	257	348	387	424	510	562	607	650	687	13%	10%
CPU Revenue	143	164	256	322	352	399	444	484	524	551	20%	9%
Workstation Revenue	61	56	30	30	27	35	34	30	26	22	-15%	-4%
Peripheral Revenue (Turnkey)	30	37	62	35	45	76	84	93	101	114	8%	21%
Software Revenue	78	138	141	158	191	192	227	264	303	341	20%	12%
Bundled	49	50	62	81	100	78	84	88	92	98	16%	-1%
Unbundled	29	88	79	77	91	114	143	176	211	243	26%	22%
Service Revenue	32	76	98	118	144	156	175	195	215	235	35%	10%
Total Revenue	343	471	587	664	759	858	964	1,065	1,169	1,263	17%	11%
Increase over Prior Year	59%	37%	25%	13%	14%	13%	12%	10%	10%	8%		

Source: Dataquest
March 1991

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TABLE NUMBER: 24
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: France
PLATFORM: Technical Workstation

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	912	1,926	3,001	5,569	7,096	9,290	11,920	15,000	18,860	22,890	51%	26%
Workstation Shipments	912	1,926	3,001	5,569	7,096	9,290	11,920	15,000	18,860	22,890	51%	26%
CPU Installed Base	1,370	3,287	6,238	11,612	18,193	26,390	37,210	51,120	68,890	90,690	68%	38%
Workstation Installed Base	1,370	3,287	6,238	11,612	18,193	26,390	37,210	51,120	68,890	90,690	68%	38%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	73.1	47.8	56.6	59.1	58.2	54.7	52.2	50.5	49.6	49.1	-4%	-3%
Hardware-Only ASP	33.2	25.3	22.8	17.5	17.3	15.8	14.6	13.9	13.6	13.5	-12%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	39	56	110	168	200	257	299	347	402	457	39%	18%
CPU Revenue	32	43	90	147	169	211	244	281	325	369	40%	17%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	7	12	19	21	32	46	55	66	77	88	34%	23%
Software Revenue	24	66	73	100	127	117	148	185	223	258	40%	15%
Bundled	18	25	32	59	75	50	58	66	72	77	33%	1%
Unbundled	6	40	42	41	52	66	90	119	151	181	55%	29%
Service Revenue	8	30	45	73	92	104	124	148	171	194	65%	16%
Total Revenue	70	152	228	341	419	478	571	680	796	910	43%	17%
Increase over Prior Year	92%	115%	50%	49%	23%	14%	20%	19%	17%	14%		

Source: Dataquest
March 1991

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TABLE NUMBER: 25
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: France
PLATFORM: Host-Dependent/Server

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	293	660	780	761	838	980	1,010	970	910	830	23%	-0%
Workstation Shipments	2,500	2,577	2,625	2,507	2,352	2,380	2,250	1,970	1,730	1,500	-1%	-9%
CPU Installed Base	514	1,173	1,951	2,696	3,468	4,280	5,130	5,930	6,670	7,330	47%	16%
Workstation Installed Base	3,676	6,253	8,878	11,384	13,736	16,120	18,360	20,330	22,060	23,560	30%	11%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	627.7	259.9	453.4	390.6	333.3	322.4	309.4	295.2	284.3	273.9	-12%	-4%
Hardware-Only ASP	503.7	251.5	161.7	129.6	102.4	94.5	87.2	79.9	73.3	67.4	-27%	-8%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	149	149	180	137	118	116	109	94	80	67	-5%	-11%
CPU Revenue	67	71	109	96	83	61	57	49	42	32	4%	-17%
Workstation Revenue	61	56	30	30	27	35	34	30	26	22	-15%	-4%
Peripheral Revenue (Turnkey)	21	23	41	11	8	20	18	15	11	13	-18%	10%
Software Revenue	46	53	47	31	33	32	31	27	25	26	-6%	-5%
Bundled	26	20	25	20	22	23	21	19	17	17	-3%	-5%
Unbundled	19	32	22	11	11	9	9	8	8	8	-11%	-6%
Service Revenue	22	42	49	39	43	42	39	34	30	26	14%	-9%
Total Revenue	217	244	276	207	194	190	178	155	136	119	-2%	-9%
Increase over Prior Year	36%	13%	13%	-25%	-6%	-2%	-6%	-13%	-12%	-12%		

Source: Dataquest
March 1991

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TABLE NUMBER: 26
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: France
PLATFORM: Personal Computer

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	7,229	10,909	10,628	15,504	20,420	24,740	29,230	32,500	33,920	33,010	23%	10%
Workstation Shipments	7,098	10,909	10,628	15,504	20,420	24,740	29,230	32,500	33,920	33,010	24%	10%
CPU Installed Base	9,728	20,505	30,384	43,620	59,440	76,810	98,670	123,800	150,380	176,110	44%	24%
Workstation Installed Base	9,728	20,505	30,384	43,620	59,440	76,810	98,670	123,800	150,380	176,110	44%	24%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	19.8	9.7	19.4	27.6	26.5	33.8	34.6	34.5	34.8	36.0	6%	6%
Hardware-Only ASP	5.6	4.5	5.0	5.1	4.9	4.9	4.8	4.8	4.7	4.7	-3%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	45	52	58	82	106	137	155	166	169	163	18%	9%
CPU Revenue	44	50	56	79	100	127	144	154	156	149	18%	8%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	2	2	2	4	5	10	11	12	12	13	25%	21%
Software Revenue	8	19	20	27	31	44	49	52	55	57	30%	13%
Bundled	4	4	5	3	3	5	4	4	3	3	-7%	0%
Unbundled	4	15	15	25	28	38	44	48	52	54	48%	14%
Service Revenue	2	4	4	6	8	10	12	13	14	14	32%	11%
Total Revenue	56	75	83	116	145	190	215	230	237	234	21%	10%
Increase over Prior Year	178%	34%	11%	40%	26%	31%	13%	7%	3%	-2%		

Source: Dataquest
March 1991

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TABLE NUMBER: 27
TITLE: Preliminary History and Forecast
APPLICATION: Mechanical
REGION: France
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	4,153	6,391	7,320	10,194	12,993	15,780	18,720	21,510	23,950	25,070	26%	14%
Workstation Shipments	5,788	8,016	8,871	11,528	14,132	16,750	19,580	22,220	24,560	25,600	20%	13%
CPU Installed Base	5,962	12,274	19,165	28,104	38,550	50,170	64,730	82,080	101,870	122,780	45%	26%
Workstation Installed Base	8,402	16,338	24,783	35,067	46,702	59,420	74,950	93,130	113,660	135,230	41%	24%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	170.9	75.5	108.9	87.6	81.5	70.9	66.9	63.8	62.2	62.1	-14%	-5%
Hardware-Only ASP	10.9	12.3	13.6	11.9	10.2	10.4	9.9	9.6	9.7	10.0	-1%	-0%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	144	161	228	240	252	291	311	326	347	358	12%	7%
CPU Revenue	76	95	158	196	205	224	241	255	273	281	22%	6%
Workstation Revenue	48	45	24	21	19	22	22	19	18	16	-17%	-2%
Peripheral Revenue (Turnkey)	19	21	46	23	28	45	48	51	56	61	8%	17%
Software Revenue	45	68	78	96	112	109	126	142	161	176	20%	9%
Bundled	27	28	44	55	65	49	50	50	50	51	19%	-5%
Unbundled	18	40	34	41	47	60	75	92	110	125	22%	21%
Service Revenue	18	47	62	77	92	95	103	109	119	125	39%	6%
Total Revenue	207	276	368	413	456	495	539	577	626	659	17%	8%
Increase over Prior Year	49%	33%	33%	12%	10%	9%	9%	7%	9%	5%		

Source: Dataquest
March 1991

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TABLE NUMBER: 28
TITLE: Preliminary History and Forecast
APPLICATION: AEC
REGION: France
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,945	2,990	3,115	4,928	6,462	8,110	9,960	11,680	12,850	13,600	27%	16%
Workstation Shipments	2,011	3,117	3,252	5,089	6,622	8,300	10,120	11,800	12,930	13,650	27%	16%
CPU Installed Base	2,621	5,576	8,495	12,831	18,079	24,190	32,150	41,830	52,680	64,280	47%	29%
Workstation Installed Base	2,859	5,941	8,998	13,497	18,913	25,230	33,360	43,170	54,120	65,790	46%	28%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	177.1	28.2	40.3	45.8	40.2	40.9	37.9	35.7	33.9	32.9	-26%	-4%
Hardware-Only ASP	10.0	6.4	8.6	7.1	6.4	6.3	5.9	5.5	5.3	5.2	-9%	-4%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	33	26	38	47	58	72	81	88	94	99	12%	11%
CPU Revenue	24	20	32	40	48	61	70	77	82	87	15%	12%
Workstation Revenue	6	3	2	3	3	4	3	3	2	1	-13%	-15%
Peripheral Revenue (Turnkey)	3	3	3	5	7	7	8	8	9	10	19%	10%
Software Revenue	6	10	10	15	18	21	25	30	34	38	26%	16%
Bundled	4	3	3	5	8	8	8	8	9	9	14%	4%
Unbundled	2	7	7	9	10	13	17	22	26	29	46%	23%
Service Revenue	4	8	9	10	14	17	18	20	21	23	28%	11%
Total Revenue	43	44	57	72	90	110	124	138	149	160	16%	12%
Increase over Prior Year	72%	3%	29%	27%	25%	23%	13%	11%	8%	8%		

Source: Dataquest
March 1991

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TABLE NUMBER: 29
TITLE: Preliminary History and Forecast
APPLICATION: GIS/Mapping
REGION: France
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	156	707	812	2,029	2,846	3,880	5,090	6,360	7,560	8,020	79%	23%
Workstation Shipments	218	736	921	2,122	2,940	3,990	5,200	6,450	7,630	8,080	68%	22%
CPU Installed Base	163	870	1,675	3,652	6,329	9,800	14,480	20,430	27,580	35,190	108%	41%
Workstation Installed Base	266	1,002	1,917	3,986	6,759	10,350	15,140	21,190	28,420	36,090	91%	40%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	189.7	59.6	76.1	78.6	72.2	64.7	60.5	57.6	55.8	54.8	-18%	-5%
Hardware-Only ASP	25.0	13.8	13.0	8.8	7.7	7.5	6.9	6.4	6.1	6.0	-21%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	10	12	17	25	36	48	61	75	89	99	30%	23%
CPU Revenue	5	9	14	21	30	41	52	65	77	85	41%	23%
Workstation Revenue	3	2	2	2	2	3	3	3	2	2	-9%	-2%
Peripheral Revenue (Turnkey)	1	1	2	2	4	4	6	7	9	12	25%	27%
Software Revenue	2	2	5	6	11	15	20	25	31	37	40%	27%
Bundled	2	1	2	3	6	7	8	11	13	16	29%	23%
Unbundled	1	1	3	3	6	9	11	15	18	21	62%	30%
Service Revenue	2	3	6	7	11	15	19	24	29	34	49%	25%
Total Revenue	13	18	28	39	58	78	100	124	149	170	35%	24%
Increase over Prior Year	156%	34%	58%	39%	51%	34%	28%	23%	20%	14%		

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March 1991

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TABLE NUMBER: 30
TITLE: Preliminary History and Forecast
APPLICATION: Electronic Design Automation
REGION: France
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	2,179	3,407	3,163	4,682	6,053	7,240	8,390	8,910	9,330	10,030	23%	11%
Workstation Shipments	2,493	3,543	3,210	4,840	6,174	7,370	8,510	9,000	9,390	10,070	20%	10%
CPU Installed Base	2,865	6,245	9,237	13,341	18,144	23,320	29,650	36,500	43,810	51,870	45%	23%
Workstation Installed Base	3,246	6,763	9,801	14,066	18,996	24,330	30,790	37,760	45,140	53,250	42%	23%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	66.5	52.2	59.0	64.1	60.4	53.7	52.9	51.3	50.3	50.0	-2%	-4%
Hardware-Only ASP	13.5	11.6	12.5	11.9	10.5	10.6	10.1	10.1	10.3	11.0	-5%	1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	47	58	65	75	78	98	110	118	121	131	11%	11%
CPU Revenue	37	39	52	65	69	73	82	87	92	97	13%	7%
Workstation Revenue	3	6	2	4	3	6	6	5	4	2	2%	-6%
Peripheral Revenue (Turnkey)	7	13	11	5	6	19	23	26	26	31	-2%	38%
Software Revenue	25	58	48	42	49	47	56	67	77	90	15%	13%
Bundled	16	17	13	18	22	15	17	20	20	21	6%	-0%
Unbundled	9	41	36	24	28	32	39	47	57	68	25%	20%
Service Revenue	9	18	21	24	27	30	35	42	46	52	25%	14%
Total Revenue	81	134	135	141	155	175	201	227	245	272	14%	12%
Increase over Prior Year	71%	65%	1%	4%	10%	13%	15%	13%	8%	11%		

Source: Dataquest
March 1991

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TABLE NUMBER: 31
TITLE: Preliminary History and Forecast
APPLICATION: Electronic CAE
REGION: France
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,341	1,878	1,794	3,081	4,035	4,840	5,600	6,000	6,280	6,740	25%	11%
Workstation Shipments	1,362	1,946	1,800	3,138	4,072	4,870	5,620	6,010	6,280	6,740	24%	11%
CPU Installed Base	1,871	3,729	5,403	8,114	11,390	15,000	19,370	24,150	29,230	34,830	44%	25%
Workstation Installed Base	1,916	3,841	5,521	8,289	11,605	15,250	19,650	24,430	29,530	35,130	43%	25%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	44.6	42.4	45.9	57.0	56.4	49.7	49.6	48.6	47.7	47.6	5%	-3%
Hardware-Only ASP	14.1	11.6	12.3	9.7	8.8	8.7	8.3	8.4	9.2	10.6	-9%	4%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	25	30	33	38	43	55	62	70	74	83	11%	14%
CPU Revenue	20	19	26	32	37	41	46	51	55	62	13%	11%
Workstation Revenue	1	2	1	2	1	3	2	2	1	1	9%	5%
Peripheral Revenue (Turnkey)	4	9	7	4	5	11	14	17	18	20	5%	30%
Software Revenue	12	29	28	23	27	26	33	41	49	58	18%	16%
Bundled	7	8	7	10	12	7	9	11	11	11	11%	-1%
Unbundled	5	21	20	14	15	18	24	30	38	47	25%	25%
Service Revenue	4	9	10	12	15	16	20	25	29	34	28%	18%
Total Revenue	42	68	71	73	85	97	115	136	152	175	15%	16%
Increase over Prior Year	50%	63%	5%	2%	17%	14%	19%	18%	11%	16%		

Source: Dataquest
March 1991

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TABLE NUMBER: 32
TITLE: Preliminary History and Forecast
APPLICATION: IC Layout
REGION: France
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	60	141	153	311	452	620	810	990	1,110	1,190	50%	21%
Workstation Shipments	72	149	148	306	449	620	810	990	1,110	1,190	44%	22%
CPU Installed Base	98	239	388	684	1,095	1,640	2,370	3,290	4,330	5,450	62%	38%
Workstation Installed Base	114	262	407	697	1,108	1,660	2,390	3,310	4,350	5,480	57%	38%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	102.2	48.5	97.0	52.8	78.4	73.3	70.9	69.9	69.2	69.2	-5%	-2%
Hardware-Only ASP	55.6	40.0	32.3	21.4	18.5	16.5	14.6	13.3	12.4	11.9	-20%	-8%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	4	5	6	7	9	12	14	14	14	15	19%	12%
CPU Revenue	3	4	5	7	8	8	10	11	12	11	24%	6%
Workstation Revenue	0	1	0	0	0	0	0	0	1	0	-10%	-100%
Peripheral Revenue (Turnkey)	1	1	1	0	0	3	4	3	2	4	-6%	61%
Software Revenue	4	9	6	4	7	7	8	10	12	12	16%	11%
Bundled	1	1	1	1	3	2	2	2	2	1	19%	-12%
Unbundled	2	8	5	3	5	6	6	8	10	11	14%	18%
Service Revenue	1	2	3	3	3	3	4	4	5	5	32%	10%
Total Revenue	8	16	15	14	19	23	26	28	31	32	19%	11%
Increase over Prior Year	35%	102%	-9%	-5%	39%	18%	14%	11%	9%	4%		

Source: Dataquest
March 1991

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TABLE NUMBER: 33
TITLE: Preliminary History and Forecast
APPLICATION: PCB/Hybrid/MCM
REGION: France
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	778	1,387	1,216	1,289	1,566	1,780	1,980	1,920	1,930	2,100	15%	6%
Workstation Shipments	1,058	1,449	1,262	1,396	1,653	1,880	2,080	2,010	1,990	2,130	9%	5%
CPU Installed Base	896	2,278	3,446	4,544	5,658	6,680	7,900	9,070	10,250	11,590	45%	15%
Workstation Installed Base	1,216	2,660	3,874	5,079	6,284	7,420	8,750	10,010	11,260	12,640	39%	15%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	120.1	69.8	83.4	74.6	63.4	56.5	55.3	54.4	52.9	52.3	-12%	-4%
Hardware-Only ASP	10.5	9.5	10.5	15.2	12.9	14.0	13.7	13.9	12.9	12.1	4%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	18	23	26	30	27	32	34	34	33	32	8%	4%
CPU Revenue	14	17	21	26	24	24	26	25	24	24	11%	0%
Workstation Revenue	2	3	1	2	2	3	3	3	2	1	0%	-13%
Peripheral Revenue (Turnkey)	2	2	3	1	1	5	5	6	6	7	-23%	65%
Software Revenue	9	20	15	14	15	14	15	16	17	19	10%	6%
Bundled	7	8	5	7	7	6	6	6	7	8	-1%	4%
Unbundled	2	11	11	7	8	8	9	9	10	11	34%	7%
Service Revenue	4	8	8	10	10	10	11	12	12	13	20%	7%
Total Revenue	31	50	49	54	51	56	60	62	62	65	10%	5%
Increase over Prior Year	127%	59%	-2%	10%	-6%	10%	8%	3%	0%	5%		

Source: Dataquest
March 1991

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TABLE NUMBER: 34
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Germany
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	13,227	25,674	37,250	40,498	45,720	58,360	71,570	84,660	97,040	108,460	28%	19%
Workstation Shipments	16,835	28,057	39,938	44,654	48,825	61,350	74,270	86,920	98,980	110,180	24%	18%
CPU Installed Base	17,547	43,048	79,227	116,046	152,971	195,120	250,490	318,940	399,770	492,050	54%	26%
Workstation Installed Base	22,822	50,707	89,578	130,582	170,735	216,200	274,590	345,620	428,730	523,050	50%	25%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	109.4	48.6	60.5	60.7	60.3	56.7	53.2	50.3	48.6	47.8	-11%	-5%
Hardware-Only ASP	12.8	11.4	11.2	11.8	9.8	9.0	8.5	8.1	8.2	8.4	-5%	-3%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	451	528	789	862	825	975	1,091	1,208	1,334	1,487	13%	13%
CPU Revenue	287	340	602	670	656	735	832	933	1,043	1,170	18%	12%
Workstation Revenue	105	105	49	79	55	64	63	56	51	45	-12%	-4%
Peripheral Revenue (Turnkey)	59	84	139	112	115	176	196	219	240	272	14%	19%
Software Revenue	158	269	319	381	404	457	549	654	775	917	21%	18%
Bundled	101	120	161	215	226	224	249	276	302	338	17%	8%
Unbundled	57	148	158	165	179	233	300	379	473	579	26%	26%
Service Revenue	61	141	202	239	261	294	335	380	432	497	34%	14%
Total Revenue	670	938	1,310	1,481	1,491	1,727	1,975	2,242	2,541	2,901	17%	14%
Increase over Prior Year	90%	40%	40%	13%	1%	16%	14%	14%	13%	14%		

Source: Dataquest
March 1991

Forecasts

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TABLE NUMBER: 35
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Germany
PLATFORM: Technical Workstation

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	2,751	6,157	10,625	14,107	14,931	19,180	24,810	31,650	40,030	49,960	40%	27%
Workstation Shipments	2,751	6,157	10,625	14,107	14,931	19,180	24,810	31,650	40,030	49,960	40%	27%
CPU Installed Base	3,856	9,991	20,483	34,053	47,459	63,280	84,740	113,030	149,700	196,300	65%	33%
Workstation Installed Base	3,856	9,991	20,483	34,053	47,459	63,280	84,740	113,030	149,700	196,300	65%	33%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	72.1	45.5	48.8	51.0	49.8	47.5	45.6	44.4	43.7	43.6	-7%	-3%
Hardware-Only ASP	29.3	24.5	23.6	18.2	17.3	15.8	14.6	14.0	13.6	13.5	-10%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	128	181	338	418	416	516	616	739	874	1,037	26%	20%
CPU Revenue	108	142	273	345	333	407	486	581	692	825	25%	20%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	20	39	64	73	82	108	130	158	182	212	33%	21%
Software Revenue	55	133	187	239	258	289	371	475	589	720	36%	23%
Bundled	47	71	110	156	165	153	183	217	248	284	28%	12%
Unbundled	7	62	77	83	94	135	189	258	341	435	67%	36%
Service Revenue	14	58	107	148	160	190	234	287	345	413	63%	21%
Total Revenue	197	373	631	805	834	995	1,221	1,501	1,807	2,169	33%	21%
Increase over Prior Year	133%	89%	69%	28%	4%	19%	23%	23%	20%	20%		

Source: Dataquest
March 1991

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TABLE NUMBER: 36
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Germany
PLATFORM: Host-Dependent/Server

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	604	1,380	1,599	1,584	1,700	1,820	1,880	1,820	1,760	1,720	23%	0%
Workstation Shipments	4,386	3,764	4,287	5,739	4,805	4,810	4,570	4,080	3,700	3,440	2%	-6%
CPU Installed Base	991	2,371	3,966	5,520	7,097	8,600	10,150	11,640	13,070	14,470	48%	15%
Workstation Installed Base	6,266	10,030	14,317	20,056	24,861	29,670	34,250	38,330	42,030	45,470	32%	13%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	495.9	210.9	331.6	300.3	250.1	235.5	223.5	210.8	203.5	198.3	-13%	-5%
Hardware-Only ASP	514.7	236.1	115.3	156.3	118.2	108.5	100.3	92.1	85.3	78.6	-25%	-8%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	256	259	297	299	248	249	235	209	189	176	-1%	-7%
CPU Revenue	115	115	181	194	174	132	125	110	100	91	9%	-12%
Workstation Revenue	105	105	49	79	55	64	63	56	51	45	-12%	-4%
Peripheral Revenue (Turnkey)	36	39	67	26	19	52	48	42	39	39	-12%	15%
Software Revenue	59	84	72	68	72	72	69	63	60	59	4%	-4%
Bundled	45	42	41	47	53	54	52	46	43	42	3%	-5%
Unbundled	14	42	30	22	19	18	18	16	17	18	7%	-2%
Service Revenue	43	74	83	79	90	90	86	76	70	67	16%	-6%
Total Revenue	358	417	451	447	410	411	390	347	318	302	3%	-6%
Increase over Prior Year	48%	16%	8%	-1%	-8%	0%	-5%	-11%	-8%	-5%		

Source: Dataquest
March 1991

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TABLE NUMBER: 37
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Germany
PLATFORM: Personal Computer

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	9,872	18,137	25,026	24,808	29,089	37,350	44,880	51,190	55,250	56,780	24%	14%
Workstation Shipments	9,698	18,137	25,026	24,808	29,089	37,350	44,880	51,190	55,250	56,780	25%	14%
CPU Installed Base	12,700	30,687	54,777	76,473	98,415	123,240	155,600	194,270	237,000	281,290	51%	23%
Workstation Installed Base	12,700	30,687	54,777	76,473	98,415	123,240	155,600	194,270	237,000	281,290	51%	23%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	21.5	8.4	16.0	23.2	29.1	33.4	34.5	34.8	34.7	35.3	6%	4%
Hardware-Only ASP	5.6	4.5	5.6	4.9	4.8	4.7	4.7	4.6	4.5	4.5	-3%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	67	88	155	144	162	211	239	260	272	275	19%	11%
CPU Revenue	63	82	147	130	149	195	222	242	252	254	19%	11%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	4	6	8	14	13	16	18	18	20	21	31%	10%
Software Revenue	44	52	61	73	74	97	108	117	127	138	11%	13%
Bundled	8	8	10	13	8	17	15	12	11	12	-0%	8%
Unbundled	36	44	51	61	66	80	94	105	116	126	13%	14%
Service Revenue	4	8	13	12	11	14	15	16	17	17	22%	9%
Total Revenue	115	148	228	229	247	321	363	393	416	430	17%	12%
Increase over Prior Year	336%	29%	54%	1%	8%	30%	13%	8%	6%	4%		

Source: Dataquest
March 1991

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TABLE NUMBER: 38
TITLE: Preliminary History and Forecast
APPLICATION: Mechanical
REGION: Germany
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	6,521	11,966	20,310	20,680	22,611	27,930	33,380	38,920	44,410	48,800	28%	17%
Workstation Shipments	9,571	13,783	22,473	23,760	24,919	30,160	35,380	40,620	45,950	50,240	21%	15%
CPU Installed Base	8,932	20,803	40,554	59,428	77,783	97,810	123,280	154,290	190,800	231,690	54%	24%
Workstation Installed Base	13,172	26,860	48,776	70,751	91,505	113,990	141,710	174,660	212,940	255,510	47%	23%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	131.8	60.2	63.8	67.9	64.9	60.7	56.8	53.6	52.0	51.8	-13%	-4%
Hardware-Only ASP	12.3	13.1	11.1	13.7	11.1	10.4	9.9	9.6	9.7	10.0	-2%	-2%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	268	318	490	552	509	569	605	635	687	742	14%	8%
CPU Revenue	151	190	359	418	402	424	457	487	530	573	22%	7%
Workstation Revenue	80	79	33	59	38	37	35	32	31	30	-14%	-5%
Peripheral Revenue (Turnkey)	38	49	97	75	70	108	112	116	126	139	13%	15%
Software Revenue	79	136	175	220	226	246	282	320	368	417	23%	13%
Bundled	55	70	106	141	146	140	146	149	155	163	21%	2%
Unbundled	24	66	68	79	80	106	136	171	213	254	27%	26%
Service Revenue	37	85	124	153	166	178	192	204	225	249	35%	8%
Total Revenue	384	540	788	924	901	993	1,079	1,159	1,279	1,408	19%	9%
Increase over Prior Year	82%	41%	46%	17%	-2%	10%	9%	7%	10%	10%		

Source: Dataquest
March 1991

Forecasts

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TABLE NUMBER: 39
TITLE: Preliminary History and Forecast
APPLICATION: AEC
REGION: Germany
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	2,728	4,677	6,765	7,277	8,926	11,790	14,830	17,910	20,410	22,830	27%	21%
Workstation Shipments	2,861	4,900	6,980	7,668	9,224	12,050	15,050	18,080	20,530	22,920	26%	20%
CPU Installed Base	3,612	8,247	14,764	21,231	28,324	36,890	48,490	63,180	80,360	99,970	51%	29%
Workstation Installed Base	4,006	8,865	15,596	22,457	29,859	38,710	50,570	65,450	82,780	102,510	49%	28%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	106.1	39.3	56.7	64.6	59.7	50.2	47.5	45.7	44.3	43.7	-11%	-6%
Hardware-Only ASP	10.7	6.6	9.8	7.9	6.7	6.1	5.7	5.3	5.1	5.0	-9%	-6%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	54	51	100	93	94	108	124	140	155	172	12%	13%
CPU Revenue	39	39	84	74	77	90	105	120	134	149	15%	14%
Workstation Revenue	10	6	6	7	5	7	6	5	4	3	-12%	-12%
Peripheral Revenue (Turnkey)	5	6	10	12	11	11	13	15	17	20	18%	12%
Software Revenue	13	22	28	32	36	43	53	66	79	96	23%	22%
Bundled	8	9	13	15	15	16	17	19	22	27	14%	12%
Unbundled	5	13	15	16	20	27	36	46	57	69	33%	27%
Service Revenue	7	16	23	22	21	22	24	27	30	35	26%	10%
Total Revenue	74	88	151	146	151	173	202	233	264	303	15%	15%
Increase over Prior Year	70%	20%	71%	-3%	4%	14%	17%	15%	13%	15%		

Source: Dataquest
March 1991

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CCIS Euro
0009624

TABLE NUMBER: 40
TITLE: Preliminary History and Forecast
APPLICATION: GIS/Mapping
REGION: Germany
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	259	1,704	1,704	3,721	4,846	6,980	9,530	12,470	15,650	18,230	80%	30%
Workstation Shipments	417	1,904	1,941	3,960	5,064	7,250	9,790	12,700	15,830	18,370	65%	29%
CPU Installed Base	284	1,989	3,683	7,305	11,817	18,000	26,730	38,410	53,260	70,690	111%	43%
Workstation Installed Base	546	2,450	4,381	8,244	12,983	19,460	28,480	40,400	55,460	73,060	88%	41%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	277.7	66.7	87.1	56.8	55.7	53.7	49.9	47.1	45.3	44.3	-27%	-4%
Hardware-Only ASP	28.4	13.7	12.5	10.1	8.3	7.3	6.7	6.3	6.0	5.9	-22%	-7%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	30	50	46	73	84	122	159	202	251	305	23%	29%
CPU Revenue	15	32	36	58	69	97	129	166	208	254	36%	30%
Workstation Revenue	11	10	5	5	4	8	8	8	8	7	-17%	10%
Peripheral Revenue (Turnkey)	4	7	5	10	11	17	22	28	35	44	22%	32%
Software Revenue	9	14	17	30	37	49	66	87	113	143	32%	31%
Bundled	5	10	9	20	24	28	38	51	66	85	35%	29%
Unbundled	4	4	8	10	13	21	28	37	47	58	28%	35%
Service Revenue	5	9	13	18	24	34	44	57	72	90	37%	31%
Total Revenue	44	73	76	121	144	204	270	347	437	538	27%	30%
Increase over Prior Year	167%	66%	4%	60%	19%	42%	32%	29%	26%	23%		

Source: Dataquest
March 1991

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TABLE NUMBER: 41
TITLE: Preliminary History and Forecast
APPLICATION: Electronic Design Automation
REGION: Germany
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	3,719	7,326	8,470	8,819	9,337	11,650	13,830	15,360	16,560	18,590	20%	15%
Workstation Shipments	3,986	7,469	8,545	9,267	9,618	11,890	14,040	15,530	16,670	18,660	19%	14%
CPU Installed Base	4,719	12,009	20,226	28,082	35,048	42,430	51,980	63,060	75,350	89,700	49%	21%
Workstation Installed Base	5,098	12,531	20,824	29,131	36,388	44,030	53,830	65,110	77,540	91,980	48%	20%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	66.6	28.7	46.7	40.2	46.9	49.0	48.6	47.6	46.7	46.3	-7%	-0%
Hardware-Only ASP	14.9	12.2	12.6	12.8	11.2	10.3	9.8	9.8	10.0	10.8	-6%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	99	109	153	144	138	176	203	230	241	268	7%	14%
CPU Revenue	82	78	122	120	108	123	141	159	171	193	6%	12%
Workstation Revenue	4	8	4	9	7	13	13	11	8	6	12%	-5%
Peripheral Revenue (Turnkey)	13	22	27	15	23	41	50	60	62	69	13%	25%
Software Revenue	57	97	99	99	107	119	147	182	216	262	14%	20%
Bundled	33	31	33	40	41	40	47	57	60	63	4%	9%
Unbundled	24	66	67	60	66	79	100	124	156	198	22%	25%
Service Revenue	13	32	43	46	49	61	74	91	104	122	31%	20%
Total Revenue	169	237	295	290	294	357	424	503	561	652	12%	17%
Increase over Prior Year	103%	41%	25%	-2%	1%	21%	19%	18%	12%	16%		

Source: Dataquest
March 1991

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TABLE NUMBER: 42
TITLE: Preliminary History and Forecast
APPLICATION: Electronic CAE
REGION: Germany
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	2,129	3,811	4,137	5,838	6,256	7,820	9,310	10,470	11,220	12,520	24%	15%
Workstation Shipments	2,177	3,851	4,146	6,024	6,331	7,880	9,350	10,490	11,230	12,530	24%	15%
CPU Installed Base	2,854	6,638	10,604	15,859	20,793	26,300	33,290	41,440	50,340	60,550	49%	24%
Workstation Installed Base	2,937	6,760	10,737	16,178	21,192	26,760	33,800	41,980	50,900	61,120	48%	24%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	48.6	26.6	57.2	39.7	42.3	47.1	47.4	46.7	46.1	46.1	-3%	2%
Hardware-Only ASP	15.3	12.7	12.8	10.1	9.1	8.6	8.2	8.2	9.1	10.4	-10%	3%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	46	55	81	78	74	102	121	145	154	174	10%	18%
CPU Revenue	36	37	62	62	60	72	85	99	108	124	11%	16%
Workstation Revenue	1	3	1	4	2	5	4	4	3	2	16%	-2%
Peripheral Revenue (Turnkey)	9	14	17	12	12	25	32	42	43	48	7%	32%
Software Revenue	26	44	50	55	61	70	92	119	145	181	18%	24%
Bundled	13	13	17	21	20	19	24	31	31	32	9%	9%
Unbundled	13	31	34	34	41	51	68	88	114	149	26%	30%
Service Revenue	4	13	21	24	26	35	44	57	66	81	47%	26%
Total Revenue	76	112	152	157	161	207	257	321	365	436	16%	22%
Increase over Prior Year	79%	48%	36%	3%	3%	28%	24%	25%	14%	19%		

Source: Dataquest
March 1991

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CCIS Euro
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TABLE NUMBER: 43
TITLE: Preliminary History and Forecast
APPLICATION: IC Layout
REGION: Germany
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	119	482	468	481	618	880	1,180	1,480	1,720	1,950	39%	26%
Workstation Shipments	159	490	463	475	615	880	1,180	1,480	1,720	1,950	31%	26%
CPU Installed Base	185	665	1,126	1,568	2,077	2,750	3,720	5,000	6,510	8,290	62%	32%
Workstation Installed Base	234	722	1,178	1,615	2,124	2,800	3,780	5,060	6,580	8,360	55%	32%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	111.2	19.4	58.5	51.5	78.1	73.7	71.4	69.9	69.0	69.0	-7%	-2%
Hardware-Only ASP	47.3	29.8	25.8	21.2	19.0	15.8	14.0	12.7	11.9	11.4	-17%	-10%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	7	9	14	11	12	17	20	21	22	23	12%	14%
CPU Revenue	5	7	11	10	11	11	13	15	17	18	16%	10%
Workstation Revenue	1	1	1	0	0	1	1	1	1	1	-7%	4%
Peripheral Revenue (Turnkey)	1	2	2	0	1	5	5	4	4	4	-7%	46%
Software Revenue	5	10	10	7	9	9	11	13	16	18	14%	14%
Bundled	2	2	3	1	4	3	3	3	3	3	12%	-4%
Unbundled	3	8	8	6	5	7	8	10	12	15	15%	22%
Service Revenue	1	3	5	4	5	5	6	7	8	8	30%	12%
Total Revenue	13	23	29	22	26	31	36	41	45	49	15%	13%
Increase over Prior Year	34%	75%	29%	-24%	17%	19%	16%	13%	12%	9%		

Source: Dataquest
March 1991

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TABLE NUMBER: 44
TITLE: Preliminary History and Forecast
APPLICATION: PCB/Hybrid/MCM
REGION: Germany
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,471	3,034	3,865	2,500	2,464	2,950	3,340	3,410	3,620	4,120	11%	11%
Workstation Shipments	1,650	3,128	3,936	2,767	2,672	3,130	3,520	3,560	3,720	4,180	10%	9%
CPU Installed Base	1,680	4,707	8,496	10,656	12,178	13,380	14,970	16,630	18,490	20,870	49%	11%
Workstation Installed Base	1,928	5,049	8,909	11,337	13,073	14,470	16,250	18,070	20,060	22,500	47%	11%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	85.5	32.6	36.6	40.2	50.3	49.2	48.4	47.7	46.3	45.7	-10%	-2%
Hardware-Only ASP	11.7	9.3	10.6	19.1	15.4	13.6	13.3	13.6	12.5	11.8	6%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	47	45	58	56	52	57	62	65	66	71	2%	7%
CPU Revenue	41	34	49	48	37	40	43	45	47	52	-2%	7%
Workstation Revenue	3	5	2	6	5	6	7	6	5	3	12%	-8%
Peripheral Revenue (Turnkey)	3	6	8	2	10	11	13	14	15	17	29%	10%
Software Revenue	25	42	39	38	36	40	45	50	55	62	7%	11%
Bundled	17	16	13	17	16	18	20	23	25	28	-1%	12%
Unbundled	8	27	25	20	20	22	24	27	30	34	19%	11%
Service Revenue	8	15	17	18	19	22	24	27	29	33	19%	12%
Total Revenue	80	103	114	111	107	119	132	141	150	166	6%	9%
Increase over Prior Year	156%	28%	11%	-2%	-4%	12%	10%	7%	6%	11%		

Source: Dataquest
March 1991

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TABLE NUMBER: 45
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Italy
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	5,857	8,273	9,766	12,003	15,271	19,620	24,150	28,220	32,210	35,700	21%	19%
Workstation Shipments	6,842	9,247	11,147	13,070	16,433	20,600	25,050	28,960	32,850	36,260	19%	17%
CPU Installed Base	7,578	15,775	25,060	35,527	47,483	61,610	80,270	103,000	129,720	159,960	44%	27%
Workstation Installed Base	9,024	18,195	28,861	40,403	53,552	68,750	88,390	111,940	139,390	170,280	43%	26%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	89.0	45.3	57.6	72.4	70.7	61.2	57.3	54.2	52.5	51.9	-4%	-6%
Hardware-Only ASP	12.1	12.6	12.3	11.5	9.3	9.0	8.5	8.1	8.1	8.3	-5%	-2%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	166	161	198	241	269	313	352	385	425	469	10%	12%
CPU Revenue	112	105	151	192	213	240	272	300	335	372	14%	12%
Workstation Revenue	33	31	18	20	21	22	22	20	18	16	-9%	-5%
Peripheral Revenue (Turnkey)	21	24	28	29	35	51	58	65	72	81	11%	18%
Software Revenue	42	76	105	105	128	148	178	210	248	293	25%	18%
Bundled	32	30	49	51	67	69	76	82	90	105	16%	9%
Unbundled	11	46	56	54	61	79	102	127	158	189	42%	26%
Service Revenue	16	45	61	69	90	103	119	135	155	178	41%	15%
Total Revenue	225	281	364	415	486	565	650	730	828	940	17%	14%
Increase over Prior Year	99%	25%	29%	14%	17%	16%	15%	12%	13%	14%		

Source: Dataquest
March 1991

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TABLE NUMBER: 46
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Italy
PLATFORM: Technical Workstation

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,071	1,230	1,987	3,648	4,215	5,890	7,670	9,710	12,390	15,500	32%	30%
Workstation Shipments	1,071	1,230	1,987	3,648	4,215	5,890	7,670	9,710	12,390	15,500	32%	30%
CPU Installed Base	1,368	2,593	4,538	8,026	11,812	16,840	23,660	32,510	44,050	58,700	54%	38%
Workstation Installed Base	1,368	2,593	4,538	8,026	11,812	16,840	23,660	32,510	44,050	58,700	54%	38%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	67.8	57.7	46.0	53.5	54.0	51.5	49.4	48.0	47.5	47.6	-4%	-2%
Hardware-Only ASP	39.1	25.5	22.4	16.9	17.1	15.7	14.5	13.9	13.5	13.4	-15%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	53	44	59	104	122	165	197	232	275	324	18%	21%
CPU Revenue	45	34	50	87	101	134	159	187	222	261	17%	21%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	8	10	9	17	22	31	37	45	53	63	21%	24%
Software Revenue	17	41	49	65	79	90	117	149	185	226	35%	24%
Bundled	16	17	21	35	45	44	53	62	73	86	23%	14%
Unbundled	1	24	28	30	34	46	64	86	113	140	91%	33%
Service Revenue	5	19	29	38	56	70	87	105	127	151	60%	22%
Total Revenue	76	104	137	208	257	325	400	486	587	701	28%	22%
Increase over Prior Year	207%	36%	33%	51%	24%	26%	23%	21%	21%	19%		

Source: Dataquest
March 1991

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TABLE NUMBER: 47
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Italy
PLATFORM: Host-Dependent/Server

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	170	315	601	503	477	520	540	520	510	490	23%	1%
Workstation Shipments	1,236	1,289	1,981	1,570	1,639	1,500	1,440	1,270	1,150	1,050	6%	-9%
CPU Installed Base	265	580	1,180	1,675	2,121	2,550	3,010	3,450	3,870	4,280	52%	15%
Workstation Installed Base	1,711	3,000	4,981	6,551	8,190	9,690	11,130	12,390	13,540	14,590	37%	12%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	608.0	356.1	293.0	415.7	382.2	349.6	328.4	307.9	294.7	287.9	-9%	-6%
Hardware-Only ASP	491.9	240.4	140.4	130.8	128.6	117.0	108.0	99.2	91.1	83.5	-24%	-8%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	85	84	101	94	89	78	75	66	59	53	1%	-10%
CPU Revenue	40	42	67	68	62	40	38	33	29	27	9%	-16%
Workstation Revenue	33	31	18	20	21	22	22	20	18	16	-9%	-5%
Peripheral Revenue (Turnkey)	11	11	15	7	6	16	15	13	12	11	-12%	13%
Software Revenue	20	23	37	23	29	27	25	22	21	22	7%	-5%
Bundled	13	9	25	15	20	19	18	16	14	14	9%	-6%
Unbundled	7	14	12	8	9	7	7	7	7	7	4%	-3%
Service Revenue	10	23	30	26	30	27	26	23	21	19	24%	-8%
Total Revenue	115	130	168	143	147	132	126	111	101	94	5%	-8%
Increase over Prior Year	49%	13%	29%	-14%	3%	-10%	-4%	-12%	-9%	-7%		

Source: Dataquest
March 1991

Forecasts

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TABLE NUMBER: 48
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Italy
PLATFORM: Personal Computer

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	4,616	6,728	7,179	7,853	10,579	13,210	15,940	17,980	19,320	19,710	18%	13%
Workstation Shipments	4,534	6,728	7,179	7,853	10,579	13,210	15,940	17,980	19,320	19,710	18%	13%
CPU Installed Base	5,945	12,602	19,342	25,825	33,550	42,210	53,600	67,030	81,800	96,990	41%	24%
Workstation Installed Base	5,945	12,602	19,342	25,825	33,550	42,210	53,600	67,030	81,800	96,990	41%	24%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	16.5	8.6	11.3	26.2	32.0	33.3	33.3	33.5	33.4	33.7	14%	1%
Hardware-Only ASP	5.4	4.5	4.6	4.9	4.7	4.6	4.5	4.5	4.4	4.4	-3%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	28	33	38	43	57	70	81	87	91	91	15%	10%
CPU Revenue	27	29	34	38	50	65	75	81	84	84	13%	11%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	1	4	4	5	7	5	6	6	7	7	39%	0%
Software Revenue	5	12	18	17	20	32	36	39	42	45	32%	17%
Bundled	3	4	2	1	2	5	5	4	4	4	-6%	11%
Unbundled	2	8	16	16	18	26	31	34	38	41	58%	18%
Service Revenue	1	3	3	4	5	6	7	7	8	8	41%	11%
Total Revenue	34	48	59	64	82	108	123	133	140	144	19%	12%
Increase over Prior Year	201%	40%	23%	8%	29%	31%	14%	8%	6%	3%		

Source: Dataquest
March 1991

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TABLE NUMBER: 49
TITLE: Preliminary History and Forecast
APPLICATION: Mechanical
REGION: Italy
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	3,444	4,427	5,279	6,009	7,352	9,270	11,170	12,940	14,740	16,100	16%	17%
Workstation Shipments	4,328	5,256	6,464	6,818	8,233	9,980	11,810	13,480	15,230	16,560	14%	15%
CPU Installed Base	4,449	8,832	13,832	18,977	24,487	30,760	38,930	48,880	60,620	73,730	41%	25%
Workstation Installed Base	5,682	10,893	17,081	23,040	29,453	36,500	45,380	55,920	68,220	81,850	39%	23%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	88.9	46.0	64.9	76.1	78.9	66.0	61.9	58.5	56.8	56.7	-2%	-6%
Hardware-Only ASP	11.3	13.8	14.0	12.9	10.4	10.4	9.9	9.5	9.7	9.9	-2%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	111	99	128	148	162	179	193	202	220	237	8%	8%
CPU Revenue	69	62	95	115	125	137	149	158	172	185	13%	8%
Workstation Revenue	27	23	14	13	15	14	13	12	12	11	-11%	-6%
Peripheral Revenue (Turnkey)	15	15	19	19	21	28	30	32	36	40	7%	14%
Software Revenue	29	41	66	65	83	96	112	128	149	169	23%	15%
Bundled	23	17	34	31	43	43	44	43	44	46	13%	2%
Unbundled	6	24	31	34	40	53	68	85	104	124	48%	25%
Service Revenue	10	28	40	42	55	60	67	73	82	91	40%	11%
Total Revenue	151	169	234	255	299	335	372	403	451	497	15%	11%
Increase over Prior Year	125%	12%	38%	9%	17%	12%	11%	8%	12%	10%		

Source: Dataquest
March 1991

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TABLE NUMBER: 50
TITLE: Preliminary History and Forecast
APPLICATION: AEC
REGION: Italy
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,206	1,694	2,231	2,424	3,279	4,290	5,400	6,420	7,270	8,060	22%	20%
Workstation Shipments	1,213	1,739	2,336	2,526	3,394	4,390	5,480	6,480	7,310	8,090	23%	19%
CPU Installed Base	1,597	3,271	5,390	7,467	10,014	13,110	17,300	22,520	28,580	35,440	44%	29%
Workstation Installed Base	1,666	3,386	5,610	7,790	10,453	13,650	17,940	23,230	29,340	36,240	44%	28%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	100.0	44.1	31.4	69.0	68.0	57.1	53.8	51.6	49.9	49.1	-7%	-6%
Hardware-Only ASP	10.6	7.1	7.3	7.9	6.6	6.1	5.6	5.2	5.0	5.0	-9%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	23	20	24	31	38	42	48	53	59	64	10%	11%
CPU Revenue	20	16	20	25	31	35	41	46	51	57	9%	13%
Workstation Revenue	2	2	1	2	2	2	2	2	1	1	-0%	-13%
Peripheral Revenue (Turnkey)	1	2	2	4	4	4	5	5	6	6	30%	6%
Software Revenue	4	10	13	12	12	15	18	22	26	31	26%	20%
Bundled	2	4	5	5	7	8	8	9	10	12	32%	14%
Unbundled	2	6	9	6	6	8	10	13	16	19	20%	26%
Service Revenue	2	6	8	7	11	11	12	14	16	18	43%	11%
Total Revenue	29	35	45	50	61	68	79	89	100	113	16%	13%
Increase over Prior Year	58%	21%	28%	11%	22%	12%	16%	13%	12%	14%		

Source: Dataquest
March 1991

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TABLE NUMBER: 51
TITLE: Preliminary History and Forecast
APPLICATION: GIS/Mapping
REGION: Italy
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	118	584	775	1,113	1,647	2,370	3,220	4,130	5,130	5,860	69%	29%
Workstation Shipments	148	628	851	1,178	1,737	2,460	3,310	4,210	5,190	5,910	64%	28%
CPU Installed Base	124	708	1,479	2,553	4,063	6,110	9,010	12,830	17,640	23,180	101%	42%
Workstation Installed Base	171	798	1,645	2,785	4,386	6,530	9,530	13,430	18,320	23,920	91%	40%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	158.1	42.1	57.5	81.8	65.7	59.6	55.6	52.8	50.9	50.0	-16%	-5%
Hardware-Only ASP	29.1	17.0	10.7	10.1	7.9	7.5	6.9	6.3	6.0	5.9	-23%	-6%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	10	13	15	21	28	38	49	62	76	91	24%	27%
CPU Revenue	6	9	11	17	23	30	40	51	63	76	28%	28%
Workstation Revenue	2	3	2	2	1	2	2	2	2	2	-10%	3%
Peripheral Revenue (Turnkey)	1	2	2	2	4	6	7	9	11	13	36%	28%
Software Revenue	2	4	6	8	11	16	23	29	38	48	38%	34%
Bundled	1	2	3	5	7	11	15	19	25	32	48%	35%
Unbundled	1	2	3	3	4	6	8	10	13	15	26%	34%
Service Revenue	2	3	4	7	10	13	18	23	28	35	43%	30%
Total Revenue	13	20	25	37	48	68	90	114	142	174	29%	29%
Increase over Prior Year	85%	51%	25%	46%	32%	41%	32%	27%	25%	22%		

Source: Dataquest
March 1991

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TABLE NUMBER: 52
TITLE: Preliminary History and Forecast
APPLICATION: Electronic Design Automation
REGION: Italy
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,089	1,569	1,481	2,457	2,992	3,690	4,370	4,730	5,080	5,680	22%	14%
Workstation Shipments	1,152	1,624	1,496	2,548	3,070	3,770	4,440	4,790	5,110	5,700	22%	13%
CPU Installed Base	1,408	2,964	4,358	6,529	8,919	11,630	15,030	18,780	22,880	27,610	45%	25%
Workstation Installed Base	1,505	3,117	4,526	6,789	9,260	12,060	15,540	19,360	23,510	28,270	44%	25%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	65.8	45.4	59.7	55.7	47.4	48.5	46.8	45.6	44.8	44.5	-6%	-1%
Hardware-Only ASP	14.9	14.9	15.0	12.9	10.9	10.5	9.9	9.8	10.0	10.8	-6%	-0%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	22	28	30	41	42	55	62	68	71	77	13%	13%
CPU Revenue	17	19	24	34	34	38	42	45	48	54	15%	9%
Workstation Revenue	1	3	1	2	2	4	4	4	3	2	9%	-1%
Peripheral Revenue (Turnkey)	4	5	4	4	5	13	16	19	20	22	8%	33%
Software Revenue	7	21	20	20	22	20	25	30	36	45	25%	16%
Bundled	6	6	7	9	11	7	9	10	11	14	13%	5%
Unbundled	2	15	13	10	11	13	16	20	25	31	49%	23%
Service Revenue	3	8	10	13	15	18	22	26	29	33	43%	17%
Total Revenue	32	57	60	73	78	94	109	124	136	155	20%	15%
Increase over Prior Year	54%	80%	5%	22%	7%	20%	16%	14%	9%	14%		

Source: Dataquest
March 1991

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TABLE NUMBER: 53
TITLE: Preliminary History and Forecast
APPLICATION: Electronic CAE
REGION: Italy
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	667	911	825	1,724	2,049	2,530	3,010	3,300	3,540	3,960	25%	14%
Workstation Shipments	680	926	817	1,755	2,071	2,560	3,030	3,310	3,540	3,960	25%	14%
CPU Installed Base	920	1,821	2,585	4,124	5,800	7,740	10,150	12,850	15,790	19,170	45%	27%
Workstation Installed Base	948	1,863	2,619	4,189	5,889	7,850	10,290	13,000	15,950	19,340	44%	27%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	55.8	38.4	50.8	51.1	46.5	45.1	43.4	42.1	41.3	41.1	-4%	-2%
Hardware-Only ASP	15.5	14.0	14.3	10.1	8.8	8.7	8.2	8.2	9.0	10.4	-11%	3%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	13	15	16	23	23	30	35	40	43	48	11%	16%
CPU Revenue	10	10	12	18	18	22	24	27	30	34	12%	13%
Workstation Revenue	0	1	0	1	1	1	1	1	1	1	9%	0%
Peripheral Revenue (Turnkey)	2	4	3	3	4	7	9	11	12	13	9%	30%
Software Revenue	5	11	11	11	12	11	15	19	23	30	21%	21%
Bundled	4	4	4	6	5	4	4	6	6	8	7%	7%
Unbundled	1	7	7	6	6	8	10	13	17	22	55%	29%
Service Revenue	1	4	5	7	8	10	12	15	17	21	62%	21%
Total Revenue	19	29	31	41	43	51	61	74	83	99	18%	18%
Increase over Prior Year	44%	57%	8%	31%	4%	20%	20%	20%	13%	19%		

Source: Dataquest
March 1991

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TABLE NUMBER: 54
TITLE: Preliminary History and Forecast
APPLICATION: IC Layout
REGION: Italy
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	29	73	79	150	195	270	360	430	490	540	46%	23%
Workstation Shipments	32	75	78	145	194	270	360	430	490	540	43%	23%
CPU Installed Base	49	121	198	341	517	750	1,070	1,460	1,910	2,420	60%	36%
Workstation Installed Base	53	128	205	342	517	760	1,080	1,470	1,920	2,430	58%	36%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	106.7	45.2	85.7	52.7	58.4	60.1	57.4	62.7	64.9	65.7	-11%	2%
Hardware-Only ASP	65.0	52.1	41.3	21.8	20.0	18.0	15.5	13.8	12.4	11.6	-21%	-10%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	2	3	4	3	4	6	7	7	7	7	17%	11%
CPU Revenue	1	2	3	3	3	4	4	5	5	5	20%	7%
Workstation Revenue	0	0	0	0	0	1	1	1	1	0	-9%	31%
Peripheral Revenue (Turnkey)	0	0	1	0	1	2	2	2	2	2	12%	25%
Software Revenue	1	5	3	2	3	3	3	4	4	5	21%	12%
Bundled	1	1	0	0	1	1	1	1	1	1	23%	-1%
Unbundled	1	4	2	2	1	2	2	3	3	4	18%	21%
Service Revenue	0	1	2	1	2	2	2	2	3	3	36%	12%
Total Revenue	3	9	8	7	9	11	13	13	14	15	21%	11%
Increase over Prior Year	14%	167%	-13%	-9%	20%	29%	13%	8%	7%	2%		

Source: Dataquest
March 1991

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TABLE NUMBER: 55
TITLE: Preliminary History and Forecast
APPLICATION: PCB/Hybrid/MCM
REGION: Italy
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	393	585	577	583	748	880	1,000	1,000	1,050	1,190	14%	10%
Workstation Shipments	440	623	601	648	805	940	1,060	1,050	1,080	1,210	13%	8%
CPU Installed Base	439	1,022	1,575	2,065	2,603	3,150	3,810	4,460	5,170	6,020	43%	18%
Workstation Installed Base	505	1,125	1,702	2,258	2,854	3,460	4,180	4,890	5,630	6,500	41%	18%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	91.4	62.4	72.5	64.2	46.4	50.3	49.4	48.8	47.4	46.8	-13%	0%
Hardware-Only ASP	11.5	12.8	12.4	19.3	15.5	14.2	13.9	14.1	12.9	12.0	6%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	7	10	11	15	15	18	20	21	21	22	16%	9%
CPU Revenue	5	7	9	13	12	12	13	14	14	15	18%	4%
Workstation Revenue	1	2	1	1	1	2	2	2	1	1	11%	-7%
Peripheral Revenue (Turnkey)	1	1	1	1	1	4	5	5	6	7	4%	44%
Software Revenue	1	6	6	6	7	7	7	8	9	10	37%	7%
Bundled	1	2	3	3	4	3	3	4	4	5	24%	4%
Unbundled	0	4	4	2	3	4	4	4	5	5	78%	10%
Service Revenue	1	3	4	5	5	7	7	8	9	10	30%	12%
Total Revenue	10	19	21	25	27	32	35	37	38	42	22%	9%
Increase over Prior Year	105%	95%	8%	20%	8%	17%	11%	5%	4%	9%		

Source: Dataquest
March 1991

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TABLE NUMBER: 56
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Scandinavia
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	4,457	6,692	9,195	12,217	14,262	17,240	20,080	22,400	24,460	26,620	26%	13%
Workstation Shipments	5,442	7,347	10,376	13,246	15,259	17,920	20,650	22,840	24,810	26,910	23%	12%
CPU Installed Base	5,877	12,505	21,310	32,299	43,889	56,540	72,020	89,830	109,690	131,720	50%	25%
Workstation Installed Base	7,391	14,674	24,661	36,688	49,312	62,740	78,890	97,230	117,540	139,960	46%	23%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	140.3	61.1	58.1	65.9	72.2	59.8	57.0	54.9	54.0	54.0	-12%	-6%
Hardware-Only ASP	14.0	12.8	12.3	11.5	9.6	8.9	8.3	8.0	8.0	8.2	-7%	-3%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	136	140	201	234	244	267	285	300	320	348	12%	7%
CPU Revenue	83	87	150	190	200	209	227	241	259	283	19%	7%
Workstation Revenue	34	33	18	17	17	18	17	15	13	10	-13%	-10%
Peripheral Revenue (Turnkey)	18	20	33	26	27	39	42	44	48	55	8%	15%
Software Revenue	35	72	81	84	104	107	125	143	163	191	24%	13%
Bundled	27	27	29	43	52	43	46	49	51	60	14%	3%
Unbundled	8	45	52	41	52	64	79	94	112	132	46%	20%
Service Revenue	16	45	56	69	78	84	92	100	109	123	37%	10%
Total Revenue	187	257	338	387	426	458	502	543	592	662	18%	9%
Increase over Prior Year	58%	38%	31%	15%	10%	8%	10%	8%	9%	12%		

Source: Dataquest
March 1991

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TABLE NUMBER: 57
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Scandinavia
PLATFORM: Technical Workstation

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	404	911	1,595	3,889	4,053	5,050	6,250	7,600	9,310	11,490	59%	23%
Workstation Shipments	404	911	1,595	3,889	4,053	5,050	6,250	7,600	9,310	11,490	59%	23%
CPU Installed Base	590	1,497	3,070	6,876	10,697	15,200	20,910	27,970	36,740	47,690	79%	35%
Workstation Installed Base	590	1,497	3,070	6,876	10,697	15,200	20,910	27,970	36,740	47,690	79%	35%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	92.2	55.1	48.5	50.3	56.2	53.8	51.8	50.7	50.5	51.0	-9%	-2%
Hardware-Only ASP	37.4	25.4	22.1	16.5	16.5	15.1	14.0	13.3	13.0	12.9	-15%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	20	29	54	102	112	147	166	187	212	248	42%	17%
CPU Revenue	16	22	46	87	95	122	137	154	176	205	43%	17%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	4	6	8	15	17	25	28	32	37	43	36%	20%
Software Revenue	11	31	35	41	51	61	76	93	112	134	36%	21%
Bundled	10	13	12	28	34	27	31	36	41	47	28%	7%
Unbundled	1	19	23	13	17	34	44	57	71	87	66%	38%
Service Revenue	3	16	24	38	45	58	67	78	90	105	75%	19%
Total Revenue	34	76	112	180	208	265	309	358	414	487	44%	19%
Increase over Prior Year	107%	125%	49%	60%	15%	27%	16%	16%	16%	18%		

Source: Dataquest
March 1991

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TABLE NUMBER: 58
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Scandinavia
PLATFORM: Host-Dependent/Server

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	184	412	592	532	608	580	580	530	490	460	27%	-5%
Workstation Shipments	1,241	1,067	1,773	1,561	1,605	1,260	1,140	970	840	750	5%	-14%
CPU Installed Base	299	711	1,302	1,826	2,397	2,880	3,350	3,790	4,170	4,530	52%	14%
Workstation Installed Base	1,813	2,880	4,654	6,214	7,820	9,080	10,220	11,190	12,030	12,770	34%	10%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	600.0	233.2	289.5	406.7	311.6	291.9	278.0	263.9	256.7	252.4	-12%	-4%
Hardware-Only ASP	495.4	235.7	128.9	114.9	88.7	82.4	75.9	69.6	64.1	59.1	-29%	-8%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	90	85	108	93	84	64	57	48	41	36	-2%	-15%
CPU Revenue	43	39	67	67	60	34	30	25	21	18	7%	-22%
Workstation Revenue	34	33	18	17	17	18	17	15	13	10	-13%	-10%
Peripheral Revenue (Turnkey)	13	12	24	8	6	12	10	8	7	8	-15%	7%
Software Revenue	17	25	28	20	22	19	17	15	13	12	6%	-11%
Bundled	14	12	15	15	17	14	13	11	9	8	4%	-14%
Unbundled	2	14	13	5	5	5	5	4	4	4	16%	-4%
Service Revenue	12	27	30	28	30	23	21	18	15	14	19%	-14%
Total Revenue	119	137	166	140	136	105	95	80	69	63	3%	-14%
Increase over Prior Year	30%	15%	22%	-16%	-3%	-22%	-9%	-16%	-14%	-10%		

Source: Dataquest
March 1991

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TABLE NUMBER: 59
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Scandinavia
PLATFORM: Personal Computer

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	3,870	5,369	7,008	7,796	9,601	11,620	13,260	14,280	14,670	14,670	20%	9%
Workstation Shipments	3,798	5,369	7,008	7,796	9,601	11,620	13,260	14,280	14,670	14,670	20%	9%
CPU Installed Base	4,988	10,297	16,937	23,597	30,796	38,460	47,750	58,070	68,780	79,490	44%	21%
Workstation Installed Base	4,988	10,297	16,937	23,597	30,796	38,460	47,750	58,070	68,780	79,490	44%	21%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	22.9	11.7	5.2	9.4	18.0	17.1	16.9	17.0	17.5	18.1	-5%	0%
Hardware-Only ASP	5.6	4.5	5.7	4.9	4.7	4.6	4.5	4.5	4.4	4.4	-3%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	26	27	39	39	48	56	62	66	66	63	14%	6%
CPU Revenue	24	26	37	36	45	54	59	62	62	60	13%	6%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	1	1	1	3	4	2	3	4	4	4	25%	-1%
Software Revenue	7	15	18	24	31	28	32	35	38	45	34%	8%
Bundled	3	3	1	1	1	2	2	2	2	4	-20%	31%
Unbundled	4	12	17	24	30	25	30	33	37	41	48%	7%
Service Revenue	1	2	3	3	3	4	4	4	4	4	31%	6%
Total Revenue	34	45	59	67	82	87	98	105	109	113	20%	6%
Increase over Prior Year	234%	33%	32%	13%	23%	6%	12%	7%	4%	3%		

Source: Dataquest
March 1991

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TABLE NUMBER: 60
TITLE: Preliminary History and Forecast
APPLICATION: Mechanical
REGION: Scandinavia
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	2,198	3,089	4,413	5,866	6,585	7,870	9,000	9,980	10,920	11,720	25%	12%
Workstation Shipments	3,049	3,616	5,349	6,636	7,349	8,360	9,410	10,300	11,180	11,960	19%	10%
CPU Installed Base	3,009	6,062	10,268	15,520	20,825	26,540	33,380	41,200	49,950	59,520	47%	23%
Workstation Installed Base	4,236	7,816	12,958	18,987	25,081	31,350	38,670	46,880	55,970	65,840	43%	21%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	175.2	78.1	75.1	70.6	80.7	62.7	59.2	56.2	54.8	54.8	-14%	-7%
Hardware-Only ASP	14.1	14.7	12.8	12.7	10.5	9.9	9.5	9.1	9.2	9.4	-6%	-2%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	83	83	119	135	139	147	150	150	154	160	11%	3%
CPU Revenue	44	48	84	108	111	113	117	119	124	129	20%	3%
Workstation Revenue	26	24	10	12	13	10	9	8	8	7	-14%	-11%
Peripheral Revenue (Turnkey)	12	12	25	16	15	24	24	23	23	24	5%	9%
Software Revenue	18	39	41	45	55	51	58	64	73	85	25%	9%
Bundled	15	16	17	26	31	22	22	22	23	27	15%	-2%
Unbundled	3	24	24	20	24	29	36	42	50	58	54%	19%
Service Revenue	10	28	33	39	44	45	47	49	52	56	34%	5%
Total Revenue	111	151	193	219	238	243	255	263	279	301	16%	5%
Increase over Prior Year	52%	36%	28%	14%	9%	2%	5%	3%	6%	8%		

Source: Dataquest
March 1991

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TABLE NUMBER: 61
TITLE: Preliminary History and Forecast
APPLICATION: AEC
REGION: Scandinavia
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,112	1,732	2,020	2,635	3,120	3,830	4,550	5,170	5,600	6,100	23%	14%
Workstation Shipments	1,144	1,778	2,127	2,744	3,231	3,910	4,610	5,210	5,630	6,110	23%	14%
CPU Installed Base	1,409	3,126	5,047	7,366	9,801	12,480	15,880	19,890	24,340	29,280	47%	24%
Workstation Installed Base	1,531	3,293	5,321	7,750	10,300	13,060	16,530	20,600	25,080	30,060	46%	24%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	108.8	33.0	41.1	53.8	70.7	54.1	52.6	52.1	51.8	52.0	-8%	-6%
Hardware-Only ASP	11.2	7.1	9.8	7.7	6.4	6.1	5.7	5.3	5.1	5.0	-11%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	20	20	31	34	36	40	44	47	50	55	12%	9%
CPU Revenue	15	15	25	28	30	33	37	40	43	47	15%	9%
Workstation Revenue	3	3	3	2	2	2	2	2	1	1	-11%	-14%
Peripheral Revenue (Turnkey)	2	2	3	4	4	4	5	5	6	7	15%	11%
Software Revenue	5	11	12	14	18	19	23	27	31	36	31%	15%
Bundled	3	4	3	5	6	4	5	5	5	6	15%	-2%
Unbundled	2	7	9	8	12	15	18	22	26	31	50%	21%
Service Revenue	2	7	9	9	10	11	11	12	13	14	40%	7%
Total Revenue	27	37	51	57	65	70	78	86	94	106	19%	10%
Increase over Prior Year	95%	38%	38%	10%	14%	7%	12%	10%	9%	13%		

Source: Dataquest
March 1991

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TABLE NUMBER: 62
TITLE: Preliminary History and Forecast
APPLICATION: GIS/Mapping
REGION: Scandinavia
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	132	428	522	1,052	1,448	1,930	2,470	3,020	3,570	3,980	61%	22%
Workstation Shipments	173	477	628	1,117	1,512	1,990	2,530	3,070	3,610	4,000	54%	21%
CPU Installed Base	142	570	1,086	2,103	3,445	5,140	7,380	10,160	13,500	17,230	89%	38%
Workstation Installed Base	212	689	1,311	2,394	3,804	5,570	7,870	10,710	14,090	17,860	78%	36%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	188.0	98.1	134.6	88.9	74.7	67.4	63.4	60.6	58.8	57.9	-17%	-5%
Hardware-Only ASP	25.7	17.8	14.1	10.0	8.0	7.3	6.7	6.2	5.9	5.8	-21%	-6%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	10	14	19	22	25	33	41	50	60	72	21%	24%
CPU Revenue	5	8	14	18	20	26	33	41	49	58	32%	24%
Workstation Revenue	3	4	3	1	1	2	2	2	2	1	-19%	5%
Peripheral Revenue (Turnkey)	1	2	2	3	3	4	6	8	10	12	23%	29%
Software Revenue	2	4	10	9	10	13	16	20	24	29	36%	23%
Bundled	2	3	4	5	5	5	6	8	9	11	24%	16%
Unbundled	0	1	6	4	5	8	10	12	15	18	65%	28%
Service Revenue	2	4	5	8	9	12	15	18	22	26	40%	25%
Total Revenue	13	22	34	39	44	57	72	88	106	127	27%	24%
Increase over Prior Year	83%	62%	58%	12%	14%	31%	26%	22%	20%	20%		

Source: Dataquest
March 1991

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TABLE NUMBER: 63
TITLE: Preliminary History and Forecast
APPLICATION: Electronic Design Automation
REGION: Scandinavia
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,015	1,442	2,241	2,664	3,109	3,610	4,060	4,230	4,380	4,820	25%	9%
Workstation Shipments	1,076	1,477	2,272	2,748	3,168	3,660	4,110	4,260	4,390	4,830	24%	9%
CPU Installed Base	1,317	2,747	4,909	7,311	9,818	12,380	15,390	18,580	21,900	25,680	49%	21%
Workstation Installed Base	1,412	2,878	5,070	7,557	10,128	12,750	15,820	19,050	22,400	26,200	48%	21%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	78.6	38.9	23.6	49.6	46.9	49.1	48.4	47.6	47.1	47.1	-10%	0%
Hardware-Only ASP	16.3	14.1	13.4	13.3	11.8	10.5	10.1	10.0	10.3	11.0	-6%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	23	23	32	43	44	47	51	53	55	61	14%	7%
CPU Revenue	19	16	28	37	38	37	40	42	44	48	15%	5%
Workstation Revenue	1	3	1	2	2	3	3	3	2	1	4%	-13%
Peripheral Revenue (Turnkey)	3	4	4	4	4	7	7	8	9	11	7%	23%
Software Revenue	10	18	18	17	21	24	28	32	35	41	15%	15%
Bundled	7	5	5	8	10	11	13	15	15	16	7%	10%
Unbundled	3	13	13	9	11	13	15	17	21	25	29%	18%
Service Revenue	2	6	9	12	14	17	19	22	23	26	50%	13%
Total Revenue	35	47	59	72	79	88	97	107	113	128	18%	10%
Increase over Prior Year	45%	33%	26%	22%	10%	11%	11%	10%	6%	13%		

Source: Dataquest
March 1991

Forecasts

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TABLE NUMBER: 64
TITLE: Preliminary History and Forecast
APPLICATION: Electronic CAE
REGION: Scandinavia
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	584	809	1,565	1,784	1,978	2,300	2,570	2,690	2,760	3,030	28%	9%
Workstation Shipments	598	816	1,568	1,816	1,996	2,310	2,580	2,690	2,760	3,030	27%	9%
CPU Installed Base	814	1,614	3,126	4,746	6,354	7,990	9,900	11,930	14,020	16,400	51%	21%
Workstation Installed Base	843	1,649	3,163	4,816	6,444	8,090	10,020	12,050	14,150	16,530	50%	21%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	54.7	35.6	13.7	40.2	46.2	44.6	44.5	43.5	42.8	42.7	-3%	-2%
Hardware-Only ASP	17.0	13.8	12.5	10.8	9.6	8.4	8.1	8.1	9.0	10.4	-11%	2%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	12	12	18	23	23	23	25	27	29	34	14%	8%
CPU Revenue	10	9	15	19	19	19	21	23	24	28	15%	8%
Workstation Revenue	0	1	0	1	1	1	1	1	0	0	4%	-10%
Peripheral Revenue (Turnkey)	2	2	2	3	3	3	4	4	4	5	8%	13%
Software Revenue	4	8	9	10	12	14	17	20	23	27	26%	19%
Bundled	3	3	3	4	5	6	7	9	9	9	13%	13%
Unbundled	1	5	6	5	7	8	10	12	14	18	49%	23%
Service Revenue	1	3	4	6	7	8	10	12	13	16	65%	16%
Total Revenue	16	23	31	39	42	45	52	60	65	77	21%	13%
Increase over Prior Year	24%	39%	37%	25%	7%	8%	15%	15%	9%	18%		

Source: Dataquest
March 1991

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TABLE NUMBER: 65
TITLE: Preliminary History and Forecast
APPLICATION: IC Layout
REGION: Scandinavia
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	29	64	73	235	311	410	520	630	700	770	61%	20%
Workstation Shipments	32	67	70	230	309	410	520	630	700	770	58%	20%
CPU Installed Base	46	109	181	408	702	1,080	1,570	2,160	2,820	3,550	73%	38%
Workstation Installed Base	51	117	186	409	701	1,080	1,570	2,160	2,830	3,560	69%	38%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	110.7	29.5	66.9	42.4	58.3	49.7	46.8	55.5	59.6	60.5	-12%	1%
Hardware-Only ASP	63.5	37.1	39.4	20.0	18.0	15.9	14.2	13.0	12.3	11.9	-22%	-8%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	2	2	3	5	6	7	7	8	8	9	25%	10%
CPU Revenue	1	1	2	5	5	5	6	6	7	7	29%	6%
Workstation Revenue	0	0	0	0	0	1	1	1	0	0	-6%	14%
Peripheral Revenue (Turnkey)	0	0	0	0	0	1	1	1	1	2	-2%	51%
Software Revenue	1	2	3	1	2	2	3	3	3	4	10%	10%
Bundled	0	0	0	0	1	1	1	1	1	1	20%	3%
Unbundled	1	2	3	1	1	1	1	2	2	2	4%	16%
Service Revenue	0	0	1	1	2	2	2	2	2	2	52%	9%
Total Revenue	3	5	7	7	9	11	12	13	14	15	23%	10%
Increase over Prior Year	9%	41%	42%	10%	26%	14%	11%	10%	6%	6%		

Source: Dataquest
March 1991

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TABLE NUMBER: 66
TITLE: Preliminary History and Forecast
APPLICATION: PCB/Hybrid/MCM
REGION: Scandinavia
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	402	569	603	646	819	900	970	920	920	1,020	15%	4%
Workstation Shipments	447	595	634	702	862	940	1,000	950	940	1,030	14%	4%
CPU Installed Base	457	1,024	1,603	2,157	2,762	3,310	3,930	4,490	5,060	5,730	43%	16%
Workstation Installed Base	519	1,111	1,721	2,332	2,982	3,580	4,240	4,840	5,430	6,110	42%	15%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	114.3	46.6	80.9	67.9	46.3	54.3	53.7	53.4	52.1	51.5	-17%	2%
Hardware-Only ASP	12.5	12.6	12.0	17.9	15.0	13.9	13.6	13.9	12.8	12.1	4%	-4%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	9	9	12	15	16	17	18	18	18	18	11%	3%
CPU Revenue	7	6	10	14	14	13	13	13	13	13	13%	-1%
Workstation Revenue	1	2	1	1	1	2	2	2	1	0	5%	-20%
Peripheral Revenue (Turnkey)	1	1	1	0	1	3	3	3	3	5	6%	33%
Software Revenue	5	8	6	6	7	8	9	9	9	10	6%	7%
Bundled	4	2	2	3	3	4	5	5	5	5	-2%	9%
Unbundled	1	6	4	3	4	4	4	4	4	5	21%	5%
Service Revenue	1	3	4	5	5	7	7	7	8	8	37%	9%
Total Revenue	15	19	21	26	28	32	34	34	34	36	13%	5%
Increase over Prior Year	96%	26%	10%	21%	8%	14%	5%	1%	-0%	7%		

Source: Dataquest
March 1991

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TABLE NUMBER: 67
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Spain
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	NA	NA	NA	NA	6,780	9,140	12,340	15,640	19,560	23,950	NA	29%
Workstation Shipments	NA	NA	NA	NA	7,162	9,660	12,870	16,140	20,030	24,420	NA	28%
CPU Installed Base	NA	NA	NA	NA	6,770	15,910	28,240	43,890	63,440	87,390	NA	67%
Workstation Installed Base	NA	NA	NA	NA	7,162	16,820	29,700	45,830	65,870	90,290	NA	66%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	NA	NA	NA	NA	51.9	53.4	50.0	47.1	45.8	45.5	NA	-3%
Hardware-Only ASP	NA	NA	NA	NA	8.5	8.0	7.7	7.5	7.6	7.9	NA	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	NA	NA	NA	NA	105	164	202	241	293	361	NA	28%
CPU Revenue	NA	NA	NA	NA	79	0	0	0	0	0	NA	-100%
Workstation Revenue	0	0	0	0	6	0	0	0	0	0	NA	-100%
Peripheral Revenue (Turnkey)	NA	NA	NA	NA	21	164	202	241	293	361	NA	77%
Software Revenue	NA	NA	NA	NA	42	28	39	53	71	94	NA	17%
Bundled	NA	NA	NA	NA	24	0	0	0	0	0	NA	-100%
Unbundled	NA	NA	NA	NA	18	28	39	53	71	94	NA	39%
Service Revenue	NA	NA	NA	NA	30	40	50	61	76	95	NA	26%
Total Revenue	NA	NA	NA	NA	178	231	291	355	439	549	NA	25%
Increase over Prior Year	NA	NA	NA	NA	NA	30%	26%	22%	24%	25%		

Source: Dataquest
March 1991

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TABLE NUMBER: 68
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Spain
PLATFORM: Technical Workstation

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	NA	NA	NA	NA	2,273	2,910	4,170	5,730	8,000	11,050	NA	37%
Workstation Shipments	NA	NA	NA	NA	2,263	2,910	4,170	5,730	8,000	11,050	NA	37%
CPU Installed Base	NA	NA	NA	NA	2,263	5,180	9,340	15,080	23,080	34,130	NA	72%
Workstation Installed Base	NA	NA	NA	NA	2,263	5,180	9,340	15,080	23,080	34,130	NA	72%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	NA	NA	NA	NA	45.4	43.4	41.9	41.1	40.9	41.3	NA	-2%
Hardware-Only ASP	NA	NA	NA	NA	15.7	14.4	13.3	12.8	12.5	12.4	NA	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	NA	NA	NA	NA	58	89	118	153	199	260	NA	35%
CPU Revenue	NA	NA	NA	NA	45	0	0	0	0	0	NA	-100%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	NA	NA	NA	NA	14	89	118	153	199	260	NA	81%
Software Revenue	NA	NA	NA	NA	24	15	22	32	45	61	NA	20%
Bundled	NA	NA	NA	NA	17	0	0	0	0	0	NA	-100%
Unbundled	NA	NA	NA	NA	7	15	22	32	45	61	NA	55%
Service Revenue	NA	NA	NA	NA	20	26	34	45	59	78	NA	31%
Total Revenue	NA	NA	NA	NA	102	130	175	230	302	399	NA	31%
Increase over Prior Year	NA	NA	NA	NA	NA	27%	35%	31%	32%	32%		

Source: Dataquest
March 1991

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TABLE NUMBER: 69
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Spain
PLATFORM: Host-Dependent/Server

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	NA	NA	NA	NA	137	200	230	240	250	260	NA	14%
Workstation Shipments	NA	NA	NA	NA	529	730	760	730	720	730	NA	7%
CPU Installed Base	NA	NA	NA	NA	137	340	570	800	1,050	1,310	NA	57%
Workstation Installed Base	NA	NA	NA	NA	529	1,260	2,020	2,750	3,470	4,210	NA	51%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	NA	NA	NA	NA	337.9	313.9	295.8	277.4	268.3	264.6	NA	-5%
Hardware-Only ASP	NA	NA	NA	NA	109.8	101.2	93.9	86.8	81.5	75.4	NA	-7%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	NA	NA	NA	NA	22	39	40	38	37	39	NA	11%
CPU Revenue	NA	NA	NA	NA	14	0	0	0	0	0	NA	-100%
Workstation Revenue	0	0	0	0	6	0	0	0	0	0	NA	-100%
Peripheral Revenue (Turnkey)	NA	NA	NA	NA	2	39	40	38	37	39	NA	88%
Software Revenue	NA	NA	NA	NA	7	2	2	2	2	3	NA	-18%
Bundled	NA	NA	NA	NA	5	0	0	0	0	0	NA	-100%
Unbundled	NA	NA	NA	NA	2	2	2	2	2	3	NA	7%
Service Revenue	NA	NA	NA	NA	8	11	11	11	10	11	NA	7%
Total Revenue	NA	NA	NA	NA	37	51	53	51	50	52	NA	7%
Increase over Prior Year	NA	NA	NA	NA	NA	38%	4%	-5%	-1%	4%		

Source: Dataquest
March 1991

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TABLE NUMBER: 70
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Spain
PLATFORM: Personal Computer

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	NA	NA	NA	NA	4,370	6,020	7,940	9,670	11,310	12,640	NA	24%
Workstation Shipments	NA	NA	NA	NA	4,370	6,020	7,940	9,670	11,310	12,640	NA	24%
CPU Installed Base	NA	NA	NA	NA	4,370	10,390	18,340	28,010	39,320	51,950	NA	64%
Workstation Installed Base	NA	NA	NA	NA	4,370	10,390	18,340	28,010	39,320	51,950	NA	64%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	NA	NA	NA	NA	24.5	30.1	30.6	28.6	27.4	26.7	NA	2%
Hardware-Only ASP	NA	NA	NA	NA	4.8	4.8	4.7	4.6	4.6	4.6	NA	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	NA	NA	NA	NA	25	36	44	50	57	62	NA	20%
CPU Revenue	NA	NA	NA	NA	20	0	0	0	0	0	NA	-100%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	NA	NA	NA	NA	5	36	44	50	57	62	NA	63%
Software Revenue	NA	NA	NA	NA	11	11	15	19	24	30	NA	23%
Bundled	NA	NA	NA	NA	1	0	0	0	0	0	NA	-100%
Unbundled	NA	NA	NA	NA	10	11	15	19	24	30	NA	26%
Service Revenue	NA	NA	NA	NA	3	3	4	5	6	7	NA	20%
Total Revenue	NA	NA	NA	NA	38	50	63	74	86	99	NA	21%
Increase over Prior Year	NA	NA	NA	NA	NA	31%	26%	17%	16%	14%		

Source: Dataquest
March 1991

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TABLE NUMBER: 71
TITLE: Preliminary History and Forecast
APPLICATION: Mechanical
REGION: Spain
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	NA	NA	NA	NA	3,420	4,450	5,900	7,430	9,300	11,230	NA	27%
Workstation Shipments	NA	NA	NA	NA	3,690	4,830	6,290	7,800	9,680	11,620	NA	26%
CPU Installed Base	NA	NA	NA	NA	3,410	7,850	13,750	21,180	30,490	41,710	NA	65%
Workstation Installed Base	NA	NA	NA	NA	3,690	8,520	14,810	22,610	32,290	43,910	NA	64%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	NA	NA	NA	NA	52.7	55.6	51.8	48.7	47.2	47.1	NA	-2%
Hardware-Only ASP	NA	NA	NA	NA	9.3	9.2	8.9	8.7	8.9	9.3	NA	0%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	NA	NA	NA	NA	62	93	110	125	148	176	NA	23%
CPU Revenue	NA	NA	NA	NA	44	0	0	0	0	0	NA	-100%
Workstation Revenue	0	0	0	0	4	0	0	0	0	0	NA	-100%
Peripheral Revenue (Turnkey)	NA	NA	NA	NA	13	93	110	125	148	176	NA	68%
Software Revenue	NA	NA	NA	NA	21	11	15	21	28	37	NA	12%
Bundled	NA	NA	NA	NA	14	0	0	0	0	0	NA	-100%
Unbundled	NA	NA	NA	NA	8	11	15	21	28	37	NA	37%
Service Revenue	NA	NA	NA	NA	18	23	27	31	37	45	NA	21%
Total Revenue	NA	NA	NA	NA	101	126	152	176	213	258	NA	21%
Increase over Prior Year	NA	NA	NA	NA	NA	26%	20%	16%	21%	21%		

Source: Dataquest
March 1991

Forecasts

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TABLE NUMBER: 72
TITLE: Preliminary History and Forecast
APPLICATION: AEC
REGION: Spain
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	NA	NA	NA	NA	1,379	1,930	2,660	3,440	4,280	5,260	NA	31%
Workstation Shipments	NA	NA	NA	NA	1,423	1,980	2,710	3,480	4,310	5,280	NA	30%
CPU Installed Base	NA	NA	NA	NA	1,379	3,310	5,970	9,400	13,680	18,940	NA	69%
Workstation Installed Base	NA	NA	NA	NA	1,423	3,410	6,120	9,600	13,910	19,200	NA	68%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	NA	NA	NA	NA	49.1	47.2	44.8	43.4	42.2	41.8	NA	-3%
Hardware-Only ASP	NA	NA	NA	NA	6.5	5.6	5.3	5.1	4.9	4.9	NA	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	NA	NA	NA	NA	16	23	29	35	43	53	NA	27%
CPU Revenue	NA	NA	NA	NA	12	0	0	0	0	0	NA	-100%
Workstation Revenue	0	0	0	0	1	0	0	0	0	0	NA	-100%
Peripheral Revenue (Turnkey)	NA	NA	NA	NA	3	23	29	35	43	53	NA	75%
Software Revenue	NA	NA	NA	NA	7	7	10	13	18	23	NA	27%
Bundled	NA	NA	NA	NA	3	0	0	0	0	0	NA	-100%
Unbundled	NA	NA	NA	NA	5	7	10	13	18	23	NA	38%
Service Revenue	NA	NA	NA	NA	3	4	5	6	8	10	NA	24%
Total Revenue	NA	NA	NA	NA	27	33	43	54	68	87	NA	27%
Increase over Prior Year	NA	NA	NA	NA	NA	26%	30%	25%	25%	27%		

Source: Dataquest
March 1991

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TABLE NUMBER: 73
TITLE: Preliminary History and Forecast
APPLICATION: GIS/Mapping
REGION: Spain
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	NA	NA	NA	NA	563	870	1,310	1,830	2,510	3,190	NA	41%
Workstation Shipments	NA	NA	NA	NA	591	910	1,350	1,870	2,540	3,220	NA	40%
CPU Installed Base	NA	NA	NA	NA	563	1,430	2,740	4,570	7,080	10,260	NA	79%
Workstation Installed Base	NA	NA	NA	NA	591	1,500	2,850	4,720	7,260	10,480	NA	78%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	NA	NA	NA	NA	61.2	62.4	57.1	53.2	50.6	49.3	NA	-4%
Hardware-Only ASP	NA	NA	NA	NA	7.0	6.5	6.1	5.7	5.5	5.5	NA	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	NA	NA	NA	NA	10	20	28	39	53	71	NA	49%
CPU Revenue	NA	NA	NA	NA	8	0	0	0	0	0	NA	-100%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	-100%
Peripheral Revenue (Turnkey)	NA	NA	NA	NA	2	20	28	39	53	71	NA	116%
Software Revenue	NA	NA	NA	NA	5	3	5	7	9	13	NA	22%
Bundled	NA	NA	NA	NA	3	0	0	0	0	0	NA	-100%
Unbundled	NA	NA	NA	NA	2	3	5	7	9	13	NA	47%
Service Revenue	NA	NA	NA	NA	3	5	7	10	14	19	NA	44%
Total Revenue	NA	NA	NA	NA	17	28	40	55	76	103	NA	43%
Increase over Prior Year	NA	NA	NA	NA	NA	60%	45%	38%	37%	35%		

Source: Dataquest
March 1991

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TABLE NUMBER: 74
TITLE: Preliminary History and Forecast
APPLICATION: Electronic Design Automation
REGION: Spain
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	NA	NA	NA	NA	1,418	1,890	2,480	2,940	3,470	4,280	NA	25%
Workstation Shipments	NA	NA	NA	NA	1,458	1,940	2,520	2,980	3,500	4,300	NA	24%
CPU Installed Base	NA	NA	NA	NA	1,418	3,310	5,790	8,730	12,200	16,480	NA	63%
Workstation Installed Base	NA	NA	NA	NA	1,458	3,400	5,920	8,900	12,400	16,710	NA	63%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	NA	NA	NA	NA	45.8	44.5	42.5	39.8	38.8	38.4	NA	-3%
Hardware-Only ASP	NA	NA	NA	NA	9.3	8.6	8.3	8.3	8.6	9.4	NA	0%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	NA	NA	NA	NA	18	28	36	43	49	60	NA	27%
CPU Revenue	NA	NA	NA	NA	15	0	0	0	0	0	NA	-100%
Workstation Revenue	0	0	0	0	1	0	0	0	0	0	NA	-100%
Peripheral Revenue (Turnkey)	NA	NA	NA	NA	3	28	36	43	49	60	NA	87%
Software Revenue	NA	NA	NA	NA	9	8	10	12	15	21	NA	19%
Bundled	NA	NA	NA	NA	5	0	0	0	0	0	NA	-100%
Unbundled	NA	NA	NA	NA	4	8	10	12	15	21	NA	38%
Service Revenue	NA	NA	NA	NA	6	8	11	14	17	21	NA	28%
Total Revenue	NA	NA	NA	NA	33	44	56	68	81	102	NA	25%
Increase over Prior Year	NA	NA	NA	NA	NA	33%	27%	23%	19%	25%		

Source: Dataquest
March 1991

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TABLE NUMBER: 75
TITLE: Preliminary History and Forecast
APPLICATION: Electronic CAE
REGION: Spain
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	NA	NA	NA	NA	1,019	1,360	1,790	2,140	2,520	3,090	NA	25%
Workstation Shipments	NA	NA	NA	NA	1,033	1,380	1,800	2,150	2,530	3,100	NA	25%
CPU Installed Base	NA	NA	NA	NA	1,019	2,380	4,170	6,320	8,830	11,930	NA	64%
Workstation Installed Base	NA	NA	NA	NA	1,033	2,410	4,210	6,370	8,890	11,990	NA	63%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	NA	NA	NA	NA	41.8	39.0	38.4	37.5	36.8	36.7	NA	-3%
Hardware-Only ASP	NA	NA	NA	NA	8.3	7.8	7.5	7.6	8.3	9.5	NA	3%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	NA	NA	NA	NA	11	17	22	29	33	42	NA	30%
CPU Revenue	NA	NA	NA	NA	9	0	0	0	0	0	NA	-100%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	-100%
Peripheral Revenue (Turnkey)	NA	NA	NA	NA	2	17	22	29	33	42	NA	76%
Software Revenue	NA	NA	NA	NA	5	4	5	7	10	15	NA	23%
Bundled	NA	NA	NA	NA	3	0	0	0	0	0	NA	-100%
Unbundled	NA	NA	NA	NA	3	4	5	7	10	15	NA	41%
Service Revenue	NA	NA	NA	NA	4	5	7	9	11	15	NA	31%
Total Revenue	NA	NA	NA	NA	20	26	34	45	55	71	NA	28%
Increase over Prior Year	NA	NA	NA	NA	NA	26%	34%	32%	22%	29%		

Source: Dataquest
March 1991

Forecasts

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TABLE NUMBER: 76
TITLE: Preliminary History and Forecast
APPLICATION: IC Layout
REGION: Spain
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	NA	NA	NA	NA	80	120	180	250	320	390	NA	37%
Workstation Shipments	NA	NA	NA	NA	81	120	180	250	320	390	NA	37%
CPU Installed Base	NA	NA	NA	NA	80	200	390	640	950	1,340	NA	76%
Workstation Installed Base	NA	NA	NA	NA	81	210	390	640	950	1,340	NA	75%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	NA	NA	NA	NA	68.3	82.0	80.6	67.6	61.0	59.5	NA	-3%
Hardware-Only ASP	NA	NA	NA	NA	13.4	11.9	10.6	9.7	9.0	8.7	NA	-8%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	NA	NA	NA	NA	1	2	3	3	4	4	NA	29%
CPU Revenue	NA	NA	NA	NA	1	0	0	0	0	0	NA	-100%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	-100%
Peripheral Revenue (Turnkey)	NA	NA	NA	NA	0	2	3	3	4	4	NA	125%
Software Revenue	NA	NA	NA	NA	1	0	0	1	1	1	NA	9%
Bundled	NA	NA	NA	NA	0	0	0	0	0	0	NA	-100%
Unbundled	NA	NA	NA	NA	0	0	0	1	1	1	NA	33%
Service Revenue	NA	NA	NA	NA	0	0	1	1	1	1	NA	22%
Total Revenue	NA	NA	NA	NA	2	3	4	5	5	6	NA	23%
Increase over Prior Year	NA	NA	NA	NA	NA	42%	29%	12%	18%	16%		

Source: Dataquest
March 1991

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TABLE NUMBER: 77
TITLE: Preliminary History and Forecast
APPLICATION: PCB/Hybrid/MCM
REGION: Spain
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	NA	NA	NA	NA	318	410	510	550	630	800	NA	20%
Workstation Shipments	NA	NA	NA	NA	344	440	540	580	660	810	NA	19%
CPU Installed Base	NA	NA	NA	NA	318	720	1,230	1,780	2,410	3,210	NA	59%
Workstation Installed Base	NA	NA	NA	NA	344	780	1,320	1,900	2,560	3,370	NA	58%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	NA	NA	NA	NA	50.5	50.4	46.6	43.4	41.6	40.6	NA	-4%
Hardware-Only ASP	NA	NA	NA	NA	11.7	10.7	10.5	10.6	9.8	9.3	NA	-4%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	NA	NA	NA	NA	6	9	10	11	13	15	NA	21%
CPU Revenue	NA	NA	NA	NA	5	0	0	0	0	0	NA	-100%
Workstation Revenue	0	0	0	0	1	0	0	0	0	0	NA	-100%
Peripheral Revenue (Turnkey)	NA	NA	NA	NA	0	9	10	11	13	15	NA	162%
Software Revenue	NA	NA	NA	NA	3	4	4	4	4	5	NA	10%
Bundled	NA	NA	NA	NA	2	0	0	0	0	0	NA	-100%
Unbundled	NA	NA	NA	NA	1	4	4	4	4	5	NA	31%
Service Revenue	NA	NA	NA	NA	2	3	3	4	4	5	NA	22%
Total Revenue	NA	NA	NA	NA	11	15	17	19	21	25	NA	19%
Increase over Prior Year	NA	NA	NA	NA	NA	44%	14%	9%	12%	18%		

Source: Dataquest
March 1991

Forecasts

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TABLE NUMBER: 78
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: United Kingdom
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	9,251	12,608	11,878	27,697	32,822	34,430	37,560	42,040	46,840	50,720	29%	9%
Workstation Shipments	11,442	14,167	13,500	30,437	34,690	36,080	38,860	43,060	47,660	51,390	25%	8%
CPU Installed Base	11,923	24,427	35,605	61,058	89,191	115,530	145,000	178,940	217,690	260,310	50%	24%
Workstation Installed Base	15,159	29,222	42,025	70,236	100,308	128,480	159,430	194,580	234,330	277,820	46%	23%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	94.1	42.5	60.8	50.8	44.8	49.3	46.0	43.4	41.4	40.3	-14%	-2%
Hardware-Only ASP	13.0	16.8	21.4	11.3	9.6	9.1	8.6	8.3	8.3	8.5	-6%	-2%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	298	298	384	486	499	542	547	580	629	679	11%	6%
CPU Revenue	192	198	295	392	421	425	434	467	512	557	17%	6%
Workstation Revenue	65	58	38	47	27	42	36	31	26	21	-16%	-4%
Peripheral Revenue (Turnkey)	40	41	51	47	52	75	77	83	91	100	5%	14%
Software Revenue	104	173	194	195	240	250	267	303	348	400	18%	11%
Bundled	78	71	98	106	122	121	121	129	138	156	9%	5%
Unbundled	27	102	96	89	118	129	146	174	210	244	35%	16%
Service Revenue	46	101	125	136	153	169	173	189	210	234	27%	9%
Total Revenue	448	572	704	817	892	960	988	1,072	1,187	1,313	15%	8%
Increase over Prior Year	82%	28%	23%	16%	9%	8%	3%	9%	11%	11%		

Source: Dataquest
March 1991

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TABLE NUMBER: 79
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: United Kingdom
PLATFORM: Technical Workstation

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	2,084	3,991	5,447	7,600	9,678	11,900	13,830	16,850	20,840	25,280	36%	21%
Workstation Shipments	2,084	3,991	5,447	7,600	9,678	11,900	13,830	16,850	20,840	25,280	36%	21%
CPU Installed Base	2,875	6,850	12,200	19,416	28,051	37,800	49,480	64,170	82,860	105,980	58%	30%
Workstation Installed Base	2,875	6,850	12,200	19,416	28,051	37,800	49,480	64,170	82,860	105,980	58%	30%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	72.9	40.3	55.1	53.5	47.5	45.2	42.4	40.4	39.0	38.2	-8%	-4%
Hardware-Only ASP	27.9	24.3	22.8	16.7	16.7	15.2	14.0	13.4	13.1	13.0	-10%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	92	103	183	212	242	309	329	373	432	495	21%	15%
CPU Revenue	77	84	155	183	207	259	275	311	362	417	22%	15%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	15	20	27	29	35	50	54	62	70	78	19%	17%
Software Revenue	48	92	106	125	155	162	184	222	265	314	27%	15%
Bundled	41	41	52	76	89	88	94	106	118	136	17%	9%
Unbundled	7	51	54	48	66	74	90	116	147	177	57%	22%
Service Revenue	13	45	68	87	101	120	130	151	175	202	51%	15%
Total Revenue	152	240	356	423	497	591	643	746	872	1,010	27%	15%
Increase over Prior Year	141%	57%	49%	19%	17%	19%	9%	16%	17%	16%		

Source: Dataquest
March 1991

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TABLE NUMBER: 80
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: United Kingdom
PLATFORM: Host-Dependent/Server

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	317	778	928	1,057	1,193	1,200	1,120	1,030	960	880	30%	-6%
Workstation Shipments	2,623	2,337	2,551	3,798	3,060	2,860	2,420	2,050	1,780	1,560	3%	-13%
CPU Installed Base	552	1,330	2,256	3,296	4,417	5,440	6,380	7,220	8,000	8,700	52%	15%
Workstation Installed Base	3,788	6,125	8,676	12,474	15,534	18,390	20,810	22,870	24,650	26,200	33%	11%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	650.5	224.1	435.5	274.4	242.3	240.1	225.2	210.8	202.5	199.3	-18%	-4%
Hardware-Only ASP	506.6	240.5	111.8	134.1	80.6	75.4	69.6	63.8	58.7	54.1	-31%	-8%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	164	154	169	168	133	123	104	87	75	66	-4%	-13%
CPU Revenue	76	76	109	107	96	61	51	42	36	30	5%	-21%
Workstation Revenue	65	58	38	47	27	42	36	31	26	21	-16%	-4%
Peripheral Revenue (Turnkey)	23	20	22	14	11	20	17	14	14	14	-14%	5%
Software Revenue	42	52	60	32	40	40	33	28	26	25	-1%	-9%
Bundled	31	25	42	23	26	29	24	20	18	17	-3%	-9%
Unbundled	10	27	19	9	14	11	9	8	8	8	6%	-10%
Service Revenue	30	52	54	42	43	41	34	29	25	23	7%	-12%
Total Revenue	236	257	283	243	217	203	172	144	126	113	-2%	-12%
Increase over Prior Year	44%	9%	10%	-14%	-11%	-6%	-16%	-16%	-12%	-10%		

Source: Dataquest
March 1991

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TABLE NUMBER: 81
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: United Kingdom
PLATFORM: Personal Computer

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	6,850	7,839	5,503	19,040	21,952	21,320	22,610	24,160	25,040	24,550	26%	2%
Workstation Shipments	6,735	7,839	5,503	19,040	21,952	21,320	22,610	24,160	25,040	24,550	27%	2%
CPU Installed Base	8,495	16,247	21,149	38,346	56,723	72,290	89,140	107,540	126,830	145,630	46%	21%
Workstation Installed Base	8,495	16,247	21,149	38,346	56,723	72,290	89,140	107,540	126,830	145,630	46%	21%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	13.7	8.8	9.9	12.3	11.7	11.8	12.0	12.4	12.4	12.5	-3%	1%
Hardware-Only ASP	5.3	4.4	5.0	5.0	5.1	5.0	5.0	4.9	4.8	4.8	-1%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	41	41	33	107	123	110	114	120	122	119	24%	-1%
CPU Revenue	39	39	31	102	117	105	109	113	115	111	24%	-1%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	2	2	2	5	6	5	6	7	7	8	23%	6%
Software Revenue	15	29	28	38	45	49	50	53	58	62	24%	6%
Bundled	6	5	5	7	6	5	4	3	2	3	2%	-14%
Unbundled	10	24	24	32	39	44	47	50	55	59	32%	9%
Service Revenue	2	5	3	7	9	8	8	9	9	9	31%	-0%
Total Revenue	59	75	64	151	178	167	173	182	189	189	25%	1%
Increase over Prior Year	218%	27%	-14%	135%	18%	-6%	4%	5%	4%	0%		

Source: Dataquest
March 1991

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TABLE NUMBER: 82
TITLE: Preliminary History and Forecast
APPLICATION: Mechanical
REGION: United Kingdom
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	4,882	6,782	6,053	12,794	14,791	14,840	15,730	17,320	19,110	20,160	25%	6%
Workstation Shipments	6,708	8,084	7,349	14,497	15,933	15,890	16,540	17,940	19,640	20,630	19%	5%
CPU Installed Base	6,366	13,090	18,755	30,324	42,614	53,290	64,840	77,990	92,930	108,920	46%	21%
Workstation Installed Base	8,898	16,924	23,888	37,171	50,651	62,500	74,990	88,890	104,480	121,060	42%	19%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	102.0	44.2	66.7	52.9	48.6	55.5	52.5	49.9	48.8	48.8	-14%	0%
Hardware-Only ASP	12.1	18.0	24.6	12.9	10.6	10.2	9.7	9.4	9.5	9.7	-3%	-2%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	174	177	224	264	270	270	258	259	273	284	9%	1%
CPU Revenue	100	112	167	209	224	208	201	204	216	224	17%	-0%
Workstation Revenue	50	42	26	32	19	22	19	16	15	14	-18%	-5%
Peripheral Revenue (Turnkey)	23	24	31	23	27	40	38	39	42	46	3%	11%
Software Revenue	49	87	106	94	124	132	136	147	166	183	20%	8%
Bundled	39	40	61	53	62	65	59	56	57	58	10%	-1%
Unbundled	11	47	45	40	62	68	77	91	109	125	42%	15%
Service Revenue	27	58	73	75	84	88	85	88	95	101	26%	4%
Total Revenue	250	322	403	433	478	489	479	495	534	568	14%	4%
Increase over Prior Year	76%	29%	25%	7%	10%	2%	-2%	3%	8%	6%		

Source: Dataquest
March 1991

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TABLE NUMBER: 83
TITLE: Preliminary History and Forecast
APPLICATION: AEC
REGION: United Kingdom
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,724	2,361	2,036	5,930	6,553	6,990	7,720	8,750	9,640	10,390	31%	10%
Workstation Shipments	1,853	2,484	2,173	6,273	6,762	7,190	7,870	8,860	9,710	10,430	30%	9%
CPU Installed Base	2,229	4,567	6,456	11,930	17,556	22,950	29,080	36,230	44,270	53,050	51%	25%
Workstation Installed Base	2,563	5,023	7,050	12,869	18,715	24,330	30,630	37,910	46,050	54,910	49%	24%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	103.5	47.7	56.8	51.0	43.7	58.8	58.2	58.7	59.4	60.3	-16%	7%
Hardware-Only ASP	11.3	8.3	14.5	7.5	6.7	6.5	6.0	5.6	5.4	5.3	-10%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	39	40	53	77	73	91	93	101	111	122	13%	11%
CPU Revenue	27	29	41	63	62	75	78	85	94	104	18%	11%
Workstation Revenue	8	7	5	4	2	5	4	3	2	2	-22%	-9%
Peripheral Revenue (Turnkey)	4	4	6	9	9	11	12	13	15	17	17%	15%
Software Revenue	10	23	23	30	31	34	37	44	51	59	26%	14%
Bundled	7	11	11	17	17	18	19	21	24	29	21%	11%
Unbundled	3	12	12	13	14	16	18	22	26	31	35%	16%
Service Revenue	7	17	18	19	19	26	26	29	32	37	25%	14%
Total Revenue	56	79	94	127	124	151	157	173	194	219	17%	12%
Increase over Prior Year	73%	43%	19%	34%	-2%	22%	4%	10%	12%	13%		

Source: Dataquest
March 1991

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TABLE NUMBER: 84
TITLE: Preliminary History and Forecast
APPLICATION: GIS/Mapping
REGION: United Kingdom
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	216	725	759	3,013	4,146	5,100	6,230	7,780	9,550	10,930	81%	21%
Workstation Shipments	303	783	923	3,426	4,559	5,400	6,490	8,010	9,740	11,070	72%	19%
CPU Installed Base	230	954	1,707	4,674	8,674	13,370	19,190	26,570	35,720	46,240	107%	40%
Workstation Installed Base	378	1,160	2,076	5,457	9,875	14,880	20,980	28,600	37,950	48,630	92%	38%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	122.1	49.3	74.5	47.0	37.7	32.9	30.6	29.0	27.9	27.4	-21%	-6%
Hardware-Only ASP	30.5	24.4	22.7	9.5	8.0	7.5	7.0	6.5	6.2	6.1	-23%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	15	23	33	51	62	77	91	110	133	156	33%	20%
CPU Revenue	9	16	26	39	50	66	79	97	118	138	41%	22%
Workstation Revenue	4	4	4	4	2	5	4	4	3	2	-12%	-1%
Peripheral Revenue (Turnkey)	2	3	2	8	9	7	8	9	12	15	40%	11%
Software Revenue	4	7	15	21	30	30	37	45	56	68	51%	18%
Bundled	3	5	7	13	18	15	18	22	28	35	45%	14%
Unbundled	1	2	8	8	12	15	19	23	29	33	65%	24%
Service Revenue	3	6	10	14	18	21	25	31	38	46	45%	21%
Total Revenue	22	35	57	85	109	129	152	185	227	269	38%	20%
Increase over Prior Year	154%	63%	62%	49%	29%	18%	18%	22%	22%	19%		

Source: Dataquest
March 1991

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TABLE NUMBER: 85
TITLE: Preliminary History and Forecast
APPLICATION: Electronic Design Automation
REGION: United Kingdom
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	2,430	2,741	3,029	5,960	7,332	7,490	7,880	8,190	8,540	9,240	25%	5%
Workstation Shipments	2,577	2,817	3,055	6,241	7,436	7,600	7,960	8,250	8,580	9,250	24%	4%
CPU Installed Base	3,097	5,816	8,687	14,131	20,348	25,920	31,880	38,150	44,780	52,100	46%	21%
Workstation Installed Base	3,319	6,114	9,011	14,738	21,067	26,770	32,830	39,180	45,860	53,210	45%	20%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	75.1	32.4	44.3	46.7	40.7	48.0	47.5	47.4	46.8	46.5	-12%	3%
Hardware-Only ASP	15.9	21.9	20.9	12.8	11.0	10.6	10.2	10.1	10.4	11.1	-7%	0%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	69	58	75	94	95	103	105	110	113	117	6%	4%
CPU Revenue	56	42	61	81	85	76	77	81	85	92	9%	2%
Workstation Revenue	2	5	2	6	3	10	9	7	5	4	6%	2%
Peripheral Revenue (Turnkey)	11	11	12	7	7	18	19	22	22	22	-9%	25%
Software Revenue	42	56	50	51	55	54	58	67	75	90	6%	10%
Bundled	30	16	19	23	25	24	25	29	30	35	-3%	7%
Unbundled	12	41	31	28	30	30	33	38	46	55	20%	13%
Service Revenue	10	20	24	28	32	34	37	42	45	50	27%	9%
Total Revenue	121	135	149	173	182	191	199	219	233	257	9%	7%
Increase over Prior Year	92%	12%	11%	16%	5%	5%	4%	10%	6%	10%		

Source: Dataquest
March 1991

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TABLE NUMBER: 86
TITLE: Preliminary History and Forecast
APPLICATION: Electronic CAE
REGION: United Kingdom
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,358	1,422	1,685	3,839	4,623	4,740	4,970	5,220	5,420	5,850	28%	5%
Workstation Shipments	1,383	1,437	1,674	3,947	4,655	4,760	4,980	5,220	5,420	5,850	27%	5%
CPU Installed Base	1,819	3,225	4,807	8,333	12,319	15,970	19,850	23,980	28,320	33,080	47%	22%
Workstation Installed Base	1,867	3,287	4,858	8,493	12,512	16,190	20,090	24,240	28,580	33,350	46%	22%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	52.0	32.8	37.2	48.3	39.3	44.7	44.8	43.9	43.0	42.9	-5%	2%
Hardware-Only ASP	16.3	21.0	19.9	10.3	9.3	8.6	8.3	8.3	9.2	10.5	-11%	2%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	31	29	37	50	51	53	55	60	63	72	11%	7%
CPU Revenue	24	20	29	42	44	41	42	46	49	55	13%	5%
Workstation Revenue	1	2	1	3	1	3	2	2	1	1	7%	1%
Peripheral Revenue (Turnkey)	6	7	7	6	6	10	11	13	13	15	0%	21%
Software Revenue	14	22	22	25	28	28	32	40	45	53	16%	13%
Bundled	10	8	9	13	12	12	13	16	16	15	3%	5%
Unbundled	3	15	13	13	16	16	19	23	29	37	37%	18%
Service Revenue	3	8	11	14	17	18	20	25	27	31	41%	13%
Total Revenue	47	59	70	90	96	100	108	125	136	155	15%	10%
Increase over Prior Year	50%	25%	18%	29%	7%	4%	8%	16%	9%	14%		

Source: Dataquest
March 1991

Forecasts

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TABLE NUMBER: 87
TITLE: Preliminary History and Forecast
APPLICATION: IC Layout
REGION: United Kingdom
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	108	183	283	505	739	860	1,000	1,160	1,290	1,390	47%	13%
Workstation Shipments	122	186	278	502	735	860	1,000	1,160	1,290	1,390	43%	14%
CPU Installed Base	161	343	620	1,101	1,780	2,520	3,410	4,450	5,630	6,900	62%	31%
Workstation Installed Base	182	366	638	1,116	1,793	2,540	3,430	4,470	5,650	6,930	58%	31%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	107.3	37.1	39.1	24.9	38.8	57.2	53.8	65.5	70.6	72.2	-18%	13%
Hardware-Only ASP	34.4	43.5	29.9	20.9	17.7	15.5	13.9	12.9	12.2	11.9	-12%	-8%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	5	6	8	10	13	16	16	17	18	12	21%	-0%
CPU Revenue	4	5	7	10	12	12	12	13	14	12	24%	-0%
Workstation Revenue	0	1	0	0	0	1	1	1	1	0	7%	5%
Peripheral Revenue (Turnkey)	1	1	1	0	1	3	3	4	3	0	-7%	-14%
Software Revenue	6	6	7	7	8	8	8	9	10	16	5%	16%
Bundled	2	1	1	1	4	4	4	4	4	9	17%	21%
Unbundled	4	5	6	6	4	4	4	5	6	7	-1%	11%
Service Revenue	1	2	3	3	4	4	5	5	5	5	34%	7%
Total Revenue	12	14	18	20	24	28	29	31	33	34	15%	7%
Increase over Prior Year	43%	21%	27%	10%	21%	18%	2%	9%	7%	1%		

Source: Dataquest
March 1991

Forecasts

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TABLE NUMBER: 88
TITLE: Preliminary History and Forecast
APPLICATION: PCB/Hybrid/MCM
REGION: United Kingdom
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	964	1,136	1,061	1,616	1,970	1,900	1,910	1,810	1,830	2,000	15%	0%
Workstation Shipments	1,072	1,194	1,103	1,793	2,046	1,980	1,980	1,860	1,860	2,020	14%	-0%
CPU Installed Base	1,117	2,248	3,260	4,696	6,249	7,430	8,620	9,720	10,830	12,120	41%	14%
Workstation Installed Base	1,271	2,461	3,515	5,129	6,762	8,040	9,310	10,460	11,620	12,930	40%	14%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	98.7	31.5	54.4	49.3	43.1	49.8	49.8	49.9	48.6	48.1	-15%	2%
Hardware-Only ASP	12.6	19.0	19.6	17.2	13.0	13.9	13.6	13.8	12.8	12.2	1%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	34	23	30	34	31	34	34	33	32	33	-2%	1%
CPU Revenue	28	17	25	29	29	23	23	22	23	25	1%	-3%
Workstation Revenue	2	3	1	4	2	6	6	5	3	2	5%	3%
Peripheral Revenue (Turnkey)	5	3	4	1	1	5	5	5	6	6	-36%	65%
Software Revenue	22	28	22	19	19	18	17	18	20	21	-3%	2%
Bundled	18	7	9	9	9	8	8	9	9	10	-13%	3%
Unbundled	4	21	13	9	10	9	9	10	10	11	19%	2%
Service Revenue	6	10	10	11	11	12	12	12	13	14	14%	4%
Total Revenue	62	62	62	63	62	64	63	63	64	68	0%	2%
Increase over Prior Year	166%	-0%	0%	2%	-2%	3%	-1%	1%	1%	6%		

Source: Dataquest
March 1991

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TABLE NUMBER: 89
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Rest of Europe
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,060	5,609	6,064	6,484	9,963	13,800	18,530	23,420	28,810	34,280	57%	28%
Workstation Shipments	1,252	5,788	6,313	6,821	10,694	14,710	19,440	24,250	29,590	35,050	54%	27%
CPU Installed Base	1,479	7,070	13,032	19,012	27,538	38,500	54,190	74,760	100,730	132,230	79%	37%
Workstation Installed Base	1,785	7,554	13,766	20,084	29,348	41,240	57,860	79,280	106,060	138,350	75%	36%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	101.8	43.6	39.9	40.6	49.0	53.4	50.1	47.6	45.5	44.4	-14%	-2%
Hardware-Only ASP	12.9	6.7	9.1	9.1	8.6	8.2	7.8	7.6	7.7	8.0	-8%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	32	58	88	113	169	246	301	358	420	491	40%	24%
CPU Revenue	19	43	68	79	126	187	232	279	407	364	46%	24%
Workstation Revenue	7	7	4	6	12	14	14	14	12	9	13%	-6%
Peripheral Revenue (Turnkey)	6	8	16	28	31	45	54	65	1	118	38%	31%
Software Revenue	9	26	38	70	109	137	183	236	305	392	65%	29%
Bundled	7	8	14	28	49	50	59	67	77	94	46%	14%
Unbundled	2	18	24	42	60	87	124	169	228	299	107%	38%
Service Revenue	3	12	18	33	50	72	91	111	136	167	72%	27%
Total Revenue	44	96	144	216	328	455	575	705	862	1,050	49%	26%
Increase over Prior Year	57%	118%	51%	50%	52%	39%	26%	23%	22%	22%		

Source: Dataquest
March 1991

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TABLE NUMBER: 90
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Rest of Europe
PLATFORM: Technical Workstation

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	161	366	605	1,588	3,008	4,930	6,900	9,280	12,420	16,270	80%	40%
Workstation Shipments	161	366	605	1,588	3,008	4,930	6,900	9,280	12,420	16,270	80%	40%
CPU Installed Base	237	601	1,198	2,752	5,667	10,380	17,070	26,140	38,340	54,400	89%	57%
Workstation Installed Base	237	601	1,198	2,752	5,667	10,380	17,070	26,140	38,340	54,400	89%	57%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	71.3	48.0	47.9	46.0	47.4	45.6	43.8	42.7	41.6	41.0	-8%	-3%
Hardware-Only ASP	34.7	24.4	108.1	28.5	16.8	15.6	14.4	13.8	13.4	13.3	-14%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	8	12	29	49	80	146	189	240	297	361	61%	35%
CPU Revenue	5	9	26	38	66	116	150	190	237	285	67%	34%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	2	4	3	10	15	30	39	49	61	76	43%	39%
Software Revenue	3	11	16	36	67	79	114	159	216	292	85%	34%
Bundled	3	4	6	20	35	29	38	47	57	75	64%	16%
Unbundled	0	7	10	16	32	49	76	112	159	217	200%	47%
Service Revenue	1	5	9	21	32	49	66	86	110	138	107%	34%
Total Revenue	11	28	54	106	179	273	368	484	623	791	73%	35%
Increase over Prior Year	72%	144%	93%	96%	70%	53%	35%	31%	29%	27%		

Source: Dataquest
March 1991

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TABLE NUMBER: 91
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Rest of Europe
PLATFORM: Host-Dependent/Server

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	38	83	91	157	270	370	410	420	430	440	48%	10%
Workstation Shipments	246	261	340	494	1,001	1,280	1,320	1,250	1,220	1,210	32%	4%
CPU Installed Base	61	143	234	390	653	1,000	1,390	1,790	2,200	2,620	61%	32%
Workstation Installed Base	366	628	968	1,462	2,463	3,740	5,060	6,310	7,520	8,730	46%	29%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	607.6	294.6	455.1	157.5	242.9	236.3	222.4	209.3	198.4	191.4	-17%	-5%
Hardware-Only ASP	364.0	285.5	144.1	217.0	125.9	118.7	109.3	100.0	92.3	85.3	-19%	-7%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	17	21	21	23	40	54	54	51	48	47	18%	3%
CPU Revenue	8	10	13	15	26	28	29	26	24	22	26%	-4%
Workstation Revenue	7	7	4	6	12	14	14	14	12	9	13%	-6%
Peripheral Revenue (Turnkey)	3	3	3	2	3	12	11	11	12	16	-1%	42%
Software Revenue	3	7	9	12	15	23	24	23	23	25	37%	11%
Bundled	3	3	5	4	10	16	17	16	15	16	28%	10%
Unbundled	0	4	4	8	5	7	7	7	8	9	84%	14%
Service Revenue	2	6	7	7	13	18	18	17	17	17	39%	6%
Total Revenue	23	34	36	43	68	94	96	90	88	89	24%	6%
Increase over Prior Year	22%	49%	6%	18%	58%	39%	2%	-6%	-3%	1%		

Source: Dataquest
March 1991

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TABLE NUMBER: 92
TITLE: Preliminary History and Forecast
APPLICATION: All Applications
REGION: Rest of Europe
PLATFORM: Personal Computer

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	860	5,161	5,368	4,740	6,685	8,500	11,220	13,720	15,960	17,560	51%	21%
Workstation Shipments	845	5,161	5,368	4,740	6,685	8,500	11,220	13,720	15,960	17,560	51%	21%
CPU Installed Base	1,181	6,325	11,600	15,871	21,218	27,110	35,720	46,830	60,190	75,210	78%	29%
Workstation Installed Base	1,181	6,325	11,600	15,871	21,218	27,110	35,720	46,830	60,190	75,210	78%	29%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	29.1	8.5	18.4	23.1	25.2	26.6	26.8	26.2	25.5	25.3	-3%	0%
Hardware-Only ASP	6.2	4.7	5.2	5.0	4.6	4.6	4.5	4.5	4.4	4.4	-6%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	7	25	38	40	48	46	58	67	74	84	48%	12%
CPU Revenue	6	24	29	25	34	43	54	62	57	58	42%	11%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	1	1	9	15	14	4	4	5	17	26	72%	14%
Software Revenue	3	8	14	22	28	36	46	54	66	75	59%	22%
Bundled	2	1	3	4	4	5	5	4	5	2	21%	-9%
Unbundled	1	7	11	18	24	31	41	50	61	72	81%	25%
Service Revenue	0	1	3	5	6	6	7	9	10	11	117%	14%
Total Revenue	10	33	54	67	82	88	111	130	151	170	53%	16%
Increase over Prior Year	275%	248%	62%	25%	21%	8%	26%	18%	16%	13%		

Source: Dataquest
March 1991

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TABLE NUMBER: 93
TITLE: Preliminary History and Forecast
APPLICATION: Mechanical
REGION: Rest of Europe
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	496	2,182	2,806	3,555	5,221	6,910	9,020	11,180	13,650	15,940	60%	25%
Workstation Shipments	667	2,329	2,996	3,803	5,753	7,600	9,700	11,810	14,270	16,570	54%	24%
CPU Installed Base	703	2,875	5,631	8,973	13,594	19,280	27,060	37,010	49,420	64,130	81%	36%
Workstation Installed Base	955	3,275	6,221	9,812	14,969	21,350	29,840	40,430	53,480	68,830	73%	36%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	124.9	55.7	42.8	41.6	49.5	54.5	51.3	48.8	47.5	47.4	-17%	-1%
Hardware-Only ASP	12.4	7.1	12.6	10.2	9.6	9.4	9.1	8.9	9.2	9.5	-5%	-0%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	18	29	56	72	106	145	170	192	223	257	42%	19%
CPU Revenue	10	20	39	47	75	110	131	150	176	199	51%	21%
Workstation Revenue	5	5	3	5	8	7	8	8	8	7	11%	-2%
Peripheral Revenue (Turnkey)	4	4	13	20	22	28	32	35	39	51	43%	18%
Software Revenue	4	13	21	32	58	73	93	115	144	176	73%	25%
Bundled	3	5	11	16	32	35	39	42	46	51	58%	10%
Unbundled	1	8	11	16	26	38	54	74	98	125	116%	37%
Service Revenue	2	7	11	18	33	47	56	65	78	93	71%	23%
Total Revenue	24	48	88	122	197	265	320	373	446	526	52%	22%
Increase over Prior Year	58%	100%	82%	38%	61%	35%	21%	17%	20%	18%		

Source: Dataquest
March 1991

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TABLE NUMBER: 94
TITLE: Preliminary History and Forecast
APPLICATION: AEC
REGION: Rest of Europe
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	195	1,091	961	1,315	2,107	3,030	4,180	5,390	6,630	7,950	61%	30%
Workstation Shipments	203	1,103	982	1,350	2,187	3,130	4,270	5,460	6,680	7,990	61%	30%
CPU Installed Base	278	1,364	2,304	3,518	5,357	7,870	11,530	16,400	22,510	29,930	81%	41%
Workstation Installed Base	304	1,403	2,363	3,612	5,532	8,140	11,890	16,840	23,000	30,480	79%	41%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	236.2	34.3	31.8	34.3	40.4	41.0	38.0	35.7	33.7	32.7	-30%	-4%
Hardware-Only ASP	10.6	5.7	6.5	6.6	6.0	5.9	5.5	5.2	5.0	4.9	-11%	-4%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	4	9	10	15	23	32	40	48	57	69	45%	25%
CPU Revenue	3	7	8	11	17	26	33	41	47	55	47%	26%
Workstation Revenue	1	1	0	1	1	2	2	2	1	0	14%	-100%
Peripheral Revenue (Turnkey)	0	1	1	3	4	4	5	6	9	14	65%	28%
Software Revenue	1	3	5	9	14	20	27	35	46	58	79%	33%
Bundled	0	1	1	3	4	5	6	6	7	8	59%	13%
Unbundled	0	2	3	6	10	15	21	30	39	50	94%	38%
Service Revenue	0	2	2	4	5	7	8	10	12	15	66%	26%
Total Revenue	5	15	17	29	42	58	75	94	115	142	55%	28%
Increase over Prior Year	73%	210%	16%	70%	45%	40%	29%	25%	23%	24%		

Source: Dataquest
March 1991

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TABLE NUMBER: 95
TITLE: Preliminary History and Forecast
APPLICATION: GIS/Mapping
REGION: Rest of Europe
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	17	371	532	444	938	1,490	2,230	3,130	4,230	5,260	124%	41%
Workstation Shipments	27	382	562	469	980	1,550	2,300	3,200	4,290	5,310	106%	40%
CPU Installed Base	18	389	920	1,345	2,201	3,500	5,550	8,490	12,540	17,610	161%	52%
Workstation Installed Base	34	416	978	1,428	2,327	3,690	5,810	8,820	12,930	18,050	133%	51%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	461.5	71.0	92.8	68.2	47.0	44.8	41.9	40.0	38.7	38.2	-37%	-4%
Hardware-Only ASP	30.9	9.0	8.7	7.8	7.1	6.9	6.3	5.9	5.6	5.6	-25%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	2	5	8	8	13	23	34	46	62	82	43%	45%
CPU Revenue	1	4	7	6	11	18	27	37	44	52	56%	37%
Workstation Revenue	1	1	1	0	1	1	2	2	2	1	2%	12%
Peripheral Revenue (Turnkey)	0	0	1	1	2	4	5	8	17	28	38%	79%
Software Revenue	0	1	2	8	8	10	15	20	29	38	76%	36%
Bundled	0	1	1	2	5	4	5	7	11	14	69%	25%
Unbundled	0	0	1	6	3	6	9	13	18	23	87%	47%
Service Revenue	0	1	2	4	3	5	7	10	14	19	65%	43%
Total Revenue	3	7	12	21	24	38	56	77	105	139	53%	42%
Increase over Prior Year	117%	145%	67%	75%	17%	55%	47%	39%	37%	32%		

Source: Dataquest
March 1991

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TABLE NUMBER: 96
TITLE: Preliminary History and Forecast
APPLICATION: Electronic Design Automation
REGION: Rest of Europe
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	352	1,966	1,765	1,171	1,698	2,370	3,100	3,710	4,300	5,140	37%	25%
Workstation Shipments	355	1,974	1,773	1,199	1,775	2,430	3,170	3,770	4,350	5,180	38%	24%
CPU Installed Base	480	2,442	4,177	5,177	6,386	7,850	10,050	12,860	16,260	20,560	68%	26%
Workstation Installed Base	491	2,460	4,204	5,233	6,520	8,050	10,320	13,190	16,640	20,980	68%	26%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	58.7	24.1	24.3	35.1	57.5	68.1	65.5	63.0	60.8	59.9	-0%	1%
Hardware-Only ASP	14.9	6.2	6.5	10.1	10.3	9.3	9.0	9.0	9.4	10.3	-7%	0%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	8	15	15	17	27	46	57	71	78	83	28%	25%
CPU Revenue	6	12	13	14	22	33	42	52	57	58	32%	21%
Workstation Revenue	0	1	0	1	2	3	3	3	2	0	43%	-45%
Peripheral Revenue (Turnkey)	2	2	1	3	3	10	13	17	19	25	11%	51%
Software Revenue	4	9	10	20	29	35	48	65	86	121	49%	33%
Bundled	3	1	2	6	8	7	9	12	14	21	20%	20%
Unbundled	1	7	9	14	21	28	39	53	73	99	110%	37%
Service Revenue	0	2	3	7	9	14	19	25	31	39	86%	33%
Total Revenue	12	26	28	45	66	95	125	161	195	243	40%	30%
Increase over Prior Year	42%	111%	8%	61%	47%	44%	32%	29%	21%	24%		

Source: Dataquest
March 1991

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TABLE NUMBER: 97
TITLE: Preliminary History and Forecast
APPLICATION: Electronic CAE
REGION: Rest of Europe
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	236	793	707	757	1,179	1,640	2,150	2,620	3,010	3,560	38%	25%
Workstation Shipments	237	795	710	760	1,209	1,660	2,180	2,630	3,030	3,580	38%	24%
CPU Installed Base	324	1,113	1,800	2,466	3,417	4,650	6,400	8,610	11,220	14,380	60%	33%
Workstation Installed Base	329	1,121	1,810	2,480	3,462	4,720	6,500	8,730	11,350	14,530	60%	33%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	51.0	62.2	31.8	43.8	57.2	66.9	64.4	62.0	60.2	59.7	2%	1%
Hardware-Only ASP	13.9	6.1	6.7	8.6	8.5	7.7	7.5	7.7	8.6	10.0	-9%	3%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	5	7	6	10	17	29	37	48	53	61	29%	29%
CPU Revenue	3	5	5	8	14	21	27	35	39	43	33%	26%
Workstation Revenue	0	0	0	0	1	1	1	1	0	0	42%	-31%
Peripheral Revenue (Turnkey)	1	2	0	2	3	7	9	13	14	17	17%	46%
Software Revenue	2	4	4	11	19	23	34	47	64	87	52%	35%
Bundled	2	1	1	4	5	4	5	8	8	9	17%	13%
Unbundled	0	3	3	8	14	19	29	40	55	78	209%	41%
Service Revenue	0	1	1	4	6	9	12	17	22	28	99%	37%
Total Revenue	7	12	11	26	42	61	84	113	139	176	42%	33%
Increase over Prior Year	48%	62%	-7%	138%	63%	46%	37%	35%	23%	27%		

Source: Dataquest
March 1991

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TABLE NUMBER: 98
TITLE: Preliminary History and Forecast
APPLICATION: IC Layout
REGION: Rest of Europe
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	13	285	282	23	111	180	260	350	440	530	53%	37%
Workstation Shipments	10	285	282	23	114	180	260	350	440	530	63%	36%
CPU Installed Base	24	308	589	595	645	710	850	1,080	1,410	1,890	93%	24%
Workstation Installed Base	21	306	587	593	646	710	850	1,090	1,410	1,900	99%	24%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	101.8	49.4	77.7	53.0	67.4	65.7	64.1	59.7	57.0	56.9	-8%	-3%
Hardware-Only ASP	32.0	5.8	5.9	27.7	16.9	15.1	13.5	12.3	11.5	11.1	-12%	-8%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	1	2	2	1	2	3	4	5	5	5	27%	21%
CPU Revenue	0	2	2	1	2	3	3	4	4	3	33%	9%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	32%	-100%
Peripheral Revenue (Turnkey)	0	0	0	0	0	1	1	1	2	2	-9%	95%
Software Revenue	0	1	1	1	4	5	6	8	11	15	70%	31%
Bundled	0	0	0	0	1	0	0	1	1	2	19%	23%
Unbundled	NA	1	1	1	3	4	6	8	11	14	NA	33%
Service Revenue	0	0	0	0	1	1	2	2	3	3	72%	29%
Total Revenue	1	3	3	2	7	9	12	15	20	24	49%	28%
Increase over Prior Year	-16%	184%	31%	-35%	209%	38%	29%	26%	27%	21%		

Source: Dataquest
March 1991

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TABLE NUMBER: 99
TITLE: Preliminary History and Forecast
APPLICATION: PCB/Hybrid/MCM
REGION: Rest of Europe
PLATFORM: All Platforms

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	CAGR 86-90	CAGR 90-95
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	103	889	776	390	408	550	690	750	850	1,040	32%	21%
Workstation Shipments	108	894	781	415	452	590	730	790	880	1,060	33%	19%
CPU Installed Base	132	1,020	1,788	2,116	2,323	2,490	2,800	3,160	3,630	4,290	77%	13%
Workstation Installed Base	141	1,033	1,807	2,160	2,412	2,620	2,970	3,380	3,880	4,560	77%	14%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	73.7	15.1	20.8	27.2	56.9	70.7	68.2	65.9	62.6	60.6	-5%	1%
Hardware-Only ASP	15.0	6.6	6.6	14.3	14.0	12.1	11.8	12.1	11.3	10.9	-1%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	3	7	7	6	9	13	16	18	19	17	26%	15%
CPU Revenue	2	6	6	6	7	10	12	13	14	12	29%	11%
Workstation Revenue	0	1	0	0	1	1	2	1	1	0	46%	-100%
Peripheral Revenue (Turnkey)	1	0	0	0	1	2	3	3	4	5	-2%	61%
Software Revenue	1	4	5	8	6	7	8	10	11	18	36%	25%
Bundled	1	1	1	2	3	3	3	4	5	10	28%	30%
Unbundled	0	3	4	6	3	4	5	6	7	8	47%	21%
Service Revenue	0	1	1	2	3	4	5	6	7	8	72%	24%
Total Revenue	4	12	14	17	17	24	29	33	37	44	33%	21%
Increase over Prior Year	54%	180%	18%	25%	1%	42%	19%	14%	13%	17%		

Source: Dataquest
March 1991

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TABLE NUMBER: 1
TITLE: History and Forecast
APPLICATION: All Applications
REGION: Europe
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	15,713	45,564	76,557	95,786	132,785	165,030	200,910	235,860	271,140	307,180	53%	18%
Workstation Shipments	20,731	52,970	85,235	106,170	146,879	178,670	213,420	246,550	280,450	315,430	48%	17%
CPU Installed Base	21,465	66,827	142,123	232,818	351,485	487,260	638,220	824,260	1,046,010	1,303,870	75%	30%
Workstation Installed Base	28,806	83,313	167,338	268,535	401,569	551,630	716,290	914,210	1,146,260	1,413,340	69%	29%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	184.9	108.1	50.3	61.0	61.7	59.0	56.3	53.9	52.3	51.8	-20%	-3%
Hardware-Only ASP	22.4	12.6	11.8	12.5	10.9	10.4	9.7	9.2	9.1	9.2	-13%	-3%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	882	1,415	1,520	2,160	2,516	2,964	3,283	3,579	3,953	4,437	23%	12%
CPU Revenue	470	896	990	1,569	1,890	2,236	2,516	2,782	3,116	3,530	32%	13%
Workstation Revenue	233	331	307	239	329	254	243	215	190	168	7%	-13%
Peripheral Revenue (Turnkey)	178	189	223	351	296	474	525	582	648	739	11%	20%
Software Revenue	239	456	798	937	1,070	1,236	1,463	1,720	2,035	2,431	35%	18%
Bundled	187	316	321	441	575	600	650	701	759	847	25%	8%
Unbundled	51	140	477	496	496	637	813	1,019	1,276	1,584	57%	26%
Service Revenue	137	186	446	614	716	846	960	1,085	1,243	1,448	39%	15%
Total Revenue	1,257	2,057	2,765	3,711	4,302	5,046	5,706	6,384	7,232	8,317	28%	14%
Increase over Prior Year	NA	64%	34%	34%	16%	17%	13%	12%	13%	15%		

Source: Dataquest
September 1990

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TABLE NUMBER: 2
TITLE: History and Forecast
APPLICATION: All Applications
REGION: Europe
PLATFORM: Technical Workstation

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	3,050	7,796	15,472	25,652	38,866	54,480	73,200	95,340	125,050	158,980	66%	33%
Workstation Shipments	3,050	7,796	15,472	25,652	38,866	54,480	73,200	95,340	125,050	158,980	66%	33%
CPU Installed Base	4,295	12,065	27,389	52,423	89,450	139,550	203,830	290,360	406,630	556,840	84%	44%
Workstation Installed Base	4,295	12,065	27,389	52,423	89,450	139,550	203,830	290,360	406,630	556,840	84%	44%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	75.2	72.9	45.7	49.2	54.1	51.4	49.3	48.1	47.4	47.3	-6%	-3%
Hardware-Only ASP	37.4	31.3	24.7	24.3	15.6	14.6	13.6	12.9	12.6	12.5	-16%	-4%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	145	358	447	843	1,104	1,526	1,835	2,190	2,631	3,167	50%	23%
CPU Revenue	90	298	351	703	932	1,240	1,488	1,771	2,139	2,583	59%	23%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	54	60	95	140	172	286	346	419	492	584	26%	28%
Software Revenue	70	168	401	495	656	752	968	1,233	1,540	1,916	57%	24%
Bundled	61	144	182	240	397	381	448	526	602	697	46%	12%
Unbundled	9	24	220	255	259	371	520	707	938	1,219	96%	36%
Service Revenue	27	46	182	306	431	558	684	834	1,012	1,228	74%	23%
Total Revenue	241	572	1,030	1,644	2,191	2,835	3,487	4,258	5,183	6,311	55%	24%
Increase over Prior Year	NA	137%	80%	60%	33%	29%	23%	22%	22%	22%		

Source: Dataquest
September 1990

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TABLE NUMBER: 3
TITLE: History and Forecast
APPLICATION: All Applications
REGION: Europe
PLATFORM: Host-Dependent/Server

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,250	1,729	3,918	5,118	4,401	4,780	4,850	4,580	4,350	4,180	29%	-1%
Workstation Shipments	6,268	9,135	12,595	15,501	18,495	18,420	17,370	15,270	13,660	12,430	24%	-8%
CPU Installed Base	2,200	3,929	7,837	12,885	17,014	21,140	24,810	28,200	31,560	34,760	51%	15%
Workstation Installed Base	9,540	20,416	33,053	48,603	67,097	85,520	102,880	118,150	131,810	144,240	48%	17%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	579.2	579.0	231.1	339.6	333.3	316.3	298.8	282.0	270.8	264.9	-10%	-4%
Hardware-Only ASP	862.2	497.4	241.5	125.4	177.6	162.8	150.5	138.3	126.9	116.2	-27%	-8%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	664	825	803	951	927	881	822	714	633	577	7%	-9%
CPU Revenue	316	377	383	523	520	464	430	371	328	298	10%	-11%
Workstation Revenue	233	331	307	239	329	254	243	215	190	168	7%	-13%
Peripheral Revenue (Turnkey)	114	117	113	189	78	163	149	128	116	111	-7%	7%
Software Revenue	142	201	261	290	222	258	244	217	204	201	9%	-2%
Bundled	116	144	116	180	151	189	177	155	141	135	5%	-2%
Unbundled	26	57	145	110	71	68	67	62	63	66	22%	-2%
Service Revenue	108	129	242	277	245	242	226	197	176	163	18%	-8%
Total Revenue	914	1,155	1,306	1,518	1,394	1,381	1,292	1,129	1,013	941	9%	-8%
Increase over Prior Year	NA	26%	13%	16%	-8%	-1%	-6%	-13%	-10%	-7%		

Source: Dataquest
September 1990

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TABLE NUMBER: 4
TITLE: History and Forecast
APPLICATION: All Applications
REGION: Europe
PLATFORM: Personal Computer

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	11,413	36,039	57,168	65,017	89,519	105,760	122,860	135,940	141,740	144,020	51%	10%
Workstation Shipments	11,413	36,039	57,168	65,017	89,519	105,760	122,860	135,940	141,740	144,020	51%	10%
CPU Installed Base	14,971	50,832	106,897	167,510	245,022	326,560	409,580	505,700	607,820	712,260	75%	24%
Workstation Installed Base	14,971	50,832	106,897	167,510	245,022	326,560	409,580	505,700	607,820	712,260	75%	24%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	26.2	18.7	8.2	10.2	14.9	16.2	16.7	17.2	17.3	17.8	-11%	4%
Hardware-Only ASP	5.6	5.5	4.5	5.3	4.9	4.9	4.8	4.8	4.7	4.7	-3%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	73	232	270	366	484	558	627	675	689	694	46%	7%
CPU Revenue	63	220	256	343	438	532	597	640	649	650	47%	8%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	10	12	14	23	46	25	30	35	40	44	36%	-1%
Software Revenue	27	87	136	152	193	227	250	269	292	314	48%	10%
Bundled	11	28	24	21	27	30	24	19	16	15	20%	-11%
Unbundled	16	59	113	131	166	197	226	250	275	299	59%	13%
Service Revenue	2	11	22	30	40	45	50	53	56	57	82%	7%
Total Revenue	102	330	429	549	718	830	927	997	1,036	1,065	48%	8%
Increase over Prior Year	NA	223%	30%	28%	31%	16%	12%	8%	4%	3%		

Source: Dataquest
September 1990

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TABLE NUMBER: 5
TITLE: History and Forecast
APPLICATION: Mechanical
REGION: Europe
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	8,813	23,423	37,103	50,507	65,791	80,890	96,500	111,260	126,550	138,470	49%	16%
Workstation Shipments	12,767	29,335	44,243	58,896	75,848	90,430	105,290	118,920	133,710	145,220	43%	14%
CPU Installed Base	10,942	34,289	70,801	118,778	177,536	243,970	315,760	402,320	504,290	618,190	75%	28%
Workstation Installed Base	16,471	47,205	90,862	147,269	216,252	292,660	374,060	469,120	578,970	700,330	67%	26%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	223.9	124.4	57.4	66.0	68.3	63.4	59.9	56.8	55.2	55.2	-21%	-4%
Hardware-Only ASP	18.4	12.0	13.4	13.5	12.4	12.0	11.5	10.9	11.0	11.2	-8%	-2%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	568	863	914	1,342	1,558	1,774	1,888	1,966	2,122	2,279	22%	8%
CPU Revenue	291	485	558	937	1,143	1,323	1,428	1,509	1,640	1,768	31%	9%
Workstation Revenue	183	257	228	159	225	154	148	135	130	123	4%	-11%
Peripheral Revenue (Turnkey)	95	121	127	246	190	297	311	322	352	388	15%	15%
Software Revenue	135	241	405	526	618	704	801	899	1,036	1,178	36%	14%
Bundled	113	177	183	292	365	377	385	386	403	426	26%	3%
Unbundled	22	64	223	234	253	327	416	513	633	752	63%	24%
Service Revenue	90	112	270	377	443	508	555	596	664	735	37%	11%
Total Revenue	794	1,216	1,589	2,245	2,619	2,986	3,244	3,461	3,822	4,192	27%	10%
Increase over Prior Year	NA	53%	31%	41%	17%	14%	9%	7%	10%	10%		

Source: Dataquest
September 1990

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TABLE NUMBER: 6
TITLE: History and Forecast
APPLICATION: AEC
REGION: Europe
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	3,393	9,628	15,222	18,315	27,553	35,330	44,000	52,740	61,270	71,000	52%	21%
Workstation Shipments	3,978	10,320	15,867	19,183	28,931	36,690	45,160	53,630	61,920	71,470	49%	20%
CPU Installed Base	5,052	14,606	29,450	46,470	70,751	99,650	133,080	175,280	226,170	286,790	70%	32%
Workstation Installed Base	6,018	16,264	31,755	49,652	75,349	105,690	140,400	183,610	235,250	296,450	66%	32%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	165.7	115.4	43.0	49.3	52.5	49.5	47.6	46.7	45.8	45.4	-21%	-3%
Hardware-Only ASP	14.8	10.7	6.9	9.6	7.4	7.1	6.5	6.1	5.8	5.7	-13%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	111	187	174	277	323	393	451	508	575	664	24%	16%
CPU Revenue	63	137	131	221	251	323	378	432	493	571	32%	18%
Workstation Revenue	25	34	24	28	31	29	25	20	15	11	4%	-18%
Peripheral Revenue (Turnkey)	23	16	19	28	41	41	48	56	66	82	12%	15%
Software Revenue	24	41	82	100	116	142	172	209	250	300	37%	21%
Bundled	20	26	34	39	52	58	65	71	80	94	21%	13%
Unbundled	4	15	48	61	64	83	108	138	170	205	73%	26%
Service Revenue	18	23	58	77	73	89	102	115	133	157	33%	17%
Total Revenue	153	251	314	454	511	623	725	832	958	1,121	27%	17%
Increase over Prior Year	NA	64%	25%	44%	13%	22%	16%	15%	15%	17%		

Source: Dataquest
September 1990

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TABLE NUMBER: 7
TITLE: History and Forecast
APPLICATION: GIS/Mapping
REGION: Europe
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	82	953	4,739	5,727	12,111	16,560	22,530	28,610	33,440	38,850	172%	26%
Workstation Shipments	333	1,366	5,170	6,572	13,235	17,730	23,650	29,520	34,140	39,360	109%	24%
CPU Installed Base	121	1,074	5,812	11,499	23,292	38,800	58,760	84,810	115,690	151,990	186%	46%
Workstation Installed Base	520	1,886	7,056	13,591	26,520	43,230	64,400	91,440	123,090	159,970	120%	43%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	444.0	194.4	63.3	86.1	62.6	59.8	55.9	53.2	51.3	50.2	-32%	-4%
Hardware-Only ASP	369.7	27.7	15.4	12.2	9.5	8.9	7.9	6.8	6.2	5.9	-52%	-9%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	29	80	125	148	212	291	371	449	546	684	49%	26%
CPU Revenue	11	44	83	107	162	231	301	372	458	579	70%	29%
Workstation Revenue	14	26	26	26	24	25	25	22	19	15	12%	-9%
Peripheral Revenue (Turnkey)	4	10	16	15	26	35	44	55	69	90	44%	28%
Software Revenue	11	21	33	52	76	93	121	153	195	246	47%	27%
Bundled	6	14	23	28	48	57	73	91	117	156	50%	26%
Unbundled	5	7	10	24	27	37	48	62	78	90	42%	27%
Service Revenue	8	13	25	41	61	82	105	128	161	207	52%	28%
Total Revenue	48	114	183	241	349	466	597	731	902	1,137	49%	27%
Increase over Prior Year	NA	138%	61%	32%	45%	34%	28%	22%	23%	26%		

Source: Dataquest
September 1990

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TABLE NUMBER: 8
TITLE: History and Forecast
APPLICATION: Electronic Design Automation
REGION: Europe
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	3,426	11,560	19,494	21,237	27,331	32,250	37,880	43,250	49,890	58,860	51%	17%
Workstation Shipments	3,653	11,949	19,955	21,518	28,865	33,810	39,320	44,480	50,690	59,370	51%	16%
CPU Installed Base	5,350	16,858	36,060	56,072	79,907	104,840	130,620	161,850	199,860	246,900	72%	25%
Workstation Installed Base	5,796	17,958	37,666	58,024	83,449	110,060	137,430	170,040	208,950	256,600	70%	25%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	101.0	69.0	35.2	46.4	45.8	49.9	51.4	51.5	50.7	50.8	-15%	2%
Hardware-Only ASP	42.9	14.9	12.8	13.2	11.9	11.2	10.5	10.3	10.2	10.6	-23%	-2%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	173	285	308	392	423	508	574	656	711	810	20%	14%
CPU Revenue	105	229	219	304	334	360	408	468	524	612	26%	13%
Workstation Revenue	12	14	29	26	49	47	44	39	26	18	32%	-18%
Peripheral Revenue (Turnkey)	56	41	60	62	40	101	121	149	161	179	-7%	35%
Software Revenue	69	154	278	260	261	298	368	459	555	708	31%	22%
Bundled	48	99	82	82	110	109	126	153	160	172	18%	9%
Unbundled	21	54	196	178	151	189	241	306	395	536	49%	29%
Service Revenue	22	38	92	119	139	166	199	245	285	348	45%	20%
Total Revenue	263	477	678	771	823	972	1,140	1,360	1,551	1,867	26%	18%
Increase over Prior Year	NA	81%	42%	14%	7%	18%	17%	19%	14%	20%		

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TABLE NUMBER: 9
TITLE: History and Forecast
APPLICATION: Electronic CAE
REGION: Europe
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	2,517	6,763	10,192	11,263	19,357	23,070	26,960	30,100	33,280	38,630	50%	15%
Workstation Shipments	2,566	6,852	10,316	11,261	19,941	23,610	27,370	30,410	33,500	38,830	51%	14%
CPU Installed Base	3,761	10,483	20,451	30,875	48,060	66,910	87,020	110,320	136,870	168,800	66%	29%
Workstation Installed Base	3,774	10,699	20,833	31,307	49,092	68,520	89,090	112,740	139,550	171,720	67%	28%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	76.4	49.2	33.3	42.8	44.3	48.9	50.1	49.3	48.3	48.0	-10%	2%
Hardware-Only ASP	34.0	15.4	13.0	13.2	9.8	9.2	8.6	8.5	9.1	10.2	-22%	1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	98	139	154	199	240	298	339	396	426	495	20%	16%
CPU Revenue	65	109	104	151	188	218	249	286	315	373	24%	15%
Workstation Revenue	4	4	9	11	19	17	13	11	8	8	38%	-17%
Peripheral Revenue (Turnkey)	29	25	41	37	33	63	77	99	104	114	2%	28%
Software Revenue	35	67	126	129	137	150	192	249	310	407	31%	24%
Bundled	23	42	38	42	59	56	68	88	88	91	21%	9%
Unbundled	13	25	87	87	79	94	124	162	222	316	44%	32%
Service Revenue	8	13	40	57	72	88	106	135	158	197	55%	22%
Total Revenue	141	219	320	384	449	536	638	780	894	1,099	26%	20%
Increase over Prior Year	NA	55%	47%	20%	17%	19%	19%	22%	15%	23%		

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TABLE NUMBER: 10
TITLE: History and Forecast
APPLICATION: IC Layout
REGION: Europe
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	215	383	1,244	1,355	976	1,330	1,740	2,140	2,480	2,840	35%	24%
Workstation Shipments	241	396	1,271	1,375	958	1,330	1,740	2,140	2,480	2,840	32%	24%
CPU Installed Base	307	689	1,923	3,242	4,080	5,070	6,220	7,770	9,670	11,960	68%	24%
Workstation Installed Base	386	781	2,043	3,383	4,213	5,220	6,390	7,970	9,890	12,200	61%	24%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	90.8	107.2	31.2	71.9	52.6	49.4	47.4	47.4	47.1	47.3	-10%	-2%
Hardware-Only ASP	235.0	46.7	25.5	24.1	21.5	16.3	13.6	11.5	9.9	9.4	-38%	-15%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	21	21	29	38	23	24	27	28	28	29	2%	5%
CPU Revenue	12	16	20	28	18	16	19	20	21	23	7%	5%
Workstation Revenue	2	1	3	5	3	3	3	2	1	1	15%	-27%
Peripheral Revenue (Turnkey)	7	3	5	5	2	5	5	6	6	6	-25%	29%
Software Revenue	11	19	37	33	27	39	49	62	79	108	21%	32%
Bundled	6	6	5	6	4	4	5	5	5	5	-6%	3%
Unbundled	5	13	32	27	23	34	44	57	74	104	37%	35%
Service Revenue	3	4	9	15	13	16	19	23	27	35	37%	23%
Total Revenue	34	43	75	86	62	79	95	113	134	172	13%	23%
Increase over Prior Year	NA	29%	73%	14%	-27%	26%	21%	19%	19%	28%		

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September 1990

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TABLE NUMBER: 11
TITLE: History and Forecast
APPLICATION: PCB Layout
REGION: Europe
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	694	4,414	8,058	8,619	6,999	7,850	9,180	11,010	14,120	17,390	59%	20%
Workstation Shipments	846	4,701	8,368	8,882	7,966	8,870	10,220	11,930	14,700	17,710	57%	17%
CPU Installed Base	1,282	5,686	13,685	21,956	27,766	32,860	37,390	43,770	53,320	66,140	85%	19%
Workstation Installed Base	1,637	6,479	14,789	23,333	30,143	36,320	41,950	49,320	59,500	72,680	79%	19%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	176.1	95.3	37.8	48.5	47.1	51.2	53.6	56.0	55.0	54.7	-23%	3%
Hardware-Only ASP	57.5	11.7	10.6	11.3	18.2	17.6	16.8	15.6	13.1	12.0	-21%	-8%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	54	125	124	155	161	185	207	233	256	287	24%	12%
CPU Revenue	28	104	94	125	128	125	141	163	188	216	36%	11%
Workstation Revenue	7	9	16	10	27	26	28	26	17	10	32%	-18%
Peripheral Revenue (Turnkey)	20	13	14	20	6	34	38	44	51	60	-22%	60%
Software Revenue	23	68	115	99	96	109	127	147	165	192	33%	15%
Bundled	20	51	38	34	47	48	54	61	67	76	19%	10%
Unbundled	3	17	77	64	49	61	73	87	98	116	74%	19%
Service Revenue	11	21	43	47	55	63	73	87	100	117	38%	16%
Total Revenue	88	215	283	301	312	357	408	466	522	596	29%	14%
Increase over Prior Year	NA	143%	32%	7%	4%	14%	14%	14%	12%	14%		

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September 1990

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TABLE NUMBER: 12
TITLE: History and Forecast
APPLICATION: All Applications
REGION: Benelux
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,144	3,278	5,728	7,538	12,093	14,980	18,450	22,120	25,870	29,740	60%	20%
Workstation Shipments	1,519	3,983	6,779	8,950	13,198	16,120	19,500	23,050	26,700	30,480	54%	18%
CPU Installed Base	1,144	4,373	10,052	17,299	28,458	41,370	56,080	74,460	96,590	122,590	90%	34%
Workstation Installed Base	1,519	5,502	12,233	20,892	33,162	47,250	63,080	82,450	105,480	132,290	85%	32%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	235.5	126.3	38.8	47.6	60.3	51.6	49.8	48.4	47.6	47.6	-24%	-5%
Hardware-Only ASP	22.0	12.4	11.8	12.2	9.1	10.0	9.3	8.7	8.6	8.6	-16%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	66	100	100	153	187	231	259	288	323	367	23%	14%
CPU Revenue	35	61	71	110	145	175	199	225	257	295	33%	15%
Workstation Revenue	18	26	16	21	23	22	21	19	18	16	4%	-7%
Peripheral Revenue (Turnkey)	13	13	13	23	20	34	39	43	49	56	10%	23%
Software Revenue	15	29	60	67	67	70	83	100	120	146	35%	17%
Bundled	12	22	19	30	39	34	37	41	45	51	27%	5%
Unbundled	3	8	40	37	28	36	46	59	75	95	55%	28%
Service Revenue	13	12	36	49	54	63	72	82	95	111	34%	16%
Total Revenue	94	141	196	269	309	363	414	470	538	624	27%	15%
Increase over Prior Year	NA	51%	38%	38%	15%	18%	14%	14%	15%	16%		

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September 1990

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TABLE NUMBER: 13
TITLE: History and Forecast
APPLICATION: All Applications
REGION: Benelux
PLATFORM: Technical Workstation

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	141	413	1,138	2,165	3,099	4,480	6,130	8,180	11,000	14,260	85%	36%
Workstation Shipments	141	413	1,138	2,165	3,099	4,480	6,130	8,180	11,000	14,260	85%	36%
CPU Installed Base	141	554	1,689	3,836	6,855	11,090	16,610	24,190	34,590	48,250	117%	48%
Workstation Installed Base	141	554	1,689	3,836	6,855	11,090	16,610	24,190	34,590	48,250	117%	48%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	78.1	78.8	41.7	37.0	49.0	46.4	44.9	44.2	43.9	44.3	-9%	-2%
Hardware-Only ASP	38.8	32.5	24.9	22.4	14.9	13.8	12.8	12.2	11.8	11.7	-17%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	7	19	30	62	79	114	138	168	205	252	64%	26%
CPU Revenue	4	15	23	50	67	93	113	137	169	208	74%	25%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	3	4	7	12	12	21	26	31	37	44	36%	29%
Software Revenue	3	10	35	33	45	40	53	70	89	113	70%	20%
Bundled	3	9	13	11	28	19	23	29	35	41	62%	8%
Unbundled	1	2	21	22	17	21	29	41	54	72	91%	33%
Service Revenue	1	3	16	26	34	41	51	63	77	95	99%	23%
Total Revenue	11	32	81	121	158	195	242	300	372	459	70%	24%
Increase over Prior Year	NA	189%	153%	49%	31%	24%	24%	24%	24%	23%		

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TABLE NUMBER: 14
TITLE: History and Forecast
APPLICATION: All Applications
REGION: Benelux
PLATFORM: Host-Dependent/Server

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	85	124	290	597	354	430	440	430	410	410	33%	3%
Workstation Shipments	460	878	1,341	2,008	1,459	1,570	1,500	1,350	1,240	1,150	26%	-5%
CPU Installed Base	85	209	499	1,095	1,442	1,850	2,220	2,570	2,910	3,250	76%	18%
Workstation Installed Base	460	1,338	2,679	4,687	6,146	7,720	9,220	10,570	11,800	12,950	68%	16%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	694.6	652.8	174.1	140.6	284.2	272.1	260.2	248.9	236.9	226.2	-16%	-4%
Hardware-Only ASP	861.6	467.4	239.4	137.6	163.7	151.6	140.2	128.9	118.4	108.5	-28%	-8%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	53	64	52	66	67	68	65	58	52	48	5%	-7%
CPU Revenue	25	29	30	36	38	35	33	29	26	24	9%	-9%
Workstation Revenue	18	26	16	21	23	22	21	19	18	16	4%	-7%
Peripheral Revenue (Turnkey)	9	9	6	9	6	11	11	10	9	8	-10%	8%
Software Revenue	10	15	18	26	14	17	16	14	13	13	6%	-1%
Bundled	9	11	5	17	11	13	12	11	10	9	3%	-2%
Unbundled	1	3	12	9	3	4	4	4	4	4	16%	4%
Service Revenue	12	8	19	22	18	18	17	15	14	13	9%	-6%
Total Revenue	75	87	88	114	98	104	98	88	80	74	6%	-6%
Increase over Prior Year	NA	16%	1%	29%	-13%	6%	-5%	-11%	-9%	-7%		

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TABLE NUMBER: 15
TITLE: History and Forecast
APPLICATION: All Applications
REGION: Benelux
PLATFORM: Personal Computer

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	918	2,742	4,300	4,776	8,641	10,070	11,880	13,520	14,460	15,070	57%	12%
Workstation Shipments	918	2,693	4,300	4,776	8,641	10,070	11,880	13,520	14,460	15,070	57%	12%
CPU Installed Base	918	3,610	7,864	12,368	20,161	28,440	37,250	47,700	59,090	71,090	86%	29%
Workstation Installed Base	918	3,610	7,864	12,368	20,161	28,440	37,250	47,700	59,090	71,090	86%	29%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	26.2	19.5	4.5	7.3	11.3	10.7	10.5	10.3	10.4	10.8	-15%	-1%
Hardware-Only ASP	5.6	5.6	4.5	5.4	4.6	4.7	4.6	4.6	4.5	4.5	-4%	-0%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	6	18	18	26	41	48	56	62	65	68	46%	10%
CPU Revenue	6	17	18	25	39	47	54	59	62	64	47%	10%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	1	1	0	1	2	1	2	3	3	4	33%	11%
Software Revenue	2	4	7	8	9	13	14	16	18	20	41%	18%
Bundled	1	2	1	1	1	2	1	1	1	1	13%	-5%
Unbundled	1	2	6	7	8	11	13	15	17	19	51%	20%
Service Revenue	0	1	1	1	2	3	3	4	4	4	90%	9%
Total Revenue	8	23	27	35	52	64	73	82	87	91	46%	12%
Increase over Prior Year	NA	188%	18%	31%	50%	22%	15%	11%	6%	5%		

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TABLE NUMBER: 16
TITLE: History and Forecast
APPLICATION: Mechanical
REGION: Benelux
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	665	1,730	3,061	4,489	6,116	7,500	9,070	10,710	12,440	13,880	56%	18%
Workstation Shipments	973	2,356	3,954	5,497	6,958	8,320	9,830	11,400	13,090	14,500	48%	16%
CPU Installed Base	665	2,380	5,413	9,740	15,349	21,730	28,790	37,490	47,920	59,790	87%	31%
Workstation Installed Base	973	3,329	7,255	12,590	19,046	26,270	34,150	43,590	54,720	67,260	81%	29%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	277.3	145.4	36.8	44.6	61.7	51.7	49.2	47.1	46.0	46.1	-26%	-6%
Hardware-Only ASP	18.0	11.7	12.6	12.4	10.1	11.7	11.1	10.5	10.5	10.7	-11%	1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	46	66	59	94	114	141	154	165	182	199	20%	12%
CPU Revenue	23	35	41	67	86	105	116	127	142	156	30%	13%
Workstation Revenue	15	21	11	13	16	15	15	14	14	13	1%	-3%
Peripheral Revenue (Turnkey)	8	9	7	14	12	21	23	24	27	29	9%	19%
Software Revenue	9	16	29	38	38	37	43	49	59	70	33%	13%
Bundled	9	14	9	19	24	19	20	21	23	27	23%	2%
Unbundled	1	2	20	19	14	18	23	28	36	43	85%	26%
Service Revenue	10	8	23	29	33	39	43	47	53	60	28%	13%
Total Revenue	65	89	111	162	185	217	239	261	294	328	23%	12%
Increase over Prior Year	NA	38%	24%	46%	14%	17%	10%	9%	13%	11%		

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September 1990

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TABLE NUMBER: 17
TITLE: History and Forecast
APPLICATION: AEC
REGION: Benelux
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	251	718	1,080	1,450	2,800	3,550	4,460	5,460	6,460	7,600	62%	22%
Workstation Shipments	292	743	1,148	1,596	2,894	3,670	4,570	5,550	6,520	7,640	58%	21%
CPU Installed Base	251	945	2,014	3,396	5,987	9,100	12,770	17,440	23,100	29,900	89%	38%
Workstation Installed Base	292	1,035	2,172	3,700	6,386	9,620	13,400	18,160	23,890	30,750	85%	37%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	222.8	151.0	41.1	44.0	47.5	43.2	41.8	41.4	40.9	41.0	-27%	-3%
Hardware-Only ASP	14.6	10.5	7.3	9.9	6.4	6.8	6.2	5.8	5.5	5.4	-15%	-3%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	7	14	13	24	26	33	39	45	51	60	28%	18%
CPU Revenue	4	10	10	18	21	27	33	38	44	52	38%	20%
Workstation Revenue	2	3	2	3	2	2	2	2	1	1	2%	-15%
Peripheral Revenue (Turnkey)	1	1	1	3	3	4	4	5	6	8	17%	21%
Software Revenue	1	3	7	8	7	9	10	13	15	18	42%	20%
Bundled	1	2	2	3	3	4	4	4	4	5	28%	7%
Unbundled	0	1	5	5	4	5	7	9	11	13	68%	28%
Service Revenue	1	1	5	8	6	7	8	9	11	13	33%	17%
Total Revenue	10	18	25	40	39	49	57	66	77	91	31%	19%
Increase over Prior Year	NA	74%	42%	61%	-3%	25%	17%	16%	16%	18%		

Source: Dataquest
September 1990

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TABLE NUMBER: 18
TITLE: History and Forecast
APPLICATION: GIS/Mapping
REGION: Benelux
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	5	55	291	319	1,001	1,340	1,840	2,370	2,760	3,170	190%	26%
Workstation Shipments	19	78	333	449	1,062	1,430	1,920	2,430	2,810	3,210	124%	25%
CPU Installed Base	5	58	349	666	1,647	2,930	4,600	6,800	9,390	12,400	221%	50%
Workstation Installed Base	19	97	430	876	1,919	3,280	5,040	7,310	9,960	13,000	152%	47%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	389.0	264.9	63.3	113.0	77.8	67.9	63.2	60.1	57.7	56.3	-28%	-6%
Hardware-Only ASP	397.1	27.8	17.6	13.9	8.2	8.8	7.8	6.6	6.0	5.7	-54%	-7%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	2	4	7	10	15	20	26	32	39	49	56%	27%
CPU Revenue	1	2	5	6	11	16	20	26	31	40	78%	29%
Workstation Revenue	1	1	1	3	2	2	2	1	1	1	20%	-8%
Peripheral Revenue (Turnkey)	0	1	1	1	2	3	4	5	6	8	47%	32%
Software Revenue	1	1	2	3	4	5	6	8	10	12	52%	21%
Bundled	0	1	1	2	3	3	3	4	4	5	54%	15%
Unbundled	0	0	1	2	2	2	3	4	5	6	50%	28%
Service Revenue	0	1	2	3	4	5	7	9	11	14	56%	28%
Total Revenue	3	6	11	16	24	31	39	48	60	75	56%	26%
Increase over Prior Year	NA	124%	82%	54%	46%	30%	28%	23%	23%	26%		

Source: Dataquest
September 1990

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TABLE NUMBER: 19
TITLE: History and Forecast
APPLICATION: Electronic Design Automation
REGION: Benelux
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	223	776	1,295	1,281	2,177	2,590	3,080	3,580	4,220	5,100	58%	19%
Workstation Shipments	235	806	1,344	1,408	2,284	2,700	3,180	3,670	4,280	5,140	58%	18%
CPU Installed Base	223	989	2,275	3,497	5,474	7,620	9,920	12,730	16,180	20,500	90%	30%
Workstation Installed Base	235	1,041	2,377	3,726	5,811	8,070	10,490	13,390	16,910	21,280	90%	30%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	104.9	68.3	39.7	54.7	57.6	50.5	51.6	51.6	50.6	50.5	-11%	-3%
Hardware-Only ASP	42.6	15.1	13.2	13.9	10.9	10.7	9.9	9.7	9.5	9.8	-24%	-2%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	11	17	21	25	32	36	40	46	51	59	25%	13%
CPU Revenue	7	14	15	19	26	27	30	34	39	47	30%	13%
Workstation Revenue	1	1	2	2	3	3	3	2	2	1	36%	-23%
Peripheral Revenue (Turnkey)	3	2	4	4	3	7	8	9	10	11	-1%	30%
Software Revenue	4	10	22	18	17	19	24	30	37	46	33%	22%
Bundled	2	5	7	6	9	8	10	13	13	15	32%	10%
Unbundled	2	4	15	11	9	11	14	18	23	32	34%	30%
Service Revenue	1	2	6	8	11	12	14	17	20	25	55%	18%
Total Revenue	16	29	49	50	61	67	78	94	107	130	30%	16%
Increase over Prior Year	NA	77%	71%	3%	20%	9%	17%	20%	15%	21%		

Source: Dataquest
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TABLE NUMBER: 20
TITLE: History and Forecast
APPLICATION: Electronic CAE
REGION: Benelux
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	166	448	730	699	1,612	1,920	2,260	2,560	2,900	3,460	57%	17%
Workstation Shipments	170	456	750	744	1,651	1,960	2,290	2,590	2,920	3,470	58%	16%
CPU Installed Base	166	609	1,333	1,992	3,479	5,140	6,940	9,050	11,490	14,490	84%	33%
Workstation Installed Base	170	626	1,370	2,074	3,601	5,300	7,140	9,270	11,740	14,750	84%	33%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	75.6	49.2	34.6	44.4	52.4	50.5	51.4	50.4	49.3	49.0	-7%	-1%
Hardware-Only ASP	33.8	15.6	12.9	13.6	9.1	8.8	8.2	8.1	8.6	9.5	-23%	1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	6	9	11	12	19	22	24	28	31	37	26%	14%
CPU Revenue	4	7	7	9	15	17	19	22	25	31	30%	15%
Workstation Revenue	0	0	1	1	1	1	1	0	0	0	35%	-29%
Peripheral Revenue (Turnkey)	2	1	3	2	2	4	5	6	6	7	9%	22%
Software Revenue	2	4	10	8	9	10	13	18	22	28	34%	25%
Bundled	1	2	4	3	5	5	7	9	9	10	37%	15%
Unbundled	1	2	7	5	4	5	7	9	12	18	30%	33%
Service Revenue	1	1	3	4	6	6	8	10	11	14	63%	20%
Total Revenue	9	13	24	23	34	39	45	56	64	79	31%	18%
Increase over Prior Year	NA	53%	79%	-1%	45%	14%	18%	23%	15%	24%		

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TABLE NUMBER: 21
TITLE: History and Forecast
APPLICATION: IC Layout
REGION: Benelux
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	11	24	62	69	93	130	170	220	260	300	53%	26%
Workstation Shipments	12	21	65	107	91	130	170	220	260	300	49%	27%
CPU Installed Base	11	35	97	165	252	360	500	690	920	1,190	86%	36%
Workstation Installed Base	12	34	98	204	290	400	540	730	960	1,240	88%	34%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	84.1	103.5	38.2	73.1	53.0	50.2	47.5	47.9	47.2	47.9	-9%	-2%
Hardware-Only ASP	248.6	46.2	30.0	31.3	17.9	15.3	12.7	10.8	9.4	8.8	-41%	-13%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	1	1	2	2	2	2	2	3	3	3	8%	8%
CPU Revenue	1	1	1	2	1	1	2	2	2	2	13%	9%
Workstation Revenue	0	0	0	0	0	1	0	0	0	0	22%	-14%
Peripheral Revenue (Turnkey)	0	0	0	0	0	0	0	0	0	0	-19%	27%
Software Revenue	1	2	4	3	2	3	3	4	6	8	16%	36%
Bundled	0	0	0	0	0	0	1	1	1	1	5%	10%
Unbundled	1	2	4	3	1	2	3	4	5	7	20%	40%
Service Revenue	0	0	1	1	1	1	2	2	2	3	38%	25%
Total Revenue	2	3	6	6	4	6	7	9	10	13	15%	25%
Increase over Prior Year	NA	46%	98%	0%	-31%	35%	21%	20%	19%	28%		

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TABLE NUMBER: 22
TITLE: History and Forecast
APPLICATION: PCB Layout
REGION: Benelux
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	46	304	502	513	473	540	650	800	1,060	1,340	60%	23%
Workstation Shipments	53	329	529	556	542	610	720	870	1,100	1,360	59%	20%
CPU Installed Base	46	345	845	1,340	1,744	2,120	2,480	3,000	3,770	4,820	107%	23%
Workstation Installed Base	53	381	909	1,447	1,920	2,370	2,800	3,390	4,210	5,290	105%	22%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	189.6	93.2	48.4	68.3	65.5	50.5	52.6	54.7	53.6	53.3	-19%	-4%
Hardware-Only ASP	56.8	11.9	12.0	11.7	17.3	17.3	16.3	14.9	12.2	10.9	-21%	-9%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	3	7	8	11	12	12	14	15	17	19	28%	10%
CPU Revenue	2	6	6	9	9	8	9	11	13	15	36%	9%
Workstation Revenue	0	1	1	1	2	2	2	2	1	1	40%	-21%
Peripheral Revenue (Turnkey)	1	1	1	1	0	2	3	3	3	4	-22%	65%
Software Revenue	1	4	8	6	7	6	7	8	10	11	40%	11%
Bundled	1	3	3	2	4	2	3	3	4	4	31%	3%
Unbundled	0	1	5	4	3	3	4	5	6	7	58%	19%
Service Revenue	1	1	3	3	4	4	5	6	6	8	52%	12%
Total Revenue	5	12	19	21	22	22	25	29	33	38	34%	11%
Increase over Prior Year	NA	132%	56%	10%	9%	-2%	15%	16%	13%	15%		

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TABLE NUMBER: 23
TITLE: History and Forecast
APPLICATION: All Applications
REGION: France
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	3,401	8,433	13,521	14,792	20,659	26,300	32,110	37,400	42,570	47,940	43%	18%
Workstation Shipments	4,453	10,509	15,438	16,674	23,075	28,420	34,080	39,070	44,010	49,200	39%	16%
CPU Installed Base	3,401	11,703	25,081	39,062	57,224	78,300	101,760	130,510	164,440	203,730	76%	29%
Workstation Installed Base	4,453	14,962	30,257	46,122	66,718	89,990	115,590	146,190	181,720	222,450	72%	27%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	218.4	129.9	61.2	75.7	73.6	63.0	60.3	57.7	56.0	55.2	-20%	-6%
Hardware-Only ASP	17.7	11.5	10.8	12.1	11.3	10.3	9.7	9.1	9.0	9.0	-9%	-4%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	174	233	257	350	397	452	499	536	580	640	18%	10%
CPU Revenue	93	143	164	245	302	347	387	421	459	509	27%	11%
Workstation Revenue	48	61	56	41	57	37	36	31	28	25	3%	-15%
Peripheral Revenue (Turnkey)	33	30	37	64	38	68	76	84	93	106	3%	23%
Software Revenue	42	78	137	138	160	173	204	237	277	329	31%	16%
Bundled	34	49	50	58	85	75	80	84	87	93	20%	2%
Unbundled	8	29	87	81	75	97	124	154	190	236	56%	26%
Service Revenue	27	32	73	96	116	130	146	163	183	210	34%	13%
Total Revenue	243	343	467	584	673	755	850	936	1,041	1,179	23%	12%
Increase over Prior Year	NA	41%	36%	25%	15%	12%	13%	10%	11%	13%		

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TABLE NUMBER: 24
TITLE: History and Forecast
APPLICATION: All Applications
REGION: France
PLATFORM: Technical Workstation

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	475	912	1,926	3,160	5,685	7,920	10,720	13,980	18,430	23,530	64%	33%
Workstation Shipments	475	912	1,926	3,160	5,685	7,920	10,720	13,980	18,430	23,530	64%	33%
CPU Installed Base	475	1,386	3,303	6,411	11,899	19,300	28,910	41,780	59,090	81,510	90%	47%
Workstation Installed Base	475	1,386	3,303	6,411	11,899	19,300	28,910	41,780	59,090	81,510	90%	47%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	78.1	73.1	47.8	54.2	60.0	56.7	54.0	52.3	51.2	50.7	-5%	-3%
Hardware-Only ASP	36.3	33.2	25.3	22.8	15.5	14.1	13.1	12.5	12.1	12.0	-16%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	23	39	56	113	167	228	270	316	372	440	48%	21%
CPU Revenue	14	32	43	94	145	187	220	255	301	356	58%	20%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	9	7	12	19	22	41	50	61	71	84	21%	31%
Software Revenue	10	24	65	75	105	106	137	173	214	264	59%	20%
Bundled	9	18	25	32	60	47	54	61	67	75	47%	4%
Unbundled	1	6	40	43	45	59	82	111	146	190	98%	34%
Service Revenue	4	8	28	44	71	87	106	126	150	179	79%	20%
Total Revenue	37	70	149	232	343	422	513	615	735	883	56%	21%
Increase over Prior Year	NA	88%	112%	55%	48%	23%	21%	20%	20%	20%		

Source: Dataquest
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TABLE NUMBER: 25
TITLE: History and Forecast
APPLICATION: All Applications
REGION: France
PLATFORM: Host-Dependent/Server

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	245	293	660	774	676	660	670	630	580	550	23%	-4%
Workstation Shipments	1,296	2,500	2,577	2,656	3,092	2,780	2,640	2,300	2,020	1,820	19%	-10%
CPU Installed Base	245	538	1,197	1,969	2,627	3,220	3,720	4,170	4,580	4,960	61%	14%
Workstation Installed Base	1,296	3,796	6,373	9,029	12,122	14,910	17,540	19,840	21,860	23,680	56%	14%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	607.2	627.7	259.9	468.1	389.7	370.5	354.8	339.7	325.9	313.7	-8%	-4%
Hardware-Only ASP	862.2	503.7	251.5	141.7	184.9	170.1	157.2	144.4	132.2	120.9	-27%	-8%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	134	149	149	182	154	129	120	103	89	80	3%	-12%
CPU Revenue	63	67	71	98	85	68	63	54	46	41	6%	-14%
Workstation Revenue	48	61	56	41	57	37	36	31	28	25	3%	-15%
Peripheral Revenue (Turnkey)	23	21	23	43	12	23	20	17	15	14	-11%	3%
Software Revenue	28	46	53	47	31	35	34	30	27	27	2%	-3%
Bundled	23	26	20	25	22	25	24	21	18	17	-2%	-5%
Unbundled	4	19	32	23	9	10	10	9	9	10	17%	1%
Service Revenue	23	22	41	49	39	35	32	28	24	22	11%	-11%
Total Revenue	184	217	243	278	224	199	186	160	141	129	4%	-10%
Increase over Prior Year	NA	18%	12%	14%	-19%	-11%	-7%	-14%	-12%	-8%		

Source: Dataquest
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TABLE NUMBER: 26
TITLE: History and Forecast
APPLICATION: All Applications
REGION: France
PLATFORM: Personal Computer

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	2,682	7,229	10,936	10,858	14,297	17,710	20,720	22,790	23,560	23,850	40%	11%
Workstation Shipments	2,682	7,098	10,936	10,858	14,297	17,710	20,720	22,790	23,560	23,850	40%	11%
CPU Installed Base	2,682	9,779	20,581	30,682	42,697	55,780	69,140	84,570	100,770	117,260	74%	22%
Workstation Installed Base	2,682	9,779	20,581	30,682	42,697	55,780	69,140	84,570	100,770	117,260	74%	22%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	27.4	19.8	9.6	7.8	14.1	13.9	14.6	15.0	14.7	14.6	-12%	1%
Hardware-Only ASP	5.6	5.6	4.5	5.0	5.1	5.1	5.1	5.0	5.0	4.9	-2%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	17	45	52	55	76	95	109	117	119	120	35%	10%
CPU Revenue	16	44	50	53	72	91	104	111	112	112	36%	9%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	1	2	2	2	4	4	5	6	7	8	20%	16%
Software Revenue	4	8	19	16	24	31	34	35	36	38	44%	9%
Bundled	2	4	4	2	3	3	2	2	1	1	13%	-17%
Unbundled	2	4	15	15	21	28	32	33	35	37	54%	12%
Service Revenue	0	2	3	3	6	8	8	9	9	9	80%	10%
Total Revenue	21	56	74	75	106	134	151	161	165	167	38%	10%
Increase over Prior Year	NA	159%	33%	0%	42%	27%	13%	7%	2%	1%		

Source: Dataquest
September 1990

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TABLE NUMBER: 27
TITLE: History and Forecast
APPLICATION: Mechanical
REGION: France
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,929	4,153	6,391	7,504	9,771	12,480	14,950	17,150	19,360	21,110	38%	17%
Workstation Shipments	2,787	5,788	8,016	9,091	11,555	13,940	16,300	18,320	20,440	22,130	33%	14%
CPU Installed Base	1,929	6,047	12,356	19,423	27,923	37,830	48,610	61,580	76,760	93,700	71%	27%
Workstation Installed Base	2,787	8,575	16,508	25,165	35,461	46,880	59,140	73,410	89,810	107,900	66%	25%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	274.3	170.9	75.5	97.3	83.2	69.1	66.0	63.3	62.1	62.3	-21%	-6%
Hardware-Only ASP	14.4	10.9	12.3	13.6	13.5	12.0	11.4	10.8	10.8	11.0	-1%	-4%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	119	144	161	229	252	280	300	311	333	355	16%	7%
CPU Revenue	60	76	95	152	188	211	229	240	258	275	26%	8%
Workstation Revenue	40	48	45	30	39	25	24	21	21	19	-1%	-13%
Peripheral Revenue (Turnkey)	19	19	21	47	26	45	47	49	54	61	7%	19%
Software Revenue	26	45	67	75	99	105	121	136	156	177	31%	12%
Bundled	23	27	28	40	58	51	52	52	54	56	21%	-1%
Unbundled	3	18	39	36	41	54	68	84	102	121	66%	24%
Service Revenue	19	18	45	60	76	83	91	97	107	118	32%	9%
Total Revenue	164	207	273	365	428	468	512	544	595	649	21%	9%
Increase over Prior Year	NA	26%	32%	34%	17%	9%	9%	6%	9%	9%		

Source: Dataquest
September 1990

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TABLE NUMBER: 28
TITLE: History and Forecast
APPLICATION: AEC
REGION: France
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	750	1,945	2,990	3,305	4,472	5,790	7,220	8,580	9,870	11,370	43%	21%
Workstation Shipments	864	2,011	3,117	3,445	4,691	6,010	7,410	8,730	9,970	11,440	40%	20%
CPU Installed Base	750	2,628	5,583	8,693	12,571	17,140	22,350	28,930	36,800	46,160	76%	30%
Workstation Installed Base	864	2,875	5,957	9,207	13,306	18,100	23,520	30,260	38,240	47,700	73%	29%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	221.4	177.1	28.2	30.0	43.0	42.2	39.3	37.5	35.8	35.0	-28%	-4%
Hardware-Only ASP	12.1	10.0	6.4	8.6	7.7	7.2	6.7	6.2	6.0	5.8	-9%	-6%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	20	33	26	39	47	57	65	72	80	91	18%	14%
CPU Revenue	12	24	20	31	36	48	56	63	70	80	26%	17%
Workstation Revenue	5	6	3	4	5	4	3	2	2	1	2%	-24%
Peripheral Revenue (Turnkey)	4	3	3	4	5	5	6	7	8	9	4%	15%
Software Revenue	3	6	10	11	13	16	19	22	26	31	31%	19%
Bundled	3	4	3	4	6	7	7	7	7	8	13%	8%
Unbundled	0	2	7	7	7	9	12	15	19	22	94%	26%
Service Revenue	3	4	8	10	10	13	14	16	18	21	25%	15%
Total Revenue	27	43	44	59	70	86	99	111	124	143	21%	15%
Increase over Prior Year	NA	57%	3%	35%	17%	23%	15%	12%	12%	15%		

Source: Dataquest
September 1990

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TABLE NUMBER: 29
TITLE: History and Forecast
APPLICATION: GIS/Mapping
REGION: France
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	10	156	707	767	1,914	2,620	3,550	4,420	4,950	5,470	184%	23%
Workstation Shipments	48	218	736	876	2,048	2,780	3,700	4,540	5,040	5,540	112%	22%
CPU Installed Base	10	163	870	1,630	3,491	5,940	9,090	13,120	17,670	22,750	220%	45%
Workstation Installed Base	48	266	1,001	1,870	3,866	6,480	9,780	13,930	18,580	23,730	141%	44%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	386.5	189.7	59.6	106.8	77.7	69.9	63.8	59.6	56.5	54.5	-27%	-7%
Hardware-Only ASP	355.4	25.0	13.8	13.0	9.5	9.0	8.0	6.9	6.4	6.1	-52%	-8%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	3	10	12	17	26	33	41	48	54	63	50%	20%
CPU Revenue	1	5	9	12	20	27	34	41	47	56	74%	23%
Workstation Revenue	1	3	2	3	4	3	3	2	2	1	22%	-20%
Peripheral Revenue (Turnkey)	1	1	1	2	2	3	3	4	5	6	25%	24%
Software Revenue	1	2	2	4	5	7	9	11	13	16	45%	24%
Bundled	1	2	1	2	3	4	5	6	7	9	39%	23%
Unbundled	0	1	1	2	2	3	4	5	6	7	57%	26%
Service Revenue	1	2	2	5	6	8	9	11	13	17	47%	22%
Total Revenue	5	13	17	25	37	48	60	70	80	96	49%	21%
Increase over Prior Year	NA	159%	27%	51%	47%	29%	25%	16%	16%	19%		

Source: Dataquest
September 1990

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TABLE NUMBER: 30
TITLE: History and Forecast
APPLICATION: Electronic Design Automation
REGION: France
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	712	2,179	3,433	3,216	4,502	5,400	6,390	7,250	8,400	9,990	45%	17%
Workstation Shipments	754	2,493	3,570	3,262	4,781	5,690	6,670	7,490	8,550	10,090	45%	16%
CPU Installed Base	712	2,865	6,272	9,316	13,239	17,380	21,700	26,880	33,210	41,130	79%	25%
Workstation Installed Base	754	3,246	6,790	9,881	14,085	18,530	23,150	28,580	35,090	43,130	80%	25%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	101.6	66.5	50.7	56.1	60.9	53.2	54.9	55.0	54.3	54.4	-10%	-2%
Hardware-Only ASP	34.2	13.5	11.6	12.5	11.8	11.3	10.6	10.4	10.1	10.4	-19%	-2%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	32	47	58	65	72	82	93	105	114	130	18%	13%
CPU Revenue	20	37	39	50	58	60	68	77	85	99	24%	11%
Workstation Revenue	2	3	6	5	9	6	6	5	3	3	33%	-22%
Peripheral Revenue (Turnkey)	9	7	13	11	5	16	19	23	26	29	-10%	40%
Software Revenue	12	25	58	48	42	45	55	68	82	105	28%	20%
Bundled	8	16	17	13	18	14	16	19	19	20	18%	2%
Unbundled	4	9	41	36	24	31	40	49	63	86	42%	29%
Service Revenue	4	9	18	21	24	26	31	38	45	55	45%	18%
Total Revenue	47	81	134	135	138	153	179	211	241	291	24%	16%
Increase over Prior Year	NA	71%	65%	1%	2%	11%	17%	18%	14%	21%		

Source: Dataquest
September 1990

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TABLE NUMBER: 31
TITLE: History and Forecast
APPLICATION: Electronic CAE
REGION: France
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	545	1,341	1,898	1,823	3,165	3,830	4,480	4,930	5,440	6,350	42%	15%
Workstation Shipments	553	1,362	1,966	1,829	3,270	3,920	4,550	4,980	5,480	6,380	43%	14%
CPU Installed Base	545	1,871	3,748	5,451	8,245	11,310	14,560	18,240	22,440	27,550	72%	27%
Workstation Installed Base	553	1,916	3,861	5,569	8,468	11,630	14,950	18,700	22,950	28,100	73%	27%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	77.6	44.6	40.9	44.2	54.4	51.3	52.8	52.0	50.9	50.7	-7%	-1%
Hardware-Only ASP	27.6	14.1	11.6	12.3	9.9	9.2	8.5	8.4	8.8	9.7	-19%	-0%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	19	25	30	34	39	47	54	61	65	76	16%	14%
CPU Revenue	13	20	19	25	32	35	39	44	48	57	20%	12%
Workstation Revenue	1	1	2	2	4	3	2	2	1	1	40%	-21%
Peripheral Revenue (Turnkey)	5	4	9	7	4	10	12	16	16	18	-5%	35%
Software Revenue	7	12	29	28	23	23	30	38	48	63	26%	22%
Bundled	4	7	8	7	10	7	8	10	10	11	18%	2%
Unbundled	3	5	21	21	14	16	21	28	37	52	34%	31%
Service Revenue	2	4	9	10	12	13	16	20	24	30	49%	21%
Total Revenue	28	42	68	72	74	84	99	119	137	169	22%	18%
Increase over Prior Year	NA	50%	64%	6%	3%	13%	18%	20%	15%	24%		

Source: Datequest
September 1990

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TABLE NUMBER: 32
TITLE: History and Forecast
APPLICATION: IC Layout
REGION: France
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	38	60	141	153	150	210	270	330	380	430	32%	23%
Workstation Shipments	42	72	149	148	147	210	270	330	380	430	28%	24%
CPU Installed Base	38	98	239	388	522	690	890	1,140	1,450	1,810	69%	28%
Workstation Installed Base	42	114	262	407	539	710	910	1,170	1,480	1,840	66%	28%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	91.9	102.2	48.5	97.0	52.9	49.7	47.9	47.8	47.8	47.6	-10%	-2%
Hardware-Only ASP	58.6	55.6	40.0	32.3	24.1	17.0	14.1	11.9	10.2	9.6	-36%	-17%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	4	4	5	6	4	4	4	5	5	5	1%	4%
CPU Revenue	2	3	4	5	3	3	3	3	3	4	6%	4%
Workstation Revenue	0	0	1	1	1	0	0	0	0	0	17%	-33%
Peripheral Revenue (Turnkey)	1	1	1	1	0	1	1	1	1	1	-26%	30%
Software Revenue	2	4	9	6	4	7	8	10	13	18	19%	33%
Bundled	1	1	1	1	1	1	1	1	1	1	-5%	-2%
Unbundled	1	2	8	5	4	6	8	10	12	17	34%	37%
Service Revenue	0	1	2	3	2	3	4	4	5	6	36%	23%
Total Revenue	6	8	16	15	10	13	16	19	23	29	12%	23%
Increase over Prior Year	NA	35%	102%	-9%	-29%	31%	21%	18%	18%	28%		

Source: Dataquest
September 1990

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TABLE NUMBER: 33
TITLE: History and Forecast
APPLICATION: PCB Layout
REGION: France
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	129	778	1,394	1,240	1,187	1,370	1,640	1,990	2,580	3,210	56%	22%
Workstation Shipments	158	1,058	1,456	1,285	1,365	1,570	1,840	2,180	2,700	3,280	54%	19%
CPU Installed Base	129	896	2,285	3,477	4,472	5,380	6,260	7,490	9,310	11,770	103%	21%
Workstation Installed Base	158	1,216	2,667	3,904	5,078	6,190	7,290	8,710	10,660	13,190	100%	21%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	213.0	120.1	68.2	76.7	69.7	56.1	58.9	61.8	60.8	60.6	-20%	-3%
Hardware-Only ASP	44.6	10.5	9.5	10.5	16.4	17.4	16.6	15.4	12.9	11.8	-18%	-6%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	9	18	23	26	29	31	35	39	44	50	26%	11%
CPU Revenue	5	14	17	21	23	23	26	29	33	38	36%	10%
Workstation Revenue	1	2	3	2	5	3	4	3	2	1	32%	-22%
Peripheral Revenue (Turnkey)	3	2	2	3	1	5	5	7	8	10	-17%	54%
Software Revenue	3	9	19	15	15	15	17	20	21	24	37%	11%
Bundled	3	7	8	5	8	6	7	7	8	8	23%	2%
Unbundled	0	2	11	10	7	9	11	12	14	16	90%	17%
Service Revenue	2	4	8	8	10	10	12	14	16	19	43%	14%
Total Revenue	14	31	50	49	54	56	64	73	81	93	31%	12%
Increase over Prior Year	NA	127%	58%	-2%	10%	4%	15%	14%	11%	14%		

Source: Dataquest
September 1990

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TABLE NUMBER: 34
TITLE: History and Forecast
APPLICATION: All Applications
REGION: German Region
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	4,529	13,227	25,258	36,933	45,868	56,740	69,720	81,650	92,960	104,660	59%	18%
Workstation Shipments	6,075	16,835	27,641	39,569	50,039	61,380	73,990	85,280	96,100	107,440	52%	17%
CPU Installed Base	4,529	17,581	42,666	78,524	120,720	168,710	222,030	287,280	363,850	452,140	93%	30%
Workstation Installed Base	6,075	22,910	50,378	88,875	135,273	188,030	245,960	315,170	395,200	486,600	86%	29%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	171.3	109.4	48.9	61.5	61.0	60.1	56.9	54.0	52.0	51.1	-19%	-3%
Hardware-Only ASP	22.3	12.8	11.4	11.2	9.9	10.3	9.6	9.1	9.0	9.2	-15%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	257	451	515	782	866	1,052	1,167	1,262	1,372	1,524	28%	12%
CPU Revenue	136	287	332	580	653	779	878	962	1,061	1,190	37%	13%
Workstation Revenue	68	105	105	68	102	86	82	72	63	56	9%	-11%
Peripheral Revenue (Turnkey)	53	59	79	135	111	188	207	228	248	277	16%	20%
Software Revenue	75	158	256	304	376	445	526	611	709	835	38%	17%
Bundled	61	101	116	160	218	241	263	282	302	333	29%	9%
Unbundled	13	57	141	144	157	204	263	328	406	502	63%	26%
Service Revenue	36	61	136	200	240	290	330	369	415	476	46%	15%
Total Revenue	367	670	908	1,286	1,481	1,788	2,024	2,241	2,496	2,835	32%	14%
Increase over Prior Year	NA	82%	35%	42%	15%	21%	13%	11%	11%	14%		

Source: Dataquest
September 1990

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TABLE NUMBER: 35
TITLE: History and Forecast
APPLICATION: All Applications
REGION: German Region
PLATFORM: Technical Workstation

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,096	2,751	5,915	10,356	13,604	19,330	26,110	33,700	43,340	54,380	65%	32%
Workstation Shipments	1,096	2,751	5,915	10,356	13,604	19,330	26,110	33,700	43,340	54,380	65%	32%
CPU Installed Base	1,096	3,847	9,741	19,965	33,039	50,870	73,700	104,120	144,190	195,290	98%	43%
Workstation Installed Base	1,096	3,847	9,741	19,965	33,039	50,870	73,700	104,120	144,190	195,290	98%	43%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	71.9	72.1	45.5	49.5	52.8	50.5	48.3	47.0	46.2	45.9	-6%	-3%
Hardware-Only ASP	36.0	29.3	24.5	23.6	16.4	15.1	14.0	13.3	12.9	12.8	-15%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	50	128	174	333	402	534	648	770	909	1,080	52%	22%
CPU Revenue	32	108	137	272	333	421	511	606	721	862	60%	21%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	18	20	37	60	69	113	137	164	188	218	31%	26%
Software Revenue	24	55	126	177	231	279	358	449	548	673	57%	24%
Bundled	22	47	68	107	152	158	186	216	243	278	47%	13%
Unbundled	2	7	58	70	79	121	171	233	305	395	107%	38%
Service Revenue	10	14	55	104	147	188	233	282	336	402	73%	22%
Total Revenue	84	197	354	614	781	1,001	1,238	1,501	1,793	2,155	56%	23%
Increase over Prior Year	NA	136%	80%	73%	27%	28%	24%	21%	20%	20%		

Source: Dataquest
September 1990

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TABLE NUMBER: 36
TITLE: History and Forecast
APPLICATION: All Applications
REGION: German Region
PLATFORM: Host-Dependent/Server

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	400	604	1,380	1,570	1,388	1,760	1,800	1,700	1,610	1,550	28%	2%
Workstation Shipments	1,947	4,386	3,764	4,206	5,559	6,400	6,080	5,330	4,750	4,320	23%	-5%
CPU Installed Base	400	1,004	2,385	3,951	5,308	6,950	8,420	9,790	11,070	12,290	68%	18%
Workstation Installed Base	1,947	6,332	10,096	14,302	19,861	26,270	32,350	37,680	42,430	46,750	59%	19%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	514.3	495.9	210.9	359.0	342.9	304.5	285.3	266.9	255.2	250.6	-8%	-6%
Hardware-Only ASP	861.5	514.7	236.1	115.3	174.2	160.3	148.1	136.0	124.8	114.4	-27%	-8%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	188	256	259	302	300	326	305	264	234	214	10%	-7%
CPU Revenue	89	115	115	164	170	176	165	142	125	114	14%	-8%
Workstation Revenue	68	105	105	68	102	86	82	72	63	56	9%	-11%
Peripheral Revenue (Turnkey)	32	36	39	70	28	64	58	50	45	43	-2%	9%
Software Revenue	43	59	84	73	77	91	87	77	71	69	12%	-2%
Bundled	36	45	42	46	54	69	65	57	51	49	8%	-2%
Unbundled	7	14	42	28	23	22	22	20	20	21	28%	-2%
Service Revenue	26	43	74	84	80	88	82	71	63	59	25%	-6%
Total Revenue	257	358	417	460	457	505	475	412	368	342	12%	-6%
Increase over Prior Year	NA	40%	16%	10%	-1%	10%	-6%	-13%	-11%	-7%		

Source: Dataquest
September 1990

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TABLE NUMBER: 37
TITLE: History and Forecast
APPLICATION: All Applications
REGION: German Region
PLATFORM: Personal Computer

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	3,032	9,872	17,962	25,007	30,876	35,650	41,800	46,240	48,000	48,730	59%	10%
Workstation Shipments	3,032	9,698	17,962	25,007	30,876	35,650	41,800	46,240	48,000	48,730	59%	10%
CPU Installed Base	3,032	12,730	30,541	54,608	82,373	110,890	139,910	173,370	208,580	244,560	94%	24%
Workstation Installed Base	3,032	12,730	30,541	54,608	82,373	110,890	139,910	173,370	208,580	244,560	94%	24%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	28.9	21.5	6.9	12.1	17.2	23.0	24.2	25.7	26.0	26.7	-10%	9%
Hardware-Only ASP	5.6	5.6	4.5	5.6	4.7	4.7	4.6	4.6	4.5	4.5	-3%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	19	67	83	148	164	193	214	228	230	230	55%	7%
CPU Revenue	16	63	79	143	149	182	202	215	215	214	57%	8%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	3	4	4	4	14	11	12	13	14	16	37%	2%
Software Revenue	8	44	47	53	68	76	82	85	89	93	53%	7%
Bundled	3	8	6	8	13	15	12	9	8	7	31%	-11%
Unbundled	5	36	41	46	55	62	70	76	81	86	63%	9%
Service Revenue	1	4	7	11	12	14	15	16	16	16	87%	5%
Total Revenue	27	115	137	213	244	283	311	328	334	339	55%	7%
Increase over Prior Year	NA	323%	19%	55%	15%	16%	10%	5%	2%	1%		

Source: Dataquest
September 1990

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TABLE NUMBER: 38
TITLE: History and Forecast
APPLICATION: Mechanical
REGION: German Region
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	2,493	6,521	11,691	20,022	23,426	28,530	34,310	39,390	44,370	48,260	57%	16%
Workstation Shipments	3,687	9,571	13,509	22,127	26,513	31,880	37,420	42,080	46,860	50,590	48%	14%
CPU Installed Base	2,493	8,967	20,561	40,021	61,643	85,940	112,270	143,670	180,060	220,330	90%	29%
Workstation Installed Base	3,687	13,258	26,670	48,237	72,968	100,710	130,380	164,720	203,840	246,680	82%	28%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	209.8	131.8	61.2	66.5	72.5	66.5	62.4	58.8	57.0	57.0	-19%	-5%
Hardware-Only ASP	18.3	12.3	13.1	11.1	11.0	12.0	11.5	11.0	11.1	11.3	-10%	1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	161	268	309	488	561	646	687	707	753	803	28%	7%
CPU Revenue	83	151	185	348	413	475	513	536	575	615	38%	8%
Workstation Revenue	52	80	79	45	73	52	50	45	42	40	7%	-11%
Peripheral Revenue (Turnkey)	27	38	45	95	74	120	124	126	135	149	23%	15%
Software Revenue	41	79	130	168	225	256	289	320	360	402	40%	12%
Bundled	36	55	67	108	147	153	158	158	162	168	33%	3%
Unbundled	5	24	63	60	78	102	131	162	198	234	72%	25%
Service Revenue	21	37	82	123	154	176	192	204	223	245	49%	10%
Total Revenue	224	384	521	779	940	1,077	1,168	1,230	1,336	1,450	33%	9%
Increase over Prior Year	NA	72%	36%	49%	21%	15%	8%	5%	9%	9%		

Source: Dataquest
September 1990

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TABLE NUMBER: 39
TITLE: History and Forecast
APPLICATION: AEC
REGION: German Region
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	970	2,728	4,588	6,767	9,317	12,020	15,140	18,120	20,860	24,020	57%	21%
Workstation Shipments	1,149	2,861	4,811	6,986	9,696	12,440	15,510	18,400	21,070	24,170	53%	20%
CPU Installed Base	970	3,613	8,159	14,676	23,186	33,380	45,210	60,020	77,570	98,280	89%	33%
Workstation Installed Base	1,149	4,010	8,779	15,516	24,408	35,040	47,260	62,380	80,160	101,050	84%	33%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	139.5	106.1	40.2	53.2	55.3	49.4	47.3	46.1	45.2	44.9	-17%	-4%
Hardware-Only ASP	14.8	10.7	6.6	9.8	6.8	6.9	6.4	5.9	5.7	5.5	-14%	-4%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	32	54	49	98	100	122	141	157	175	200	25%	15%
CPU Revenue	18	39	38	81	78	100	118	134	150	172	34%	17%
Workstation Revenue	7	10	6	8	9	10	9	7	5	4	4%	-15%
Peripheral Revenue (Turnkey)	7	5	5	9	13	12	14	17	20	24	13%	14%
Software Revenue	7	13	18	24	30	38	47	56	66	79	32%	21%
Bundled	7	8	8	12	15	18	20	22	25	29	17%	15%
Unbundled	1	5	10	13	15	20	27	34	41	50	83%	26%
Service Revenue	5	7	14	21	22	26	30	34	38	45	35%	16%
Total Revenue	44	74	82	144	151	187	218	247	280	324	28%	16%
Increase over Prior Year	NA	66%	10%	76%	5%	23%	17%	13%	13%	16%		

Source: Dataquest
September 1990

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TABLE NUMBER: 40
TITLE: History and Forecast
APPLICATION: GIS/Mapping
REGION: German Region
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	29	259	1,702	1,726	4,151	5,610	7,740	9,870	11,600	13,660	170%	27%
Workstation Shipments	127	417	1,902	1,963	4,407	5,990	8,110	10,160	11,820	13,810	103%	26%
CPU Installed Base	29	283	1,985	3,701	7,753	13,030	19,950	28,990	39,770	52,600	206%	47%
Workstation Installed Base	127	544	2,446	4,399	8,709	14,370	21,690	31,050	42,070	55,080	133%	45%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	424.4	277.7	66.8	82.6	52.3	54.2	50.4	47.6	45.6	44.4	-34%	-3%
Hardware-Only ASP	348.3	28.4	13.7	12.5	8.9	8.8	7.8	6.6	6.1	5.7	-52%	-9%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	10	30	50	46	73	103	132	159	192	239	50%	27%
CPU Revenue	4	15	32	34	56	80	105	129	158	199	72%	29%
Workstation Revenue	5	11	10	7	6	9	9	8	7	6	7%	-1%
Peripheral Revenue (Turnkey)	1	4	7	5	10	13	17	21	27	34	51%	27%
Software Revenue	4	9	14	16	29	36	48	60	76	97	48%	27%
Bundled	2	5	10	9	19	23	31	38	49	66	51%	28%
Unbundled	2	4	4	7	10	13	17	22	27	31	42%	27%
Service Revenue	2	5	9	12	19	26	34	41	50	64	51%	28%
Total Revenue	16	44	72	74	121	165	213	260	318	400	50%	27%
Increase over Prior Year	NA	171%	66%	2%	63%	37%	29%	22%	22%	26%		

Source: Dataquest
September 1990

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TABLE NUMBER: 41
TITLE: History and Forecast
APPLICATION: Electronic Design Automation
REGION: German Region
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,036	3,719	7,278	8,418	8,973	10,580	12,520	14,270	16,120	18,720	54%	16%
Workstation Shipments	1,112	3,986	7,420	8,493	9,422	11,070	12,960	14,640	16,360	18,870	53%	15%
CPU Installed Base	1,036	4,719	11,961	20,126	28,138	36,360	44,600	54,600	66,450	80,920	94%	24%
Workstation Installed Base	1,112	5,098	12,483	20,724	29,188	37,910	46,620	57,020	69,130	83,790	92%	23%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	101.6	66.6	28.2	46.1	36.2	49.8	51.4	51.6	51.0	51.1	-19%	7%
Hardware-Only ASP	42.2	14.9	12.2	12.6	11.6	11.0	10.3	10.1	10.1	10.6	-23%	-2%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	54	99	107	150	133	181	208	238	253	281	20%	16%
CPU Revenue	32	82	77	116	105	124	142	163	178	204	27%	14%
Workstation Revenue	4	4	8	8	14	15	14	12	8	6	29%	-16%
Peripheral Revenue (Turnkey)	18	13	22	26	14	43	51	63	66	71	-5%	38%
Software Revenue	22	57	94	96	92	115	142	175	207	257	33%	23%
Bundled	16	33	30	32	38	47	54	65	67	70	18%	13%
Unbundled	6	24	64	65	54	69	88	110	140	187	56%	28%
Service Revenue	7	13	31	43	45	62	75	91	103	123	44%	22%
Total Revenue	83	169	233	290	269	359	424	504	562	661	27%	20%
Increase over Prior Year	NA	103%	38%	24%	-7%	33%	18%	19%	11%	18%		

Source: Dataquest
September 1990

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TABLE NUMBER: 42
TITLE: History and Forecast
APPLICATION: Electronic CAE
REGION: German Region
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	746	2,129	3,755	4,064	6,278	7,540	8,940	10,070	10,970	12,550	53%	15%
Workstation Shipments	759	2,177	3,795	4,073	6,462	7,730	9,080	10,180	11,040	12,610	53%	14%
CPU Installed Base	746	2,854	6,582	10,476	16,173	22,410	29,030	36,790	45,440	55,680	85%	28%
Workstation Installed Base	759	2,937	6,704	10,608	16,490	22,910	29,690	37,560	46,290	56,600	85%	28%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	71.6	48.6	25.6	57.5	34.6	47.5	49.0	48.4	47.5	47.3	-14%	6%
Hardware-Only ASP	33.6	15.3	12.7	12.8	9.4	9.2	8.5	8.5	9.1	10.2	-22%	2%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	29	46	53	78	74	106	124	147	155	174	21%	19%
CPU Revenue	19	36	36	58	57	74	86	100	108	125	25%	17%
Workstation Revenue	1	1	3	3	5	6	5	4	3	3	39%	-12%
Peripheral Revenue (Turnkey)	9	9	14	16	12	26	33	43	44	46	6%	32%
Software Revenue	11	26	42	47	47	55	70	91	111	143	33%	25%
Bundled	7	13	12	15	19	21	25	32	32	32	22%	11%
Unbundled	4	13	30	32	28	34	45	58	79	111	46%	32%
Service Revenue	2	4	13	21	23	33	40	51	58	70	57%	25%
Total Revenue	42	76	107	146	143	194	235	289	324	388	28%	22%
Increase over Prior Year	NA	79%	42%	36%	-2%	35%	21%	23%	12%	20%		

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TABLE NUMBER: 43
TITLE: History and Forecast
APPLICATION: IC Layout
REGION: German Region
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	66	119	482	468	305	420	560	690	800	910	36%	24%
Workstation Shipments	75	159	490	463	299	420	560	690	800	910	32%	25%
CPU Installed Base	66	185	665	1,126	1,393	1,710	2,060	2,550	3,150	3,890	84%	23%
Workstation Installed Base	75	234	722	1,178	1,439	1,750	2,120	2,610	3,210	3,960	81%	22%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	92.4	111.2	19.4	58.5	51.8	48.8	46.9	46.9	46.7	46.8	-11%	-2%
Hardware-Only ASP	51.2	47.3	29.8	25.8	20.2	16.4	13.6	11.5	9.9	9.3	-38%	-14%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	6	7	9	14	7	8	9	9	9	9	2%	7%
CPU Revenue	4	5	7	10	5	5	6	7	7	7	8%	7%
Workstation Revenue	1	1	1	1	1	1	1	1	0	0	11%	-29%
Peripheral Revenue (Turnkey)	2	1	2	2	0	1	2	2	2	2	-25%	32%
Software Revenue	3	5	10	10	8	12	15	19	24	33	22%	34%
Bundled	2	2	2	3	1	1	2	2	2	2	-6%	4%
Unbundled	1	3	8	8	6	10	13	17	22	31	43%	38%
Service Revenue	1	1	3	5	4	5	6	7	9	11	38%	25%
Total Revenue	10	13	23	29	18	25	30	36	42	53	13%	24%
Increase over Prior Year	NA	34%	75%	29%	-38%	36%	22%	19%	18%	27%		

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September 1990

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TABLE NUMBER: 44
TITLE: History and Forecast
APPLICATION: PCB Layout
REGION: German Region
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	224	1,471	3,041	3,886	2,389	2,620	3,010	3,510	4,360	5,250	61%	17%
Workstation Shipments	278	1,650	3,136	3,957	2,661	2,920	3,320	3,770	4,520	5,340	57%	15%
CPU Installed Base	224	1,680	4,714	8,524	10,572	12,240	13,500	15,260	17,860	21,360	116%	15%
Workstation Installed Base	278	1,928	5,056	8,937	11,259	13,240	14,820	16,850	19,630	23,230	110%	16%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	178.0	85.6	32.4	36.1	37.2	52.5	55.0	57.5	56.5	56.2	-27%	9%
Hardware-Only ASP	56.8	11.7	9.3	10.6	19.8	17.8	16.9	15.6	13.0	11.8	-19%	-10%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	19	47	45	59	53	67	75	82	89	97	23%	13%
CPU Revenue	9	41	35	48	43	45	50	56	63	71	36%	11%
Workstation Revenue	2	3	5	3	8	8	8	8	5	3	27%	-18%
Peripheral Revenue (Turnkey)	8	3	6	8	2	15	16	18	20	23	-22%	60%
Software Revenue	8	25	42	39	37	49	57	65	72	81	35%	17%
Bundled	8	17	16	13	18	24	27	30	33	37	18%	16%
Unbundled	1	8	27	25	20	24	29	34	38	45	102%	18%
Service Revenue	4	8	15	17	18	24	28	32	36	41	34%	18%
Total Revenue	31	80	103	114	108	140	160	179	196	219	28%	15%
Increase over Prior Year	NA	156%	28%	11%	-6%	30%	14%	12%	10%	12%		

Source: Dataquest
September 1990

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TABLE NUMBER: 45
TITLE: History and Forecast
APPLICATION: All Applications
REGION: Italy
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,844	5,857	8,275	10,308	13,417	17,000	20,930	24,960	29,250	33,420	49%	20%
Workstation Shipments	2,263	6,842	9,249	11,725	14,993	18,430	22,260	26,120	30,280	34,340	46%	18%
CPU Installed Base	1,844	7,619	15,816	25,638	37,512	51,160	66,440	85,760	109,360	137,130	83%	30%
Workstation Installed Base	2,263	9,104	18,276	29,517	42,974	58,090	74,790	95,350	120,070	148,850	80%	28%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	153.4	89.0	45.3	49.3	59.0	58.3	55.7	53.5	52.2	52.0	-17%	-2%
Hardware-Only ASP	22.4	12.1	12.6	12.3	11.8	10.3	9.7	9.1	9.0	9.1	-12%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	91	166	161	200	256	297	333	369	416	472	23%	13%
CPU Revenue	53	112	105	145	188	224	254	285	326	373	29%	15%
Workstation Revenue	21	33	31	26	39	26	25	23	21	19	13%	-14%
Peripheral Revenue (Turnkey)	17	21	24	28	29	47	54	61	70	81	12%	22%
Software Revenue	21	42	76	108	111	136	163	195	236	284	39%	21%
Bundled	17	32	30	50	55	63	69	75	84	97	26%	12%
Unbundled	4	11	46	58	56	73	94	120	152	187	66%	27%
Service Revenue	13	16	44	63	73	86	99	113	133	156	42%	17%
Total Revenue	125	225	280	371	439	519	595	678	785	912	29%	16%
Increase over Prior Year	NA	81%	25%	32%	19%	18%	15%	14%	16%	16%		

Source: Dataquest
September 1990

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TABLE NUMBER: 46
TITLE: History and Forecast
APPLICATION: All Applications
REGION: Italy
PLATFORM: Technical Workstation

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	306	1,071	1,230	2,086	3,745	5,590	7,590	10,040	13,440	17,240	65%	36%
Workstation Shipments	306	1,071	1,230	2,086	3,745	5,590	7,590	10,040	13,440	17,240	65%	36%
CPU Installed Base	306	1,377	2,601	4,644	8,228	13,380	20,110	29,280	41,860	58,230	93%	48%
Workstation Installed Base	306	1,377	2,601	4,644	8,228	13,380	20,110	29,280	41,860	58,230	93%	48%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	78.7	67.8	57.7	44.5	52.9	50.5	48.7	47.8	47.4	47.7	-8%	-2%
Hardware-Only ASP	41.4	39.1	25.5	22.4	16.0	14.7	13.7	13.0	12.6	12.5	-17%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	16	53	44	61	104	152	186	225	277	337	46%	27%
CPU Revenue	10	45	34	52	87	125	151	182	224	273	55%	26%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	6	8	10	9	17	27	34	43	52	63	23%	30%
Software Revenue	7	17	41	50	69	82	107	139	177	222	58%	26%
Bundled	6	16	17	21	37	40	47	56	67	80	42%	17%
Unbundled	1	1	24	29	33	42	60	82	110	142	112%	34%
Service Revenue	3	5	18	29	39	53	66	83	103	127	72%	26%
Total Revenue	25	76	103	141	212	287	359	447	557	686	53%	26%
Increase over Prior Year	NA	201%	36%	37%	50%	35%	25%	24%	25%	23%		

Source: Dataquest
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TABLE NUMBER: 47
TITLE: History and Forecast
APPLICATION: All Applications
REGION: Italy
PLATFORM: Host-Dependent/Server

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	105	170	315	575	497	490	510	490	470	450	36%	-2%
Workstation Shipments	524	1,236	1,289	1,992	2,073	1,930	1,840	1,640	1,500	1,370	32%	-8%
CPU Installed Base	105	275	590	1,164	1,653	2,110	2,530	2,930	3,310	3,680	73%	17%
Workstation Installed Base	524	1,760	3,050	5,042	7,115	9,040	10,880	12,520	14,020	15,390	68%	17%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	664.9	608.0	356.1	327.5	360.3	340.4	320.6	301.2	288.0	281.1	-12%	-5%
Hardware-Only ASP	863.0	491.9	240.4	140.4	177.1	162.5	150.1	137.9	126.7	116.2	-27%	-8%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	65	85	84	101	106	91	86	77	69	63	10%	-10%
CPU Revenue	34	40	42	59	60	47	44	38	34	32	12%	-12%
Workstation Revenue	21	33	31	26	39	26	25	23	21	19	13%	-14%
Peripheral Revenue (Turnkey)	10	11	11	16	7	18	17	15	14	13	-7%	12%
Software Revenue	13	20	23	39	25	30	29	26	25	25	14%	0%
Bundled	10	13	9	26	16	22	20	18	16	16	11%	-0%
Unbundled	3	7	14	13	9	8	8	8	8	9	24%	1%
Service Revenue	10	10	23	30	28	26	24	22	20	19	23%	-8%
Total Revenue	87	115	130	170	158	148	140	124	113	106	13%	-8%
Increase over Prior Year	NA	31%	13%	31%	-7%	-7%	-5%	-11%	-8%	-6%		

Source: Dataquest
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TABLE NUMBER: 48
TITLE: History and Forecast
APPLICATION: All Applications
REGION: Italy
PLATFORM: Personal Computer

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,433	4,616	6,730	7,647	9,176	10,920	12,830	14,440	15,340	15,720	45%	11%
Workstation Shipments	1,433	4,534	6,730	7,647	9,176	10,920	12,830	14,440	15,340	15,720	45%	11%
CPU Installed Base	1,433	5,967	12,625	19,830	27,631	35,660	43,800	53,550	64,200	75,220	81%	22%
Workstation Installed Base	1,433	5,967	12,625	19,830	27,631	35,660	43,800	53,550	64,200	75,220	81%	22%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	21.2	16.5	8.6	7.9	10.5	10.7	10.0	9.5	9.4	9.4	-13%	-2%
Hardware-Only ASP	5.6	5.4	4.5	4.6	4.8	4.7	4.7	4.6	4.6	4.6	-3%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	10	28	33	38	47	54	61	68	71	72	36%	9%
CPU Revenue	9	27	29	34	41	51	59	64	67	67	34%	10%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	1	1	4	4	5	2	3	3	4	5	56%	-3%
Software Revenue	2	5	12	18	17	24	27	31	34	37	60%	17%
Bundled	1	3	4	3	2	2	1	1	1	1	20%	-16%
Unbundled	1	2	8	15	15	22	26	29	33	36	81%	20%
Service Revenue	0	1	3	4	6	7	8	9	10	11	69%	13%
Total Revenue	12	34	48	60	69	85	97	107	115	120	42%	12%
Increase over Prior Year	NA	185%	40%	26%	16%	23%	14%	11%	7%	4%		

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September 1990

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TABLE NUMBER: 49
TITLE: History and Forecast
APPLICATION: Mechanical
REGION: Italy
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,068	3,444	4,427	5,774	6,863	8,570	10,320	12,070	13,960	15,380	45%	18%
Workstation Shipments	1,427	4,328	5,256	6,996	7,987	9,590	11,270	12,910	14,760	16,140	41%	15%
CPU Installed Base	1,068	4,486	8,867	14,360	20,352	27,050	34,250	43,200	54,050	66,310	80%	27%
Workstation Installed Base	1,427	5,755	10,966	17,681	24,803	32,550	40,760	50,620	62,330	75,410	77%	25%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	169.7	88.9	46.0	52.2	61.4	60.6	57.4	54.6	53.2	53.4	-18%	-3%
Hardware-Only ASP	18.3	11.3	13.8	14.0	13.5	12.0	11.5	10.9	11.0	11.2	-6%	-4%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	57	111	99	130	158	180	194	206	228	247	22%	9%
CPU Revenue	32	69	62	93	114	135	148	159	176	191	29%	11%
Workstation Revenue	17	27	23	18	25	17	16	15	15	14	8%	-11%
Peripheral Revenue (Turnkey)	9	15	15	19	19	28	30	32	37	42	17%	17%
Software Revenue	11	29	41	69	70	88	101	116	137	158	44%	18%
Bundled	10	23	17	36	35	42	42	42	44	47	27%	6%
Unbundled	1	6	24	33	35	46	59	74	93	111	100%	26%
Service Revenue	8	10	27	41	44	53	59	65	74	83	40%	13%
Total Revenue	77	151	168	240	273	320	354	387	439	488	29%	12%
Increase over Prior Year	NA	95%	11%	43%	13%	17%	11%	9%	13%	11%		

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September 1990

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TABLE NUMBER: 50
TITLE: History and Forecast
APPLICATION: AEC
REGION: Italy
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	434	1,206	1,694	2,193	2,816	3,650	4,580	5,570	6,590	7,680	45%	22%
Workstation Shipments	460	1,213	1,739	2,298	2,962	3,790	4,700	5,670	6,660	7,730	45%	21%
CPU Installed Base	434	1,600	3,275	5,355	7,824	10,740	14,110	18,470	23,840	30,300	78%	31%
Workstation Installed Base	460	1,673	3,393	5,579	8,194	11,250	14,750	19,210	24,660	31,180	78%	31%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	131.1	100.0	44.1	33.5	50.8	50.9	49.5	49.0	48.6	48.8	-17%	-1%
Hardware-Only ASP	14.7	10.6	7.1	7.3	7.8	7.0	6.4	5.9	5.7	5.6	-12%	-6%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	14	23	20	24	34	40	46	53	61	71	19%	16%
CPU Revenue	9	20	16	20	26	33	39	45	53	62	24%	19%
Workstation Revenue	1	2	2	2	4	3	3	2	2	1	22%	-20%
Peripheral Revenue (Turnkey)	4	1	2	2	4	4	5	5	6	8	2%	14%
Software Revenue	3	4	10	14	12	17	21	25	31	37	29%	24%
Bundled	3	2	4	5	5	7	8	9	11	13	11%	19%
Unbundled	0	2	6	9	7	9	12	16	20	24	83%	28%
Service Revenue	2	2	6	8	7	9	10	12	14	16	31%	16%
Total Revenue	19	29	35	46	54	65	77	89	105	124	23%	18%
Increase over Prior Year	NA	50%	21%	30%	18%	21%	18%	17%	17%	18%		

Source: Dataquest
September 1990

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TABLE NUMBER: 51
TITLE: History and Forecast
APPLICATION: GIS/Mapping
REGION: Italy
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	8	118	584	867	1,230	1,720	2,380	3,070	3,680	4,340	172%	29%
Workstation Shipments	22	148	628	942	1,362	1,850	2,500	3,170	3,760	4,400	127%	26%
CPU Installed Base	8	124	708	1,571	2,762	4,340	6,380	9,120	12,460	16,470	220%	43%
Workstation Installed Base	22	171	798	1,736	3,060	4,770	6,930	9,780	13,210	17,280	167%	41%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	202.1	158.1	42.1	39.5	59.7	61.9	58.1	55.5	53.7	52.6	-34%	-3%
Hardware-Only ASP	35.3	29.1	17.0	10.7	10.5	8.8	7.7	6.6	6.1	5.7	-52%	-12%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	3	10	13	15	22	30	39	48	60	76	46%	28%
CPU Revenue	1	6	9	10	17	23	31	39	50	64	65%	31%
Workstation Revenue	2	2	3	2	4	2	2	2	2	2	17%	-15%
Peripheral Revenue (Turnkey)	0	1	2	2	2	5	6	7	8	10	46%	38%
Software Revenue	3	2	4	6	9	12	17	22	28	37	25%	34%
Bundled	1	1	2	3	6	8	11	15	20	27	53%	37%
Unbundled	2	1	2	3	3	4	5	7	9	10	7%	28%
Service Revenue	1	2	3	4	8	10	13	16	20	26	47%	28%
Total Revenue	7	13	20	25	39	53	69	86	109	139	40%	29%
Increase over Prior Year	NA	84%	50%	23%	57%	38%	30%	25%	26%	28%		

Source: Dataquest
September 1990

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TABLE NUMBER: 52
TITLE: History and Forecast
APPLICATION: Electronic Design Automation
REGION: Italy
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	334	1,089	1,571	1,474	2,507	3,060	3,660	4,250	5,020	6,020	50%	19%
Workstation Shipments	353	1,152	1,626	1,489	2,682	3,200	3,790	4,370	5,100	6,070	50%	18%
CPU Installed Base	334	1,408	2,966	4,353	6,574	9,030	11,710	14,970	19,020	24,050	81%	30%
Workstation Installed Base	353	1,505	3,119	4,520	6,917	9,520	12,350	15,750	19,880	24,980	81%	29%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	89.6	65.8	45.1	61.4	54.6	51.1	51.3	50.7	49.6	49.3	-9%	-2%
Hardware-Only ASP	43.7	14.9	14.9	15.0	13.1	11.2	10.4	10.2	10.0	10.4	-21%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	16	22	28	30	42	48	54	62	68	79	21%	13%
CPU Revenue	11	17	19	23	32	32	36	41	47	56	24%	12%
Workstation Revenue	1	1	3	3	6	5	4	4	3	2	39%	-22%
Peripheral Revenue (Turnkey)	4	4	5	5	4	11	13	17	18	21	0%	38%
Software Revenue	4	7	21	20	20	20	25	32	40	52	40%	21%
Bundled	3	6	6	7	9	6	7	9	9	10	27%	2%
Unbundled	1	2	15	13	11	14	18	23	31	42	66%	32%
Service Revenue	1	3	8	10	13	14	17	21	25	31	60%	19%
Total Revenue	21	32	57	60	75	81	95	115	133	162	29%	17%
Increase over Prior Year	NA	54%	80%	5%	24%	8%	17%	20%	16%	22%		

Source: Dataquest
September 1990

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TABLE NUMBER: 53
TITLE: History and Forecast
APPLICATION: Electronic CAE
REGION: Italy
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	262	667	911	828	1,837	2,230	2,630	2,970	3,370	3,960	48%	17%
Workstation Shipments	267	680	926	820	1,901	2,280	2,670	3,000	3,390	3,980	48%	16%
CPU Installed Base	262	920	1,821	2,589	4,240	6,100	8,130	10,500	13,260	16,610	75%	31%
Workstation Installed Base	267	948	1,863	2,622	4,338	6,250	8,320	10,730	13,510	16,890	75%	31%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	77.4	55.8	38.4	50.5	50.6	51.2	51.1	49.9	48.7	48.4	-8%	-1%
Hardware-Only ASP	34.4	15.5	14.0	14.3	10.2	9.1	8.4	8.3	8.9	9.9	-22%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	10	13	15	16	24	29	33	39	42	50	19%	16%
CPU Revenue	7	10	10	11	18	20	23	26	29	35	22%	14%
Workstation Revenue	0	0	1	1	2	1	1	1	1	1	38%	-23%
Peripheral Revenue (Turnkey)	3	2	4	3	3	7	9	11	12	14	3%	33%
Software Revenue	2	5	11	11	12	11	14	18	24	32	38%	22%
Bundled	2	4	4	4	5	4	4	6	6	6	23%	3%
Unbundled	0	1	7	7	6	7	10	13	18	25	76%	33%
Service Revenue	1	1	4	5	7	8	10	12	14	18	62%	21%
Total Revenue	13	19	29	32	43	48	57	69	80	99	27%	18%
Increase over Prior Year	NA	44%	57%	9%	35%	13%	18%	22%	16%	24%		

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September 1990

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TABLE NUMBER: 54
TITLE: History and Forecast
APPLICATION: IC Layout
REGION: Italy
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	19	29	73	79	112	160	210	260	310	370	42%	27%
Workstation Shipments	21	32	75	78	110	160	210	260	310	370	39%	28%
CPU Installed Base	19	49	121	198	303	440	610	840	1,120	1,450	73%	37%
Workstation Installed Base	21	53	128	205	307	440	620	850	1,130	1,460	70%	37%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	84.5	73.2	45.2	85.7	52.5	49.4	47.7	48.2	47.7	48.2	-9%	-2%
Hardware-Only ASP	67.2	65.0	52.1	41.3	22.2	16.7	13.8	11.6	10.0	9.4	-40%	-16%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	2	2	3	4	3	3	3	3	4	4	5%	7%
CPU Revenue	1	1	2	2	2	2	2	2	2	3	9%	6%
Workstation Revenue	0	0	0	1	0	1	1	1	0	0	23%	-19%
Peripheral Revenue (Turnkey)	1	0	0	1	0	1	1	1	1	1	-23%	38%
Software Revenue	1	1	5	3	2	4	5	6	8	11	29%	36%
Bundled	0	1	1	0	0	0	0	0	0	0	-6%	4%
Unbundled	0	1	4	2	2	3	4	6	8	11	59%	40%
Service Revenue	0	0	1	2	1	2	2	2	3	4	47%	24%
Total Revenue	3	3	9	8	6	8	10	12	14	19	16%	24%
Increase over Prior Year	NA	14%	167%	-13%	-20%	31%	22%	21%	20%	29%		

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September 1990

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TABLE NUMBER: 55
TITLE: History and Forecast
APPLICATION: PCB Layout
REGION: Italy
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	53	393	587	566	558	670	810	1,010	1,340	1,690	60%	25%
Workstation Shipments	64	440	625	591	671	770	910	1,100	1,400	1,720	60%	21%
CPU Installed Base	53	439	1,024	1,566	2,031	2,490	2,970	3,640	4,640	5,990	107%	24%
Workstation Installed Base	64	505	1,127	1,693	2,272	2,830	3,410	4,170	5,240	6,620	104%	24%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	261.9	91.4	61.2	80.5	61.3	51.2	52.2	53.1	51.7	51.1	-25%	-4%
Hardware-Only ASP	58.3	11.5	12.8	12.4	22.2	17.7	16.8	15.5	12.9	11.7	-18%	-12%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	4	7	10	11	15	16	18	20	22	25	32%	11%
CPU Revenue	3	5	7	9	11	10	11	13	15	18	33%	10%
Workstation Revenue	1	1	2	1	3	2	3	3	2	1	44%	-21%
Peripheral Revenue (Turnkey)	1	1	1	1	1	3	4	4	5	6	2%	58%
Software Revenue	1	1	6	6	6	5	6	7	8	9	57%	10%
Bundled	0	1	2	3	3	2	2	3	3	3	60%	-0%
Unbundled	0	0	4	4	2	3	4	4	5	6	54%	19%
Service Revenue	0	1	3	4	5	4	5	6	8	9	63%	14%
Total Revenue	5	10	19	21	26	25	29	33	38	44	40%	11%
Increase over Prior Year	NA	105%	95%	8%	23%	-2%	15%	16%	14%	15%		

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September 1990

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TABLE NUMBER: 56
TITLE: History and Forecast
APPLICATION: All Applications
REGION: Scandinavia
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,534	4,457	6,633	9,238	13,216	16,630	19,980	23,270	26,490	29,900	54%	18%
Workstation Shipments	2,056	5,442	7,289	10,413	14,880	17,980	21,210	24,330	27,400	30,700	49%	16%
CPU Installed Base	1,534	5,920	12,489	21,332	33,317	47,270	62,600	81,230	103,070	128,320	85%	31%
Workstation Installed Base	2,056	7,499	14,723	24,743	38,401	53,750	70,420	90,200	113,060	139,210	80%	29%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	281.8	140.3	63.0	59.9	66.2	60.8	58.9	57.3	56.8	57.4	-25%	-3%
Hardware-Only ASP	29.3	14.0	12.8	12.3	11.7	9.9	9.2	8.7	8.5	8.6	-17%	-6%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	99	136	140	207	251	281	307	332	364	410	20%	10%
CPU Revenue	54	83	87	145	185	216	241	265	295	334	28%	13%
Workstation Revenue	26	34	33	26	39	24	23	20	17	15	8%	-17%
Peripheral Revenue (Turnkey)	19	18	20	36	27	40	43	47	52	60	7%	18%
Software Revenue	21	35	72	81	94	105	125	148	175	208	35%	17%
Bundled	17	27	27	29	46	45	49	54	59	66	22%	7%
Unbundled	4	8	45	52	47	60	76	94	116	142	66%	25%
Service Revenue	14	16	45	58	71	82	92	103	118	137	37%	14%
Total Revenue	134	187	256	346	415	467	524	584	657	754	25%	13%
Increase over Prior Year	NA	39%	37%	35%	20%	13%	12%	11%	13%	15%		

Source: Dataquest
September 1990

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TABLE NUMBER: 57
TITLE: History and Forecast
APPLICATION: All Applications
REGION: Scandinavia
PLATFORM: Technical Workstation

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	183	404	911	1,665	3,863	5,130	6,860	8,950	11,750	15,010	84%	31%
Workstation Shipments	183	404	911	1,665	3,863	5,130	6,860	8,950	11,750	15,010	84%	31%
CPU Installed Base	183	586	1,494	3,138	6,918	11,810	18,130	26,540	37,750	52,220	107%	50%
Workstation Installed Base	183	586	1,494	3,138	6,918	11,810	18,130	26,540	37,750	52,220	107%	50%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	92.5	92.2	55.1	48.8	55.0	53.4	52.1	51.5	51.9	53.1	-10%	-1%
Hardware-Only ASP	43.3	37.4	25.4	22.1	14.7	13.5	12.5	11.9	11.5	11.4	-19%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	10	20	29	58	101	144	170	201	241	292	58%	24%
CPU Revenue	7	16	22	49	86	120	143	169	202	245	67%	23%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	4	4	6	9	15	23	28	33	38	46	33%	25%
Software Revenue	4	11	31	35	45	57	75	96	121	150	63%	27%
Bundled	3	10	13	11	29	25	31	38	45	54	54%	13%
Unbundled	1	1	19	23	16	32	43	58	75	96	92%	43%
Service Revenue	2	3	16	25	39	54	65	79	95	116	89%	24%
Total Revenue	16	34	76	118	186	255	310	377	457	558	64%	25%
Increase over Prior Year	NA	114%	125%	56%	58%	37%	22%	21%	21%	22%		

Source: Dataquest
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TABLE NUMBER: 58
TITLE: History and Forecast
APPLICATION: All Applications
REGION: Scandinavia
PLATFORM: Host-Dependent/Server

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	137	184	412	582	462	420	420	390	360	350	27%	-5%
Workstation Shipments	660	1,241	1,067	1,757	2,125	1,770	1,650	1,440	1,270	1,150	26%	-12%
CPU Installed Base	137	321	733	1,314	1,765	2,140	2,450	2,730	2,990	3,230	67%	13%
Workstation Installed Base	660	1,900	2,968	4,724	6,849	8,620	10,270	11,700	12,980	14,120	60%	16%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	635.2	600.0	233.2	313.6	430.7	414.0	397.1	381.1	364.8	349.6	-7%	-4%
Hardware-Only ASP	862.3	495.4	235.7	128.9	181.5	166.2	153.8	141.7	130.5	119.8	-27%	-8%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	82	90	85	111	107	84	77	66	57	52	6%	-13%
CPU Revenue	41	43	39	59	59	45	40	34	30	27	8%	-15%
Workstation Revenue	26	34	33	26	39	24	23	20	17	15	8%	-17%
Peripheral Revenue (Turnkey)	15	13	12	25	8	15	13	11	10	10	-11%	4%
Software Revenue	13	17	25	29	22	24	23	21	19	18	10%	-4%
Bundled	13	14	12	17	16	18	17	15	13	12	5%	-7%
Unbundled	1	2	14	12	6	7	7	6	6	6	53%	2%
Service Revenue	13	12	27	31	28	24	22	19	17	15	17%	-12%
Total Revenue	108	119	137	171	157	132	122	105	93	85	8%	-12%
Increase over Prior Year	NA	11%	15%	25%	-8%	-16%	-8%	-13%	-12%	-9%		

Source: Dataquest
September 1990

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TABLE NUMBER: 59
TITLE: History and Forecast
APPLICATION: All Applications
REGION: Scandinavia
PLATFORM: Personal Computer

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,214	3,870	5,310	6,992	8,891	11,090	12,700	13,940	14,370	14,540	49%	10%
Workstation Shipments	1,214	3,798	5,310	6,992	8,891	11,090	12,700	13,940	14,370	14,540	49%	10%
CPU Installed Base	1,214	5,012	10,262	16,881	24,634	33,320	42,020	51,960	62,330	72,870	83%	24%
Workstation Installed Base	1,214	5,012	10,262	16,881	24,634	33,320	42,020	51,960	62,330	72,870	83%	24%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	27.7	22.9	12.0	4.9	7.4	8.3	8.2	8.3	8.6	9.0	-23%	4%
Hardware-Only ASP	5.6	5.6	4.5	5.7	4.8	4.7	4.7	4.6	4.6	4.6	-3%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	7	26	26	38	43	53	60	65	66	66	42%	9%
CPU Revenue	6	24	25	37	40	51	58	62	62	62	44%	9%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	1	1	1	1	3	2	2	3	3	4	30%	5%
Software Revenue	3	7	15	18	27	23	27	31	36	40	52%	9%
Bundled	1	3	3	1	1	2	1	1	1	1	2%	-3%
Unbundled	2	4	12	16	26	22	26	30	35	39	60%	9%
Service Revenue	0	1	2	3	4	4	5	5	6	6	186%	8%
Total Revenue	11	34	44	58	73	81	92	101	107	112	47%	9%
Increase over Prior Year	NA	214%	31%	32%	26%	10%	14%	10%	5%	5%		

Source: Dataquest
September 1990

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TABLE NUMBER: 60
TITLE: History and Forecast
APPLICATION: Mechanical
REGION: Scandinavia
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	870	2,198	3,062	4,480	6,484	8,150	9,630	11,060	12,490	13,640	49%	16%
Workstation Shipments	1,289	3,049	3,588	5,429	7,661	9,080	10,480	11,810	13,180	14,290	43%	13%
CPU Installed Base	870	3,050	6,075	10,345	16,210	23,070	30,500	39,370	49,660	61,110	79%	30%
Workstation Installed Base	1,289	4,337	7,889	13,109	20,158	27,980	36,340	46,030	57,090	69,260	73%	28%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	338.1	175.2	80.5	74.1	72.1	59.5	56.3	53.4	52.0	52.1	-27%	-6%
Hardware-Only ASP	24.2	14.1	14.7	12.8	13.4	11.4	10.8	10.2	10.2	10.4	-11%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	65	83	83	123	150	160	168	173	184	196	18%	5%
CPU Revenue	33	44	48	81	109	121	130	136	146	157	27%	8%
Workstation Revenue	20	26	24	15	26	14	13	12	11	11	5%	-16%
Peripheral Revenue (Turnkey)	11	12	12	27	16	25	25	25	26	28	7%	12%
Software Revenue	13	18	39	42	50	52	60	68	80	93	31%	13%
Bundled	11	15	16	16	28	23	24	25	28	31	20%	2%
Unbundled	2	3	23	25	22	28	35	43	53	62	70%	23%
Service Revenue	10	10	28	35	41	45	49	52	58	64	32%	9%
Total Revenue	88	111	151	199	242	257	276	294	322	352	22%	8%
Increase over Prior Year	NA	26%	36%	32%	21%	6%	8%	6%	10%	9%		

Source: Dataquest
September 1990

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TABLE NUMBER: 61
TITLE: History and Forecast
APPLICATION: AEC
REGION: Scandinavia
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	337	1,112	1,716	2,012	2,984	3,790	4,640	5,500	6,310	7,270	55%	19%
Workstation Shipments	394	1,144	1,761	2,107	3,154	3,950	4,770	5,600	6,380	7,320	52%	18%
CPU Installed Base	337	1,412	3,112	5,025	7,693	10,810	14,280	18,610	23,750	29,850	87%	31%
Workstation Installed Base	394	1,538	3,284	5,292	8,131	11,400	15,010	19,460	24,680	30,850	83%	31%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	312.2	108.8	34.0	47.6	49.4	64.6	63.4	63.4	63.4	63.9	-31%	5%
Hardware-Only ASP	18.6	11.2	7.1	9.8	7.7	6.8	6.3	5.8	5.6	5.5	-16%	-7%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	11	20	20	32	36	51	58	65	74	86	26%	19%
CPU Revenue	6	15	15	25	27	42	48	55	62	73	34%	22%
Workstation Revenue	3	3	3	4	4	4	3	3	2	1	10%	-20%
Peripheral Revenue (Turnkey)	2	2	2	3	4	6	7	8	10	12	14%	25%
Software Revenue	2	5	11	13	18	21	26	32	38	46	49%	21%
Bundled	1	3	4	4	6	6	7	7	8	10	36%	10%
Unbundled	1	2	7	9	12	15	20	25	30	36	60%	25%
Service Revenue	2	2	7	9	9	14	16	18	21	24	42%	22%
Total Revenue	15	27	37	54	63	86	100	115	133	156	33%	20%
Increase over Prior Year	NA	80%	38%	45%	16%	38%	16%	15%	15%	18%		

Source: Dataquest
September 1990

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TABLE NUMBER: 62
TITLE: History and Forecast
APPLICATION: GIS/Mapping
REGION: Scandinavia
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	12	132	425	486	1,094	1,500	2,000	2,510	2,860	3,250	146%	24%
Workstation Shipments	37	173	473	587	1,206	1,600	2,100	2,590	2,920	3,300	100%	22%
CPU Installed Base	12	141	566	1,046	2,106	3,500	5,260	7,530	10,160	13,170	180%	44%
Workstation Installed Base	37	211	683	1,265	2,437	3,940	5,810	8,180	10,870	13,950	131%	42%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	234.6	188.0	101.0	189.4	101.1	86.6	79.6	74.7	71.0	68.6	-28%	-7%
Hardware-Only ASP	33.4	25.7	17.8	14.1	10.5	8.5	7.5	6.5	6.0	5.7	-52%	-12%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	5	10	14	19	23	27	35	42	50	63	35%	23%
CPU Revenue	2	5	8	13	17	21	27	33	41	51	53%	25%
Workstation Revenue	3	3	4	4	3	3	3	2	2	2	6%	-12%
Peripheral Revenue (Turnkey)	1	1	2	2	3	3	5	6	8	11	37%	31%
Software Revenue	1	2	4	9	9	10	12	15	18	21	53%	19%
Bundled	1	2	3	5	5	5	6	7	8	10	37%	14%
Unbundled	NA	0	1	4	4	5	6	8	10	11	NA	25%
Service Revenue	1	2	4	5	8	10	12	15	18	23	50%	23%
Total Revenue	7	13	22	34	39	47	59	71	86	107	41%	22%
Increase over Prior Year	NA	87%	62%	56%	17%	19%	25%	21%	21%	24%		

Source: Dataquest
September 1990

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TABLE NUMBER: 63
TITLE: History and Forecast
APPLICATION: Electronic Design Automation
REGION: Scandinavia
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	315	1,015	1,431	2,259	2,655	3,190	3,710	4,210	4,830	5,730	53%	17%
Workstation Shipments	336	1,076	1,466	2,290	2,859	3,350	3,860	4,330	4,910	5,790	53%	15%
CPU Installed Base	315	1,317	2,736	4,916	7,308	9,900	12,560	15,720	19,500	24,180	88%	27%
Workstation Installed Base	336	1,412	2,866	5,077	7,675	10,430	13,240	16,540	20,410	25,160	87%	27%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	110.2	78.6	40.1	23.3	48.0	48.1	49.7	49.8	49.0	48.9	-15%	0%
Hardware-Only ASP	56.0	16.3	14.1	13.4	13.1	10.7	10.0	9.8	9.6	10.0	-25%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	18	23	23	33	42	42	46	51	56	64	18%	9%
CPU Revenue	12	19	16	26	32	32	36	41	45	54	22%	11%
Workstation Revenue	1	1	3	3	6	4	4	3	2	2	35%	-24%
Peripheral Revenue (Turnkey)	5	3	4	4	4	5	6	8	8	9	-5%	19%
Software Revenue	4	10	18	18	17	22	27	33	39	49	32%	23%
Bundled	3	7	5	5	8	10	12	15	16	16	18%	17%
Unbundled	1	3	13	13	9	12	15	19	24	32	56%	28%
Service Revenue	1	2	6	9	12	13	16	19	22	26	54%	17%
Total Revenue	24	35	47	60	72	77	88	104	116	139	24%	14%
Increase over Prior Year	NA	45%	33%	28%	20%	8%	15%	17%	12%	20%		

Source: Dataquest
September 1990

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TABLE NUMBER: 64
TITLE: History and Forecast
APPLICATION: Electronic CAE
REGION: Scandinavia
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	237	584	803	1,562	1,957	2,340	2,690	2,960	3,250	3,790	53%	14%
Workstation Shipments	245	598	809	1,565	2,038	2,390	2,730	2,990	3,270	3,810	53%	13%
CPU Installed Base	237	814	1,607	3,116	4,910	6,880	8,900	11,200	13,780	16,910	83%	28%
Workstation Installed Base	245	843	1,642	3,154	5,028	7,060	9,130	11,460	14,070	17,230	83%	28%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	79.8	54.7	36.8	14.0	40.6	47.1	48.5	47.7	46.7	46.5	-13%	3%
Hardware-Only ASP	43.7	17.0	13.8	12.5	10.7	8.8	8.2	8.1	8.6	9.6	-25%	-2%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	11	12	12	18	25	25	28	31	34	40	18%	10%
CPU Revenue	8	10	9	14	19	21	23	25	28	33	20%	12%
Workstation Revenue	1	0	1	1	2	1	1	1	1	0	32%	-28%
Peripheral Revenue (Turnkey)	3	2	2	2	3	3	4	5	5	6	5%	13%
Software Revenue	2	4	8	9	10	13	17	21	25	32	39%	27%
Bundled	1	3	3	3	4	7	8	10	10	11	23%	22%
Unbundled	0	1	5	6	6	7	9	11	15	21	67%	30%
Service Revenue	1	1	3	5	6	8	9	11	13	16	64%	20%
Total Revenue	13	16	22	31	41	46	53	63	72	87	25%	17%
Increase over Prior Year	NA	24%	38%	39%	30%	13%	16%	19%	13%	22%		

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September 1990

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TABLE NUMBER: 65
TITLE: History and Forecast
APPLICATION: IC Layout
REGION: Scandinavia
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	17	29	61	70	115	160	210	260	300	350	47%	25%
Workstation Shipments	19	32	64	67	114	160	210	260	300	350	42%	25%
CPU Installed Base	17	46	107	175	284	420	600	830	1,100	1,420	76%	38%
Workstation Installed Base	19	51	115	181	287	430	610	840	1,110	1,430	72%	38%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	84.5	110.7	31.8	85.3	53.8	51.0	49.1	49.0	48.6	49.0	-9%	-2%
Hardware-Only ASP	67.5	63.5	37.1	39.4	20.3	15.7	13.0	11.1	9.6	9.0	-41%	-15%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	2	2	2	3	2	2	3	3	3	3	1%	5%
CPU Revenue	2	1	1	2	2	2	2	2	2	3	4%	6%
Workstation Revenue	0	0	0	1	0	0	0	0	0	0	17%	-26%
Peripheral Revenue (Turnkey)	1	0	0	0	0	0	0	0	0	0	-22%	21%
Software Revenue	1	1	2	3	1	2	3	4	4	6	18%	34%
Bundled	0	0	0	0	0	0	0	1	1	0	-7%	14%
Unbundled	0	1	2	3	1	2	2	3	4	6	33%	36%
Service Revenue	0	0	0	1	1	1	1	2	2	2	44%	18%
Total Revenue	3	3	5	7	5	6	7	8	9	11	10%	19%
Increase over Prior Year	NA	9%	41%	42%	-28%	24%	17%	15%	13%	24%		

Source: Dataquest
September 1990

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TABLE NUMBER: 66
TITLE: History and Forecast
APPLICATION: PCB Layout
REGION: Scandinavia
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	61	402	567	627	582	690	820	990	1,280	1,590	57%	22%
Workstation Shipments	72	447	592	658	707	790	920	1,080	1,340	1,620	58%	18%
CPU Installed Base	61	457	1,022	1,624	2,114	2,590	3,060	3,690	4,620	5,860	103%	23%
Workstation Installed Base	72	519	1,109	1,743	2,359	2,940	3,510	4,240	5,230	6,500	101%	22%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	234.2	114.3	47.4	65.7	59.2	49.5	52.2	54.8	53.8	53.4	-24%	-2%
Hardware-Only ASP	75.8	12.5	12.6	12.0	21.4	16.8	15.9	14.7	12.3	11.2	-22%	-12%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	5	9	9	12	15	14	16	17	19	22	23%	7%
CPU Revenue	3	7	6	9	12	10	11	13	15	18	32%	9%
Workstation Revenue	1	1	2	1	3	2	2	2	1	1	41%	-22%
Peripheral Revenue (Turnkey)	2	1	1	1	1	2	2	2	3	3	-23%	43%
Software Revenue	2	5	8	6	6	6	7	8	9	11	26%	13%
Bundled	2	4	2	2	3	3	4	4	5	5	16%	9%
Unbundled	0	1	6	4	3	3	4	4	5	5	54%	16%
Service Revenue	1	1	3	4	5	5	5	6	7	8	47%	12%
Total Revenue	8	15	19	22	26	25	28	32	36	40	27%	9%
Increase over Prior Year	NA	96%	26%	11%	21%	-4%	13%	14%	10%	13%		

Source: Dataquest
September 1990

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TABLE NUMBER: 67
TITLE: History and Forecast
APPLICATION: All Applications
REGION: United Kingdom
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	2,835	9,251	11,515	10,866	21,784	26,230	30,310	34,470	38,950	43,020	50%	15%
Workstation Shipments	3,825	11,442	13,074	12,520	24,674	28,480	32,270	36,090	40,330	44,180	45%	12%
CPU Installed Base	2,835	11,970	23,380	33,540	53,126	74,870	97,800	124,870	156,440	192,080	80%	29%
Workstation Installed Base	3,825	15,267	28,236	40,052	62,545	86,620	111,690	140,590	173,720	210,700	75%	27%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	157.2	94.1	50.1	73.4	65.6	58.7	56.6	54.9	54.0	53.9	-16%	-4%
Hardware-Only ASP	25.4	13.0	16.8	21.4	12.6	10.6	9.9	9.3	9.1	9.1	-13%	-6%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	174	298	289	380	454	477	507	541	591	652	21%	8%
CPU Revenue	88	192	190	278	346	367	397	430	478	534	31%	9%
Workstation Revenue	46	65	58	51	63	46	41	35	30	25	6%	-17%
Peripheral Revenue (Turnkey)	40	40	41	50	45	65	69	75	83	94	2%	16%
Software Revenue	58	104	172	202	203	225	254	292	340	395	29%	14%
Bundled	42	78	71	101	104	103	108	115	124	137	20%	6%
Unbundled	16	27	100	102	99	121	147	177	216	258	44%	21%
Service Revenue	31	46	101	128	132	141	154	171	195	223	34%	11%
Total Revenue	262	448	562	711	789	843	916	1,005	1,127	1,271	25%	10%
Increase over Prior Year	NA	71%	26%	26%	11%	7%	9%	10%	12%	13%		

Source: Dataquest
September 1990

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TABLE NUMBER: 68
TITLE: History and Forecast
APPLICATION: All Applications
REGION: United Kingdom
PLATFORM: Technical Workstation

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	788	2,084	3,985	5,617	7,355	8,960	11,440	14,550	18,920	23,650	56%	26%
Workstation Shipments	788	2,084	3,985	5,617	7,355	8,960	11,440	14,550	18,920	23,650	56%	26%
CPU Installed Base	788	2,872	6,841	12,361	19,334	27,240	36,530	48,920	65,680	87,170	90%	35%
Workstation Installed Base	788	2,872	6,841	12,361	19,334	27,240	36,530	48,920	65,680	87,170	90%	35%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	73.4	72.9	40.3	53.6	57.4	54.5	52.5	51.4	51.0	51.2	-5%	-2%
Hardware-Only ASP	35.3	27.9	24.3	22.8	14.6	13.3	12.3	11.7	11.3	11.2	-16%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	36	92	103	186	204	253	290	339	404	480	41%	19%
CPU Revenue	22	77	84	160	177	212	244	284	340	405	51%	18%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	14	15	20	27	27	40	47	55	64	75	14%	23%
Software Revenue	19	48	92	111	129	143	174	215	262	316	47%	20%
Bundled	16	41	41	52	72	72	81	93	105	119	35%	11%
Unbundled	2	7	51	59	57	71	94	123	158	197	89%	28%
Service Revenue	8	13	44	70	82	98	115	137	165	196	61%	19%
Total Revenue	62	152	239	367	415	494	580	691	831	992	46%	19%
Increase over Prior Year	NA	144%	57%	53%	13%	19%	18%	19%	20%	19%		

Source: Dataquest
September 1990

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TABLE NUMBER: 69
TITLE: History and Forecast
APPLICATION: All Applications
REGION: United Kingdom
PLATFORM: Host-Dependent/Server

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	248	317	778	931	876	740	720	650	600	540	29%	-9%
Workstation Shipments	1,239	2,623	2,337	2,584	3,765	2,990	2,680	2,280	1,970	1,700	25%	-15%
CPU Installed Base	248	566	1,344	2,272	3,129	3,800	4,330	4,790	5,200	5,560	66%	12%
Workstation Installed Base	1,239	3,863	6,200	8,784	12,549	15,540	18,220	20,510	22,480	24,180	59%	14%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	554.2	650.5	224.1	440.8	293.7	296.0	278.6	261.9	252.0	248.2	-12%	-3%
Hardware-Only ASP	862.8	506.6	240.5	111.8	178.3	163.2	151.1	138.9	127.5	116.6	-27%	-8%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	126	164	154	169	171	132	118	99	84	72	6%	-16%
CPU Revenue	57	76	76	95	94	65	57	47	41	35	10%	-18%
Workstation Revenue	46	65	58	51	63	46	41	35	30	25	6%	-17%
Peripheral Revenue (Turnkey)	23	23	20	22	15	22	19	16	14	13	-8%	-3%
Software Revenue	32	42	51	65	41	40	36	31	28	28	5%	-8%
Bundled	22	31	25	44	28	28	24	20	18	17	5%	-10%
Unbundled	9	10	26	21	13	13	12	11	11	11	7%	-3%
Service Revenue	22	30	52	55	45	37	32	27	24	21	15%	-14%
Total Revenue	180	236	257	289	257	210	186	157	136	121	7%	-14%
Increase over Prior Year	NA	31%	9%	13%	-11%	-19%	-11%	-16%	-13%	-11%		

Source: Dataquest
September 1990

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TABLE NUMBER: 70
TITLE: History and Forecast
APPLICATION: All Applications
REGION: United Kingdom
PLATFORM: Personal Computer

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,799	6,850	6,752	4,318	13,554	16,530	18,150	19,260	19,430	18,820	50%	7%
Workstation Shipments	1,799	6,735	6,752	4,318	13,554	16,530	18,150	19,260	19,430	18,820	50%	7%
CPU Installed Base	1,799	8,533	15,195	18,907	30,663	43,830	56,940	71,170	85,560	99,350	76%	27%
Workstation Installed Base	1,799	8,533	15,195	18,907	30,663	43,830	56,940	71,170	85,560	99,350	76%	27%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	26.2	13.7	9.8	13.8	13.6	11.3	11.0	11.0	11.3	11.7	-12%	-3%
Hardware-Only ASP	5.6	5.3	4.4	5.0	5.5	5.5	5.4	5.3	5.3	5.3	-0%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	12	41	33	25	78	92	99	104	103	100	47%	5%
CPU Revenue	9	39	31	23	75	89	96	99	98	94	55%	5%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	3	2	2	2	3	3	4	5	5	6	-1%	15%
Software Revenue	8	15	29	26	33	41	44	46	50	52	34%	10%
Bundled	3	6	5	4	4	4	3	2	2	2	6%	-19%
Unbundled	4	10	23	22	28	37	41	44	48	50	46%	12%
Service Revenue	1	2	5	3	6	6	6	7	7	6	59%	2%
Total Revenue	20	59	66	54	117	140	150	157	159	158	43%	6%
Increase over Prior Year	NA	201%	12%	-18%	115%	20%	7%	5%	2%	-1%		

Source: Dataquest
September 1990

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TABLE NUMBER: 71
TITLE: History and Forecast
APPLICATION: Mechanical
REGION: United Kingdom
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	1,569	4,882	6,289	5,779	10,008	11,910	13,430	14,950	16,610	17,550	45%	12%
Workstation Shipments	2,295	6,708	7,591	7,101	11,837	13,350	14,680	16,000	17,570	18,420	39%	9%
CPU Installed Base	1,569	6,413	12,642	18,029	26,827	36,320	45,880	56,970	69,710	83,400	76%	25%
Workstation Installed Base	2,295	9,003	16,535	23,245	33,886	44,860	55,810	68,070	81,910	96,600	71%	23%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	178.5	102.0	50.1	73.9	66.2	62.7	59.5	56.8	55.4	55.5	-18%	-3%
Hardware-Only ASP	21.0	12.1	18.0	24.6	15.4	12.0	11.4	10.7	10.6	10.7	-6%	-7%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	107	174	173	224	256	257	259	260	273	280	19%	2%
CPU Revenue	53	100	108	160	192	194	198	201	212	218	29%	3%
Workstation Revenue	34	50	42	34	42	25	23	20	18	17	4%	-16%
Peripheral Revenue (Turnkey)	19	23	24	30	23	37	38	39	42	45	3%	14%
Software Revenue	32	49	86	114	108	124	134	147	166	183	27%	11%
Bundled	22	39	40	64	57	61	59	56	57	58	20%	0%
Unbundled	10	11	46	51	51	63	76	91	109	125	40%	20%
Service Revenue	19	27	58	76	76	81	84	87	95	101	32%	6%
Total Revenue	158	250	318	414	440	462	477	494	533	564	23%	5%
Increase over Prior Year	NA	58%	27%	30%	6%	5%	3%	4%	8%	6%		

Source: Dataquest
September 1990

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TABLE NUMBER: 72
TITLE: History and Forecast
APPLICATION: AEC
REGION: United Kingdom
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	561	1,724	2,064	1,660	4,056	5,050	5,930	6,850	7,780	8,720	49%	17%
Workstation Shipments	716	1,853	2,187	1,802	4,401	5,270	6,110	6,980	7,870	8,780	44%	15%
CPU Installed Base	561	2,232	4,272	5,784	9,398	13,590	18,150	23,630	30,040	37,380	76%	32%
Workstation Installed Base	716	2,569	4,732	6,387	10,349	14,770	19,530	25,170	31,690	39,130	71%	30%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	162.6	103.5	71.5	100.1	71.2	53.4	53.7	54.9	56.0	57.1	-15%	-4%
Hardware-Only ASP	16.6	11.3	8.3	14.5	9.0	7.5	7.0	6.5	6.3	6.1	-12%	-7%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	24	39	38	51	66	68	75	83	93	105	23%	10%
CPU Revenue	12	27	26	38	51	56	63	70	79	90	33%	12%
Workstation Revenue	6	8	7	7	6	4	4	3	2	2	-1%	-24%
Peripheral Revenue (Turnkey)	5	4	4	6	9	8	9	10	12	14	11%	10%
Software Revenue	6	10	23	25	29	30	36	43	51	60	39%	16%
Bundled	4	7	11	11	15	12	14	16	19	23	27%	9%
Unbundled	1	3	12	14	14	18	22	27	32	37	65%	21%
Service Revenue	4	7	17	19	15	14	16	18	20	23	30%	8%
Total Revenue	33	56	77	94	110	112	127	143	164	189	27%	11%
Increase over Prior Year	NA	67%	38%	23%	17%	2%	13%	13%	15%	15%		

Source: Dataquest
September 1990

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TABLE NUMBER: 73
TITLE: History and Forecast
APPLICATION: GIS/Mapping
REGION: United Kingdom
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	15	216	659	661	2,329	3,210	4,170	5,160	6,000	6,880	173%	24%
Workstation Shipments	72	303	717	825	2,741	3,490	4,430	5,380	6,170	7,010	107%	21%
CPU Installed Base	15	229	888	1,542	3,829	6,910	10,730	15,540	21,190	27,720	202%	49%
Workstation Installed Base	72	376	1,093	1,911	4,610	7,970	12,070	17,110	22,940	29,610	130%	45%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	448.5	122.1	57.6	93.8	67.9	56.0	53.8	52.4	51.5	51.2	-31%	-5%
Hardware-Only ASP	344.3	30.5	24.4	22.7	10.3	9.4	8.3	7.2	6.7	6.4	-50%	-9%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	6	15	22	32	46	63	79	95	116	145	52%	26%
CPU Revenue	2	9	15	24	35	54	69	84	105	132	77%	30%
Workstation Revenue	3	4	4	6	5	4	4	3	3	2	14%	-17%
Peripheral Revenue (Turnkey)	1	2	3	2	6	5	6	7	9	12	44%	14%
Software Revenue	1	4	7	13	16	17	22	28	35	44	64%	23%
Bundled	1	3	5	7	10	11	14	18	23	31	58%	24%
Unbundled	0	1	2	6	5	6	8	10	12	13	84%	21%
Service Revenue	1	3	6	9	14	19	24	30	38	49	58%	29%
Total Revenue	8	22	35	54	75	99	124	152	189	239	55%	26%
Increase over Prior Year	NA	160%	60%	55%	40%	32%	25%	22%	25%	26%		

Source: Dataquest
September 1990

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TABLE NUMBER: 74
TITLE: History and Forecast
APPLICATION: Electronic Design Automation
REGION: United Kingdom
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	689	2,430	2,502	2,766	5,391	6,050	6,780	7,500	8,560	9,870	51%	13%
Workstation Shipments	742	2,577	2,579	2,792	5,694	6,370	7,060	7,730	8,710	9,970	50%	12%
CPU Installed Base	689	3,097	5,578	8,185	13,071	18,060	23,040	28,740	35,500	43,580	80%	27%
Workstation Installed Base	742	3,319	5,876	8,509	13,701	19,010	24,290	30,240	37,180	45,370	79%	27%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	104.8	75.1	37.9	54.1	57.9	52.1	53.3	53.3	52.4	52.2	-11%	-2%
Hardware-Only ASP	46.8	15.9	21.9	20.9	12.0	11.3	10.6	10.3	10.0	10.1	-24%	-3%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	38	69	56	74	85	89	95	103	109	121	18%	7%
CPU Revenue	21	56	40	57	68	63	67	75	82	94	27%	7%
Workstation Revenue	3	2	5	5	10	12	11	10	6	4	30%	-16%
Peripheral Revenue (Turnkey)	15	11	11	12	7	14	16	19	21	23	-13%	26%
Software Revenue	19	42	56	50	51	53	62	75	88	108	22%	16%
Bundled	14	30	16	19	23	19	21	25	25	26	10%	3%
Unbundled	5	12	41	32	28	34	41	50	63	83	43%	24%
Service Revenue	6	10	20	24	27	28	31	37	42	50	34%	13%
Total Revenue	63	121	133	148	163	170	188	216	240	279	21%	11%
Increase over Prior Year	NA	92%	10%	11%	10%	4%	11%	15%	11%	16%		

Source: Dataquest
September 1990

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TABLE NUMBER: 75
TITLE: History and Forecast
APPLICATION: Electronic CAE
REGION: United Kingdom
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	474	1,358	1,302	1,540	3,793	4,300	4,770	5,120	5,570	6,310	52%	11%
Workstation Shipments	483	1,383	1,317	1,529	3,907	4,400	4,840	5,170	5,610	6,340	52%	10%
CPU Installed Base	474	1,819	3,105	4,542	8,027	11,720	15,460	19,560	24,100	29,390	76%	30%
Workstation Installed Base	483	1,867	3,167	4,593	8,194	11,990	15,810	19,960	24,550	29,880	76%	30%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	81.2	52.0	39.7	45.8	57.8	52.7	53.2	52.0	50.8	50.4	-7%	-3%
Hardware-Only ASP	37.1	16.3	21.0	19.9	10.2	9.2	8.5	8.4	8.8	9.6	-23%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	20	31	28	36	50	52	55	60	64	72	20%	7%
CPU Revenue	13	24	19	27	40	39	42	46	49	56	26%	7%
Workstation Revenue	1	1	2	2	4	4	3	2	2	2	41%	-17%
Peripheral Revenue (Turnkey)	7	6	7	7	6	9	10	12	13	14	-3%	19%
Software Revenue	9	14	22	22	26	26	31	39	46	57	23%	17%
Bundled	6	10	8	9	13	11	13	16	15	15	16%	4%
Unbundled	3	3	15	13	13	15	19	23	31	43	33%	26%
Service Revenue	2	3	8	11	14	14	16	20	22	27	48%	13%
Total Revenue	31	47	58	69	90	92	102	119	132	156	24%	12%
Increase over Prior Year	NA	50%	23%	19%	31%	2%	11%	16%	11%	18%		

Source: Dataquest
September 1990

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TABLE NUMBER: 76
TITLE: History and Forecast
APPLICATION: IC Layout
REGION: United Kingdom
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	53	108	139	233	185	240	300	350	400	440	28%	19%
Workstation Shipments	60	122	142	228	181	240	300	350	400	440	25%	19%
CPU Installed Base	53	161	299	525	689	880	1,080	1,340	1,650	2,000	67%	24%
Workstation Installed Base	60	182	323	544	704	890	1,100	1,370	1,680	2,030	64%	24%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	97.4	107.3	69.2	85.3	53.2	50.9	48.9	48.8	48.8	49.0	-11%	-2%
Hardware-Only ASP	55.2	34.4	43.5	29.9	23.3	16.2	13.5	11.4	9.9	9.3	-36%	-17%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	5	5	6	8	5	5	5	5	5	4	-0%	-1%
CPU Revenue	3	4	4	6	4	3	3	3	3	4	7%	-1%
Workstation Revenue	0	0	1	1	1	1	1	0	0	0	12%	-30%
Peripheral Revenue (Turnkey)	2	1	1	1	0	1	1	1	1	1	-27%	19%
Software Revenue	3	6	6	7	7	10	12	15	18	25	20%	30%
Bundled	2	2	1	1	1	1	1	1	1	1	-11%	3%
Unbundled	1	4	5	6	6	9	11	14	17	24	38%	33%
Service Revenue	1	1	2	3	2	3	3	4	5	6	27%	20%
Total Revenue	8	12	14	18	14	17	20	24	28	35	11%	21%
Increase over Prior Year	NA	43%	18%	28%	-22%	27%	16%	17%	18%	26%		

Source: Dataquest
September 1990

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TABLE NUMBER: 77
TITLE: History and Forecast
APPLICATION: PCB Layout
REGION: United Kingdom
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	162	964	1,061	993	1,413	1,510	1,710	2,030	2,590	3,130	54%	17%
Workstation Shipments	200	1,072	1,119	1,035	1,605	1,730	1,920	2,210	2,700	3,190	52%	15%
CPU Installed Base	162	1,117	2,173	3,118	4,355	5,470	6,490	7,840	9,740	12,190	93%	23%
Workstation Installed Base	200	1,271	2,386	3,373	4,804	6,130	7,380	8,910	10,940	13,460	89%	23%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	155.2	98.7	34.5	61.5	58.5	51.4	54.0	56.6	55.6	55.4	-18%	-1%
Hardware-Only ASP	64.5	12.6	19.0	19.6	16.2	17.5	16.6	15.3	12.7	11.5	-24%	-7%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	13	34	22	30	30	32	35	38	41	44	19%	8%
CPU Revenue	5	28	17	23	24	20	22	25	30	34	35%	7%
Workstation Revenue	2	2	3	2	5	8	8	7	4	3	28%	-14%
Peripheral Revenue (Turnkey)	6	5	3	4	1	5	5	6	7	8	-34%	61%
Software Revenue	7	22	28	22	18	17	19	21	24	26	21%	8%
Bundled	7	18	7	9	9	7	8	8	9	10	7%	1%
Unbundled	0	4	21	13	9	10	12	13	14	16	84%	13%
Service Revenue	3	6	10	10	11	11	12	14	15	18	25%	11%
Total Revenue	23	62	61	62	59	60	66	73	80	88	21%	8%
Increase over Prior Year	NA	166%	-1%	1%	-4%	2%	9%	11%	9%	10%		

Source: Dataquest
September 1990

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TABLE NUMBER: 78
TITLE: History and Forecast
APPLICATION: All Applications
REGION: Rest of Europe
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	441	1,060	5,627	6,182	5,748	7,170	9,420	11,990	15,050	18,500	67%	26%
Workstation Shipments	555	1,252	5,806	6,439	6,018	7,860	10,100	12,620	15,650	19,100	61%	26%
CPU Installed Base	441	1,486	7,095	13,176	18,417	24,130	30,720	39,880	52,090	67,770	111%	30%
Workstation Installed Base	555	1,807	7,595	13,932	19,447	25,860	33,150	42,960	55,790	72,080	104%	30%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	185.0	102.2	42.8	35.9	39.4	53.7	51.0	48.5	46.8	46.2	-27%	3%
Hardware-Only ASP	21.5	12.9	6.7	9.1	9.0	12.8	12.3	11.9	12.3	12.9	-16%	7%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	22	32	58	87	104	174	211	252	306	373	36%	29%
CPU Revenue	12	19	43	65	71	130	160	194	240	295	42%	33%
Workstation Revenue	5	7	7	6	7	13	14	14	13	12	5%	13%
Peripheral Revenue (Turnkey)	4	6	8	16	26	31	37	44	53	66	42%	20%
Software Revenue	5	9	26	37	58	83	107	136	178	235	62%	32%
Bundled	5	7	8	13	27	38	44	50	58	71	42%	21%
Unbundled	1	1	18	23	32	44	63	87	120	164	117%	39%
Service Revenue	4	3	12	18	30	54	67	83	105	134	50%	35%
Total Revenue	31	44	96	141	193	311	384	471	589	742	44%	31%
Increase over Prior Year	NA	40%	118%	48%	36%	61%	24%	23%	25%	26%		

Source: Dataquest
September 1990

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TABLE NUMBER: 79
TITLE: History and Forecast
APPLICATION: All Applications
REGION: Rest of Europe
PLATFORM: Technical Workstation

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	73	161	366	604	1,513	3,080	4,340	5,950	8,160	10,900	83%	48%
Workstation Shipments	73	161	366	604	1,513	3,080	4,340	5,950	8,160	10,900	83%	48%
CPU Installed Base	73	234	599	1,194	2,675	5,660	9,790	15,530	23,480	34,170	105%	66%
Workstation Installed Base	73	234	599	1,194	2,675	5,660	9,790	15,530	23,480	34,170	105%	66%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	84.5	71.3	48.0	46.4	46.3	44.4	42.6	41.5	40.9	40.7	-11%	-3%
Hardware-Only ASP	37.6	34.7	24.4	25.8	26.7	24.1	22.2	21.1	20.6	20.5	-7%	-5%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	4	8	12	29	47	101	132	171	223	287	67%	44%
CPU Revenue	2	5	9	26	37	81	107	139	182	234	78%	45%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	2	2	4	3	10	20	25	33	41	53	45%	40%
Software Revenue	2	3	11	15	31	46	65	92	128	179	74%	42%
Bundled	2	3	4	6	19	20	25	32	40	52	59%	23%
Unbundled	0	0	7	9	12	26	40	60	88	127	151%	60%
Service Revenue	1	1	5	8	19	36	48	64	86	114	86%	43%
Total Revenue	6	11	28	52	96	182	245	328	437	579	72%	43%
Increase over Prior Year	NA	79%	144%	87%	83%	89%	35%	34%	33%	33%		

Source: Dataquest
September 1990

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TABLE NUMBER: 80
TITLE: History and Forecast
APPLICATION: All Applications
REGION: Rest of Europe
PLATFORM: Host-Dependent/Server

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	28	38	83	89	150	280	300	300	310	330	40%	17%
Workstation Shipments	142	246	261	346	421	970	980	930	910	920	24%	17%
CPU Installed Base	28	67	149	238	386	650	930	1,210	1,500	1,810	69%	36%
Workstation Installed Base	142	387	649	995	1,415	2,380	3,360	4,290	5,200	6,120	58%	34%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	620.4	607.6	294.6	479.3	174.2	272.8	264.4	255.7	254.8	255.9	-22%	8%
Hardware-Only ASP	863.0	364.0	285.5	144.1	192.1	176.3	161.9	148.1	134.9	123.5	-26%	-8%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	16	17	21	20	22	50	51	49	48	49	6%	17%
CPU Revenue	8	8	10	12	13	27	27	26	26	26	9%	15%
Workstation Revenue	5	7	7	6	7	13	14	14	13	12	5%	13%
Peripheral Revenue (Turnkey)	3	3	3	3	2	10	10	9	9	11	-4%	38%
Software Revenue	3	3	7	9	11	19	20	19	20	22	32%	13%
Bundled	2	3	3	5	5	15	15	15	15	16	15%	26%
Unbundled	0	0	4	4	7	4	5	5	5	6	81%	-3%
Service Revenue	3	2	6	7	7	15	15	15	14	15	16%	18%
Total Revenue	22	23	34	36	40	85	86	83	82	85	12%	16%
Increase over Prior Year	NA	3%	49%	6%	10%	113%	2%	-4%	-0%	3%		

Source: Dataquest
September 1990

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TABLE NUMBER: 81
TITLE: History and Forecast
APPLICATION: All Applications
REGION: Rest of Europe
PLATFORM: Personal Computer

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	340	860	5,179	5,489	4,085	3,810	4,780	5,740	6,570	7,280	64%	12%
Workstation Shipments	340	845	5,179	5,489	4,085	3,810	4,780	5,740	6,570	7,280	64%	12%
CPU Installed Base	340	1,185	6,347	11,743	15,357	17,820	20,000	23,140	27,110	31,790	114%	16%
Workstation Installed Base	340	1,185	6,347	11,743	15,357	17,820	20,000	23,140	27,110	31,790	114%	16%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	25.5	30.1	8.6	15.4	19.8	19.1	20.2	21.1	20.9	21.0	-5%	1%
Hardware-Only ASP	5.6	6.2	4.7	5.2	5.2	5.1	5.1	5.0	5.0	4.9	-1%	-1%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	2	7	25	37	36	23	28	32	35	37	77%	1%
CPU Revenue	2	6	24	28	22	21	25	29	32	35	66%	10%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	NA	NA
Peripheral Revenue (Turnkey)	0	1	1	9	14	2	2	2	3	2	110%	-31%
Software Revenue	1	3	8	13	16	18	21	25	29	35	97%	16%
Bundled	0	2	1	2	3	3	3	3	3	3	55%	-0%
Unbundled	0	1	7	10	13	14	18	22	27	32	133%	19%
Service Revenue	0	0	1	3	4	3	4	4	5	6	146%	4%
Total Revenue	3	10	33	53	57	44	53	61	69	78	84%	7%
Increase over Prior Year	NA	260%	248%	58%	8%	-22%	19%	15%	14%	12%		

Source: Dataquest
September 1990

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TABLE NUMBER: 82
TITLE: History and Forecast
APPLICATION: Mechanical
REGION: Rest of Europe
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	217	496	2,182	2,885	3,123	3,740	4,790	5,930	7,320	8,650	70%	23%
Workstation Shipments	310	667	2,329	3,082	3,336	4,260	5,300	6,410	7,800	9,160	61%	22%
CPU Installed Base	217	710	2,882	5,717	8,624	11,760	15,330	20,040	26,130	33,560	109%	31%
Workstation Installed Base	310	977	3,296	6,328	9,451	13,120	17,210	22,410	29,000	36,950	98%	31%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	413.6	124.9	55.7	38.1	41.5	60.1	56.5	53.2	51.7	51.7	-37%	4%
Hardware-Only ASP	17.6	12.4	7.1	12.6	10.0	14.9	14.6	14.3	14.7	15.4	-11%	9%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	13	18	29	55	66	109	126	143	170	199	37%	25%
CPU Revenue	7	10	20	38	42	80	95	110	132	157	42%	30%
Workstation Revenue	4	5	5	4	5	8	8	8	8	9	3%	12%
Peripheral Revenue (Turnkey)	2	4	4	13	19	21	23	26	30	34	57%	12%
Software Revenue	2	4	13	20	28	43	53	63	79	97	64%	28%
Bundled	2	3	5	10	16	27	29	32	35	41	50%	20%
Unbundled	0	1	8	10	12	16	23	32	43	56	121%	37%
Service Revenue	3	2	7	11	18	32	38	45	54	65	46%	30%
Total Revenue	19	24	48	86	111	184	217	251	302	361	43%	26%
Increase over Prior Year	NA	31%	100%	77%	30%	65%	18%	16%	20%	19%		

Source: Dataquest
September 1990

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TABLE NUMBER: 83
TITLE: History and Forecast
APPLICATION: AEC
REGION: Rest of Europe
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	90	195	1,091	970	1,108	1,480	2,020	2,650	3,400	4,340	65%	31%
Workstation Shipments	102	203	1,103	990	1,133	1,560	2,090	2,710	3,450	4,380	62%	31%
CPU Installed Base	90	278	1,365	2,312	3,320	4,530	6,040	8,180	11,070	14,910	106%	35%
Workstation Installed Base	102	305	1,404	2,373	3,406	4,700	6,290	8,490	11,430	15,300	102%	35%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	292.4	236.2	34.3	30.1	31.5	37.6	34.1	31.5	29.3	28.1	-36%	-2%
Hardware-Only ASP	14.3	10.6	5.7	6.5	7.0	8.4	7.7	7.2	7.0	6.9	-13%	-0%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	2	4	9	10	15	22	27	33	40	50	45%	27%
CPU Revenue	1	3	7	8	11	17	22	27	34	41	50%	31%
Workstation Revenue	1	1	1	1	1	2	2	2	1	1	-2%	11%
Peripheral Revenue (Turnkey)	0	0	1	1	4	3	3	4	5	8	61%	16%
Software Revenue	0	1	3	5	6	11	14	18	23	30	84%	36%
Bundled	0	0	1	1	2	4	5	5	6	7	57%	28%
Unbundled	0	0	2	3	4	6	9	13	17	23	122%	39%
Service Revenue	0	0	2	2	4	6	8	10	12	15	61%	34%
Total Revenue	3	5	15	17	25	39	48	60	75	95	53%	31%
Increase over Prior Year	NA	60%	210%	15%	49%	55%	26%	24%	25%	27%		

Source: Dataquest
September 1990

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TABLE NUMBER: 84
TITLE: History and Forecast
APPLICATION: GIS/Mapping
REGION: Rest of Europe
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	2	17	371	544	391	560	860	1,210	1,590	2,070	196%	40%
Workstation Shipments	7	27	382	575	408	600	900	1,250	1,620	2,100	125%	39%
CPU Installed Base	2	18	389	932	1,304	1,790	2,460	3,480	4,890	6,770	276%	39%
Workstation Installed Base	7	34	416	990	1,379	1,900	2,620	3,680	5,120	7,040	187%	39%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	87.6	85.6	71.0	72.6	60.2	68.4	62.6	58.6	55.5	53.4	-35%	-2%
Hardware-Only ASP	35.4	30.9	9.0	8.7	7.7	9.7	8.5	7.3	6.6	6.3	-53%	-4%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	1	2	5	8	7	13	19	26	35	48	61%	46%
CPU Revenue	0	1	4	7	6	10	14	19	27	38	86%	46%
Workstation Revenue	0	1	1	1	0	2	2	2	2	2	8%	28%
Peripheral Revenue (Turnkey)	0	0	0	1	1	2	3	4	6	9	58%	51%
Software Revenue	0	0	1	2	4	5	8	10	15	19	61%	36%
Bundled	0	0	1	1	2	2	3	4	6	8	70%	31%
Unbundled	0	0	0	1	2	3	4	6	9	11	54%	40%
Service Revenue	0	0	1	2	2	4	6	8	10	14	65%	42%
Total Revenue	1	3	7	12	14	23	32	44	59	81	61%	42%
Increase over Prior Year	NA	126%	145%	64%	20%	64%	41%	35%	36%	37%		

Source: Dataquest
September 1990

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TABLE NUMBER: 85
TITLE: History and Forecast
APPLICATION: Electronic Design Automation
REGION: Rest of Europe
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	132	352	1,984	1,784	1,126	1,370	1,750	2,200	2,730	3,430	53%	25%
Workstation Shipments	136	355	1,992	1,792	1,140	1,430	1,800	2,250	2,770	3,460	53%	25%
CPU Installed Base	132	480	2,460	4,215	5,169	6,050	6,890	8,180	10,010	12,530	108%	19%
Workstation Installed Base	136	491	2,479	4,242	5,211	6,140	7,040	8,380	10,240	12,790	107%	20%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	73.0	59.6	23.0	23.1	33.0	41.9	44.5	45.9	45.9	46.4	-15%	7%
Hardware-Only ASP	41.9	14.9	6.2	6.5	9.7	14.9	14.3	14.9	16.0	17.7	-25%	13%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	6	8	15	15	16	30	39	50	61	76	24%	37%
CPU Revenue	3	6	12	13	13	22	29	38	48	59	32%	36%
Workstation Revenue	0	0	1	1	1	2	2	2	2	1	27%	12%
Peripheral Revenue (Turnkey)	2	2	2	1	2	6	7	10	12	16	3%	46%
Software Revenue	2	4	8	10	20	24	33	45	62	89	55%	35%
Bundled	2	3	1	2	6	5	6	9	11	14	23%	19%
Unbundled	0	0	7	8	14	19	26	36	51	75	163%	40%
Service Revenue	1	0	2	3	6	11	15	21	29	39	53%	43%
Total Revenue	9	12	26	27	42	65	87	117	152	205	38%	37%
Increase over Prior Year	NA	42%	111%	7%	55%	54%	33%	35%	30%	35%		

Source: Dataquest
September 1990

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TABLE NUMBER: 86
TITLE: History and Forecast
APPLICATION: Electronic CAE
REGION: Rest of Europe
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	91	236	793	706	714	910	1,180	1,490	1,790	2,220	51%	25%
Workstation Shipments	92	237	795	709	712	920	1,190	1,500	1,800	2,230	51%	26%
CPU Installed Base	91	324	1,113	1,799	2,423	3,100	3,880	4,960	6,350	8,170	93%	28%
Workstation Installed Base	92	329	1,121	1,809	2,431	3,130	3,920	5,020	6,410	8,240	92%	28%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	67.0	51.0	62.2	31.4	41.2	42.7	45.2	45.3	44.9	45.0	-9%	2%
Hardware-Only ASP	33.3	13.9	6.1	6.7	8.6	13.0	12.2	12.5	14.4	17.0	-24%	15%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	3	5	7	6	9	17	22	29	35	45	23%	37%
CPU Revenue	2	3	5	5	7	13	17	22	27	36	31%	38%
Workstation Revenue	0	0	0	0	0	1	1	1	1	1	23%	18%
Peripheral Revenue (Turnkey)	1	1	2	0	2	3	4	6	7	9	9%	35%
Software Revenue	1	2	4	3	11	12	17	24	35	52	54%	38%
Bundled	1	2	1	1	3	2	3	4	5	6	25%	13%
Unbundled	0	0	3	3	7	9	14	20	30	46	140%	45%
Service Revenue	0	0	1	1	4	6	8	11	16	22	61%	44%
Total Revenue	5	7	11	11	24	34	46	65	86	120	37%	38%
Increase over Prior Year	NA	48%	60%	-8%	124%	44%	37%	39%	32%	40%		

Source: Dataquest
September 1990

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TABLE NUMBER: 87
TITLE: History and Forecast
APPLICATION: IC Layout
REGION: Rest of Europe
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	11	13	285	282	15	20	30	30	40	40	6%	22%
Workstation Shipments	11	10	285	282	14	20	30	30	40	40	5%	23%
CPU Installed Base	11	24	308	589	587	550	450	370	280	210	123%	-19%
Workstation Installed Base	11	21	306	587	584	540	450	370	290	210	121%	-18%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	71.2	66.8	49.4	77.7	46.6	43.7	42.2	42.1	42.0	42.4	-8%	-2%
Hardware-Only ASP	37.3	32.0	25.1	28.7	44.2	27.0	23.1	20.2	18.2	17.9	-29%	-17%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	1	1	2	2	0	1	1	1	1	1	-8%	18%
CPU Revenue	0	0	2	2	0	1	1	1	1	1	-3%	18%
Workstation Revenue	0	0	0	0	0	0	0	0	0	0	15%	-100%
Peripheral Revenue (Turnkey)	0	0	0	0	0	0	0	0	0	0	-27%	35%
Software Revenue	0	0	1	1	1	2	3	4	5	8	32%	47%
Bundled	0	0	0	0	0	0	0	0	0	0	-6%	-21%
Unbundled	0	NA	1	1	1	2	2	4	5	8	117%	52%
Service Revenue	0	0	0	0	0	1	1	1	2	2	35%	41%
Total Revenue	1	1	3	3	2	3	4	6	8	11	13%	41%
Increase over Prior Year	NA	-16%	184%	31%	-41%	51%	37%	36%	36%	44%		

Source: Dataquest
September 1990

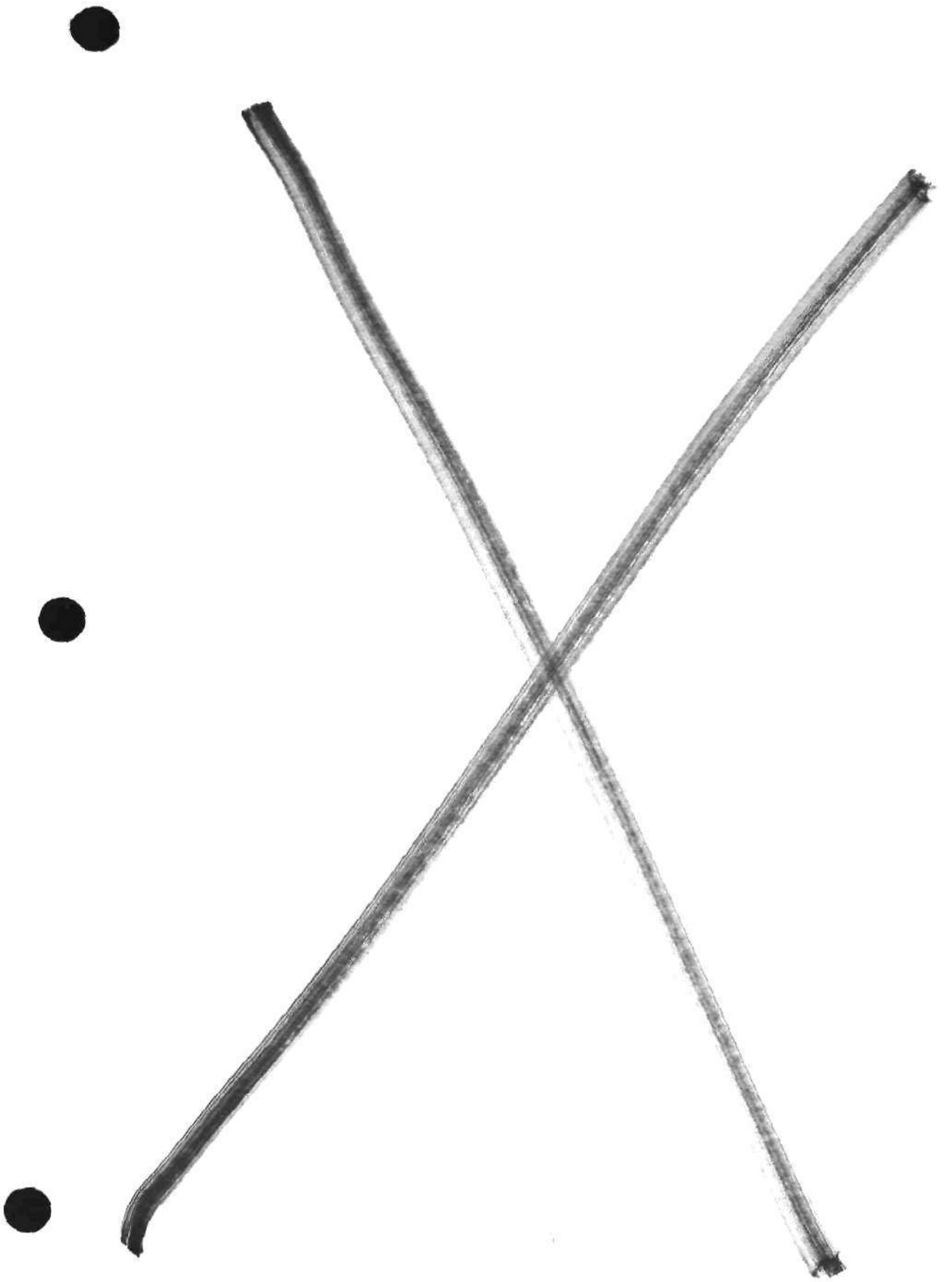
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TABLE NUMBER: 88
TITLE: History and Forecast
APPLICATION: PCB Layout
REGION: Rest of Europe
PLATFORM: All Platforms

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	CAGR 85-89	CAGR 89-94
UNIT SHIPMENT DATA (Workstation Shipments)												
CPU Shipments	31	103	907	796	397	450	550	680	910	1,180	67%	24%
Workstation Shipments	33	108	912	802	414	480	580	720	930	1,190	66%	24%
CPU Installed Base	31	132	1,038	1,827	2,160	2,400	2,560	2,850	3,370	4,160	134%	14%
Workstation Installed Base	33	141	1,051	1,846	2,196	2,480	2,670	3,000	3,540	4,350	132%	15%
CALCULATED AVERAGE SYSTEM PRICE DATA (Thousands of Dollars)												
Turnkey ASP	87.0	77.4	14.7	19.6	26.1	41.2	44.0	47.0	47.2	47.8	-21%	13%
Hardware-Only ASP	56.3	15.0	6.6	6.6	12.4	22.4	22.1	22.2	20.3	19.6	-26%	10%
REVENUE DATA (Millions of Dollars)												
Hardware Revenue	2	3	7	7	6	13	16	20	25	30	31%	37%
CPU Revenue	1	2	6	6	5	9	12	15	19	23	40%	33%
Workstation Revenue	0	0	1	0	0	1	1	1	1	1	33%	9%
Peripheral Revenue (Turnkey)	0	1	1	1	0	2	3	4	5	7	-7%	83%
Software Revenue	1	1	4	5	8	10	13	17	22	29	62%	29%
Bundled	1	1	1	1	2	3	3	4	6	8	27%	27%
Unbundled	NA	0	3	4	6	8	10	13	16	21	NA	30%
Service Revenue	0	0	1	1	2	5	7	9	11	15	47%	43%
Total Revenue	3	4	12	13	17	28	36	46	58	74	44%	35%
Increase over Prior Year	NA	54%	182%	16%	24%	69%	28%	28%	26%	26%		

Source: Dataquest
September 1990

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Market Share

TABLE NUMBER: 1
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	654.5	427.6	125.6	24,601	13.6%	15.9%	9.7%	14.0%
Computervision	481.7	222.0	114.6	3,980	10.0%	8.2%	8.9%	2.3%
Hewlett-Packard	418.2	308.9	34.2	23,325	8.7%	11.5%	2.6%	13.3%
Intergraph	362.6	192.0	71.5	3,808	7.5%	7.1%	5.5%	2.2%
Digital	354.4	264.1	.0	2,747	7.4%	9.8%	.0%	1.6%
Compaq	197.7	197.7	.0	32,937	4.1%	7.3%	.0%	18.8%
Siemens	157.1	99.5	47.1	3,518	3.3%	3.7%	3.6%	2.0%
Sun	122.5	106.6	.0	9,233	2.5%	4.0%	.0%	5.3%
Mentor Graphics	119.2	17.3	65.6	1,292	2.5%	.6%	5.1%	.7%
McDonnell Douglas	105.9	55.4	40.0	1,798	2.2%	2.1%	3.1%	1.0%
Schlumberger	78.5	27.0	29.2	823	1.6%	1.0%	2.3%	.5%
Autodesk	76.9	.0	76.9	0	1.6%	.0%	5.9%	.0%
Control Data	76.3	55.4	8.4	869	1.6%	2.1%	.6%	.5%
Matra Datavision	63.4	29.8	25.3	683	1.3%	1.1%	2.0%	.4%
Apple Computer	52.4	46.2	.0	10,080	1.1%	1.7%	.0%	5.8%
Norsk Data	50.0	25.6	8.8	500	1.0%	.9%	.7%	.3%
Racal-Redac	50.0	1.0	40.5	274	1.0%	.0%	3.1%	.2%
Valid	40.7	10.2	22.8	204	.8%	.4%	1.8%	.1%
Dazix	40.5	6.9	16.2	495	.8%	.3%	1.2%	.3%
STI-Straessle	39.0	9.0	21.4	370	.8%	.3%	1.7%	.2%
Dassault	37.9	.0	31.1	0	.8%	.0%	2.4%	.0%
Silicon Graphics	35.4	31.2	.0	1,145	.7%	1.2%	.0%	.7%
Data Technology/DATECH	33.3	8.5	21.5	0	.7%	.3%	1.7%	.0%
ISICAD	32.1	13.1	14.5	334	.7%	.5%	1.1%	.2%
ItalCad	31.3	13.5	8.8	300	.7%	.5%	.7%	.2%
Cisigraph	30.6	10.8	10.7	288	.6%	.4%	.8%	.2%
Investronica SA	25.5	20.4	2.6	1,018	.5%	.8%	.2%	.6%
Ferranti	23.4	8.7	10.8	191	.5%	.3%	.8%	.1%
Kewill Systems	23.0	6.9	12.6	230	.5%	.3%	1.0%	.1%
ICL	22.9	13.5	7.8	629	.5%	.5%	.6%	.4%
PAFEC	22.9	.0	22.9	0	.5%	.0%	1.8%	.0%
Wiechers Datentechnik	20.3	16.2	4.1	494	.4%	.6%	.3%	.3%
SDRC	19.6	.0	19.6	0	.4%	.0%	1.5%	.0%

(Continued)

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Market Share

TABLE NUMBER: 1
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Cadence	19.6	.0	17.2	0	.4%	.0%	1.3%	.0%
Ziegler	18.2	.0	18.2	0	.4%	.0%	1.4%	.0%
CADAM	16.2	2.3	12.3	1,000	.3%	.1%	1.0%	.6%
Calay	15.9	5.0	9.3	259	.3%	.2%	.7%	.1%
Mannesmann PROCAD	15.7	8.0	4.4	218	.3%	.3%	.3%	.1%
Hahn & Kolb	15.2	9.1	4.6	220	.3%	.3%	.4%	.1%
ISYKON Software	15.2	7.6	5.3	220	.3%	.3%	.4%	.1%
ABB Cade International	15.2	8.9	4.6	66	.3%	.3%	.4%	.0%
Westward	14.7	14.7	.0	869	.3%	.5%	.0%	.5%
Vero International Software	14.6	.0	14.6	0	.3%	.0%	1.1%	.0%
CAD Centre	14.1	2.1	5.4	16	.3%	.1%	.4%	.0%
MacNeal-Schwendler	14.1	.0	13.5	0	.3%	.0%	1.0%	.0%
Research Machines	14.0	14.0	.0	2,200	.3%	.5%	.0%	1.3%
Engineering Computer Services	13.7	5.4	4.4	215	.3%	.2%	.3%	.1%
Auto-Trol	12.9	5.2	4.5	164	.3%	.2%	.4%	.1%
Caditron	12.8	6.4	5.1	200	.3%	.2%	.4%	.1%
Exapt	12.3	6.0	4.2	211	.3%	.2%	.3%	.1%
Star Informatic	11.8	10.3	3.1	550	.2%	.4%	.2%	.3%
ESRI	11.7	.0	10.3	0	.2%	.0%	.8%	.0%
Cimatron	11.6	5.2	5.2	344	.2%	.2%	.4%	.2%
Sysscan	11.6	5.1	3.0	132	.2%	.2%	.2%	.1%
CAD Lab	11.5	.0	9.2	0	.2%	.0%	.7%	.0%
t2 Solutions	10.7	5.3	3.8	106	.2%	.2%	.3%	.1%
Aucotec	10.4	4.1	5.2	319	.2%	.2%	.4%	.2%
Cimlinc	10.3	2.1	6.2	910	.2%	.1%	.5%	.5%
DATAID Technologies	10.3	.0	2.1	0	.2%	.0%	.2%	.0%
Datagraph	10.0	8.0	2.0	50	.2%	.3%	.2%	.0%
Fides Industrielle Automation	9.9	1.2	8.9	92	.2%	.0%	.7%	.1%
Unisys	9.9	5.0	3.5	151	.2%	.2%	.3%	.1%
LPKF	9.8	6.4	2.4	400	.2%	.2%	.2%	.2%
Scientific Calc.	9.5	2.1	5.0	44	.2%	.1%	.4%	.0%
Landmark Graphics	9.2	4.5	2.8	89	.2%	.2%	.2%	.1%
Gerber Systems	8.9	4.4	2.9	64	.2%	.2%	.2%	.0%

(Continued)

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Market Share

TABLE NUMBER: 1
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
PDA Engineering	8.8	.0	8.8	0	.2%	.0%	.7%	.0%
VLSI Technology	8.7	.3	7.2	6	.2%	.0%	.6%	.0%
Micrograph	8.4	3.6	3.8	175	.2%	.1%	.3%	.1%
Framesoft	8.4	.0	5.0	0	.2%	.0%	.4%	.0%
Teradyne	8.1	.0	6.6	0	.2%	.0%	.5%	.0%
European Silicon Structures	7.9	1.6	6.3	48	.2%	.1%	.5%	.0%
DAT Standard Information syste	7.6	.0	7.2	0	.2%	.0%	.6%	.0%
Albert Nestler	7.3	2.4	3.1	95	.2%	.1%	.2%	.1%
CIMTEK	7.0	3.4	3.0	67	.1%	.1%	.2%	.0%
BATISOFT	6.9	1.0	3.5	225	.1%	.0%	.3%	.1%
Kloeckner-Moeller	6.7	4.0	2.3	72	.1%	.1%	.2%	.0%
Club Informatico SA	6.7	3.0	3.3	260	.1%	.1%	.3%	.1%
Radan Computational	6.6	4.1	1.8	280	.1%	.2%	.1%	.2%
rotring euroCAD	6.4	4.0	2.4	170	.1%	.1%	.2%	.1%
Ground Modelling Systems	5.9	3.9	2.9	36	.1%	.1%	.2%	.0%
Asicom	5.8	.6	4.7	50	.1%	.0%	.4%	.0%
Robocom	5.5	.0	5.5	0	.1%	.0%	.4%	.0%
LSI Logic	5.4	.5	4.1	21	.1%	.0%	.3%	.0%
Technische Computer Systeme	5.3	1.1	4.2	137	.1%	.0%	.3%	.1%
Parametric Technology	5.3	.0	4.9	0	.1%	.0%	.4%	.0%
Olivetti	5.0	4.2	.0	800	.1%	.2%	.0%	.5%
Serbi	5.0	.0	5.0	0	.1%	.0%	.4%	.0%
Genrad	4.5	.9	3.0	0	.1%	.0%	.2%	.0%
Marcus Computer Systeme	4.4	2.3	1.5	137	.1%	.1%	.1%	.1%
Zycad	4.4	3.6	.0	14	.1%	.1%	.0%	.0%
FHECOR	4.0	.0	4.0	0	.1%	.0%	.3%	.0%
AnaCAD	3.9	.0	3.9	0	.1%	.0%	.3%	.0%
Interced	3.9	2.0	1.1	189	.1%	.1%	.1%	.1%
Swanson Analysis	3.5	.0	3.5	0	.1%	.0%	.3%	.0%
Synercom	3.5	.0	2.1	0	.1%	.0%	.2%	.0%
Datagraphic	3.4	1.7	1.3	55	.1%	.1%	.1%	.0%
MCS	3.3	.0	2.9	0	.1%	.0%	.2%	.0%
Pathtrace	3.3	.9	2.2	46	.1%	.0%	.2%	.0%

(Continued)

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Market Share

TABLE NUMBER: 1
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Solbourne	3.2	3.2	.0	237	.1%	.1%	.0%	.1%
Whessoe Computing Systems	3.1	.0	3.1	0	.1%	.0%	.2%	.0%
XAO Industrie	3.0	1.1	1.8	108	.1%	.0%	.1%	.1%
Xilinx	3.0	.0	2.7	0	.1%	.0%	.2%	.0%
Eptisa	2.9	.1	2.3	2	.1%	.0%	.2%	.0%
Cadtronic	2.8	1.5	1.3	84	.1%	.1%	.1%	.0%
Assigraph	2.7	.0	2.2	21	.1%	.0%	.2%	.0%
Alper Systems	2.6	1.3	.7	500	.1%	.0%	.1%	.3%
ISKA	2.6	1.2	1.0	48	.1%	.0%	.1%	.0%
ALS Design	2.5	.0	2.5	0	.1%	.0%	.2%	.0%
Catalpa	2.4	.8	1.2	20	.0%	.0%	.1%	.0%
Gable CAD Systems	2.3	.9	1.1	32	.0%	.0%	.1%	.0%
FEA Limited	2.3	.6	.6	48	.0%	.0%	.0%	.0%
Academi Systems	2.2	.2	1.8	9	.0%	.0%	.1%	.0%
Superdraft	2.2	1.0	1.1	123	.0%	.0%	.1%	.1%
BETRONEX	2.2	.0	2.2	0	.0%	.0%	.2%	.0%
Silvar-Lisco	2.1	.0	1.3	0	.0%	.0%	.1%	.0%
ICAD	2.1	.0	1.6	0	.0%	.0%	.1%	.0%
Sinus Software	1.8	.9	.9	36	.0%	.0%	.1%	.0%
Sycotronic AG	1.8	.0	1.5	4	.0%	.0%	.1%	.0%
CAD-UL	1.7	.0	1.7	0	.0%	.0%	.1%	.0%
Aplein	1.7	1.6	.1	20	.0%	.1%	.0%	.0%
Elstree Computing	1.6	.7	.9	50	.0%	.0%	.1%	.0%
Data I/O	1.6	.0	1.6	0	.0%	.0%	.1%	.0%
CADKEY	1.5	1.0	.5	150	.0%	.0%	.0%	.1%
ARKTEC	1.4	.4	1.0	40	.0%	.0%	.1%	.0%
Soft	1.4	.0	1.2	0	.0%	.0%	.1%	.0%
DECAD	1.3	.2	.8	5	.0%	.0%	.1%	.0%
FEGS	1.1	.0	.9	0	.0%	.0%	.1%	.0%
Aucos elektronische Gerate	1.0	.3	.7	100	.0%	.0%	.1%	.1%
DELTA CAD	1.0	.4	.4	12	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 1 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
CAD TECH Iberica	.9	.4	.3	76	.0%	.0%	.0%	.0%
S.T.L.D. s.r.l.	.8	.0	.8	0	.0%	.0%	.1%	.0%
Number One Systems	.8	.1	.7	20	.0%	.0%	.1%	.0%
Vision 3D	.7	.4	.2	6	.0%	.0%	.0%	.0%
Computational Mechanics	.7	.0	.7	0	.0%	.0%	.1%	.0%
Inca	.7	.0	.7	0	.0%	.0%	.1%	.0%
ACERI SA	.5	.1	.3	3	.0%	.0%	.0%	.0%
Logic Control	.4	.2	.1	80	.0%	.0%	.0%	.0%
Kontron Instruments	.2	.1	.1	4	.0%	.0%	.0%	.0%
TOOL Software	.2	.0	.1	4	.0%	.0%	.0%	.0%
ESDU International	.2	.0	.2	0	.0%	.0%	.0%	.0%
Instrumatic Espanola	.1	.0	.1	0	.0%	.0%	.0%	.0%
Other Companies	235.5	223.1	9.0	35,188	4.9%	8.3%	.7%	20.1%
All Companies	4,818.4	2,694.0	1,292.7	175,187	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	3,758.1	2,254.9	815.8	156,037	78.0%	83.7%	63.1%	89.1%
All Asian-Based Companies	1.1	.5	.5	2	.0%	.0%	.0%	.0%
All European-Based Companies	1,059.3	438.6	476.5	19,148	22.0%	16.3%	36.9%	10.9%
All Hardware Companies	1,292.3	1,129.5	.0	128,259	26.8%	41.9%	.0%	73.2%
All Turnkey & SW Companies	3,526.1	1,564.5	1,292.7	46,928	73.2%	58.1%	100.0%	26.8%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 2
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Computervision	407.0	187.5	96.9	2,424	15.5%	14.6%	12.1%	5.0%
Hewlett-Packard	345.8	250.9	34.2	12,807	13.2%	19.6%	4.3%	26.5%
Intergraph	298.0	164.6	53.6	3,315	11.3%	12.9%	6.7%	6.8%
Siemens	142.0	90.6	42.6	3,340	5.4%	7.1%	5.3%	6.9%
Mentor Graphics	119.2	17.3	65.6	1,292	4.5%	1.4%	8.2%	2.7%
Sun	98.5	86.7	.0	8,137	3.7%	6.8%	.0%	16.8%
Digital	89.3	65.4	.0	2,747	3.4%	5.1%	.0%	5.7%
McDonnell Douglas	75.3	39.4	28.4	834	2.9%	3.1%	3.5%	1.7%
Schlumberger	69.8	23.8	26.3	680	2.7%	1.9%	3.3%	1.4%
Matra Datavision	63.4	29.8	25.3	683	2.4%	2.3%	3.2%	1.4%
IBM	51.9	31.6	11.4	480	2.0%	2.5%	1.4%	1.0%
Valid	40.7	10.2	22.8	204	1.6%	.8%	2.8%	.4%
Dazix	40.5	6.9	16.2	495	1.5%	.5%	2.0%	1.0%
Racal-Redac	40.0	1.0	31.0	274	1.5%	.1%	3.9%	.6%
STI-Straessle	39.0	9.0	21.4	370	1.5%	.7%	2.7%	.8%
Silicon Graphics	34.7	30.6	.0	1,124	1.3%	2.4%	.0%	2.3%
ItalCad	31.3	13.5	8.8	300	1.2%	1.1%	1.1%	.6%
Control Data	29.4	21.2	3.2	557	1.1%	1.7%	.4%	1.2%
Cisigraph	27.5	9.7	9.6	226	1.0%	.8%	1.2%	.5%
Norsk Data	25.4	14.7	5.1	316	1.0%	1.1%	.6%	.7%
ISICAD	25.1	13.1	7.5	334	1.0%	1.0%	.9%	.7%
Ferranti	23.4	8.7	10.8	191	.9%	.7%	1.3%	.4%
ICL	22.9	13.5	7.8	629	.9%	1.1%	1.0%	1.3%
Kewill Systems	20.7	6.2	11.4	207	.8%	.5%	1.4%	.4%
PAFEC	20.5	.0	20.5	0	.8%	.0%	2.6%	.0%
SDRC	17.1	.0	17.1	0	.7%	.0%	2.1%	.0%
Dassault	16.8	.0	13.8	0	.6%	.0%	1.7%	.0%
Cadence	16.1	.0	14.2	0	.6%	.0%	1.8%	.0%
Calay	15.9	5.0	9.3	259	.6%	.4%	1.2%	.5%
Mannesmann PROCAD	15.7	8.0	4.4	218	.6%	.6%	.5%	.5%
ISYKON Software	15.2	7.6	5.3	220	.6%	.6%	.7%	.5%
ABB Cade International	15.2	8.9	4.6	66	.6%	.7%	.6%	.1%
CAD Centre	14.1	2.1	5.4	16	.5%	.2%	.7%	.0%

(Continued)

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Market Share

TABLE NUMBER: 2
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Hahn & Kolb	13.7	8.2	4.1	190	.5%	.6%	.5%	.4%
Auto-Trol	12.9	5.2	4.5	164	.5%	.4%	.6%	.3%
Star Informatic	11.8	10.3	3.1	550	.4%	.8%	.4%	1.1%
CAD Lab	11.0	.0	8.8	0	.4%	.0%	1.1%	.0%
t2 Solutions	10.7	5.3	3.8	106	.4%	.4%	.5%	.2%
Cimlinc	10.3	2.1	6.2	910	.4%	.2%	.8%	1.9%
Westward	10.0	10.0	.0	590	.4%	.8%	.0%	1.2%
Landmark Graphics	9.2	4.5	2.8	89	.4%	.4%	.3%	.2%
Engineering Computer Services	9.0	3.8	2.8	102	.3%	.3%	.3%	.2%
Gerber Systems	8.9	4.4	2.9	64	.3%	.3%	.4%	.1%
VLSI Technology	8.6	.3	7.2	6	.3%	.0%	.9%	.0%
Cimatron	8.2	3.7	3.7	241	.3%	.3%	.5%	.5%
Scientific Calc.	7.8	1.7	3.7	34	.3%	.1%	.5%	.1%
Unisys	7.6	3.9	2.7	119	.3%	.3%	.3%	.2%
Framasoft	7.5	.0	4.5	0	.3%	.0%	.6%	.0%
Albert Nestler	7.3	2.4	3.1	95	.3%	.2%	.4%	.2%
ESRI	6.6	.0	5.8	0	.3%	.0%	.7%	.0%
European Silicon Structures	6.6	1.5	5.1	44	.3%	.1%	.6%	.1%
Radan Computational	6.6	4.1	1.8	280	.3%	.3%	.2%	.6%
DATAID Technologies	6.2	.0	1.2	0	.2%	.0%	.2%	.0%
Autodesk	6.1	.0	6.1	0	.2%	.0%	.8%	.0%
PDA Engineering	5.9	.0	5.9	0	.2%	.0%	.7%	.0%
Wiechers Datentechnik	5.7	4.5	1.1	80	.2%	.4%	.1%	.2%
Technische Computer Systeme	5.3	1.1	4.2	137	.2%	.1%	.5%	.3%
Parametric Technology	5.3	.0	4.9	0	.2%	.0%	.6%	.0%
LSI Logic	4.9	.5	3.7	19	.2%	.0%	.5%	.0%
CIMTEK	4.2	2.2	1.6	37	.2%	.2%	.2%	.1%
Sysscan	4.0	1.7	1.0	35	.2%	.1%	.1%	.1%
Genrad	3.9	.7	2.6	0	.1%	.1%	.3%	.0%
AnaCAD	3.9	.0	3.9	0	.1%	.0%	.5%	.0%
CADAM	3.8	.0	3.2	0	.1%	.0%	.4%	.0%
MacNeal-Schwendler	3.5	.0	3.4	0	.1%	.0%	.4%	.0%
Zycad	3.5	2.7	.0	1	.1%	.2%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 2
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Teradyne	3.4	.0	2.8	0	.1%	.0%	.4%	.0%
Marcus Computer Systeme	3.4	1.8	1.1	105	.1%	.1%	.1%	.2%
rotring euroCAD	3.3	2.2	1.1	96	.1%	.2%	.1%	.2%
Exapt	3.3	1.6	1.1	107	.1%	.1%	.1%	.2%
XAO Industrie	3.0	1.1	1.8	108	.1%	.1%	.2%	.2%
Data Technology/DATECH	3.0	.0	2.7	0	.1%	.0%	.3%	.0%
Alper Systems	2.6	1.3	.7	500	.1%	.1%	.1%	1.0%
ISKA	2.6	1.2	1.0	48	.1%	.1%	.1%	.1%
Catalpa	2.4	.8	1.2	20	.1%	.1%	.1%	.0%
Gable CAD Systems	2.3	.9	1.1	32	.1%	.1%	.1%	.1%
Synercom	2.2	.0	1.3	0	.1%	.0%	.2%	.0%
ICAD	2.1	.0	1.6	0	.1%	.0%	.2%	.0%
Fides Industrielle Automation	2.0	.2	1.8	46	.1%	.0%	.2%	.1%
Silver-Lisco	2.0	.0	1.2	0	.1%	.0%	.1%	.0%
Sinus Software	1.8	.9	.9	36	.1%	.1%	.1%	.1%
Aplein	1.7	1.6	.1	20	.1%	.1%	.0%	.0%
MCS	1.5	.0	1.4	0	.1%	.0%	.2%	.0%
Aucotec	1.5	.6	.7	45	.1%	.0%	.1%	.1%
Swanson Analysis	1.4	.0	1.4	0	.1%	.0%	.2%	.0%
Assigraph	1.4	.0	1.1	11	.1%	.0%	.1%	.0%
DECAD	1.3	.2	.8	4	.0%	.0%	.1%	.0%
Micrograph	1.1	.9	.1	40	.0%	.1%	.0%	.1%
Soft	1.0	.0	.9	0	.0%	.0%	.1%	.0%
FEA Limited	.9	.2	.2	19	.0%	.0%	.0%	.0%
Academi Systems	.9	.1	.7	4	.0%	.0%	.1%	.0%
Solbourne	.6	.6	.0	45	.0%	.0%	.0%	.1%
FEGS	.6	.0	.5	0	.0%	.0%	.1%	.0%
ARKTEC	.4	.3	.2	18	.0%	.0%	.0%	.0%
Whessoe Computing Systems	.3	.0	.3	0	.0%	.0%	.0%	.0%
Asicom	.3	.0	.3	0	.0%	.0%	.0%	.0%
Serbi	.3	.0	.3	0	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 2 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Data I/O	.2	.0	.2	0	.0%	.0%	.0%	.0%
Xilinx	.2	.0	.2	0	.0%	.0%	.0%	.0%
Computational Mechanics	.2	.0	.2	0	.0%	.0%	.0%	.0%
Inca	.2	.0	.2	0	.0%	.0%	.0%	.0%
CADKEY	.1	.0	.0	3	.0%	.0%	.0%	.0%
TOOL Software	.0	.0	.0	1	.0%	.0%	.0%	.0%
Other Companies	22.3	2.2	18.6	445	.9%	.2%	2.3%	.9%
All Companies	2,625.9	1,280.7	803.4	48,391	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	1,912.7	980.5	496.4	37,245	72.8%	76.6%	61.8%	77.0%
All Asian-Based Companies	.8	.4	.4	2	.0%	.0%	.1%	.0%
All European-Based Companies	712.3	299.9	306.6	11,145	27.1%	23.4%	38.2%	23.0%
All Hardware Companies	355.0	293.6	.0	19,630	13.5%	22.9%	.0%	40.6%
All Turnkey & SW Companies	2,270.9	987.1	803.4	28,761	86.5%	77.1%	100.0%	59.4%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 3
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: Europe
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
IBM	519.1	316.7	114.2	5,461	40.1%	39.2%	47.3%	33.8%
Digital	265.1	198.8	.0	0	20.5%	24.6%	.0%	.0%
Computervision	69.9	32.3	16.6	1,430	5.4%	4.0%	6.9%	8.8%
Intergraph	54.8	27.3	8.8	494	4.2%	3.4%	3.6%	3.1%
Control Data	46.9	34.2	5.2	312	3.6%	4.2%	2.2%	1.9%
McDonnell Douglas	30.6	16.0	11.6	964	2.4%	2.0%	4.8%	6.0%
Norsk Data	24.3	10.6	3.7	178	1.9%	1.3%	1.5%	1.1%
Sun	24.0	19.9	.0	1,095	1.9%	2.5%	.0%	6.8%
Dassault	21.2	.0	17.3	0	1.6%	.0%	7.2%	.0%
Siemens	15.1	8.9	4.5	178	1.2%	1.1%	1.9%	1.1%
MacNeal-Schwendler	10.5	.0	10.1	0	.8%	.0%	4.2%	.0%
Exapt	9.0	4.4	3.1	104	.7%	.5%	1.3%	.6%
Fides Industrielle Automation	7.9	.9	7.1	46	.6%	.1%	2.9%	.3%
Schlumberger	7.8	3.0	2.7	137	.6%	.4%	1.1%	.8%
Sysscan	7.7	3.4	2.0	98	.6%	.4%	.8%	.6%
Hewlett-Packard	6.8	5.6	.0	340	.5%	.7%	.0%	2.1%
ESRI	4.0	.0	3.5	0	.3%	.0%	1.4%	.0%
Cadence	3.4	.0	3.0	0	.3%	.0%	1.2%	.0%
CADAM	3.3	.0	2.9	0	.3%	.0%	1.2%	.0%
Teradyne	3.2	.0	2.6	0	.3%	.0%	1.1%	.0%
DATAID Technologies	3.1	.0	.6	0	.2%	.0%	.3%	.0%
Cisigraph	3.1	1.1	1.0	62	.2%	.1%	.4%	.4%
PDA Engineering	2.9	.0	2.9	0	.2%	.0%	1.2%	.0%
Eptisa	2.9	.1	2.3	2	.2%	.0%	.9%	.0%
Solbourne	2.6	2.6	.0	192	.2%	.3%	.0%	1.2%
SDRC	2.6	.0	2.6	0	.2%	.0%	1.1%	.0%
Unisys	2.3	1.1	.8	32	.2%	.1%	.3%	.2%
Scientific Calc.	1.7	.5	1.2	9	.1%	.1%	.5%	.1%
Aucotec	1.7	.7	.8	51	.1%	.1%	.3%	.3%
Swanson Analysis	1.5	.0	1.5	0	.1%	.0%	.6%	.0%
Assigraph	1.4	.0	1.1	11	.1%	.0%	.4%	.1%
Synercom	1.3	.0	.8	0	.1%	.0%	.3%	.0%

(Continued)

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Market Share

TABLE NUMBER: 3 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
MCS	1.1	.0	1.0	0	.1%	.0%	.4%	.0%
Zycad	.9	.8	.0	13	.1%	.1%	.0%	.1%
Framasoft	.8	.0	.5	0	.1%	.0%	.2%	.0%
Silicon Graphics	.7	.6	.0	21	.1%	.1%	.0%	.1%
CIMTEK	.7	.4	.2	6	.1%	.1%	.1%	.0%
Whessoe Computing Systems	.6	.0	.6	0	.0%	.0%	.3%	.0%
FEGS	.5	.0	.4	0	.0%	.0%	.2%	.0%
LSI Logic	.5	.1	.4	2	.0%	.0%	.2%	.0%
Computational Mechanics	.5	.0	.5	0	.0%	.0%	.2%	.0%
Genrad	.5	.1	.3	0	.0%	.0%	.1%	.0%
Olivetti	.3	.3	.0	7	.0%	.0%	.0%	.0%
FEA Limited	.2	.1	.1	5	.0%	.0%	.0%	.0%
Silver-Lisco	.2	.0	.1	0	.0%	.0%	.1%	.0%
CADKEY	.1	.1	.0	2	.0%	.0%	.0%	.0%
Data I/O	.1	.0	.1	0	.0%	.0%	.0%	.0%
VLSI Technology	.1	.0	.0	0	.0%	.0%	.0%	.0%
DECAD	.0	.0	.0	1	.0%	.0%	.0%	.0%
Other Companies	126.7	117.8	2.9	4,916	9.8%	14.6%	1.2%	30.4%
All Companies	1,295.9	808.4	241.4	16,168	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	1,198.6	778.0	198.1	15,428	92.5%	96.2%	82.1%	95.4%
All Asian-Based Companies	.1	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	97.3	30.3	43.3	739	7.5%	3.8%	17.9%	4.6%
All Hardware Companies	423.7	345.9	.0	6,567	32.7%	42.8%	.0%	40.6%
All Turnkey & SW Companies	872.2	462.5	241.4	9,601	67.3%	57.2%	100.0%	59.4%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 4
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Compaq	197.7	197.7	.0	32,937	22.0%	32.7%	.0%	29.8%
IBM	83.5	79.3	.0	18,660	9.3%	13.1%	.0%	16.9%
Autodesk	70.8	.0	70.8	0	7.9%	.0%	28.6%	.0%
Hewlett-Packard	65.6	52.4	.0	10,178	7.3%	8.7%	.0%	9.2%
Apple Computer	52.4	46.2	.0	10,080	5.8%	7.6%	.0%	9.1%
Data Technology/DATECH	30.3	8.5	18.8	0	3.4%	1.4%	7.6%	.0%
Investronica SA	25.5	20.4	2.6	1,018	2.8%	3.4%	1.0%	.9%
Ziegler	18.2	.0	18.2	0	2.0%	.0%	7.3%	.0%
Wiechers Datentechnik	14.6	11.7	2.9	414	1.6%	1.9%	1.2%	.4%
Vero International Software	14.6	.0	14.6	0	1.6%	.0%	5.9%	.0%
Research Machines	14.0	14.0	.0	2,200	1.6%	2.3%	.0%	2.0%
Caditron	12.8	6.4	5.1	200	1.4%	1.1%	2.1%	.2%
Datagraph	10.0	8.0	2.0	50	1.1%	1.3%	.8%	.0%
Racal-Redac	10.0	.0	9.5	0	1.1%	.0%	3.8%	.0%
Intergraph	9.8	.0	9.2	0	1.1%	.0%	3.7%	.0%
LPKF	9.8	6.4	2.4	400	1.1%	1.1%	1.0%	.4%
CADAM	9.1	2.3	6.3	1,000	1.0%	.4%	2.5%	.9%
DAT Standard Information syste	7.6	.0	7.2	0	.8%	.0%	2.9%	.0%
Micrograph	7.3	2.7	3.7	135	.8%	.4%	1.5%	.1%
Aucotec	7.3	2.9	3.6	224	.8%	.5%	1.5%	.2%
ISICAD	7.0	.0	7.0	0	.8%	.0%	2.8%	.0%
BATISOFT	6.9	1.0	3.5	225	.8%	.2%	1.4%	.2%
Kloeckner-Moeller	6.7	4.0	2.3	72	.7%	.7%	.9%	.1%
Club Informatico SA	6.7	3.0	3.3	260	.7%	.5%	1.3%	.2%
Ground Modelling Systems	5.9	3.9	2.9	36	.7%	.7%	1.2%	.0%
Asicom	5.5	.6	4.4	50	.6%	.1%	1.8%	.0%
Robocom	5.5	.0	5.5	0	.6%	.0%	2.2%	.0%
Computervision	4.8	2.2	1.1	126	.5%	.4%	.4%	.1%
Serbi	4.7	.0	4.7	0	.5%	.0%	1.9%	.0%
Olivetti	4.7	4.0	.0	793	.5%	.7%	.0%	.7%
Westward	4.7	4.7	.0	279	.5%	.8%	.0%	.3%
Engineering Computer Services	4.7	1.5	1.7	112	.5%	.3%	.7%	.1%
FHECOR	4.0	.0	4.0	0	.4%	.0%	1.6%	.0%

(Continued)

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Market Share

TABLE NUMBER: 4
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intercad	3.9	2.0	1.1	189	.4%	.3%	.4%	.2%
Cimatron	3.5	1.6	1.6	103	.4%	.3%	.6%	.1%
Datagraphic	3.4	1.7	1.3	55	.4%	.3%	.5%	.0%
Pathtrace	3.3	.9	2.2	46	.4%	.1%	.9%	.0%
rotring euroCAD	3.1	1.7	1.4	74	.3%	.3%	.5%	.1%
Cadtronic	2.8	1.5	1.3	84	.3%	.3%	.5%	.1%
Xilinx	2.7	.0	2.5	0	.3%	.0%	1.0%	.0%
ALS Design	2.5	.0	2.5	0	.3%	.0%	1.0%	.0%
PAFEC	2.4	.0	2.4	0	.3%	.0%	1.0%	.0%
Kewill Systems	2.3	.7	1.2	23	.3%	.1%	.5%	.0%
Superdraft	2.2	1.0	1.1	123	.2%	.2%	.4%	.1%
BETRONEX	2.2	.0	2.2	0	.2%	.0%	.9%	.0%
Whessoe Computing Systems	2.2	.0	2.2	0	.2%	.0%	.9%	.0%
CIMTEK	2.1	.8	1.2	24	.2%	.1%	.5%	.0%
Sycotronic AG	1.8	.0	1.5	4	.2%	.0%	.6%	.0%
CAD-UL	1.7	.0	1.7	0	.2%	.0%	.7%	.0%
Elstree Computing	1.6	.7	.9	50	.2%	.1%	.4%	.0%
Hahn & Kolb	1.5	.9	.5	30	.2%	.2%	.2%	.0%
Teradyne	1.5	.0	1.2	0	.2%	.0%	.5%	.0%
CADKEY	1.4	.9	.4	145	.2%	.1%	.2%	.1%
Academi Systems	1.3	.1	1.1	5	.1%	.0%	.4%	.0%
Data I/O	1.3	.0	1.3	0	.1%	.0%	.5%	.0%
European Silicon Structures	1.3	.1	1.2	4	.1%	.0%	.5%	.0%
FEA Limited	1.2	.3	.3	24	.1%	.0%	.1%	.0%
ESRI	1.0	.0	1.0	0	.1%	.0%	.4%	.0%
DATAID Technologies	1.0	.0	.2	0	.1%	.0%	.1%	.0%
Marcus Computer Systeme	1.0	.5	.3	31	.1%	.1%	.1%	.0%
Aucos elektronische Gerate	1.0	.3	.7	100	.1%	.0%	.3%	.1%
ARKTEC	1.0	.2	.8	22	.1%	.0%	.3%	.0%
DELTA CAD	1.0	.4	.4	12	.1%	.1%	.2%	.0%
CAD TECH Iberica	.9	.4	.3	76	.1%	.1%	.1%	.1%

(Continued)

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Market Share

TABLE NUMBER: 4 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
S.T.L.D. s.r.l.	.8	.0	.8	0	.1%	.0%	.3%	.0%
Number One Systems	.8	.1	.7	20	.1%	.0%	.3%	.0%
Schlumberger	.8	.2	.3	6	.1%	.0%	.1%	.0%
Vision 3D	.7	.4	.2	6	.1%	.1%	.1%	.0%
MCS	.7	.0	.6	0	.1%	.0%	.2%	.0%
Swanson Analysis	.6	.0	.6	0	.1%	.0%	.2%	.0%
ACERI SA	.5	.1	.3	3	.1%	.0%	.1%	.0%
Inca	.5	.0	.5	0	.1%	.0%	.2%	.0%
CAD Lab	.4	.0	.4	0	.0%	.0%	.2%	.0%
Soft	.4	.0	.4	0	.0%	.0%	.1%	.0%
Norsk Data	.4	.2	.1	7	.0%	.0%	.0%	.0%
Logic Control	.4	.2	.1	80	.0%	.0%	.0%	.1%
Kontron Instruments	.2	.1	.1	4	.0%	.0%	.0%	.0%
ESDU International	.2	.0	.2	0	.0%	.0%	.1%	.0%
Genrad	.1	.0	.1	0	.0%	.0%	.0%	.0%
TOOL Software	.1	.0	.1	2	.0%	.0%	.0%	.0%
Instrumatic Espanola	.1	.0	.1	0	.0%	.0%	.0%	.0%
Other Companies	86.5	103.1	.0	29,826	9.6%	17.0%	.0%	27.0%
All Companies	896.6	604.9	247.9	110,628	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	646.8	496.4	121.3	103,364	72.1%	82.1%	48.9%	93.4%
All Asian-Based Companies	.2	.1	.1	0	.0%	.0%	.0%	.0%
All European-Based Companies	249.6	108.4	126.6	7,264	27.8%	17.9%	51.1%	6.6%
All Hardware Companies	513.6	490.1	.0	102,062	57.3%	81.0%	.0%	92.3%
All Turnkey & SW Companies	383.0	114.9	247.9	8,566	42.7%	19.0%	100.0%	7.7%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 5
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	517.9	327.0	106.8	12,321	18.4%	20.3%	14.9%	14.4%
Computervision	423.9	195.9	100.9	3,503	15.1%	12.2%	14.1%	4.1%
Hewlett-Packard	252.3	187.8	22.6	13,262	9.0%	11.7%	3.2%	15.5%
Digital	191.3	143.5	.0	1,461	6.8%	8.9%	.0%	1.7%
Intergraph	90.6	48.4	18.1	949	3.2%	3.0%	2.5%	1.1%
Siemens	78.5	46.3	23.5	1,829	2.8%	2.9%	3.3%	2.1%
Schlumberger	75.4	26.2	28.1	790	2.7%	1.6%	3.9%	.9%
McDonnell Douglas	71.7	37.5	27.1	1,029	2.5%	2.3%	3.8%	1.2%
Control Data	71.0	51.5	7.8	813	2.5%	3.2%	1.1%	.9%
Compaq	70.8	70.8	.0	11,791	2.5%	4.4%	.0%	13.7%
Matra Datavision	63.4	29.8	25.3	683	2.3%	1.9%	3.5%	.8%
Sun	47.8	41.3	.0	3,417	1.7%	2.6%	.0%	4.0%
Norsk Data	38.0	19.2	6.6	372	1.4%	1.2%	.9%	.4%
Silicon Graphics	35.4	31.2	.0	1,145	1.3%	1.9%	.0%	1.3%
Dassault	31.5	.0	25.8	0	1.1%	.0%	3.6%	.0%
Cisigraph	30.6	10.8	10.7	288	1.1%	.7%	1.5%	.3%
Autodesk	29.2	.0	29.2	0	1.0%	.0%	4.1%	.0%
STI-Straessle	28.4	6.5	15.6	269	1.0%	.4%	2.2%	.3%
Investronica SA	25.5	20.4	2.6	1,018	.9%	1.3%	.4%	1.2%
Ferranti	23.4	8.7	10.8	191	.8%	.5%	1.5%	.2%
Apple Computer	21.5	18.9	.0	4,133	.8%	1.2%	.0%	4.8%
Wiechers Datentechnik	20.3	16.2	4.1	494	.7%	1.0%	.6%	.6%
SDRC	19.6	.0	19.6	0	.7%	.0%	2.7%	.0%
Data Technology/DATECH	16.7	4.3	10.7	0	.6%	.3%	1.5%	.0%
PAFEC	15.8	.0	15.8	0	.6%	.0%	2.2%	.0%
Mannesmann PROCAD	15.7	8.0	4.4	218	.6%	.5%	.6%	.3%
Hahn & Kolb	15.2	9.1	4.6	220	.5%	.6%	.6%	.3%
ISYKON Software	15.2	7.6	5.3	220	.5%	.5%	.7%	.3%
Vero International Software	14.6	.0	14.6	0	.5%	.0%	2.0%	.0%
MacNeal-Schwendler	14.1	.0	13.5	0	.5%	.0%	1.9%	.0%
Engineering Computer Services	13.7	5.4	4.4	215	.5%	.3%	.6%	.3%
ISICAD	12.8	6.1	4.7	147	.5%	.4%	.6%	.2%
Westward	12.7	12.7	.0	747	.4%	.8%	.0%	.9%

(Continued)

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Market Share

TABLE NUMBER: 5
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					..... Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
ItalCad	12.5	5.4	3.5	120	.4%	.3%	.5%	.1%
Exapt	12.3	6.0	4.2	211	.4%	.4%	.6%	.2%
CADAM	12.1	1.6	9.3	694	.4%	.1%	1.3%	.8%
Cimatron	11.6	5.2	5.2	344	.4%	.3%	.7%	.4%
CAD Lab	11.5	.0	9.2	0	.4%	.0%	1.3%	.0%
Kewill Systems	11.5	3.4	6.3	115	.4%	.2%	.9%	.1%
Cimlinc	10.3	2.1	6.2	910	.4%	.1%	.9%	1.1%
Datagraph	10.0	8.0	2.0	50	.4%	.5%	.3%	.1%
Fides Industrielle Automation	9.9	1.2	8.9	92	.4%	.1%	1.2%	.1%
Unisys	9.9	5.0	3.5	151	.4%	.3%	.5%	.2%
Auto-Trol	9.2	3.7	3.2	117	.3%	.2%	.5%	.1%
Gerber Systems	8.9	4.4	2.9	64	.3%	.3%	.4%	.1%
PDA Engineering	8.8	.0	8.8	0	.3%	.0%	1.2%	.0%
ICL	8.7	5.1	3.0	239	.3%	.3%	.4%	.3%
Framesoft	8.4	.0	5.0	0	.3%	.0%	.7%	.0%
DATAID Technologies	8.2	.0	1.7	0	.3%	.0%	.2%	.0%
Caditron	7.7	3.8	3.1	120	.3%	.2%	.4%	.1%
Albert Nestler	7.3	2.4	3.1	95	.3%	.1%	.4%	.1%
Ziegler	7.3	.0	7.3	0	.3%	.0%	1.0%	.0%
CIMTEK	7.0	3.4	3.0	67	.2%	.2%	.4%	.1%
Research Machines	6.7	6.7	.0	1,056	.2%	.4%	.0%	1.2%
Kloeckner-Moeller	6.7	4.0	2.3	72	.2%	.3%	.3%	.1%
DAT Standard Information syste	6.4	.0	6.1	0	.2%	.0%	.9%	.0%
Radan Computational	5.8	3.6	1.6	246	.2%	.2%	.2%	.3%
rotring euroCAD	5.5	3.4	2.0	147	.2%	.2%	.3%	.2%
Technische Computer Systeme	5.3	1.1	4.2	137	.2%	.1%	.6%	.2%
Parametric Technology	5.3	.0	4.9	0	.2%	.0%	.7%	.0%
Marcus Computer Systeme	4.4	2.3	1.5	137	.2%	.1%	.2%	.2%
CAD Centre	4.4	.7	1.7	5	.2%	.0%	.2%	.0%
Micrograph	3.9	1.6	1.8	82	.1%	.1%	.3%	.1%
Asicom	3.8	.4	3.0	33	.1%	.0%	.4%	.0%
Swanson Analysis	3.5	.0	3.5	0	.1%	.0%	.5%	.0%
MCS	3.3	.0	2.9	0	.1%	.0%	.4%	.0%

(Continued)

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Market Share

TABLE NUMBER: 5
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Pathtrace	3.3	.9	2.2	46	.1%	.1%	.3%	.1%
Intercad	3.1	1.6	.9	151	.1%	.1%	.1%	.2%
Whessoe Computing Systems	3.1	.0	3.1	0	.1%	.0%	.4%	.0%
XAO Industrie	3.0	1.1	1.8	108	.1%	.1%	.3%	.1%
Olivetti	2.9	2.4	.0	436	.1%	.1%	.0%	.5%
ISKA	2.6	1.2	1.0	48	.1%	.1%	.1%	.1%
Serbi	2.6	.0	2.6	0	.1%	.0%	.4%	.0%
Robocom	2.5	.0	2.5	0	.1%	.0%	.4%	.0%
Catalpa	2.4	.8	1.2	20	.1%	.0%	.2%	.0%
FEA Limited	2.3	.6	.6	48	.1%	.0%	.1%	.1%
Superdraft	2.2	1.0	1.1	123	.1%	.1%	.2%	.1%
ICAD	2.1	.0	1.6	0	.1%	.0%	.2%	.0%
CADKEY	1.5	1.0	.5	150	.1%	.1%	.1%	.2%
FEGS	1.1	.0	.9	0	.0%	.0%	.1%	.0%
CAD TECH Iberica	.9	.4	.3	76	.0%	.0%	.0%	.1%
Club Informatico SA	.9	.4	.4	34	.0%	.0%	.1%	.0%
DELTA CAD	.9	.4	.4	11	.0%	.0%	.1%	.0%
S.T.L.D. s.r.l.	.8	.0	.8	0	.0%	.0%	.1%	.0%
Vision 3D	.7	.4	.2	6	.0%	.0%	.0%	.0%
Computational Mechanics	.7	.0	.7	0	.0%	.0%	.1%	.0%
FHECOR	.6	.0	.6	0	.0%	.0%	.1%	.0%
Aplein	.5	.5	.0	6	.0%	.0%	.0%	.0%
Cadtronic	.4	.2	.2	13	.0%	.0%	.0%	.0%
Logic Control	.4	.2	.1	80	.0%	.0%	.0%	.1%
ESDU International	.2	.0	.2	0	.0%	.0%	.0%	.0%
Solbourne	.1	.1	.0	7	.0%	.0%	.0%	.0%
Number One Systems	.0	.0	.0	1	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 5 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	111.7	118.4	.0	17,643	4.0%	7.4%	.0%	20.6%
All Companies	2,815.8	1,606.9	715.7	85,834	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	2,163.1	1,330.2	437.0	74,605	76.8%	82.8%	61.1%	86.9%
All Asian-Based Companies	.3	.2	.1	0	.0%	.0%	.0%	.0%
All European-Based Companies	652.4	276.5	278.6	11,229	23.2%	17.2%	38.9%	13.1%
All Hardware Companies	639.5	553.8	.0	56,576	22.7%	34.5%	.0%	65.9%
All Turnkey & SW Companies	2,176.3	1,053.1	715.7	29,258	77.3%	65.5%	100.0%	34.1%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 6
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: AEC
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Market Share Total Revenue	Market Share Hardware Revenue	Market Share Software Revenue	Market Share Wkstns Shipped
Company								
Intergraph	90.6	48.5	18.1	953	15.1%	13.2%	12.4%	2.7%
IBM	64.1	45.3	10.1	4,584	10.7%	12.3%	6.8%	12.9%
Hewlett-Packard	50.0	38.2	3.4	3,053	8.3%	10.4%	2.3%	8.6%
Compaq	43.7	43.7	.0	7,279	7.3%	11.9%	.0%	20.5%
Digital	38.9	29.2	.0	273	6.5%	7.9%	.0%	.8%
Autodesk	33.8	.0	33.8	0	5.6%	.0%	23.1%	.0%
McDonnell Douglas	21.5	11.3	8.1	370	3.6%	3.1%	5.5%	1.0%
Apple Computer	21.0	18.5	.0	4,032	3.5%	5.0%	.0%	11.4%
Computervision	19.3	8.9	4.6	159	3.2%	2.4%	3.1%	.4%
ISICAD	19.3	7.0	9.8	187	3.2%	1.9%	6.7%	.5%
ItalCad	13.5	5.8	3.8	129	2.2%	1.6%	2.6%	.4%
Data Technology/DATECH	12.3	3.1	8.0	0	2.1%	.9%	5.4%	.0%
Star Informatic	11.8	10.3	3.1	550	2.0%	2.8%	2.1%	1.6%
Kewill Systems	11.5	3.4	6.3	115	1.9%	.9%	4.3%	.3%
Siemens	11.0	6.5	3.3	231	1.8%	1.8%	2.2%	.7%
t2 Solutions	10.7	5.3	3.8	106	1.8%	1.5%	2.6%	.3%
CAD Centre	9.8	1.5	3.7	11	1.6%	.4%	2.5%	.0%
Norsk Data	9.0	4.8	1.7	97	1.5%	1.3%	1.1%	.3%
BATISOFT	6.9	1.0	3.5	225	1.2%	.3%	2.4%	.6%
Club Informatico SA	5.8	2.6	2.9	226	1.0%	.7%	1.9%	.6%
Dassault	5.3	.0	4.4	0	.9%	.0%	3.0%	.0%
Sun	4.9	4.3	.0	389	.8%	1.2%	.0%	1.1%
Research Machines	3.8	3.8	.0	594	.6%	1.0%	.0%	1.7%
Auto-Trol	3.7	1.5	1.3	47	.6%	.4%	.9%	.1%
Caditron	3.6	1.8	1.4	56	.6%	.5%	1.0%	.2%
Datagraphic	3.4	1.7	1.3	55	.6%	.5%	.9%	.2%
FHECOR	3.4	.0	3.4	0	.6%	.0%	2.3%	.0%
Robocom	2.5	.0	2.5	0	.4%	.0%	1.7%	.0%
CADAM	2.4	.3	1.9	139	.4%	.1%	1.3%	.4%
Ziegler	2.4	.0	2.4	0	.4%	.0%	1.6%	.0%
Gable CAD Systems	2.3	.9	1.1	32	.4%	.3%	.7%	.1%
Control Data	2.3	1.7	.2	25	.4%	.5%	.2%	.1%

(Continued)

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Market Share

TABLE NUMBER: 6 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: AEC
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Sinus Software	1.8	.9	.9	36	.3%	.3%	.6%	.1%
Elstree Computing	1.6	.7	.9	50	.3%	.2%	.6%	.1%
Olivetti	1.5	1.3	.0	254	.3%	.4%	.0%	.7%
Serbi	1.4	.0	1.4	0	.2%	.0%	1.0%	.0%
ARKTEC	1.4	.4	1.0	40	.2%	.1%	.7%	.1%
PAFEC	1.4	.0	1.4	0	.2%	.0%	.9%	.0%
Soft	1.4	.0	1.2	0	.2%	.0%	.8%	.0%
Micrograph	1.3	.4	.7	22	.2%	.1%	.5%	.1%
Ground Modelling Systems	1.2	.6	.6	7	.2%	.2%	.4%	.0%
Westward	1.2	1.2	.0	70	.2%	.3%	.0%	.2%
Aplein	1.2	1.1	.1	14	.2%	.3%	.0%	.0%
Cadtronic	1.0	.5	.4	29	.2%	.1%	.3%	.1%
Radan Computational	.8	.5	.2	34	.1%	.1%	.1%	.1%
Schlumberger	.8	.3	.3	8	.1%	.1%	.2%	.0%
Sycotronic AG	.6	.0	.5	1	.1%	.0%	.4%	.0%
ACERI SA	.5	.1	.3	3	.1%	.0%	.2%	.0%
DAT Standard Information syste	.4	.0	.4	0	.1%	.0%	.2%	.0%
Asicom	.3	.0	.2	3	.0%	.0%	.2%	.0%
TOOL Software	.2	.0	.1	4	.0%	.0%	.1%	.0%
DELTA CAD	.1	.0	.0	1	.0%	.0%	.0%	.0%
Solbourne	.0	.0	.0	2	.0%	.0%	.0%	.0%
Other Companies	35.9	48.1	.0	10,994	6.0%	13.1%	.0%	31.0%
All Companies	600.4	367.4	146.7	35,491	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	476.5	313.5	95.7	32,739	79.4%	85.3%	65.2%	92.2%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	123.9	53.9	51.1	2,752	20.6%	14.7%	34.8%	7.8%
All Hardware Companies	210.7	191.2	.0	29,820	35.1%	52.0%	.0%	84.0%
All Turnkey & SW Companies	389.7	176.2	146.7	5,671	64.9%	48.0%	100.0%	16.0%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 7
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: GIS/Mapping
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intergraph	145.0	77.6	29.0	1,522	30.8%	28.3%	24.9%	8.3%
Siemens	66.0	38.9	19.8	1,420	14.0%	14.2%	17.0%	7.7%
IBM	36.8	27.2	5.0	3,357	7.8%	9.9%	4.3%	18.3%
Digital	35.4	26.6	.0	248	7.5%	9.7%	.0%	1.3%
Compaq	28.6	28.6	.0	4,759	6.1%	10.4%	.0%	25.9%
ICL	13.5	8.0	4.6	371	2.9%	2.9%	3.9%	2.0%
McDonnell Douglas	12.7	6.6	4.8	399	2.7%	2.4%	4.1%	2.2%
ESRI	11.7	.0	10.3	0	2.5%	.0%	8.9%	.0%
Sysscan	11.6	5.1	3.0	132	2.5%	1.9%	2.6%	.7%
STI-Straessle	10.6	2.5	5.9	101	2.3%	.9%	5.0%	.5%
Landmark Graphics	9.2	4.5	2.8	89	2.0%	1.6%	2.4%	.5%
Autodesk	7.7	.0	7.7	0	1.6%	.0%	6.6%	.0%
Apple Computer	5.8	5.1	.0	1,109	1.2%	1.9%	.0%	6.0%
PAFEC	5.7	.0	5.7	0	1.2%	.0%	4.9%	.0%
ItalCad	5.3	2.3	1.5	51	1.1%	.8%	1.3%	.3%
Sun	4.9	4.2	.0	360	1.0%	1.5%	.0%	2.0%
Computervision	4.8	2.2	1.1	40	1.0%	.8%	1.0%	.2%
Ground Modelling Systems	4.7	3.2	2.4	29	1.0%	1.2%	2.0%	.2%
Synercom	3.5	.0	2.1	0	.7%	.0%	1.8%	.0%
Control Data	3.0	2.2	.3	31	.6%	.8%	.3%	.2%
Data Technology/DATECH	3.0	.8	1.9	0	.6%	.3%	1.7%	.0%
Norsk Data	3.0	1.6	.5	32	.6%	.6%	.5%	.2%
Eptisa	2.9	.1	2.3	2	.6%	.0%	2.0%	.0%
Alper Systems	2.6	1.3	.7	500	.6%	.5%	.6%	2.7%
DATAID Technologies	2.1	.0	.4	0	.4%	.0%	.4%	.0%
Ziegler	2.0	.0	2.0	0	.4%	.0%	1.7%	.0%
Cadtronic	1.4	.8	.6	42	.3%	.3%	.5%	.2%
Research Machines	1.0	1.0	.0	154	.2%	.4%	.0%	.8%
Hewlett-Packard	.7	.6	.0	62	.1%	.2%	.0%	.3%
Micrograph	.7	.2	.4	11	.1%	.1%	.3%	.1%
Olivetti	.6	.5	.0	93	.1%	.2%	.0%	.5%
Solbourne	.5	.5	.0	36	.1%	.2%	.0%	.2%

(Continued)

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Market Share

TABLE NUMBER: 7 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: GIS/Mapping
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Robocom	.4	.0	.4	0	.1%	.0%	.4%	.0%
Asicom	.3	.0	.2	3	.1%	.0%	.2%	.0%
Caditron	.3	.1	.1	4	.1%	.0%	.1%	.0%
Other Companies	22.9	21.9	.8	3,438	4.9%	8.0%	.7%	18.7%
All Companies	470.7	273.9	116.3	18,394	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	339.1	208.6	68.2	15,454	72.0%	76.2%	58.7%	84.0%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	131.7	65.3	48.0	2,940	28.0%	23.8%	41.3%	16.0%
All Hardware Companies	112.3	100.7	.0	13,112	23.9%	36.8%	.0%	71.3%
All Turnkey & SW Companies	358.4	173.2	116.3	5,281	76.1%	63.2%	100.0%	28.7%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 8
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Mentor Graphics	119.2	17.3	65.6	1,292	12.8%	3.9%	20.9%	3.6%
Hewlett-Packard	115.2	82.4	8.2	6,949	12.4%	18.5%	2.6%	19.6%
Digital	88.8	64.9	.0	765	9.5%	14.6%	.0%	2.2%
Sun	64.9	56.8	.0	5,068	7.0%	12.7%	.0%	14.3%
Compaq	54.6	54.6	.0	9,107	5.9%	12.3%	.0%	25.7%
Racal-Redac	50.0	1.0	40.5	274	5.4%	.2%	12.9%	.8%
Valid	40.7	10.2	22.8	204	4.4%	2.3%	7.3%	.6%
Dazix	40.5	6.9	16.2	495	4.3%	1.5%	5.1%	1.4%
Intergraph	36.3	17.4	6.3	384	3.9%	3.9%	2.0%	1.1%
IBM	35.7	28.0	3.8	4,338	3.8%	6.3%	1.2%	12.2%
Computervision	33.7	15.0	8.0	279	3.6%	3.4%	2.5%	.8%
Cadence	19.6	.0	17.2	0	2.1%	.0%	5.5%	.0%
Calay	15.9	5.0	9.3	259	1.7%	1.1%	2.9%	.7%
ABB Cade International	15.2	8.9	4.6	66	1.6%	2.0%	1.4%	.2%
Aucotec	10.4	4.1	5.2	319	1.1%	.9%	1.7%	.9%
LPKF	9.8	6.4	2.4	400	1.0%	1.4%	.8%	1.1%
Scientific Calc.	9.5	2.1	5.0	44	1.0%	.5%	1.6%	.1%
VLSI Technology	8.7	.3	7.2	6	.9%	.1%	2.3%	.0%
Teradyne	8.1	.0	6.6	0	.9%	.0%	2.1%	.0%
European Silicon Structures	7.9	1.6	6.3	48	.8%	.4%	2.0%	.1%
Ziegler	6.5	.0	6.5	0	.7%	.0%	2.1%	.0%
Autodesk	6.2	.0	6.2	0	.7%	.0%	2.0%	.0%
LSI Logic	5.4	.5	4.1	21	.6%	.1%	1.3%	.1%
Genrad	4.5	.9	3.0	0	.5%	.2%	.9%	.0%
Zycad	4.4	3.6	.0	14	.5%	.8%	.0%	.0%
Apple Computer	4.2	3.7	.0	806	.5%	.8%	.0%	2.3%
AnaCAD	3.9	.0	3.9	0	.4%	.0%	1.2%	.0%
Xilinx	3.0	.0	2.7	0	.3%	.0%	.9%	.0%
Assigraph	2.7	.0	2.2	21	.3%	.0%	.7%	.1%
Micrograph	2.6	1.5	.9	60	.3%	.3%	.3%	.2%
Solbourne	2.6	2.6	.0	192	.3%	.6%	.0%	.5%
ALS Design	2.5	.0	2.5	0	.3%	.0%	.8%	.0%
Research Machines	2.5	2.5	.0	396	.3%	.6%	.0%	1.1%

(Continued)

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Market Share

TABLE NUMBER: 8
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Schlumberger	2.3	.6	.8	25	.3%	.1%	.3%	.1%
Academi Systems	2.2	.2	1.8	9	.2%	.0%	.6%	.0%
BETRONEX	2.2	.0	2.2	0	.2%	.0%	.7%	.0%
Silvar-Lisco	2.1	.0	1.3	0	.2%	.0%	.4%	.0%
CAD-UL	1.7	.0	1.7	0	.2%	.0%	.5%	.0%
CADAM	1.7	.4	1.2	167	.2%	.1%	.4%	.5%
Data I/O	1.6	.0	1.6	0	.2%	.0%	.5%	.0%
Siemens	1.6	7.8	.5	37	.2%	1.8%	.1%	.1%
Asicom	1.5	.1	1.2	13	.2%	.0%	.4%	.0%
Data Technology/DATECH	1.3	.3	.9	0	.1%	.1%	.3%	.0%
DECAD	1.3	.2	.8	5	.1%	.0%	.2%	.0%
Caditron	1.3	.6	.5	20	.1%	.1%	.2%	.1%
Sycotronic AG	1.2	.0	1.0	3	.1%	.0%	.3%	.0%
Dassault	1.2	.0	.9	0	.1%	.0%	.3%	.0%
Aucos elektronische Gerate	1.0	.3	.7	100	.1%	.1%	.2%	.3%
Serbi	1.0	.0	1.0	0	.1%	.0%	.3%	.0%
rotring euroCAD	1.0	.5	.4	23	.1%	.1%	.1%	.1%
Westward	.9	.9	.0	52	.1%	.2%	.0%	.1%
Intercad	.8	.4	.2	38	.1%	.1%	.1%	.1%
DAT Standard Information syste	.8	.0	.7	0	.1%	.0%	.2%	.0%
Number One Systems	.8	.1	.7	19	.1%	.0%	.2%	.1%
ICL	.7	.4	.2	19	.1%	.1%	.1%	.1%
Inca	.7	.0	.7	0	.1%	.0%	.2%	.0%
Kontron Instruments	.2	.1	.1	4	.0%	.0%	.0%	.0%
Instrumatic Espanola	.1	.0	.1	0	.0%	.0%	.0%	.0%
Olivetti	.1	.1	.0	17	.0%	.0%	.0%	.0%
Robocom	.0	.0	.0	0	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 8 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Market Share Total Revenue	Market Share Hardware Revenue	Market Share Software Revenue	Market Share Wkstns Shipped
Company								
Other Companies	64.9	34.7	26.0	3,112	7.0%	7.8%	8.3%	8.8%
All Companies	931.6	445.9	314.0	35,469	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	779.5	402.6	214.9	33,240	83.7%	90.3%	68.4%	93.7%
All Asian-Based Companies	.8	.3	.4	2	.1%	.1%	.1%	.0%
All European-Based Companies	151.3	43.0	98.7	2,227	16.2%	9.6%	31.4%	6.3%
All Hardware Companies	329.9	283.9	.0	28,750	35.4%	63.7%	.0%	81.1%
All Turnkey & SW Companies	601.7	162.0	314.0	6,718	64.6%	36.3%	100.0%	18.9%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 9
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Hewlett-Packard	81.1	62.4	5.1	5,135	15.8%	24.9%	2.9%	22.2%
Mentor Graphics	72.7	11.6	40.0	788	14.1%	4.6%	22.8%	3.4%
Compaq	38.5	38.5	.0	6,423	7.5%	15.4%	.0%	27.8%
Digital	35.5	26.6	.0	304	6.9%	10.6%	.0%	1.3%
Sun	30.6	26.7	.0	2,360	6.0%	10.7%	.0%	10.2%
Dazix	28.4	5.7	11.3	346	5.5%	2.3%	6.4%	1.5%
Valid	23.6	5.9	13.2	118	4.6%	2.4%	7.5%	.5%
Racal-Redac	19.0	1.0	15.4	104	3.7%	.4%	8.8%	.5%
Intergraph	18.1	9.7	3.1	188	3.5%	3.9%	1.8%	.8%
IBM	15.9	15.1	.0	3,545	3.1%	6.0%	.0%	15.3%
ABB Cade International	10.6	6.4	3.2	46	2.1%	2.6%	1.8%	.2%
Aucotec	10.4	4.1	5.2	319	2.0%	1.7%	3.0%	1.4%
Computervision	9.6	4.4	2.3	80	1.9%	1.8%	1.3%	.3%
Teradyne	8.1	.0	6.6	0	1.6%	.0%	3.8%	.0%
Autodesk	5.4	.0	5.4	0	1.0%	.0%	3.1%	.0%
VLSI Technology	5.2	.2	4.3	4	1.0%	.1%	2.5%	.0%
Cadence	5.2	.0	4.6	0	1.0%	.0%	2.6%	.0%
LSI Logic	4.8	.5	3.6	19	.9%	.2%	2.1%	.1%
Genrad	4.5	.9	3.0	0	.9%	.3%	1.7%	.0%
Zycad	4.4	3.6	.0	14	.8%	1.4%	.0%	.1%
AnaCAD	3.9	.0	3.9	0	.8%	.0%	2.2%	.0%
Ziegler	3.6	.0	3.6	0	.7%	.0%	2.1%	.0%
Calay	3.2	1.0	1.9	52	.6%	.4%	1.1%	.2%
Xilinx	3.0	.0	2.7	0	.6%	.0%	1.5%	.0%
Assigraph	2.7	.0	2.2	21	.5%	.0%	1.2%	.1%
Apple Computer	2.1	1.9	.0	403	.4%	.7%	.0%	1.7%
ALS Design	1.9	.0	1.9	0	.4%	.0%	1.1%	.0%
Micrograph	1.7	.8	.7	32	.3%	.3%	.4%	.1%
Data I/O	1.6	.0	1.6	0	.3%	.0%	.9%	.0%
Caditron	1.3	.6	.5	20	.2%	.3%	.3%	.1%
Dassault	1.2	.0	.9	0	.2%	.0%	.5%	.0%
Aucos elektronische Gerate	1.0	.3	.7	100	.2%	.1%	.4%	.4%

(Continued)

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Market Share

TABLE NUMBER: 9 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Serbi	1.0	.0	1.0	0	.2%	.0%	.6%	.0%
Research Machines	1.0	1.0	.0	154	.2%	.4%	.0%	.7%
rotring euroCAD	1.0	.5	.4	23	.2%	.2%	.2%	.1%
Westward	.9	.9	.0	52	.2%	.3%	.0%	.2%
Intercad	.8	.4	.2	38	.2%	.2%	.1%	.2%
DAT Standard Information syste	.8	.0	.7	0	.1%	.0%	.4%	.0%
Data Technology/DATECH	.7	.2	.4	0	.1%	.1%	.2%	.0%
Silvar-Lisco	.6	.0	.4	0	.1%	.0%	.2%	.0%
Solbourne	.6	.6	.0	47	.1%	.2%	.0%	.2%
Scientific Calc.	.5	.1	.3	2	.1%	.0%	.2%	.0%
Asicom	.2	.0	.1	1	.0%	.0%	.1%	.0%
Number One Systems	.1	.0	.1	3	.0%	.0%	.1%	.0%
Sycotronic AG	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	47.3	18.8	25.1	2,373	9.2%	7.5%	14.3%	10.3%
All Companies	514.0	250.3	175.7	23,116	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	447.2	232.8	132.9	22,113	87.0%	93.0%	75.6%	95.7%
All Asian-Based Companies	.1	.0	.1	0	.0%	.0%	.0%	.0%
All European-Based Companies	66.7	17.5	42.8	1,003	13.0%	7.0%	24.3%	4.3%
All Hardware Companies	188.0	165.3	.0	19,649	36.6%	66.0%	.0%	85.0%
All Turnkey & SW Companies	326.0	85.0	175.7	3,467	63.4%	34.0%	100.0%	15.0%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 10
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: IC Layout
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Sun	19.6	17.2	.0	1,547	20.6%	41.1%	.0%	56.2%
Mentor Graphics	17.9	2.9	9.8	194	18.8%	6.8%	26.5%	7.0%
Cadence	14.3	.0	12.6	0	15.0%	.0%	33.8%	.0%
Digital	14.3	10.7	.0	176	15.0%	25.7%	.0%	6.4%
European Silicon Structures	7.9	1.6	6.3	48	8.3%	3.8%	16.9%	1.7%
Hewlett-Packard	5.4	4.6	.0	490	5.7%	10.9%	.0%	17.8%
Valid	4.9	1.2	2.7	24	5.1%	2.9%	7.4%	.9%
VLSI Technology	3.5	.1	2.9	2	3.6%	.2%	7.7%	.1%
Silvar-Lisco	1.5	.0	.9	0	1.6%	.0%	2.4%	.0%
Solbourne	1.4	1.4	.0	104	1.5%	3.4%	.0%	3.8%
Inca	.7	.0	.7	0	.7%	.0%	1.8%	.0%
LSI Logic	.6	.1	.4	2	.6%	.1%	1.2%	.1%
Research Machines	.6	.6	.0	88	.6%	1.4%	.0%	3.2%
Asicom	.2	.0	.1	1	.2%	.0%	.3%	.0%
Other Companies	2.4	1.5	.7	76	2.5%	3.5%	1.9%	2.7%
All Companies	95.0	41.7	37.2	2,753	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	85.5	39.5	30.1	2,615	90.1%	94.5%	80.9%	95.0%
All Asian-Based Companies	.3	.1	.1	2	.3%	.3%	.4%	.1%
All European-Based Companies	9.2	2.2	7.0	136	9.6%	5.2%	18.7%	4.9%
All Hardware Companies	42.0	35.1	.0	2,389	44.3%	84.2%	.0%	86.8%
All Turnkey & SW Companies	53.0	6.6	37.2	364	55.7%	15.8%	100.0%	13.2%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 11
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					..... Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Digital	39.0	27.6	.0	285	12.1%	18.0%	.0%	3.0%
Racal-Redac	31.0	.0	25.1	170	9.6%	.0%	24.8%	1.8%
Hewlett-Packard	28.7	15.4	3.1	1,324	8.9%	10.0%	3.1%	13.8%
Mentor Graphics	28.6	2.9	15.8	310	8.9%	1.9%	15.6%	3.2%
Computervision	24.1	10.6	5.7	199	7.5%	6.9%	5.6%	2.1%
IBM	19.9	13.0	3.8	793	6.2%	8.4%	3.7%	8.3%
Intergraph	18.1	7.7	3.2	196	5.6%	5.0%	3.2%	2.0%
Compaq	16.1	16.1	.0	2,684	5.0%	10.5%	.0%	28.0%
Sun	14.7	12.9	.0	1,160	4.6%	8.4%	.0%	12.1%
Calay	12.7	4.0	7.4	207	3.9%	2.6%	7.3%	2.2%
Valid	12.2	3.1	6.8	61	3.8%	2.0%	6.8%	.6%
Dazix	12.2	1.2	4.8	149	3.8%	.8%	4.8%	1.5%
LPKF	9.8	6.4	2.4	400	3.0%	4.1%	2.4%	4.2%
Scientific Calc.	9.1	2.0	4.7	42	2.8%	1.3%	4.6%	.4%
ABB Cade International	4.6	2.5	1.4	20	1.4%	1.6%	1.4%	.2%
Ziegler	2.9	.0	2.9	0	.9%	.0%	2.9%	.0%
Schlumberger	2.3	.6	.8	25	.7%	.4%	.8%	.3%
Academi Systems	2.2	.2	1.8	9	.7%	.1%	1.8%	.1%
BETRONEX	2.2	.0	2.2	0	.7%	.0%	2.1%	.0%
Apple Computer	2.1	1.9	.0	403	.7%	1.2%	.0%	4.2%
CAD-UL	1.7	.0	1.7	0	.5%	.0%	1.7%	.0%
CADAM	1.7	.4	1.2	167	.5%	.2%	1.1%	1.7%
Siemens	1.6	7.8	.5	37	.5%	5.1%	.5%	.4%
DECAD	1.3	.2	.8	5	.4%	.1%	.8%	.1%
Asicom	1.2	.1	.9	10	.4%	.1%	.9%	.1%
Sycotronic AG	1.2	.0	.9	3	.4%	.0%	.9%	.0%
Research Machines	1.0	1.0	.0	154	.3%	.6%	.0%	1.6%
Micrograph	.9	.6	.2	28	.3%	.4%	.2%	.3%
Autodesk	.8	.0	.8	0	.2%	.0%	.8%	.0%
ICL	.7	.4	.2	19	.2%	.3%	.2%	.2%
Data Technology/DATECH	.7	.2	.4	0	.2%	.1%	.4%	.0%
Number One Systems	.6	.0	.6	16	.2%	.0%	.6%	.2%

(Continued)

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Market Share

TABLE NUMBER: 11 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
ALS Design	.6	.0	.6	0	.2%	.0%	.6%	.0%
Solbourne	.5	.6	.0	40	.2%	.4%	.0%	.4%
Kontron Instruments	.2	.1	.1	4	.1%	.1%	.1%	.0%
Instrumatic Espanola	.1	.0	.1	0	.0%	.0%	.1%	.0%
Olivetti	.1	.1	.0	17	.0%	.0%	.0%	.2%
Cadence	.1	.0	.1	0	.0%	.0%	.1%	.0%
Robocom	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	15.3	14.4	.1	663	4.7%	9.4%	.1%	6.9%
All Companies	322.6	153.9	101.2	9,600	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	246.8	130.3	52.0	8,511	76.5%	84.7%	51.4%	88.7%
All Asian-Based Companies	.4	.2	.2	0	.1%	.1%	.2%	.0%
All European-Based Companies	75.4	23.3	49.0	1,088	23.4%	15.2%	48.4%	11.3%
All Hardware Companies	99.9	83.5	.0	6,712	31.0%	54.2%	.0%	69.9%
All Turnkey & SW Companies	222.8	70.4	101.2	2,887	69.0%	45.8%	100.0%	30.1%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 12
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	51.4	33.4	10.0	1,780	13.9%	14.2%	14.1%	7.9%
Computervision	41.4	19.1	9.8	342	11.2%	8.1%	13.8%	1.5%
Intergraph	39.9	21.1	7.9	419	10.8%	9.0%	11.1%	1.9%
Digital	35.5	26.4	.0	275	9.6%	11.2%	.0%	1.2%
Hewlett-Packard	33.4	24.7	2.7	1,866	9.1%	10.5%	3.8%	8.3%
Mentor Graphics	13.0	1.9	7.1	141	3.5%	.8%	10.0%	.6%
Compaq	11.9	11.9	.0	1,976	3.2%	5.0%	.0%	8.8%
Sun	8.6	7.5	.0	646	2.3%	3.2%	.0%	2.9%
Siemens	5.8	3.4	1.7	129	1.6%	1.4%	2.4%	.6%
Apple Computer	4.7	4.2	.0	907	1.3%	1.8%	.0%	4.0%
Autodesk	4.6	.0	4.6	0	1.2%	.0%	6.5%	.0%
McDonnell Douglas	4.0	2.1	1.5	60	1.1%	.9%	2.1%	.3%
Control Data	3.7	2.7	.4	42	1.0%	1.1%	.5%	.2%
Racal-Redac	3.6	.1	2.9	20	1.0%	.0%	4.1%	.1%
ISICAD	3.2	1.3	1.5	26	.9%	.6%	2.0%	.1%
Schlumberger	3.1	1.1	1.1	32	.8%	.5%	1.6%	.1%
Silicon Graphics	2.5	2.2	.0	80	.7%	.9%	.0%	.4%
Data Technology/DATECH	2.0	.5	1.3	0	.5%	.2%	1.8%	.0%
Dazix	1.6	.3	.6	19	.4%	.1%	.9%	.1%
Norsk Data	1.5	.8	.3	15	.4%	.3%	.4%	.1%
Star Informatic	1.5	1.3	.4	72	.4%	.5%	.5%	.3%
Valid	1.3	.3	.7	7	.4%	.1%	1.0%	.0%
Matra Datavision	1.3	.6	.5	14	.3%	.3%	.7%	.1%
Kewill Systems	1.2	.3	.6	11	.3%	.1%	.9%	.1%
Investronica SA	1.2	.9	.1	46	.3%	.4%	.2%	.2%
Dassault	1.1	.0	.9	0	.3%	.0%	1.3%	.0%
Scientific Calc.	1.1	.3	.6	4	.3%	.1%	.8%	.0%
VLSI Technology	1.1	.0	.9	1	.3%	.0%	1.3%	.0%
Calay	1.1	.4	.7	18	.3%	.1%	.9%	.1%
Wiechers Datentechnik	1.0	.8	.2	20	.3%	.3%	.3%	.1%
Intercad	1.0	.5	.3	47	.3%	.2%	.4%	.2%
SDRC	1.0	.0	1.0	0	.3%	.0%	1.4%	.0%
ESRI	.9	.0	.8	0	.3%	.0%	1.1%	.0%

(Continued)

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Market Share

TABLE NUMBER: 12
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Parametric Technology	.9	.0	.8	0	.2%	.0%	1.2%	.0%
Gerber Systems	.8	.4	.3	5	.2%	.2%	.4%	.0%
Cisigraph	.8	.3	.3	7	.2%	.1%	.4%	.0%
MacNeal-Schwendler	.7	.0	.7	0	.2%	.0%	1.0%	.0%
Research Machines	.7	.7	.0	110	.2%	.3%	.0%	.5%
Cimlinc	.6	.1	.4	55	.2%	.1%	.5%	.2%
PAFEC	.6	.0	.6	0	.2%	.0%	.8%	.0%
European Silicon Structures	.6	.1	.5	3	.1%	.0%	.6%	.0%
Framasoft	.5	.0	.3	0	.1%	.0%	.4%	.0%
Exapt	.5	.3	.2	8	.1%	.1%	.2%	.0%
Unisys	.5	.3	.2	7	.1%	.1%	.2%	.0%
Ferranti	.5	.2	.2	4	.1%	.1%	.3%	.0%
Robocom	.4	.0	.4	0	.1%	.0%	.6%	.0%
Westward	.4	.4	.0	26	.1%	.2%	.0%	.1%
Sycotronic AG	.4	.0	.3	2	.1%	.0%	.5%	.0%
DAT Standard Information syste	.3	.0	.3	0	.1%	.0%	.4%	.0%
Olivetti	.3	.3	.0	50	.1%	.1%	.0%	.2%
Silvar-Lisco	.3	.0	.2	0	.1%	.0%	.3%	.0%
Datagraph	.3	.2	.1	2	.1%	.1%	.1%	.0%
Ziegler	.3	.0	.3	0	.1%	.0%	.4%	.0%
t2 Solutions	.2	.1	.1	2	.1%	.0%	.1%	.0%
Aucos elektronische Gerate	.2	.1	.1	20	.1%	.0%	.2%	.1%
Aucotec	.2	.1	.1	6	.1%	.0%	.2%	.0%
XAO Industrie	.2	.1	.1	6	.0%	.0%	.2%	.0%
Cimatron	.2	.1	.1	5	.0%	.0%	.1%	.0%
Technische Computer Systeme	.2	.0	.1	4	.0%	.0%	.2%	.0%
Pathtrace	.2	.0	.1	2	.0%	.0%	.1%	.0%
Vero International Software	.2	.0	.2	0	.0%	.0%	.2%	.0%
CAD-UL	.1	.0	.1	0	.0%	.0%	.2%	.0%
ALS Design	.1	.0	.1	0	.0%	.0%	.2%	.0%
Serbi	.1	.0	.1	0	.0%	.0%	.1%	.0%

(Continued)

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Market Share

TABLE NUMBER: 12 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Solbourne	.1	.1	.0	5	.0%	.0%	.0%	.0%
BETRONEX	.0	.0	.0	0	.0%	.0%	.1%	.0%
MCS	.0	.0	.0	0	.0%	.0%	.0%	.0%
Zycad	.0	.0	.0	0	.0%	.0%	.0%	.0%
Inca	.0	.0	.0	0	.0%	.0%	.0%	.0%
BATISOFT	.0	.0	.0	1	.0%	.0%	.0%	.0%
Vision 3D	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	66.5	61.9	2.9	13,184	18.0%	26.3%	4.1%	58.5%
All Companies	368.9	235.5	71.3	22,538	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	340.3	223.6	58.1	21,879	92.3%	94.9%	81.5%	97.1%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	28.6	11.9	13.2	659	7.7%	5.1%	18.5%	2.9%
All Hardware Companies	147.2	132.3	.0	19,734	39.9%	56.2%	.0%	87.6%
All Turnkey & SW Companies	221.7	103.2	71.3	2,804	60.1%	43.8%	100.0%	12.4%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 13
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Computervision	35.0	16.1	8.3	208	20.2%	18.2%	18.4%	6.4%
Intergraph	32.8	18.1	5.9	365	18.9%	20.5%	13.0%	11.1%
Hewlett-Packard	27.7	20.1	2.7	1,025	16.0%	22.7%	6.0%	31.2%
Mentor Graphics	13.0	1.9	7.1	141	7.5%	2.1%	15.8%	4.3%
Digital	8.9	6.5	.0	275	5.2%	7.4%	.0%	8.4%
Sun	6.9	6.1	.0	570	4.0%	6.9%	.0%	17.4%
Siemens	5.2	3.1	1.6	122	3.0%	3.5%	3.4%	3.7%
IBM	4.1	2.5	.9	38	2.4%	2.8%	2.0%	1.2%
McDonnell Douglas	3.3	1.7	1.2	36	1.9%	1.9%	2.7%	1.1%
Racal-Redac	2.9	.1	2.2	20	1.7%	.1%	4.9%	.6%
Schlumberger	2.7	.9	1.0	27	1.6%	1.1%	2.3%	.8%
ISICAD	2.5	1.3	.8	26	1.5%	1.5%	1.7%	.8%
Silicon Graphics	2.4	2.1	.0	79	1.4%	2.4%	.0%	2.4%
Dazix	1.6	.3	.6	19	.9%	.3%	1.4%	.6%
Star Informatic	1.5	1.3	.4	72	.8%	1.5%	.8%	2.2%
Control Data	1.4	1.0	.1	27	.8%	1.2%	.3%	.8%
Valid	1.3	.3	.7	7	.8%	.4%	1.6%	.2%
Matra Datavision	1.3	.6	.5	14	.7%	.7%	1.1%	.4%
VLSI Technology	1.1	.0	.9	1	.6%	.0%	2.1%	.0%
Calay	1.1	.4	.7	18	.6%	.4%	1.4%	.6%
Kewill Systems	1.0	.3	.6	10	.6%	.3%	1.2%	.3%
Scientific Calc.	.9	.2	.4	3	.5%	.2%	1.0%	.1%
Parametric Technology	.9	.0	.8	0	.5%	.0%	1.8%	.0%
SDRC	.9	.0	.9	0	.5%	.0%	1.9%	.0%
Gerber Systems	.8	.4	.3	5	.5%	.4%	.6%	.2%
Cisigraph	.7	.3	.3	6	.4%	.3%	.6%	.2%
Norsk Data	.7	.4	.1	9	.4%	.5%	.3%	.3%
Cimlinc	.6	.1	.4	55	.4%	.1%	.8%	1.7%
ESRI	.5	.0	.5	0	.3%	.0%	1.0%	.0%
PAFEC	.5	.0	.5	0	.3%	.0%	1.1%	.0%
Dassault	.5	.0	.4	0	.3%	.0%	.9%	.0%
Ferranti	.5	.2	.2	4	.3%	.2%	.5%	.1%

(Continued)

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Market Share

TABLE NUMBER: 13 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
European Silicon Structures	.5	.1	.4	3	.3%	.1%	.8%	.1%
Framesoft	.5	.0	.3	0	.3%	.0%	.6%	.0%
Unisys	.4	.2	.1	5	.2%	.2%	.3%	.2%
Autodesk	.4	.0	.4	0	.2%	.0%	.8%	.0%
Westward	.3	.3	.0	18	.2%	.3%	.0%	.5%
Silvar-Lisco	.3	.0	.2	0	.2%	.0%	.4%	.0%
Wiechers Datentechnik	.3	.2	.1	3	.2%	.2%	.1%	.1%
t2 Solutions	.2	.1	.1	2	.1%	.1%	.2%	.1%
Data Technology/DATECH	.2	.0	.2	0	.1%	.0%	.3%	.0%
MacNeal-Schwendler	.2	.0	.2	0	.1%	.0%	.4%	.0%
XAO Industrie	.2	.1	.1	6	.1%	.1%	.2%	.2%
Technische Computer Systeme	.2	.0	.1	4	.1%	.0%	.3%	.1%
Exapt	.1	.1	.1	4	.1%	.1%	.1%	.1%
Cimatron	.1	.1	.1	4	.1%	.1%	.1%	.1%
Aucotec	.0	.0	.0	1	.0%	.0%	.0%	.0%
Zycad	.0	.0	.0	0	.0%	.0%	.0%	.0%
MCS	.0	.0	.0	0	.0%	.0%	.0%	.0%
Inca	.0	.0	.0	0	.0%	.0%	.0%	.0%
Solbourne	.0	.0	.0	1	.0%	.0%	.0%	.0%
Other Companies	4.0	1.1	2.1	46	2.3%	1.2%	4.7%	1.4%
All Companies	173.1	88.6	45.3	3,280	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	154.9	81.1	36.8	2,957	89.5%	91.6%	81.2%	90.2%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	18.2	7.5	8.5	323	10.5%	8.4%	18.8%	9.8%
All Hardware Companies	28.8	23.6	.0	1,530	16.6%	26.6%	.0%	46.7%
All Turnkey & SW Companies	144.3	65.0	45.3	1,750	83.4%	73.4%	100.0%	53.3%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 14
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	41.4	25.3	9.1	436	39.6%	36.2%	61.8%	31.9%
Digital	26.5	19.9	.0	0	25.4%	28.5%	.0%	.0%
Intergraph	6.0	3.0	1.0	54	5.8%	4.3%	6.6%	4.0%
Computervision	6.0	2.8	1.4	123	5.7%	4.0%	9.6%	9.0%
Control Data	2.3	1.7	.3	15	2.2%	2.4%	1.7%	1.1%
Sun	1.7	1.4	.0	77	1.6%	2.0%	.0%	5.6%
Norsk Data	.8	.4	.1	6	.8%	.5%	.8%	.4%
McDonnell Douglas	.7	.4	.3	23	.7%	.6%	1.9%	1.7%
Dassault	.6	.0	.5	0	.6%	.0%	3.5%	.0%
Siemens	.6	.3	.2	7	.5%	.5%	1.2%	.5%
Hewlett-Packard	.5	.4	.0	27	.5%	.6%	.0%	2.0%
MacNeal-Schwendler	.5	.0	.5	0	.5%	.0%	3.5%	.0%
Exapt	.4	.2	.1	4	.3%	.3%	.8%	.3%
ESRI	.3	.0	.3	0	.3%	.0%	1.9%	.0%
Schlumberger	.3	.1	.1	5	.3%	.2%	.7%	.4%
Scientific Calc.	.2	.1	.2	1	.2%	.1%	1.0%	.1%
SDRC	.1	.0	.1	0	.1%	.0%	.9%	.0%
Unisys	.1	.1	.0	1	.1%	.1%	.3%	.1%
Cisigraph	.1	.0	.0	2	.1%	.0%	.2%	.1%
Framasoft	.1	.0	.0	0	.0%	.0%	.2%	.0%
Silicon Graphics	.1	.0	.0	1	.0%	.1%	.0%	.1%
Solbourne	.1	.1	.0	4	.0%	.1%	.0%	.3%
Aucotec	.0	.0	.0	1	.0%	.0%	.1%	.1%
Olivetti	.0	.0	.0	0	.0%	.0%	.0%	.0%
Silvar-Lisco	.0	.0	.0	0	.0%	.0%	.1%	.0%
MCS	.0	.0	.0	0	.0%	.0%	.1%	.0%
VLSI Technology	.0	.0	.0	0	.0%	.0%	.0%	.0%
Zycad	.0	.0	.0	0	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 14 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	15.1	13.8	.5	573	14.5%	19.7%	3.1%	41.9%
All Companies	104.6	69.8	14.7	1,368	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	102.1	68.9	13.7	1,342	97.6%	98.7%	93.1%	98.1%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	2.6	.9	1.0	26	2.4%	1.3%	6.9%	1.9%
All Hardware Companies	43.3	35.6	.0	682	41.4%	50.9%	.0%	49.9%
All Turnkey & SW Companies	61.3	34.3	14.7	686	58.6%	49.1%	100.0%	50.1%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 15
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Compaq	11.9	11.9	.0	1,976	13.0%	15.4%	.0%	11.0%
IBM	5.9	5.6	.0	1,306	6.4%	7.2%	.0%	7.3%
Hewlett-Packard	5.2	4.2	.0	814	5.7%	5.4%	.0%	4.6%
Apple Computer	4.7	4.2	.0	907	5.2%	5.4%	.0%	5.1%
Autodesk	4.2	.0	4.2	0	4.6%	.0%	37.7%	.0%
Data Technology/DATECH	1.8	.5	1.1	0	2.0%	.7%	9.9%	.0%
Investronica SA	1.2	.9	.1	46	1.3%	1.2%	1.0%	.3%
Intergraph	1.1	.0	1.0	0	1.2%	.0%	9.0%	.0%
Intercad	1.0	.5	.3	47	1.1%	.6%	2.4%	.3%
Wiechers Datentechnik	.7	.6	.2	17	.8%	.8%	1.3%	.1%
Racal-Redac	.7	.0	.7	0	.8%	.0%	6.0%	.0%
Research Machines	.7	.7	.0	110	.8%	.9%	.0%	.6%
ISICAD	.7	.0	.7	0	.8%	.0%	6.2%	.0%
Robocom	.4	.0	.4	0	.5%	.0%	3.9%	.0%
Computervision	.4	.2	.1	11	.4%	.2%	.7%	.1%
Sycotronic AG	.4	.0	.3	2	.4%	.0%	2.9%	.0%
DAT Standard Information syste	.3	.0	.3	0	.4%	.0%	2.7%	.0%
Datagraph	.3	.2	.1	2	.3%	.3%	.5%	.0%
Olivetti	.3	.2	.0	49	.3%	.3%	.0%	.3%
Ziegler	.3	.0	.3	0	.3%	.0%	2.4%	.0%
Aucos elektronische Gerate	.2	.1	.1	20	.2%	.1%	1.2%	.1%
Pathtrace	.2	.0	.1	2	.2%	.1%	.9%	.0%
Vero International Software	.2	.0	.2	0	.2%	.0%	1.3%	.0%
Aucotec	.1	.1	.1	4	.2%	.1%	.6%	.0%
Westward	.1	.1	.0	8	.2%	.2%	.0%	.0%
CAD-UL	.1	.0	.1	0	.1%	.0%	1.2%	.0%
ALS Design	.1	.0	.1	0	.1%	.0%	1.1%	.0%
Kewill Systems	.1	.0	.1	1	.1%	.1%	.5%	.0%
European Silicon Structures	.1	.0	.1	0	.1%	.0%	.8%	.0%
ESRI	.1	.0	.1	0	.1%	.0%	.7%	.0%
PAFEC	.1	.0	.1	0	.1%	.0%	.5%	.0%
Serbi	.1	.0	.1	0	.1%	.0%	.5%	.0%

(Continued)

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Market Share

TABLE NUMBER: 15 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Cimatron	.1	.0	.0	2	.1%	.0%	.2%	.0%
BETRONEX	.0	.0	.0	0	.0%	.0%	.4%	.0%
Schlumberger	.0	.0	.0	0	.0%	.0%	.1%	.0%
BATISOFT	.0	.0	.0	1	.0%	.0%	.1%	.0%
Inca	.0	.0	.0	0	.0%	.0%	.2%	.0%
Norsk Data	.0	.0	.0	0	.0%	.0%	.0%	.0%
MCS	.0	.0	.0	0	.0%	.0%	.1%	.0%
Vision 3D	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	47.3	47.1	.3	12,565	51.9%	61.1%	2.9%	70.2%
All Companies	91.2	77.1	11.3	17,891	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	83.4	73.6	7.6	17,580	91.4%	95.4%	67.3%	98.3%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	7.8	3.6	3.7	311	8.6%	4.6%	32.7%	1.7%
All Hardware Companies	75.1	73.2	.0	17,522	82.3%	94.9%	.0%	97.9%
All Turnkey & SW Companies	16.1	3.9	11.3	369	17.7%	5.1%	100.0%	2.1%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 16
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	41.1	25.9	8.5	913	20.2%	19.5%	23.5%	8.7%
Computervision	36.5	16.9	8.7	301	17.9%	12.7%	23.9%	2.9%
Hewlett-Packard	20.2	15.0	1.8	1,061	9.9%	11.3%	5.0%	10.1%
Digital	19.1	14.4	.0	146	9.4%	10.8%	.0%	1.4%
Intergraph	10.0	5.3	2.0	104	4.9%	4.0%	5.5%	1.0%
Compaq	4.3	4.3	.0	707	2.1%	3.2%	.0%	6.7%
Control Data	3.4	2.5	.4	39	1.7%	1.9%	1.0%	.4%
Sun	3.3	2.9	.0	239	1.6%	2.2%	.0%	2.3%
McDonnell Douglas	3.3	1.7	1.2	47	1.6%	1.3%	3.4%	.5%
Schlumberger	2.9	1.0	1.1	31	1.4%	.8%	3.0%	.3%
Siemens	2.9	1.7	.9	68	1.4%	1.3%	2.4%	.6%
Silicon Graphics	2.5	2.2	.0	80	1.2%	1.6%	.0%	.8%
Apple Computer	1.9	1.7	.0	372	.9%	1.3%	.0%	3.5%
Autodesk	1.8	.0	1.8	0	.9%	.0%	4.8%	.0%
Norsk Data	1.5	.8	.3	15	.8%	.6%	.7%	.1%
ISICAD	1.3	.6	.5	12	.6%	.5%	1.3%	.1%
Matra Datavision	1.3	.6	.5	14	.6%	.5%	1.4%	.1%
Investronica SA	1.2	.9	.1	46	.6%	.7%	.3%	.4%
Wiechers Datentechnik	1.0	.8	.2	20	.5%	.6%	.6%	.2%
Data Technology/DATECH	1.0	.3	.6	0	.5%	.2%	1.8%	.0%
SDRC	1.0	.0	1.0	0	.5%	.0%	2.7%	.0%
Dassault	.9	.0	.8	0	.5%	.0%	2.1%	.0%
Parametric Technology	.9	.0	.8	0	.4%	.0%	2.3%	.0%
Gerber Systems	.8	.4	.3	5	.4%	.3%	.7%	.0%
Cisigraph	.8	.3	.3	7	.4%	.2%	.8%	.1%
Intercad	.8	.4	.2	38	.4%	.3%	.6%	.4%
MacNeal-Schwendler	.7	.0	.7	0	.3%	.0%	1.9%	.0%
Cimlinc	.6	.1	.4	55	.3%	.1%	1.0%	.5%
Kewill Systems	.6	.2	.3	6	.3%	.1%	.9%	.1%
Framsoft	.5	.0	.3	0	.2%	.0%	.8%	.0%
Exapt	.5	.3	.2	8	.2%	.2%	.5%	.1%
Unisys	.5	.3	.2	7	.2%	.2%	.5%	.1%

(Continued)

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Market Share

TABLE NUMBER: 16 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Ferranti	.5	.2	.2	4	.2%	.1%	.6%	.0%
PAFEC	.4	.0	.4	0	.2%	.0%	1.1%	.0%
Westward	.4	.4	.0	22	.2%	.3%	.0%	.2%
Research Machines	.3	.3	.0	53	.2%	.3%	.0%	.5%
DAT Standard Information syste	.3	.0	.3	0	.2%	.0%	.8%	.0%
Datagraph	.3	.2	.1	2	.1%	.2%	.2%	.0%
Robocom	.2	.0	.2	0	.1%	.0%	.6%	.0%
XAO Industrie	.2	.1	.1	6	.1%	.0%	.3%	.1%
Cimatron	.2	.1	.1	5	.1%	.1%	.2%	.0%
Olivetti	.2	.1	.0	26	.1%	.1%	.0%	.2%
Technische Computer Systeme	.2	.0	.1	4	.1%	.0%	.4%	.0%
Pathtrace	.2	.0	.1	2	.1%	.0%	.3%	.0%
Vero International Software	.2	.0	.2	0	.1%	.0%	.4%	.0%
Ziegler	.1	.0	.1	0	.1%	.0%	.3%	.0%
MCS	.0	.0	.0	0	.0%	.0%	.1%	.0%
Serbi	.0	.0	.0	0	.0%	.0%	.1%	.0%
Vision 30	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	31.0	29.8	.5	6,032	15.3%	22.5%	1.5%	57.5%
All Companies	203.6	132.5	36.3	10,498	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	188.1	125.1	30.4	10,152	92.4%	94.4%	83.9%	96.7%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	15.5	7.4	5.9	346	7.6%	5.6%	16.1%	3.3%
All Hardware Companies	72.4	64.6	.0	8,811	35.6%	48.7%	.0%	83.9%
All Turnkey & SW Companies	131.2	68.0	36.3	1,687	64.4%	51.3%	100.0%	16.1%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 17
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: AEC
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intergraph	10.0	5.3	2.0	105	17.3%	12.6%	23.0%	1.7%
IBM	5.4	3.7	.9	330	9.4%	8.8%	10.5%	5.3%
Hewlett-Packard	4.0	3.1	.3	244	6.9%	7.2%	3.1%	3.9%
Digital	3.9	2.9	.0	27	6.8%	6.9%	.0%	.4%
Compaq	2.6	2.6	.0	437	4.6%	6.2%	.0%	7.0%
Autodesk	2.0	.0	2.0	0	3.5%	.0%	23.3%	.0%
ISICAD	1.9	.7	1.0	14	3.4%	1.7%	11.3%	.2%
Apple Computer	1.9	1.7	.0	363	3.3%	3.9%	.0%	5.8%
Computervision	1.7	.8	.4	14	2.9%	1.8%	4.6%	.2%
Star Informatic	1.5	1.3	.4	72	2.6%	3.0%	4.4%	1.2%
Data Technology/DATECH	.7	.2	.5	0	1.3%	.4%	5.5%	.0%
McDonnell Douglas	.7	.4	.3	12	1.2%	.9%	3.1%	.2%
Kewill Systems	.6	.2	.3	6	1.0%	.4%	3.6%	.1%
Siemens	.4	.2	.1	9	.7%	.6%	1.5%	.1%
Sun	.3	.3	.0	27	.6%	.7%	.0%	.4%
t2 Solutions	.2	.1	.1	2	.4%	.3%	.9%	.0%
Robocom	.2	.0	.2	0	.3%	.0%	2.3%	.0%
Research Machines	.2	.2	.0	30	.3%	.4%	.0%	.5%
Dassault	.2	.0	.1	0	.3%	.0%	1.5%	.0%
Control Data	.1	.1	.0	1	.2%	.2%	.1%	.0%
Olivetti	.1	.1	.0	18	.2%	.2%	.0%	.3%
Sycotronic AG	.1	.0	.1	0	.2%	.0%	1.0%	.0%
Westward	.0	.0	.0	2	.1%	.1%	.0%	.0%
Ziegler	.0	.0	.0	0	.1%	.0%	.5%	.0%
PAFEC	.0	.0	.0	0	.1%	.0%	.3%	.0%
Schlumberger	.0	.0	.0	0	.1%	.0%	.1%	.0%
BATISOFT	.0	.0	.0	1	.0%	.0%	.1%	.0%
DAT Standard Information syste	.0	.0	.0	0	.0%	.0%	.1%	.0%
Serbi	.0	.0	.0	0	.0%	.0%	.1%	.0%

(Continued)

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Market Share

TABLE NUMBER: 17 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: AEC
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	18.6	18.6	.0	4,548	32.3%	43.8%	.0%	72.6%
All Companies	57.5	42.4	8.7	6,262	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	53.9	40.3	7.3	6,123	93.8%	95.0%	83.7%	97.8%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	3.6	2.1	1.4	139	6.2%	5.0%	16.3%	2.2%
All Hardware Companies	31.0	29.2	.0	5,881	53.9%	68.8%	.0%	93.9%
All Turnkey & SW Companies	26.5	13.2	8.7	381	46.1%	31.2%	100.0%	6.1%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 18
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: GIS/Mapping
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intergraph	16.0	8.5	3.2	167	42.6%	34.7%	50.0%	6.9%
Digital	3.5	2.7	.0	25	9.5%	10.8%	.0%	1.0%
IBM	2.6	1.9	.4	235	6.9%	7.8%	5.5%	9.6%
Siemens	2.4	1.4	.7	53	6.5%	5.8%	11.4%	2.2%
Compaq	1.7	1.7	.0	286	4.6%	7.0%	.0%	11.7%
ESRI	.9	.0	.8	0	2.5%	.0%	12.9%	.0%
Apple Computer	.5	.5	.0	100	1.4%	1.9%	.0%	4.1%
Autodesk	.5	.0	.5	0	1.2%	.0%	7.2%	.0%
Computervision	.4	.2	.1	3	1.1%	.8%	1.4%	.1%
Sun	.4	.3	.0	25	.9%	1.2%	.0%	1.0%
Data Technology/DATECH	.2	.1	.1	0	.5%	.2%	1.7%	.0%
Control Data	.1	.1	.0	2	.4%	.4%	.2%	.1%
PAFEC	.1	.0	.1	0	.4%	.0%	2.2%	.0%
Hewlett-Packard	.1	.0	.0	5	.2%	.2%	.0%	.2%
Research Machines	.1	.1	.0	8	.1%	.2%	.0%	.3%
Robocom	.0	.0	.0	0	.1%	.0%	.6%	.0%
Ziegler	.0	.0	.0	0	.1%	.0%	.5%	.0%
Solbourne	.0	.0	.0	1	.0%	.0%	.0%	.0%
Other Companies	7.9	7.2	.4	1,524	21.1%	29.1%	6.4%	62.4%
All Companies	37.5	24.6	6.4	2,442	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	34.8	23.1	5.4	2,373	92.8%	94.0%	85.3%	97.2%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	2.7	1.5	.9	69	7.2%	6.0%	14.7%	2.8%
All Hardware Companies	14.1	13.0	.0	2,178	37.6%	52.6%	.0%	89.2%
All Turnkey & SW Companies	23.4	11.7	6.4	264	62.4%	47.4%	100.0%	10.8%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 19
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Mentor Graphics	13.0	1.9	7.1	141	18.5%	5.3%	35.8%	4.2%
Hewlett-Packard	9.2	6.6	.7	556	13.1%	18.3%	3.3%	16.7%
Digital	8.9	6.5	.0	77	12.6%	18.1%	.0%	2.3%
Sun	4.5	4.0	.0	355	6.5%	11.1%	.0%	10.6%
Intergraph	4.0	1.9	.7	42	5.7%	5.4%	3.5%	1.3%
Racal-Redac	3.6	.1	2.9	20	5.1%	.2%	14.6%	.6%
Compaq	3.3	3.3	.0	546	4.7%	9.1%	.0%	16.4%
Computervision	2.9	1.3	.7	24	4.1%	3.6%	3.4%	.7%
IBM	2.3	1.9	.2	302	3.3%	5.2%	1.1%	9.0%
Dazix	1.6	.3	.6	19	2.2%	.8%	3.1%	.6%
Valid	1.3	.3	.7	7	1.9%	.9%	3.7%	.2%
Scientific Calc.	1.1	.3	.6	4	1.6%	.7%	3.0%	.1%
VLSI Technology	1.1	.0	.9	1	1.6%	.1%	4.7%	.0%
Calay	1.1	.4	.7	18	1.6%	1.0%	3.3%	.5%
European Silicon Structures	.6	.1	.5	3	.8%	.3%	2.3%	.1%
Apple Computer	.4	.3	.0	73	.5%	.9%	.0%	2.2%
Autodesk	.4	.0	.4	0	.5%	.0%	1.8%	.0%
Silvar-Lisco	.3	.0	.2	0	.4%	.0%	1.0%	.0%
Sycotronic AG	.3	.0	.2	1	.4%	.0%	1.2%	.0%
Aucos elektronische Gerate	.2	.1	.1	20	.3%	.2%	.7%	.6%
Aucotec	.2	.1	.1	6	.3%	.2%	.6%	.2%
Intercad	.2	.1	.1	9	.3%	.3%	.3%	.3%
CAD-UL	.1	.0	.1	0	.2%	.0%	.7%	.0%
Research Machines	.1	.1	.0	20	.2%	.4%	.0%	.6%
ALS Design	.1	.0	.1	0	.2%	.0%	.6%	.0%
Schlumberger	.1	.0	.0	1	.1%	.1%	.2%	.0%
Ziegler	.1	.0	.1	0	.1%	.0%	.5%	.0%
Data Technology/DATECH	.1	.0	.0	0	.1%	.1%	.2%	.0%
Solbourne	.1	.1	.0	4	.1%	.1%	.0%	.1%
BETRONEX	.0	.0	.0	0	.1%	.0%	.2%	.0%
Dassault	.0	.0	.0	0	.1%	.0%	.2%	.0%
Zycad	.0	.0	.0	0	.1%	.1%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 19 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Inca	.0	.0	.0	0	.0%	.0%	.2%	.0%
Olivetti	.0	.0	.0	6	.0%	.1%	.0%	.2%
Serbi	.0	.0	.0	0	.0%	.0%	.1%	.0%
Westward	.0	.0	.0	2	.0%	.1%	.0%	.0%
Other Companies	8.9	6.4	2.0	1,080	12.7%	17.7%	10.2%	32.4%
All Companies	70.3	35.9	20.0	3,337	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	63.5	35.0	14.9	3,232	90.3%	97.5%	74.9%	96.9%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	6.8	.9	5.0	105	9.7%	2.5%	25.1%	3.1%
All Hardware Companies	29.7	25.6	.0	2,865	42.3%	71.3%	.0%	85.9%
All Turnkey & SW Companies	40.6	10.3	20.0	472	57.7%	28.7%	100.0%	14.1%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 20
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Mentor Graphics	7.9	1.3	4.4	86	20.1%	5.9%	40.2%	3.5%
Hewlett-Packard	6.5	5.0	.4	411	16.5%	23.1%	3.8%	16.6%
Digital	3.6	2.7	.0	30	9.0%	12.3%	.0%	1.2%
Compaq	2.3	2.3	.0	385	5.9%	10.7%	.0%	15.6%
Sun	2.1	1.9	.0	165	5.4%	8.7%	.0%	6.7%
Intergraph	2.0	1.1	.4	21	5.1%	5.0%	3.2%	.8%
Racal-Redac	1.4	.1	1.1	7	3.5%	.3%	10.3%	.3%
IBM	1.1	1.1	.0	248	2.8%	4.9%	.0%	10.0%
Dazix	1.1	.2	.4	13	2.7%	1.0%	4.0%	.5%
Computervision	.8	.4	.2	7	2.1%	1.8%	1.8%	.3%
Valid	.8	.2	.4	4	2.0%	.9%	4.0%	.2%
VLSI Technology	.7	.0	.6	0	1.7%	.1%	5.2%	.0%
Autodesk	.3	.0	.3	0	.8%	.0%	3.0%	.0%
Calay	.2	.1	.1	4	.6%	.3%	1.2%	.1%
Aucos elektronische Gerate	.2	.1	.1	20	.5%	.3%	1.3%	.8%
Aucotec	.2	.1	.1	6	.5%	.3%	1.0%	.2%
Intercad	.2	.1	.1	9	.5%	.5%	.5%	.4%
Apple Computer	.2	.2	.0	36	.5%	.8%	.0%	1.5%
Silvar-Lisco	.2	.0	.1	0	.5%	.0%	1.0%	.0%
ALS Design	.1	.0	.1	0	.2%	.0%	.8%	.0%
Scientific Calc.	.1	.0	.0	0	.2%	.1%	.4%	.0%
Research Machines	.1	.1	.0	8	.1%	.2%	.0%	.3%
Ziegler	.1	.0	.1	0	.1%	.0%	.5%	.0%
Dassault	.0	.0	.0	0	.1%	.0%	.3%	.0%
Data Technology/DATECH	.0	.0	.0	0	.1%	.0%	.2%	.0%
Zycad	.0	.0	.0	0	.1%	.2%	.0%	.0%
Serbi	.0	.0	.0	0	.1%	.0%	.2%	.0%
Westward	.0	.0	.0	2	.1%	.1%	.0%	.1%
Solbourne	.0	.0	.0	1	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 20 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	7.2	4.9	1.9	1,011	18.3%	22.6%	17.3%	40.8%
All Companies	39.4	21.6	10.8	2,475	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	36.9	21.2	9.1	2,420	93.8%	98.0%	84.0%	97.7%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	2.5	.4	1.7	56	6.2%	2.0%	16.0%	2.3%
All Hardware Companies	17.9	15.9	.0	2,213	45.5%	73.7%	.0%	89.4%
All Turnkey & SW Companies	21.5	5.7	10.8	262	54.5%	26.3%	100.0%	10.6%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 21
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: IC Layout
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Mentor Graphics	2.0	.3	1.1	21	28.8%	9.3%	50.5%	10.3%
Digital	1.4	1.1	.0	18	21.1%	32.4%	.0%	8.6%
Sun	1.4	1.2	.0	108	20.2%	36.0%	.0%	53.1%
European Silicon Structures	.6	.1	.5	3	8.1%	3.0%	21.0%	1.6%
VLSI Technology	.5	.0	.4	0	6.6%	.3%	17.3%	.2%
Hewlett-Packard	.4	.4	.0	39	6.3%	11.1%	.0%	19.2%
Valid	.2	.0	.1	1	2.4%	1.2%	4.2%	.4%
Silvar-Lisco	.1	.0	.1	0	1.9%	.0%	3.7%	.0%
Inca	.0	.0	.0	0	.4%	.0%	1.4%	.0%
Research Machines	.0	.0	.0	4	.4%	.9%	.0%	2.2%
Solbourne	.0	.0	.0	2	.4%	.9%	.0%	1.0%
Other Companies	.2	.2	.0	7	3.2%	4.8%	1.9%	3.4%
All Companies	6.8	3.3	2.1	204	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	6.2	3.2	1.7	196	91.0%	96.1%	77.6%	96.2%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	.6	.1	.5	8	9.0%	3.9%	22.4%	3.8%
All Hardware Companies	3.4	2.8	.0	174	50.4%	85.0%	.0%	85.1%
All Turnkey & SW Companies	3.4	.5	2.1	30	49.6%	15.0%	100.0%	14.9%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 22
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Digital	3.9	2.8	.0	29	16.1%	25.0%	.0%	4.3%
Mentor Graphics	3.1	.3	1.7	34	12.9%	2.8%	24.4%	5.1%
Hewlett-Packard	2.3	1.2	.3	106	9.5%	11.2%	3.6%	16.1%
Racal-Redac	2.2	.0	1.8	12	9.3%	.0%	25.7%	1.9%
Computervision	2.1	.9	.5	17	8.6%	8.3%	7.0%	2.6%
Intergraph	2.0	.9	.4	22	8.2%	7.8%	5.0%	3.3%
IBM	1.2	.8	.2	54	5.0%	7.4%	3.1%	8.2%
Scientific Calc.	1.1	.2	.6	4	4.5%	2.2%	7.9%	.6%
Sun	1.0	.9	.0	81	4.3%	8.3%	.0%	12.4%
Compaq	1.0	1.0	.0	161	4.0%	8.8%	.0%	24.5%
Calay	.9	.3	.5	15	3.7%	2.5%	7.4%	2.2%
Dazix	.5	.1	.2	6	2.0%	.5%	2.7%	.9%
Valid	.4	.1	.2	2	1.7%	.9%	3.1%	.3%
Sycotronic AG	.3	.0	.2	1	1.3%	.0%	3.4%	.2%
Apple Computer	.2	.2	.0	36	.8%	1.5%	.0%	5.5%
CAD-UL	.1	.0	.1	0	.5%	.0%	1.9%	.0%
Schlumberger	.1	.0	.0	1	.4%	.2%	.4%	.1%
Research Machines	.1	.1	.0	8	.2%	.5%	.0%	1.2%
Autodesk	.0	.0	.0	0	.2%	.0%	.6%	.0%
BETRONEX	.0	.0	.0	0	.2%	.0%	.6%	.0%
Data Technology/DATECH	.0	.0	.0	0	.2%	.1%	.3%	.0%
Ziegler	.0	.0	.0	0	.2%	.0%	.6%	.0%
ALS Design	.0	.0	.0	0	.1%	.0%	.4%	.0%
Olivetti	.0	.0	.0	6	.1%	.2%	.0%	.9%
Solbourne	.0	.0	.0	1	.0%	.1%	.0%	.1%

(Continued)

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Market Share

TABLE NUMBER: 22 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	1.5	1.3	.1	63	6.2%	11.9%	1.9%	9.5%
All Companies	24.2	11.0	7.0	657	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	20.4	10.7	4.2	616	84.5%	96.8%	60.0%	93.7%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	3.8	.4	2.8	41	15.5%	3.2%	40.0%	6.3%
All Hardware Companies	8.4	6.9	.0	478	34.7%	62.4%	.0%	72.7%
All Turnkey & SW Companies	15.8	4.1	7.0	180	65.3%	37.6%	100.0%	27.3%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 23
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Computervision	95.4	44.0	22.7	788	13.0%	10.8%	12.2%	2.5%
IBM	90.5	60.0	16.8	3,967	12.4%	14.8%	9.0%	12.8%
Digital	60.3	44.9	.0	467	8.2%	11.0%	.0%	1.5%
Hewlett-Packard	59.4	43.9	4.9	3,312	8.1%	10.8%	2.6%	10.6%
Intergraph	52.6	27.9	10.4	552	7.2%	6.8%	5.6%	1.8%
Compaq	45.5	45.5	.0	7,575	6.2%	11.2%	.0%	24.4%
Matra Datavision	26.6	12.5	10.7	287	3.6%	3.1%	5.7%	.9%
Sun	23.3	20.2	.0	1,754	3.2%	5.0%	.0%	5.6%
Cisigraph	22.6	8.0	7.9	213	3.1%	2.0%	4.2%	.7%
Mentor Graphics	19.1	2.8	10.5	207	2.6%	.7%	5.6%	.7%
Apple Computer	13.1	11.5	.0	2,520	1.8%	2.8%	.0%	8.1%
Ferranti	11.5	4.2	5.3	93	1.6%	1.0%	2.8%	.3%
Valid	11.1	2.8	6.2	56	1.5%	.7%	3.3%	.2%
Control Data	10.6	7.7	1.2	121	1.4%	1.9%	.6%	.4%
DATAID Technologies	9.5	.0	1.9	0	1.3%	.0%	1.0%	.0%
Silicon Graphics	8.9	7.8	.0	286	1.2%	1.9%	.0%	.9%
McDonnell Douglas	8.6	4.5	3.3	123	1.2%	1.1%	1.7%	.4%
Autodesk	8.4	.0	8.4	0	1.1%	.0%	4.5%	.0%
Dassault	8.2	.0	6.8	0	1.1%	.0%	3.6%	.0%
Schlumberger	7.9	2.7	2.9	82	1.1%	.7%	1.6%	.3%
Recal-Redac	6.5	.1	5.3	36	.9%	.0%	2.8%	.1%
BATISOFT	5.5	.8	2.8	180	.8%	.2%	1.5%	.6%
Dazix	5.3	.9	2.1	64	.7%	.2%	1.1%	.2%
Framasoft	5.2	.0	3.1	0	.7%	.0%	1.7%	.0%
Serbi	4.1	.0	4.1	0	.6%	.0%	2.2%	.0%
Siemens	4.0	2.4	1.2	90	.6%	.6%	.7%	.3%
Unisys	3.6	1.8	1.2	49	.5%	.4%	.7%	.2%
Vero International Software	3.4	.0	3.4	0	.5%	.0%	1.8%	.0%
Star Informatic	3.3	2.9	.9	223	.5%	.7%	.5%	.7%
Datagraphic	3.0	1.6	1.0	50	.4%	.4%	.5%	.2%
SDRC	2.9	.0	2.9	0	.4%	.0%	1.6%	.0%
Assigraph	2.7	.0	2.2	21	.4%	.0%	1.2%	.1%
XAO Industrie	2.7	.9	1.6	97	.4%	.2%	.9%	.3%

(Continued)

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Market Share

TABLE NUMBER: 23
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
ICL	2.5	1.5	.8	68	.3%	.4%	.5%	.2%
ESRI	2.5	.0	2.2	0	.3%	.0%	1.2%	.0%
VLSI Technology	2.4	.1	2.0	2	.3%	.0%	1.0%	.0%
Catalpa	2.2	.7	1.1	19	.3%	.2%	.6%	.1%
Datagraph	2.2	1.8	.4	11	.3%	.4%	.2%	.0%
Parametric Technology	2.1	.0	2.0	0	.3%	.0%	1.1%	.0%
PAFEC	1.8	.0	1.8	0	.3%	.0%	1.0%	.0%
ISICAD	1.8	.7	.8	15	.2%	.2%	.4%	.0%
MacNeal-Schwendler	1.8	.0	1.7	0	.2%	.0%	.9%	.0%
Scientific Calc.	1.6	.4	.9	7	.2%	.1%	.5%	.0%
Norsk Data	1.5	.8	.3	15	.2%	.2%	.1%	.0%
European Silicon Structures	1.3	.3	1.1	8	.2%	.1%	.6%	.0%
Academi Systems	1.3	.1	1.0	5	.2%	.0%	.6%	.0%
DECAD	1.2	.2	.7	5	.2%	.1%	.4%	.0%
Investronica SA	1.1	.9	.1	44	.1%	.2%	.1%	.1%
ALS Design	1.0	.0	1.0	0	.1%	.0%	.5%	.0%
Wiechers Datentechnik	1.0	.8	.2	25	.1%	.2%	.1%	.1%
Olivetti	1.0	.8	.0	154	.1%	.2%	.0%	.5%
Fides Industrielle Automation	.9	.1	.8	2	.1%	.0%	.4%	.0%
Zycad	.9	.7	.0	3	.1%	.2%	.0%	.0%
CAD Lab	.8	.0	.7	0	.1%	.0%	.3%	.0%
Silvar-Lisco	.7	.0	.4	0	.1%	.0%	.2%	.0%
Calay	.6	.2	.4	10	.1%	.0%	.2%	.0%
Cimlinc	.6	.1	.4	55	.1%	.0%	.2%	.2%
PDA Engineering	.6	.0	.6	0	.1%	.0%	.3%	.0%
Albert Nestler	.5	.2	.2	7	.1%	.0%	.1%	.0%
ISYKON Software	.5	.2	.2	7	.1%	.1%	.1%	.0%
Vision 3D	.4	.2	.1	4	.1%	.1%	.1%	.0%
Solbourne	.3	.3	.0	24	.0%	.1%	.0%	.1%
LPKF	.3	.2	.1	12	.0%	.0%	.0%	.0%
Gerber Systems	.3	.1	.1	2	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 23 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Superdraft	.3	.1	.1	15	.0%	.0%	.1%	.0%
Ziegler	.3	.0	.3	0	.0%	.0%	.1%	.0%
BETRONEX	.2	.0	.2	0	.0%	.0%	.1%	.0%
MCS	.2	.0	.2	0	.0%	.0%	.1%	.0%
Robocom	.2	.0	.2	0	.0%	.0%	.1%	.0%
Sycotronic AG	.1	.0	.1	0	.0%	.0%	.1%	.0%
Inca	.1	.0	.1	0	.0%	.0%	.0%	.0%
Kloeckner-Moeller	.1	.0	.0	1	.0%	.0%	.0%	.0%
Pathtrace	.1	.0	.1	1	.0%	.0%	.0%	.0%
DAT Standard Information syste	.0	.0	.0	0	.0%	.0%	.0%	.0%
Aucotec	.0	.0	.0	1	.0%	.0%	.0%	.0%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	47.5	32.7	12.0	7,376	6.5%	8.0%	6.4%	23.7%
All Companies	731.8	406.6	186.5	31,109	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	589.3	363.9	116.5	29,406	80.5%	89.5%	62.5%	94.5%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	142.5	42.7	70.0	1,703	19.5%	10.5%	37.5%	5.5%
All Hardware Companies	225.0	198.0	.0	25,575	30.7%	48.7%	.0%	82.2%
All Turnkey & SW Companies	506.9	208.6	186.5	5,534	69.3%	51.3%	100.0%	17.8%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 24
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: France
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Computervision	80.6	37.1	19.2	480	19.9%	19.5%	15.6%	6.8%
Hewlett-Packard	49.1	35.6	4.9	1,819	12.1%	18.7%	4.0%	25.8%
Intergraph	43.2	23.9	7.8	481	10.6%	12.5%	6.3%	6.8%
Matra Datavision	26.6	12.5	10.7	287	6.6%	6.6%	8.7%	4.1%
Cisigraph	20.4	7.1	7.1	168	5.0%	3.7%	5.8%	2.4%
Mentor Graphics	19.1	2.8	10.5	207	4.7%	1.5%	8.5%	2.9%
Sun	18.7	16.5	.0	1,546	4.6%	8.6%	.0%	21.9%
Digital	15.2	11.1	.0	467	3.7%	5.8%	.0%	6.6%
Ferranti	11.5	4.2	5.3	93	2.8%	2.2%	4.3%	1.3%
Valid	11.1	2.8	6.2	56	2.7%	1.5%	5.1%	.8%
Silicon Graphics	8.7	7.6	.0	281	2.1%	4.0%	.0%	4.0%
McDonnell Douglas	7.2	3.8	2.7	80	1.8%	2.0%	2.2%	1.1%
Schlumberger	7.0	2.4	2.6	68	1.7%	1.2%	2.1%	1.0%
IBM	6.8	4.1	1.5	63	1.7%	2.2%	1.2%	.9%
DATAID Technologies	5.7	.0	1.1	0	1.4%	.0%	.9%	.0%
Dazix	5.3	.9	2.1	64	1.3%	.5%	1.7%	.9%
Racal-Redac	5.2	.1	4.0	36	1.3%	.1%	3.3%	.5%
Framasoft	4.7	.0	2.8	0	1.2%	.0%	2.3%	.0%
Control Data	4.1	2.9	.4	77	1.0%	1.5%	.4%	1.1%
Dassault	3.7	.0	3.0	0	.9%	.0%	2.5%	.0%
Siemens	3.7	2.2	1.1	86	.9%	1.1%	.9%	1.2%
Star Informatic	3.3	2.9	.9	223	.8%	1.5%	.7%	3.2%
Unisys	2.7	1.4	1.0	39	.7%	.7%	.8%	.6%
XAO Industrie	2.7	.9	1.6	97	.7%	.5%	1.3%	1.4%
SDRC	2.6	.0	2.6	0	.6%	.0%	2.1%	.0%
ICL	2.5	1.5	.8	68	.6%	.8%	.7%	1.0%
VLSI Technology	2.3	.1	1.9	2	.6%	.0%	1.6%	.0%
Catalpa	2.2	.7	1.1	19	.5%	.4%	.9%	.3%
Parametric Technology	2.1	.0	2.0	0	.5%	.0%	1.6%	.0%
PAFEC	1.6	.0	1.6	0	.4%	.0%	1.3%	.0%
ESRI	1.4	.0	1.2	0	.3%	.0%	1.0%	.0%
ISICAD	1.4	.7	.4	15	.3%	.4%	.3%	.2%
Assigraph	1.4	.0	1.1	11	.3%	.0%	.9%	.1%

(Continued)

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Market Share

TABLE NUMBER: 24
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Scientific Calc.	1.3	.3	.6	5	.3%	.1%	.5%	.1%
DECAD	1.2	.2	.7	4	.3%	.1%	.6%	.1%
European Silicon Structures	1.1	.3	.9	7	.3%	.1%	.7%	.1%
CAD Lab	.8	.0	.6	0	.2%	.0%	.5%	.0%
Norsk Data	.7	.4	.1	9	.2%	.2%	.1%	.1%
Zycad	.7	.6	.0	0	.2%	.3%	.0%	.0%
Autodesk	.7	.0	.7	0	.2%	.0%	.5%	.0%
Calay	.6	.2	.4	10	.2%	.1%	.3%	.1%
Cimlinc	.6	.1	.4	55	.2%	.1%	.3%	.8%
Silver-Lisco	.6	.0	.4	0	.2%	.0%	.3%	.0%
Academi Systems	.5	.1	.4	2	.1%	.0%	.3%	.0%
Albert Nestler	.5	.2	.2	7	.1%	.1%	.2%	.1%
ISYKON Software	.5	.2	.2	7	.1%	.1%	.1%	.1%
MacNeal-Schwendler	.5	.0	.4	0	.1%	.0%	.4%	.0%
PDA Engineering	.4	.0	.4	0	.1%	.0%	.3%	.0%
Wiechers Datentechnik	.3	.2	.1	4	.1%	.1%	.0%	.1%
Gerber Systems	.3	.1	.1	2	.1%	.1%	.1%	.0%
Serbi	.3	.0	.3	0	.1%	.0%	.2%	.0%
Fides Industrielle Automation	.2	.0	.2	1	.0%	.0%	.1%	.0%
MCS	.1	.0	.1	0	.0%	.0%	.1%	.0%
Solbourne	.1	.1	.0	5	.0%	.0%	.0%	.1%
Inca	.0	.0	.0	0	.0%	.0%	.0%	.0%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 24 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: France
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Other Companies	10.3	2.1	6.4	97	2.5%	1.1%	5.2%	1.4%
All Companies	405.9	190.8	122.7	7,045	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	304.2	156.9	76.4	5,907	74.9%	82.2%	62.3%	83.8%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	101.7	34.0	46.3	1,138	25.1%	17.8%	37.7%	16.2%
All Hardware Companies	61.4	50.9	.0	3,375	15.1%	26.7%	.0%	47.9%
All Turnkey & SW Companies	344.5	139.9	122.7	3,670	84.9%	73.3%	100.0%	52.1%

Source: Datequest
January 1991

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Market Share

TABLE NUMBER: 25
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	69.5	42.4	15.3	732	39.8%	41.1%	45.4%	43.0%
Digital	45.1	33.8	.0	0	25.8%	32.8%	.0%	.0%
Computervision	13.8	6.4	3.3	283	7.9%	6.2%	9.8%	16.7%
Intergraph	7.9	4.0	1.3	72	4.5%	3.9%	3.8%	4.2%
Control Data	6.5	4.8	.7	43	3.7%	4.6%	2.1%	2.6%
Dassault	4.6	.0	3.8	0	2.6%	.0%	11.1%	.0%
Sun	4.6	3.8	.0	208	2.6%	3.7%	.0%	12.2%
DATAID Technologies	2.9	.0	.6	0	1.6%	.0%	1.7%	.0%
Cisigraph	2.3	.8	.8	46	1.3%	.8%	2.2%	2.7%
McDonnell Douglas	1.4	.7	.5	43	.8%	.7%	1.5%	2.6%
Assigraph	1.4	.0	1.1	11	.8%	.0%	3.2%	.6%
MacNeal-Schwendler	1.3	.0	1.3	0	.8%	.0%	3.8%	.0%
Hewlett-Packard	1.0	.8	.0	48	.6%	.8%	.0%	2.8%
ESRI	.8	.0	.7	0	.5%	.0%	2.2%	.0%
Unisys	.8	.4	.3	10	.5%	.4%	.8%	.6%
Norsk Data	.8	.4	.1	6	.5%	.3%	.4%	.3%
Schlumberger	.8	.3	.3	14	.4%	.3%	.8%	.8%
Fides Industrielle Automation	.7	.1	.6	1	.4%	.1%	1.9%	.1%
Framasoft	.5	.0	.3	0	.3%	.0%	.9%	.0%
Siemens	.4	.2	.1	5	.2%	.2%	.4%	.3%
SDRC	.4	.0	.4	0	.2%	.0%	1.1%	.0%
Scientific Calc.	.3	.1	.2	1	.2%	.1%	.6%	.1%
Solbourne	.3	.3	.0	19	.1%	.3%	.0%	1.1%
PDA Engineering	.2	.0	.2	0	.1%	.0%	.6%	.0%
Silicon Graphics	.2	.2	.0	5	.1%	.1%	.0%	.3%
Zycad	.2	.2	.0	3	.1%	.2%	.0%	.1%
Olivetti	.1	.1	.0	1	.0%	.1%	.0%	.1%
MCS	.1	.0	.1	0	.0%	.0%	.1%	.0%
Silvar-Lisco	.1	.0	.0	0	.0%	.0%	.1%	.0%
DECAD	.0	.0	.0	1	.0%	.0%	.0%	.0%
VLSI Technology	.0	.0	.0	0	.0%	.0%	.1%	.0%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 25 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: France
UNITS: Millions of Dollars/Actual Units

	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Market Share Total Revenue	Market Share Hardware Revenue	Market Share Software Revenue	Market Share Wkstns Shipped
Company								
Other Companies	5.9	3.6	1.8	148	3.4%	3.5%	5.2%	8.7%
All Companies	174.6	103.2	33.7	1,699	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	161.0	101.6	26.3	1,630	92.2%	98.5%	78.2%	95.9%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	13.6	1.6	7.4	70	7.8%	1.5%	21.8%	4.1%
All Hardware Companies	54.8	42.4	.0	428	31.4%	41.1%	.0%	25.2%
All Turnkey & SW Companies	119.9	60.8	33.7	1,271	68.6%	58.9%	100.0%	74.8%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 26
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Compaq	45.5	45.5	.0	7,575	30.0%	40.4%	.0%	33.9%
IBM	14.2	13.5	.0	3,172	9.4%	12.0%	.0%	14.2%
Apple Computer	13.1	11.5	.0	2,520	8.7%	10.2%	.0%	11.3%
Hewlett-Packard	9.3	7.5	.0	1,445	6.2%	6.6%	.0%	6.5%
Autodesk	7.7	.0	7.7	0	5.1%	.0%	25.6%	.0%
BATISOFT	5.5	.8	2.8	180	3.7%	.7%	9.2%	.8%
Serbi	3.9	.0	3.9	0	2.6%	.0%	12.8%	.0%
Vero International Software	3.4	.0	3.4	0	2.2%	.0%	11.1%	.0%
Datagraphic	3.0	1.6	1.0	50	1.9%	1.4%	3.2%	.2%
Dategraph	2.2	1.8	.4	11	1.5%	1.6%	1.5%	.0%
Intergraph	1.4	.0	1.3	0	.9%	.0%	4.4%	.0%
Recal-Redac	1.3	.0	1.2	0	.9%	.0%	4.1%	.0%
Investronica SA	1.1	.9	.1	44	.7%	.8%	.4%	.2%
ALS Design	1.0	.0	1.0	0	.7%	.0%	3.3%	.0%
Computervision	1.0	.4	.2	25	.6%	.4%	.7%	.1%
DATAID Technologies	1.0	.0	.2	0	.6%	.0%	.6%	.0%
Olivetti	.9	.8	.0	152	.6%	.7%	.0%	.7%
Academi Systems	.8	.1	.6	3	.5%	.1%	2.1%	.0%
Wiechers Datentechnik	.7	.6	.2	21	.5%	.5%	.5%	.1%
Vision 3D	.4	.2	.1	4	.3%	.2%	.4%	.0%
ISICAD	.4	.0	.4	0	.3%	.0%	1.4%	.0%
LPKF	.3	.2	.1	12	.2%	.2%	.2%	.1%
Superdraft	.3	.1	.1	15	.2%	.1%	.4%	.1%
Ziegler	.3	.0	.3	0	.2%	.0%	.9%	.0%
BETRONEX	.2	.0	.2	0	.2%	.0%	.8%	.0%
ESRI	.2	.0	.2	0	.1%	.0%	.7%	.0%
European Silicon Structures	.2	.0	.2	1	.1%	.0%	.7%	.0%
PAFEC	.2	.0	.2	0	.1%	.0%	.6%	.0%
Robocom	.2	.0	.2	0	.1%	.0%	.5%	.0%
Sycotronic AG	.1	.0	.1	0	.1%	.0%	.4%	.0%
Schlumberger	.1	.0	.0	1	.1%	.0%	.1%	.0%
Kloeckner-Moeller	.1	.0	.0	1	.0%	.0%	.1%	.0%

(Continued)

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Market Share

TABLE NUMBER: 26 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Pathtrace	.1	.0	.1	1	.0%	.0%	.2%	.0%
Inca	.1	.0	.1	0	.0%	.0%	.2%	.0%
CAD Lab	.0	.0	.0	0	.0%	.0%	.1%	.0%
DAT Standard Information syste	.0	.0	.0	0	.0%	.0%	.1%	.0%
MCS	.0	.0	.0	0	.0%	.0%	.1%	.0%
Aucotec	.0	.0	.0	1	.0%	.0%	.0%	.0%
Norsk Data	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	31.3	27.1	3.8	7,131	20.7%	24.0%	12.7%	31.9%
All Companies	151.3	112.6	30.2	22,365	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	124.2	105.4	13.8	21,869	82.1%	93.7%	45.7%	97.8%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	27.2	7.1	16.4	495	17.9%	6.3%	54.3%	2.2%
All Hardware Companies	108.8	104.7	.0	21,772	71.9%	93.0%	.0%	97.4%
All Turnkey & SW Companies	42.5	7.9	30.2	593	28.1%	7.0%	100.0%	2.6%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 27
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Computervision	83.9	38.8	20.0	694	19.0%	16.0%	17.8%	4.7%
IBM	68.6	43.7	13.9	1,893	15.6%	18.0%	12.4%	12.9%
Hewlett-Packard	35.8	26.7	3.2	1,883	8.1%	11.0%	2.9%	12.8%
Digital	32.5	24.4	.0	248	7.4%	10.1%	.0%	1.7%
Matra Datavision	26.6	12.5	10.7	287	6.0%	5.2%	9.5%	1.9%
Cisigraph	22.6	8.0	7.9	213	5.1%	3.3%	7.0%	1.4%
Compaq	16.3	16.3	.0	2,712	3.7%	6.7%	.0%	18.4%
Intergraph	13.1	7.0	2.6	138	3.0%	2.9%	2.3%	.9%
Ferranti	11.5	4.2	5.3	93	2.6%	1.7%	4.7%	.6%
Control Data	9.9	7.2	1.1	113	2.2%	3.0%	1.0%	.8%
Sun	9.1	7.9	.0	649	2.1%	3.2%	.0%	4.4%
Silicon Graphics	8.9	7.8	.0	286	2.0%	3.2%	.0%	1.9%
McDonnell Douglas	8.6	4.5	3.3	123	2.0%	1.8%	2.9%	.8%
Schlumberger	7.5	2.6	2.8	79	1.7%	1.1%	2.5%	.5%
DATAID Technologies	7.4	.0	1.5	0	1.7%	.0%	1.3%	.0%
Dassault	6.9	.0	5.7	0	1.6%	.0%	5.1%	.0%
Apple Computer	5.4	4.7	.0	1,033	1.2%	2.0%	.0%	7.0%
Framasoft	5.2	.0	3.1	0	1.2%	.0%	2.8%	.0%
Unisys	3.6	1.8	1.2	49	.8%	.7%	1.1%	.3%
Vero International Software	3.4	.0	3.4	0	.8%	.0%	3.0%	.0%
Autodesk	3.2	.0	3.2	0	.7%	.0%	2.8%	.0%
SDRC	2.9	.0	2.9	0	.7%	.0%	2.6%	.0%
XAO Industrie	2.7	.9	1.6	97	.6%	.4%	1.4%	.7%
Serbi	2.2	.0	2.2	0	.5%	.0%	2.0%	.0%
Catalpa	2.2	.7	1.1	19	.5%	.3%	1.0%	.1%
Datagraph	2.2	1.8	.4	11	.5%	.7%	.4%	.1%
Parametric Technology	2.1	.0	2.0	0	.5%	.0%	1.8%	.0%
Siemens	2.0	1.2	.6	48	.5%	.5%	.5%	.3%
MacNeal-Schwendler	1.8	.0	1.7	0	.4%	.0%	1.5%	.0%
Norsk Data	1.5	.8	.3	15	.3%	.3%	.2%	.1%
PAFEC	1.3	.0	1.3	0	.3%	.0%	1.1%	.0%
ICL	1.1	.7	.4	31	.3%	.3%	.3%	.2%

(Continued)

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Market Share

TABLE NUMBER: 27 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Investronica SA	1.1	.9	.1	44	.2%	.4%	.1%	.3%
Wiechers Datentechnik	1.0	.8	.2	25	.2%	.3%	.2%	.2%
Fides Industrielle Automation	.9	.1	.8	2	.2%	.0%	.7%	.0%
CAD Lab	.8	.0	.7	0	.2%	.0%	.6%	.0%
ISICAD	.6	.3	.2	6	.1%	.1%	.2%	.0%
Cimlinc	.6	.1	.4	55	.1%	.0%	.3%	.4%
PDA Engineering	.6	.0	.6	0	.1%	.0%	.5%	.0%
Olivetti	.6	.5	.0	92	.1%	.2%	.0%	.6%
Albert Nestler	.5	.2	.2	7	.1%	.1%	.2%	.0%
ISYKON Software	.5	.2	.2	7	.1%	.1%	.1%	.0%
Vision 3D	.4	.2	.1	4	.1%	.1%	.1%	.0%
Gerber Systems	.3	.1	.1	2	.1%	.1%	.1%	.0%
Superdraft	.3	.1	.1	15	.1%	.1%	.1%	.1%
MCS	.2	.0	.2	0	.0%	.0%	.1%	.0%
Ziegler	.1	.0	.1	0	.0%	.0%	.1%	.0%
Robocom	.1	.0	.1	0	.0%	.0%	.1%	.0%
Kloeckner-Moeller	.1	.0	.0	1	.0%	.0%	.0%	.0%
Pathtrace	.1	.0	.1	1	.0%	.0%	.0%	.0%
DAT Standard Information syste	.0	.0	.0	0	.0%	.0%	.0%	.0%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%
Solbourne	.0	.0	.0	1	.0%	.0%	.0%	.0%
Other Companies	20.3	14.8	4.6	3,743	4.6%	6.1%	4.1%	25.4%
All Companies	441.3	242.5	112.0	14,716	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	335.9	208.6	63.9	13,707	76.1%	86.0%	57.1%	93.1%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	105.4	33.9	48.0	1,010	23.9%	14.0%	42.9%	6.9%
All Hardware Companies	107.3	93.2	.0	11,205	24.3%	38.4%	.0%	76.1%
All Turnkey & SW Companies	334.0	149.4	112.0	3,511	75.7%	61.6%	100.0%	23.9%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 28
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: AEC
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intergraph	13.1	7.0	2.6	138	14.7%	12.0%	14.5%	1.9%
IBM	11.4	8.0	1.8	784	12.7%	13.6%	9.9%	10.9%
Compaq	10.1	10.1	.0	1,674	11.2%	17.1%	.0%	23.3%
Hewlett-Packard	7.1	5.4	.5	433	8.0%	9.2%	2.7%	6.0%
Digital	6.6	5.0	.0	46	7.4%	8.5%	.0%	.6%
BATISOFT	5.5	.8	2.8	180	6.2%	1.4%	15.2%	2.5%
Apple Computer	5.2	4.6	.0	1,008	5.9%	7.9%	.0%	14.0%
Computervision	3.8	1.8	.9	32	4.3%	3.0%	5.0%	.4%
Autodesk	3.7	.0	3.7	0	4.1%	.0%	20.4%	.0%
Star Informatic	3.3	2.9	.9	223	3.7%	4.9%	4.8%	3.1%
Datagraphic	3.0	1.6	1.0	50	3.3%	2.7%	5.3%	.7%
Serbi	1.2	.0	1.2	0	1.3%	.0%	6.5%	.0%
Dassault	1.2	.0	1.0	0	1.3%	.0%	5.3%	.0%
ISICAD	1.2	.4	.6	8	1.3%	.7%	3.3%	.1%
Sun	.9	.8	.0	74	1.0%	1.4%	.0%	1.0%
Olivetti	.4	.3	.0	58	.4%	.5%	.0%	.8%
Control Data	.3	.2	.0	3	.4%	.4%	.2%	.0%
Siemens	.3	.2	.1	6	.3%	.3%	.5%	.1%
PAFEC	.1	.0	.1	0	.1%	.0%	.6%	.0%
Schlumberger	.1	.0	.0	1	.1%	.1%	.1%	.0%
Robocom	.1	.0	.1	0	.1%	.0%	.4%	.0%
Ziegler	.0	.0	.0	0	.0%	.0%	.2%	.0%
Sycotronic AG	.0	.0	.0	0	.0%	.0%	.2%	.0%

(Continued)

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Market Share

TABLE NUMBER: 28 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: AEC
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Market Share Total Revenue	Market Share Hardware Revenue	Market Share Software Revenue	Market Share Wkstns Shipped
Company								
Other Companies	10.8	9.5	.9	2,478	12.1%	16.3%	5.0%	34.4%
All Companies	89.3	58.7	18.1	7,198	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	74.3	52.9	11.1	6,680	83.2%	90.2%	61.0%	92.8%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	15.0	5.8	7.1	518	16.8%	9.8%	39.0%	7.2%
All Hardware Companies	39.3	36.0	.0	6,297	44.0%	61.4%	.0%	87.5%
All Turnkey & SW Companies	50.1	22.6	18.1	901	56.0%	38.6%	100.0%	12.5%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 29
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: GIS/Mapping
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intergraph	21.0	11.3	4.2	221	37.3%	33.0%	37.7%	7.3%
Compaq	6.6	6.6	.0	1,095	11.6%	19.2%	.0%	36.2%
Digital	6.0	4.5	.0	42	10.7%	13.2%	.0%	1.4%
IBM	5.3	4.1	.7	561	9.5%	11.9%	5.8%	18.6%
ESRI	2.5	.0	2.2	0	4.3%	.0%	19.4%	.0%
DATAID Technologies	2.1	.0	.4	0	3.7%	.0%	3.7%	.0%
Siemens	1.7	1.0	.5	37	3.0%	3.0%	4.7%	1.2%
Apple Computer	1.4	1.3	.0	277	2.6%	3.7%	.0%	9.2%
ICL	1.4	.8	.5	37	2.4%	2.3%	4.1%	1.2%
Computervision	1.0	.4	.2	8	1.7%	1.3%	2.1%	.3%
Sun	.9	.8	.0	68	1.6%	2.3%	.0%	2.3%
Autodesk	.8	.0	.8	0	1.5%	.0%	7.5%	.0%
PAFEC	.5	.0	.5	0	.8%	.0%	4.1%	.0%
Control Data	.4	.3	.0	4	.7%	.9%	.4%	.1%
Hewlett-Packard	.1	.1	.0	9	.2%	.2%	.0%	.3%
Solbourne	.1	.1	.0	4	.1%	.1%	.0%	.1%
Ziegler	.0	.0	.0	0	.1%	.0%	.3%	.0%
Robocom	.0	.0	.0	0	.0%	.0%	.1%	.0%
Other Companies	4.6	3.0	1.1	662	8.2%	8.8%	10.1%	21.9%
All Companies	56.4	34.1	11.1	3,025	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	50.8	32.3	9.2	2,951	90.0%	94.7%	83.0%	97.6%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	5.6	1.8	1.9	74	10.0%	5.3%	17.0%	2.4%
All Hardware Companies	20.0	18.0	.0	2,679	35.4%	52.8%	.0%	88.6%
All Turnkey & SW Companies	36.4	16.1	11.1	345	64.6%	47.2%	100.0%	11.4%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 30
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Mentor Graphics	19.1	2.8	10.5	207	13.2%	3.9%	23.1%	3.4%
Hewlett-Packard	16.4	11.7	1.2	987	11.3%	16.4%	2.6%	16.0%
Digital	15.1	11.0	.0	130	10.4%	15.5%	.0%	2.1%
Compaq	12.6	12.6	.0	2,095	8.7%	17.6%	.0%	34.0%
Sun	12.3	10.8	.0	963	8.5%	15.1%	.0%	15.6%
Valid	11.1	2.8	6.2	56	7.7%	3.9%	13.7%	.9%
Computervision	6.7	3.0	1.6	55	4.6%	4.2%	3.5%	.9%
Racal-Redac	6.5	.1	5.3	36	4.5%	.2%	11.6%	.6%
Dazix	5.3	.9	2.1	64	3.6%	1.3%	4.6%	1.0%
Intergraph	5.3	2.5	.9	56	3.6%	3.6%	2.0%	.9%
IBM	5.2	4.2	.5	729	3.6%	6.0%	1.0%	11.8%
Assigraph	2.7	.0	2.2	21	1.9%	.0%	4.8%	.3%
VLSI Technology	2.4	.1	2.0	2	1.6%	.1%	4.3%	.0%
Scientific Calc.	1.6	.4	.9	7	1.1%	.5%	1.9%	.1%
European Silicon Structures	1.3	.3	1.1	8	.9%	.4%	2.4%	.1%
Academi Systems	1.3	.1	1.0	5	.9%	.2%	2.3%	.1%
DECAD	1.2	.2	.7	5	.8%	.3%	1.6%	.1%
Apple Computer	1.0	.9	.0	202	.7%	1.3%	.0%	3.3%
ALS Design	1.0	.0	1.0	0	.7%	.0%	2.2%	.0%
Zycad	.9	.7	.0	3	.6%	1.0%	.0%	.0%
Serbi	.7	.0	.7	0	.5%	.0%	1.6%	.0%
Autodesk	.7	.0	.7	0	.5%	.0%	1.5%	.0%
Silvar-Lisco	.7	.0	.4	0	.5%	.0%	.9%	.0%
Calay	.6	.2	.4	10	.4%	.3%	.8%	.2%
LPKF	.3	.2	.1	12	.2%	.3%	.2%	.2%
Solbourne	.3	.3	.0	19	.2%	.4%	.0%	.3%
BETRONEX	.2	.0	.2	0	.2%	.0%	.5%	.0%
Schlumberger	.2	.1	.1	2	.2%	.1%	.2%	.0%
Dassault	.2	.0	.1	0	.1%	.0%	.3%	.0%
Sycotronic AG	.1	.0	.1	0	.1%	.0%	.2%	.0%
Ziegler	.1	.0	.1	0	.1%	.0%	.2%	.0%
Inca	.1	.0	.1	0	.0%	.0%	.2%	.0%

(Continued)

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Market Share

TABLE NUMBER: 30 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Aucotec	.0	.0	.0	1	.0%	.0%	.0%	.0%
Olivetti	.0	.0	.0	4	.0%	.0%	.0%	.1%
Other Companies	11.8	5.4	5.4	493	8.1%	7.6%	11.9%	8.0%
All Companies	144.8	71.3	45.3	6,170	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	128.4	70.1	32.3	6,068	88.7%	98.4%	71.2%	98.3%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	16.4	1.2	13.0	102	11.3%	1.6%	28.8%	1.7%
All Hardware Companies	58.5	50.8	.0	5,393	40.4%	71.2%	.0%	87.4%
All Turnkey & SW Companies	86.4	20.5	45.3	777	59.6%	28.8%	100.0%	12.6%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 31
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
					Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Mentor Graphics	11.6	1.9	6.4	126	14.6%	4.7%	24.5%	3.1%
Hewlett-Packard	11.5	8.9	.7	729	14.4%	22.4%	2.8%	18.1%
Compaq	8.9	8.9	.0	1,477	11.1%	22.4%	.0%	36.7%
Valid	6.5	1.6	3.6	32	8.1%	4.1%	13.8%	.8%
Digital	6.0	4.5	.0	52	7.5%	11.4%	.0%	1.3%
Sun	5.8	5.1	.0	448	7.3%	12.8%	.0%	11.1%
Dazix	4.1	.8	1.6	50	5.1%	2.1%	6.2%	1.2%
Assigraph	2.7	.0	2.2	21	3.4%	.0%	8.3%	.5%
IBM	2.7	2.6	.0	603	3.4%	6.5%	.0%	15.0%
Intergraph	2.6	1.4	.5	27	3.3%	3.6%	1.7%	.7%
Recal-Redac	2.5	.1	2.0	14	3.1%	.3%	7.6%	.3%
Computervision	1.9	.9	.4	16	2.4%	2.2%	1.7%	.4%
VLSI Technology	1.4	.0	1.2	1	1.8%	.1%	4.5%	.0%
Zycad	.9	.7	.0	3	1.1%	1.8%	.0%	.1%
ALS Design	.8	.0	.8	0	1.0%	.0%	2.9%	.0%
Serbi	.7	.0	.7	0	.9%	.0%	2.7%	.0%
Autodesk	.6	.0	.6	0	.7%	.0%	2.2%	.0%
Apple Computer	.5	.5	.0	101	.7%	1.2%	.0%	2.5%
Silvar-Lisco	.3	.0	.2	0	.4%	.0%	.8%	.0%
Dassault	.2	.0	.1	0	.2%	.0%	.5%	.0%
Calay	.1	.0	.1	2	.2%	.1%	.3%	.1%
Scientific Calc.	.1	.0	.1	0	.1%	.1%	.2%	.0%
Solbourne	.1	.1	.0	5	.1%	.2%	.0%	.1%
Ziegler	.1	.0	.1	0	.1%	.0%	.2%	.0%
Aucotec	.0	.0	.0	1	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 31 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	7.4	1.7	5.0	321	9.3%	4.3%	19.2%	8.0%
All Companies	79.9	39.6	26.2	4,028	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	72.9	39.5	20.3	3,991	91.2%	99.5%	77.5%	99.1%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	7.0	.2	5.9	38	8.8%	.5%	22.5%	.9%
All Hardware Companies	32.1	28.5	.0	3,607	40.2%	71.8%	.0%	89.5%
All Turnkey & SW Companies	47.8	11.2	26.2	421	59.8%	28.2%	100.0%	10.5%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 32
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: IC Layout
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Sun	3.7	3.3	.0	294	26.5%	46.6%	.0%	65.1%
Mentor Graphics	2.9	.5	1.6	31	20.3%	6.6%	34.7%	6.9%
Digital	2.4	1.8	.0	30	17.2%	26.0%	.0%	6.6%
European Silicon Structures	1.3	.3	1.1	8	9.5%	3.9%	23.7%	1.8%
Valid	1.3	.3	.8	7	9.5%	4.7%	16.6%	1.5%
VLSI Technology	.9	.0	.8	1	6.7%	.4%	17.3%	.1%
Hewlett-Packard	.8	.6	.0	70	5.5%	9.2%	.0%	15.4%
Silvar-Lisco	.3	.0	.2	0	2.3%	.0%	4.2%	.0%
Solbourne	.1	.1	.0	10	1.0%	2.0%	.0%	2.3%
Inca	.1	.0	.1	0	.5%	.0%	1.5%	.0%
Other Companies	.2	.0	.1	1	1.1%	.6%	2.0%	.2%
All Companies	14.1	7.0	4.5	451	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	12.7	6.7	3.4	443	90.0%	96.1%	74.8%	98.2%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	1.4	.3	1.1	8	10.0%	3.9%	25.2%	1.8%
All Hardware Companies	7.1	5.9	.0	404	50.1%	83.8%	.0%	89.5%
All Turnkey & SW Companies	7.0	1.1	4.5	47	49.9%	16.2%	100.0%	10.5%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 33
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Digital	6.6	4.7	.0	48	13.0%	19.1%	.0%	2.9%
Computervision	4.8	2.1	1.1	39	9.4%	8.6%	7.8%	2.3%
Mentor Graphics	4.6	.5	2.5	50	9.0%	1.9%	17.2%	2.9%
Hewlett-Packard	4.1	2.2	.4	188	8.0%	8.9%	3.0%	11.1%
Racal-Redac	4.0	.0	3.3	22	7.9%	.0%	22.3%	1.3%
Compaq	3.7	3.7	.0	617	7.3%	15.0%	.0%	36.5%
Valid	3.3	.8	1.9	17	6.6%	3.4%	12.8%	1.0%
Sun	2.8	2.4	.0	220	5.5%	9.9%	.0%	13.0%
Intergraph	2.6	1.1	.5	28	5.2%	4.5%	3.2%	1.7%
IBM	2.5	1.7	.5	126	5.0%	6.8%	3.1%	7.4%
Scientific Calc.	1.5	.3	.8	6	3.0%	1.4%	5.5%	.4%
Academi Systems	1.3	.1	1.0	5	2.6%	.5%	7.1%	.3%
DECAD	1.2	.2	.7	5	2.4%	.9%	5.0%	.3%
Dazix	1.2	.1	.5	15	2.4%	.5%	3.3%	.9%
Apple Computer	.5	.5	.0	101	1.0%	1.9%	.0%	6.0%
Calay	.5	.2	.3	8	1.0%	.6%	2.0%	.5%
LPKF	.3	.2	.1	12	.6%	.8%	.5%	.7%
ALS Design	.3	.0	.3	0	.5%	.0%	1.7%	.0%
BETRONEX	.2	.0	.2	0	.5%	.0%	1.6%	.0%
Schlumberger	.2	.1	.1	2	.5%	.2%	.5%	.1%
Sycotronic AG	.1	.0	.1	0	.2%	.0%	.5%	.0%
Autodesk	.1	.0	.1	0	.2%	.0%	.6%	.0%
Solbourne	.1	.1	.0	4	.1%	.2%	.0%	.2%
Ziegler	.0	.0	.0	0	.1%	.0%	.3%	.0%
Olivetti	.0	.0	.0	4	.0%	.1%	.0%	.2%

(Continued)

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Market Share

TABLE NUMBER: 33 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	4.2	3.6	.3	171	8.2%	14.8%	2.0%	10.1%
All Companies	50.9	24.6	14.7	1,690	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	42.9	23.9	8.6	1,634	84.3%	97.1%	59.0%	96.7%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	8.0	.7	6.0	56	15.7%	2.9%	41.0%	3.3%
All Hardware Companies	19.3	16.5	.0	1,382	37.9%	66.8%	.0%	81.8%
All Turnkey & SW Companies	31.6	8.2	14.7	308	62.1%	33.2%	100.0%	18.2%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 34
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Germany
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	192.9	125.3	37.5	6,811	13.3%	15.5%	9.4%	16.9%
Hewlett-Packard	123.4	91.1	10.1	6,881	8.5%	11.3%	2.5%	17.1%
Computervision	118.0	54.4	28.1	975	8.1%	6.7%	7.1%	2.4%
Digital	106.3	79.2	.0	824	7.3%	9.8%	.0%	2.0%
Intergraph	97.9	51.8	19.3	1,028	6.7%	6.4%	4.9%	2.6%
Siemens	92.4	61.4	27.7	2,070	6.4%	7.6%	7.0%	5.1%
Compaq	49.4	49.4	.0	8,234	3.4%	6.1%	.0%	20.5%
Control Data	43.4	31.5	4.8	494	3.0%	3.9%	1.2%	1.2%
Schlumberger	32.2	11.1	12.0	338	2.2%	1.4%	3.0%	.8%
Mentor Graphics	30.0	4.4	16.5	326	2.1%	.5%	4.2%	.8%
Norsk Data	29.6	15.0	5.2	290	2.0%	1.8%	1.3%	.7%
STI-Straessle	25.5	5.9	14.0	242	1.8%	.7%	3.5%	.6%
Sun	24.5	21.3	.0	1,847	1.7%	2.6%	.0%	4.6%
McDonnell Douglas	24.0	12.6	9.1	354	1.7%	1.6%	2.3%	.9%
Racal-Redac	17.5	.3	14.2	96	1.2%	.0%	3.6%	.2%
Matra Datavision	17.1	8.1	6.9	184	1.2%	1.0%	1.7%	.5%
ISICAD	16.7	6.7	7.7	135	1.2%	.8%	1.9%	.3%
Wiechers Datentechnik	16.4	13.2	3.3	346	1.1%	1.6%	.8%	.9%
Valid	16.3	4.1	9.1	82	1.1%	.5%	2.3%	.2%
Hahn & Kolb	15.2	9.1	4.6	220	1.1%	1.1%	1.2%	.5%
Autodesk	14.6	.0	14.6	0	1.0%	.0%	3.7%	.0%
Ziegler	13.8	.0	13.8	0	1.0%	.0%	3.5%	.0%
Dassault	13.7	.0	11.3	0	.9%	.0%	2.8%	.0%
ISYKON Software	13.7	6.9	4.8	198	.9%	.8%	1.2%	.5%
Mannesmann PROCAD	12.6	6.4	3.5	174	.9%	.8%	.9%	.4%
Dazix	12.1	2.0	4.8	148	.8%	.2%	1.2%	.4%
Kewill Systems	11.5	3.4	6.3	115	.8%	.4%	1.6%	.3%
Calay	11.3	3.5	6.6	184	.8%	.4%	1.6%	.5%
Apple Computer	8.9	7.8	.0	1,714	.6%	1.0%	.0%	4.3%
Silicon Graphics	8.9	7.8	.0	286	.6%	1.0%	.0%	.7%
Exapt	8.7	4.3	3.0	150	.6%	.5%	.7%	.4%
Aucotec	7.8	3.1	3.9	240	.5%	.4%	1.0%	.6%
Albert Nestler	6.6	2.2	2.8	86	.5%	.3%	.7%	.2%

(Continued)

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Market Share

TABLE NUMBER: 34
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Germany
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
ABB Cade International	6.5	3.8	2.0	28	.5%	.5%	.5%	.1%
Cisigraph	6.4	2.3	2.2	60	.4%	.3%	.6%	.2%
Gerber Systems	5.9	2.9	1.9	37	.4%	.4%	.5%	.1%
Kloeckner-Moeller	5.0	3.0	1.8	54	.3%	.4%	.4%	.1%
DAT Standard Information syste	4.9	.0	4.6	0	.3%	.0%	1.2%	.0%
LPKF	4.9	3.2	1.2	200	.3%	.4%	.3%	.5%
rotring euroCAD	4.8	3.0	1.8	128	.3%	.4%	.5%	.3%
Fides Industrielle Automation	4.6	.5	4.1	29	.3%	.1%	1.0%	.1%
SDRC	4.5	.0	4.5	0	.3%	.0%	1.1%	.0%
ESRI	4.0	.0	3.5	0	.3%	.0%	.9%	.0%
Marcus Computer Systeme	4.0	2.1	1.3	130	.3%	.3%	.3%	.3%
AnaCAD	3.9	.0	3.9	0	.3%	.0%	1.0%	.0%
Cimlinc	3.6	.7	2.2	319	.2%	.1%	.5%	.8%
Datagraph	3.6	2.9	.7	18	.2%	.4%	.2%	.0%
Technische Computer Systeme	3.3	.7	2.6	85	.2%	.1%	.7%	.2%
Cadtronic	2.8	1.5	1.3	84	.2%	.2%	.3%	.2%
MacNeal-Schwendler	2.7	.0	2.6	0	.2%	.0%	.6%	.0%
ISKA	2.6	1.2	1.0	48	.2%	.1%	.3%	.1%
Intercad	2.5	1.3	.7	119	.2%	.2%	.2%	.3%
PDA Engineering	2.4	.0	2.4	0	.2%	.0%	.6%	.0%
Scientific Calc.	2.4	.5	1.2	11	.2%	.1%	.3%	.0%
Ferranti	2.3	.9	1.1	19	.2%	.1%	.3%	.0%
PAFEC	2.3	.0	2.3	0	.2%	.0%	.6%	.0%
Cimatron	2.2	1.0	1.0	65	.2%	.1%	.2%	.2%
Zycad	2.2	1.8	.0	7	.2%	.2%	.0%	.0%
European Silicon Structures	2.1	.4	1.6	12	.1%	.1%	.4%	.0%
Sinus Software	1.8	.9	.9	36	.1%	.1%	.2%	.1%
ICL	1.7	1.0	.6	45	.1%	.1%	.1%	.1%
Westward	1.5	1.5	.0	87	.1%	.2%	.0%	.2%
CAD-UL	1.2	.0	1.2	0	.1%	.0%	.3%	.0%
Solbourne	1.1	1.1	.0	83	.1%	.1%	.0%	.2%
VLSI Technology	1.1	.0	.9	1	.1%	.0%	.2%	.0%
MCS	1.1	.0	1.0	0	.1%	.0%	.2%	.0%

(Continued)

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Market Share

TABLE NUMBER: 34
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Germany
UNITS: Millions of Dollars/Actual Units

	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Market Share Total Revenue	Market Share Hardware Revenue	Market Share Software Revenue	Market Share Wkstns Shipped
Company								
Framasoft	1.1	.0	.6	0	.1%	.0%	.2%	.0%
Unisys	1.0	.5	.4	14	.1%	.1%	.1%	.0%
Sycotronic AG	.8	.0	.7	1	.1%	.0%	.2%	.0%
Aucos elektronische Gerate	.8	.2	.6	80	.1%	.0%	.1%	.2%
Olivetti	.8	.7	.0	127	.1%	.1%	.0%	.3%
Caditron	.8	.4	.3	12	.1%	.0%	.1%	.0%
Silvar-Lisco	.7	.0	.4	0	.0%	.0%	.1%	.0%
Investronica SA	.7	.5	.1	26	.0%	.1%	.0%	.1%
Vero International Software	.6	.0	.6	0	.0%	.0%	.1%	.0%
Robocom	.6	.0	.6	0	.0%	.0%	.1%	.0%
ALS Design	.5	.0	.5	0	.0%	.0%	.1%	.0%
Ground Modelling Systems	.4	.2	.2	2	.0%	.0%	.0%	.0%
BETRONEX	.3	.0	.3	0	.0%	.0%	.1%	.0%
Academi Systems	.2	.0	.2	1	.0%	.0%	.0%	.0%
Serbi	.2	.0	.2	0	.0%	.0%	.0%	.0%
BATISOFT	.2	.0	.1	6	.0%	.0%	.0%	.0%
Datagraphic	.2	.1	.1	3	.0%	.0%	.0%	.0%
Parametric Technology	.1	.0	.1	0	.0%	.0%	.0%	.0%
Sysscan	.1	.0	.0	1	.0%	.0%	.0%	.0%
Inca	.1	.0	.1	0	.0%	.0%	.0%	.0%
Pathtrace	.1	.0	.1	1	.0%	.0%	.0%	.0%
Number One Systems	.1	.0	.1	2	.0%	.0%	.0%	.0%
FEGS	.1	.0	.1	0	.0%	.0%	.0%	.0%
Star Informatic	.1	.1	.0	80	.0%	.0%	.0%	.2%
DECAD	.1	.0	.0	0	.0%	.0%	.0%	.0%
Superdraft	.0	.0	.0	2	.0%	.0%	.0%	.0%
Vision 3D	.0	.0	.0	0	.0%	.0%	.0%	.0%
Alper Systems	.0	.0	.0	5	.0%	.0%	.0%	.0%
ESDU International	.0	.0	.0	0	.0%	.0%	.0%	.0%

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Market Share

TABLE NUMBER: 34 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Germany
UNITS: Millions of Dollars/Actual Units

	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Market Share Total Revenue	Market Share Hardware Revenue	Market Share Software Revenue	Market Share Wkstns Shipped
Company								
Other Companies	102.0	65.8	28.1	3,096	7.0%	8.1%	7.1%	7.7%
All Companies	1,451.1	810.0	397.8	40,234	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	1,054.3	633.9	222.9	34,043	72.7%	78.3%	56.0%	84.6%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	396.8	176.1	175.0	6,192	27.3%	21.7%	44.0%	15.4%
All Hardware Companies	344.3	297.1	.0	25,991	23.7%	36.7%	.0%	64.6%
All Turnkey & SW Companies	1,106.8	512.9	397.8	14,243	76.3%	63.3%	100.0%	35.4%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 35
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Germany
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Hewlett-Packard	102.0	74.0	10.1	3,778	12.5%	18.1%	4.0%	25.6%
Computervision	99.7	46.0	23.7	594	12.2%	11.2%	9.4%	4.0%
Siemens	83.6	56.2	25.1	1,966	10.2%	13.8%	9.9%	13.3%
Intergraph	80.5	44.5	14.5	895	9.9%	10.9%	5.7%	6.1%
Mentor Graphics	30.0	4.4	16.5	326	3.7%	1.1%	6.6%	2.2%
Schlumberger	28.6	9.7	10.8	279	3.5%	2.4%	4.3%	1.9%
Digital	26.8	19.6	.0	824	3.3%	4.8%	.0%	5.6%
STI-Straessle	25.5	5.9	14.0	242	3.1%	1.4%	5.6%	1.6%
McDonnell Douglas	19.7	10.3	7.5	218	2.4%	2.5%	3.0%	1.5%
Sun	19.7	17.3	.0	1,627	2.4%	4.2%	.0%	11.0%
Matra Datavision	17.1	8.1	6.9	184	2.1%	2.0%	2.7%	1.3%
Control Data	16.7	12.0	1.8	317	2.0%	2.9%	.7%	2.1%
Valid	16.3	4.1	9.1	82	2.0%	1.0%	3.6%	.6%
IBM	15.3	9.3	3.4	142	1.9%	2.3%	1.3%	1.0%
Racal-Redac	14.0	.3	10.9	96	1.7%	.1%	4.3%	.7%
Hahn & Kolb	13.7	8.2	4.1	190	1.7%	2.0%	1.6%	1.3%
ISYKON Software	13.7	6.9	4.8	198	1.7%	1.7%	1.9%	1.3%
Norsk Data	13.6	7.9	2.7	170	1.7%	1.9%	1.1%	1.2%
ISICAD	12.9	6.7	3.9	135	1.6%	1.6%	1.5%	.9%
Mannesmann PROCAD	12.6	6.4	3.5	174	1.5%	1.6%	1.4%	1.2%
Dazix	12.1	2.0	4.8	148	1.5%	.5%	1.9%	1.0%
Calay	11.3	3.5	6.6	184	1.4%	.9%	2.6%	1.2%
Kewill Systems	10.3	3.1	5.7	104	1.3%	.8%	2.3%	.7%
Silicon Graphics	8.7	7.6	.0	281	1.1%	1.9%	.0%	1.9%
Albert Nestler	6.6	2.2	2.8	86	.8%	.5%	1.1%	.6%
ABB Cade International	6.5	3.8	2.0	28	.8%	.9%	.8%	.2%
Dassault	6.0	.0	5.0	0	.7%	.0%	2.0%	.0%
Gerber Systems	5.9	2.9	1.9	37	.7%	.7%	.8%	.3%
Cisigraph	5.8	2.0	2.0	48	.7%	.5%	.8%	.3%
Wiechers Datentechnik	4.6	3.7	.9	56	.6%	.9%	.4%	.4%
SDRC	3.9	.0	3.9	0	.5%	.0%	1.6%	.0%
AnaCAD	3.9	.0	3.9	0	.5%	.0%	1.5%	.0%
Cimlinc	3.6	.7	2.2	319	.4%	.2%	.9%	2.2%

(Continued)

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Market Share

TABLE NUMBER: 35
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Germany
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Technische Computer Systeme	3.3	.7	2.6	85	.4%	.2%	1.0%	.6%
Marcus Computer Systeme	3.1	1.6	1.0	100	.4%	.4%	.4%	.7%
ISKA	2.6	1.2	1.0	48	.3%	.3%	.4%	.3%
rotring euroCAD	2.5	1.7	.8	72	.3%	.4%	.3%	.5%
Exapt	2.4	1.2	.8	76	.3%	.3%	.3%	.5%
Ferranti	2.3	.9	1.1	19	.3%	.2%	.4%	.1%
ESRI	2.3	.0	2.0	0	.3%	.0%	.8%	.0%
PAFEC	2.1	.0	2.1	0	.3%	.0%	.8%	.0%
Scientific Calc.	2.0	.4	.9	9	.2%	.1%	.4%	.1%
Sinus Software	1.8	.9	.9	36	.2%	.2%	.4%	.2%
Zycad	1.7	1.4	.0	0	.2%	.3%	.0%	.0%
European Silicon Structures	1.7	.4	1.3	11	.2%	.1%	.5%	.1%
ICL	1.7	1.0	.6	45	.2%	.2%	.2%	.3%
PDA Engineering	1.6	.0	1.6	0	.2%	.0%	.6%	.0%
Cimatron	1.6	.7	.7	46	.2%	.2%	.3%	.3%
Autodesk	1.2	.0	1.2	0	.1%	.0%	.5%	.0%
VLSI Technology	1.1	.0	.9	1	.1%	.0%	.4%	.0%
Aucotec	1.1	.4	.6	34	.1%	.1%	.2%	.2%
Westward	1.0	1.0	.0	59	.1%	.2%	.0%	.4%
Framesoft	1.0	.0	.6	0	.1%	.0%	.2%	.0%
Fides Industrielle Automation	.9	.1	.8	16	.1%	.0%	.3%	.1%
Unisys	.8	.4	.3	11	.1%	.1%	.1%	.1%
MacNeal-Schwendler	.7	.0	.6	0	.1%	.0%	.3%	.0%
Silvar-Lisco	.7	.0	.4	0	.1%	.0%	.2%	.0%
MCS	.5	.0	.5	0	.1%	.0%	.2%	.0%
Solbourne	.2	.2	.0	16	.0%	.1%	.0%	.1%
Parametric Technology	.1	.0	.1	0	.0%	.0%	.0%	.0%
Academi Systems	.1	.0	.1	0	.0%	.0%	.0%	.0%
Star Informatic	.1	.1	.0	80	.0%	.0%	.0%	.5%
DECAD	.1	.0	.0	0	.0%	.0%	.0%	.0%
Sysscan	.0	.0	.0	0	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 35 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Germany
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Alper Systems	.0	.0	.0	5	.0%	.0%	.0%	.0%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%
Inca	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	21.8	5.1	13.5	253	2.7%	1.3%	5.3%	1.7%
All Companies	815.2	408.6	251.9	14,748	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	537.1	278.6	136.1	10,291	65.9%	68.2%	54.0%	69.8%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	278.1	130.0	115.8	4,457	34.1%	31.8%	46.0%	30.2%
All Hardware Companies	94.3	77.3	.0	4,983	11.6%	18.9%	.0%	33.8%
All Turnkey & SW Companies	720.9	331.3	251.9	9,765	88.4%	81.1%	100.0%	66.2%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 36
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: Germany
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	155.0	94.6	34.1	1,631	36.5%	34.4%	46.7%	28.7%
Digital	79.5	59.6	.0	0	18.7%	21.7%	.0%	.0%
Control Data	26.7	19.5	3.0	178	6.3%	7.1%	4.1%	3.1%
Computervision	17.1	7.9	4.1	350	4.0%	2.9%	5.6%	6.2%
Norsk Data	15.7	6.9	2.4	115	3.7%	2.5%	3.3%	2.0%
Intergraph	14.8	7.4	2.4	133	3.5%	2.7%	3.2%	2.3%
Siemens	8.8	5.2	2.6	104	2.1%	1.9%	3.6%	1.8%
Dassault	7.7	.0	6.3	0	1.8%	.0%	8.6%	.0%
Exapt	6.4	3.1	2.2	74	1.5%	1.1%	3.0%	1.3%
Sun	4.8	4.0	.0	219	1.1%	1.4%	.0%	3.9%
McDonnell Douglas	4.3	2.3	1.6	135	1.0%	.8%	2.2%	2.4%
Fides Industrielle Automation	3.7	.4	3.3	14	.9%	.2%	4.5%	.2%
Schlumberger	3.2	1.3	1.1	56	.8%	.5%	1.5%	1.0%
Hewlett-Packard	2.0	1.7	.0	100	.5%	.6%	.0%	1.8%
MacNeal-Schwendler	2.0	.0	1.9	0	.5%	.0%	2.6%	.0%
ESRI	1.4	.0	1.2	0	.3%	.0%	1.6%	.0%
Aucotec	1.2	.5	.6	38	.3%	.2%	.8%	.7%
Solbourne	.9	.9	.0	67	.2%	.3%	.0%	1.2%
PDA Engineering	.8	.0	.8	0	.2%	.0%	1.1%	.0%
Cisigraph	.6	.2	.2	13	.2%	.1%	.3%	.2%
SDRC	.6	.0	.6	0	.1%	.0%	.8%	.0%
Zycad	.4	.4	.0	6	.1%	.1%	.0%	.1%
Scientific Calc.	.4	.1	.3	2	.1%	.0%	.4%	.0%
MCS	.4	.0	.3	0	.1%	.0%	.4%	.0%
Unisys	.2	.1	.1	3	.1%	.0%	.1%	.1%
Silicon Graphics	.2	.2	.0	5	.0%	.1%	.0%	.1%
Framasoft	.1	.0	.1	0	.0%	.0%	.1%	.0%
Sysscan	.1	.0	.0	1	.0%	.0%	.0%	.0%
Silvar-Lisco	.1	.0	.0	0	.0%	.0%	.1%	.0%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%
Olivetti	.0	.0	.0	1	.0%	.0%	.0%	.0%
VLSI Technology	.0	.0	.0	0	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 36 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: Germany
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	65.9	58.5	3.8	2,433	15.5%	21.3%	5.1%	42.8%
All Companies	425.2	274.7	73.0	5,679	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	380.8	258.3	55.2	5,320	89.6%	94.0%	75.7%	93.7%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	44.4	16.4	17.7	359	10.4%	6.0%	24.3%	6.3%
All Hardware Companies	149.0	124.8	.0	2,823	35.0%	45.4%	.0%	49.7%
All Turnkey & SW Companies	276.2	149.9	73.0	2,856	65.0%	54.6%	100.0%	50.3%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 37
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Germany
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Compaq	49.4	49.4	.0	8,234	23.4%	39.0%	.0%	41.6%
IBM	22.5	21.4	.0	5,038	10.7%	16.9%	.0%	25.4%
Hewlett-Packard	19.4	15.5	.0	3,002	9.2%	12.2%	.0%	15.2%
Ziegler	13.8	.0	13.8	0	6.6%	.0%	19.0%	.0%
Autodesk	13.5	.0	13.5	0	6.4%	.0%	18.4%	.0%
Wiechers Datentechnik	11.8	9.5	2.4	290	5.6%	7.5%	3.2%	1.5%
Apple Computer	8.9	7.8	.0	1,714	4.2%	6.2%	.0%	8.7%
Aucotec	5.4	2.2	2.7	168	2.6%	1.7%	3.7%	.8%
Kloeckner-Moeller	5.0	3.0	1.8	54	2.4%	2.4%	2.4%	.3%
DAT Standard Information syste	4.9	.0	4.6	0	2.3%	.0%	6.3%	.0%
LPKF	4.9	3.2	1.2	200	2.3%	2.5%	1.7%	1.0%
ISICAD	3.8	.0	3.8	0	1.8%	.0%	5.2%	.0%
Datagraph	3.6	2.9	.7	18	1.7%	2.3%	1.0%	.1%
Racal-Redac	3.5	.0	3.3	0	1.7%	.0%	4.5%	.0%
Cadtronic	2.8	1.5	1.3	84	1.3%	1.2%	1.7%	.4%
Intergraph	2.6	.0	2.5	0	1.2%	.0%	3.4%	.0%
Intercad	2.5	1.3	.7	119	1.2%	1.0%	.9%	.6%
rotring euroCAD	2.3	1.3	1.0	56	1.1%	1.0%	1.4%	.3%
Hahn & Kolb	1.5	.9	.5	30	.7%	.7%	.6%	.1%
CAD-UL	1.2	.0	1.2	0	.6%	.0%	1.6%	.0%
Computervision	1.2	.6	.3	31	.6%	.4%	.4%	.2%
Kewill Systems	1.1	.3	.6	12	.5%	.3%	.8%	.1%
Marcus Computer Systeme	.9	.5	.3	30	.4%	.4%	.4%	.2%
Sycotronic AG	.8	.0	.7	1	.4%	.0%	.9%	.0%
Aucos elektronische Gerate	.8	.2	.6	80	.4%	.2%	.8%	.4%
Caditron	.8	.4	.3	12	.4%	.3%	.4%	.1%
Olivetti	.8	.6	.0	126	.4%	.5%	.0%	.6%
Cimatron	.7	.3	.3	20	.3%	.2%	.4%	.1%
Investronica SA	.7	.5	.1	26	.3%	.4%	.1%	.1%
Vero International Software	.6	.0	.6	0	.3%	.0%	.8%	.0%
Robocom	.6	.0	.6	0	.3%	.0%	.8%	.0%
ALS Design	.5	.0	.5	0	.2%	.0%	.7%	.0%

(Continued)

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Market Share

TABLE NUMBER: 37 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Germany
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Westward	.5	.5	.0	28	.2%	.4%	.0%	.1%
ESRI	.4	.0	.4	0	.2%	.0%	.5%	.0%
Ground Modelling Systems	.4	.2	.2	2	.2%	.2%	.2%	.0%
European Silicon Structures	.3	.0	.3	1	.2%	.0%	.4%	.0%
Schlumberger	.3	.1	.1	2	.2%	.1%	.2%	.0%
Norsk Data	.3	.2	.1	5	.1%	.1%	.1%	.0%
BETRONEX	.3	.0	.3	0	.1%	.0%	.4%	.0%
PAFEC	.2	.0	.2	0	.1%	.0%	.3%	.0%
MCS	.2	.0	.2	0	.1%	.0%	.3%	.0%
Serbi	.2	.0	.2	0	.1%	.0%	.2%	.0%
BATISOFT	.2	.0	.1	6	.1%	.0%	.1%	.0%
Datagraphic	.2	.1	.1	3	.1%	.0%	.1%	.0%
Academi Systems	.1	.0	.1	1	.1%	.0%	.1%	.0%
Pathtrace	.1	.0	.1	1	.0%	.0%	.1%	.0%
Inca	.1	.0	.1	0	.0%	.0%	.1%	.0%
Number One Systems	.1	.0	.1	2	.0%	.0%	.1%	.0%
Superdraft	.0	.0	.0	2	.0%	.0%	.0%	.0%
Vision 3D	.0	.0	.0	0	.0%	.0%	.0%	.0%
ESDU International	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	14.2	2.2	10.9	410	6.7%	1.7%	14.9%	2.1%
All Companies	210.7	126.7	73.0	19,807	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	136.4	97.0	31.6	18,432	64.7%	76.5%	43.3%	93.1%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	74.3	29.7	41.4	1,375	35.3%	23.5%	56.7%	6.9%
All Hardware Companies	101.0	94.9	.0	18,185	47.9%	74.9%	.0%	91.8%
All Turnkey & SW Companies	109.7	31.8	73.0	1,622	52.1%	25.1%	100.0%	8.2%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 38
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Germany
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	149.5	94.2	31.0	3,428	16.9%	18.6%	13.8%	16.5%
Computervision	103.9	48.0	24.7	858	11.7%	9.5%	11.0%	4.1%
Hewlett-Packard	74.4	55.4	6.7	3,912	8.4%	10.9%	3.0%	18.9%
Digital	57.4	43.1	.0	438	6.5%	8.5%	.0%	2.1%
Siemens	45.9	27.1	13.8	1,068	5.2%	5.3%	6.1%	5.2%
Control Data	40.4	29.3	4.5	462	4.6%	5.8%	2.0%	2.2%
Schlumberger	30.9	10.7	11.5	324	3.5%	2.1%	5.1%	1.6%
Norsk Data	29.6	15.0	5.2	290	3.4%	3.0%	2.3%	1.4%
Intergraph	24.5	13.1	4.9	256	2.8%	2.6%	2.2%	1.2%
McDonnell Douglas	20.8	10.9	7.9	298	2.4%	2.1%	3.5%	1.4%
STI-Straessle	19.9	4.6	10.9	188	2.2%	.9%	4.9%	.9%
Compaq	17.7	17.7	.0	2,948	2.0%	3.5%	.0%	14.2%
Matra Datavision	17.1	8.1	6.9	184	1.9%	1.6%	3.1%	.9%
Wiechers Datentechnik	16.4	13.2	3.3	346	1.9%	2.6%	1.5%	1.7%
Hahn & Kolb	15.2	9.1	4.6	220	1.7%	1.8%	2.0%	1.1%
ISYKON Software	13.7	6.9	4.8	198	1.6%	1.4%	2.1%	1.0%
Mannesmann PROCAD	12.6	6.4	3.5	174	1.4%	1.3%	1.6%	.8%
Dassault	11.3	.0	9.3	0	1.3%	.0%	4.1%	.0%
Sun	9.6	8.3	.0	683	1.1%	1.6%	.0%	3.3%
Silicon Graphics	8.9	7.8	.0	286	1.0%	1.5%	.0%	1.4%
Exapt	8.7	4.3	3.0	150	1.0%	.8%	1.3%	.7%
Albert Nestler	6.6	2.2	2.8	86	.7%	.4%	1.3%	.4%
Cisigraph	6.4	2.3	2.2	60	.7%	.4%	1.0%	.3%
Gerber Systems	5.9	2.9	1.9	37	.7%	.6%	.9%	.2%
ISICAD	5.8	2.7	2.1	55	.7%	.5%	.9%	.3%
Kewill Systems	5.7	1.7	3.2	58	.6%	.3%	1.4%	.3%
Autodesk	5.6	.0	5.6	0	.6%	.0%	2.5%	.0%
Ziegler	5.5	.0	5.5	0	.6%	.0%	2.5%	.0%
Kloeckner-Moeller	5.0	3.0	1.8	54	.6%	.6%	.8%	.3%
Fides Industrielle Automation	4.6	.5	4.1	29	.5%	.1%	1.8%	.1%
SDRC	4.5	.0	4.5	0	.5%	.0%	2.0%	.0%
rotring euroCAD	4.1	2.6	1.5	110	.5%	.5%	.7%	.5%
Marcus Computer Systeme	4.0	2.1	1.3	130	.4%	.4%	.6%	.6%

(Continued)

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Market Share

TABLE NUMBER: 38
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Germany
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
DAT Standard Information syste	3.8	.0	3.6	0	.4%	.0%	1.6%	.0%
Apple Computer	3.7	3.2	.0	703	.4%	.6%	.0%	3.4%
Cimlinc	3.6	.7	2.2	319	.4%	.1%	1.0%	1.5%
Datagraph	3.6	2.9	.7	18	.4%	.6%	.3%	.1%
Technische Computer Systeme	3.3	.7	2.6	85	.4%	.1%	1.2%	.4%
MacNeal-Schwendler	2.7	.0	2.6	0	.3%	.0%	1.1%	.0%
ISKA	2.6	1.2	1.0	48	.3%	.2%	.5%	.2%
PDA Engineering	2.4	.0	2.4	0	.3%	.0%	1.1%	.0%
Ferranti	2.3	.9	1.1	19	.3%	.2%	.5%	.1%
Cimatron	2.2	1.0	1.0	65	.2%	.2%	.4%	.3%
Intercad	2.0	1.0	.6	95	.2%	.2%	.2%	.5%
PAFEC	1.6	.0	1.6	0	.2%	.0%	.7%	.0%
Westward	1.3	1.3	.0	75	.1%	.3%	.0%	.4%
MCS	1.1	.0	1.0	0	.1%	.0%	.4%	.0%
Framasoft	1.1	.0	.6	0	.1%	.0%	.3%	.0%
Unisys	1.0	.5	.4	14	.1%	.1%	.2%	.1%
Caditron	.8	.4	.3	12	.1%	.1%	.1%	.1%
ICL	.7	.4	.2	19	.1%	.1%	.1%	.1%
Investronica SA	.7	.5	.1	26	.1%	.1%	.0%	.1%
Vero International Software	.6	.0	.6	0	.1%	.0%	.3%	.0%
Cadtronic	.4	.2	.2	13	.0%	.0%	.1%	.1%
Olivetti	.3	.2	.0	44	.0%	.0%	.0%	.2%
Robocom	.3	.0	.3	0	.0%	.0%	.1%	.0%
Parametric Technology	.1	.0	.1	0	.0%	.0%	.1%	.0%
Serbi	.1	.0	.1	0	.0%	.0%	.0%	.0%
Pathtrace	.1	.0	.1	1	.0%	.0%	.0%	.0%
FEGS	.1	.0	.1	0	.0%	.0%	.0%	.0%
Solbourne	.0	.0	.0	2	.0%	.0%	.0%	.0%
Superdraft	.0	.0	.0	2	.0%	.0%	.0%	.0%
Vision 3D	.0	.0	.0	0	.0%	.0%	.0%	.0%
ESDU International	.0	.0	.0	0	.0%	.0%	.0%	.0%

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Market Share

TABLE NUMBER: 38 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Germany
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	50.0	38.5	8.3	1,841	5.7%	7.6%	3.7%	8.9%
All Companies	884.3	506.4	224.3	20,733	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	624.1	386.9	122.0	16,865	70.6%	76.4%	54.4%	81.3%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	260.2	119.6	102.3	3,868	29.4%	23.6%	45.6%	18.7%
All Hardware Companies	176.5	151.3	.0	11,466	20.0%	29.9%	.0%	55.3%
All Turnkey & SW Companies	707.8	355.1	224.3	9,267	80.0%	70.1%	100.0%	44.7%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 39
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: AEC
PLATFORM: All Platforms
REGION: Germany
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Intergraph	24.5	13.1	4.9	257	17.3%	15.5%	13.6%	4.2%
IBM	16.8	12.0	2.6	1,233	11.9%	14.1%	7.3%	20.3%
Hewlett-Packard	14.7	11.3	1.0	901	10.4%	13.3%	2.8%	14.9%
Digital	11.7	8.8	.0	82	8.3%	10.3%	.0%	1.4%
ISICAD	11.0	4.0	5.6	80	7.8%	4.7%	15.5%	1.3%
Compaq	10.9	10.9	.0	1,820	7.7%	12.9%	.0%	30.0%
Autodesk	6.4	.0	6.4	0	4.5%	.0%	17.9%	.0%
Siemens	6.4	3.8	1.9	135	4.5%	4.5%	5.3%	2.2%
Kewill Systems	5.7	1.7	3.2	58	4.1%	2.0%	8.8%	.9%
Computervision	4.7	2.2	1.1	39	3.3%	2.6%	3.1%	.6%
Apple Computer	3.6	3.1	.0	685	2.5%	3.7%	.0%	11.3%
McDonnell Douglas	3.2	1.7	1.2	56	2.3%	2.0%	3.4%	.9%
Dassault	1.9	.0	1.6	0	1.4%	.0%	4.4%	.0%
Sinus Software	1.8	.9	.9	36	1.3%	1.1%	2.5%	.6%
Ziegler	1.8	.0	1.8	0	1.3%	.0%	5.0%	.0%
Control Data	1.3	1.0	.2	14	.9%	1.1%	.4%	.2%
Cadtronic	1.0	.5	.4	29	.7%	.6%	1.2%	.5%
Sun	1.0	.9	.0	78	.7%	1.0%	.0%	1.3%
DAT Standard Information syste	.4	.0	.4	0	.3%	.0%	1.0%	.0%
Olivetti	.4	.3	.0	61	.3%	.4%	.0%	1.0%
Schlumberger	.3	.1	.1	3	.2%	.1%	.3%	.1%
Sycotronic AG	.3	.0	.3	1	.2%	.0%	.7%	.0%
Robocom	.3	.0	.3	0	.2%	.0%	.7%	.0%
BATISOFT	.2	.0	.1	6	.1%	.0%	.3%	.1%
Datagraphic	.2	.1	.1	3	.1%	.1%	.3%	.0%
PAFEC	.1	.0	.1	0	.1%	.0%	.4%	.0%
Westward	.1	.1	.0	7	.1%	.1%	.0%	.1%
Ground Modelling Systems	.1	.1	.0	0	.0%	.1%	.1%	.0%
Star Informatic	.1	.1	.0	80	.0%	.1%	.0%	1.3%
Serbi	.1	.0	.1	0	.0%	.0%	.1%	.0%
Solbourne	.0	.0	.0	1	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 39 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: AEC
PLATFORM: All Platforms
REGION: Germany
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	10.5	8.0	1.8	398	7.4%	9.5%	5.0%	6.6%
All Companies	141.4	84.6	36.0	6,062	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	120.7	77.0	24.9	5,647	85.3%	91.0%	69.3%	93.1%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	20.7	7.6	11.1	415	14.7%	9.0%	30.8%	6.9%
All Hardware Companies	48.4	42.9	.0	4,889	34.3%	50.7%	.0%	80.6%
All Turnkey & SW Companies	93.0	41.7	36.0	1,173	65.7%	49.3%	100.0%	19.4%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 40
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: GIS/Mapping
PLATFORM: All Platforms
REGION: Germany
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intergraph	39.2	20.9	7.8	411	27.6%	25.4%	21.6%	9.8%
Siemens	38.5	22.7	11.6	829	27.1%	27.6%	31.8%	19.8%
IBM	13.6	9.6	2.2	945	9.6%	11.6%	6.0%	22.5%
Digital	10.6	8.0	.0	74	7.5%	9.7%	.0%	1.8%
Compaq	7.1	7.1	.0	1,190	5.0%	8.7%	.0%	28.4%
STI-Straessle	5.6	1.3	3.1	53	4.0%	1.6%	8.5%	1.3%
ESRI	4.0	.0	3.5	0	2.8%	.0%	9.7%	.0%
Control Data	1.7	1.3	.2	18	1.2%	1.5%	.5%	.4%
Ziegler	1.5	.0	1.5	0	1.1%	.0%	4.2%	.0%
Autodesk	1.5	.0	1.5	0	1.0%	.0%	4.0%	.0%
Cadtronic	1.4	.8	.6	42	1.0%	.9%	1.7%	1.0%
Computervision	1.2	.5	.3	10	.8%	.7%	.8%	.2%
Sun	1.0	.9	.0	72	.7%	1.0%	.0%	1.7%
Apple Computer	1.0	.9	.0	189	.7%	1.0%	.0%	4.5%
ICL	1.0	.6	.3	26	.7%	.7%	.9%	.6%
PAFEC	.6	.0	.6	0	.4%	.0%	1.6%	.0%
Ground Modelling Systems	.3	.2	.1	2	.2%	.2%	.4%	.0%
Hewlett-Packard	.2	.2	.0	18	.1%	.2%	.0%	.4%
Solbourne	.2	.2	.0	12	.1%	.2%	.0%	.3%
Olivetti	.1	.1	.0	21	.1%	.1%	.0%	.5%
Sysscan	.1	.0	.0	1	.1%	.0%	.1%	.0%
Robocom	.0	.0	.0	0	.0%	.0%	.1%	.0%
Alper Systems	.0	.0	.0	5	.0%	.0%	.0%	.1%

(Continued)

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Market Share

TABLE NUMBER: 40 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: GIS/Mapping
PLATFORM: All Platforms
REGION: Germany
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	11.5	7.2	3.0	274	8.1%	8.8%	8.1%	6.5%
All Companies	141.9	82.4	36.3	4,192	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	92.7	56.7	18.4	3,212	65.3%	68.8%	50.7%	76.6%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	49.2	25.7	17.9	980	34.7%	31.2%	49.3%	23.4%
All Hardware Companies	29.6	26.2	.0	2,636	20.9%	31.8%	.0%	62.9%
All Turnkey & SW Companies	112.3	56.2	36.3	1,556	79.1%	68.2%	100.0%	37.1%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 41
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Germany
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Hewlett-Packard	34.0	24.3	2.4	2,050	12.0%	17.8%	2.4%	22.2%
Mentor Graphics	30.0	4.4	16.5	326	10.6%	3.2%	16.3%	3.5%
Digital	26.6	19.5	.0	230	9.4%	14.3%	.0%	2.5%
Racal-Redac	17.5	.3	14.2	96	6.2%	.2%	14.0%	1.0%
Valid	16.3	4.1	9.1	82	5.8%	3.0%	9.0%	.9%
Compaq	13.7	13.7	.0	2,277	4.8%	10.0%	.0%	24.6%
Sun	13.0	11.3	.0	1,014	4.6%	8.3%	.0%	11.0%
IBM	12.9	9.5	1.7	1,205	4.6%	7.0%	1.7%	13.0%
Dazix	12.1	2.0	4.8	148	4.3%	1.4%	4.8%	1.6%
Calay	11.3	3.5	6.6	184	4.0%	2.6%	6.5%	2.0%
Intergraph	9.8	4.7	1.7	104	3.5%	3.4%	1.7%	1.1%
Computervision	8.3	3.7	2.0	68	2.9%	2.7%	1.9%	.7%
Aucotec	7.8	3.1	3.9	240	2.7%	2.3%	3.8%	2.6%
ABB Cade International	6.5	3.8	2.0	28	2.3%	2.8%	1.9%	.3%
Ziegler	5.0	.0	5.0	0	1.8%	.0%	4.9%	.0%
LPKF	4.9	3.2	1.2	200	1.7%	2.3%	1.2%	2.2%
AnaCAD	3.9	.0	3.9	0	1.4%	.0%	3.9%	.0%
Scientific Calc.	2.4	.5	1.2	11	.8%	.4%	1.2%	.1%
Zycad	2.2	1.8	.0	7	.8%	1.3%	.0%	.1%
European Silicon Structures	2.1	.4	1.6	12	.7%	.3%	1.6%	.1%
Siemens	1.6	7.8	.5	37	.6%	5.7%	.5%	.4%
CAD-UL	1.2	.0	1.2	0	.4%	.0%	1.2%	.0%
Autodesk	1.2	.0	1.2	0	.4%	.0%	1.2%	.0%
VLSI Technology	1.1	.0	.9	1	.4%	.0%	.9%	.0%
Schlumberger	1.0	.2	.4	10	.3%	.2%	.3%	.1%
Solbourne	.9	.9	.0	67	.3%	.7%	.0%	.7%
Aucos elektronische Gerate	.8	.2	.6	80	.3%	.2%	.6%	.9%
Apple Computer	.7	.6	.0	137	.3%	.5%	.0%	1.5%
rotring euroCAD	.7	.4	.3	17	.3%	.3%	.3%	.2%
Silvar-Lisco	.7	.0	.4	0	.3%	.0%	.4%	.0%
DAT Standard Information syste	.7	.0	.6	0	.2%	.0%	.6%	.0%
ALS Design	.5	.0	.5	0	.2%	.0%	.5%	.0%

(Continued)

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Market Share

TABLE NUMBER: 41 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Germany
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Dassault	.5	.0	.4	0	.2%	.0%	.4%	.0%
Intercad	.5	.3	.1	24	.2%	.2%	.1%	.3%
Sycotronic AG	.5	.0	.4	0	.2%	.0%	.4%	.0%
BETRONEX	.3	.0	.3	0	.1%	.0%	.3%	.0%
Academi Systems	.2	.0	.2	1	.1%	.0%	.2%	.0%
Inca	.1	.0	.1	0	.0%	.0%	.1%	.0%
Westward	.1	.1	.0	5	.0%	.1%	.0%	.1%
Number One Systems	.1	.0	.1	2	.0%	.0%	.1%	.0%
DECAD	.1	.0	.0	0	.0%	.0%	.0%	.0%
Serbi	.0	.0	.0	0	.0%	.0%	.0%	.0%
Olivetti	.0	.0	.0	1	.0%	.0%	.0%	.0%
Robocom	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	29.9	12.1	15.1	584	10.5%	8.9%	14.9%	6.3%
All Companies	283.5	136.6	101.2	9,248	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	216.7	113.3	57.6	8,319	76.5%	83.0%	56.9%	90.0%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	66.7	23.3	43.7	929	23.5%	17.0%	43.1%	10.0%
All Hardware Companies	89.7	76.7	.0	7,000	31.7%	56.1%	.0%	75.7%
All Turnkey & SW Companies	193.8	59.9	101.2	2,247	68.3%	43.9%	100.0%	24.3%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 42
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: Germany
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Hewlett-Packard	23.9	18.4	1.5	1,515	15.4%	25.6%	2.6%	25.9%
Mentor Graphics	18.3	2.9	10.1	199	11.8%	4.1%	17.4%	3.4%
Digital	10.7	8.0	.0	91	6.9%	11.1%	.0%	1.6%
Compaq	9.6	9.6	.0	1,606	6.2%	13.4%	.0%	27.4%
Valid	9.5	2.4	5.3	47	6.1%	3.3%	9.1%	.8%
Aucotec	7.8	3.1	3.9	240	5.0%	4.3%	6.7%	4.1%
Dazix	7.4	1.5	3.0	90	4.7%	2.1%	5.1%	1.5%
Racal-Redac	6.7	.3	5.4	36	4.3%	.5%	9.3%	.6%
Sun	6.1	5.3	.0	472	3.9%	7.4%	.0%	8.1%
Intergraph	4.9	2.6	.8	51	3.1%	3.6%	1.4%	.9%
ABB Cade International	4.6	2.8	1.4	20	3.0%	3.8%	2.4%	.3%
IBM	4.3	4.1	.0	957	2.8%	5.7%	.0%	16.3%
AnaCAD	3.9	.0	3.9	0	2.5%	.0%	6.7%	.0%
Ziegler	2.8	.0	2.8	0	1.8%	.0%	4.8%	.0%
Computervision	2.4	1.1	.6	20	1.5%	1.5%	.9%	.3%
Caley	2.3	.7	1.3	37	1.5%	1.0%	2.3%	.6%
Zycad	2.2	1.8	.0	7	1.4%	2.5%	.0%	.1%
Autodesk	1.0	.0	1.0	0	.7%	.0%	1.8%	.0%
Aucos elektronische Gerate	.8	.2	.6	80	.5%	.3%	1.0%	1.4%
rotring euroCAD	.7	.4	.3	17	.5%	.6%	.6%	.3%
DAT Standard Information syste	.7	.0	.6	0	.4%	.0%	1.1%	.0%
VLSI Technology	.7	.0	.6	0	.4%	.0%	1.0%	.0%
Dassault	.5	.0	.4	0	.3%	.0%	.7%	.0%
Intercad	.5	.3	.1	24	.3%	.3%	.2%	.4%
ALS Design	.4	.0	.4	0	.2%	.0%	.7%	.0%
Apple Computer	.4	.3	.0	69	.2%	.4%	.0%	1.2%
Solbourne	.2	.2	.0	17	.1%	.3%	.0%	.3%
Scientific Calc.	.1	.0	.1	1	.1%	.0%	.1%	.0%
Westward	.1	.1	.0	5	.1%	.1%	.0%	.1%
Silvar-Lisco	.1	.0	.0	0	.0%	.0%	.1%	.0%
Serbi	.0	.0	.0	0	.0%	.0%	.1%	.0%
Number One Systems	.0	.0	.0	0	.0%	.0%	.0%	.0%

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Market Share

TABLE NUMBER: 42 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: Germany
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Sycotronic AG	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	22.0	5.8	14.0	259	14.1%	8.1%	24.1%	4.4%
All Companies	155.2	72.0	58.0	5,859	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	123.6	64.1	36.9	5,399	79.6%	89.0%	63.6%	92.2%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	31.7	7.9	21.1	460	20.4%	11.0%	36.4%	7.8%
All Hardware Companies	50.3	43.9	.0	4,699	32.4%	60.9%	.0%	80.2%
All Turnkey & SW Companies	105.0	28.2	58.0	1,159	67.6%	39.1%	100.0%	19.8%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 43
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: IC Layout
PLATFORM: All Platforms
REGION: Germany
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Mentor Graphics	4.5	.7	2.5	49	21.6%	6.7%	40.1%	7.6%
Digital	4.3	3.2	.0	53	20.5%	29.8%	.0%	8.2%
Sun	3.9	3.4	.0	309	18.8%	31.9%	.0%	48.3%
European Silicon Structures	2.1	.4	1.6	12	9.9%	3.9%	26.5%	1.9%
Valid	2.0	.5	1.1	10	9.4%	4.6%	17.6%	1.5%
Hewlett-Packard	1.6	1.3	.0	145	7.7%	12.5%	.0%	22.6%
Silvar-Lisco	.6	.0	.4	0	3.1%	.0%	6.3%	.0%
Solbourne	.5	.5	.0	36	2.4%	4.6%	.0%	5.7%
VLSI Technology	.5	.0	.4	0	2.2%	.1%	6.0%	.0%
Inca	.1	.0	.1	0	.5%	.0%	1.6%	.0%
Other Companies	.8	.6	.1	26	3.9%	5.9%	1.8%	4.0%
All Companies	20.8	10.8	6.2	640	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	18.7	10.3	4.4	628	89.6%	96.1%	71.8%	98.1%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	2.2	.4	1.7	12	10.4%	3.9%	28.2%	1.9%
All Hardware Companies	10.9	9.1	.0	568	52.4%	84.3%	.0%	88.7%
All Turnkey & SW Companies	9.9	1.7	6.2	73	47.6%	15.7%	100.0%	11.3%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 44
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: Germany
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Digital	11.7	8.3	.0	86	10.9%	15.4%	.0%	3.1%
Racal-Redac	10.9	.0	8.8	59	10.1%	.0%	23.8%	2.2%
Calay	9.0	2.8	5.2	147	8.4%	5.2%	14.2%	5.4%
IBM	8.6	5.5	1.7	248	8.0%	10.1%	4.7%	9.0%
Hewlett-Packard	8.5	4.6	.9	391	7.9%	8.5%	2.5%	14.2%
Mentor Graphics	7.2	.7	4.0	78	6.7%	1.3%	10.7%	2.8%
Computervision	5.9	2.6	1.4	49	5.5%	4.8%	3.8%	1.8%
Intergraph	4.9	2.1	.9	53	4.6%	3.9%	2.4%	1.9%
Valid	4.9	1.2	2.7	24	4.6%	2.3%	7.4%	.9%
LPKF	4.9	3.2	1.2	200	4.5%	5.9%	3.3%	7.3%
Dezix	4.7	.5	1.9	58	4.4%	.9%	5.1%	2.1%
Compaq	4.0	4.0	.0	671	3.8%	7.5%	.0%	24.4%
Sun	2.9	2.6	.0	232	2.7%	4.8%	.0%	8.4%
Scientific Calc.	2.3	.5	1.2	10	2.1%	.9%	3.2%	.4%
Ziegler	2.2	.0	2.2	0	2.1%	.0%	6.0%	.0%
ABB Cade International	2.0	1.1	.6	9	1.8%	2.0%	1.6%	.3%
Siemens	1.6	7.8	.5	37	1.5%	14.5%	1.3%	1.3%
CAD-UL	1.2	.0	1.2	0	1.1%	.0%	3.2%	.0%
Schlumberger	1.0	.2	.4	10	.9%	.4%	.9%	.4%
Sycotronic AG	.5	.0	.4	0	.4%	.0%	1.1%	.0%
Apple Computer	.4	.3	.0	69	.3%	.6%	.0%	2.5%
BETRONEX	.3	.0	.3	0	.2%	.0%	.7%	.0%
Academi Systems	.2	.0	.2	1	.2%	.0%	.5%	.0%
Solbourne	.2	.2	.0	14	.2%	.4%	.0%	.5%
Autodesk	.2	.0	.2	0	.1%	.0%	.4%	.0%
ALS Design	.1	.0	.1	0	.1%	.0%	.4%	.0%
Number One Systems	.1	.0	.1	2	.1%	.0%	.2%	.1%
DECAD	.1	.0	.0	0	.0%	.0%	.1%	.0%
Olivetti	.0	.0	.0	1	.0%	.0%	.0%	.0%
Robocom	.0	.0	.0	0	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 44 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: Germany
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	7.1	5.7	1.0	299	6.6%	10.5%	2.8%	10.9%
All Companies	107.4	53.8	37.0	2,748	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	74.5	38.9	16.2	2,292	69.3%	72.3%	43.8%	83.4%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	32.9	14.9	20.8	456	30.7%	27.7%	56.2%	16.6%
All Hardware Companies	28.5	23.7	.0	1,733	26.6%	44.1%	.0%	63.1%
All Turnkey & SW Companies	78.9	30.1	37.0	1,015	73.4%	55.9%	100.0%	36.9%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 45
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	89.5	58.3	17.3	3,244	19.6%	24.2%	13.5%	25.2%
Computervision	47.7	22.0	11.3	394	10.4%	9.1%	8.8%	3.1%
Hewlett-Packard	45.6	33.7	3.7	2,542	10.0%	14.0%	2.9%	19.7%
Digital	39.0	29.1	.0	302	8.5%	12.0%	.0%	2.3%
ItalCad	31.3	13.5	8.8	300	6.9%	5.6%	6.8%	2.3%
Intergraph	26.1	13.8	5.2	274	5.7%	5.7%	4.0%	2.1%
Siemens	18.0	10.6	5.4	404	3.9%	4.4%	4.2%	3.1%
Compaq	13.8	13.8	.0	2,306	3.0%	5.7%	.0%	17.9%
Matra Datavision	12.7	6.0	5.1	137	2.8%	2.5%	3.9%	1.1%
Mentor Graphics	10.7	1.6	5.9	116	2.3%	.6%	4.6%	.9%
CAD Lab	10.4	.0	8.3	0	2.3%	.0%	6.5%	.0%
Micrograph	8.4	3.6	3.8	175	1.8%	1.5%	3.0%	1.4%
Dassault	6.8	.0	5.6	0	1.5%	.0%	4.3%	.0%
Sun	6.1	5.3	.0	462	1.3%	2.2%	.0%	3.6%
Sysscan	5.7	2.5	1.5	56	1.2%	1.0%	1.2%	.4%
Vero International Software	5.4	.0	5.4	0	1.2%	.0%	4.2%	.0%
Dazix	5.2	.9	2.1	64	1.1%	.4%	1.6%	.5%
Apple Computer	4.7	4.2	.0	907	1.0%	1.7%	.0%	7.0%
Autodesk	4.0	.0	4.0	0	.9%	.0%	3.1%	.0%
Cimatron	3.7	1.7	1.7	110	.8%	.7%	1.3%	.9%
Control Data	3.5	2.5	.4	39	.8%	1.0%	.3%	.3%
Valid	3.4	.9	1.9	17	.8%	.4%	1.5%	.1%
Silicon Graphics	3.2	2.8	.0	103	.7%	1.2%	.0%	.8%
MacNeal-Schwendler	3.0	.0	2.8	0	.6%	.0%	2.2%	.0%
Schlumberger	2.7	.9	1.0	28	.6%	.4%	.8%	.2%
McDonnell Douglas	2.6	1.4	1.0	38	.6%	.6%	.8%	.3%
Unisys	2.5	1.3	.9	34	.5%	.5%	.7%	.3%
SDRC	2.4	.0	2.4	0	.5%	.0%	1.8%	.0%
Fides Industrielle Automation	2.0	.2	1.8	8	.4%	.1%	1.4%	.1%
Investronica SA	2.0	1.6	.2	78	.4%	.7%	.2%	.6%
Datagraph	1.8	1.4	.4	9	.4%	.6%	.3%	.1%
Racal-Redac	1.8	.0	1.5	10	.4%	.0%	1.1%	.1%
LPKF	1.8	1.1	.4	72	.4%	.5%	.3%	.6%

(Continued)

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Market Share

TABLE NUMBER: 45
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Olivetti	1.7	1.4	.0	263	.4%	.6%	.0%	2.0%
ISICAD	1.6	.7	.7	13	.3%	.3%	.6%	.1%
ESRI	1.2	.0	1.0	0	.3%	.0%	.8%	.0%
Framasoft	1.1	.0	.6	0	.2%	.0%	.5%	.0%
PDA Engineering	1.0	.0	1.0	0	.2%	.0%	.8%	.0%
DATAID Technologies	.8	.0	.2	0	.2%	.0%	.1%	.0%
S.T.L.D. s.r.l.	.8	.0	.8	0	.2%	.0%	.6%	.0%
Star Informatic	.8	.7	.2	28	.2%	.3%	.2%	.2%
European Silicon Structures	.8	.2	.6	5	.2%	.1%	.5%	.0%
PAFEC	.7	.0	.7	0	.1%	.0%	.5%	.0%
Cimlinc	.6	.1	.4	55	.1%	.0%	.3%	.4%
Academi Systems	.6	.1	.5	2	.1%	.0%	.4%	.0%
Cisigraph	.6	.2	.2	5	.1%	.1%	.2%	.0%
Scientific Calc.	.6	.1	.3	2	.1%	.0%	.2%	.0%
Parametric Technology	.5	.0	.5	0	.1%	.0%	.4%	.0%
rotring euroCAD	.5	.3	.2	14	.1%	.1%	.1%	.1%
VLSI Technology	.5	.0	.4	0	.1%	.0%	.3%	.0%
Robocom	.4	.0	.4	0	.1%	.0%	.3%	.0%
Gerber Systems	.4	.2	.1	2	.1%	.1%	.1%	.0%
MCS	.3	.0	.3	0	.1%	.0%	.2%	.0%
Technische Computer Systeme	.3	.1	.3	8	.1%	.0%	.2%	.1%
Calay	.3	.1	.2	5	.1%	.0%	.1%	.0%
ALS Design	.3	.0	.3	0	.1%	.0%	.2%	.0%
BETRONEX	.2	.0	.2	0	.1%	.0%	.2%	.0%
Ferranti	.2	.1	.1	2	.1%	.0%	.1%	.0%
Ziegler	.2	.0	.2	0	.0%	.0%	.1%	.0%
Zycad	.2	.1	.0	1	.0%	.1%	.0%	.0%
Serbi	.1	.0	.1	0	.0%	.0%	.1%	.0%
Catalpa	.1	.0	.1	1	.0%	.0%	.0%	.0%
t2 Solutions	.1	.1	.0	1	.0%	.0%	.0%	.0%
Pathtrace	.1	.0	.1	1	.0%	.0%	.1%	.0%

(Continued)

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Market Share

TABLE NUMBER: 45 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Whessoe Computing Systems	.1	.0	.1	0	.0%	.0%	.1%	.0%
DAT Standard Information syste	.1	.0	.1	0	.0%	.0%	.1%	.0%
BATISOFT	.1	.0	.0	2	.0%	.0%	.0%	.0%
Sycotronic AG	.1	.0	.1	0	.0%	.0%	.0%	.0%
Inca	.0	.0	.0	0	.0%	.0%	.0%	.0%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%
ESDU International	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	12.0	2.2	8.0	241	2.6%	.9%	6.2%	1.9%
All Companies	457.2	241.2	128.6	12,881	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	334.3	195.7	72.6	11,184	73.1%	81.1%	56.4%	86.8%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	122.8	45.5	56.0	1,697	26.9%	18.9%	43.6%	13.2%
All Hardware Companies	100.2	84.1	.0	8,551	21.9%	34.9%	.0%	66.4%
All Turnkey & SW Companies	356.9	157.1	128.6	4,330	78.1%	65.1%	100.0%	33.6%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 46
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Computervision	40.3	18.6	9.6	240	15.9%	15.5%	12.4%	5.7%
Hewlett-Packard	37.7	27.3	3.7	1,396	14.9%	22.8%	4.8%	33.1%
ItalCad	31.3	13.5	8.8	300	12.4%	11.2%	11.4%	7.1%
Intergraph	21.5	11.8	3.9	239	8.5%	9.9%	5.0%	5.7%
Siemens	16.3	9.6	4.9	383	6.4%	8.0%	6.3%	9.1%
Matra Datavision	12.7	6.0	5.1	137	5.0%	5.0%	6.6%	3.2%
Mentor Graphics	10.7	1.6	5.9	116	4.2%	1.3%	7.6%	2.8%
CAD Lab	9.9	.0	8.0	0	3.9%	.0%	10.3%	.0%
Digital	9.8	7.2	.0	302	3.9%	6.0%	.0%	7.2%
IBM	7.2	4.4	1.6	66	2.8%	3.7%	2.1%	1.6%
Dazix	5.2	.9	2.1	64	2.1%	.8%	2.7%	1.5%
Sun	4.9	4.3	.0	407	1.9%	3.6%	.0%	9.6%
Valid	3.4	.9	1.9	17	1.4%	.7%	2.5%	.4%
Silicon Graphics	3.1	2.8	.0	101	1.2%	2.3%	.0%	2.4%
Dassault	3.0	.0	2.5	0	1.2%	.0%	3.2%	.0%
Cimatron	2.6	1.2	1.2	77	1.0%	1.0%	1.5%	1.8%
Schlumberger	2.4	.8	.9	23	.9%	.7%	1.1%	.5%
McDonnell Douglas	2.1	1.1	.8	24	.8%	.9%	1.0%	.6%
SDRC	2.1	.0	2.1	0	.8%	.0%	2.7%	.0%
Sysscan	1.9	.9	.5	15	.8%	.7%	.6%	.3%
Unisys	1.9	1.0	.7	27	.8%	.8%	.9%	.6%
Racal-Redac	1.4	.0	1.1	10	.6%	.0%	1.5%	.2%
Control Data	1.3	1.0	.1	25	.5%	.8%	.2%	.6%
ISICAD	1.3	.7	.4	13	.5%	.5%	.5%	.3%
Micrograph	1.1	.9	.1	40	.4%	.8%	.2%	.9%
Framesoft	1.0	.0	.6	0	.4%	.0%	.8%	.0%
Star Informatic	.8	.7	.2	28	.3%	.6%	.3%	.7%
MacNeal-Schwendler	.7	.0	.7	0	.3%	.0%	.9%	.0%
ESRI	.7	.0	.6	0	.3%	.0%	.8%	.0%
European Silicon Structures	.7	.2	.5	4	.3%	.1%	.7%	.1%
PDA Engineering	.7	.0	.7	0	.3%	.0%	.8%	.0%
Cimlinc	.6	.1	.4	55	.2%	.1%	.5%	1.3%

(Continued)

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Market Share

TABLE NUMBER: 46 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
PAFEC	.6	.0	.6	0	.2%	.0%	.8%	.0%
Parametric Technology	.5	.0	.5	0	.2%	.0%	.6%	.0%
Cisigraph	.5	.2	.2	4	.2%	.2%	.2%	.1%
VLSI Technology	.5	.0	.4	0	.2%	.0%	.6%	.0%
DATAID Technologies	.5	.0	.1	0	.2%	.0%	.1%	.0%
Scientific Calc.	.5	.1	.2	2	.2%	.1%	.3%	.0%
Fides Industrielle Automation	.4	.1	.4	5	.2%	.0%	.5%	.1%
Gerber Systems	.4	.2	.1	2	.1%	.1%	.2%	.1%
Autodesk	.3	.0	.3	0	.1%	.0%	.4%	.0%
Technische Computer Systeme	.3	.1	.3	8	.1%	.1%	.3%	.2%
Calay	.3	.1	.2	5	.1%	.1%	.2%	.1%
rotring euroCAD	.3	.2	.1	8	.1%	.2%	.1%	.2%
Academi Systems	.2	.0	.2	1	.1%	.0%	.2%	.0%
Ferranti	.2	.1	.1	2	.1%	.1%	.1%	.0%
MCS	.2	.0	.1	0	.1%	.0%	.2%	.0%
Zycad	.1	.1	.0	0	.1%	.1%	.0%	.0%
Catalpa	.1	.0	.1	1	.0%	.0%	.1%	.0%
t2 Solutions	.1	.1	.0	1	.0%	.0%	.0%	.0%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%
Inca	.0	.0	.0	0	.0%	.0%	.0%	.0%
Whessoe Computing Systems	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	6.7	1.5	4.0	68	2.6%	1.3%	5.2%	1.6%
All Companies	253.2	119.9	77.2	4,217	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	166.8	86.3	41.6	3,187	65.9%	71.9%	53.9%	75.6%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	86.5	33.7	35.6	1,029	34.1%	28.1%	46.1%	24.4%
All Hardware Companies	32.2	26.3	.0	1,636	12.7%	21.9%	.0%	38.8%
All Turnkey & SW Companies	221.0	93.6	77.2	2,581	87.3%	78.1%	100.0%	61.2%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 47
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	71.4	43.6	15.7	752	53.5%	56.3%	53.1%	66.4%
Digital	29.2	21.9	.0	0	21.9%	28.2%	.0%	.0%
Computervision	6.9	3.2	1.6	142	5.2%	4.1%	5.5%	12.5%
Intergraph	3.9	2.0	.6	36	3.0%	2.5%	2.2%	3.1%
Dassault	3.8	.0	3.1	0	2.8%	.0%	10.5%	.0%
Sysscan	3.8	1.7	1.0	41	2.8%	2.1%	3.3%	3.7%
MacNeal-Schwendler	2.2	.0	2.1	0	1.7%	.0%	7.2%	.0%
Control Data	2.1	1.6	.2	14	1.6%	2.0%	.8%	1.2%
Siemens	1.8	1.0	.5	21	1.3%	1.3%	1.8%	1.8%
Fides Industrielle Automation	1.6	.2	1.4	3	1.2%	.2%	4.8%	.3%
Sun	1.2	1.0	.0	55	.9%	1.3%	.0%	4.8%
Hewlett-Packard	.7	.6	.0	37	.6%	.8%	.0%	3.3%
Unisys	.6	.3	.2	7	.4%	.4%	.7%	.6%
McDonnell Douglas	.4	.2	.2	14	.3%	.3%	.6%	1.2%
ESRI	.4	.0	.4	0	.3%	.0%	1.2%	.0%
PDA Engineering	.3	.0	.3	0	.2%	.0%	1.1%	.0%
SDRC	.3	.0	.3	0	.2%	.0%	1.0%	.0%
Schlumberger	.3	.1	.1	5	.2%	.1%	.3%	.4%
DATAID Technologies	.3	.0	.1	0	.2%	.0%	.2%	.0%
Olivetti	.1	.1	.0	2	.1%	.1%	.0%	.2%
Framasoft	.1	.0	.1	0	.1%	.0%	.2%	.0%
MCS	.1	.0	.1	0	.1%	.0%	.3%	.0%
Scientific Calc.	.1	.0	.1	0	.1%	.0%	.3%	.0%
Cisigraph	.1	.0	.0	1	.0%	.0%	.1%	.1%
Silicon Graphics	.1	.1	.0	2	.0%	.1%	.0%	.2%
Zycad	.0	.0	.0	1	.0%	.0%	.0%	.0%
Whessoe Computing Systems	.0	.0	.0	0	.0%	.0%	.1%	.0%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%

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Market Share

TABLE NUMBER: 47 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	1.6	.0	1.4	0	1.2%	.0%	4.8%	.0%
All Companies	133.4	77.5	29.6	1,133	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	121.9	74.5	23.4	1,064	91.4%	96.1%	79.1%	93.9%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	11.5	3.0	6.2	69	8.6%	3.9%	20.9%	6.1%
All Hardware Companies	31.2	23.5	.0	94	23.4%	30.4%	.0%	8.3%
All Turnkey & SW Companies	102.2	54.0	29.6	1,039	76.6%	69.6%	100.0%	91.7%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 48
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Compaq	13.8	13.8	.0	2,306	19.6%	31.6%	.0%	30.6%
IBM	10.9	10.3	.0	2,426	15.4%	23.6%	.0%	32.2%
Micrograph	7.3	2.7	3.7	135	10.3%	6.2%	17.1%	1.8%
Hewlett-Packard	7.1	5.7	.0	1,109	10.1%	13.0%	.0%	14.7%
Vero International Software	5.4	.0	5.4	0	7.7%	.0%	24.8%	.0%
Apple Computer	4.7	4.2	.0	907	6.7%	9.5%	.0%	12.0%
Autodesk	3.7	.0	3.7	0	5.2%	.0%	16.9%	.0%
Investronica SA	2.0	1.6	.2	78	2.8%	3.6%	.9%	1.0%
Datagraph	1.8	1.4	.4	9	2.6%	3.3%	1.7%	.1%
LPKF	1.8	1.1	.4	72	2.5%	2.6%	2.0%	1.0%
Olivetti	1.5	1.3	.0	260	2.2%	3.0%	.0%	3.5%
Cimatron	1.1	.5	.5	33	1.6%	1.1%	2.3%	.4%
S.T.L.D. s.r.l.	.8	.0	.8	0	1.2%	.0%	3.8%	.0%
Intergraph	.7	.0	.7	0	1.0%	.0%	3.0%	.0%
Computervision	.5	.2	.1	12	.7%	.5%	.5%	.2%
CAD Lab	.4	.0	.4	0	.6%	.0%	1.7%	.0%
Robocom	.4	.0	.4	0	.5%	.0%	1.7%	.0%
Racal-Redac	.4	.0	.3	0	.5%	.0%	1.6%	.0%
Academi Systems	.4	.0	.3	1	.5%	.1%	1.3%	.0%
ISICAD	.4	.0	.4	0	.5%	.0%	1.6%	.0%
ALS Design	.3	.0	.3	0	.4%	.0%	1.1%	.0%
rotring euroCAD	.3	.1	.1	6	.4%	.3%	.5%	.1%
BETRONEX	.2	.0	.2	0	.3%	.0%	1.1%	.0%
Ziegler	.2	.0	.2	0	.3%	.0%	.8%	.0%
Serbi	.1	.0	.1	0	.2%	.0%	.6%	.0%
European Silicon Structures	.1	.0	.1	0	.2%	.0%	.5%	.0%
ESRI	.1	.0	.1	0	.1%	.0%	.5%	.0%
Pathtrace	.1	.0	.1	1	.1%	.1%	.3%	.0%
DAT Standard Information syste	.1	.0	.1	0	.1%	.0%	.4%	.0%
DATAID Technologies	.1	.0	.0	0	.1%	.0%	.1%	.0%
BATISOFT	.1	.0	.0	2	.1%	.0%	.2%	.0%
MCS	.1	.0	.1	0	.1%	.0%	.3%	.0%

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Market Share

TABLE NUMBER: 48 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
PAFEC	.1	.0	.1	0	.1%	.0%	.3%	.0%
Whessoe Computing Systems	.1	.0	.1	0	.1%	.0%	.3%	.0%
Sycotronic AG	.1	.0	.1	0	.1%	.0%	.2%	.0%
Schlumberger	.0	.0	.0	0	.0%	.0%	.0%	.0%
Inca	.0	.0	.0	0	.0%	.0%	.1%	.0%
ESDU International	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	3.7	.7	2.6	172	5.2%	1.5%	12.0%	2.3%
All Companies	70.6	43.8	21.8	7,532	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	45.6	34.9	7.6	6,933	64.7%	79.7%	34.7%	92.0%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	24.9	8.9	14.3	599	35.3%	20.3%	65.3%	8.0%
All Hardware Companies	36.8	34.3	.0	6,822	52.2%	78.4%	.0%	90.6%
All Turnkey & SW Companies	33.7	9.5	21.8	710	47.8%	21.6%	100.0%	9.4%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 49
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	72.2	45.5	14.9	1,652	25.5%	30.7%	17.8%	25.8%
Computervision	42.0	19.4	10.0	347	14.8%	13.1%	11.9%	5.4%
Hewlett-Packard	27.5	20.5	2.5	1,446	9.7%	13.8%	2.9%	22.5%
Digital	21.0	15.8	.0	161	7.4%	10.7%	.0%	2.5%
Matra Datavision	12.7	6.0	5.1	137	4.5%	4.0%	6.0%	2.1%
ItalCad	12.5	5.4	3.5	120	4.4%	3.6%	4.2%	1.9%
CAD Lab	10.4	.0	8.3	0	3.7%	.0%	9.9%	.0%
Siemens	9.1	5.4	2.7	212	3.2%	3.6%	3.3%	3.3%
Intergraph	6.5	3.5	1.3	68	2.3%	2.4%	1.5%	1.1%
Dassault	5.7	.0	4.6	0	2.0%	.0%	5.5%	.0%
Vero International Software	5.4	.0	5.4	0	1.9%	.0%	6.4%	.0%
Compaq	5.0	5.0	.0	825	1.7%	3.3%	.0%	12.9%
Micrograph	3.9	1.6	1.8	82	1.4%	1.1%	2.2%	1.3%
Cimatron	3.7	1.7	1.7	110	1.3%	1.1%	2.0%	1.7%
Control Data	3.2	2.3	.4	37	1.1%	1.6%	.4%	.6%
Silicon Graphics	3.2	2.8	.0	103	1.1%	1.9%	.0%	1.6%
MacNeal-Schwendler	3.0	.0	2.8	0	1.0%	.0%	3.4%	.0%
Schlumberger	2.6	.9	1.0	27	.9%	.6%	1.1%	.4%
Unisys	2.5	1.3	.9	34	.9%	.9%	1.0%	.5%
Sun	2.4	2.1	.0	171	.8%	1.4%	.0%	2.7%
McDonnell Douglas	2.4	1.2	.9	34	.8%	.8%	1.1%	.5%
SDRC	2.4	.0	2.4	0	.8%	.0%	2.8%	.0%
Fides Industrielle Automation	2.0	.2	1.8	8	.7%	.2%	2.1%	.1%
Investronica SA	2.0	1.6	.2	78	.7%	1.1%	.2%	1.2%
Apple Computer	1.9	1.7	.0	372	.7%	1.1%	.0%	5.8%
Datagraph	1.8	1.4	.4	9	.6%	1.0%	.4%	.1%
Autodesk	1.5	.0	1.5	0	.5%	.0%	1.8%	.0%
Framasoft	1.1	.0	.6	0	.4%	.0%	.8%	.0%
Olivetti	1.1	.9	.0	161	.4%	.6%	.0%	2.5%
PDA Engineering	1.0	.0	1.0	0	.3%	.0%	1.2%	.0%
DATAID Technologies	.8	.0	.2	0	.3%	.0%	.2%	.0%
S.T.L.D. s.r.l.	.8	.0	.8	0	.3%	.0%	1.0%	.0%

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Market Share

TABLE NUMBER: 49 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
ISICAD	.6	.3	.2	6	.2%	.2%	.3%	.1%
Cimlinc	.6	.1	.4	55	.2%	.1%	.4%	.9%
Cisigraph	.6	.2	.2	5	.2%	.1%	.2%	.1%
Parametric Technology	.5	.0	.5	0	.2%	.0%	.6%	.0%
PAFEC	.5	.0	.5	0	.2%	.0%	.6%	.0%
rotring euroCAD	.4	.3	.2	12	.2%	.2%	.2%	.2%
Gerber Systems	.4	.2	.1	2	.1%	.1%	.1%	.0%
MCS	.3	.0	.3	0	.1%	.0%	.4%	.0%
Technische Computer Systeme	.3	.1	.3	8	.1%	.0%	.3%	.1%
Ferranti	.2	.1	.1	2	.1%	.1%	.1%	.0%
Robocom	.2	.0	.2	0	.1%	.0%	.2%	.0%
Catalpa	.1	.0	.1	1	.0%	.0%	.1%	.0%
Pathtrace	.1	.0	.1	1	.0%	.0%	.1%	.0%
Whessoe Computing Systems	.1	.0	.1	0	.0%	.0%	.1%	.0%
DAT Standard Information syste	.1	.0	.1	0	.0%	.0%	.1%	.0%
Ziegler	.1	.0	.1	0	.0%	.0%	.1%	.0%
Serbi	.1	.0	.1	0	.0%	.0%	.1%	.0%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%
ESDU International	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	5.3	.8	4.0	127	1.9%	.5%	4.8%	2.0%
All Companies	283.4	148.0	83.9	6,414	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	207.9	123.2	44.9	5,467	73.3%	83.2%	53.6%	85.2%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	75.6	24.8	39.0	947	26.7%	16.8%	46.4%	14.8%
All Hardware Companies	49.9	41.4	.0	3,672	17.6%	28.0%	.0%	57.3%
All Turnkey & SW Companies	233.5	106.6	83.9	2,742	82.4%	72.0%	100.0%	42.7%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 50
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: AEC
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
ItalCad	13.5	5.8	3.8	129	24.3%	18.1%	29.4%	5.7%
IBM	9.3	6.4	1.5	606	16.7%	20.1%	11.8%	26.7%
Intergraph	6.5	3.5	1.3	69	11.8%	10.9%	10.2%	3.0%
Hewlett-Packard	5.5	4.2	.4	333	9.8%	13.0%	2.9%	14.7%
Digital	4.3	3.2	.0	30	7.7%	10.0%	.0%	1.3%
Compaq	3.1	3.1	.0	510	5.5%	9.5%	.0%	22.5%
Computervision	1.9	.9	.4	16	3.4%	2.7%	3.4%	.7%
Apple Computer	1.9	1.7	.0	363	3.4%	5.2%	.0%	16.0%
Autodesk	1.8	.0	1.8	0	3.2%	.0%	13.7%	.0%
Micrograph	1.3	.4	.7	22	2.4%	1.3%	5.6%	1.0%
Siemens	1.3	.8	.4	27	2.3%	2.3%	3.0%	1.2%
Dassault	1.0	.0	.8	0	1.7%	.0%	6.1%	.0%
ISICAD	1.0	.4	.5	7	1.7%	1.1%	3.8%	.3%
Star Informatic	.8	.7	.2	28	1.5%	2.2%	1.6%	1.2%
Olivetti	.3	.3	.0	56	.6%	.9%	.0%	2.5%
Sun	.2	.2	.0	19	.4%	.7%	.0%	.9%
McDonnell Douglas	.2	.1	.1	4	.4%	.3%	.7%	.2%
Robocom	.2	.0	.2	0	.3%	.0%	1.3%	.0%
Control Data	.1	.1	.0	1	.2%	.2%	.1%	.1%
t2 Solutions	.1	.1	.0	1	.2%	.2%	.2%	.0%
BATISOFT	.1	.0	.0	2	.1%	.0%	.3%	.1%
Serbi	.1	.0	.1	0	.1%	.0%	.5%	.0%
PAFEC	.0	.0	.0	0	.1%	.0%	.3%	.0%
Sycotronic AG	.0	.0	.0	0	.1%	.0%	.2%	.0%
Schlumberger	.0	.0	.0	0	.0%	.0%	.0%	.0%
Ziegler	.0	.0	.0	0	.0%	.0%	.2%	.0%

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Market Share

TABLE NUMBER: 50 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: AEC
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	1.1	.3	.6	41	2.0%	1.1%	4.6%	1.8%
All Companies	55.5	32.1	12.8	2,264	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	36.8	24.0	6.6	1,998	66.3%	75.0%	51.2%	88.3%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	18.7	8.0	6.3	266	33.7%	25.0%	48.8%	11.7%
All Hardware Companies	15.1	13.1	.0	1,757	27.2%	40.9%	.0%	77.6%
All Turnkey & SW Companies	40.4	19.0	12.8	506	72.8%	59.1%	100.0%	22.4%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 51
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: GIS/Mapping
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intergraph	10.4	5.6	2.1	110	23.1%	22.4%	19.1%	8.0%
Siemens	7.7	4.5	2.3	165	17.0%	18.1%	21.1%	12.0%
Sysscan	5.7	2.5	1.5	56	12.6%	10.1%	13.6%	4.1%
ItalCad	5.3	2.3	1.5	51	11.8%	9.2%	13.8%	3.7%
IBM	4.1	3.1	.5	429	9.1%	12.5%	4.7%	31.3%
Digital	3.9	2.9	.0	27	8.6%	11.7%	.0%	2.0%
Compaq	2.0	2.0	.0	333	4.4%	8.0%	.0%	24.3%
ESRI	1.2	.0	1.0	0	2.6%	.0%	9.5%	.0%
Micrograph	.7	.2	.4	11	1.4%	.7%	3.6%	.8%
Apple Computer	.5	.5	.0	100	1.2%	1.8%	.0%	7.3%
Computervision	.5	.2	.1	4	1.0%	.9%	1.0%	.3%
Autodesk	.4	.0	.4	0	.9%	.0%	3.7%	.0%
Olivetti	.3	.2	.0	46	.6%	.9%	.0%	3.3%
Sun	.2	.2	.0	18	.5%	.8%	.0%	1.3%
PAFEC	.2	.0	.2	0	.4%	.0%	1.6%	.0%
Control Data	.1	.1	.0	1	.3%	.4%	.1%	.1%
Hewlett-Packard	.1	.1	.0	7	.2%	.2%	.0%	.5%
Robocom	.0	.0	.0	0	.1%	.0%	.3%	.0%
Ziegler	.0	.0	.0	0	.0%	.0%	.2%	.0%
Other Companies	1.8	.6	.9	15	4.1%	2.2%	7.9%	1.1%
All Companies	45.1	24.9	10.9	1,372	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	25.3	15.2	5.0	1,044	56.1%	61.0%	45.9%	76.1%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	19.8	9.7	5.9	328	43.9%	39.0%	54.1%	23.9%
All Hardware Companies	8.6	7.4	.0	895	19.0%	29.6%	.0%	65.2%
All Turnkey & SW Companies	36.5	17.6	10.9	477	81.0%	70.4%	100.0%	34.8%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 52
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Hewlett-Packard	12.6	9.0	.9	757	17.2%	24.8%	4.3%	26.8%
Mentor Graphics	10.7	1.6	5.9	116	14.7%	4.3%	28.2%	4.1%
Digital	9.8	7.1	.0	84	13.3%	19.7%	.0%	3.0%
Dazix	5.2	.9	2.1	64	7.1%	2.5%	10.0%	2.3%
IBM	4.0	3.2	.3	557	5.4%	8.9%	1.6%	19.7%
Compaq	3.8	3.8	.0	638	5.2%	10.6%	.0%	22.5%
Valid	3.4	.9	1.9	17	4.7%	2.4%	9.2%	.6%
Computervision	3.3	1.5	.8	28	4.6%	4.1%	3.8%	1.0%
Sun	3.2	2.8	.0	253	4.4%	7.8%	.0%	8.9%
Intergraph	2.6	1.2	.5	28	3.6%	3.4%	2.2%	1.0%
Micrograph	2.6	1.5	.9	60	3.6%	4.0%	4.2%	2.1%
Racal-Redac	1.8	.0	1.5	10	2.5%	.1%	7.0%	.3%
LPKF	1.8	1.1	.4	72	2.4%	3.1%	2.1%	2.5%
European Silicon Structures	.8	.2	.6	5	1.1%	.5%	3.0%	.2%
Academi Systems	.6	.1	.5	2	.8%	.1%	2.2%	.1%
Scientific Calc.	.6	.1	.3	2	.8%	.3%	1.4%	.1%
VLSI Technology	.5	.0	.4	0	.7%	.1%	2.1%	.0%
Apple Computer	.4	.3	.0	73	.5%	.9%	.0%	2.6%
Autodesk	.3	.0	.3	0	.4%	.0%	1.5%	.0%
Calay	.3	.1	.2	5	.4%	.3%	.9%	.2%
ALS Design	.3	.0	.3	0	.3%	.0%	1.2%	.0%
BETRONEX	.2	.0	.2	0	.3%	.0%	1.1%	.0%
Dassault	.2	.0	.2	0	.2%	.0%	.7%	.0%
Zycad	.2	.1	.0	1	.2%	.4%	.0%	.0%
rotring euroCAD	.1	.0	.0	2	.1%	.1%	.1%	.1%
Schlumberger	.1	.0	.0	1	.1%	.1%	.1%	.0%
Ziegler	.1	.0	.1	0	.1%	.0%	.3%	.0%
Inca	.0	.0	.0	0	.0%	.0%	.1%	.0%
Serbi	.0	.0	.0	0	.0%	.0%	.1%	.0%
Sycotronic AG	.0	.0	.0	0	.0%	.0%	.1%	.0%

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Market Share

TABLE NUMBER: 52 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	3.7	.5	2.6	57	5.1%	1.5%	12.3%	2.0%
All Companies	73.2	36.2	21.0	2,831	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	64.4	33.2	16.1	2,675	88.1%	91.7%	76.6%	94.5%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	8.7	3.0	4.9	156	11.9%	8.3%	23.4%	5.5%
All Hardware Companies	26.6	22.2	.0	2,226	36.4%	61.3%	.0%	78.6%
All Turnkey & SW Companies	46.5	14.0	21.0	605	63.6%	38.7%	100.0%	21.4%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 53
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Hewlett-Packard	8.8	6.8	.6	560	21.7%	32.7%	4.7%	30.0%
Mentor Graphics	6.5	1.0	3.6	71	16.1%	5.0%	30.4%	3.8%
Digital	3.9	2.9	.0	33	9.6%	14.1%	.0%	1.8%
Dazix	3.7	.7	1.5	45	9.0%	3.6%	12.4%	2.4%
Compaq	2.7	2.7	.0	450	6.6%	13.0%	.0%	24.1%
IBM	2.1	2.0	.0	461	5.1%	9.4%	.0%	24.7%
Valid	2.0	.5	1.1	10	4.9%	2.4%	9.4%	.5%
Micrograph	1.7	.8	.7	32	4.1%	4.0%	5.8%	1.7%
Sun	1.5	1.3	.0	118	3.8%	6.5%	.0%	6.3%
Intergraph	1.3	.7	.2	14	3.2%	3.3%	1.9%	.7%
Computervision	1.0	.4	.2	8	2.4%	2.1%	1.9%	.4%
Racal-Redac	.7	.0	.6	4	1.7%	.1%	4.7%	.2%
VLSI Technology	.3	.0	.3	0	.8%	.0%	2.2%	.0%
Autodesk	.3	.0	.3	0	.7%	.0%	2.4%	.0%
ALS Design	.2	.0	.2	0	.5%	.0%	1.6%	.0%
Apple Computer	.2	.2	.0	36	.5%	.8%	.0%	1.9%
Dassault	.2	.0	.2	0	.4%	.0%	1.3%	.0%
Zycad	.2	.1	.0	1	.4%	.7%	.0%	.0%
rotring euroCAD	.1	.0	.0	2	.2%	.2%	.3%	.1%
Calay	.1	.0	.0	1	.1%	.1%	.3%	.1%
Ziegler	.0	.0	.0	0	.1%	.0%	.3%	.0%
Serbi	.0	.0	.0	0	.1%	.0%	.3%	.0%
Scientific Calc.	.0	.0	.0	0	.0%	.0%	.1%	.0%

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Market Share

TABLE NUMBER: 53 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					--- Market Share ---			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	3.3	.4	2.4	23	8.1%	2.0%	20.0%	1.2%
All Companies	40.7	20.8	11.8	1,868	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	37.8	19.9	10.1	1,829	92.8%	95.6%	85.4%	97.9%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	3.0	.9	1.7	39	7.2%	4.4%	14.6%	2.1%
All Hardware Companies	15.8	13.5	.0	1,583	38.7%	65.2%	.0%	84.7%
All Turnkey & SW Companies	25.0	7.2	11.8	285	61.3%	34.8%	100.0%	15.3%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 54
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: IC Layout
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Mentor Graphics	1.6	.3	.9	17	25.8%	8.4%	44.9%	10.0%
Digital	1.6	1.2	.0	19	25.1%	38.2%	.0%	11.1%
Sun	1.0	.9	.0	77	15.7%	27.8%	.0%	44.2%
European Silicon Structures	.8	.2	.6	5	12.6%	5.5%	31.3%	2.7%
Hewlett-Packard	.6	.5	.0	53	9.4%	16.2%	.0%	30.5%
Valid	.4	.1	.2	2	6.6%	3.2%	11.6%	1.2%
VLSI Technology	.2	.0	.2	0	3.4%	.3%	9.1%	.1%
Inca	.0	.0	.0	0	.5%	.0%	1.5%	.0%
Other Companies	.1	.0	.0	0	1.0%	.3%	1.5%	.2%
All Companies	6.3	3.1	2.0	175	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	5.4	2.9	1.3	170	86.9%	94.5%	67.2%	97.3%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	.8	.2	.7	5	13.1%	5.5%	32.8%	2.7%
All Hardware Companies	3.1	2.5	.0	150	50.2%	82.2%	.0%	85.8%
All Turnkey & SW Companies	3.1	.6	2.0	25	49.8%	17.8%	100.0%	14.2%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 55
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Digital	4.3	3.0	.0	31	16.4%	24.6%	.0%	4.0%
Hewlett-Packard	3.1	1.7	.3	144	11.9%	13.5%	4.8%	18.3%
Mentor Graphics	2.6	.3	1.4	28	9.8%	2.1%	19.9%	3.5%
Computervision	2.4	1.1	.6	20	9.1%	8.5%	7.8%	2.5%
IBM	1.9	1.3	.3	96	7.3%	10.4%	4.8%	12.2%
LPKF	1.8	1.1	.4	72	6.7%	9.2%	6.2%	9.1%
Dazix	1.6	.2	.6	19	6.0%	1.3%	8.8%	2.4%
Intergraph	1.3	.5	.2	14	5.0%	4.4%	3.2%	1.8%
Compaq	1.1	1.1	.0	188	4.3%	9.1%	.0%	23.8%
Racal-Redac	1.1	.0	.9	6	4.2%	.0%	12.7%	.8%
Valid	1.0	.3	.6	5	3.9%	2.1%	8.1%	.7%
Micrograph	.9	.6	.2	28	3.5%	5.1%	2.8%	3.5%
Sun	.7	.6	.0	58	2.8%	5.2%	.0%	7.4%
Academi Systems	.6	.1	.5	2	2.2%	.4%	6.6%	.3%
Scientific Calc.	.6	.1	.3	2	2.1%	1.0%	4.1%	.3%
Calay	.3	.1	.2	4	1.0%	.6%	2.1%	.5%
BETRONEX	.2	.0	.2	0	.9%	.0%	3.4%	.0%
Apple Computer	.2	.2	.0	36	.7%	1.4%	.0%	4.6%
Schlumberger	.1	.0	.0	1	.3%	.2%	.3%	.1%
ALS Design	.1	.0	.1	0	.2%	.0%	.8%	.0%
Autodesk	.0	.0	.0	0	.2%	.0%	.6%	.0%
Ziegler	.0	.0	.0	0	.1%	.0%	.4%	.0%
Sycotronic AG	.0	.0	.0	0	.1%	.0%	.3%	.0%

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Market Share

TABLE NUMBER: 55 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	.3	.1	.2	33	1.3%	.9%	2.5%	4.2%
All Companies	26.2	12.4	7.2	788	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	21.2	10.5	4.6	676	81.0%	84.6%	64.8%	85.7%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	5.0	1.9	2.5	112	19.0%	15.4%	35.2%	14.3%
All Hardware Companies	7.7	6.1	.0	493	29.5%	49.6%	.0%	62.6%
All Turnkey & SW Companies	18.5	6.2	7.2	295	70.5%	50.4%	100.0%	37.4%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 56
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	78.1	51.1	15.0	2,948	18.2%	20.2%	14.6%	13.7%
Computervision	48.2	22.2	11.5	398	11.2%	8.8%	11.1%	1.8%
Intergraph	47.1	25.0	9.3	495	11.0%	9.9%	9.0%	2.3%
Digital	35.5	26.4	.0	275	8.2%	10.4%	.0%	1.3%
Hewlett-Packard	33.4	24.7	2.7	1,866	7.8%	9.8%	2.7%	8.7%
Autodesk	21.7	.0	21.7	0	5.0%	.0%	21.1%	.0%
Sun	17.1	14.9	.0	1,293	4.0%	5.9%	.0%	6.0%
Norsk Data	15.0	7.9	2.7	158	3.5%	3.1%	2.7%	.7%
Compaq	11.9	11.9	.0	1,976	2.8%	4.7%	.0%	9.2%
Mentor Graphics	11.0	1.6	6.0	119	2.5%	.6%	5.8%	.6%
Data Technology/DATECH	10.3	2.6	6.7	0	2.4%	1.0%	6.5%	.0%
McDonnell Douglas	9.1	4.8	3.4	136	2.1%	1.9%	3.3%	.6%
Apple Computer	7.8	6.9	.0	1,512	1.8%	2.7%	.0%	7.0%
Control Data	4.1	3.0	.4	47	1.0%	1.2%	.4%	.2%
Siemens	4.0	2.4	1.2	90	.9%	.9%	1.2%	.4%
Schlumberger	3.9	1.3	1.5	41	.9%	.5%	1.4%	.2%
Dassault	3.8	.0	3.1	0	.9%	.0%	3.0%	.0%
Dazix	2.3	.4	.9	28	.5%	.2%	.9%	.1%
SDRC	2.0	.0	2.0	0	.5%	.0%	1.9%	.0%
LPKF	2.0	1.3	.5	80	.5%	.5%	.5%	.4%
Scientific Calc.	1.9	.4	1.0	11	.4%	.2%	1.0%	.0%
PAFEC	1.8	.0	1.8	0	.4%	.0%	1.8%	.0%
Silicon Graphics	1.8	1.6	.0	57	.4%	.6%	.0%	.3%
Westward	1.8	1.8	.0	104	.4%	.7%	.0%	.5%
Investronica SA	1.7	1.4	.2	69	.4%	.5%	.2%	.3%
Racal-Redac	1.6	.0	1.3	9	.4%	.0%	1.3%	.0%
Cimlinc	1.3	.3	.8	118	.3%	.1%	.8%	.5%
Matra Datavision	1.3	.6	.5	14	.3%	.2%	.5%	.1%
ESRI	1.2	.0	1.0	0	.3%	.0%	1.0%	.0%
Exapt	1.0	.5	.4	18	.2%	.2%	.3%	.1%
Datagraph	1.0	.8	.2	5	.2%	.3%	.2%	.0%
MacNeal-Schwendler	1.0	.0	.9	0	.2%	.0%	.9%	.0%
BETRONEX	.8	.0	.8	0	.2%	.0%	.7%	.0%

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Market Share

TABLE NUMBER: 56
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Vero International Software	.7	.0	.7	0	.2%	.0%	.7%	.0%
Ziegler	.7	.0	.7	0	.2%	.0%	.7%	.0%
Research Machines	.7	.7	.0	110	.2%	.3%	.0%	.5%
Aucotec	.6	.3	.3	20	.1%	.1%	.3%	.1%
Unisys	.5	.3	.2	7	.1%	.1%	.2%	.0%
Valid	.5	.1	.3	2	.1%	.0%	.3%	.0%
Gerber Systems	.4	.2	.1	3	.1%	.1%	.1%	.0%
VLSI Technology	.4	.0	.4	0	.1%	.0%	.4%	.0%
European Silicon Structures	.4	.1	.3	2	.1%	.0%	.3%	.0%
Olivetti	.4	.3	.0	57	.1%	.1%	.0%	.3%
Solbourne	.4	.4	.0	28	.1%	.1%	.0%	.1%
Calay	.3	.1	.2	5	.1%	.0%	.2%	.0%
Parametric Technology	.3	.0	.3	0	.1%	.0%	.3%	.0%
ABB Cade International	.3	.2	.1	1	.1%	.1%	.1%	.0%
Ferranti	.2	.1	.1	2	.1%	.0%	.1%	.0%
Pathtrace	.2	.1	.2	3	.1%	.0%	.1%	.0%
Sysscan	.2	.1	.1	2	.1%	.0%	.1%	.0%
Robocom	.2	.0	.2	0	.1%	.0%	.2%	.0%
MCS	.2	.0	.2	0	.0%	.0%	.2%	.0%
Sycotronic AG	.2	.0	.2	0	.0%	.0%	.1%	.0%
Whessoe Computing Systems	.2	.0	.2	0	.0%	.0%	.2%	.0%
Superdraft	.2	.1	.1	9	.0%	.0%	.1%	.0%
ALS Design	.1	.0	.1	0	.0%	.0%	.1%	.0%
Intercad	.1	.1	.0	6	.0%	.0%	.0%	.0%
Silvar-Lisco	.1	.0	.1	0	.0%	.0%	.1%	.0%
Cisigraph	.1	.0	.0	1	.0%	.0%	.0%	.0%
DAT Standard Information syste	.1	.0	.1	0	.0%	.0%	.1%	.0%
Star Informatic	.1	.1	.0	4	.0%	.0%	.0%	.0%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%
Inca	.0	.0	.0	0	.0%	.0%	.0%	.0%

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Market Share

TABLE NUMBER: 56 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	34.5	34.5	.4	9,397	8.0%	13.6%	.4%	43.7%
All Companies	430.0	253.2	102.9	21,528	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	388.1	234.0	86.5	20,755	90.3%	92.4%	84.0%	96.4%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	41.9	19.3	16.4	773	9.7%	7.6%	16.0%	3.6%
All Hardware Companies	135.9	120.1	.0	18,101	31.6%	47.4%	.0%	84.1%
All Turnkey & SW Companies	294.1	133.1	102.9	3,426	68.4%	52.6%	100.0%	15.9%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 57
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					--------- Market Share ---------			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Computervision	40.7	18.8	9.7	242	20.4%	17.8%	19.4%	6.0%
Intergraph	38.8	21.4	7.0	431	19.4%	20.3%	14.0%	10.7%
Hewlett-Packard	27.7	20.1	2.7	1,025	13.9%	19.0%	5.5%	25.4%
Sun	13.8	12.1	.0	1,139	6.9%	11.5%	.0%	28.2%
Mentor Graphics	11.0	1.6	6.0	119	5.5%	1.5%	12.1%	2.9%
Norsk Data	9.3	5.4	1.9	116	4.7%	5.1%	3.7%	2.9%
Digital	8.9	6.5	.0	275	4.5%	6.2%	.0%	6.8%
McDonnell Douglas	7.4	3.9	2.8	82	3.7%	3.7%	5.6%	2.0%
IBM	6.2	3.8	1.4	57	3.1%	3.6%	2.7%	1.4%
Siemens	3.7	2.2	1.1	86	1.8%	2.0%	2.2%	2.1%
Schlumberger	3.5	1.2	1.3	34	1.7%	1.1%	2.6%	.8%
Dazix	2.3	.4	.9	28	1.2%	.4%	1.8%	.7%
Silicon Graphics	1.7	1.5	.0	56	.9%	1.5%	.0%	1.4%
Autodesk	1.7	.0	1.7	0	.9%	.0%	3.5%	.0%
SDRC	1.7	.0	1.7	0	.9%	.0%	3.4%	.0%
Dassault	1.7	.0	1.4	0	.8%	.0%	2.7%	.0%
PAFEC	1.6	.0	1.6	0	.8%	.0%	3.3%	.0%
Control Data	1.6	1.1	.2	30	.8%	1.1%	.3%	.7%
Scientific Calc.	1.6	.3	.8	8	.8%	.3%	1.5%	.2%
Cimlinc	1.3	.3	.8	118	.7%	.3%	1.6%	2.9%
Racal-Redac	1.3	.0	1.0	9	.6%	.0%	2.0%	.2%
Matra Datavision	1.3	.6	.5	14	.6%	.6%	1.0%	.3%
Westward	1.2	1.2	.0	71	.6%	1.1%	.0%	1.8%
Data Technology/DATECH	.9	.0	.9	0	.5%	.0%	1.7%	.0%
ESRI	.7	.0	.6	0	.3%	.0%	1.2%	.0%
Valid	.5	.1	.3	2	.2%	.1%	.5%	.1%
Gerber Systems	.4	.2	.1	3	.2%	.2%	.3%	.1%
VLSI Technology	.4	.0	.4	0	.2%	.0%	.7%	.0%
Unisys	.4	.2	.1	5	.2%	.2%	.3%	.1%
European Silicon Structures	.3	.1	.3	2	.2%	.1%	.5%	.1%
Calay	.3	.1	.2	5	.2%	.1%	.4%	.1%
Parametric Technology	.3	.0	.3	0	.2%	.0%	.6%	.0%

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Market Share

TABLE NUMBER: 57 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
Company	Revenue	Revenue	Revenue	Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
ABB Cade International	.3	.2	.1	1	.2%	.2%	.2%	.0%
Exapt	.3	.1	.1	9	.1%	.1%	.2%	.2%
MacNeal-Schwendler	.2	.0	.2	0	.1%	.0%	.5%	.0%
Ferranti	.2	.1	.1	2	.1%	.1%	.2%	.0%
Aucotec	.1	.0	.1	3	.0%	.0%	.1%	.1%
MCS	.1	.0	.1	0	.0%	.0%	.2%	.0%
Silvar-Lisco	.1	.0	.1	0	.0%	.0%	.1%	.0%
Sysscan	.1	.0	.0	1	.0%	.0%	.0%	.0%
Cisigraph	.1	.0	.0	0	.0%	.0%	.0%	.0%
Solbourne	.1	.1	.0	5	.0%	.1%	.0%	.1%
Star Informatic	.1	.1	.0	4	.0%	.0%	.0%	.1%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%
Whessoe Computing Systems	.0	.0	.0	0	.0%	.0%	.0%	.0%
Inca	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	3.7	1.7	1.6	55	1.9%	1.7%	3.2%	1.4%
All Companies	199.5	105.5	49.8	4,038	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	177.7	94.9	41.4	3,713	89.1%	90.0%	83.1%	91.9%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	21.8	10.6	8.4	326	10.9%	10.0%	16.9%	8.1%
All Hardware Companies	35.1	29.1	.0	2,082	17.6%	27.6%	.0%	51.6%
All Turnkey & SW Companies	164.4	76.4	49.8	1,956	82.4%	72.4%	100.0%	48.4%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 58
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	61.9	37.8	13.6	651	50.0%	50.8%	58.8%	54.0%
Digital	26.5	19.9	.0	0	21.4%	26.7%	.0%	.0%
Intergraph	7.1	3.6	1.1	64	5.7%	4.8%	4.9%	5.3%
Computervision	7.0	3.2	1.7	143	5.6%	4.3%	7.2%	11.9%
Norsk Data	5.7	2.5	.9	42	4.6%	3.4%	3.7%	3.5%
Sun	3.4	2.8	.0	153	2.7%	3.8%	.0%	12.7%
Control Data	2.5	1.8	.3	17	2.1%	2.5%	1.2%	1.4%
Dassault	2.1	.0	1.7	0	1.7%	.0%	7.5%	.0%
McDonnell Douglas	1.7	.9	.7	55	1.4%	1.2%	2.8%	4.5%
Exapt	.8	.4	.3	9	.6%	.5%	1.1%	.7%
MacNeal-Schwendler	.7	.0	.7	0	.6%	.0%	2.9%	.0%
Hewlett-Packard	.5	.4	.0	27	.4%	.6%	.0%	2.3%
ESRI	.4	.0	.4	0	.3%	.0%	1.5%	.0%
Schlumberger	.4	.2	.1	7	.3%	.2%	.6%	.6%
Siemens	.4	.2	.1	5	.3%	.3%	.5%	.4%
Scientific Calc.	.3	.1	.2	2	.3%	.1%	1.0%	.2%
Solbourne	.3	.3	.0	23	.3%	.4%	.0%	1.9%
SDRC	.3	.0	.3	0	.2%	.0%	1.1%	.0%
Sysscan	.2	.1	.0	2	.1%	.1%	.2%	.1%
Unisys	.1	.1	.0	1	.1%	.1%	.2%	.1%
Aucotec	.1	.1	.1	3	.1%	.1%	.2%	.3%
MCS	.1	.0	.1	0	.1%	.0%	.3%	.0%
Silicon Graphics	.0	.0	.0	1	.0%	.0%	.0%	.1%
Whessoe Computing Systems	.0	.0	.0	0	.0%	.0%	.2%	.0%
Olivetti	.0	.0	.0	1	.0%	.0%	.0%	.0%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%
Cisigraph	.0	.0	.0	0	.0%	.0%	.0%	.0%
Silvar-Lisco	.0	.0	.0	0	.0%	.0%	.0%	.0%

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Market Share

TABLE NUMBER: 58 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	1.1	.0	.9	0	.9%	.0%	3.9%	.0%
All Companies	123.8	74.3	23.2	1,206	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	114.5	71.0	20.1	1,146	92.5%	95.6%	86.5%	94.9%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	9.3	3.3	3.1	61	7.5%	4.4%	13.5%	5.1%
All Hardware Companies	30.8	23.4	.0	205	24.8%	31.5%	.0%	17.0%
All Turnkey & SW Companies	93.1	50.9	23.2	1,002	75.2%	68.5%	100.0%	83.0%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 59
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Autodesk	20.0	.0	20.0	0	18.7%	.0%	66.7%	.0%
Compaq	11.9	11.9	.0	1,976	11.1%	16.1%	.0%	12.1%
IBM	10.0	9.5	.0	2,239	9.4%	12.9%	.0%	13.8%
Data Technology/DATECH	9.4	2.6	5.8	0	8.8%	3.6%	19.5%	.0%
Apple Computer	7.8	6.9	.0	1,512	7.3%	9.4%	.0%	9.3%
Hewlett-Packard	5.2	4.2	.0	814	4.9%	5.7%	.0%	5.0%
LPKF	2.0	1.3	.5	80	1.8%	1.7%	1.6%	.5%
Investronica SA	1.7	1.4	.2	69	1.6%	1.9%	.6%	.4%
Intergraph	1.3	.0	1.2	0	1.2%	.0%	4.0%	.0%
Datagraph	1.0	.8	.2	5	.9%	1.1%	.7%	.0%
BETRONEX	.8	.0	.8	0	.7%	.0%	2.5%	.0%
Vero International Software	.7	.0	.7	0	.7%	.0%	2.4%	.0%
Ziegler	.7	.0	.7	0	.7%	.0%	2.4%	.0%
Research Machines	.7	.7	.0	110	.7%	1.0%	.0%	.7%
Westward	.6	.6	.0	33	.5%	.8%	.0%	.2%
Computervision	.5	.2	.1	13	.4%	.3%	.3%	.1%
Aucotec	.5	.2	.2	14	.4%	.2%	.7%	.1%
Olivetti	.3	.3	.0	56	.3%	.4%	.0%	.3%
Racal-Redac	.3	.0	.3	0	.3%	.0%	1.0%	.0%
Pathtrace	.2	.1	.2	3	.2%	.1%	.5%	.0%
Robocom	.2	.0	.2	0	.2%	.0%	.7%	.0%
PAFEC	.2	.0	.2	0	.2%	.0%	.6%	.0%
Sycotronic AG	.2	.0	.2	0	.2%	.0%	.5%	.0%
Superdraft	.2	.1	.1	9	.1%	.1%	.3%	.1%
Whessoe Computing Systems	.1	.0	.1	0	.1%	.0%	.4%	.0%
ALS Design	.1	.0	.1	0	.1%	.0%	.4%	.0%
Intercad	.1	.1	.0	6	.1%	.1%	.1%	.0%
ESRI	.1	.0	.1	0	.1%	.0%	.3%	.0%
DAT Standard Information syste	.1	.0	.1	0	.1%	.0%	.2%	.0%
European Silicon Structures	.1	.0	.1	0	.1%	.0%	.2%	.0%
MCS	.0	.0	.0	0	.0%	.0%	.1%	.0%
Schlumberger	.0	.0	.0	0	.0%	.0%	.1%	.0%

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Market Share

TABLE NUMBER: 59 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Norsk Data	.0	.0	.0	1	.0%	.0%	.0%	.0%
Inca	.0	.0	.0	0	.0%	.0%	.1%	.0%
Other Companies	29.7	32.7	.0	9,342	27.8%	44.6%	.0%	57.4%
All Companies	106.7	73.5	29.9	16,283	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	95.9	68.0	25.0	15,897	89.9%	92.6%	83.6%	97.6%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	10.8	5.4	4.9	386	10.1%	7.4%	16.4%	2.4%
All Hardware Companies	70.1	67.6	.0	15,815	65.7%	92.0%	.0%	97.1%
All Turnkey & SW Companies	36.6	5.9	29.9	468	34.3%	8.0%	100.0%	2.9%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 60
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	62.2	39.2	12.8	1,479	25.9%	27.1%	23.4%	14.0%
Computervision	42.4	19.6	10.1	350	17.6%	13.5%	18.4%	3.3%
Hewlett-Packard	20.2	15.0	1.8	1,061	8.4%	10.4%	3.3%	10.0%
Digital	19.1	14.4	.0	146	8.0%	9.9%	.0%	1.4%
Intergraph	11.8	6.3	2.4	123	4.9%	4.3%	4.3%	1.2%
Autodesk	8.2	.0	8.2	0	3.4%	.0%	15.0%	.0%
McDonnell Douglas	7.2	3.7	2.7	103	3.0%	2.6%	5.0%	1.0%
Sun	6.7	5.8	.0	478	2.8%	4.0%	.0%	4.5%
Data Technology/DATECH	5.2	1.3	3.3	0	2.1%	.9%	6.1%	.0%
Compaq	4.3	4.3	.0	707	1.8%	2.9%	.0%	6.7%
Control Data	3.8	2.8	.4	44	1.6%	1.9%	.8%	.4%
Schlumberger	3.8	1.3	1.4	40	1.6%	.9%	2.6%	.4%
Apple Computer	3.2	2.8	.0	620	1.3%	2.0%	.0%	5.9%
Dassault	3.2	.0	2.6	0	1.3%	.0%	4.7%	.0%
Norsk Data	3.0	1.5	.5	30	1.3%	1.1%	1.0%	.3%
Siemens	2.0	1.2	.6	48	.8%	.8%	1.1%	.5%
SDRC	2.0	.0	2.0	0	.8%	.0%	3.6%	.0%
Silicon Graphics	1.8	1.6	.0	57	.7%	1.1%	.0%	.5%
Investronica SA	1.7	1.4	.2	69	.7%	1.0%	.3%	.7%
Westward	1.5	1.5	.0	90	.6%	1.0%	.0%	.8%
Cimlinc	1.3	.3	.8	118	.6%	.2%	1.5%	1.1%
Matra Datavision	1.3	.6	.5	14	.5%	.4%	.9%	.1%
PAFEC	1.3	.0	1.3	0	.5%	.0%	2.3%	.0%
Exapt	1.0	.5	.4	18	.4%	.4%	.7%	.2%
Datagraph	1.0	.8	.2	5	.4%	.6%	.4%	.0%
MacNeal-Schwendler	1.0	.0	.9	0	.4%	.0%	1.7%	.0%
Vero International Software	.7	.0	.7	0	.3%	.0%	1.3%	.0%
Unisys	.5	.3	.2	7	.2%	.2%	.3%	.1%
Gerber Systems	.4	.2	.1	3	.2%	.2%	.3%	.0%
Research Machines	.3	.3	.0	53	.1%	.2%	.0%	.5%
Parametric Technology	.3	.0	.3	0	.1%	.0%	.5%	.0%
Ziegler	.3	.0	.3	0	.1%	.0%	.5%	.0%

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Market Share

TABLE NUMBER: 60 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Olivetti	.3	.2	.0	39	.1%	.1%	.0%	.4%
Ferranti	.2	.1	.1	2	.1%	.1%	.2%	.0%
Pathtrace	.2	.1	.2	3	.1%	.0%	.3%	.0%
MCS	.2	.0	.2	0	.1%	.0%	.3%	.0%
Whessoe Computing Systems	.2	.0	.2	0	.1%	.0%	.3%	.0%
Superdraft	.2	.1	.1	9	.1%	.0%	.1%	.1%
Robocom	.1	.0	.1	0	.0%	.0%	.2%	.0%
Intercad	.1	.1	.0	5	.0%	.0%	.1%	.0%
Cisigraph	.1	.0	.0	1	.0%	.0%	.0%	.0%
DAT Standard Information syste	.1	.0	.1	0	.0%	.0%	.1%	.0%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%
Solbourne	.0	.0	.0	1	.0%	.0%	.0%	.0%
Other Companies	16.1	17.7	.0	4,838	6.7%	12.2%	.0%	45.8%
All Companies	240.4	144.9	54.7	10,559	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	221.6	136.0	46.7	10,172	92.2%	93.9%	85.3%	96.3%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	18.8	8.9	8.1	387	7.8%	6.1%	14.7%	3.7%
All Hardware Companies	65.9	57.9	.0	8,435	27.4%	40.0%	.0%	79.9%
All Turnkey & SW Companies	174.5	87.0	54.7	2,124	72.6%	60.0%	100.0%	20.1%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 61
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: AEC
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					--------- Market Share ---------			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intergraph	11.8	6.3	2.4	124	16.4%	14.4%	12.9%	2.3%
Autodesk	9.5	.0	9.5	0	13.2%	.0%	52.2%	.0%
Norsk Data	9.0	4.8	1.7	97	12.5%	10.9%	9.1%	1.8%
IBM	8.1	5.7	1.3	555	11.3%	13.0%	7.2%	10.1%
Hewlett-Packard	4.0	3.1	.3	244	5.5%	7.0%	1.5%	4.4%
Digital	3.9	2.9	.0	27	5.4%	6.6%	.0%	.5%
Data Technology/DATECH	3.8	1.0	2.5	0	5.3%	2.2%	13.5%	.0%
Apple Computer	3.1	2.8	.0	605	4.4%	6.3%	.0%	11.0%
Compaq	2.6	2.6	.0	437	3.6%	6.0%	.0%	7.9%
McDonnell Douglas	1.9	1.0	.7	33	2.7%	2.3%	4.0%	.6%
Computervision	1.9	.9	.5	16	2.7%	2.0%	2.5%	.3%
Sun	.7	.6	.0	54	.9%	1.4%	.0%	1.0%
Dassault	.5	.0	.4	0	.7%	.0%	2.4%	.0%
Siemens	.3	.2	.1	6	.4%	.4%	.5%	.1%
Research Machines	.2	.2	.0	30	.3%	.4%	.0%	.5%
Westward	.1	.1	.0	8	.2%	.3%	.0%	.2%
Control Data	.1	.1	.0	1	.2%	.2%	.1%	.0%
PAFEC	.1	.0	.1	0	.2%	.0%	.6%	.0%
Robocom	.1	.0	.1	0	.1%	.0%	.5%	.0%
Ziegler	.1	.0	.1	0	.1%	.0%	.5%	.0%
Olivetti	.1	.1	.0	13	.1%	.2%	.0%	.2%
Sycotronic AG	.1	.0	.1	0	.1%	.0%	.3%	.0%
Star Informatic	.1	.1	.0	4	.1%	.1%	.1%	.1%
Schlumberger	.0	.0	.0	0	.0%	.0%	.1%	.0%

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Market Share

TABLE NUMBER: 61 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: AEC
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	9.7	11.5	.0	3,244	13.5%	26.2%	.0%	59.0%
All Companies	72.0	43.8	18.3	5,499	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	61.3	38.4	15.7	5,341	85.2%	87.6%	85.6%	97.1%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	10.7	5.5	2.6	158	14.8%	12.4%	14.4%	2.9%
All Hardware Companies	27.1	25.1	.0	5,051	37.6%	57.3%	.0%	91.9%
All Turnkey & SW Companies	45.0	18.7	18.3	448	62.4%	42.7%	100.0%	8.1%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 62
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: GIS/Mapping
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intergraph	18.9	10.1	3.8	198	42.5%	39.4%	36.5%	9.9%
IBM	4.4	3.3	.6	403	9.9%	12.8%	5.8%	20.2%
Digital	3.5	2.7	.0	25	8.0%	10.4%	.0%	1.2%
Norsk Data	3.0	1.6	.5	32	6.8%	6.2%	5.2%	1.6%
Autodesk	2.2	.0	2.2	0	4.9%	.0%	21.1%	.0%
Compaq	1.7	1.7	.0	286	3.9%	6.7%	.0%	14.3%
Siemens	1.7	1.0	.5	37	3.9%	3.9%	5.1%	1.8%
ESRI	1.2	.0	1.0	0	2.6%	.0%	10.0%	.0%
Data Technology/DATECH	.9	.2	.6	0	2.1%	.9%	5.8%	.0%
Apple Computer	.9	.8	.0	166	1.9%	3.0%	.0%	8.3%
Sun	.7	.6	.0	50	1.5%	2.3%	.0%	2.5%
Computervision	.5	.2	.1	4	1.1%	.9%	1.1%	.2%
PAFEC	.5	.0	.5	0	1.0%	.0%	4.5%	.0%
Sysscan	.2	.1	.1	2	.5%	.5%	.6%	.1%
Control Data	.2	.1	.0	2	.4%	.5%	.1%	.1%
Ziegler	.1	.0	.1	0	.2%	.0%	.8%	.0%
Hewlett-Packard	.1	.0	.0	5	.1%	.2%	.0%	.2%
Solbourne	.1	.1	.0	4	.1%	.2%	.0%	.2%
Research Machines	.1	.1	.0	8	.1%	.2%	.0%	.4%
Olivetti	.0	.0	.0	3	.0%	.0%	.0%	.1%
Robocom	.0	.0	.0	0	.0%	.0%	.2%	.0%
Other Companies	3.7	3.1	.3	772	8.4%	12.2%	3.2%	38.7%
All Companies	44.4	25.6	10.3	1,996	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	38.8	22.9	8.6	1,915	87.5%	89.2%	83.7%	95.9%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	5.6	2.8	1.7	81	12.5%	10.8%	16.3%	4.1%
All Hardware Companies	11.5	10.3	.0	1,676	25.9%	40.2%	.0%	84.0%
All Turnkey & SW Companies	32.9	15.3	10.3	320	74.1%	59.8%	100.0%	16.0%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 63
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Mentor Graphics	11.0	1.6	6.0	119	15.0%	4.1%	30.6%	3.4%
Hewlett-Packard	9.2	6.6	.7	556	12.6%	17.0%	3.4%	16.0%
Sun	9.1	7.9	.0	709	12.4%	20.5%	.0%	20.4%
Digital	8.9	6.5	.0	77	12.1%	16.7%	.0%	2.2%
Intergraph	4.7	2.3	.8	50	6.5%	5.9%	4.2%	1.4%
IBM	3.4	2.9	.3	512	4.7%	7.3%	1.3%	14.7%
Computervision	3.4	1.5	.8	28	4.6%	3.8%	4.0%	.8%
Compaq	3.3	3.3	.0	546	4.5%	8.4%	.0%	15.7%
Dazix	2.3	.4	.9	28	3.1%	1.1%	4.6%	.8%
LPKF	2.0	1.3	.5	80	2.7%	3.3%	2.5%	2.3%
Scientific Calc.	1.9	.4	1.0	11	2.6%	1.1%	5.0%	.3%
Autodesk	1.7	.0	1.7	0	2.4%	.0%	8.9%	.0%
Racal-Redac	1.6	.0	1.3	9	2.2%	.1%	6.6%	.3%
BETRONEX	.8	.0	.8	0	1.0%	.0%	3.8%	.0%
Aucotec	.6	.3	.3	20	.9%	.7%	1.6%	.6%
Apple Computer	.6	.6	.0	121	.8%	1.4%	.0%	3.5%
Valid	.5	.1	.3	2	.7%	.3%	1.4%	.1%
VLSI Technology	.4	.0	.4	0	.6%	.1%	1.9%	.0%
Data Technology/DATECH	.4	.1	.3	0	.6%	.3%	1.4%	.0%
European Silicon Structures	.4	.1	.3	2	.5%	.2%	1.6%	.1%
Calay	.3	.1	.2	5	.4%	.3%	1.0%	.1%
ABB Cade International	.3	.2	.1	1	.4%	.5%	.4%	.0%
Solbourne	.3	.3	.0	23	.4%	.8%	.0%	.7%
Ziegler	.3	.0	.3	0	.4%	.0%	1.4%	.0%
Research Machines	.1	.1	.0	20	.2%	.3%	.0%	.6%
Sycotronic AG	.1	.0	.1	0	.2%	.0%	.5%	.0%
ALS Design	.1	.0	.1	0	.2%	.0%	.6%	.0%
Dassault	.1	.0	.1	0	.2%	.0%	.5%	.0%
Schlumberger	.1	.0	.0	1	.2%	.1%	.2%	.0%
Silvar-Lisco	.1	.0	.1	0	.1%	.0%	.4%	.0%
Westward	.1	.1	.0	6	.1%	.3%	.0%	.2%
Inca	.0	.0	.0	0	.0%	.0%	.2%	.0%

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Market Share

TABLE NUMBER: 63 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Intercad	.0	.0	.0	1	.0%	.0%	.1%	.0%
Olivetti	.0	.0	.0	2	.0%	.0%	.0%	.1%
Other Companies	4.9	2.2	2.4	544	6.8%	5.6%	12.1%	15.7%
All Companies	73.1	38.8	19.7	3,474	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	66.3	36.7	15.6	3,327	90.6%	94.4%	79.3%	95.8%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	6.8	2.2	4.1	147	9.4%	5.6%	20.7%	4.2%
All Hardware Companies	31.4	26.8	.0	2,940	42.9%	69.0%	.0%	84.6%
All Turnkey & SW Companies	41.7	12.0	19.7	534	57.1%	31.0%	100.0%	15.4%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 64
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Mentor Graphics	6.7	1.1	3.7	73	16.8%	4.9%	33.2%	3.1%
Hewlett-Packard	6.5	5.0	.4	411	16.3%	22.8%	3.7%	17.6%
Sun	4.3	3.7	.0	330	10.7%	17.1%	.0%	14.2%
Digital	3.6	2.7	.0	30	8.9%	12.1%	.0%	1.3%
Intergraph	2.4	1.3	.4	24	5.9%	5.8%	3.7%	1.0%
Compaq	2.3	2.3	.0	385	5.8%	10.6%	.0%	16.5%
IBM	1.9	1.8	.0	425	4.8%	8.3%	.0%	18.3%
Dazix	1.8	.4	.7	22	4.5%	1.6%	6.5%	1.0%
Autodesk	1.5	.0	1.5	0	3.8%	.0%	13.7%	.0%
Computervision	1.0	.4	.2	8	2.4%	2.0%	2.1%	.3%
Aucotec	.6	.3	.3	20	1.6%	1.2%	2.9%	.8%
Racal-Redac	.6	.0	.5	3	1.5%	.1%	4.5%	.1%
Apple Computer	.3	.3	.0	60	.8%	1.3%	.0%	2.6%
Valid	.3	.1	.2	1	.7%	.3%	1.4%	.1%
VLSI Technology	.3	.0	.2	0	.7%	.0%	2.0%	.0%
ABB Cade International	.2	.1	.1	1	.5%	.6%	.5%	.0%
Data Technology/DATECH	.2	.1	.1	0	.5%	.2%	1.3%	.0%
Ziegler	.2	.0	.2	0	.4%	.0%	1.4%	.0%
Dassault	.1	.0	.1	0	.3%	.0%	.9%	.0%
Scientific Calc.	.1	.0	.1	1	.3%	.1%	.5%	.0%
Westward	.1	.1	.0	6	.3%	.5%	.0%	.3%
ALS Design	.1	.0	.1	0	.2%	.0%	.7%	.0%
Solbourne	.1	.1	.0	6	.2%	.3%	.0%	.2%
Calay	.1	.0	.0	1	.2%	.1%	.4%	.0%
Research Machines	.1	.1	.0	8	.1%	.2%	.0%	.3%
Intercad	.0	.0	.0	1	.1%	.0%	.1%	.0%
Silvar-Lisco	.0	.0	.0	0	.0%	.0%	.1%	.0%

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Market Share

TABLE NUMBER: 64 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					--------- Market Share ---------			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	4.7	2.1	2.3	513	11.9%	9.8%	20.3%	22.0%
All Companies	39.9	21.9	11.1	2,331	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	37.8	21.3	9.8	2,291	94.9%	97.3%	88.6%	98.3%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	2.0	.6	1.3	40	5.1%	2.7%	11.4%	1.7%
All Hardware Companies	18.2	16.0	.0	2,088	45.7%	73.1%	.0%	89.6%
All Turnkey & SW Companies	21.7	5.9	11.1	243	54.3%	26.9%	100.0%	10.4%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 65
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: IC Layout
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Sun	2.7	2.4	.0	217	38.0%	54.4%	.0%	69.6%
Mentor Graphics	1.6	.3	.9	18	22.7%	5.9%	59.6%	5.7%
Digital	1.4	1.1	.0	18	19.8%	24.5%	.0%	5.6%
Hewlett-Packard	.4	.4	.0	39	6.0%	8.4%	.0%	12.6%
European Silicon Structures	.4	.1	.3	2	5.4%	1.6%	21.2%	.8%
Solbourne	.2	.2	.0	13	2.4%	3.9%	.0%	4.0%
VLSI Technology	.2	.0	.2	0	2.4%	.2%	9.9%	.0%
Silvar-Lisco	.1	.0	.1	0	1.2%	.0%	4.0%	.0%
Valid	.1	.0	.0	0	.8%	.2%	2.0%	.1%
Inca	.0	.0	.0	0	.4%	.0%	2.0%	.0%
Research Machines	.0	.0	.0	4	.4%	.7%	.0%	1.4%
Other Companies	.0	.0	.0	0	.6%	.2%	1.3%	.1%
All Companies	7.2	4.4	1.5	311	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	6.8	4.3	1.2	305	93.8%	97.7%	76.8%	97.8%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	.5	.1	.4	7	6.2%	2.3%	23.2%	2.2%
All Hardware Companies	4.8	4.0	.0	286	66.1%	91.2%	.0%	91.8%
All Turnkey & SW Companies	2.5	.4	1.5	25	33.9%	8.8%	100.0%	8.2%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 66
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Digital	3.9	2.8	.0	29	15.0%	22.0%	.0%	3.4%
Mentor Graphics	2.6	.3	1.5	29	10.1%	2.1%	20.5%	3.4%
Computervision	2.4	1.1	.6	20	9.3%	8.5%	7.9%	2.4%
Intergraph	2.4	1.0	.4	26	9.1%	8.1%	5.8%	3.1%
Hewlett-Packard	2.3	1.2	.3	106	8.8%	9.8%	3.5%	12.7%
Sun	2.1	1.8	.0	162	7.9%	14.4%	.0%	19.5%
LPKF	2.0	1.3	.5	80	7.5%	10.1%	6.9%	9.6%
Scientific Calc.	1.8	.4	.9	10	7.0%	3.3%	13.1%	1.2%
IBM	1.5	1.0	.3	86	5.9%	8.3%	3.7%	10.4%
Racal-Redac	1.0	.0	.8	5	3.8%	.0%	11.3%	.7%
Compaq	1.0	1.0	.0	161	3.7%	7.7%	.0%	19.4%
BETRONEX	.8	.0	.8	0	2.9%	.0%	10.6%	.0%
Dazix	.5	.1	.2	6	1.9%	.4%	2.7%	.7%
Apple Computer	.3	.3	.0	60	1.2%	2.2%	.0%	7.3%
Calay	.3	.1	.2	4	1.0%	.6%	2.1%	.5%
Autodesk	.2	.0	.2	0	.8%	.0%	3.1%	.0%
Data Technology/DATECH	.2	.1	.1	0	.8%	.4%	2.0%	.0%
Valid	.2	.0	.1	1	.6%	.3%	1.1%	.1%
Sycotronic AG	.1	.0	.1	0	.5%	.0%	1.3%	.0%
Ziegler	.1	.0	.1	0	.5%	.0%	1.7%	.0%
Schlumberger	.1	.0	.0	1	.4%	.2%	.6%	.1%
ABB Cade International	.1	.1	.0	0	.3%	.4%	.3%	.0%
Solbourne	.1	.1	.0	5	.2%	.6%	.0%	.6%
Research Machines	.1	.1	.0	8	.2%	.4%	.0%	.9%
ALS Design	.0	.0	.0	0	.1%	.0%	.4%	.0%
Olivetti	.0	.0	.0	2	.0%	.1%	.0%	.2%

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Market Share

TABLE NUMBER: 66 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	.2	.0	.1	31	.7%	.2%	1.4%	3.7%
All Companies	26.0	12.5	7.1	832	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	21.7	11.1	4.6	732	83.3%	88.4%	65.4%	88.0%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	4.4	1.5	2.5	100	16.7%	11.6%	34.6%	12.0%
All Hardware Companies	8.4	6.8	.0	566	32.3%	54.1%	.0%	68.0%
All Turnkey & SW Companies	17.6	5.8	7.1	266	67.7%	45.9%	100.0%	32.0%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 67
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	94.3	62.1	17.8	3,828	10.6%	12.4%	7.5%	11.7%
Computervision	92.5	42.6	22.0	764	10.4%	8.5%	9.3%	2.3%
Intergraph	77.9	41.3	15.4	819	8.8%	8.3%	6.5%	2.5%
Digital	63.8	47.5	.0	494	7.2%	9.5%	.0%	1.5%
Hewlett-Packard	57.3	42.3	4.7	3,196	6.5%	8.5%	2.0%	9.7%
Compaq	51.4	51.4	.0	8,564	5.8%	10.3%	.0%	26.1%
McDonnell Douglas	48.9	25.6	18.5	958	5.5%	5.1%	7.8%	2.9%
Sun	36.8	32.0	.0	2,770	4.1%	6.4%	.0%	8.4%
Mentor Graphics	24.5	3.6	13.5	266	2.8%	.7%	5.7%	.8%
Data Technology/DATECH	21.0	5.4	13.5	0	2.4%	1.1%	5.7%	.0%
ICL	18.8	11.1	6.4	516	2.1%	2.2%	2.7%	1.6%
Racal-Redac	14.5	.3	11.8	79	1.6%	.1%	5.0%	.2%
CAD Centre	14.1	2.1	5.4	16	1.6%	.4%	2.3%	.0%
PAFEC	13.7	.0	13.7	0	1.5%	.0%	5.8%	.0%
Engineering Computer Services	13.7	5.4	4.4	215	1.5%	1.1%	1.9%	.7%
Autodesk	12.8	.0	12.8	0	1.4%	.0%	5.4%	.0%
Research Machines	12.6	12.6	.0	1,980	1.4%	2.5%	.0%	6.0%
Westward	10.4	10.4	.0	617	1.2%	2.1%	.0%	1.9%
t2 Solutions	10.3	5.1	3.7	102	1.2%	1.0%	1.6%	.3%
Schlumberger	10.2	3.5	3.8	107	1.1%	.7%	1.6%	.3%
Dazix	9.5	1.7	3.8	116	1.1%	.3%	1.6%	.4%
Apple Computer	8.4	7.4	.0	1,613	.9%	1.5%	.0%	4.9%
Ferranti	7.5	2.8	3.5	61	.8%	.6%	1.5%	.2%
Valid	7.3	1.8	4.1	37	.8%	.4%	1.7%	.1%
Silicon Graphics	7.1	6.2	.0	229	.8%	1.2%	.0%	.7%
Radan Computational	6.6	4.1	1.8	280	.7%	.8%	.8%	.9%
SDRC	6.5	.0	6.5	0	.7%	.0%	2.7%	.0%
Sysscan	5.6	2.5	1.5	55	.6%	.5%	.6%	.2%
Ground Modelling Systems	5.1	3.4	2.6	31	.6%	.7%	1.1%	.1%
PDA Engineering	4.1	.0	4.1	0	.5%	.0%	1.7%	.0%
Cimlinc	3.5	.7	2.1	309	.4%	.1%	.9%	.9%
MacNeal-Schwendler	3.3	.0	3.2	0	.4%	.0%	1.3%	.0%
Siemens	3.3	1.9	1.0	73	.4%	.4%	.4%	.2%

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Market Share

TABLE NUMBER: 67
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
ISICAD	3.2	1.5	1.2	30	.4%	.3%	.5%	.1%
Vero International Software	3.1	.0	3.1	0	.3%	.0%	1.3%	.0%
Robocom	3.0	.0	3.0	0	.3%	.0%	1.3%	.0%
Whessoe Computing Systems	2.8	.0	2.8	0	.3%	.0%	1.2%	.0%
Pathtrace	2.6	.7	1.7	37	.3%	.1%	.7%	.1%
Alper Systems	2.6	1.3	.7	495	.3%	.3%	.3%	1.5%
Matra Datavision	2.5	1.2	1.0	27	.3%	.2%	.4%	.1%
European Silicon Structures	2.4	.5	1.9	14	.3%	.1%	.8%	.0%
Dassault	2.3	.0	1.9	0	.3%	.0%	.8%	.0%
FEA Limited	2.3	.6	.6	48	.3%	.1%	.2%	.1%
Norsk Data	2.3	1.1	.4	22	.3%	.2%	.2%	.1%
Gable CAD Systems	2.3	.9	1.1	31	.3%	.2%	.5%	.1%
Scientific Calc.	1.9	.4	1.0	9	.2%	.1%	.4%	.0%
Elstree Computing	1.6	.7	.9	50	.2%	.1%	.4%	.2%
Superdraft	1.6	.8	.8	91	.2%	.2%	.3%	.3%
Calay	1.6	.5	.9	26	.2%	.1%	.4%	.1%
CADKEY	1.5	1.0	.5	150	.2%	.2%	.2%	.5%
Unisys	1.5	.8	.5	21	.2%	.1%	.2%	.1%
Wiechers Datentechnik	1.4	1.1	.3	44	.2%	.2%	.1%	.1%
ESRI	1.4	.0	1.2	0	.2%	.0%	.5%	.0%
MCS	1.3	.0	1.2	0	.1%	.0%	.5%	.0%
VLSI Technology	1.2	.0	1.0	1	.1%	.0%	.4%	.0%
Kewill Systems	1.2	.3	.6	11	.1%	.1%	.3%	.0%
Solbourne	1.1	1.1	.0	83	.1%	.2%	.0%	.3%
FEGS	1.0	.0	.8	0	.1%	.0%	.3%	.0%
Exapt	.7	.4	.3	13	.1%	.1%	.1%	.0%
Number One Systems	.7	.1	.7	18	.1%	.0%	.3%	.1%
Gerber Systems	.7	.4	.2	5	.1%	.1%	.1%	.0%
Olivetti	.7	.6	.0	114	.1%	.1%	.0%	.3%
Computational Mechanics	.7	.0	.7	0	.1%	.0%	.3%	.0%
Control Data	.7	.5	.1	8	.1%	.1%	.0%	.0%

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Market Share

TABLE NUMBER: 67 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Investronica SA	.6	.5	.1	25	.1%	.1%	.0%	.1%
Zycad	.6	.5	.0	2	.1%	.1%	.0%	.0%
Datagraph	.6	.5	.1	3	.1%	.1%	.1%	.0%
BETRONEX	.5	.0	.5	0	.1%	.0%	.2%	.0%
Inca	.4	.0	.4	0	.0%	.0%	.2%	.0%
Serbi	.4	.0	.4	0	.0%	.0%	.1%	.0%
Silvar-Lisco	.4	.0	.2	0	.0%	.0%	.1%	.0%
Parametric Technology	.3	.0	.3	0	.0%	.0%	.1%	.0%
ISYKON Software	.3	.2	.1	4	.0%	.0%	.0%	.0%
ALS Design	.3	.0	.3	0	.0%	.0%	.1%	.0%
Marcus Computer Systeme	.2	.1	.1	7	.0%	.0%	.0%	.0%
ESDU International	.1	.0	.1	0	.0%	.0%	.1%	.0%
CAD Lab	.1	.0	.1	0	.0%	.0%	.0%	.0%
Academi Systems	.1	.0	.1	0	.0%	.0%	.0%	.0%
DAT Standard Information syste	.1	.0	.1	0	.0%	.0%	.0%	.0%
Sycotronic AG	.1	.0	.1	0	.0%	.0%	.0%	.0%
Cisigraph	.1	.0	.0	1	.0%	.0%	.0%	.0%
Kloeckner-Moeller	.1	.0	.0	1	.0%	.0%	.0%	.0%
CAD-UL	.1	.0	.1	0	.0%	.0%	.0%	.0%
Framasoft	.1	.0	.1	0	.0%	.0%	.0%	.0%
Star Informatic	.1	.1	.0	2	.0%	.0%	.0%	.0%
Aucotec	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	50.7	45.2	2.2	3,325	5.7%	9.0%	.9%	10.1%
All Companies	887.5	500.4	237.5	32,815	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	707.2	426.4	155.2	27,702	79.7%	85.2%	65.4%	84.4%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	180.3	73.9	82.2	5,112	20.3%	14.8%	34.6%	15.6%
All Hardware Companies	258.4	227.8	.0	21,981	29.1%	45.5%	.0%	67.0%
All Turnkey & SW Companies	629.1	272.6	237.5	10,834	70.9%	54.5%	100.0%	33.0%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 68
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Computervision	78.2	36.0	18.6	465	16.1%	15.5%	12.2%	4.7%
Intergraph	64.1	35.4	11.5	713	13.2%	15.3%	7.5%	7.2%
Hewlett-Packard	47.4	34.4	4.7	1,755	9.7%	14.8%	3.1%	17.8%
Sun	29.5	26.0	.0	2,441	6.1%	11.2%	.0%	24.8%
McDonnell Douglas	28.6	15.0	10.8	317	5.9%	6.5%	7.1%	3.2%
Mentor Graphics	24.5	3.6	13.5	266	5.0%	1.5%	8.8%	2.7%
ICL	18.8	11.1	6.4	516	3.9%	4.8%	4.2%	5.2%
Digital	16.1	11.8	.0	494	3.3%	5.1%	.0%	5.0%
CAD Centre	14.1	2.1	5.4	16	2.9%	.9%	3.5%	.2%
PAFEC	12.3	.0	12.3	0	2.5%	.0%	8.1%	.0%
Racal-Redac	11.6	.3	9.0	79	2.4%	.1%	5.9%	.8%
t2 Solutions	10.3	5.1	3.7	102	2.1%	2.2%	2.4%	1.0%
Dazix	9.5	1.7	3.8	116	2.0%	.7%	2.5%	1.2%
Schlumberger	9.1	3.1	3.4	88	1.9%	1.3%	2.2%	.9%
Engineering Computer Services	9.0	3.8	2.8	102	1.9%	1.7%	1.8%	1.0%
IBM	7.6	4.6	1.7	70	1.6%	2.0%	1.1%	.7%
Ferranti	7.5	2.8	3.5	61	1.5%	1.2%	2.3%	.6%
Valid	7.3	1.8	4.1	37	1.5%	.8%	2.7%	.4%
Westward	7.1	7.1	.0	419	1.5%	3.1%	.0%	4.3%
Silicon Graphics	7.0	6.1	.0	225	1.4%	2.6%	.0%	2.3%
Redan Computational	6.6	4.1	1.8	280	1.4%	1.8%	1.2%	2.8%
SDRC	5.6	.0	5.6	0	1.2%	.0%	3.7%	.0%
Cimlinc	3.5	.7	2.1	309	.7%	.3%	1.4%	3.1%
Siemens	3.0	1.7	.9	69	.6%	.7%	.6%	.7%
ISICAD	2.9	1.5	.9	30	.6%	.7%	.6%	.3%
PDA Engineering	2.7	.0	2.7	0	.6%	.0%	1.8%	.0%
Alper Systems	2.6	1.3	.7	495	.5%	.6%	.4%	5.0%
Matra Datavision	2.5	1.2	1.0	27	.5%	.5%	.7%	.3%
Gable CAD Systems	2.3	.9	1.1	31	.5%	.4%	.7%	.3%
European Silicon Structures	2.0	.5	1.5	13	.4%	.2%	1.0%	.1%
Sysscan	1.9	.8	.5	14	.4%	.4%	.3%	.1%
Data Technology/DATECH	1.9	.0	1.7	0	.4%	.0%	1.1%	.0%
Calay	1.6	.5	.9	26	.3%	.2%	.6%	.3%

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Market Share

TABLE NUMBER: 68
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					--------- Market Share ---------			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Scientific Calc.	1.6	.3	.8	7	.3%	.1%	.5%	.1%
VLSI Technology	1.2	.0	1.0	1	.2%	.0%	.7%	.0%
Unisys	1.1	.6	.4	16	.2%	.3%	.3%	.2%
Norsk Data	1.1	.6	.2	13	.2%	.3%	.1%	.1%
Kewill Systems	1.0	.3	.6	10	.2%	.1%	.4%	.1%
Autodesk	1.0	.0	1.0	0	.2%	.0%	.7%	.0%
Dassault	1.0	.0	.8	0	.2%	.0%	.6%	.0%
FEA Limited	.9	.2	.2	19	.2%	.1%	.2%	.2%
MacNeal-Schwendler	.8	.0	.8	0	.2%	.0%	.5%	.0%
ESRI	.8	.0	.7	0	.2%	.0%	.5%	.0%
Gerber Systems	.7	.4	.2	5	.1%	.2%	.2%	.0%
MCS	.6	.0	.5	0	.1%	.0%	.4%	.0%
FEGS	.5	.0	.4	0	.1%	.0%	.3%	.0%
Zycad	.5	.4	.0	0	.1%	.2%	.0%	.0%
Wiechers Datentechnik	.4	.3	.1	7	.1%	.1%	.1%	.1%
Silvar-Lisco	.3	.0	.2	0	.1%	.0%	.1%	.0%
Parametric Technology	.3	.0	.3	0	.1%	.0%	.2%	.0%
ISYKON Software	.3	.2	.1	4	.1%	.1%	.1%	.0%
Whessoe Computing Systems	.3	.0	.3	0	.1%	.0%	.2%	.0%
Control Data	.3	.2	.0	5	.1%	.1%	.0%	.1%
Computational Mechanics	.2	.0	.2	0	.0%	.0%	.2%	.0%
Solbourne	.2	.2	.0	16	.0%	.1%	.0%	.2%
Exapt	.2	.1	.1	6	.0%	.0%	.0%	.1%
Marcus Computer Systeme	.2	.1	.1	6	.0%	.0%	.0%	.1%
Inca	.1	.0	.1	0	.0%	.0%	.1%	.0%
CAD Lab	.1	.0	.1	0	.0%	.0%	.1%	.0%
CADKEY	.1	.0	.0	3	.0%	.0%	.0%	.0%
Cisigraph	.1	.0	.0	0	.0%	.0%	.0%	.0%
Star Informatic	.1	.1	.0	2	.0%	.0%	.0%	.0%
Framasoft	.1	.0	.0	0	.0%	.0%	.0%	.0%
Academi Systems	.0	.0	.0	0	.0%	.0%	.0%	.0%

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Market Share

TABLE NUMBER: 68 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Serbi	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	11.7	2.9	6.9	147	2.4%	1.2%	4.5%	1.5%
All Companies	486.5	231.8	152.7	9,848	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	366.8	186.6	97.9	7,528	75.4%	80.5%	64.1%	76.4%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	119.7	45.2	54.8	2,320	24.6%	19.5%	35.9%	23.6%
All Hardware Companies	70.8	59.2	.0	4,215	14.6%	25.5%	.0%	42.8%
All Turnkey & SW Companies	415.7	172.6	152.7	5,633	85.4%	74.5%	100.0%	57.2%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 69
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	73.4	44.8	16.1	772	30.6%	28.4%	39.2%	18.8%
Digital	47.7	35.8	.0	0	19.9%	22.7%	.0%	.0%
McDonnell Douglas	20.3	10.6	7.7	641	8.5%	6.8%	18.6%	15.6%
Computervision	13.4	6.2	3.2	275	5.6%	3.9%	7.8%	6.7%
Intergraph	11.8	5.9	1.9	106	4.9%	3.7%	4.6%	2.6%
Sun	7.2	6.0	.0	329	3.0%	3.8%	.0%	8.0%
Sysscan	3.7	1.6	1.0	41	1.5%	1.0%	2.3%	1.0%
MacNeal-Schwendler	2.5	.0	2.4	0	1.0%	.0%	5.8%	.0%
PDA Engineering	1.3	.0	1.3	0	.6%	.0%	3.3%	.0%
Dassault	1.3	.0	1.1	0	.6%	.0%	2.6%	.0%
Norsk Data	1.2	.5	.2	9	.5%	.3%	.4%	.2%
Schlumberger	1.0	.4	.4	18	.4%	.2%	.8%	.4%
Hewlett-Packard	.9	.8	.0	47	.4%	.5%	.0%	1.1%
Solbourne	.9	.9	.0	67	.4%	.6%	.0%	1.6%
SDRC	.8	.0	.8	0	.4%	.0%	2.0%	.0%
Whessoe Computing Systems	.6	.0	.6	0	.2%	.0%	1.4%	.0%
Exapt	.5	.3	.2	6	.2%	.2%	.4%	.2%
ESRI	.5	.0	.4	0	.2%	.0%	1.0%	.0%
Computational Mechanics	.5	.0	.5	0	.2%	.0%	1.1%	.0%
FEGS	.5	.0	.4	0	.2%	.0%	1.0%	.0%
MCS	.5	.0	.4	0	.2%	.0%	.9%	.0%
Control Data	.4	.3	.0	3	.2%	.2%	.1%	.1%
Scientific Calc.	.3	.1	.2	2	.1%	.1%	.6%	.0%
Unisys	.3	.2	.1	4	.1%	.1%	.3%	.1%
Siemens	.3	.2	.1	4	.1%	.1%	.2%	.1%
FEA Limited	.2	.1	.1	5	.1%	.0%	.1%	.1%
Silicon Graphics	.1	.1	.0	4	.1%	.1%	.0%	.1%
Zycad	.1	.1	.0	2	.1%	.1%	.0%	.0%
CADKEY	.1	.1	.0	2	.0%	.0%	.1%	.0%
Olivetti	.0	.0	.0	1	.0%	.0%	.0%	.0%
Silvar-Lisco	.0	.0	.0	0	.0%	.0%	.0%	.0%
Cisigraph	.0	.0	.0	0	.0%	.0%	.0%	.0%

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Market Share

TABLE NUMBER: 69 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Framasoft	.0	.0	.0	0	.0%	.0%	.0%	.0%
VLSI Technology	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	47.3	42.5	2.1	1,769	19.7%	27.0%	5.2%	43.1%
All Companies	239.9	157.4	41.2	4,105	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	231.0	154.7	37.2	4,040	96.3%	98.3%	90.3%	98.4%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	8.9	2.7	4.0	65	3.7%	1.7%	9.7%	1.6%
All Hardware Companies	101.6	86.1	.0	2,213	42.4%	54.7%	.0%	53.9%
All Turnkey & SW Companies	138.3	71.3	41.2	1,892	57.6%	45.3%	100.0%	46.1%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 70
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Compaq	51.4	51.4	.0	8,564	31.9%	46.3%	.0%	45.4%
Data Technology/DATECH	19.1	5.4	11.9	0	11.9%	4.8%	27.2%	.0%
IBM	13.4	12.7	.0	2,986	8.3%	11.4%	.0%	15.8%
Research Machines	12.6	12.6	.0	1,980	7.8%	11.4%	.0%	10.5%
Autodesk	11.8	.0	11.8	0	7.3%	.0%	27.1%	.0%
Hewlett-Packard	9.0	7.2	.0	1,394	5.6%	6.5%	.0%	7.4%
Apple Computer	8.4	7.4	.0	1,613	5.2%	6.7%	.0%	8.6%
Ground Modelling Systems	5.1	3.4	2.6	31	3.2%	3.1%	5.9%	.2%
Engineering Computer Services	4.7	1.5	1.7	112	2.9%	1.4%	3.8%	.6%
Westward	3.4	3.4	.0	198	2.1%	3.0%	.0%	1.1%
Vero International Software	3.1	.0	3.1	0	1.9%	.0%	7.0%	.0%
Robocom	3.0	.0	3.0	0	1.8%	.0%	6.8%	.0%
Racal-Redac	2.9	.0	2.8	0	1.8%	.0%	6.3%	.0%
Pathtrace	2.6	.7	1.7	37	1.6%	.6%	4.0%	.2%
Intergraph	2.1	.0	2.0	0	1.3%	.0%	4.5%	.0%
Whessoe Computing Systems	2.0	.0	2.0	0	1.2%	.0%	4.5%	.0%
Elstree Computing	1.6	.7	.9	50	1.0%	.7%	2.1%	.3%
Superdraft	1.6	.8	.8	91	1.0%	.7%	1.9%	.5%
PAFEC	1.4	.0	1.4	0	.9%	.0%	3.3%	.0%
CADKEY	1.4	.9	.4	145	.8%	.8%	1.0%	.8%
FEA Limited	1.2	.3	.3	24	.7%	.3%	.7%	.1%
Wiechers Datentechnik	1.0	.8	.2	37	.6%	.7%	.5%	.2%
Computervision	.9	.4	.2	24	.6%	.4%	.5%	.1%
Number One Systems	.7	.1	.7	18	.5%	.0%	1.5%	.1%
Olivetti	.7	.6	.0	113	.4%	.5%	.0%	.6%
Investronica SA	.6	.5	.1	25	.4%	.5%	.1%	.1%
Datagraph	.6	.5	.1	3	.4%	.4%	.3%	.0%
BETRONEX	.5	.0	.5	0	.3%	.0%	1.1%	.0%
European Silicon Structures	.4	.0	.4	1	.2%	.0%	.8%	.0%
Serbi	.3	.0	.3	0	.2%	.0%	.8%	.0%
ISICAD	.3	.0	.3	0	.2%	.0%	.7%	.0%
Inca	.3	.0	.3	0	.2%	.0%	.6%	.0%

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Market Share

TABLE NUMBER: 70 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
MCS	.3	.0	.2	0	.2%	.0%	.6%	.0%
ALS Design	.3	.0	.3	0	.2%	.0%	.6%	.0%
ESDU International	.1	.0	.1	0	.1%	.0%	.3%	.0%
ESRI	.1	.0	.1	0	.1%	.0%	.3%	.0%
Kewill Systems	.1	.0	.1	1	.1%	.0%	.1%	.0%
Schlumberger	.1	.0	.0	1	.1%	.0%	.1%	.0%
DAT Standard Information syste	.1	.0	.1	0	.1%	.0%	.2%	.0%
Sycotronic AG	.1	.0	.1	0	.1%	.0%	.2%	.0%
Kloeckner-Moeller	.1	.0	.0	1	.0%	.0%	.0%	.0%
CAD-UL	.1	.0	.1	0	.0%	.0%	.1%	.0%
Academi Systems	.1	.0	.0	0	.0%	.0%	.1%	.0%
Marcus Computer Systeme	.1	.0	.0	2	.0%	.0%	.0%	.0%
Norsk Data	.0	.0	.0	0	.0%	.0%	.0%	.0%
Aucotec	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	.0	.0	.0	1,408	.0%	.0%	.0%	7.5%
All Companies	161.2	111.1	43.6	18,862	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	109.4	85.1	20.1	16,135	67.9%	76.6%	46.2%	85.5%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	51.7	26.0	23.5	2,727	32.1%	23.4%	53.8%	14.5%
All Hardware Companies	86.0	82.5	.0	15,552	53.3%	74.2%	.0%	82.5%
All Turnkey & SW Companies	75.2	28.6	43.6	3,310	46.7%	25.8%	100.0%	17.5%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 71
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					--- Market Share ---			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Computervision	81.4	37.6	19.4	673	16.8%	13.5%	15.4%	4.4%
IBM	78.0	49.4	16.0	1,921	16.1%	17.7%	12.8%	12.5%
Hewlett-Packard	34.6	25.7	3.1	1,817	7.1%	9.2%	2.5%	11.8%
Digital	34.4	25.8	.0	263	7.1%	9.3%	.0%	1.7%
McDonnell Douglas	22.9	12.0	8.7	329	4.7%	4.3%	6.9%	2.1%
Intergraph	19.5	10.4	3.9	204	4.0%	3.7%	3.1%	1.3%
Compaq	18.4	18.4	.0	3,066	3.8%	6.6%	.0%	20.0%
Sun	14.3	12.4	.0	1,025	3.0%	4.5%	.0%	6.7%
Engineering Computer Services	13.7	5.4	4.4	215	2.8%	1.9%	3.5%	1.4%
Data Technology/DATECH	10.5	2.7	6.8	0	2.2%	1.0%	5.4%	.0%
Schlumberger	9.8	3.4	3.7	103	2.0%	1.2%	2.9%	.7%
PAFEC	9.5	.0	9.5	0	2.0%	.0%	7.6%	.0%
Westward	9.0	9.0	.0	531	1.8%	3.2%	.0%	3.5%
Ferranti	7.5	2.8	3.5	61	1.5%	1.0%	2.7%	.4%
Silicon Graphics	7.1	6.2	.0	229	1.5%	2.2%	.0%	1.5%
ICL	6.9	4.1	2.3	189	1.4%	1.5%	1.9%	1.2%
SDRC	6.5	.0	6.5	0	1.3%	.0%	5.2%	.0%
Research Machines	6.1	6.1	.0	950	1.2%	2.2%	.0%	6.2%
Radan Computational	5.8	3.6	1.6	246	1.2%	1.3%	1.3%	1.6%
Autodesk	4.9	.0	4.9	0	1.0%	.0%	3.9%	.0%
CAD Centre	4.4	.7	1.7	5	.9%	.2%	1.3%	.0%
PDA Engineering	4.1	.0	4.1	0	.8%	.0%	3.2%	.0%
Cimlinc	3.5	.7	2.1	309	.7%	.3%	1.7%	2.0%
Apple Computer	3.4	3.0	.0	661	.7%	1.1%	.0%	4.3%
MacNeal-Schwendler	3.3	.0	3.2	0	.7%	.0%	2.5%	.0%
ISICAD	3.2	1.5	1.2	30	.7%	.5%	.9%	.2%
Vero International Software	3.1	.0	3.1	0	.6%	.0%	2.4%	.0%
Whessoe Computing Systems	2.8	.0	2.8	0	.6%	.0%	2.2%	.0%
Pathtrace	2.6	.7	1.7	37	.5%	.3%	1.4%	.2%
Matra Datavision	2.5	1.2	1.0	27	.5%	.4%	.8%	.2%
FEA Limited	2.3	.6	.6	48	.5%	.2%	.5%	.3%
Norsk Data	2.3	1.1	.4	22	.5%	.4%	.3%	.1%
Dassault	1.9	.0	1.6	0	.4%	.0%	1.2%	.0%

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Market Share

TABLE NUMBER: 71
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					--- Market Share ---			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Siemens	1.7	1.0	.5	38	.3%	.3%	.4%	.3%
Superdraft	1.6	.8	.8	91	.3%	.3%	.7%	.6%
CADKEY	1.5	1.0	.5	150	.3%	.4%	.4%	1.0%
Unisys	1.5	.8	.5	21	.3%	.3%	.4%	.1%
Wiechers Datentechnik	1.4	1.1	.3	44	.3%	.4%	.2%	.3%
Robocom	1.4	.0	1.4	0	.3%	.0%	1.1%	.0%
MCS	1.3	.0	1.2	0	.3%	.0%	.9%	.0%
FEGS	1.0	.0	.8	0	.2%	.0%	.7%	.0%
Exapt	.7	.4	.3	13	.2%	.1%	.2%	.1%
Gerber Systems	.7	.4	.2	5	.1%	.1%	.2%	.0%
Computational Mechanics	.7	.0	.7	0	.1%	.0%	.6%	.0%
Control Data	.6	.5	.1	7	.1%	.2%	.0%	.0%
Investronica SA	.6	.5	.1	25	.1%	.2%	.0%	.2%
Datagraph	.6	.5	.1	3	.1%	.2%	.1%	.0%
Kewill Systems	.6	.2	.3	6	.1%	.1%	.2%	.0%
Olivetti	.3	.3	.0	52	.1%	.1%	.0%	.3%
Parametric Technology	.3	.0	.3	0	.1%	.0%	.2%	.0%
ISYKON Software	.3	.2	.1	4	.1%	.1%	.1%	.0%
Marcus Computer Systeme	.2	.1	.1	7	.0%	.0%	.1%	.0%
ESDU International	.1	.0	.1	0	.0%	.0%	.1%	.0%
Serbi	.1	.0	.1	0	.0%	.0%	.1%	.0%
CAD Lab	.1	.0	.1	0	.0%	.0%	.1%	.0%
DAT Standard Information syste	.1	.0	.1	0	.0%	.0%	.1%	.0%
Cisigraph	.1	.0	.0	1	.0%	.0%	.0%	.0%
Kloeckner-Moeller	.1	.0	.0	1	.0%	.0%	.0%	.0%
Framasoft	.1	.0	.1	0	.0%	.0%	.0%	.0%
Number One Systems	.0	.0	.0	1	.0%	.0%	.0%	.0%
Solbourne	.0	.0	.0	2	.0%	.0%	.0%	.0%

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Market Share

TABLE NUMBER: 71 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	27.2	26.5	.0	1,924	5.6%	9.5%	.0%	12.5%
All Companies	485.1	278.6	125.5	15,357	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	392.8	238.4	85.4	12,739	81.0%	85.6%	68.1%	83.0%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	92.3	40.2	40.1	2,618	19.0%	14.4%	31.9%	17.0%
All Hardware Companies	127.2	111.1	.0	9,311	26.2%	39.9%	.0%	60.6%
All Turnkey & SW Companies	358.0	167.4	125.5	6,046	73.8%	60.1%	100.0%	39.4%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 72
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: AEC
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					--- Market Share ---			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intergraph	19.5	10.4	3.9	205	15.9%	14.5%	12.5%	3.5%
McDonnell Douglas	13.3	7.0	5.0	230	10.9%	9.7%	16.1%	3.9%
Compaq	11.4	11.4	.0	1,893	9.3%	15.8%	.0%	32.5%
t2 Solutions	10.3	5.1	3.7	102	8.4%	7.1%	11.8%	1.7%
CAD Centre	9.8	1.5	3.7	11	8.0%	2.0%	11.8%	.2%
Data Technology/DATECH	7.8	2.0	5.0	0	6.3%	2.7%	16.0%	.0%
IBM	7.1	5.3	.9	700	5.8%	7.4%	2.9%	12.0%
Digital	7.0	5.3	.0	49	5.7%	7.3%	.0%	.8%
Hewlett-Packard	6.9	5.2	.5	418	5.6%	7.2%	1.5%	7.2%
Autodesk	5.7	.0	5.7	0	4.6%	.0%	18.0%	.0%
Computervision	3.7	1.7	.9	31	3.0%	2.4%	2.8%	.5%
Research Machines	3.4	3.4	.0	535	2.8%	4.7%	.0%	9.2%
Apple Computer	3.4	3.0	.0	645	2.7%	4.1%	.0%	11.1%
Gable CAD Systems	2.3	.9	1.1	31	1.9%	1.3%	3.4%	.5%
Elstree Computing	1.6	.7	.9	50	1.3%	1.0%	2.9%	.9%
Sun	1.5	1.3	.0	117	1.2%	1.8%	.0%	2.0%
Robocom	1.3	.0	1.3	0	1.1%	.0%	4.3%	.0%
Ground Modelling Systems	1.0	.7	.5	6	.8%	.9%	1.6%	.1%
Westward	.8	.8	.0	49	.7%	1.2%	.0%	.8%
PAFEC	.8	.0	.8	0	.7%	.0%	2.6%	.0%
Radan Computational	.8	.5	.2	34	.6%	.7%	.7%	.6%
Kewill Systems	.6	.2	.3	6	.5%	.2%	1.0%	.1%
Dassault	.3	.0	.3	0	.3%	.0%	.8%	.0%
Siemens	.2	.1	.1	5	.2%	.2%	.2%	.1%
Olivetti	.2	.2	.0	36	.2%	.2%	.0%	.6%
Schlumberger	.1	.0	.0	1	.1%	.0%	.1%	.0%
Serbi	.1	.0	.1	0	.1%	.0%	.3%	.0%
Star Informatic	.1	.1	.0	2	.0%	.1%	.0%	.0%
Control Data	.0	.0	.0	0	.0%	.0%	.0%	.0%
Sycotronic AG	.0	.0	.0	0	.0%	.0%	.1%	.0%
Solbourne	.0	.0	.0	1	.0%	.0%	.0%	.0%

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Market Share

TABLE NUMBER: 72 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: AEC
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	1.6	5.3	.0	666	1.3%	7.3%	.0%	11.4%
All Companies	122.5	72.0	31.3	5,821	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	88.6	57.8	18.3	4,955	72.4%	80.3%	58.4%	85.1%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	33.8	14.2	13.0	866	27.6%	19.7%	41.6%	14.9%
All Hardware Companies	37.0	33.6	.0	4,293	30.2%	46.6%	.0%	73.7%
All Turnkey & SW Companies	85.5	38.4	31.3	1,529	69.8%	53.4%	100.0%	26.3%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 73
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: GIS/Mapping
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intergraph	31.2	16.7	6.2	327	29.3%	27.0%	21.7%	7.8%
McDonnell Douglas	12.7	6.6	4.8	399	11.9%	10.7%	16.6%	9.5%
ICL	11.2	6.6	3.8	308	10.5%	10.7%	13.3%	7.4%
Compaq	7.4	7.4	.0	1,237	7.0%	12.0%	.0%	29.6%
Digital	6.4	4.8	.0	45	6.0%	7.7%	.0%	1.1%
Sysscan	5.6	2.5	1.5	55	5.2%	4.0%	5.0%	1.3%
Ground Modelling Systems	4.1	2.7	2.1	25	3.9%	4.4%	7.1%	.6%
IBM	4.1	3.2	.4	518	3.8%	5.2%	1.4%	12.4%
PAFEC	3.4	.0	3.4	0	3.2%	.0%	11.9%	.0%
Alper Systems	2.6	1.3	.7	495	2.4%	2.1%	2.3%	11.8%
Data Technology/DATECH	1.9	.5	1.2	0	1.8%	.8%	4.2%	.0%
Sun	1.5	1.3	.0	108	1.4%	2.1%	.0%	2.6%
ESRI	1.4	.0	1.2	0	1.3%	.0%	4.3%	.0%
Siemens	1.4	.8	.4	30	1.3%	1.3%	1.4%	.7%
Autodesk	1.3	.0	1.3	0	1.2%	.0%	4.5%	.0%
Apple Computer	.9	.8	.0	177	.9%	1.3%	.0%	4.2%
Computervision	.9	.4	.2	8	.9%	.7%	.8%	.2%
Research Machines	.9	.9	.0	139	.8%	1.4%	.0%	3.3%
Robocom	.2	.0	.2	0	.2%	.0%	.8%	.0%
Solbourne	.2	.2	.0	12	.2%	.3%	.0%	.3%
Olivetti	.1	.1	.0	21	.1%	.2%	.0%	.5%
Hewlett-Packard	.1	.1	.0	8	.1%	.1%	.0%	.2%
Control Data	.0	.0	.0	0	.0%	.0%	.0%	.0%

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Market Share

TABLE NUMBER: 73 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: GIS/Mapping
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					--- Market Share ---			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	7.1	4.9	1.3	270	6.7%	8.0%	4.6%	6.5%
All Companies	106.6	61.8	28.7	4,184	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	76.9	46.9	16.7	3,111	72.1%	75.9%	58.0%	74.4%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	29.7	14.9	12.1	1,073	27.9%	24.1%	42.0%	25.6%
All Hardware Companies	23.1	20.9	.0	2,321	21.7%	33.8%	.0%	55.5%
All Turnkey & SW Companies	83.5	41.0	28.7	1,863	78.3%	66.2%	100.0%	44.5%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 74
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Mentor Graphics	24.5	3.6	13.5	266	14.2%	4.1%	26.0%	3.6%
Sun	19.5	17.0	.0	1,520	11.2%	19.3%	.0%	20.4%
Digital	16.0	11.7	.0	138	9.2%	13.3%	.0%	1.8%
Hewlett-Packard	15.8	11.3	1.1	952	9.1%	12.8%	2.2%	12.8%
Racal-Redac	14.5	.3	11.8	79	8.4%	.3%	22.6%	1.1%
Compaq	14.2	14.2	.0	2,368	8.2%	16.2%	.0%	31.8%
Dazix	9.5	1.7	3.8	116	5.5%	1.9%	7.3%	1.6%
Intergraph	7.8	3.8	1.4	83	4.5%	4.3%	2.6%	1.1%
Valid	7.3	1.8	4.1	37	4.2%	2.1%	7.9%	.5%
Computervision	6.5	2.9	1.5	54	3.7%	3.3%	2.9%	.7%
IBM	5.2	4.2	.5	689	3.0%	4.8%	.9%	9.2%
European Silicon Structures	2.4	.5	1.9	14	1.4%	.6%	3.6%	.2%
Research Machines	2.3	2.3	.0	356	1.3%	2.6%	.0%	4.8%
Scientific Calc.	1.9	.4	1.0	9	1.1%	.5%	1.9%	.1%
Calay	1.6	.5	.9	26	.9%	.6%	1.8%	.3%
VLSI Technology	1.2	.0	1.0	1	.7%	.0%	1.9%	.0%
Autodesk	1.0	.0	1.0	0	.6%	.0%	2.0%	.0%
Solbourne	.9	.9	.0	67	.5%	1.0%	.0%	.9%
Data Technology/DATECH	.8	.2	.5	0	.5%	.3%	1.0%	.0%
ICL	.7	.4	.2	19	.4%	.5%	.4%	.3%
Number One Systems	.7	.1	.6	17	.4%	.1%	1.2%	.2%
Apple Computer	.7	.6	.0	129	.4%	.7%	.0%	1.7%
Westward	.6	.6	.0	37	.4%	.7%	.0%	.5%
Zycad	.6	.5	.0	2	.4%	.6%	.0%	.0%
BETRONEX	.5	.0	.5	0	.3%	.0%	.9%	.0%
Inca	.4	.0	.4	0	.2%	.0%	.8%	.0%
Silvar-Lisco	.4	.0	.2	0	.2%	.0%	.4%	.0%
Schlumberger	.3	.1	.1	3	.2%	.1%	.2%	.0%
ALS Design	.3	.0	.3	0	.1%	.0%	.5%	.0%
Dassault	.1	.0	.1	0	.1%	.0%	.2%	.0%
Serbi	.1	.0	.1	0	.1%	.0%	.2%	.0%
Academi Systems	.1	.0	.1	0	.1%	.0%	.1%	.0%

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Market Share

TABLE NUMBER: 74 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Sycotronic AG	.1	.0	.1	0	.0%	.0%	.1%	.0%
CAD-UL	.1	.0	.1	0	.0%	.0%	.1%	.0%
Olivetti	.0	.0	.0	5	.0%	.0%	.0%	.1%
Robocom	.0	.0	.0	0	.0%	.0%	.1%	.0%
Aucotec	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	14.8	8.5	5.1	464	8.5%	9.6%	9.9%	6.2%
All Companies	173.3	88.0	51.9	7,453	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	148.9	83.3	34.9	6,898	85.9%	94.7%	67.3%	92.6%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	24.4	4.7	17.0	555	14.1%	5.3%	32.7%	7.4%
All Hardware Companies	71.1	62.2	.0	6,056	41.0%	70.7%	.0%	81.3%
All Turnkey & SW Companies	102.2	25.8	51.9	1,397	59.0%	29.3%	100.0%	18.7%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 75
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Mentor Graphics	15.0	2.4	8.2	162	16.2%	4.9%	30.3%	3.6%
Hewlett-Packard	11.1	8.6	.7	703	12.0%	17.6%	2.6%	15.5%
Compaq	10.0	10.0	.0	1,670	10.9%	20.6%	.0%	36.7%
Sun	9.2	8.0	.0	708	10.0%	16.5%	.0%	15.6%
Dazix	7.1	1.4	2.8	87	7.7%	2.9%	10.4%	1.9%
Digital	6.4	4.8	.0	55	6.9%	9.8%	.0%	1.2%
Racal-Redac	5.5	.3	4.5	30	6.0%	.6%	16.5%	.7%
Valid	4.3	1.1	2.4	21	4.6%	2.2%	8.8%	.5%
Intergraph	3.9	2.1	.7	40	4.2%	4.3%	2.5%	.9%
IBM	2.5	2.4	.0	567	2.8%	5.0%	.0%	12.5%
Computervision	1.9	.9	.4	15	2.0%	1.8%	1.6%	.3%
Autodesk	.9	.0	.9	0	1.0%	.0%	3.3%	.0%
Research Machines	.9	.9	.0	139	1.0%	1.8%	.0%	3.0%
VLSI Technology	.7	.0	.6	1	.8%	.0%	2.2%	.0%
Westward	.6	.6	.0	37	.7%	1.3%	.0%	.8%
Zycad	.6	.5	.0	2	.7%	1.0%	.0%	.0%
Data Technology/DATECH	.4	.1	.3	0	.5%	.2%	1.0%	.0%
Apple Computer	.3	.3	.0	65	.4%	.6%	.0%	1.4%
Calay	.3	.1	.2	5	.3%	.2%	.7%	.1%
Solbourne	.2	.2	.0	17	.2%	.5%	.0%	.4%
ALS Design	.2	.0	.2	0	.2%	.0%	.7%	.0%
Dassault	.1	.0	.1	0	.1%	.0%	.4%	.0%
Serbi	.1	.0	.1	0	.1%	.0%	.4%	.0%
Number One Systems	.1	.0	.1	3	.1%	.0%	.4%	.1%
Scientific Calc.	.1	.0	.1	1	.1%	.0%	.2%	.0%
Silvar-Lisco	.0	.0	.0	0	.0%	.0%	.1%	.0%
Aucotec	.0	.0	.0	0	.0%	.0%	.0%	.0%

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Market Share

TABLE NUMBER: 75 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	9.7	3.9	4.9	218	10.6%	8.0%	18.0%	4.8%
All Companies	92.3	48.6	27.2	4,546	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	84.4	46.7	22.0	4,332	91.4%	96.1%	80.9%	95.3%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	7.9	1.9	5.2	214	8.6%	3.9%	19.1%	4.7%
All Hardware Companies	38.8	34.6	.0	3,863	42.1%	71.2%	.0%	85.0%
All Turnkey & SW Companies	53.5	14.0	27.2	683	57.9%	28.8%	100.0%	15.0%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 76
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: IC Layout
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					--- Market Share ---			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Sun	5.9	5.2	.0	464	31.0%	49.0%	.0%	61.3%
Mentor Graphics	3.7	.6	2.0	40	19.4%	5.6%	36.9%	5.3%
Digital	2.6	1.9	.0	32	13.5%	18.3%	.0%	4.2%
European Silicon Structures	2.4	.5	1.9	14	12.5%	4.7%	34.4%	1.9%
Valid	.9	.2	.5	4	4.6%	2.1%	9.0%	.6%
Hewlett-Packard	.7	.6	.0	67	3.9%	5.9%	.0%	8.9%
Research Machines	.5	.5	.0	79	2.7%	4.9%	.0%	10.5%
Solbourne	.5	.5	.0	36	2.6%	4.8%	.0%	4.8%
VLSI Technology	.5	.0	.4	0	2.5%	.1%	7.3%	.0%
Inca	.4	.0	.4	0	2.1%	.0%	7.3%	.0%
Silvar-Lisco	.3	.0	.2	0	1.7%	.0%	3.5%	.0%
Other Companies	.6	.5	.1	20	3.4%	4.8%	1.6%	2.6%
All Companies	19.0	10.5	5.5	757	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	15.7	9.5	3.2	664	82.7%	90.5%	58.3%	87.6%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	3.3	1.0	2.3	94	17.3%	9.5%	41.7%	12.4%
All Hardware Companies	10.2	8.6	.0	618	53.5%	82.1%	.0%	81.6%
All Turnkey & SW Companies	8.8	1.9	5.5	140	46.5%	17.9%	100.0%	18.4%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 77
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Racal-Redac	9.0	.0	7.3	49	14.5%	.0%	37.8%	2.3%
Digital	7.0	5.0	.0	51	11.3%	17.3%	.0%	2.4%
Mentor Graphics	5.9	.6	3.2	64	9.5%	2.0%	16.8%	3.0%
Computervision	4.6	2.0	1.1	38	7.5%	7.0%	5.7%	1.8%
Sun	4.4	3.9	.0	348	7.1%	13.4%	.0%	16.2%
Compaq	4.2	4.2	.0	698	6.8%	14.5%	.0%	32.5%
Hewlett-Packard	3.9	2.1	.4	181	6.3%	7.3%	2.2%	8.4%
Intergraph	3.9	1.7	.7	42	6.3%	5.7%	3.6%	2.0%
IBM	2.7	1.8	.5	122	4.3%	6.1%	2.5%	5.7%
Dazix	2.4	.2	1.0	30	3.9%	.8%	5.0%	1.4%
Valid	2.2	.6	1.2	11	3.5%	1.9%	6.4%	.5%
Scientific Calc.	1.8	.4	.9	9	2.9%	1.4%	4.8%	.4%
Calay	1.3	.4	.7	21	2.0%	1.4%	3.8%	1.0%
Research Machines	.9	.9	.0	139	1.4%	3.0%	.0%	6.4%
ICL	.7	.4	.2	19	1.1%	1.4%	1.2%	.9%
Number One Systems	.6	.0	.5	14	.9%	.1%	2.7%	.7%
BETRONEX	.5	.0	.5	0	.8%	.0%	2.5%	.0%
Data Technology/DATECH	.4	.1	.3	0	.7%	.4%	1.4%	.0%
Apple Computer	.3	.3	.0	65	.5%	1.0%	.0%	3.0%
Schlumberger	.3	.1	.1	3	.5%	.2%	.6%	.1%
Solbourne	.2	.2	.0	14	.3%	.7%	.0%	.7%
Autodesk	.1	.0	.1	0	.2%	.0%	.7%	.0%
Academi Systems	.1	.0	.1	0	.1%	.0%	.4%	.0%
Sycotronic AG	.1	.0	.1	0	.1%	.0%	.3%	.0%
ALS Design	.1	.0	.1	0	.1%	.0%	.3%	.0%
CAD-UL	.1	.0	.1	0	.1%	.0%	.3%	.0%
Olivetti	.0	.0	.0	5	.0%	.1%	.0%	.2%
Robocom	.0	.0	.0	0	.0%	.0%	.2%	.0%

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Market Share

TABLE NUMBER: 77 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	4.4	4.0	.2	226	7.0%	14.0%	.9%	10.5%
All Companies	62.1	28.9	19.3	2,149	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	48.8	27.1	9.8	1,902	78.7%	93.9%	50.5%	88.5%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	13.2	1.8	9.6	247	21.3%	6.1%	49.5%	11.5%
All Hardware Companies	22.1	19.0	.0	1,575	35.7%	65.8%	.0%	73.3%
All Turnkey & SW Companies	39.9	9.9	19.3	574	64.3%	34.2%	100.0%	26.7%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 78
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Spain
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Hewlett-Packard	42.6	31.6	3.5	2,379	25.7%	32.8%	8.5%	41.1%
IBM	19.6	12.8	3.8	738	11.8%	13.3%	9.2%	12.8%
Intergraph	18.2	9.6	3.6	190	10.9%	10.0%	8.7%	3.3%
Computervision	15.4	7.1	3.7	127	9.3%	7.4%	8.9%	2.2%
Siemens	8.2	4.9	2.5	184	5.0%	5.1%	6.0%	3.2%
CIMTEK	7.0	3.4	3.0	67	4.2%	3.5%	7.3%	1.2%
Club Informatico SA	6.7	3.0	3.3	260	4.0%	3.1%	8.0%	4.5%
Compaq	5.9	5.9	.0	988	3.6%	6.2%	.0%	17.1%
Asicom	5.8	.6	4.7	50	3.5%	.6%	11.4%	.9%
Investronica SA	5.0	4.0	.5	199	3.0%	4.1%	1.2%	3.4%
Digital	5.0	3.7	.0	38	3.0%	3.9%	.0%	.7%
Mentor Graphics	4.8	.7	2.6	52	2.9%	.7%	6.4%	.9%
Control Data	4.7	3.4	.5	54	2.8%	3.6%	1.3%	.9%
Autodesk	4.2	.0	4.2	0	2.5%	.0%	10.3%	.0%
FHECOR	4.0	.0	4.0	0	2.4%	.0%	9.6%	.0%
Star Informatic	3.1	2.7	.8	0	1.8%	2.8%	1.9%	.0%
Eptisa	2.9	.1	2.3	2	1.7%	.1%	5.6%	.0%
McDonnell Douglas	2.8	1.5	1.1	42	1.7%	1.5%	2.6%	.7%
Dazix	2.3	.4	.9	28	1.4%	.4%	2.2%	.5%
Aplein	1.7	1.6	.1	20	1.0%	1.7%	.2%	.3%
Apple Computer	1.6	1.4	.0	302	.9%	1.4%	.0%	5.2%
ARKTEC	1.4	.4	1.0	40	.8%	.4%	2.4%	.7%
Soft	1.4	.0	1.2	0	.8%	.0%	3.0%	.0%
Schlumberger	1.3	.5	.5	14	.8%	.5%	1.2%	.2%
Matra Datavision	1.3	.6	.5	14	.8%	.6%	1.2%	.2%
Sun	1.2	1.1	.0	92	.7%	1.1%	.0%	1.6%
Ziegler	1.2	.0	1.2	0	.7%	.0%	2.9%	.0%
Dassault	1.1	.0	.9	0	.7%	.0%	2.3%	.0%
Silicon Graphics	1.1	.9	.0	34	.6%	1.0%	.0%	.6%
Racal-Redac	1.0	.0	.8	5	.6%	.0%	2.0%	.1%
DELTA CAD	1.0	.4	.4	12	.6%	.4%	1.0%	.2%
CAD TECH Iberica	.9	.4	.3	76	.5%	.4%	.8%	1.3%
STI-Straessle	.9	.2	.5	8	.5%	.2%	1.1%	.1%

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Market Share

TABLE NUMBER: 78
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Spain
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
MacNeal-Schwendler	.8	.0	.8	0	.5%	.0%	2.0%	.0%
Fides Industrielle Automation	.7	.1	.6	0	.4%	.1%	1.5%	.0%
PAFEC	.7	.0	.7	0	.4%	.0%	1.7%	.0%
Cimatron	.6	.3	.3	17	.3%	.3%	.6%	.3%
ESRI	.6	.0	.5	0	.3%	.0%	1.2%	.0%
ACERI SA	.5	.1	.3	3	.3%	.1%	.8%	.1%
Unisys	.4	.2	.1	5	.2%	.2%	.3%	.1%
Logic Control	.4	.2	.1	80	.2%	.2%	.2%	1.4%
Datagraph	.3	.2	.1	2	.2%	.2%	.1%	.0%
Vero International Software	.3	.0	.3	0	.2%	.0%	.7%	.0%
Robocom	.3	.0	.3	0	.2%	.0%	.7%	.0%
Ground Modelling Systems	.2	.2	.1	1	.1%	.2%	.3%	.0%
Kontron Instruments	.2	.1	.1	4	.1%	.1%	.3%	.1%
Aucotec	.2	.1	.1	7	.1%	.1%	.3%	.1%
DAT Standard Information syste	.2	.0	.2	0	.1%	.0%	.5%	.0%
Parametric Technology	.2	.0	.2	0	.1%	.0%	.4%	.0%
Calay	.2	.1	.1	3	.1%	.1%	.2%	.0%
European Silicon Structures	.2	.0	.1	1	.1%	.0%	.3%	.0%
BATISOFT	.2	.0	.1	5	.1%	.0%	.2%	.1%
Westward	.2	.2	.0	9	.1%	.2%	.0%	.2%
Zycad	.1	.1	.0	0	.1%	.1%	.0%	.0%
Valid	.1	.0	.1	1	.1%	.0%	.1%	.0%
CAD Lab	.1	.0	.1	0	.1%	.0%	.2%	.0%
XAO Industrie	.1	.0	.1	3	.1%	.0%	.1%	.1%
Solbourne	.1	.1	.0	7	.0%	.1%	.0%	.1%
VLSI Technology	.1	.0	.1	0	.0%	.0%	.2%	.0%
Albert Nestler	.1	.0	.0	1	.0%	.0%	.1%	.0%
MCS	.1	.0	.1	0	.0%	.0%	.1%	.0%
BETRONEX	.0	.0	.0	0	.0%	.0%	.1%	.0%
ALS Design	.0	.0	.0	0	.0%	.0%	.1%	.0%
DECAD	.0	.0	.0	0	.0%	.0%	.0%	.0%

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Market Share

TABLE NUMBER: 78 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Spain
UNITS: Millions of Dollars/Actual Units

	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Market Share Total Revenue	Market Share Hardware Revenue	Market Share Software Revenue	Market Share Wkstns Shipped
Company								
Pathtrace	.0	.0	.0	0	.0%	.0%	.0%	.0%
CAD-UL	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All Companies	165.9	96.1	41.1	5,786	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	137.4	81.8	28.7	5,280	82.9%	85.2%	70.0%	91.2%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	28.4	14.3	12.3	506	17.1%	14.8%	30.0%	8.8%
All Hardware Companies	38.3	32.8	.0	3,899	23.1%	34.1%	.0%	67.4%
All Turnkey & SW Companies	127.6	63.3	41.1	1,887	76.9%	65.9%	100.0%	32.6%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 79
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Spain
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Hewlett-Packard	35.3	25.6	3.5	1,306	35.1%	44.9%	14.8%	58.4%
Intergraph	14.9	8.2	2.7	166	14.8%	14.4%	11.3%	7.4%
Computervision	13.0	6.0	3.1	78	13.0%	10.5%	13.2%	3.5%
Siemens	7.4	4.4	2.2	175	7.4%	7.7%	9.5%	7.8%
Mentor Graphics	4.8	.7	2.6	52	4.7%	1.2%	11.2%	2.3%
CIMTEK	4.2	2.2	1.6	37	4.2%	3.8%	6.9%	1.7%
Star Informatic	3.1	2.7	.8	0	3.0%	4.7%	3.4%	.0%
Dazix	2.3	.4	.9	28	2.3%	.7%	3.9%	1.3%
McDonnell Douglas	2.3	1.2	.9	25	2.2%	2.1%	3.7%	1.1%
Control Data	1.8	1.3	.2	35	1.8%	2.3%	.8%	1.5%
Aplein	1.7	1.6	.1	20	1.7%	2.8%	.4%	.9%
IBM	1.6	.9	.4	14	1.6%	1.6%	1.5%	.6%
Matra Datavision	1.3	.6	.5	14	1.3%	1.1%	2.1%	.6%
Digital	1.2	.9	.0	38	1.2%	1.6%	.0%	1.7%
Schlumberger	1.2	.4	.5	12	1.2%	.7%	1.9%	.5%
Silicon Graphics	1.0	.9	.0	34	1.0%	1.6%	.0%	1.5%
Sun	1.0	.9	.0	81	1.0%	1.5%	.0%	3.6%
Soft	1.0	.0	.9	0	.9%	.0%	3.6%	.0%
STI-Straessle	.9	.2	.5	8	.8%	.4%	2.0%	.4%
Racal-Redac	.8	.0	.6	5	.8%	.0%	2.6%	.2%
PAFEC	.6	.0	.6	0	.6%	.0%	2.6%	.0%
Dassault	.5	.0	.4	0	.5%	.0%	1.7%	.0%
ARKTEC	.4	.3	.2	18	.4%	.4%	.7%	.8%
Cimatron	.4	.2	.2	12	.4%	.3%	.8%	.5%
Autodesk	.3	.0	.3	0	.3%	.0%	1.4%	.0%
ESRI	.3	.0	.3	0	.3%	.0%	1.2%	.0%
Unisys	.3	.2	.1	4	.3%	.3%	.5%	.2%
Asicom	.3	.0	.3	0	.3%	.0%	1.1%	.0%
MacNeal-Schwendler	.2	.0	.2	0	.2%	.0%	.8%	.0%
Parametric Technology	.2	.0	.2	0	.2%	.0%	.8%	.0%
Calay	.2	.1	.1	3	.2%	.1%	.4%	.1%
Fides Industrielle Automation	.1	.0	.1	0	.1%	.0%	.6%	.0%

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Market Share

TABLE NUMBER: 79 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Spain
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
European Silicon Structures	.1	.0	.1	1	.1%	.1%	.4%	.0%
Valid	.1	.0	.1	1	.1%	.1%	.3%	.0%
CAD Lab	.1	.0	.1	0	.1%	.0%	.4%	.0%
Westward	.1	.1	.0	6	.1%	.2%	.0%	.3%
Zycad	.1	.1	.0	0	.1%	.1%	.0%	.0%
XAO Industrie	.1	.0	.1	3	.1%	.1%	.2%	.1%
VLSI Technology	.1	.0	.1	0	.1%	.0%	.3%	.0%
Albert Nestler	.1	.0	.0	1	.1%	.0%	.1%	.0%
Aucotec	.0	.0	.0	1	.0%	.0%	.1%	.0%
DECAD	.0	.0	.0	0	.0%	.0%	.0%	.0%
MCS	.0	.0	.0	0	.0%	.0%	.1%	.0%
Solbourne	.0	.0	.0	1	.0%	.0%	.0%	.1%
Other Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All Companies	100.5	57.1	23.6	2,236	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	84.3	48.4	17.0	1,988	83.9%	84.9%	72.3%	88.9%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	16.2	8.6	6.5	248	16.1%	15.1%	27.7%	11.1%
All Hardware Companies	16.7	14.0	.0	927	16.6%	24.5%	.0%	41.5%
All Turnkey & SW Companies	83.8	43.1	23.6	1,309	83.4%	75.5%	100.0%	58.5%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 80
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: Spain
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	15.6	9.5	3.4	164	48.3%	51.1%	46.5%	48.6%
Digital	3.7	2.8	.0	0	11.5%	15.0%	.0%	.0%
Control Data	2.9	2.1	.3	19	9.0%	11.4%	4.3%	5.7%
Eptisa	2.9	.1	2.3	2	9.0%	.3%	31.1%	.6%
Intergraph	2.8	1.4	.4	25	8.5%	7.3%	5.8%	7.3%
Computervision	2.2	1.0	.5	46	6.9%	5.5%	7.1%	13.6%
Siemens	.8	.5	.2	9	2.5%	2.5%	3.3%	2.8%
CIMTEK	.7	.4	.2	6	2.2%	2.3%	2.2%	1.7%
Hewlett-Packard	.7	.6	.0	35	2.2%	3.2%	.0%	10.3%
Dassault	.6	.0	.5	0	2.0%	.0%	7.1%	.0%
MacNeal-Schwendler	.6	.0	.6	0	2.0%	.0%	8.3%	.0%
Fides Industrielle Automation	.6	.1	.5	0	1.7%	.3%	6.8%	.0%
McDonnell Douglas	.5	.3	.2	17	1.6%	1.5%	2.7%	5.0%
Sun	.2	.2	.0	11	.7%	1.1%	.0%	3.3%
ESRI	.2	.0	.2	0	.6%	.0%	2.3%	.0%
Schlumberger	.1	.1	.1	2	.4%	.3%	.7%	.7%
Unisys	.1	.0	.0	1	.3%	.2%	.4%	.3%
Solbourne	.1	.1	.0	6	.2%	.3%	.0%	1.7%
Aucotec	.0	.0	.0	1	.1%	.1%	.3%	.3%
Zycad	.0	.0	.0	0	.1%	.1%	.0%	.1%
MCS	.0	.0	.0	0	.1%	.0%	.3%	.0%
Silicon Graphics	.0	.0	.0	1	.1%	.1%	.0%	.2%

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Market Share

TABLE NUMBER: 80 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: Spain
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All Companies	32.2	18.6	7.4	337	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	30.2	18.0	6.1	327	93.7%	97.0%	82.6%	96.9%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	2.0	.6	1.3	11	6.3%	3.0%	17.4%	3.1%
All Hardware Companies	4.7	3.7	.0	52	14.7%	19.6%	.0%	15.4%
All Turnkey & SW Companies	27.5	14.9	7.4	285	85.3%	80.4%	100.0%	84.6%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 81
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Spain
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Club Informatico SA	6.7	3.0	3.3	260	20.2%	14.7%	32.4%	8.1%
Hewlett-Packard	6.7	5.3	.0	1,038	20.2%	26.1%	.0%	32.3%
Compaq	5.9	5.9	.0	988	17.9%	29.0%	.0%	30.7%
Asicom	5.5	.6	4.4	50	16.7%	2.7%	43.4%	1.6%
Investronica SA	5.0	4.0	.5	199	15.0%	19.4%	4.9%	6.2%
FHECOR	4.0	.0	4.0	0	12.0%	.0%	39.0%	.0%
Autodesk	3.9	.0	3.9	0	11.8%	.0%	38.3%	.0%
IBM	2.5	2.4	.0	560	7.6%	11.6%	.0%	17.4%
CIMTEK	2.1	.8	1.2	24	6.3%	3.8%	12.1%	.8%
Apple Computer	1.6	1.4	.0	302	4.7%	6.8%	.0%	9.4%
Ziegler	1.2	.0	1.2	0	3.6%	.0%	11.8%	.0%
ARKTEC	1.0	.2	.8	22	3.0%	.9%	8.0%	.7%
DELTA CAD	1.0	.4	.4	12	2.9%	2.1%	4.2%	.4%
CAD TECH Iberica	.9	.4	.3	76	2.7%	2.1%	3.3%	2.4%
ACERI SA	.5	.1	.3	3	1.6%	.5%	3.2%	.1%
Intergraph	.5	.0	.5	0	1.5%	.0%	4.5%	.0%
Soft	.4	.0	.4	0	1.2%	.0%	3.6%	.0%
Logic Control	.4	.2	.1	80	1.1%	.9%	.9%	2.5%
Datagraph	.3	.2	.1	2	.9%	1.2%	.6%	.0%
Vero International Software	.3	.0	.3	0	.9%	.0%	2.9%	.0%
Robocom	.3	.0	.3	0	.8%	.0%	2.7%	.0%
Ground Modelling Systems	.2	.2	.1	1	.7%	.8%	1.2%	.0%
Kontron Instruments	.2	.1	.1	4	.7%	.6%	1.2%	.1%
DAT Standard Information syste	.2	.0	.2	0	.7%	.0%	2.1%	.0%
Racal-Redac	.2	.0	.2	0	.6%	.0%	1.9%	.0%
Cimatron	.2	.1	.1	5	.5%	.4%	.7%	.2%
Aucotec	.2	.1	.1	5	.5%	.3%	.8%	.2%
Computervision	.2	.1	.0	4	.5%	.3%	.4%	.1%
BATISOFT	.2	.0	.1	5	.5%	.1%	.8%	.2%
PAFEC	.1	.0	.1	0	.2%	.0%	.7%	.0%
ESRI	.1	.0	.1	0	.2%	.0%	.5%	.0%
Westward	.1	.1	.0	3	.2%	.2%	.0%	.1%

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Market Share

TABLE NUMBER: 81 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Spain
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
BETRONEX	.0	.0	.0	0	.1%	.0%	.4%	.0%
ALS Design	.0	.0	.0	0	.1%	.0%	.3%	.0%
European Silicon Structures	.0	.0	.0	0	.1%	.0%	.2%	.0%
Pathtrace	.0	.0	.0	0	.1%	.0%	.2%	.0%
CAD-UL	.0	.0	.0	0	.0%	.0%	.1%	.0%
MCS	.0	.0	.0	0	.0%	.0%	.1%	.0%
Schlumberger	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All Companies	33.1	20.5	10.2	3,213	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	22.9	15.4	5.6	2,965	69.2%	75.1%	55.6%	92.3%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	10.2	5.1	4.5	248	30.8%	24.9%	44.4%	7.7%
All Hardware Companies	16.8	15.2	.0	2,920	50.8%	74.1%	.0%	90.9%
All Turnkey & SW Companies	16.3	5.3	10.2	294	49.2%	25.9%	100.0%	9.1%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 82
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Spain
UNITS: Millions of Dollars/Actual Units

					--------- Market Share ---------			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Hewlett-Packard	25.7	19.2	2.3	1,353	27.3%	33.6%	10.9%	45.2%
IBM	15.5	9.8	3.2	370	16.5%	17.2%	15.1%	12.3%
Computervision	13.6	6.3	3.2	112	14.4%	11.0%	15.3%	3.7%
CIMTEK	7.0	3.4	3.0	67	7.4%	5.9%	14.2%	2.2%
Investronica SA	5.0	4.0	.5	199	5.3%	7.0%	2.4%	6.6%
Intergraph	4.5	2.4	.9	47	4.8%	4.2%	4.3%	1.6%
Control Data	4.4	3.2	.5	50	4.7%	5.6%	2.3%	1.7%
Siemens	4.2	2.5	1.2	97	4.4%	4.3%	5.9%	3.2%
Asicom	3.8	.4	3.0	33	4.0%	.6%	14.4%	1.1%
Digital	2.7	2.0	.0	20	2.8%	3.5%	.0%	.7%
McDonnell Douglas	2.2	1.1	.8	31	2.3%	2.0%	3.9%	1.0%
Compaq	2.1	2.1	.0	354	2.2%	3.7%	.0%	11.8%
Autodesk	1.6	.0	1.6	0	1.7%	.0%	7.6%	.0%
Schlumberger	1.3	.4	.5	13	1.4%	.8%	2.3%	.4%
Matra Datavision	1.3	.6	.5	14	1.3%	1.1%	2.4%	.5%
Silicon Graphics	1.1	.9	.0	34	1.1%	1.6%	.0%	1.1%
Dassault	.9	.0	.8	0	1.0%	.0%	3.6%	.0%
CAD TECH Iberica	.9	.4	.3	76	1.0%	.7%	1.6%	2.5%
Club Informatico SA	.9	.4	.4	34	.9%	.7%	2.0%	1.1%
DELTA CAD	.9	.4	.4	11	.9%	.7%	1.8%	.4%
MacNeal-Schwendler	.8	.0	.8	0	.9%	.0%	3.8%	.0%
Fides Industrielle Automation	.7	.1	.6	0	.7%	.1%	3.0%	.0%
Apple Computer	.6	.6	.0	124	.7%	1.0%	.0%	4.1%
STI-Straessle	.6	.2	.3	6	.7%	.3%	1.6%	.2%
FMECOR	.6	.0	.6	0	.6%	.0%	2.8%	.0%
Cimatron	.6	.3	.3	17	.6%	.5%	1.2%	.6%
Aplein	.5	.5	.0	6	.5%	.8%	.1%	.2%
Ziegler	.5	.0	.5	0	.5%	.0%	2.3%	.0%
PAFEC	.5	.0	.5	0	.5%	.0%	2.2%	.0%
Sun	.5	.4	.0	34	.5%	.7%	.0%	1.1%
Unisys	.4	.2	.1	5	.4%	.4%	.7%	.2%
Logic Control	.4	.2	.1	80	.4%	.3%	.4%	2.7%

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Market Share

TABLE NUMBER: 82 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Spain
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Datagraph	.3	.2	.1	2	.3%	.4%	.3%	.1%
Vero International Software	.3	.0	.3	0	.3%	.0%	1.4%	.0%
DAT Standard Information syste	.2	.0	.2	0	.2%	.0%	1.0%	.0%
Parametric Technology	.2	.0	.2	0	.2%	.0%	.9%	.0%
Robocom	.1	.0	.1	0	.1%	.0%	.6%	.0%
Westward	.1	.1	.0	7	.1%	.2%	.0%	.2%
CAD Lab	.1	.0	.1	0	.1%	.0%	.4%	.0%
XAO Industrie	.1	.0	.1	3	.1%	.1%	.2%	.1%
Albert Nestler	.1	.0	.0	1	.1%	.0%	.1%	.0%
MCS	.1	.0	.1	0	.1%	.0%	.3%	.0%
Pathtrace	.0	.0	.0	0	.0%	.0%	.1%	.0%
Other Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All Companies	94.3	57.0	21.2	2,995	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	78.7	49.0	15.1	2,650	83.5%	85.9%	71.3%	88.5%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	15.5	8.1	6.1	346	16.5%	14.1%	28.7%	11.5%
All Hardware Companies	19.3	16.4	.0	1,797	20.5%	28.7%	.0%	60.0%
All Turnkey & SW Companies	74.9	40.7	21.2	1,198	79.5%	71.3%	100.0%	40.0%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 83
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: AEC
PLATFORM: All Platforms
REGION: Spain
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Club Informatico SA	5.8	2.6	2.9	226	24.1%	18.0%	40.9%	22.9%
Hewlett-Packard	5.1	3.9	.4	311	21.0%	26.9%	5.0%	31.6%
Intergraph	4.5	2.4	.9	48	18.7%	16.7%	12.9%	4.8%
FHECOR	3.4	.0	3.4	0	13.9%	.0%	48.1%	.0%
Star Informatic	3.1	2.7	.8	0	12.6%	18.5%	11.4%	.0%
IBM	1.9	1.4	.3	138	7.9%	9.3%	4.3%	13.9%
Autodesk	1.9	.0	1.9	0	7.7%	.0%	26.6%	.0%
ARKTEC	1.4	.4	1.0	40	5.8%	3.0%	14.0%	4.1%
Soft	1.4	.0	1.2	0	5.6%	.0%	17.4%	.0%
Compaq	1.3	1.3	.0	218	5.4%	9.0%	.0%	22.1%
Aplein	1.2	1.1	.1	14	4.9%	7.8%	.9%	1.4%
McDonnell Douglas	.6	.3	.2	11	2.6%	2.3%	3.4%	1.1%
Apple Computer	.6	.6	.0	121	2.6%	3.8%	.0%	12.3%
Computervision	.6	.3	.1	5	2.6%	1.9%	2.0%	.5%
Siemens	.6	.4	.2	12	2.4%	2.4%	2.6%	1.2%
ACERI SA	.5	.1	.3	3	2.2%	.8%	4.6%	.3%
Digital	.5	.4	.0	4	2.2%	2.8%	.0%	.4%
Asicom	.3	.0	.2	3	1.2%	.2%	3.3%	.3%
Dassault	.2	.0	.1	0	.7%	.0%	1.9%	.0%
Ziegler	.2	.0	.2	0	.7%	.0%	2.3%	.0%
BATISOFT	.2	.0	.1	5	.6%	.1%	1.1%	.5%
Control Data	.1	.1	.0	2	.6%	.8%	.1%	.2%
Robocom	.1	.0	.1	0	.5%	.0%	1.7%	.0%
DELTA CAD	.1	.0	.0	1	.4%	.3%	.6%	.1%
Ground Modelling Systems	.1	.0	.0	0	.2%	.2%	.3%	.0%
PAFEC	.0	.0	.0	0	.2%	.0%	.6%	.0%
Sun	.0	.0	.0	4	.2%	.3%	.0%	.4%
Westward	.0	.0	.0	1	.1%	.1%	.0%	.1%
Schlumberger	.0	.0	.0	0	.0%	.0%	.0%	.0%

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Market Share

TABLE NUMBER: 83 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: AEC
PLATFORM: All Platforms
REGION: Spain
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Other Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All Companies	24.2	14.5	7.0	987	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	18.0	10.9	4.2	926	74.1%	74.9%	59.6%	93.8%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	6.3	3.6	2.8	61	25.9%	25.1%	40.4%	6.2%
All Hardware Companies	6.0	5.3	.0	739	24.8%	36.4%	.0%	74.9%
All Turnkey & SW Companies	18.2	9.2	7.0	248	75.2%	63.6%	100.0%	25.1%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 84
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: GIS/Mapping
PLATFORM: All Platforms
REGION: Spain
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intergraph	7.3	3.9	1.4	76	44.4%	43.7%	31.5%	16.7%
Siemens	3.5	2.1	1.1	75	21.3%	23.3%	23.0%	16.6%
Eptisa	2.9	.1	2.3	2	17.7%	.7%	50.1%	.4%
IBM	1.1	.8	.2	101	6.7%	9.3%	3.3%	22.2%
Compaq	.9	.9	.0	143	5.3%	9.7%	.0%	31.4%
ESRI	.6	.0	.5	0	3.5%	.0%	11.2%	.0%
Digital	.5	.4	.0	3	3.0%	4.3%	.0%	.8%
Autodesk	.4	.0	.4	0	2.6%	.0%	9.2%	.0%
Asicom	.3	.0	.2	3	1.8%	.3%	5.0%	.5%
STI-Straessle	.2	.1	.1	2	1.4%	.6%	2.8%	.5%
Ground Modelling Systems	.2	.1	.1	1	1.2%	1.5%	2.2%	.3%
Control Data	.2	.1	.0	2	1.1%	1.5%	.4%	.4%
Apple Computer	.2	.2	.0	33	1.0%	1.7%	.0%	7.3%
PAFEC	.2	.0	.2	0	1.0%	.0%	3.7%	.0%
Computervision	.2	.1	.0	1	.9%	.8%	.9%	.3%
Ziegler	.1	.0	.1	0	.8%	.0%	2.8%	.0%
Hewlett-Packard	.1	.1	.0	6	.4%	.7%	.0%	1.4%
Sun	.1	.0	.0	4	.3%	.5%	.0%	.8%
Robocom	.0	.0	.0	0	.1%	.0%	.4%	.0%
Solbourne	.0	.0	.0	1	.1%	.1%	.0%	.2%
Other Companies	.0	.1	.0	1	.0%	1.6%	.0%	.2%
All Companies	16.4	8.9	4.6	455	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	12.1	6.6	3.0	376	74.1%	74.7%	65.0%	82.7%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	4.2	2.2	1.6	79	25.9%	25.3%	35.0%	17.3%
All Hardware Companies	2.1	1.9	.0	286	12.7%	21.6%	.0%	62.8%
All Turnkey & SW Companies	14.3	7.0	4.6	169	87.3%	78.4%	100.0%	37.2%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 85
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Spain
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Hewlett-Packard	11.7	8.4	.8	709	37.8%	53.8%	10.0%	52.5%
Mentor Graphics	4.8	.7	2.6	52	15.3%	4.3%	31.5%	3.8%
Dazix	2.3	.4	.9	28	7.4%	2.5%	10.9%	2.1%
Intergraph	1.8	.9	.3	19	5.9%	5.5%	3.7%	1.4%
Compaq	1.6	1.6	.0	273	5.3%	10.5%	.0%	20.2%
Asicom	1.5	.1	1.2	13	4.7%	.8%	14.0%	.9%
Digital	1.3	.9	.0	11	4.0%	5.8%	.0%	.8%
IBM	1.1	.8	.1	130	3.5%	5.4%	1.4%	9.6%
Computervision	1.1	.5	.3	9	3.4%	3.0%	3.0%	.7%
Racal-Redac	1.0	.0	.8	5	3.2%	.1%	9.7%	.4%
Sun	.7	.6	.0	51	2.1%	3.7%	.0%	3.8%
Ziegler	.4	.0	.4	0	1.4%	.0%	5.2%	.0%
Autodesk	.3	.0	.3	0	1.1%	.0%	4.1%	.0%
Kontron Instruments	.2	.1	.1	4	.8%	.8%	1.4%	.3%
Aucotec	.2	.1	.1	7	.7%	.6%	1.4%	.5%
Calay	.2	.1	.1	3	.5%	.3%	1.2%	.2%
European Silicon Structures	.2	.0	.1	1	.5%	.2%	1.4%	.1%
Zycad	.1	.1	.0	0	.4%	.6%	.0%	.0%
Apple Computer	.1	.1	.0	24	.4%	.8%	.0%	1.8%
Valid	.1	.0	.1	1	.4%	.2%	.7%	.0%
VLSI Technology	.1	.0	.1	0	.3%	.0%	.8%	.0%
Solbourne	.1	.1	.0	6	.2%	.4%	.0%	.4%
BETRONEX	.0	.0	.0	0	.1%	.0%	.5%	.0%
Dassault	.0	.0	.0	0	.1%	.0%	.4%	.0%
Schlumberger	.0	.0	.0	0	.1%	.1%	.2%	.0%
ALS Design	.0	.0	.0	0	.1%	.0%	.4%	.0%
DECAD	.0	.0	.0	0	.1%	.0%	.1%	.0%
CAD-UL	.0	.0	.0	0	.0%	.0%	.1%	.0%

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Market Share

TABLE NUMBER: 85 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Spain
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	.0	.1	.0	3	.0%	.6%	.0%	.2%
All Companies	31.0	15.7	8.3	1,350	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	28.7	15.4	6.5	1,329	92.4%	98.0%	78.2%	98.5%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	2.4	.3	1.8	21	7.6%	2.0%	21.8%	1.5%
All Hardware Companies	10.8	9.2	.0	1,077	34.9%	58.9%	.0%	79.8%
All Turnkey & SW Companies	20.2	6.5	8.3	272	65.1%	41.1%	100.0%	20.2%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 86
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: Spain
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Hewlett-Packard	8.3	6.4	.5	524	42.7%	60.3%	10.4%	55.1%
Mentor Graphics	2.9	.5	1.6	32	15.0%	4.4%	31.9%	3.3%
Dazix	1.6	.3	.6	20	8.4%	3.0%	12.8%	2.1%
Compaq	1.2	1.2	.0	193	6.0%	11.0%	.0%	20.3%
Intergraph	.9	.5	.2	9	4.7%	4.6%	3.0%	1.0%
Digital	.5	.4	.0	4	2.6%	3.5%	.0%	.4%
IBM	.5	.5	.0	106	2.5%	4.3%	.0%	11.2%
Racal-Redac	.4	.0	.3	2	2.0%	.2%	6.2%	.2%
Sun	.3	.3	.0	24	1.6%	2.6%	.0%	2.5%
Autodesk	.3	.0	.3	0	1.6%	.0%	6.0%	.0%
Computervision	.3	.1	.1	3	1.6%	1.3%	1.4%	.3%
Ziegler	.2	.0	.2	0	1.2%	.0%	4.8%	.0%
Aucotec	.2	.1	.1	7	1.2%	.9%	2.4%	.7%
Asicom	.2	.0	.1	1	.8%	.1%	2.4%	.1%
Zycad	.1	.1	.0	0	.7%	.9%	.0%	.0%
Valid	.1	.0	.0	0	.4%	.2%	.6%	.0%
Apple Computer	.1	.1	.0	12	.3%	.6%	.0%	1.3%
VLSI Technology	.1	.0	.0	0	.3%	.0%	.8%	.0%
Dassault	.0	.0	.0	0	.2%	.0%	.6%	.0%
Calay	.0	.0	.0	1	.2%	.1%	.4%	.1%
ALS Design	.0	.0	.0	0	.1%	.0%	.4%	.0%
Solbourne	.0	.0	.0	1	.1%	.1%	.0%	.1%

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Market Share

TABLE NUMBER: 86 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: Spain
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	1.2	.2	.8	10	6.0%	1.9%	16.0%	1.1%
All Companies	19.3	10.6	5.0	950	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	18.4	10.4	4.3	940	95.1%	98.8%	85.2%	98.9%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	.9	.1	.7	10	4.9%	1.2%	14.8%	1.1%
All Hardware Companies	7.5	6.5	.0	789	39.0%	61.3%	.0%	83.0%
All Turnkey & SW Companies	11.8	4.1	5.0	161	61.0%	38.7%	100.0%	17.0%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 87
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: IC Layout
PLATFORM: All Platforms
REGION: Spain
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Mentor Graphics	.7	.1	.4	8	36.8%	11.2%	71.4%	9.7%
Hewlett-Packard	.6	.5	.0	50	29.0%	48.0%	.0%	62.5%
Digital	.2	.2	.0	2	10.4%	15.3%	.0%	3.1%
Sun	.2	.2	.0	15	10.4%	18.4%	.0%	19.3%
European Silicon Structures	.2	.0	.1	1	8.3%	3.1%	21.4%	1.2%
Asicom	.2	.0	.1	1	7.8%	1.0%	21.4%	1.6%
Solbourne	.0	.0	.0	3	2.1%	4.1%	.0%	3.9%
VLSI Technology	.0	.0	.0	0	1.6%	.0%	5.4%	.0%
Valid	.0	.0	.0	0	.5%	.0%	1.8%	.1%
Other Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All Companies	1.9	1.0	.6	80	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	1.8	1.0	.4	79	91.7%	96.9%	78.6%	98.8%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	.2	.0	.1	1	8.3%	3.1%	21.4%	1.2%
All Hardware Companies	1.0	.8	.0	71	51.8%	85.7%	.0%	88.8%
All Turnkey & SW Companies	.9	.1	.6	9	48.2%	14.3%	100.0%	11.2%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 88
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: Spain
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Hewlett-Packard	2.9	1.6	.3	135	29.9%	38.4%	11.2%	42.3%
Asicom	1.2	.1	.9	10	11.9%	2.7%	33.6%	3.1%
Mentor Graphics	1.1	.1	.6	12	11.7%	2.7%	22.7%	3.9%
Intergraph	.9	.4	.2	10	9.3%	9.2%	5.8%	3.1%
Computervision	.8	.3	.2	6	7.9%	8.0%	6.5%	2.0%
Dazix	.7	.1	.3	8	7.1%	1.7%	9.7%	2.7%
Racal-Redac	.6	.0	.5	3	6.4%	.0%	18.1%	1.1%
IBM	.6	.4	.1	24	6.2%	9.4%	4.3%	7.4%
Digital	.6	.4	.0	4	5.6%	9.4%	.0%	1.2%
Compaq	.5	.5	.0	81	4.9%	11.6%	.0%	25.2%
Kontron Instruments	.2	.1	.1	4	2.5%	2.9%	4.3%	1.3%
Ziegler	.2	.0	.2	0	1.9%	.0%	6.9%	.0%
Sun	.1	.1	.0	12	1.4%	3.1%	.0%	3.6%
Calay	.1	.0	.1	2	1.3%	1.0%	2.9%	.6%
Apple Computer	.1	.1	.0	12	.6%	1.4%	.0%	3.8%
Autodesk	.0	.0	.0	0	.4%	.0%	1.4%	.0%
BETRONEX	.0	.0	.0	0	.4%	.0%	1.4%	.0%
Schlumberger	.0	.0	.0	0	.4%	.2%	.7%	.1%
Valid	.0	.0	.0	0	.4%	.2%	.7%	.1%
DECAD	.0	.0	.0	0	.3%	.0%	.4%	.0%
ALS Design	.0	.0	.0	0	.1%	.0%	.4%	.0%
CAD-UL	.0	.0	.0	0	.1%	.0%	.4%	.0%
Solbourne	.0	.0	.0	1	.1%	.2%	.0%	.4%

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Market Share

TABLE NUMBER: 88 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: Spain
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All Companies	9.8	4.1	2.8	319	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	8.5	4.0	1.8	310	87.0%	96.1%	65.3%	97.0%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	1.3	.2	1.0	10	13.0%	3.9%	34.7%	3.0%
All Hardware Companies	2.3	1.9	.0	218	23.5%	46.4%	.0%	68.1%
All Turnkey & SW Companies	7.5	2.2	2.8	102	76.5%	53.6%	100.0%	31.9%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 89
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	38.1	24.7	7.5	1,286	11.6%	16.4%	5.9%	15.5%
Computervision	23.1	10.7	5.5	191	7.0%	7.1%	4.3%	2.3%
Hewlett-Packard	23.0	17.0	1.9	1,283	7.0%	11.3%	1.5%	15.5%
Siemens	21.3	12.6	6.4	477	6.5%	8.3%	5.0%	5.8%
Cadence	19.6	.0	17.2	0	6.0%	.0%	13.6%	.0%
Schlumberger	17.3	5.9	6.4	181	5.3%	3.9%	5.1%	2.2%
Investronica SA	13.3	10.6	1.3	531	4.0%	7.0%	1.0%	6.4%
STI-Straessle	12.7	2.9	7.0	120	3.9%	1.9%	5.5%	1.5%
Caditron	12.0	6.0	4.8	188	3.7%	4.0%	3.8%	2.3%
Digital	9.2	6.9	.0	71	2.8%	4.6%	.0%	.9%
Kewill Systems	9.2	2.8	5.1	92	2.8%	1.8%	4.0%	1.1%
ABB Cade International	8.4	4.9	2.5	36	2.5%	3.2%	2.0%	.4%
Compaq	7.9	7.9	.0	1,317	2.4%	5.2%	.0%	15.9%
Autodesk	6.5	.0	6.5	0	2.0%	.0%	5.1%	.0%
Mentor Graphics	6.1	.9	3.4	66	1.9%	.6%	2.6%	.8%
McDonnell Douglas	5.8	3.0	2.2	87	1.8%	2.0%	1.7%	1.1%
Control Data	5.7	4.1	.6	64	1.7%	2.7%	.5%	.8%
ISICAD	5.5	2.1	2.6	43	1.7%	1.4%	2.1%	.5%
LSI Logic	5.4	.5	4.1	21	1.6%	.4%	3.2%	.3%
Cimatron	5.0	2.2	2.2	146	1.5%	1.5%	1.8%	1.8%
Sun	4.9	4.3	.0	369	1.5%	2.8%	.0%	4.5%
Racal-Redac	3.5	.1	2.8	19	1.1%	.0%	2.2%	.2%
Apple Computer	3.2	2.8	.0	605	1.0%	1.8%	.0%	7.3%
Mannesmann PROCAD	3.1	1.6	.9	44	1.0%	1.1%	.7%	.5%
Star Informatic	3.0	2.6	.8	140	.9%	1.7%	.6%	1.7%
Intergraph	2.9	1.5	.6	30	.9%	1.0%	.5%	.4%
Dazix	2.2	.4	.9	27	.7%	.3%	.7%	.3%
Silicon Graphics	2.1	1.9	.0	69	.6%	1.2%	.0%	.8%
DAT Standard Information syste	1.9	.0	1.8	0	.6%	.0%	1.4%	.0%
VLSI Technology	1.8	.1	1.5	1	.6%	.0%	1.2%	.0%
Fides Industrielle Automation	1.7	.2	1.6	52	.5%	.1%	1.2%	.6%
Ziegler	1.7	.0	1.7	0	.5%	.0%	1.3%	.0%
Kloeckner-Moeller	1.5	.9	.5	17	.5%	.6%	.4%	.2%

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Market Share

TABLE NUMBER: 89
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Technische Computer Systeme	1.5	.3	1.2	40	.5%	.2%	1.0%	.5%
Aucotec	1.5	.6	.7	45	.5%	.4%	.6%	.5%
Exapt	1.3	.6	.4	22	.4%	.4%	.3%	.3%
PAFEC	1.3	.0	1.3	0	.4%	.0%	1.0%	.0%
Ferranti	1.2	.4	.5	10	.4%	.3%	.4%	.1%
rotring euroCAD	1.1	.7	.4	29	.3%	.5%	.3%	.3%
Vero International Software	1.0	.0	1.0	0	.3%	.0%	.8%	.0%
BATISOFT	1.0	.2	.5	31	.3%	.1%	.4%	.4%
LPKF	.9	.6	.2	36	.3%	.4%	.2%	.4%
MacNeal-Schwendler	.8	.0	.8	0	.3%	.0%	.6%	.0%
PDA Engineering	.8	.0	.8	0	.2%	.0%	.6%	.0%
Parametric Technology	.8	.0	.7	0	.2%	.0%	.6%	.0%
ISYKON Software	.8	.4	.3	11	.2%	.3%	.2%	.1%
Dassault	.7	.0	.6	0	.2%	.0%	.5%	.0%
Matra Datavision	.6	.3	.3	7	.2%	.2%	.2%	.1%
Valid	.6	.2	.3	3	.2%	.1%	.3%	.0%
Robocom	.5	.0	.5	0	.1%	.0%	.4%	.0%
Calay	.5	.2	.3	8	.1%	.1%	.2%	.1%
Gerber Systems	.4	.2	.1	3	.1%	.1%	.1%	.0%
Westward	.4	.4	.0	26	.1%	.3%	.0%	.3%
Framasoft	.4	.0	.2	0	.1%	.0%	.2%	.0%
Wiechers Datentechnik	.4	.3	.1	59	.1%	.2%	.1%	.7%
SDRC	.4	.0	.4	0	.1%	.0%	.3%	.0%
Intercad	.4	.2	.1	17	.1%	.1%	.1%	.2%
Zycad	.4	.3	.0	1	.1%	.2%	.0%	.0%
Datagraphic	.3	.0	.3	2	.1%	.0%	.2%	.0%
CAD-UL	.3	.0	.3	0	.1%	.0%	.2%	.0%
ALS Design	.3	.0	.3	0	.1%	.0%	.2%	.0%
European Silicon Structures	.2	.0	.2	1	.1%	.0%	.1%	.0%
Olivetti	.2	.2	.0	36	.1%	.1%	.0%	.4%
Vision 3D	.2	.1	.1	2	.1%	.1%	.0%	.0%

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Market Share

TABLE NUMBER: 89 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Marcus Computer Systeme	.2	.1	.1	0	.1%	.1%	.1%	.0%
Datagraph	.2	.2	.0	1	.1%	.1%	.0%	.0%
Ground Modelling Systems	.2	.1	.1	1	.1%	.1%	.1%	.0%
TOOL Software	.2	.0	.1	4	.1%	.0%	.1%	.0%
Serbi	.2	.0	.2	0	.0%	.0%	.1%	.0%
Albert Nestler	.2	.1	.1	2	.0%	.0%	.0%	.0%
CAD Lab	.1	.0	.1	0	.0%	.0%	.1%	.0%
Instrumatic Espanola	.1	.0	.1	0	.0%	.0%	.1%	.0%
Superdraft	.1	.1	.1	6	.0%	.0%	.0%	.1%
Sycotronic AG	.1	.0	.1	0	.0%	.0%	.1%	.0%
t2 Solutions	.1	.1	.0	1	.0%	.0%	.0%	.0%
MCS	.1	.0	.1	0	.0%	.0%	.1%	.0%
BETRONEX	.1	.0	.1	0	.0%	.0%	.1%	.0%
Solbourne	.1	.1	.0	7	.0%	.0%	.0%	.1%
Gable CAD Systems	.1	.0	.0	1	.0%	.0%	.0%	.0%
Academi Systems	.1	.0	.0	0	.0%	.0%	.0%	.0%
Catalpa	.0	.0	.0	0	.0%	.0%	.0%	.0%
Cisigraph	.0	.0	.0	0	.0%	.0%	.0%	.0%
FHECOR	.0	.0	.0	0	.0%	.0%	.0%	.0%
XAO Industrie	.0	.0	.0	1	.0%	.0%	.0%	.0%
Inca	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	16.3	1.9	12.7	260	5.0%	1.3%	10.0%	3.1%
All Companies	328.1	150.8	126.9	8,273	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	210.9	97.3	76.8	6,001	64.3%	64.5%	60.5%	72.5%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	117.2	53.5	50.2	2,272	35.7%	35.5%	39.5%	27.5%
All Hardware Companies	42.9	37.1	.0	4,404	13.1%	24.6%	.0%	53.2%
All Turnkey & SW Companies	285.2	113.7	126.9	3,868	86.9%	75.4%	100.0%	46.8%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 90
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Computervision	19.5	9.0	4.7	116	10.2%	11.5%	5.8%	3.9%
Siemens	19.2	11.3	5.8	453	10.0%	14.5%	7.2%	15.2%
Hewlett-Packard	19.0	13.8	1.9	704	9.9%	17.6%	2.3%	23.6%
Cadence	16.1	.0	14.2	0	8.4%	.0%	17.7%	.0%
Schlumberger	15.4	5.2	5.8	150	8.0%	6.7%	7.2%	5.0%
STI-Straessle	12.7	2.9	7.0	120	6.6%	3.7%	8.7%	4.0%
ABB Cade International	8.4	4.9	2.5	36	4.4%	6.2%	3.1%	1.2%
Kewill Systems	8.3	2.5	4.6	83	4.3%	3.2%	5.7%	2.8%
Mentor Graphics	6.1	.9	3.4	66	3.2%	1.1%	4.2%	2.2%
LSI Logic	4.9	.5	3.7	19	2.5%	.6%	4.6%	.6%
McDonnell Douglas	4.7	2.5	1.8	52	2.4%	3.1%	2.2%	1.7%
ISICAD	4.1	2.1	1.2	43	2.2%	2.7%	1.5%	1.4%
Sun	4.0	3.5	.0	326	2.1%	4.4%	.0%	10.9%
Cimatron	3.5	1.6	1.6	103	1.8%	2.0%	1.9%	3.4%
Mannesmann PROCAD	3.1	1.6	.9	44	1.6%	2.1%	1.1%	1.5%
IBM	3.1	1.9	.7	29	1.6%	2.4%	.8%	1.0%
Star Informatic	3.0	2.6	.8	140	1.5%	3.3%	1.0%	4.7%
Racal-Redac	2.8	.1	2.2	19	1.5%	.1%	2.7%	.6%
Intergraph	2.4	1.3	.4	27	1.2%	1.7%	.5%	.9%
Digital	2.3	1.7	.0	71	1.2%	2.2%	.0%	2.4%
Dazix	2.2	.4	.9	27	1.1%	.5%	1.1%	.9%
Control Data	2.2	1.6	.2	41	1.1%	2.0%	.3%	1.4%
Silicon Graphics	2.1	1.8	.0	67	1.1%	2.3%	.0%	2.3%
VLSI Technology	1.8	.1	1.5	1	.9%	.1%	1.9%	.0%
Technische Computer Systeme	1.5	.3	1.2	40	.8%	.4%	1.5%	1.3%
Ferranti	1.2	.4	.5	10	.6%	.6%	.7%	.3%
PAFEC	1.1	.0	1.1	0	.6%	.0%	1.4%	.0%
Parametric Technology	.8	.0	.7	0	.4%	.0%	.9%	.0%
ISYKON Software	.8	.4	.3	11	.4%	.5%	.3%	.4%
Matra Datavision	.6	.3	.3	7	.3%	.4%	.3%	.2%
Valid	.6	.2	.3	3	.3%	.2%	.4%	.1%
rotring euroCAD	.6	.4	.2	16	.3%	.5%	.2%	.5%
PDA Engineering	.5	.0	.5	0	.3%	.0%	.7%	.0%

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Market Share

TABLE NUMBER: 90
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Autodesk	.5	.0	.5	0	.3%	.0%	.6%	.0%
Calay	.5	.2	.3	8	.2%	.2%	.3%	.3%
Gerber Systems	.4	.2	.1	3	.2%	.3%	.2%	.1%
Framasoft	.4	.0	.2	0	.2%	.0%	.3%	.0%
Exapt	.4	.2	.1	11	.2%	.2%	.1%	.4%
Fides Industrielle Automation	.4	.0	.3	24	.2%	.1%	.4%	.8%
Dassault	.3	.0	.3	0	.2%	.0%	.3%	.0%
SDRC	.3	.0	.3	0	.2%	.0%	.4%	.0%
Westward	.3	.3	.0	18	.2%	.4%	.0%	.6%
Zycad	.3	.2	.0	0	.1%	.3%	.0%	.0%
Aucotec	.2	.1	.1	6	.1%	.1%	.1%	.2%
MacNeal-Schwendler	.2	.0	.2	0	.1%	.0%	.2%	.0%
European Silicon Structures	.2	.0	.2	1	.1%	.1%	.2%	.0%
Marcus Computer Systeme	.2	.1	.1	0	.1%	.1%	.1%	.0%
Albert Nestler	.2	.1	.1	2	.1%	.1%	.1%	.1%
CAD Lab	.1	.0	.1	0	.1%	.0%	.1%	.0%
t2 Solutions	.1	.1	.0	1	.1%	.1%	.0%	.0%
Wiechers Datentechnik	.1	.1	.0	10	.1%	.1%	.0%	.3%
Gable CAD Systems	.1	.0	.0	1	.0%	.0%	.0%	.0%
MCS	.1	.0	.0	0	.0%	.0%	.0%	.0%
Catalpa	.0	.0	.0	0	.0%	.0%	.0%	.0%
Cisigraph	.0	.0	.0	0	.0%	.0%	.0%	.0%
TOOL Software	.0	.0	.0	1	.0%	.0%	.0%	.0%
XAO Industrie	.0	.0	.0	1	.0%	.0%	.0%	.0%
Academi Systems	.0	.0	.0	0	.0%	.0%	.0%	.0%
Inca	.0	.0	.0	0	.0%	.0%	.0%	.0%
Solbourne	.0	.0	.0	1	.0%	.0%	.0%	.0%

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Market Share

TABLE NUMBER: 90 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	8.3	1.1	6.5	55	4.3%	1.4%	8.1%	1.8%
All Companies	192.0	78.4	80.2	2,980	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	121.9	48.0	49.6	1,812	63.5%	61.2%	61.8%	60.8%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	70.2	30.4	30.6	1,167	36.5%	38.8%	38.2%	39.2%
All Hardware Companies	15.6	13.1	.0	882	8.1%	16.7%	.0%	29.6%
All Turnkey & SW Companies	176.4	65.2	80.2	2,097	91.9%	83.3%	100.0%	70.4%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 91
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	30.8	18.8	6.8	324	49.5%	57.4%	36.2%	50.7%
Digital	6.9	5.2	.0	0	11.1%	15.8%	.0%	.0%
Control Data	3.5	2.5	.4	23	5.6%	7.7%	2.0%	3.6%
Cadence	3.4	.0	3.0	0	5.5%	.0%	16.0%	.0%
Computervision	3.4	1.5	.8	69	5.4%	4.7%	4.3%	10.7%
Siemens	2.1	1.2	.6	24	3.3%	3.7%	3.3%	3.8%
Schlumberger	1.7	.7	.6	30	2.8%	2.0%	3.1%	4.7%
Fides Industrielle Automation	1.4	.2	1.3	29	2.2%	.5%	6.7%	4.5%
McDonnell Douglas	1.1	.6	.4	36	1.8%	1.8%	2.2%	5.6%
Sun	1.0	.8	.0	44	1.5%	2.4%	.0%	6.8%
Exapt	.9	.5	.3	11	1.5%	1.4%	1.7%	1.7%
MacNeal-Schwendler	.6	.0	.6	0	1.0%	.0%	3.3%	.0%
LSI Logic	.5	.1	.4	2	.9%	.2%	2.1%	.3%
Intergraph	.4	.2	.1	4	.7%	.6%	.4%	.6%
Dassault	.4	.0	.3	0	.6%	.0%	1.7%	.0%
Hewlett-Packard	.4	.3	.0	19	.6%	.9%	.0%	2.9%
PDA Engineering	.3	.0	.3	0	.4%	.0%	1.4%	.0%
Aucotec	.2	.1	.1	7	.4%	.3%	.6%	1.1%
Solbourne	.1	.1	.0	6	.1%	.2%	.0%	.9%
Zycad	.1	.1	.0	1	.1%	.2%	.0%	.2%
SDRC	.1	.0	.1	0	.1%	.0%	.3%	.0%
Framasoft	.0	.0	.0	0	.1%	.0%	.1%	.0%
Silicon Graphics	.0	.0	.0	1	.1%	.1%	.0%	.2%
MCS	.0	.0	.0	0	.0%	.0%	.2%	.0%
Olivetti	.0	.0	.0	0	.0%	.0%	.0%	.1%
VLSI Technology	.0	.0	.0	0	.0%	.0%	.1%	.0%

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Market Share

TABLE NUMBER: 91 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	2.9	.0	2.7	0	4.6%	.0%	14.4%	.1%
All Companies	62.3	32.8	18.7	640	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	57.2	30.8	16.1	562	91.8%	94.1%	86.0%	87.8%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	5.1	1.9	2.6	78	8.2%	5.9%	14.0%	12.2%
All Hardware Companies	8.3	6.4	.0	69	13.4%	19.4%	.0%	10.9%
All Turnkey & SW Companies	53.9	26.4	18.7	571	86.6%	80.6%	100.0%	89.1%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 92
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Investronica SA	13.3	10.6	1.3	531	18.0%	26.8%	4.7%	11.4%
Caditron	12.0	6.0	4.8	188	16.3%	15.1%	17.1%	4.0%
Compaq	7.9	7.9	.0	1,317	10.7%	19.9%	.0%	28.3%
Autodesk	6.0	.0	6.0	0	8.2%	.0%	21.5%	.0%
IBM	4.2	4.0	.0	933	5.7%	10.0%	.0%	20.1%
Hewlett-Packard	3.6	2.9	.0	560	4.9%	7.3%	.0%	12.0%
Apple Computer	3.2	2.8	.0	605	4.3%	7.0%	.0%	13.0%
DAT Standard Information syste	1.9	.0	1.8	0	2.6%	.0%	6.4%	.0%
Ziegler	1.7	.0	1.7	0	2.3%	.0%	6.1%	.0%
Kloeckner-Moeller	1.5	.9	.5	17	2.1%	2.3%	1.9%	.4%
Cimatron	1.5	.7	.7	44	2.0%	1.7%	2.4%	.9%
ISICAD	1.4	.0	1.4	0	1.9%	.0%	5.0%	.0%
Aucotec	1.0	.4	.5	32	1.4%	1.0%	1.9%	.7%
Vero International Software	1.0	.0	1.0	0	1.4%	.0%	3.6%	.0%
BATISOFT	1.0	.2	.5	31	1.3%	.4%	1.7%	.7%
Kewill Systems	.9	.3	.5	9	1.2%	.7%	1.8%	.2%
LPKF	.9	.6	.2	36	1.2%	1.5%	.8%	.8%
Racal-Redac	.7	.0	.7	0	.9%	.0%	2.4%	.0%
rotring euroCAD	.5	.3	.2	13	.7%	.8%	.8%	.3%
Robocom	.5	.0	.5	0	.7%	.0%	1.7%	.0%
Intercad	.4	.2	.1	17	.5%	.5%	.4%	.4%
Datagraphic	.3	.0	.3	2	.4%	.1%	.9%	.1%
CAD-UL	.3	.0	.3	0	.4%	.0%	1.1%	.0%
Wiechers Datentechnik	.3	.2	.1	50	.4%	.6%	.2%	1.1%
ALS Design	.3	.0	.3	0	.3%	.0%	.9%	.0%
Vision 3D	.2	.1	.1	2	.3%	.4%	.2%	.0%
Computervision	.2	.1	.1	6	.3%	.3%	.2%	.1%
Olivetti	.2	.2	.0	36	.3%	.5%	.0%	.8%
Datagraph	.2	.2	.0	1	.3%	.4%	.1%	.0%
Ground Modelling Systems	.2	.1	.1	1	.2%	.3%	.3%	.0%
Schlumberger	.2	.0	.1	1	.2%	.1%	.2%	.0%
Serbi	.2	.0	.2	0	.2%	.0%	.6%	.0%

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Market Share

TABLE NUMBER: 92 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Westward	.1	.1	.0	8	.2%	.4%	.0%	.2%
PAFEC	.1	.0	.1	0	.2%	.0%	.5%	.0%
TOOL Software	.1	.0	.1	2	.2%	.0%	.3%	.1%
Instrumatic Espanola	.1	.0	.1	0	.1%	.0%	.4%	.0%
Superdraft	.1	.1	.1	6	.1%	.1%	.2%	.1%
Sycotronic AG	.1	.0	.1	0	.1%	.0%	.3%	.0%
BETRONEX	.1	.0	.1	0	.1%	.0%	.3%	.0%
Intergraph	.1	.0	.1	0	.1%	.0%	.2%	.0%
Marcus Computer Systeme	.1	.0	.0	0	.1%	.1%	.1%	.0%
European Silicon Structures	.0	.0	.0	0	.1%	.0%	.1%	.0%
FHECOR	.0	.0	.0	0	.1%	.0%	.1%	.0%
Academi Systems	.0	.0	.0	0	.0%	.0%	.1%	.0%
MCS	.0	.0	.0	0	.0%	.0%	.1%	.0%
Inca	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	5.1	.8	3.5	205	7.0%	2.1%	12.4%	4.4%
All Companies	73.8	39.7	28.0	4,653	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	31.9	18.5	11.1	3,627	43.2%	46.6%	39.7%	77.9%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	41.9	21.2	16.9	1,026	56.8%	53.4%	60.3%	22.1%
All Hardware Companies	19.0	17.7	.0	3,453	25.7%	44.5%	.0%	74.2%
All Turnkey & SW Companies	54.8	22.0	28.0	1,200	74.3%	55.5%	100.0%	25.8%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 93
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
IBM	30.8	19.3	6.4	667	16.6%	19.9%	11.1%	14.6%
Computervision	20.3	9.4	4.8	168	11.0%	9.7%	8.4%	3.7%
Schlumberger	16.6	5.7	6.2	174	8.9%	5.9%	10.7%	3.8%
Hewlett-Packard	13.9	10.3	1.2	729	7.5%	10.7%	2.1%	16.0%
Investronica SA	13.3	10.6	1.3	531	7.2%	11.0%	2.3%	11.6%
Siemens	10.8	6.4	3.2	251	5.8%	6.6%	5.6%	5.5%
STI-Straessle	7.9	1.8	4.3	75	4.2%	1.9%	7.5%	1.6%
Caditron	6.9	3.4	2.8	108	3.7%	3.6%	4.7%	2.4%
Control Data	5.3	3.8	.6	60	2.8%	3.9%	1.0%	1.3%
Digital	5.0	3.7	.0	38	2.7%	3.9%	.0%	.8%
Cimatron	5.0	2.2	2.2	146	2.7%	2.3%	3.8%	3.2%
Kewill Systems	4.6	1.4	2.5	46	2.5%	1.4%	4.4%	1.0%
McDonnell Douglas	4.4	2.3	1.6	62	2.4%	2.4%	2.8%	1.4%
Mannesmann PROCAD	3.1	1.6	.9	44	1.7%	1.7%	1.5%	1.0%
Compaq	2.8	2.8	.0	472	1.5%	2.9%	.0%	10.3%
Autodesk	2.5	.0	2.5	0	1.3%	.0%	4.3%	.0%
Silicon Graphics	2.1	1.9	.0	69	1.1%	1.9%	.0%	1.5%
Sun	1.9	1.7	.0	137	1.0%	1.7%	.0%	3.0%
DAT Standard Information syste	1.8	.0	1.7	0	1.0%	.0%	3.0%	.0%
Fides Industrielle Automation	1.7	.2	1.6	52	.9%	.2%	2.7%	1.2%
Kloeckner-Moeller	1.5	.9	.5	17	.8%	.9%	.9%	.4%
Technische Computer Systeme	1.5	.3	1.2	40	.8%	.3%	2.1%	.9%
Apple Computer	1.3	1.1	.0	248	.7%	1.2%	.0%	5.4%
Exapt	1.3	.6	.4	22	.7%	.7%	.8%	.5%
ISICAD	1.3	.6	.5	12	.7%	.6%	.8%	.3%
Ferranti	1.2	.4	.5	10	.6%	.5%	.9%	.2%
Vero International Software	1.0	.0	1.0	0	.6%	.0%	1.8%	.0%
rotring euroCAD	.9	.6	.4	25	.5%	.6%	.6%	.5%
PAFEC	.9	.0	.9	0	.5%	.0%	1.5%	.0%
MacNeal-Schwendler	.8	.0	.8	0	.5%	.0%	1.4%	.0%
PDA Engineering	.8	.0	.8	0	.4%	.0%	1.4%	.0%
Parametric Technology	.8	.0	.7	0	.4%	.0%	1.2%	.0%
ISYKON Software	.8	.4	.3	11	.4%	.4%	.4%	.2%

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Market Share

TABLE NUMBER: 93
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					--- Market Share ---			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intergraph	.7	.4	.2	8	.4%	.4%	.3%	.2%
Ziegler	.7	.0	.7	0	.4%	.0%	1.2%	.0%
Dassault	.6	.0	.5	0	.3%	.0%	.9%	.0%
Matra Datavision	.6	.3	.3	7	.3%	.3%	.4%	.1%
Gerber Systems	.4	.2	.1	3	.2%	.2%	.2%	.1%
Framasoft	.4	.0	.2	0	.2%	.0%	.4%	.0%
Wiechers Datentechnik	.4	.3	.1	59	.2%	.3%	.1%	1.3%
SDRC	.4	.0	.4	0	.2%	.0%	.7%	.0%
Westward	.4	.4	.0	22	.2%	.4%	.0%	.5%
Intercad	.3	.1	.1	14	.2%	.1%	.1%	.3%
Vision 3D	.2	.1	.1	2	.1%	.1%	.1%	.0%
Robocom	.2	.0	.2	0	.1%	.0%	.4%	.0%
Marcus Computer Systeme	.2	.1	.1	0	.1%	.1%	.1%	.0%
Datagraph	.2	.2	.0	1	.1%	.2%	.1%	.0%
Albert Nestler	.2	.1	.1	2	.1%	.1%	.1%	.0%
Olivetti	.2	.1	.0	22	.1%	.1%	.0%	.5%
CAD Lab	.1	.0	.1	0	.1%	.0%	.2%	.0%
Superdraft	.1	.1	.1	6	.1%	.1%	.1%	.1%
MCS	.1	.0	.1	0	.1%	.0%	.2%	.0%
Serbi	.1	.0	.1	0	.0%	.0%	.1%	.0%
Catalpa	.0	.0	.0	0	.0%	.0%	.0%	.0%
Cisigraph	.0	.0	.0	0	.0%	.0%	.0%	.0%
XAO Industrie	.0	.0	.0	1	.0%	.0%	.0%	.0%
FHECOR	.0	.0	.0	0	.0%	.0%	.0%	.0%

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Market Share

TABLE NUMBER: 93 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	4.2	.9	2.7	188	2.3%	.9%	4.6%	4.1%
All Companies	185.4	96.9	57.9	4,561	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	116.3	64.2	29.6	3,049	62.7%	66.2%	51.1%	66.8%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	69.1	32.7	28.4	1,513	37.3%	33.8%	48.9%	33.2%
All Hardware Companies	20.9	17.9	.0	1,879	11.3%	18.5%	.0%	41.2%
All Turnkey & SW Companies	164.5	79.0	57.9	2,682	88.7%	81.5%	100.0%	58.8%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 94
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: AEC
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Kewill Systems	4.6	1.4	2.5	46	12.1%	7.2%	17.5%	3.3%
ISICAD	4.2	1.5	2.2	31	11.1%	8.0%	14.9%	2.2%
IBM	4.1	2.8	.7	239	10.9%	14.6%	4.8%	17.1%
Caditron	3.6	1.8	1.4	56	9.4%	9.2%	9.9%	4.0%
Star Informatic	3.0	2.6	.8	140	7.8%	13.4%	5.3%	10.0%
Autodesk	2.9	.0	2.9	0	7.6%	.0%	19.8%	.0%
Hewlett-Packard	2.8	2.1	.2	168	7.2%	10.9%	1.3%	12.0%
Compaq	1.8	1.8	.0	291	4.6%	9.1%	.0%	20.8%
Siemens	1.5	.9	.5	32	4.0%	4.6%	3.1%	2.3%
McDonnell Douglas	1.4	.8	.5	25	3.8%	3.9%	3.7%	1.8%
Apple Computer	1.3	1.1	.0	242	3.3%	5.8%	.0%	17.3%
Digital	1.0	.8	.0	7	2.7%	3.9%	.0%	.5%
BATISOFT	1.0	.2	.5	31	2.6%	.8%	3.4%	2.3%
Computervision	.9	.4	.2	8	2.4%	2.2%	1.5%	.5%
Intergraph	.7	.4	.2	8	1.9%	2.0%	1.0%	.5%
Datagraphic	.3	.0	.3	2	.8%	.2%	1.8%	.2%
Robocom	.2	.0	.2	0	.6%	.0%	1.5%	.0%
Ziegler	.2	.0	.2	0	.6%	.0%	1.5%	.0%
Sun	.2	.2	.0	16	.5%	.9%	.0%	1.1%
Control Data	.2	.1	.0	2	.4%	.6%	.1%	.1%
Schlumberger	.2	.1	.1	2	.4%	.3%	.4%	.1%
TOOL Software	.2	.0	.1	4	.4%	.2%	.7%	.3%
Dassault	.1	.0	.1	0	.3%	.0%	.6%	.0%
t2 Solutions	.1	.1	.0	1	.3%	.3%	.2%	.1%
Olivetti	.1	.1	.0	13	.2%	.4%	.0%	.9%
PAFEC	.1	.0	.1	0	.2%	.0%	.6%	.0%
Gable CAD Systems	.1	.0	.0	1	.2%	.2%	.2%	.1%
Sycotronic AG	.1	.0	.0	0	.1%	.0%	.3%	.0%
Ground Modelling Systems	.0	.0	.0	0	.1%	.1%	.1%	.0%
Westward	.0	.0	.0	2	.1%	.2%	.0%	.1%
FHECOR	.0	.0	.0	0	.1%	.0%	.2%	.0%
Serbi	.0	.0	.0	0	.1%	.0%	.2%	.0%

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Market Share

TABLE NUMBER: 94 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: AEC
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	1.2	.3	.8	32	3.1%	1.3%	5.2%	2.3%
All Companies	38.0	19.3	14.5	1,397	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	22.8	12.2	7.7	1,069	60.1%	63.4%	53.2%	76.5%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	15.1	7.1	6.8	328	39.9%	36.6%	46.8%	23.5%
All Hardware Companies	6.8	6.0	.0	914	17.8%	31.2%	.0%	65.4%
All Turnkey & SW Companies	31.2	13.3	14.5	483	82.2%	68.8%	100.0%	34.6%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 95
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: GIS/Mapping
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Siemens	9.0	5.3	2.7	195	40.1%	46.7%	34.0%	26.7%
STI-Straessle	4.8	1.1	2.6	45	21.3%	9.6%	33.1%	6.2%
IBM	1.6	1.2	.2	165	7.2%	10.8%	2.5%	22.7%
Intergraph	1.2	.6	.2	12	5.1%	5.4%	2.9%	1.7%
Compaq	1.1	1.1	.0	190	5.1%	10.0%	.0%	26.1%
Digital	.9	.7	.0	6	4.1%	6.1%	.0%	.9%
Autodesk	.7	.0	.7	0	2.9%	.0%	8.3%	.0%
Apple Computer	.4	.3	.0	67	1.6%	2.6%	.0%	9.1%
PAFEC	.3	.0	.3	0	1.4%	.0%	3.9%	.0%
Caditron	.3	.1	.1	4	1.2%	1.1%	1.3%	.5%
Computervision	.2	.1	.1	2	1.0%	1.0%	.8%	.3%
Control Data	.2	.2	.0	2	1.0%	1.5%	.4%	.3%
Sun	.2	.2	.0	14	.9%	1.5%	.0%	2.0%
Ziegler	.2	.0	.2	0	.8%	.0%	2.4%	.0%
Ground Modelling Systems	.1	.1	.1	1	.6%	.9%	.9%	.1%
Robocom	.0	.0	.0	0	.2%	.0%	.5%	.0%
Hewlett-Packard	.0	.0	.0	3	.1%	.3%	.0%	.5%
Olivetti	.0	.0	.0	2	.0%	.1%	.0%	.3%
Solbourne	.0	.0	.0	1	.0%	.1%	.0%	.1%
Other Companies	1.2	.3	.7	9	5.3%	2.5%	9.3%	1.2%
All Companies	22.5	11.4	8.0	729	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	7.7	4.8	1.9	473	34.3%	41.7%	24.1%	64.9%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	14.8	6.7	6.1	256	65.7%	58.3%	75.9%	35.1%
All Hardware Companies	3.4	3.0	.0	441	14.9%	26.4%	.0%	60.5%
All Turnkey & SW Companies	19.2	8.4	8.0	288	85.1%	73.6%	100.0%	39.5%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 96
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					--- Market Share ---			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Cadence	19.6	.0	17.2	0	23.8%	.0%	37.0%	.0%
ABB Cade International	8.4	4.9	2.5	36	10.2%	21.0%	5.4%	2.3%
Hewlett-Packard	6.3	4.5	.5	382	7.7%	19.4%	1.0%	24.1%
Mentor Graphics	6.1	.9	3.4	66	7.4%	3.8%	7.2%	4.2%
LSI Logic	5.4	.5	4.1	21	6.6%	2.3%	8.7%	1.3%
Racal-Redac	3.5	.1	2.8	19	4.3%	.3%	6.1%	1.2%
Sun	2.6	2.3	.0	203	3.2%	9.8%	.0%	12.8%
Digital	2.3	1.7	.0	20	2.8%	7.3%	.0%	1.3%
Dazix	2.2	.4	.9	27	2.7%	1.7%	1.9%	1.7%
Compaq	2.2	2.2	.0	364	2.7%	9.4%	.0%	23.0%
VLSI Technology	1.8	.1	1.5	1	2.2%	.2%	3.2%	.1%
Computervision	1.6	.7	.4	13	2.0%	3.1%	.8%	.8%
IBM	1.6	1.3	.2	215	2.0%	5.6%	.3%	13.6%
Aucotec	1.5	.6	.7	45	1.8%	2.5%	1.6%	2.9%
Caditron	1.3	.6	.5	20	1.6%	2.8%	1.1%	1.3%
LPKF	.9	.6	.2	36	1.1%	2.5%	.5%	2.3%
Ziegler	.6	.0	.6	0	.7%	.0%	1.3%	.0%
Valid	.6	.2	.3	3	.7%	.7%	.7%	.2%
Autodesk	.5	.0	.5	0	.6%	.0%	1.1%	.0%
Schlumberger	.5	.1	.2	5	.6%	.6%	.4%	.3%
Calay	.5	.2	.3	8	.6%	.6%	.6%	.5%
Zycad	.4	.3	.0	1	.4%	1.2%	.0%	.1%
CAD-UL	.3	.0	.3	0	.4%	.0%	.7%	.0%
Intergraph	.3	.1	.1	3	.3%	.6%	.1%	.2%
Apple Computer	.3	.2	.0	48	.3%	.9%	.0%	3.1%
ALS Design	.3	.0	.3	0	.3%	.0%	.5%	.0%
European Silicon Structures	.2	.0	.2	1	.3%	.2%	.4%	.1%
rotring euroCAD	.2	.1	.1	4	.2%	.4%	.2%	.2%
Instrumatic Espanola	.1	.0	.1	0	.1%	.0%	.2%	.0%
BETRONEX	.1	.0	.1	0	.1%	.0%	.2%	.0%
DAT Standard Information syste	.1	.0	.1	0	.1%	.0%	.2%	.0%
Serbi	.1	.0	.1	0	.1%	.0%	.2%	.0%

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Market Share

TABLE NUMBER: 96 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intercad	.1	.0	.0	3	.1%	.2%	.0%	.2%
Solbourne	.1	.1	.0	6	.1%	.3%	.0%	.4%
Sycotronic AG	.1	.0	.1	0	.1%	.0%	.1%	.0%
Academi Systems	.1	.0	.0	0	.1%	.0%	.1%	.0%
Inca	.0	.0	.0	0	.0%	.0%	.0%	.0%
Westward	.0	.0	.0	2	.0%	.1%	.0%	.1%
Other Companies	9.8	.6	8.5	31	11.9%	2.5%	18.3%	1.9%
All Companies	82.2	23.2	46.5	1,585	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	64.1	16.1	37.6	1,410	77.9%	69.4%	80.7%	89.0%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	18.1	7.1	9.0	175	22.1%	30.6%	19.3%	11.0%
All Hardware Companies	11.9	10.2	.0	1,171	14.5%	44.0%	.0%	73.9%
All Turnkey & SW Companies	70.3	13.0	46.5	415	85.5%	56.0%	100.0%	26.1%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 97
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
ABB Cade International	5.9	3.5	1.8	25	12.4%	23.1%	6.8%	2.4%
Cadence	5.2	.0	4.6	0	11.0%	.0%	17.8%	.0%
LSI Logic	4.8	.5	3.6	19	10.2%	3.2%	14.1%	1.8%
Hewlett-Packard	4.5	3.4	.3	282	9.4%	22.6%	1.1%	26.7%
Mentor Graphics	3.7	.6	2.0	40	7.9%	3.9%	8.0%	3.8%
Dazix	1.7	.3	.7	20	3.5%	2.2%	2.6%	1.9%
Compaq	1.5	1.5	.0	257	3.3%	10.1%	.0%	24.3%
Aucotec	1.5	.6	.7	45	3.1%	3.9%	2.9%	4.3%
Racal-Redac	1.3	.1	1.1	7	2.8%	.5%	4.2%	.7%
Caditron	1.3	.6	.5	20	2.7%	4.2%	2.0%	1.9%
Sun	1.2	1.1	.0	94	2.6%	7.0%	.0%	8.9%
VLSI Technology	1.1	.0	.9	1	2.3%	.2%	3.6%	.1%
Digital	.9	.7	.0	8	2.0%	4.5%	.0%	.7%
IBM	.8	.8	.0	177	1.7%	4.9%	.0%	16.7%
Autodesk	.5	.0	.5	0	1.0%	.0%	1.8%	.0%
Computervision	.5	.2	.1	4	1.0%	1.4%	.4%	.4%
Valid	.4	.1	.2	2	.7%	.6%	.7%	.2%
Zycad	.4	.3	.0	1	.7%	1.9%	.0%	.1%
Ziegler	.3	.0	.3	0	.7%	.0%	1.3%	.0%
ALS Design	.2	.0	.2	0	.4%	.0%	.7%	.0%
rotring euroCAD	.2	.1	.1	4	.3%	.6%	.3%	.4%
Intergraph	.1	.1	.0	2	.3%	.5%	.1%	.1%
Apple Computer	.1	.1	.0	24	.3%	.7%	.0%	2.3%
Calay	.1	.0	.1	2	.2%	.2%	.2%	.1%
DAT Standard Information syste	.1	.0	.1	0	.2%	.0%	.3%	.0%
Serbi	.1	.0	.1	0	.2%	.0%	.3%	.0%
Intercad	.1	.0	.0	3	.1%	.3%	.1%	.3%
Solbourne	.0	.0	.0	1	.0%	.1%	.0%	.1%
Westward	.0	.0	.0	2	.0%	.1%	.0%	.1%

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Market Share

TABLE NUMBER: 97 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	9.0	.5	7.9	17	18.9%	3.4%	30.7%	1.6%
All Companies	47.3	15.2	25.6	1,058	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	36.3	10.2	20.7	950	76.8%	67.2%	80.9%	89.8%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	11.0	5.0	4.9	108	23.2%	32.8%	19.1%	10.2%
All Hardware Companies	7.3	6.4	.0	807	15.5%	42.2%	.0%	76.2%
All Turnkey & SW Companies	39.9	8.8	25.6	252	84.5%	57.8%	100.0%	23.8%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 98
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: IC Layout
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Cadence	14.3	.0	12.6	0	75.7%	.0%	84.9%	.0%
Mentor Graphics	.9	.1	.5	10	4.8%	8.9%	3.4%	8.9%
Sun	.8	.7	.0	62	4.2%	43.9%	.0%	55.5%
VLSI Technology	.7	.0	.6	1	3.9%	1.3%	4.1%	.5%
LSI Logic	.6	.1	.4	2	3.1%	3.8%	3.0%	2.1%
Digital	.4	.3	.0	5	2.0%	18.5%	.0%	4.1%
Hewlett-Packard	.3	.3	.0	27	1.6%	15.9%	.0%	24.2%
European Silicon Structures	.2	.0	.2	1	1.3%	2.5%	1.3%	1.3%
Valid	.1	.0	.1	0	.4%	1.3%	.3%	.3%
Solbourne	.0	.0	.0	3	.2%	2.5%	.0%	2.8%
Inca	.0	.0	.0	0	.1%	.0%	.1%	.0%
Other Companies	.5	.0	.4	0	2.8%	1.3%	2.9%	.3%
All Companies	18.9	1.6	14.8	111	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	18.6	1.5	14.6	110	98.6%	97.5%	98.6%	98.7%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	.3	.0	.2	1	1.4%	2.5%	1.4%	1.3%
All Hardware Companies	1.5	1.3	.0	97	8.0%	80.9%	.0%	86.6%
All Turnkey & SW Companies	17.4	.3	14.8	15	92.0%	19.1%	100.0%	13.4%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 99
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
ABB Cede International	2.5	1.4	.8	11	15.6%	21.4%	12.4%	2.6%
Racal-Redac	2.2	.0	1.8	12	13.5%	.0%	28.8%	2.9%
Hewlett-Packard	1.6	.8	.2	73	9.8%	13.0%	2.8%	17.5%
Mentor Graphics	1.5	.2	.8	16	9.1%	2.3%	13.2%	3.8%
Computervision	1.2	.5	.3	10	7.2%	7.9%	4.4%	2.3%
Digital	1.0	.7	.0	7	6.3%	11.1%	.0%	1.8%
LPKF	.9	.6	.2	36	5.5%	9.0%	3.6%	8.7%
IBM	.8	.6	.2	38	5.1%	8.5%	2.5%	9.1%
Compaq	.6	.6	.0	107	4.0%	9.9%	.0%	25.8%
Sun	.6	.5	.0	46	3.7%	8.0%	.0%	11.2%
Dazix	.5	.1	.2	7	3.3%	.8%	3.4%	1.6%
Schlumberger	.5	.1	.2	5	3.2%	2.0%	3.1%	1.3%
Calay	.4	.1	.2	6	2.4%	1.9%	3.6%	1.5%
CAD-UL	.3	.0	.3	0	1.9%	.0%	5.1%	.0%
Ziegler	.3	.0	.3	0	1.7%	.0%	4.4%	.0%
Valid	.2	.1	.1	1	1.1%	.8%	1.6%	.2%
Intergraph	.1	.1	.0	2	.9%	.9%	.3%	.4%
Apple Computer	.1	.1	.0	24	.8%	1.7%	.0%	5.8%
Instrumatic Espanola	.1	.0	.1	0	.7%	.0%	1.6%	.0%
BETRONEX	.1	.0	.1	0	.6%	.0%	1.5%	.0%
Cadence	.1	.0	.1	0	.6%	.0%	1.1%	.0%
ALS Design	.1	.0	.1	0	.4%	.0%	1.0%	.0%
Autodesk	.1	.0	.1	0	.4%	.0%	1.0%	.0%
Sycotronic AG	.1	.0	.1	0	.4%	.0%	.8%	.0%
Academi Systems	.1	.0	.0	0	.3%	.0%	.5%	.0%
Solbourne	.0	.0	.0	1	.1%	.2%	.0%	.3%

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Market Share

TABLE NUMBER: 99 (Continued)
TITLE: 1990 Preliminary Market Share Estimates
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	.3	.0	.2	13	1.7%	.6%	3.3%	3.2%
All Companies	16.1	6.5	6.1	416	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	9.2	4.4	2.3	350	57.2%	67.8%	36.8%	84.3%
All Asian-Based Companies	.0	.0	.0	0	.0%	.0%	.0%	.0%
All European-Based Companies	6.9	2.1	3.9	65	42.8%	32.2%	63.2%	15.7%
All Hardware Companies	3.1	2.5	.0	268	19.0%	39.3%	.0%	64.5%
All Turnkey & SW Companies	13.0	3.9	6.1	148	81.0%	60.7%	100.0%	35.5%

Source: Dataquest
January 1991

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Market Share

TABLE NUMBER: 1
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	589.0	403.5	94.2	20,113	13.8%	16.4%	8.7%	14.2%
Computervision	458.0	211.1	108.9	3,851	10.7%	8.6%	10.1%	2.7%
Digital	359.8	269.4	.0	2,612	8.4%	10.9%	.0%	1.8%
Hewlett-Packard	352.6	254.6	30.6	20,462	8.2%	10.3%	2.8%	14.5%
Intergraph	288.4	151.8	56.7	2,944	6.7%	6.2%	5.2%	2.1%
Compaq	139.0	139.0	.0	23,166	3.2%	5.6%	.0%	16.4%
Siemens	127.1	75.0	38.1	2,819	3.0%	3.0%	3.5%	2.0%
Mentor Graphics	105.8	30.7	52.1	1,400	2.5%	1.2%	4.8%	1.0%
Control Data	93.7	66.5	11.2	1,000	2.2%	2.7%	1.0%	.7%
McDonnell Douglas	86.9	46.6	31.6	1,499	2.0%	1.9%	2.9%	1.1%
Schlumberger (Applicon)	70.4	26.4	22.6	738	1.6%	1.1%	2.1%	.5%
Sun	66.3	59.7	.0	4,450	1.5%	2.4%	.0%	3.1%
Autodesk	57.9	.0	57.9	0	1.4%	.0%	5.4%	.0%
Dazix	55.3	21.0	22.2	551	1.3%	.9%	2.0%	.4%
PAFEC	51.4	.0	51.4	0	1.2%	.0%	4.8%	.0%
Matra Datavision	51.3	30.8	15.4	356	1.2%	1.3%	1.4%	.3%
Apple Computer	49.9	43.9	.0	9,600	1.2%	1.8%	.0%	6.8%
Norsk Data	47.7	24.0	13.9	521	1.1%	1.0%	1.3%	.4%
Racal-Redac	46.0	.2	37.8	163	1.1%	.0%	3.5%	.1%
Valid	43.5	10.9	23.5	0	1.0%	.4%	2.2%	.0%
Dassault	31.6	.0	26.2	0	.7%	.0%	2.4%	.0%
ISICAD	31.2	13.1	13.3	334	.7%	.5%	1.2%	.2%
Cisigraph	29.3	11.7	10.6	327	.7%	.5%	1.0%	.2%
Ferranti	28.0	17.9	5.4	252	.7%	.7%	.5%	.2%
ItalCad	24.0	12.2	8.9	250	.6%	.5%	.8%	.2%
Investronica SA	23.6	18.9	2.4	943	.6%	.8%	.2%	.7%
STI-Straessle	20.3	9.2	10.0	137	.5%	.4%	.9%	.1%
Silicon Graphics	19.1	17.0	.0	569	.4%	.7%	.0%	.4%
Wiechers Datentechnik	17.0	8.5	8.5	400	.4%	.3%	.8%	.3%
SDRC	15.8	.0	15.8	0	.4%	.0%	1.5%	.0%
Syssc	15.6	7.0	4.1	116	.4%	.3%	.4%	.1%
ICL	15.4	9.5	4.2	432	.4%	.4%	.4%	.3%
Ziegler	15.0	.6	13.7	495	.4%	.0%	1.3%	.4%

(Continued)

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Market Share

TABLE NUMBER: 1
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					..... Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Mannesmann PROCAD	15.0	7.5	4.5	200	.4%	.3%	.4%	.1%
Unisys	14.6	5.7	7.0	275	.3%	.2%	.6%	.2%
Olivetti	13.8	4.1	6.0	2,303	.3%	.2%	.6%	1.6%
ABB Cade International	13.6	7.5	3.2	5	.3%	.3%	.3%	.0%
Engineering Computer Services	13.5	5.4	4.6	247	.3%	.2%	.4%	.2%
Calay	13.5	4.2	6.8	134	.3%	.2%	.6%	.1%
Fides Industrielle Automation	13.2	2.6	9.2	62	.3%	.1%	.9%	.0%
Westward	13.0	13.0	.0	760	.3%	.5%	.0%	.5%
Silicon Compiler Systems	13.0	.0	8.7	0	.3%	.0%	.8%	.0%
Exapt	12.4	8.2	2.9	212	.3%	.3%	.3%	.1%
Secmai	12.4	7.4	2.6	101	.3%	.3%	.2%	.1%
CADAM	12.3	.0	11.0	0	.3%	.0%	1.0%	.0%
Vero International Software	12.3	.0	12.3	0	.3%	.0%	1.1%	.0%
Datagraph	12.2	9.8	2.4	50	.3%	.4%	.2%	.0%
Cimlinc	12.1	5.1	4.4	1,048	.3%	.2%	.4%	.2%
ISYKON Software	11.7	6.4	4.1	220	.3%	.3%	.4%	.2%
CAD Lab	11.5	.0	9.3	0	.3%	.0%	.9%	.0%
Cimatron	11.1	5.1	4.9	331	.3%	.2%	.5%	.2%
t2 Solutions	10.9	5.8	3.6	102	.3%	.2%	.3%	.1%
Cadence	10.1	.0	8.5	0	.2%	.0%	.8%	.0%
MacNeal-Schwendler	9.5	.0	9.0	0	.2%	.0%	.8%	.0%
Star Informatic	9.3	4.2	2.8	394	.2%	.2%	.3%	.3%
Scientific Calc.	9.1	2.0	4.6	42	.2%	.1%	.4%	.0%
Auto-Trol	8.5	3.3	2.2	100	.2%	.1%	.2%	.1%
ESRI	8.5	.0	7.5	0	.2%	.0%	.7%	.0%
Zycad	7.9	5.5	.2	38	.2%	.2%	.0%	.0%
DAT Standard Information syste	7.7	.0	7.7	0	.2%	.0%	.7%	.0%
LPKF	7.5	4.5	2.3	750	.2%	.2%	.2%	.5%
Cadtronic	7.5	5.7	1.0	51	.2%	.2%	.1%	.0%
European Silicon Systems	7.3	1.8	5.5	40	.2%	.1%	.5%	.0%
VLSI Technology	7.2	.4	5.7	24	.2%	.0%	.5%	.0%
Rotring EURCAD	6.7	4.1	2.6	200	.2%	.2%	.2%	.1%
Gerber Systems	6.1	3.7	1.5	85	.1%	.1%	.1%	.1%

(Continued)

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Market Share

TABLE NUMBER: 1
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
PDA Engineering	5.6	.0	5.6	0	.1%	.0%	.5%	.0%
Framesoft	5.5	.0	6.1	24	.1%	.0%	.6%	.0%
Radan Computational	5.4	3.2	1.6	220	.1%	.1%	.1%	.2%
Synercom	5.3	.0	3.2	0	.1%	.0%	.3%	.0%
Aucotec	5.2	2.0	2.6	578	.1%	.1%	.2%	.4%
LSI Logic	5.0	.5	3.7	19	.1%	.0%	.3%	.0%
Technische Computer Systeme	4.8	1.4	3.3	128	.1%	.1%	.3%	.1%
Albert Nestler	4.6	1.4	2.1	151	.1%	.1%	.2%	.1%
Xilinx	4.5	.0	4.1	0	.1%	.0%	.4%	.0%
Teradyne	4.0	.0	3.2	0	.1%	.0%	.3%	.0%
Robocom	4.0	.0	4.0	0	.1%	.0%	.4%	.0%
BATISOFT	4.0	.6	3.0	227	.1%	.0%	.3%	.2%
Superdraft	4.0	.2	3.6	0	.1%	.0%	.3%	.0%
Serbi	3.8	.0	3.8	0	.1%	.0%	.4%	.0%
Pathtrace	3.8	1.0	2.5	88	.1%	.0%	.2%	.1%
Marcus Computer Systems	3.7	2.0	1.1	125	.1%	.1%	.1%	.1%
Genrad	3.6	.6	2.4	0	.1%	.0%	.2%	.0%
Datagraphic	3.6	1.6	1.3	60	.1%	.1%	.1%	.0%
Intercad	3.3	1.6	1.0	168	.1%	.1%	.1%	.1%
Silver-Lisco	3.2	.0	1.8	0	.1%	.0%	.2%	.0%
BETRONEX	3.1	.0	3.1	0	.1%	.0%	.3%	.0%
Manufacturing Consultants	3.0	.0	2.6	0	.1%	.0%	.2%	.0%
Assigraph	2.9	.0	2.3	35	.1%	.0%	.2%	.0%
Philips International	2.9	1.0	1.4	10	.1%	.0%	.1%	.0%
ALS Design	2.9	.3	2.3	50	.1%	.0%	.2%	.0%
Swanson Analysis	2.8	.0	2.8	0	.1%	.0%	.3%	.0%
Gable CAD Systems	2.8	1.7	1.1	23	.1%	.1%	.1%	.0%
Academi Systems	1.9	.4	1.3	23	.0%	.0%	.1%	.0%
Catalpa	1.7	.5	.9	14	.0%	.0%	.1%	.0%
XAO Industrie	1.7	.6	1.0	91	.0%	.0%	.1%	.1%
Sycotronic AG	1.6	.0	1.3	3	.0%	.0%	.1%	.0%

(Continued)

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Market Share

TABLE NUMBER: 1 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Compiegne Science Industrie	1.5	.0	.8	0	.0%	.0%	.1%	.0%
DECAD	1.4	.1	1.0	11	.0%	.0%	.1%	.0%
FEGS	1.2	.0	1.0	0	.0%	.0%	.1%	.0%
Vision 3D	1.2	.6	.4	0	.0%	.0%	.0%	.0%
Data I/O	1.1	.0	1.0	0	.0%	.0%	.1%	.0%
CAD-UL	1.1	.3	.8	40	.0%	.0%	.1%	.0%
ACERI SA	.8	.3	.3	14	.0%	.0%	.0%	.0%
ICAD	.6	.0	.5	0	.0%	.0%	.0%	.0%
Computational Mechanics	.5	.0	.5	0	.0%	.0%	.0%	.0%
Other Companies	375.6	315.0	35.3	30,913.1	8.8%	12.8%	3.3%	21.9%
All Companies	4,279.7	2,460.6	1,080.5	141,285.2	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	3,418.9	2,103.7	680.6	125,743	79.9%	85.5%	63.0%	89.0%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	860.8	356.9	399.9	15,541.9	20.1%	14.5%	37.0%	11.0%
All Hardware Companies	1,213.0	1,049.9	.0	102,233.8	28.3%	42.7%	.0%	72.4%
All Turnkey & SW Companies	3,066.7	1,410.7	1,080.5	39,051.4	71.7%	57.3%	100.0%	27.6%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 2
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Computervision	387.0	178.3	92.1	2,345	17.7%	16.5%	13.9%	6.2%
Hewlett-Packard	295.0	207.2	30.6	11,756	13.5%	19.1%	4.6%	31.2%
Intergraph	228.8	125.8	41.1	2,448	10.4%	11.6%	6.2%	6.5%
Siemens	115.2	68.0	34.5	2,680	5.3%	6.3%	5.2%	7.1%
Mentor Graphics	105.8	30.7	52.1	1,400	4.8%	2.8%	7.8%	3.7%
Digital	79.1	58.8	.0	2,612	3.6%	5.4%	.0%	6.9%
Sun	66.3	59.7	.0	4,450	3.0%	5.5%	.0%	11.8%
McDonnell Douglas	61.8	33.2	22.5	695	2.8%	3.1%	3.4%	1.8%
Schlumberger (Applicon)	61.7	23.2	19.8	576	2.8%	2.1%	3.0%	1.5%
Dazix	55.3	21.0	22.2	551	2.5%	1.9%	3.3%	1.5%
Matra Datavision	51.3	30.8	15.4	0	2.3%	2.8%	2.3%	.0%
IBM	47.1	30.5	8.6	424	2.2%	2.8%	1.3%	1.1%
PAFEC	46.6	.0	46.6	0	2.1%	.0%	7.0%	.0%
Racal-Redac	44.8	.2	36.7	155	2.0%	.0%	5.5%	.4%
Valid	43.5	10.9	23.5	0	2.0%	1.0%	3.5%	.0%
Control Data	31.8	22.6	3.8	585	1.5%	2.1%	.6%	1.6%
ISICAD	27.1	13.1	9.2	334	1.2%	1.2%	1.4%	.9%
Cisigraph	26.4	10.6	9.5	318	1.2%	1.0%	1.4%	.8%
ItalCad	24.0	12.2	8.9	250	1.1%	1.1%	1.3%	.7%
Norsk Data	20.5	10.4	5.7	300	.9%	1.0%	.9%	.8%
Silicon Graphics	18.0	16.0	.0	535	.8%	1.5%	.0%	1.4%
STI-Straessle	15.8	7.2	7.8	117	.7%	.7%	1.2%	.3%
ICL	15.4	9.5	4.2	432	.7%	.9%	.6%	1.1%
Mannesmann PROCAD	15.0	7.5	4.5	200	.7%	.7%	.7%	.5%
ABB Cade International	13.6	7.5	3.2	5	.6%	.7%	.5%	.0%
Calay	13.5	4.2	6.8	134	.6%	.4%	1.0%	.4%
Silicon Compiler Systems	13.0	.0	8.7	0	.6%	.0%	1.3%	.0%
SDRC	12.7	.0	12.7	0	.6%	.0%	1.9%	.0%
Unisys	12.5	4.8	6.1	222	.6%	.4%	.9%	.6%
Secmai	12.2	7.3	2.6	99	.6%	.7%	.4%	.3%
Cimlinc	12.1	5.1	4.4	1,048	.6%	.5%	.7%	2.8%
ISYKON Software	11.7	6.4	4.1	220	.5%	.6%	.6%	.6%
CAD Lab	10.9	.0	8.7	0	.5%	.0%	1.3%	.0%

(Continued)

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Market Share

TABLE NUMBER: 2
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
t2 Solutions	10.9	5.8	3.6	102	.5%	.5%	.5%	.3%
Dassault	10.5	.0	9.0	0	.5%	.0%	1.4%	.0%
Cimatron	10.0	4.6	4.4	298	.5%	.4%	.7%	.8%
Star Informatic	9.3	4.2	2.8	394	.4%	.4%	.4%	1.0%
Auto-Trol	8.5	3.3	2.2	100	.4%	.3%	.3%	.3%
Westward	7.8	7.8	.0	417	.4%	.7%	.0%	1.1%
Cadence	7.3	.0	6.2	0	.3%	.0%	.9%	.0%
Engineering Computer Services	7.3	2.9	2.5	78	.3%	.3%	.4%	.2%
Scientific Calc.	6.8	1.8	3.2	33	.3%	.2%	.5%	.1%
VLSI Technology	6.2	.4	4.9	20	.3%	.0%	.7%	.1%
Gerber Systems	6.1	3.7	1.5	85	.3%	.3%	.2%	.2%
European Silicon Systems	5.8	1.5	4.4	27	.3%	.1%	.7%	.1%
Framesoft	5.5	.0	6.1	24	.3%	.0%	.9%	.1%
Radan Computational	5.4	3.2	1.6	220	.2%	.3%	.2%	.6%
Wiechers Datentechnik	5.1	2.6	2.5	120	.2%	.2%	.4%	.3%
Technische Computer Systeme	4.8	1.4	3.3	128	.2%	.1%	.5%	.3%
LSI Logic	4.5	.5	3.4	17	.2%	.0%	.5%	.0%
Albert Nestler	4.2	1.3	2.0	123	.2%	.1%	.3%	.3%
Sysscan	3.8	1.7	1.0	0	.2%	.2%	.1%	.0%
ESRI	3.3	.0	2.8	0	.2%	.0%	.4%	.0%
Exapt	3.1	1.4	1.3	69	.1%	.1%	.2%	.2%
PDA Engineering	3.1	.0	3.1	0	.1%	.0%	.5%	.0%
Synercom	3.0	.0	1.8	0	.1%	.0%	.3%	.0%
Marcus Computer Systems	3.0	1.6	.9	100	.1%	.2%	.1%	.3%
Silvar-Lisco	2.9	.0	1.6	0	.1%	.0%	.2%	.0%
Genrad	2.8	.4	1.9	0	.1%	.0%	.3%	.0%
Rotring EURCAD	2.7	1.9	.9	91	.1%	.2%	.1%	.2%
Fides Industrielle Automation	2.6	.5	1.8	31	.1%	.0%	.3%	.1%
Gable CAD Systems	2.5	1.5	1.0	21	.1%	.1%	.2%	.1%
Assigraph	1.9	.0	1.5	0	.1%	.0%	.2%	.0%
Autodesk	1.8	.0	1.8	0	.1%	.0%	.3%	.0%

(Continued)

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Market Share

TABLE NUMBER: 2 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Europe
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
Company	Revenue	Revenue	Revenue	Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Catalpa	1.7	.5	.9	14	.1%	.0%	.1%	.0%
XAO Industrie	1.7	.6	1.0	91	.1%	.1%	.2%	.2%
Academi Systems	1.6	.3	1.1	19	.1%	.0%	.2%	.1%
CADAM	1.6	.0	1.4	0	.1%	.0%	.2%	.0%
DECAD	1.3	.1	1.0	10	.1%	.0%	.1%	.0%
Teradyne	1.2	.0	1.0	0	.1%	.0%	.1%	.0%
Manufacturing Consultants	1.1	.0	.9	0	.0%	.0%	.1%	.0%
Compiegne Science Industrie	1.1	.0	.5	0	.0%	.0%	.1%	.0%
MacNeal-Schwendler	1.0	.0	.9	0	.0%	.0%	.1%	.0%
Swanson Analysis	.9	.0	.9	0	.0%	.0%	.1%	.0%
Ferranti	.8	.3	.2	16	.0%	.0%	.0%	.0%
ICAD	.6	.0	.5	0	.0%	.0%	.1%	.0%
FEGS	.5	.0	.4	0	.0%	.0%	.1%	.0%
Aucotec	.3	.1	.1	29	.0%	.0%	.0%	.1%
Xilinx	.2	.0	.2	0	.0%	.0%	.0%	.0%
Serbi	.2	.0	.2	0	.0%	.0%	.0%	.0%
Data I/O	.1	.0	.1	0	.0%	.0%	.0%	.0%
Computational Mechanics	.1	.0	.1	0	.0%	.0%	.0%	.0%
Zycad	.1	.1	.0	0	.0%	.0%	.0%	.0%
Other Companies	17.6	4.1	11.7	167.9	.8%	.4%	1.8%	.4%
All Companies	2,191.5	1,082.2	664.4	37,733.8	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	1,645.7	857.2	411.3	30,452	75.1%	79.2%	61.9%	80.7%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	545.8	225.0	253.1	7,281.8	24.9%	20.8%	38.1%	19.3%
All Hardware Companies	289.0	236.3	.0	15,599.4	13.2%	21.8%	.0%	41.3%
All Turnkey & SW Companies	1,902.5	845.9	664.4	22,134.4	86.8%	78.2%	100.0%	58.7%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 3
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	468.6	303.4	85.6	4,917	33.6%	33.0%	38.6%	26.0%
Digital	280.7	210.6	.0	0	20.1%	22.9%	.0%	.0%
Computervision	66.4	30.7	15.8	1,383	4.8%	3.3%	7.1%	7.3%
Control Data	61.8	43.9	7.4	415	4.4%	4.8%	3.3%	2.2%
Intergraph	51.9	25.9	8.3	496	3.7%	2.8%	3.8%	2.6%
Ferranti	27.3	17.6	5.1	236	2.0%	1.9%	2.3%	1.2%
Norsk Data	26.8	13.6	8.0	179	1.9%	1.5%	3.6%	.9%
McDonnell Douglas	25.1	13.5	9.1	804	1.8%	1.5%	4.1%	4.3%
Dassault	21.1	.0	17.2	0	1.5%	.0%	7.8%	.0%
Siemens	12.0	7.0	3.6	139	.9%	.8%	1.6%	.7%
Sysscan	11.9	5.4	3.1	116	.9%	.6%	1.4%	.6%
Fides Industrielle Automation	10.6	2.1	7.4	31	.8%	.2%	3.3%	.2%
Exapt	9.3	6.8	1.6	143	.7%	.7%	.7%	.8%
Schlumberger (Applicon)	8.7	3.3	2.8	162	.6%	.4%	1.2%	.9%
MacNeal-Schwendler	8.2	.0	7.8	0	.6%	.0%	3.5%	.0%
Zycad	7.8	5.5	.2	37	.6%	.6%	.1%	.2%
Hewlett-Packard	7.6	6.4	.0	384	.5%	.7%	.0%	2.0%
PAFEC	4.8	.0	4.8	0	.3%	.0%	2.2%	.0%
ESRI	4.5	.0	4.0	0	.3%	.0%	1.8%	.0%
STI-Straessle	4.5	2.0	2.2	20	.3%	.2%	1.0%	.1%
SDRC	3.2	.0	3.2	0	.2%	.0%	1.4%	.0%
Cisigraph	2.9	1.2	1.1	9	.2%	.1%	.5%	.0%
Cadence	2.8	.0	2.3	0	.2%	.0%	1.1%	.0%
PDA Engineering	2.5	.0	2.5	0	.2%	.0%	1.1%	.0%
Scientific Calc.	2.3	.3	1.4	9	.2%	.0%	.6%	.0%
Synercom	2.3	.0	1.4	0	.2%	.0%	.6%	.0%
Unisys	2.1	.9	1.0	53	.1%	.1%	.4%	.3%
CADAM	2.0	.0	1.8	0	.1%	.0%	.8%	.0%
Teradyne	2.0	.0	1.6	0	.1%	.0%	.7%	.0%
Swanson Analysis	1.6	.0	1.6	0	.1%	.0%	.7%	.0%
Manufacturing Consultants	1.3	.0	1.1	0	.1%	.0%	.5%	.0%
Racal-Redac	1.2	.0	1.0	8	.1%	.0%	.5%	.0%

(Continued)

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Market Share

TABLE NUMBER: 3 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Silicon Graphics	1.2	1.0	.0	34	.1%	.1%	.0%	.2%
VLSI Technology	1.1	.1	.9	4	.1%	.0%	.4%	.0%
Assigraph	1.0	.0	.8	35	.1%	.0%	.4%	.2%
Olivetti	1.0	.5	.4	73	.1%	.1%	.2%	.4%
FEGS	.7	.0	.6	0	.1%	.0%	.3%	.0%
Genrad	.7	.1	.5	0	.1%	.0%	.2%	.0%
LSI Logic	.5	.1	.4	2	.0%	.0%	.2%	.0%
Compiegne Science Industrie	.5	.0	.2	0	.0%	.0%	.1%	.0%
Computational Mechanics	.4	.0	.4	0	.0%	.0%	.2%	.0%
Silvar-Lisco	.3	.0	.2	0	.0%	.0%	.1%	.0%
Aucotec	.3	.1	.1	29	.0%	.0%	.1%	.2%
Gable CAD Systems	.2	.1	.1	2	.0%	.0%	.0%	.0%
DECAD	.1	.0	.0	1	.0%	.0%	.0%	.0%
Data I/O	.1	.0	.1	0	.0%	.0%	.0%	.0%
Framesoft	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	240.2	216.2	3.3	8,822.5	17.2%	23.6%	1.5%	46.7%
All Companies	1,393.7	918.1	221.7	18,899.4	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	1,257.2	861.7	163.9	17,523	90.2%	93.9%	74.0%	92.7%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	136.5	56.4	57.7	1,376.7	9.8%	6.1%	26.0%	7.3%
All Hardware Companies	525.9	434.1	.0	9,234.7	37.7%	47.3%	.0%	48.9%
All Turnkey & SW Companies	867.8	484.0	221.7	9,664.7	62.3%	52.7%	100.0%	51.1%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 4
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Compaq	139.0	139.0	.0	23,166	20.0%	30.2%	.0%	27.4%
IBM	73.3	69.6	.0	14,772	10.5%	15.1%	.0%	17.5%
Autodesk	56.1	.0	56.1	0	8.1%	.0%	28.9%	.0%
Hewlett-Packard	50.0	41.0	.0	8,322	7.2%	8.9%	.0%	9.8%
Apple Computer	49.9	43.9	.0	9,600	7.2%	9.5%	.0%	11.3%
Investronica SA	23.6	18.9	2.4	943	3.4%	4.1%	1.2%	1.1%
Ziegler	15.0	.6	13.7	495	2.2%	.1%	7.0%	.6%
Olivetti	12.8	3.6	5.5	2,229	1.8%	.8%	2.8%	2.6%
Vero International Software	12.3	.0	12.3	0	1.8%	.0%	6.3%	.0%
Datagraph	12.2	9.8	2.4	50	1.8%	2.1%	1.3%	.1%
Wiechers Datentechnik	11.9	6.0	5.9	280	1.7%	1.3%	3.0%	.3%
CADAM	8.7	.0	7.8	0	1.2%	.0%	4.0%	.0%
Intergraph	7.7	.0	7.3	0	1.1%	.0%	3.7%	.0%
DAT Standard Information syste	7.7	.0	7.7	0	1.1%	.0%	4.0%	.0%
LPKF	7.5	4.5	2.3	750	1.1%	1.0%	1.2%	.9%
Cadtronic	7.5	5.7	1.0	51	1.1%	1.2%	.5%	.1%
Engineering Computer Services	6.2	2.5	2.1	169	.9%	.5%	1.1%	.2%
Westward	5.2	5.2	.0	343	.7%	1.1%	.0%	.4%
Aucotec	4.7	1.9	2.3	520	.7%	.4%	1.2%	.6%
Computervision	4.6	2.1	1.0	122	.7%	.5%	.5%	.1%
Xilinx	4.3	.0	3.9	0	.6%	.0%	2.0%	.0%
ISICAD	4.1	.0	4.1	0	.6%	.0%	2.1%	.0%
Robocom	4.0	.0	4.0	0	.6%	.0%	2.1%	.0%
BATISOFT	4.0	.6	3.0	227	.6%	.1%	1.5%	.3%
Rotring EURCAD	4.0	2.2	1.7	109	.6%	.5%	.9%	.1%
Superdraft	4.0	.2	3.6	0	.6%	.0%	1.8%	.0%
Pathtrace	3.8	1.0	2.5	88	.5%	.2%	1.3%	.1%
Serbi	3.6	.0	3.6	0	.5%	.0%	1.9%	.0%
Datagraphic	3.6	1.6	1.3	60	.5%	.4%	.7%	.1%
Intercad	3.3	1.6	1.0	168	.5%	.4%	.5%	.2%
BETRONEX	3.1	.0	3.1	0	.4%	.0%	1.6%	.0%
Philips International	2.9	1.0	1.4	10	.4%	.2%	.7%	.0%

(Continued)

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Market Share

TABLE NUMBER: 4 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Europe
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
ALS Design	2.9	.3	2.3	50	.4%	.1%	1.2%	.1%
Sycotronic AG	1.6	.0	1.3	3	.2%	.0%	.7%	.0%
European Silicon Systems	1.5	.4	1.1	13	.2%	.1%	.6%	.0%
Vision 3D	1.2	.6	.4	0	.2%	.1%	.2%	.0%
Cimatron	1.1	.5	.5	33	.2%	.1%	.3%	.0%
CAD-UL	1.1	.3	.8	40	.2%	.1%	.4%	.0%
Data I/O	1.0	.0	.8	0	.1%	.0%	.4%	.0%
ACERI SA	.8	.3	.3	14	.1%	.1%	.2%	.0%
Teradyne	.8	.0	.7	0	.1%	.0%	.3%	.0%
Marcus Computer Systems	.7	.4	.2	25	.1%	.1%	.1%	.0%
ESRI	.7	.0	.7	0	.1%	.0%	.4%	.0%
Manufacturing Consultants	.6	.0	.5	0	.1%	.0%	.3%	.0%
CAD Lab	.6	.0	.5	0	.1%	.0%	.3%	.0%
Norsk Data	.4	.1	.2	42	.1%	.0%	.1%	.0%
Albert Nestler	.4	.2	.1	28	.1%	.0%	.1%	.0%
Swanson Analysis	.3	.0	.3	0	.0%	.0%	.2%	.0%
Academi Systems	.3	.1	.2	3	.0%	.0%	.1%	.0%
MacNeal-Schwendler	.3	.0	.3	0	.0%	.0%	.1%	.0%
Secmai	.2	.1	.0	2	.0%	.0%	.0%	.0%
Genrad	.1	.0	.1	0	.0%	.0%	.0%	.0%
Racal-Redac	.1	.0	.1	0	.0%	.0%	.0%	.0%
Other Companies	117.8	94.7	20.3	21,922.7	17.0%	20.6%	10.5%	25.9%
All Companies	694.5	460.3	194.5	84,652.0	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	516.0	384.8	105.4	77,769	74.3%	83.6%	54.2%	91.9%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	178.6	75.5	89.1	6,883.4	25.7%	16.4%	45.8%	8.1%
All Hardware Companies	398.1	379.4	.0	77,399.7	57.3%	82.4%	.0%	91.4%
All Turnkey & SW Companies	296.5	80.8	194.5	7,252.3	42.7%	17.6%	100.0%	8.6%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 5
TITLE: 1989 Market Share
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
IBM	483.8	325.4	81.0	12,712	18.3%	20.7%	13.1%	16.0%
Computervision	403.0	186.2	95.9	3,389	15.3%	11.8%	15.5%	4.3%
Hewlett-Packard	223.2	161.6	22.1	11,936	8.5%	10.3%	3.6%	15.0%
Digital	194.2	145.7	.0	1,327	7.4%	9.3%	.0%	1.7%
Control Data	89.0	63.2	10.7	950	3.4%	4.0%	1.7%	1.2%
Intergraph	77.3	41.2	15.4	786	2.9%	2.6%	2.5%	1.0%
Compaq	73.7	73.7	.0	12,278	2.8%	4.7%	.0%	15.5%
Schlumberger (Applicon)	67.6	25.7	21.7	708	2.6%	1.6%	3.5%	.9%
Siemens	65.2	38.5	19.6	1,502	2.5%	2.4%	3.2%	1.9%
McDonnell Douglas	58.9	31.6	21.4	857	2.2%	2.0%	3.5%	1.1%
Matra Datavision	51.3	30.8	15.4	356	1.9%	2.0%	2.5%	.4%
PAFEC	42.6	.0	42.6	0	1.6%	.0%	6.9%	.0%
Norsk Data	39.7	20.0	11.4	521	1.5%	1.3%	1.9%	.7%
Sun	35.1	31.6	.0	2,358	1.3%	2.0%	.0%	3.0%
Cisigraph	29.3	11.7	10.6	327	1.1%	.7%	1.7%	.4%
Ferranti	28.0	17.9	5.4	252	1.1%	1.1%	.9%	.3%
Dassault	26.4	.0	22.0	0	1.0%	.0%	3.6%	.0%
Autodesk	23.7	.0	23.7	0	.9%	.0%	3.8%	.0%
Investronica SA	23.6	18.9	2.4	943	.9%	1.2%	.4%	1.2%
Apple Computer	22.5	19.8	.0	4,320	.9%	1.3%	.0%	5.4%
Silicon Graphics	19.1	17.0	.0	569	.7%	1.1%	.0%	.7%
Wiechers Datentechnik	17.0	8.5	8.5	400	.6%	.5%	1.4%	.5%
STI-Straessle	16.2	7.4	8.0	111	.6%	.5%	1.3%	.1%
SDRC	15.8	.0	15.8	0	.6%	.0%	2.6%	.0%
Mannesmann PROCAD	15.0	7.5	4.5	200	.6%	.5%	.7%	.3%
Unisys	14.6	5.7	7.0	275	.6%	.4%	1.1%	.3%
Engineering Computer Services	13.5	5.4	4.6	247	.5%	.3%	.7%	.3%
Fides Industrielle Automation	13.2	2.6	9.2	62	.5%	.2%	1.5%	.1%
ISICAD	12.5	5.5	5.0	140	.5%	.3%	.8%	.2%
Exapt	12.4	8.2	2.9	212	.5%	.5%	.5%	.3%
Vero International Software	12.3	.0	12.3	0	.5%	.0%	2.0%	.0%
Datagraph	12.2	9.8	2.4	50	.5%	.6%	.4%	.1%
Cimlinc	12.1	5.1	4.4	1,048	.5%	.3%	.7%	1.3%

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Market Share

TABLE NUMBER: 5
TITLE: 1989 Market Share
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
ItalCad	12.0	6.1	4.4	125	.5%	.4%	.7%	.2%
Westward	11.7	11.7	.0	684	.4%	.7%	.0%	.9%
ISYKON Software	11.7	6.4	4.1	220	.4%	.4%	.7%	.3%
Cimatron	11.1	5.1	4.9	331	.4%	.3%	.8%	.4%
ABB Cade International	9.5	5.4	2.3	4	.4%	.3%	.4%	.0%
MacNeal-Schwendler	9.5	.0	9.0	0	.4%	.0%	1.5%	.0%
CAD Lab	9.2	.0	7.4	0	.3%	.0%	1.2%	.0%
Olivetti	8.7	2.3	4.3	1,365	.3%	.1%	.7%	1.7%
Auto-Trol	8.5	3.3	2.2	100	.3%	.2%	.4%	.1%
DAT Standard Information syste	7.3	.0	7.3	0	.3%	.0%	1.2%	.0%
ICL	7.3	4.3	2.1	218	.3%	.3%	.3%	.3%
Gerber Systems	6.1	3.7	1.5	85	.2%	.2%	.2%	.1%
Ziegler	5.8	.2	5.3	193	.2%	.0%	.9%	.2%
PDA Engineering	5.6	.0	5.6	0	.2%	.0%	.9%	.0%
Framesoft	5.5	.0	6.1	24	.2%	.0%	1.0%	.0%
Technische Computer Systeme	4.8	1.4	3.3	128	.2%	.1%	.5%	.2%
CADAM	4.7	.0	4.2	0	.2%	.0%	.7%	.0%
Radan Computational	4.6	2.8	1.4	187	.2%	.2%	.2%	.2%
Albert Nestler	4.6	1.4	2.1	151	.2%	.1%	.3%	.2%
Rotring EURCAD	4.5	2.8	1.7	139	.2%	.2%	.3%	.2%
Superdraft	4.0	.2	3.6	0	.1%	.0%	.6%	.0%
Pathtrace	3.8	1.0	2.5	88	.1%	.1%	.4%	.1%
Marcus Computer Systems	3.7	2.0	1.1	125	.1%	.1%	.2%	.2%
Manufacturing Consultants	3.0	.0	2.6	0	.1%	.0%	.4%	.0%
Philips International	2.9	1.0	1.4	10	.1%	.1%	.2%	.0%
Swanson Analysis	2.8	.0	2.8	0	.1%	.0%	.5%	.0%
Intercad	2.3	1.2	.7	118	.1%	.1%	.1%	.1%
Mentor Graphics	2.1	.6	1.0	28	.1%	.0%	.2%	.0%
Serbi	1.9	.0	1.9	0	.1%	.0%	.3%	.0%
Robocom	1.9	.0	1.9	0	.1%	.0%	.3%	.0%
Catalpa	1.7	.5	.9	14	.1%	.0%	.1%	.0%

(Continued)

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Market Share

TABLE NUMBER: 5 (Continued)
TITLE: 1989 Market Share
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
XAO Industrie	1.7	.6	1.0	91	.1%	.0%	.2%	.1%
Compiegne Science Industrie	1.5	.0	.8	0	.1%	.0%	.1%	.0%
FEGS	1.2	.0	1.0	0	.0%	.0%	.2%	.0%
Vision 3D	1.2	.6	.4	0	.0%	.0%	.1%	.0%
ACERI SA	.8	.3	.3	14	.0%	.0%	.1%	.0%
Cadtronic	.8	.6	.1	3	.0%	.0%	.0%	.0%
ICAD	.6	.0	.5	0	.0%	.0%	.1%	.0%
Computational Mechanics	.5	.0	.5	0	.0%	.0%	.1%	.0%
Other Companies	204.3	182.4	8.3	16,140.4	7.7%	11.6%	1.3%	20.3%
All Companies	2,639.2	1,573.9	618.0	79,422.5	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	2,085.2	1,331.3	368.0	70,123	79.0%	84.6%	59.5%	88.3%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	553.9	242.6	250.0	9,299.3	21.0%	15.4%	40.5%	11.7%
All Hardware Companies	676.6	587.8	.0	54,077.8	25.6%	37.3%	.0%	68.1%
All Turnkey & SW Companies	1,962.5	986.1	618.0	25,344.7	74.4%	62.7%	100.0%	31.9%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 6.
TITLE: 1989 Market Share
APPLICATION: AEC
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intergraph	77.3	41.2	15.4	786	15.0%	12.7%	13.3%	2.7%
IBM	66.9	51.1	7.5	5,601	13.0%	15.7%	6.5%	19.0%
Hewlett-Packard	45.6	33.9	3.7	2,756	8.9%	10.4%	3.2%	9.3%
Digital	39.6	29.7	.0	270	7.7%	9.2%	.0%	.9%
Compaq	32.0	32.0	.0	5,328	6.2%	9.8%	.0%	18.1%
Autodesk	23.7	.0	23.7	0	4.6%	.0%	20.5%	.0%
Apple Computer	21.5	18.9	.0	4,128	4.2%	5.8%	.0%	14.0%
ISICAD	18.7	7.6	8.3	194	3.6%	2.3%	7.2%	.7%
Computervision	18.3	8.5	4.4	154	3.6%	2.6%	3.8%	.5%
McDonnell Douglas	17.7	9.5	6.4	309	3.4%	2.9%	5.5%	1.0%
t2 Solutions	10.9	5.8	3.6	102	2.1%	1.8%	3.1%	.3%
ItalCad	9.8	5.0	3.6	103	1.9%	1.5%	3.1%	.3%
Siemens	9.6	5.7	2.9	192	1.9%	1.7%	2.5%	.7%
Star Informatic	9.3	4.2	2.8	394	1.8%	1.3%	2.4%	1.3%
PAFEC	8.8	.0	8.8	0	1.7%	.0%	7.6%	.0%
Norsk Data	5.8	2.9	1.8	0	1.1%	.9%	1.5%	.0%
Cadtronic	4.5	3.5	.6	30	.9%	1.1%	.5%	.1%
Dassault	4.1	.0	3.4	0	.8%	.0%	2.9%	.0%
BATISOFT	4.0	.6	3.0	227	.8%	.2%	2.6%	.8%
Datagraphic	3.6	1.6	1.3	60	.7%	.5%	1.1%	.2%
Olivetti	3.4	1.3	1.1	638	.7%	.4%	1.0%	2.2%
Sun	3.3	3.0	.0	223	.6%	.9%	.0%	.8%
Gable CAD Systems	2.8	1.7	1.1	23	.5%	.5%	.9%	.1%
CAD Lab	2.3	.0	1.9	0	.4%	.0%	1.6%	.0%
Control Data	1.9	1.3	.2	20	.4%	.4%	.2%	.1%
Ziegler	1.8	.1	1.7	59	.4%	.0%	1.4%	.2%
Robocom	1.8	.0	1.8	0	.3%	.0%	1.6%	.0%
Serbi	1.0	.0	1.0	0	.2%	.0%	.8%	.0%
CADAM	.9	.0	.8	0	.2%	.0%	.7%	.0%
Radan Computational	.8	.5	.2	33	.2%	.1%	.2%	.1%
Schlumberger (Applicon)	.7	.2	.2	7	.1%	.1%	.2%	.0%
Westward	.7	.7	.0	38	.1%	.2%	.0%	.1%

(Continued)

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Market Share

TABLE NUMBER: 6 (Continued)
TITLE: 1989 Market Share
APPLICATION: AEC
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Sycotronic AG	.5	.0	.4	1	.1%	.0%	.4%	.0%
DAT Standard Information syste	.4	.0	.4	0	.1%	.0%	.3%	.0%
Other Companies	61.3	54.4	3.9	7,821.1	11.9%	16.8%	3.4%	26.5%
All Companies	515.0	324.6	115.7	29,497.6	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	423.5	287.1	73.3	27,465	82.2%	88.5%	63.3%	93.1%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	91.5	37.5	42.4	2,032.4	17.8%	11.5%	36.7%	6.9%
All Hardware Companies	199.2	178.5	.0	25,079.0	38.7%	55.0%	.0%	85.0%
All Turnkey & SW Companies	315.8	146.0	115.7	4,418.6	61.3%	45.0%	100.0%	15.0%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 7
TITLE: 1989 Market Share
APPLICATION: GIS/Mapping
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intergraph	103.3	55.0	20.6	1,050	32.2%	29.8%	27.2%	13.1%
Siemens	50.5	29.8	15.1	1,080	15.7%	16.1%	20.0%	13.5%
Digital	36.0	27.0	.0	246	11.2%	14.6%	.0%	3.1%
IBM	19.9	14.2	2.8	1,048	6.2%	7.7%	3.7%	13.1%
Sysscan	15.6	7.0	4.1	116	4.9%	3.8%	5.4%	1.4%
McDonnell Douglas	10.4	5.6	3.8	333	3.2%	3.0%	5.0%	4.1%
ESRI	8.5	.0	7.5	0	2.6%	.0%	9.9%	.0%
ICL	7.3	4.7	1.9	192	2.3%	2.6%	2.5%	2.4%
Compaq	7.0	7.0	.0	1,158	2.2%	3.8%	.0%	14.4%
Synercom	5.3	.0	3.2	0	1.6%	.0%	4.2%	.0%
Autodesk	5.2	.0	5.2	0	1.6%	.0%	6.9%	.0%
Computervision	4.6	2.1	1.1	39	1.4%	1.1%	1.4%	.5%
STI-Straessle	4.1	1.8	2.0	26	1.3%	1.0%	2.7%	.3%
Control Data	2.8	2.0	.3	30	.9%	1.1%	.5%	.4%
Apple Computer	2.5	2.2	.0	480	.8%	1.2%	.0%	6.0%
Cadtronic	2.2	1.7	.3	19	.7%	.9%	.4%	.2%
Norsk Data	2.2	1.1	.7	0	.7%	.6%	.9%	.0%
ItalCad	2.2	1.1	.8	23	.7%	.6%	1.1%	.3%
Olivetti	1.5	.4	.4	221	.5%	.2%	.6%	2.8%
Ziegler	1.3	.0	1.2	45	.4%	.0%	1.6%	.6%
Hewlett-Packard	.7	.6	.0	67	.2%	.3%	.0%	.8%
Robocom	.3	.0	.3	0	.1%	.0%	.4%	.0%

(Continued)

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Market Share

TABLE NUMBER: 7 (Continued)
TITLE: 1989 Market Share
APPLICATION: GIS/Mapping
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					..... Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	27.8	21.1	4.3	1,848.8	8.7%	11.4%	5.7%	23.1%
All Companies	320.9	184.4	75.5	8,020.4	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	233.1	136.3	48.5	6,283	72.6%	73.9%	64.3%	78.3%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	87.8	48.1	27.0	1,737.4	27.4%	26.1%	35.7%	21.7%
All Hardware Companies	72.5	61.3	.0	4,665.8	22.6%	33.2%	.0%	58.2%
All Turnkey & SW Companies	248.4	123.1	75.5	3,354.6	77.4%	66.8%	100.0%	41.8%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 8
TITLE: 1989 Market Share
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Market Share Total Revenue	Market Share Hardware Revenue	Market Share Software Revenue	Market Share Wkstns Shipped
Company								
Mentor Graphics	103.7	30.1	51.0	1,372	12.9%	8.0%	18.8%	5.6%
Digital	90.1	67.0	.0	768	11.2%	17.7%	.0%	3.2%
Hewlett-Packard	83.0	58.5	4.9	5,703	10.3%	15.5%	1.8%	23.4%
Dazix	55.3	21.0	22.2	551	6.9%	5.6%	8.2%	2.3%
Racal-Redac	46.0	.2	37.8	163	5.7%	.1%	13.9%	.7%
Valid	43.5	10.9	23.5	0	5.4%	2.9%	8.6%	.0%
Computervision	32.1	14.3	7.6	270	4.0%	3.8%	2.8%	1.1%
Intergraph	30.6	14.4	5.4	321	3.8%	3.8%	2.0%	1.3%
Sun	27.8	25.1	.0	1,869	3.5%	6.6%	.0%	7.7%
Compaq	26.4	26.4	.0	4,402	3.3%	7.0%	.0%	18.1%
IBM	18.4	12.8	2.8	752	2.3%	3.4%	1.0%	3.1%
Calay	13.5	4.2	6.8	134	1.7%	1.1%	2.5%	.6%
Silicon Compiler Systems	13.0	.0	8.7	0	1.6%	.0%	3.2%	.0%
Secmai	12.4	7.4	2.6	101	1.5%	2.0%	1.0%	.4%
Cadence	10.1	.0	8.5	0	1.3%	.0%	3.1%	.0%
Scientific Calc.	9.1	2.0	4.6	42	1.1%	.5%	1.7%	.2%
Zycad	7.9	5.5	.2	38	1.0%	1.5%	.1%	.2%
LPKF	7.5	4.5	2.3	750	.9%	1.2%	.8%	3.1%
European Silicon Systems	7.3	1.8	5.5	40	.9%	.5%	2.0%	.2%
VLSI Technology	7.2	.4	5.7	24	.9%	.1%	2.1%	.1%
CADAM	6.7	.0	6.0	0	.8%	.0%	2.2%	.0%
Ziegler	6.1	.2	5.5	198	.8%	.1%	2.0%	.8%
Autodesk	5.2	.0	5.2	0	.6%	.0%	1.9%	.0%
Aucotec	5.2	2.0	2.6	578	.6%	.5%	.9%	2.4%
LSI Logic	5.0	.5	3.7	19	.6%	.1%	1.4%	.1%
Xilinx	4.5	.0	4.1	0	.6%	.0%	1.5%	.0%
ABB Cade International	4.1	2.1	1.0	2	.5%	.6%	.4%	.0%
Teradyne	4.0	.0	3.2	0	.5%	.0%	1.2%	.0%
Genrad	3.6	.6	2.4	0	.5%	.1%	.9%	.0%
Apple Computer	3.5	3.1	.0	672	.4%	.8%	.0%	2.8%
Silvar-Lisco	3.2	.0	1.8	0	.4%	.0%	.7%	.0%
BETRONEX	3.1	.0	3.1	0	.4%	.0%	1.1%	.0%

(Continued)

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Market Share

TABLE NUMBER: 8 (Continued)
TITLE: 1989 Market Share
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Assigraph	2.9	.0	2.3	35	.4%	.0%	.9%	.1%
ALS Design	2.9	.3	2.3	50	.4%	.1%	.8%	.2%
Rotring EURCAD	2.2	1.2	1.0	61	.3%	.3%	.4%	.3%
Schlumberger (Applicon)	2.1	.5	.7	22	.3%	.1%	.3%	.1%
Academi Systems	1.9	.4	1.3	23	.2%	.1%	.5%	.1%
Siemens	1.9	1.2	.6	44	.2%	.3%	.2%	.2%
DECAD	1.4	.1	1.0	11	.2%	.0%	.4%	.0%
Data I/O	1.1	.0	1.0	0	.1%	.0%	.4%	.0%
Sycotronic AG	1.1	.0	.9	2	.1%	.0%	.3%	.0%
CAD-UL	1.1	.3	.8	40	.1%	.1%	.3%	.2%
Dassault	1.1	.0	.9	0	.1%	.0%	.3%	.0%
Intercad	1.0	.5	.3	50	.1%	.1%	.1%	.2%
Serbi	1.0	.0	1.0	0	.1%	.0%	.4%	.0%
ICL	.8	.5	.2	21	.1%	.1%	.1%	.1%
Westward	.7	.7	.0	38	.1%	.2%	.0%	.2%
Olivetti	.3	.1	.1	78	.0%	.0%	.0%	.3%
Robocom	.0	.0	.0	0	.0%	.0%	.0%	.0%
DAT Standard Information syste	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	82.3	57.1	18.8	5,102.9	10.2%	15.1%	6.9%	21.0%
All Companies	804.7	377.8	271.3	24,344.7	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	677.1	349.0	190.8	21,872	84.1%	92.4%	70.3%	89.8%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	127.6	28.8	80.5	2,472.7	15.9%	7.6%	29.7%	10.2%
All Hardware Companies	264.7	222.3	.0	18,411.3	32.9%	58.8%	.0%	75.6%
All Turnkey & SW Companies	540.0	155.4	271.3	5,933.5	67.1%	41.1%	100.0%	24.4%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 9
TITLE: 1989 Market Share
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Mentor Graphics	68.8	21.2	33.8	910	17.2%	10.8%	24.9%	6.9%
Dazix	44.3	17.7	17.7	441	11.1%	9.1%	13.0%	3.3%
Hewlett-Packard	39.9	30.7	2.4	2,710	10.0%	15.7%	1.8%	20.5%
Digital	36.0	27.1	.0	307	9.0%	13.8%	.0%	2.3%
Valid	30.5	7.6	16.4	0	7.6%	3.9%	12.1%	.0%
Sun	27.8	25.1	.0	1,869	7.0%	12.8%	.0%	14.2%
Compaq	11.8	11.8	.0	1,969	3.0%	6.0%	.0%	14.9%
Intergraph	11.0	6.0	1.9	115	2.7%	3.1%	1.4%	.9%
Computervision	9.2	4.2	2.2	77	2.3%	2.1%	1.6%	.6%
Racal-Redac	8.5	.2	7.0	33	2.1%	.1%	5.1%	.3%
Zycad	7.9	5.5	.2	38	2.0%	2.8%	.1%	.3%
Aucotec	5.2	2.0	2.6	578	1.3%	1.0%	1.9%	4.4%
Autodesk	4.6	.0	4.6	0	1.2%	.0%	3.4%	.0%
Xilinx	4.5	.0	4.1	0	1.1%	.0%	3.0%	.0%
LSI Logic	4.5	.4	3.3	17	1.1%	.2%	2.4%	.1%
VLSI Technology	4.4	.3	3.4	14	1.1%	.1%	2.5%	.1%
Teradyne	4.0	.0	3.2	0	1.0%	.0%	2.4%	.0%
Genrad	3.6	.6	2.4	0	.9%	.3%	1.8%	.0%
Silicon Compiler Systems	3.4	.0	2.3	0	.8%	.0%	1.7%	.0%
Cadence	3.1	.0	2.7	0	.8%	.0%	2.0%	.0%
Ziegler	3.1	.1	2.8	99	.8%	.1%	2.1%	.8%
Rotring EURCAD	2.2	1.2	1.0	61	.6%	.6%	.7%	.5%
Assigraph	1.9	.0	1.5	24	.5%	.0%	1.1%	.2%
Apple Computer	1.5	1.3	.0	288	.4%	.7%	.0%	2.2%
IBM	1.5	1.4	.0	295	.4%	.7%	.0%	2.2%
ALS Design	1.4	.1	1.1	25	.4%	.1%	.8%	.2%
Data I/O	1.1	.0	1.0	0	.3%	.0%	.7%	.0%
Secmai	1.1	.7	.2	10	.3%	.4%	.2%	.1%
Dassault	1.1	.0	.9	0	.3%	.0%	.7%	.0%
Intercad	1.0	.5	.3	50	.3%	.3%	.2%	.4%
Serbi	1.0	.0	1.0	0	.2%	.0%	.7%	.0%
Silvar-Lisco	.9	.0	.5	0	.2%	.0%	.4%	.0%

(Continued)

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Market Share

TABLE NUMBER: 9 (Continued)
TITLE: 1989 Market Share
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Westward	.7	.7	.0	38	.2%	.3%	.0%	.3%
Scientific Calc.	.3	.1	.2	1	.1%	.0%	.1%	.0%
Academi Systems	.1	.0	.1	1	.0%	.0%	.0%	.0%
DAT Standard Information syste	.0	.0	.0	0	.0%	.0%	.0%	.0%
Sycotronic AG	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	47.8	29.0	15.2	3,226.8	12.0%	14.8%	11.2%	24.4%
All Companies	399.4	195.5	135.9	13,198.1	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	370.7	189.1	117.0	12,242	92.8%	96.7%	86.0%	92.8%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	28.7	6.4	19.0	955.7	7.2%	3.3%	14.0%	7.2%
All Hardware Companies	133.4	115.4	.0	10,302.1	33.4%	59.0%	.0%	78.1%
All Turnkey & SW Companies	266.0	80.1	135.9	2,896.0	66.6%	41.0%	100.0%	21.9%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 10
TITLE: 1989 Market Share
APPLICATION: IC Layout
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Digital	14.4	10.8	.0	123	22.7%	46.5%	.0%	13.4%
Silicon Compiler Systems	9.6	.0	6.4	0	15.1%	.0%	23.5%	.0%
European Silicon Systems	7.3	1.8	5.5	40	11.5%	7.8%	20.0%	4.4%
Cadence	6.9	.0	5.8	0	10.9%	.0%	21.3%	.0%
Hewlett-Packard	6.9	5.8	.0	629	10.9%	24.9%	.0%	68.8%
Mentor Graphics	5.3	1.6	2.6	70	8.3%	6.9%	9.6%	7.6%
Valid	4.4	1.1	2.3	0	6.9%	4.6%	8.6%	.0%
VLSI Technology	2.9	.2	2.3	9	4.6%	.8%	8.4%	1.0%
Silvar-Lisco	2.3	.0	1.3	0	3.7%	.0%	4.8%	.0%
LSI Logic	.6	.1	.4	2	.9%	.3%	1.5%	.2%
Siemens	.1	.1	.0	3	.2%	.3%	.1%	.3%
Other Companies	2.7	1.8	.6	38.4	4.3%	7.9%	2.3%	4.2%
All Companies	63.5	23.3	27.4	915.2	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	56.0	21.4	21.9	872	88.3%	91.9%	79.9%	95.3%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	7.4	1.9	5.5	43.0	11.7%	8.1%	20.1%	4.7%
All Hardware Companies	22.8	18.0	.0	782.1	36.0%	77.2%	.0%	85.5%
All Turnkey & SW Companies	40.7	5.3	27.3	133.1	64.0%	22.8%	100.0%	14.5%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 11
TITLE: 1989 Market Share
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Digital	39.7	29.1	.0	338	11.6%	18.3%	.0%	3.3%
Racal-Redac	37.5	.0	30.8	130	11.0%	.0%	28.5%	1.3%
Hewlett-Packard	36.2	22.0	2.4	2,363	10.6%	13.8%	2.2%	23.1%
Mentor Graphics	29.6	7.3	14.6	392	8.7%	4.6%	13.5%	3.8%
Computervision	22.9	10.1	5.4	193	6.7%	6.3%	5.0%	1.9%
Intergraph	19.6	8.4	3.5	206	5.7%	5.3%	3.2%	2.0%
IBM	16.9	11.4	2.8	457	5.0%	7.2%	2.6%	4.5%
Compaq	14.6	14.6	.0	2,432	4.3%	9.2%	.0%	23.8%
Calay	13.5	4.2	6.8	134	3.9%	2.6%	6.3%	1.3%
Secmai	11.2	6.7	2.4	92	3.3%	4.2%	2.2%	.9%
Dazix	11.1	3.3	4.4	110	3.2%	2.1%	4.1%	1.1%
Scientific Calc.	8.8	2.0	4.5	41	2.6%	1.2%	4.1%	.4%
Valid	8.7	2.2	4.7	0	2.5%	1.4%	4.3%	.0%
LPKF	7.5	4.5	2.3	750	2.2%	2.8%	2.1%	7.3%
CADAM	6.7	.0	6.0	0	2.0%	.0%	5.5%	.0%
ABB Cade International	4.1	2.1	1.0	2	1.2%	1.3%	.9%	.0%
BETRONEX	3.1	.0	3.1	0	.9%	.0%	2.8%	.0%
Ziegler	3.0	.1	2.7	99	.9%	.1%	2.5%	1.0%
Schlumberger (Applicon)	2.1	.5	.7	22	.6%	.3%	.6%	.2%
Apple Computer	2.0	1.8	.0	384	.6%	1.1%	.0%	3.8%
Academi Systems	1.8	.4	1.3	22	.5%	.2%	1.2%	.2%
Siemens	1.8	1.1	.5	41	.5%	.7%	.5%	.4%
ALS Design	1.4	.1	1.1	25	.4%	.1%	1.1%	.2%
DECAD	1.4	.1	1.0	11	.4%	.0%	.9%	.1%
CAD-UL	1.1	.3	.8	40	.3%	.2%	.7%	.4%
Sycotronic AG	1.1	.0	.9	2	.3%	.0%	.8%	.0%
Assigraph	1.0	.0	.8	11	.3%	.0%	.7%	.1%
ICL	.8	.5	.2	21	.2%	.3%	.2%	.2%
Autodesk	.6	.0	.6	0	.2%	.0%	.5%	.0%
Olivetti	.3	.1	.1	78	.1%	.1%	.1%	.8%
Robocom	.0	.0	.0	0	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 11 (Continued)
TITLE: 1989 Market Share
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	31.7	26.3	3.0	1,837.6	9.3%	16.5%	2.7%	18.0%
All Companies	341.8	159.0	108.1	10,231.5	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	250.3	138.5	52.0	8,757	73.2%	87.1%	48.1%	85.6%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	91.5	20.5	56.0	1,474.1	26.8%	12.9%	51.9%	14.4%
All Hardware Companies	108.4	88.9	.0	7,327.1	31.7%	55.9%	.0%	71.6%
All Turnkey & SW Companies	233.4	70.1	108.1	2,904.4	68.3%	44.1%	100.0%	28.4%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 12
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Computervision	48.5	22.4	11.5	408	15.9%	12.3%	17.0%	3.2%
IBM	47.1	32.3	7.5	1,609	15.4%	17.8%	11.1%	12.8%
Hewlett-Packard	30.2	22.0	2.5	1,798	9.9%	12.1%	3.7%	14.3%
Intergraph	27.1	14.3	5.3	277	8.9%	7.8%	7.8%	2.2%
Digital	26.3	19.7	.0	191	8.6%	10.8%	.0%	1.5%
Mentor Graphics	11.0	3.2	5.4	146	3.6%	1.7%	8.0%	1.2%
Compaq	9.3	9.3	.0	1,552	3.0%	5.1%	.0%	12.3%
PAFEC	4.9	.0	4.9	0	1.6%	.0%	7.2%	.0%
Siemens	4.6	2.8	1.4	103	1.5%	1.5%	2.0%	.8%
Sun	4.6	4.2	.0	312	1.5%	2.3%	.0%	2.5%
Control Data	4.5	3.2	.5	48	1.5%	1.8%	.8%	.4%
McDonnell Douglas	4.4	2.4	1.6	65	1.4%	1.3%	2.4%	.5%
Apple Computer	4.3	3.8	.0	835	1.4%	2.1%	.0%	6.6%
Racal-Redac	3.7	.0	3.0	13	1.2%	.0%	4.4%	.1%
Autodesk	3.4	.0	3.4	0	1.1%	.0%	5.1%	.0%
Dazix	3.2	1.2	1.3	32	1.1%	.7%	1.9%	.3%
ISICAD	3.1	1.3	1.3	33	1.0%	.7%	1.9%	.3%
Valid	2.5	.6	1.3	0	.8%	.3%	1.9%	.0%
Ferranti	1.9	1.1	.5	17	.6%	.6%	.7%	.1%
Silicon Graphics	1.3	1.2	.0	39	.4%	.6%	.0%	.3%
Star Informatic	1.3	.6	.4	55	.4%	.3%	.6%	.4%
Framesoft	1.0	.0	1.2	5	.3%	.0%	1.7%	.0%
Calay	1.0	.3	.5	10	.3%	.2%	.7%	.1%
Norsk Data	1.0	.7	.1	447	.3%	.4%	.1%	3.6%
Investronica SA	.9	.8	.1	38	.3%	.4%	.1%	.3%
Matra Datavision	.9	.6	.3	117	.3%	.3%	.4%	.9%
Schlumberger (Applicon)	.9	.4	.3	10	.3%	.2%	.4%	.1%
Dassault	.9	.0	.7	0	.3%	.0%	1.1%	.0%
SDRC	.8	.0	.8	0	.3%	.0%	1.2%	.0%
Intercad	.8	.4	.2	40	.3%	.2%	.3%	.3%
ESRI	.7	.0	.6	0	.2%	.0%	.9%	.0%
Wiechers Datentechnik	.7	.3	.3	16	.2%	.2%	.5%	.1%
Cimatron	.7	.3	.3	17	.2%	.2%	.4%	.1%

(Continued)

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Market Share

TABLE NUMBER: 12
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Olivetti	.7	.2	.3	148	.2%	.1%	.5%	1.2%
Unisys	.6	.2	.4	20	.2%	.1%	.6%	.2%
Sysscan	.6	.4	.2	5	.2%	.2%	.2%	.0%
Cisigraph	.6	.2	.2	7	.2%	.1%	.3%	.1%
Gerber Systems	.6	.3	.1	8	.2%	.2%	.2%	.1%
DAT Standard Information syste	.5	.0	.5	0	.2%	.0%	.8%	.0%
Datagraph	.5	.4	.1	2	.2%	.2%	.1%	.0%
Exapt	.5	.3	.1	9	.2%	.2%	.2%	.1%
European Silicon Systems	.4	.1	.3	2	.1%	.1%	.5%	.0%
Westward	.4	.4	.0	23	.1%	.2%	.0%	.2%
Robocom	.4	.0	.4	0	.1%	.0%	.5%	.0%
CADAM	.3	.0	.3	0	.1%	.0%	.4%	.0%
Superdraft	.3	.1	.2	0	.1%	.0%	.3%	.0%
Sycotronic AG	.2	.0	.2	0	.1%	.0%	.3%	.0%
Technische Computer Systeme	.2	.1	.2	6	.1%	.0%	.3%	.1%
Secmai	.2	.1	.0	2	.1%	.1%	.1%	.0%
t2 Solutions	.2	.1	.1	2	.1%	.1%	.1%	.0%
XAO Industrie	.2	.1	.1	9	.1%	.0%	.1%	.1%
Ziegler	.2	.0	.1	5	.0%	.0%	.2%	.0%
Aucotec	.1	.0	.1	14	.0%	.0%	.1%	.1%
Pathtrace	.1	.0	.1	3	.0%	.0%	.1%	.0%
Catalpa	.1	.0	.0	0	.0%	.0%	.1%	.0%
CAD-UL	.1	.0	.1	2	.0%	.0%	.1%	.0%
Serbi	.0	.0	.0	0	.0%	.0%	.1%	.0%
BATISOFT	.0	.0	.0	2	.0%	.0%	.0%	.0%
BETRONEX	.0	.0	.0	0	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 12 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	39.8	29.7	6.4	4,077.3	13.0%	16.3%	9.4%	32.4%
All Companies	305.6	182.0	67.9	12,581.5	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	275.1	171.5	51.0	11,459	90.0%	94.3%	75.0%	91.1%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	30.5	10.4	17.0	1,122.6	10.0%	5.7%	25.0%	8.9%
All Hardware Companies	97.7	85.2	.0	9,560.1	32.0%	46.8%	.0%	76.0%
All Turnkey & SW Companies	208.0	96.7	67.9	3,021.4	68.0%	53.2%	100.0%	24.0%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 13
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Computervision	41.0	18.9	9.8	249	26.0%	24.3%	21.4%	8.1%
Hewlett-Packard	25.4	18.0	2.5	1,077	16.1%	23.1%	5.5%	35.2%
Intergraph	21.5	11.8	3.9	230	13.6%	15.2%	8.5%	7.5%
Mentor Graphics	11.0	3.2	5.4	146	7.0%	4.1%	11.9%	4.8%
Digital	5.8	4.3	.0	191	3.7%	5.5%	.0%	6.2%
Sun	4.6	4.2	.0	312	2.9%	5.4%	.0%	10.2%
PAFEC	4.4	.0	4.4	0	2.8%	.0%	9.7%	.0%
Siemens	4.2	2.5	1.3	98	2.7%	3.2%	2.8%	3.2%
IBM	3.8	2.5	.7	34	2.4%	3.2%	1.5%	1.1%
McDonnell Douglas	3.7	2.0	1.3	42	2.3%	2.6%	2.9%	1.4%
Racal-Redac	3.6	.0	2.9	12	2.3%	.0%	6.4%	.4%
Dazix	3.2	1.2	1.3	32	2.0%	1.6%	2.8%	1.0%
ISICAD	2.7	1.3	.9	33	1.7%	1.7%	2.0%	1.1%
Valid	2.5	.6	1.3	0	1.6%	.8%	2.9%	.0%
Control Data	1.5	1.1	.2	28	1.0%	1.4%	.4%	.9%
Star Informatic	1.3	.6	.4	55	.8%	.7%	.9%	1.8%
Silicon Graphics	1.2	1.1	.0	37	.8%	1.4%	.0%	1.2%
Framesoft	1.0	.0	1.2	5	.7%	.0%	2.5%	.1%
Calay	1.0	.3	.5	10	.6%	.4%	1.1%	.3%
Matra Datavision	.9	.6	.3	0	.6%	.7%	.6%	.0%
Schlumberger (Applicon)	.8	.3	.3	7	.5%	.4%	.5%	.2%
SDRC	.7	.0	.7	0	.4%	.0%	1.4%	.0%
Cimatron	.6	.3	.3	15	.4%	.4%	.6%	.5%
Norsk Data	.6	.4	.0	258	.4%	.5%	.1%	8.4%
Gerber Systems	.6	.3	.1	8	.3%	.4%	.3%	.2%
Unisys	.6	.1	.3	19	.3%	.2%	.7%	.6%
Cisigraph	.5	.2	.2	6	.3%	.3%	.4%	.2%
European Silicon Systems	.4	.1	.3	2	.2%	.1%	.6%	.1%
Dassault	.3	.0	.2	0	.2%	.0%	.5%	.0%
ESRI	.3	.0	.2	0	.2%	.0%	.5%	.0%
Technische Computer Systeme	.2	.1	.2	6	.2%	.1%	.4%	.2%
Westward	.2	.2	.0	13	.1%	.3%	.0%	.4%

(Continued)

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Market Share

TABLE NUMBER: 13 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Secmai	.2	.1	.0	2	.1%	.2%	.1%	.1%
t2 Solutions	.2	.1	.1	2	.1%	.2%	.2%	.1%
Wiechers Datentechnik	.2	.1	.1	5	.1%	.1%	.2%	.2%
Exapt	.2	.1	.1	5	.1%	.1%	.2%	.1%
XAO Industrie	.2	.1	.1	9	.1%	.1%	.2%	.3%
Autodesk	.1	.0	.1	0	.1%	.0%	.2%	.0%
Catalpa	.1	.0	.0	0	.1%	.0%	.1%	.0%
Ferranti	.1	.0	.0	1	.0%	.0%	.0%	.0%
Aucotec	.0	.0	.0	1	.0%	.0%	.0%	.0%
Other Companies	6.7	1.1	4.1	110.5	4.3%	1.4%	8.9%	3.6%
All Companies	158.0	77.8	45.6	3,062.3	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	137.6	72.0	33.1	2,554	87.1%	92.6%	72.5%	83.4%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	20.4	5.8	12.5	508.6	12.9%	7.4%	27.5%	16.6%
All Hardware Companies	23.1	18.9	.0	1,308.7	14.6%	24.3%	.0%	42.7%
All Turnkey & SW Companies	134.8	58.9	45.6	1,753.6	85.4%	75.7%	100.0%	57.3%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 14
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	37.5	24.3	6.8	393	38.0%	36.8%	49.7%	25.0%
Digital	20.5	15.4	.0	0	20.8%	23.3%	.0%	.0%
Computervision	7.0	3.2	1.7	147	7.1%	4.9%	12.2%	9.3%
Intergraph	4.9	2.4	.8	47	5.0%	3.7%	5.7%	3.0%
Control Data	3.0	2.1	.4	20	3.0%	3.2%	2.6%	1.3%
Ferranti	1.9	1.1	.5	15	1.9%	1.6%	3.5%	1.0%
Hewlett-Packard	.8	.6	.0	38	.8%	1.0%	.0%	2.4%
McDonnell Douglas	.7	.4	.3	23	.7%	.6%	2.0%	1.5%
Sysscan	.6	.4	.2	5	.6%	.7%	1.1%	.3%
Dassault	.6	.0	.5	0	.6%	.0%	3.6%	.0%
Siemens	.5	.3	.1	5	.5%	.4%	.9%	.3%
PAFEC	.4	.0	.4	0	.4%	.0%	3.1%	.0%
Norsk Data	.4	.3	.0	151	.4%	.5%	.1%	9.6%
ESRI	.4	.0	.3	0	.4%	.0%	2.4%	.0%
Exapt	.3	.2	.1	5	.3%	.3%	.4%	.3%
SDRC	.2	.0	.2	0	.2%	.0%	1.2%	.0%
Schlumberger (Applicon)	.1	.0	.0	2	.1%	.1%	.3%	.1%
Racal-Redac	.1	.0	.1	1	.1%	.0%	.6%	.0%
Unisys	.1	.0	.1	1	.1%	.0%	.4%	.1%
Silicon Graphics	.1	.1	.0	2	.1%	.1%	.0%	.1%
Cisigraph	.1	.0	.0	0	.1%	.0%	.1%	.0%
Olivetti	.0	.0	.0	2	.0%	.0%	.1%	.1%
Aucotec	.0	.0	.0	1	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 14 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	18.6	15.2	1.4	596.3	18.8%	22.9%	10.0%	37.9%
All Companies	98.5	66.1	13.8	1,572.5	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	93.7	63.8	11.9	1,270	95.1%	96.5%	86.4%	80.8%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	4.8	2.3	1.9	302.3	4.9%	3.5%	13.6%	19.2%
All Hardware Companies	37.5	30.8	.0	633.5	38.0%	46.6%	.0%	40.3%
All Turnkey & SW Companies	61.1	35.3	13.8	939.0	62.0%	53.4%	100.0%	59.7%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 15
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Compaq	9.3	9.3	.0	1,552	19.0%	24.5%	.0%	19.5%
IBM	5.9	5.6	.0	1,182	11.9%	14.6%	.0%	14.9%
Apple Computer	4.3	3.8	.0	835	8.8%	10.0%	.0%	10.5%
Hewlett-Packard	4.1	3.4	.0	682	8.4%	8.9%	.0%	8.6%
Autodesk	3.3	.0	3.3	0	6.8%	.0%	39.0%	.0%
Investronica SA	.9	.8	.1	38	1.9%	2.0%	1.1%	.5%
Intercad	.8	.4	.2	40	1.6%	1.0%	2.7%	.5%
Intergraph	.7	.0	.7	0	1.5%	.0%	7.8%	.0%
Olivetti	.6	.2	.3	146	1.3%	.5%	3.6%	1.8%
DAT Standard Information syste	.5	.0	.5	0	1.0%	.0%	6.0%	.0%
Datagraph	.5	.4	.1	2	1.0%	1.0%	1.2%	.0%
Computervision	.5	.2	.1	13	1.0%	.6%	1.2%	.2%
Wiechers Datentechnik	.5	.2	.2	11	1.0%	.6%	2.7%	.1%
ISICAD	.4	.0	.4	0	.8%	.0%	4.8%	.0%
Robocom	.4	.0	.4	0	.7%	.0%	4.2%	.0%
CADAM	.3	.0	.3	0	.7%	.0%	3.3%	.0%
Superdraft	.3	.1	.2	0	.6%	.1%	2.6%	.0%
Sycotronic AG	.2	.0	.2	0	.5%	.0%	2.2%	.0%
Westward	.2	.2	.0	10	.3%	.4%	.0%	.1%
Ziegler	.2	.0	.1	5	.3%	.0%	1.6%	.1%
Pathtrace	.1	.0	.1	3	.3%	.1%	1.1%	.0%
Aucotec	.1	.0	.1	13	.2%	.1%	.6%	.2%
European Silicon Systems	.1	.0	.1	1	.2%	.1%	.7%	.0%
CAD-UL	.1	.0	.1	2	.2%	.1%	.6%	.0%
Cimatron	.1	.0	.0	2	.1%	.1%	.4%	.0%
ESRI	.1	.0	.1	0	.1%	.0%	.7%	.0%
Serbi	.0	.0	.0	0	.1%	.0%	.5%	.0%
BATISOFT	.0	.0	.0	2	.1%	.0%	.2%	.0%
BETRONEX	.0	.0	.0	0	.1%	.0%	.4%	.0%
Racal-Redac	.0	.0	.0	0	.0%	.0%	.1%	.0%

(Continued)

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Market Share

TABLE NUMBER: 15 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	14.5	13.4	1.0	3,370.6	29.6%	35.3%	11.1%	42.4%
All Companies	49.1	38.1	8.6	7,946.6	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	43.8	35.8	6.0	7,635	89.1%	94.0%	70.4%	96.1%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	5.3	2.3	2.5	311.6	10.9%	6.0%	29.6%	3.9%
All Hardware Companies	37.0	35.5	.0	7,617.9	75.5%	93.2%	.0%	95.9%
All Turnkey & SW Companies	12.1	2.6	8.6	328.7	24.5%	6.8%	100.0%	4.1%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 16
TITLE: 1989 Market Share
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Computervision	42.7	19.7	10.2	359	23.1%	17.4%	26.7%	5.1%
IBM	38.7	26.0	6.5	1,017	20.9%	22.9%	17.0%	14.6%
Hewlett-Packard	18.8	13.7	1.8	1,026	10.2%	12.0%	4.8%	14.7%
Digital	14.2	10.6	.0	97	7.7%	9.4%	.0%	1.4%
Intergraph	7.3	3.9	1.4	74	3.9%	3.4%	3.8%	1.1%
Compaq	4.9	4.9	.0	823	2.7%	4.3%	.0%	11.8%
Control Data	4.3	3.0	.5	46	2.3%	2.7%	1.3%	.7%
McDonnell Douglas	4.3	2.3	1.6	62	2.3%	2.0%	4.1%	.9%
PAFEC	4.1	.0	4.1	0	2.2%	.0%	10.6%	.0%
Sun	2.5	2.2	.0	165	1.3%	1.9%	.0%	2.4%
Siemens	2.4	1.4	.7	56	1.3%	1.2%	1.9%	.8%
Apple Computer	2.0	1.7	.0	376	1.1%	1.5%	.0%	5.4%
Ferranti	1.9	1.1	.5	17	1.0%	.9%	1.3%	.2%
Autodesk	1.4	.0	1.4	0	.8%	.0%	3.7%	.0%
Silicon Graphics	1.3	1.2	.0	39	.7%	1.0%	.0%	.6%
ISICAD	1.3	.6	.5	14	.7%	.5%	1.3%	.2%
Framesoft	1.0	.0	1.2	5	.6%	.0%	3.0%	.1%
Norsk Data	1.0	.7	.1	447	.5%	.6%	.1%	6.4%
Investronica SA	.9	.8	.1	38	.5%	.7%	.2%	.5%
Matra Datavision	.9	.6	.3	117	.5%	.5%	.7%	1.7%
Schlumberger (Applicon)	.9	.3	.3	9	.5%	.3%	.8%	.1%
SDRC	.8	.0	.8	0	.4%	.0%	2.2%	.0%
Dassault	.7	.0	.6	0	.4%	.0%	1.7%	.0%
Wiechers Datentechnik	.7	.3	.3	16	.4%	.3%	.9%	.2%
Cimatron	.7	.3	.3	17	.4%	.3%	.8%	.2%
Unisys	.6	.2	.4	20	.3%	.1%	1.1%	.3%
Cisigraph	.6	.2	.2	7	.3%	.2%	.6%	.1%
Gerber Systems	.6	.3	.1	8	.3%	.3%	.3%	.1%
Intercad	.6	.3	.2	28	.3%	.2%	.4%	.4%
DAT Standard Information syste	.5	.0	.5	0	.3%	.0%	1.3%	.0%
Datagraph	.5	.4	.1	[illegible]	.3%	.3%	.3%	.0%
Exapt	.5	.3	.1	9	.3%	.3%	.3%	.1%

(Continued)

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Market Share

TABLE NUMBER: 16 (Continued)
TITLE: 1989 Market Share
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
					Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Olivetti	.4	.1	.2	74	.2%	.1%	.5%	1.1%
Westward	.4	.4	.0	21	.2%	.3%	.0%	.3%
Superdraft	.3	.1	.2	0	.2%	.0%	.6%	.0%
Technische Computer Systeme	.2	.1	.2	6	.1%	.1%	.4%	.1%
Mentor Graphics	.2	.1	.1	3	.1%	.1%	.3%	.0%
Robocom	.2	.0	.2	0	.1%	.0%	.4%	.0%
XAO Industrie	.2	.1	.1	9	.1%	.1%	.3%	.1%
Pathtrace	.1	.0	.1	3	.1%	.0%	.2%	.0%
Catalpa	.1	.0	.0	0	.0%	.0%	.1%	.0%
Ziegler	.1	.0	.1	2	.0%	.0%	.1%	.0%
Serbi	.0	.0	.0	0	.0%	.0%	.1%	.0%
Other Companies	19.5	15.8	2.3	1,968.9	10.5%	13.9%	5.9%	28.2%
All Companies	185.0	113.6	38.1	6,977.8	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	166.4	106.6	28.1	6,105	90.0%	93.8%	73.8%	87.5%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	18.5	7.1	10.0	872.5	10.0%	6.2%	26.2%	12.5%
All Hardware Companies	52.8	46.0	.0	4,819.9	28.5%	40.5%	.0%	69.1%
All Turnkey & SW Companies	132.2	67.6	38.1	2,158.0	71.5%	59.5%	100.0%	30.9%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 17
TITLE: 1989 Market Share
APPLICATION: AEC
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Intergraph	7.3	3.9	1.4	74	18.8%	15.1%	19.9%	2.7%
IBM	5.4	4.1	.6	448	13.8%	16.0%	8.3%	16.4%
Hewlett-Packard	3.9	2.9	.3	240	10.1%	11.4%	4.2%	8.8%
Digital	2.9	2.2	.0	20	7.5%	8.5%	.0%	.7%
Compaq	2.1	2.1	.0	357	5.5%	8.4%	.0%	13.0%
Computervision	1.9	.9	.5	16	5.0%	3.5%	6.4%	.6%
Apple Computer	1.9	1.6	.0	359	4.8%	6.4%	.0%	13.1%
ISICAD	1.9	.8	.8	19	4.8%	3.0%	11.5%	.7%
Autodesk	1.4	.0	1.4	0	3.6%	.0%	19.5%	.0%
Star Informatic	1.3	.6	.4	55	3.4%	2.3%	5.5%	2.0%
PAFEC	.8	.0	.8	0	2.1%	.0%	11.4%	.0%
Siemens	.4	.2	.1	7	.9%	.9%	1.5%	.3%
Olivetti	.3	.1	.1	69	.7%	.4%	1.7%	2.5%
Sun	.2	.2	.0	16	.6%	.8%	.0%	.6%
t2 Solutions	.2	.1	.1	2	.5%	.5%	1.0%	.1%
McDonnell Douglas	.2	.1	.1	3	.4%	.4%	.8%	.1%
Robocom	.2	.0	.2	0	.4%	.0%	2.2%	.0%
Dassault	.1	.0	.1	0	.3%	.0%	1.2%	.0%
Control Data	.1	.1	.0	1	.2%	.2%	.1%	.0%
Sycotronic AG	.1	.0	.1	0	.2%	.0%	.8%	.0%
BATISOFT	.0	.0	.0	2	.1%	.0%	.3%	.1%
Westward	.0	.0	.0	1	.1%	.1%	.0%	.0%
Ziegler	.0	.0	.0	1	.1%	.0%	.3%	.0%
DAT Standard Information syste	.0	.0	.0	0	.0%	.0%	.1%	.0%
Schlumberger (Applicon)	.0	.0	.0	0	.0%	.0%	.0%	.0%
Serbi	.0	.0	.0	0	.0%	.0%	.1%	.0%

(Continued)

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Market Share

TABLE NUMBER: 17 (Continued)
TITLE: 1989 Market Share
APPLICATION: AEC
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	6.1	5.7	.2	1,050.0	15.8%	22.4%	3.0%	38.3%
All Companies	38.6	25.6	7.2	2,740.3	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	35.3	24.6	5.3	2,604	91.3%	96.0%	73.8%	95.0%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	3.4	1.0	1.9	136.5	8.7%	4.0%	26.2%	5.0%
All Hardware Companies	17.3	15.7	.0	2,416.0	44.7%	61.1%	.0%	88.2%
All Turnkey & SW Companies	21.4	10.0	7.2	324.3	55.3%	38.9%	100.0%	11.8%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 18
TITLE: 1989 Market Share
APPLICATION: GIS/Mapping
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intergraph	9.7	5.2	1.9	99	44.3%	39.2%	43.4%	13.9%
Digital	2.6	2.0	.0	18	11.9%	15.0%	.0%	2.5%
Siemens	1.9	1.1	.6	40	8.5%	8.4%	12.6%	5.6%
IBM	1.6	1.1	.2	84	7.3%	8.7%	4.9%	11.8%
ESRI	.7	.0	.6	0	3.2%	.0%	13.9%	.0%
Sysscan	.6	.4	.2	5	2.7%	3.3%	3.4%	.7%
Computervision	.5	.2	.1	4	2.2%	1.7%	2.5%	.6%
Compaq	.5	.5	.0	78	2.1%	3.6%	.0%	11.0%
Autodesk	.3	.0	.3	0	1.4%	.0%	7.0%	.0%
Apple Computer	.2	.2	.0	42	1.0%	1.4%	.0%	5.9%
Control Data	.1	.1	.0	1	.6%	.8%	.4%	.2%
Hewlett-Packard	.1	.1	.0	7	.4%	.5%	.0%	.9%
Robocom	.0	.0	.0	0	.1%	.0%	.7%	.0%
Ziegler	.0	.0	.0	0	.0%	.0%	.2%	.1%
Other Companies	3.1	2.3	.5	330.8	14.1%	17.5%	11.0%	46.7%
All Companies	21.9	13.2	4.5	708.5	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	19.4	11.6	3.7	663	88.6%	88.2%	83.1%	93.6%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	2.5	1.6	.8	45.7	11.4%	11.8%	16.9%	6.4%
All Hardware Companies	6.2	5.3	.0	545.6	28.0%	40.3%	.0%	77.0%
All Turnkey & SW Companies	15.8	7.9	4.5	162.9	72.0%	59.7%	100.0%	23.0%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 19
TITLE: 1989 Market Share
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					..... Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Mentor Graphics	10.8	3.1	5.3	143	17.9%	10.5%	29.3%	6.6%
Hewlett-Packard	7.4	5.3	.4	525	12.4%	18.0%	2.2%	24.4%
Digital	6.6	4.9	.0	56	11.0%	16.7%	.0%	2.6%
Racal-Redac	3.7	.0	3.0	13	6.1%	.1%	16.6%	.6%
Computervision	3.4	1.5	.8	29	5.6%	5.1%	4.4%	1.3%
Dazix	3.2	1.2	1.3	32	5.3%	4.1%	7.1%	1.5%
Intergraph	2.9	1.4	.5	30	4.8%	4.6%	2.8%	1.4%
Valid	2.5	.6	1.3	0	4.1%	2.1%	7.3%	.0%
Sun	2.0	1.8	.0	131	3.2%	5.9%	.0%	6.1%
Compaq	1.8	1.8	.0	295	2.9%	6.0%	.0%	13.7%
IBM	1.5	1.0	.2	60	2.5%	3.5%	1.2%	2.8%
Calay	1.0	.3	.5	10	1.6%	1.0%	2.8%	.5%
European Silicon Systems	.4	.1	.3	2	.7%	.4%	1.8%	.1%
CADAM	.3	.0	.3	0	.5%	.0%	1.5%	.0%
Autodesk	.3	.0	.3	0	.5%	.0%	1.7%	.0%
Apple Computer	.3	.3	.0	58	.5%	.9%	.0%	2.7%
Intercad	.2	.1	.1	12	.4%	.4%	.4%	.6%
Secmai	.2	.1	.0	2	.4%	.5%	.2%	.1%
Sycotronic AG	.2	.0	.1	0	.3%	.0%	.7%	.0%
Aucotec	.1	.0	.1	14	.2%	.1%	.3%	.7%
CAD-UL	.1	.0	.1	2	.1%	.1%	.3%	.1%
Ziegler	.1	.0	.1	2	.1%	.0%	.3%	.1%
BETRONEX	.0	.0	.0	0	.0%	.0%	.2%	.0%
Dassault	.0	.0	.0	0	.0%	.0%	.1%	.0%
Olivetti	.0	.0	.0	5	.0%	.0%	.1%	.2%
Schlumberger (Applicon)	.0	.0	.0	0	.0%	.0%	.0%	.0%
Westward	.0	.0	.0	1	.0%	.1%	.0%	.1%
Serbi	.0	.0	.0	0	.0%	.0%	.1%	.0%

(Continued)

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Market Share

TABLE NUMBER: 19 (Continued)
TITLE: 1989 Market Share
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	11.1	5.9	3.4	727.7	18.4%	20.0%	18.7%	33.8%
All Companies	60.1	29.5	18.2	2,154.9	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	54.0	28.8	13.8	2,087	89.9%	97.4%	76.2%	96.9%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	6.1	.8	4.3	67.9	10.1%	2.6%	23.8%	3.1%
All Hardware Companies	21.5	18.2	.0	1,778.7	35.7%	61.6%	.0%	82.5%
All Turnkey & SW Companies	38.6	11.3	18.2	376.2	64.3%	38.4%	100.0%	17.5%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 20
TITLE: 1989 Market Share
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Mentor Graphics	7.2	2.2	3.5	95	23.0%	13.4%	38.6%	6.8%
Hewlett-Packard	3.7	2.9	.2	258	11.8%	17.4%	2.2%	18.6%
Digital	2.6	2.0	.0	22	8.5%	12.1%	.0%	1.6%
Dazix	2.6	1.0	1.0	26	8.3%	6.3%	11.3%	1.8%
Sun	2.0	1.8	.0	131	6.3%	10.7%	.0%	9.4%
Valid	1.7	.4	.9	0	5.6%	2.6%	10.2%	.0%
Intergraph	1.0	.6	.2	11	3.3%	3.4%	2.0%	.8%
Computervision	1.0	.4	.2	8	3.1%	2.7%	2.5%	.6%
Compaq	.8	.8	.0	132	2.5%	4.8%	.0%	9.5%
Racal-Redac	.7	.0	.6	3	2.2%	.1%	6.1%	.2%
Autodesk	.3	.0	.3	0	.9%	.0%	3.1%	.0%
Intercad	.2	.1	.1	12	.7%	.7%	.8%	.9%
Apple Computer	.1	.1	.0	25	.4%	.7%	.0%	1.8%
Aucotec	.1	.0	.1	14	.4%	.2%	.5%	1.0%
IBM	.1	.1	.0	24	.4%	.7%	.0%	1.7%
Ziegler	.0	.0	.0	1	.1%	.0%	.3%	.1%
Dassault	.0	.0	.0	0	.1%	.0%	.2%	.0%
Westward	.0	.0	.0	1	.1%	.1%	.0%	.1%
Secmai	.0	.0	.0	0	.0%	.1%	.0%	.0%
Serbi	.0	.0	.0	0	.0%	.0%	.1%	.0%
Other Companies	6.9	3.9	2.0	628.0	22.1%	23.9%	22.1%	45.2%
All Companies	31.0	16.4	9.1	1,390.2	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	29.9	16.2	8.4	1,359	96.3%	98.7%	91.9%	97.8%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	1.1	.2	.7	30.9	3.7%	1.3%	8.1%	2.2%
All Hardware Companies	11.6	10.2	.0	1,188.5	37.4%	62.4%	.0%	85.5%
All Turnkey & SW Companies	19.4	6.2	9.1	201.8	62.6%	37.6%	100.0%	14.5%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 21
TITLE: 1989 Market Share
APPLICATION: IC Layout
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Digital	1.1	.8	.0	9	23.2%	43.5%	.0%	10.7%
Hewlett-Packard	.7	.6	.0	61	14.8%	30.4%	.0%	72.8%
Mentor Graphics	.6	.2	.3	7	12.1%	8.7%	16.4%	8.7%
European Silicon Systems	.4	.1	.3	2	9.7%	6.0%	19.3%	2.9%
Valid	.3	.1	.1	0	5.5%	3.3%	7.6%	.0%
Other Companies	1.6	.2	1.0	4.2	34.7%	8.2%	56.7%	5.0%
All Companies	4.5	1.8	1.7	84.0	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	4.1	1.7	1.4	82	90.3%	94.0%	80.7%	97.1%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	.4	.1	.3	2.4	9.7%	6.0%	19.3%	2.9%
All Hardware Companies	1.8	1.5	.0	72.7	40.4%	79.3%	.0%	86.5%
All Turnkey & SW Companies	2.7	.4	1.7	11.3	59.6%	20.7%	100.0%	13.5%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 22
TITLE: 1989 Market Share
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: Benelux
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Hewlett-Packard	3.1	1.9	.2	206	12.7%	16.9%	2.7%	30.2%
Mentor Graphics	3.1	.8	1.5	41	12.6%	6.6%	20.8%	6.0%
Racal-Redac	3.0	.0	2.5	10	12.2%	.0%	33.6%	1.5%
Digital	2.9	2.1	.0	25	11.8%	18.9%	.0%	3.6%
Computervision	2.4	1.1	.6	20	9.9%	9.4%	7.8%	3.0%
Intergraph	1.8	.8	.3	19	7.5%	7.0%	4.4%	2.8%
IBM	1.4	.9	.2	37	5.6%	8.1%	3.0%	5.4%
Calay	1.0	.3	.5	10	4.0%	2.6%	6.8%	1.4%
Compaq	1.0	1.0	.0	163	4.0%	8.6%	.0%	23.9%
Dazix	.6	.2	.3	6	2.6%	1.7%	3.6%	.9%
Valid	.5	.1	.3	0	2.0%	1.1%	3.6%	.0%
CADAM	.3	.0	.3	0	1.3%	.0%	3.8%	.0%
Secmai	.2	.1	.0	2	.9%	1.1%	.5%	.2%
Apple Computer	.2	.2	.0	33	.7%	1.3%	.0%	4.9%
Sycotronic AG	.2	.0	.1	0.	.7%	.0%	1.8%	.0%
CAD-UL	.1	.0	.1	2	.3%	.2%	.7%	.3%
Autodesk	.0	.0	.0	0	.1%	.0%	.4%	.0%
BETRONEX	.0	.0	.0	0	.1%	.0%	.4%	.0%
Ziegler	.0	.0	.0	1	.1%	.0%	.4%	.1%
Olivetti	.0	.0	.0	5	.1%	.1%	.1%	.7%
Schlumberger (Applicon)	.0	.0	.0	0	.1%	.1%	.0%	.0%
Other Companies	2.6	1.9	.4	95.5	10.7%	16.3%	5.6%	14.0%
All Companies	24.5	11.3	7.3	680.6	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	20.0	10.9	4.1	646	81.6%	95.9%	55.6%	94.9%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	4.5	.5	3.3	34.6	18.4%	4.1%	44.4%	5.1%
All Hardware Companies	8.0	6.5	.0	517.5	32.8%	57.6%	.0%	76.0%
All Turnkey & SW Companies	16.5	4.8	7.3	163.1	67.2%	42.4%	100.0%	24.0%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 23
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	100.1	68.6	16.0	3,419	14.9%	17.5%	9.9%	15.3%
Computervision	95.3	43.9	22.7	801	14.2%	11.2%	14.0%	3.6%
Digital	62.3	46.6	.0	452	9.3%	11.9%	.0%	2.0%
Hewlett-Packard	40.0	29.3	3.2	2,435	6.0%	7.5%	2.0%	10.9%
Compaq	32.4	32.4	.0	5,398	4.8%	8.3%	.0%	24.2%
Intergraph	28.3	14.9	5.6	289	4.2%	3.8%	3.4%	1.3%
Cisigraph	23.2	9.3	8.3	259	3.4%	2.4%	5.1%	1.2%
Matra Datavision	22.6	13.6	6.8	10	3.4%	3.5%	4.2%	.0%
Mentor Graphics	15.9	4.6	7.8	210	2.4%	1.2%	4.8%	.9%
Apple Computer	15.3	13.4	.0	2,938	2.3%	3.4%	.0%	13.1%
Control Data	13.0	9.3	1.6	139	1.9%	2.4%	1.0%	.6%
Sun	12.6	11.3	.0	846	1.9%	2.9%	.0%	3.8%
Valid	11.4	2.8	6.1	0	1.7%	.7%	3.8%	.0%
McDonnell Douglas	10.6	5.7	3.9	154	1.6%	1.5%	2.4%	.7%
Secmai	9.6	5.7	2.0	80	1.4%	1.5%	1.2%	.4%
Dazix	7.9	3.0	3.2	79	1.2%	.8%	2.0%	.4%
PAFEC	6.5	.0	6.5	0	1.0%	.0%	4.0%	.0%
Autodesk	6.3	.0	6.3	0	.9%	.0%	3.9%	.0%
Racal-Redac	6.0	.0	4.9	21	.9%	.0%	3.0%	.1%
Schlumberger (Applicon)	5.8	2.2	1.9	61	.9%	.6%	1.2%	.3%
Dassault	5.8	.0	4.8	0	.9%	.0%	2.9%	.0%
Ferranti	5.8	4.3	.5	52	.9%	1.1%	.3%	.2%
Unisys	5.3	2.8	1.8	48	.8%	.7%	1.1%	.2%
Silicon Graphics	4.8	4.3	.0	143	.7%	1.1%	.0%	.6%
Framesoft	3.4	.0	3.8	15	.5%	.0%	2.3%	.1%
Star Informatic	3.3	1.5	1.0	138	.5%	.4%	.6%	.6%
Siemens	3.3	1.9	1.0	72	.5%	.5%	.6%	.3%
Datagraphic	3.2	1.5	1.2	54	.5%	.4%	.7%	.2%
Serbi	3.2	.0	3.2	0	.5%	.0%	2.0%	.0%
Vero International Software	2.7	.0	2.7	0	.4%	.0%	1.7%	.0%
Olivetti	2.7	.7	1.2	406	.4%	.2%	.7%	1.8%
SDRC	2.6	.0	2.6	0	.4%	.0%	1.6%	.0%
ICL	2.0	1.2	.6	59	.3%	.3%	.3%	.3%

(Continued)

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Market Share

TABLE NUMBER: 23
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
ALS Design	1.9	.2	1.6	34	.3%	.0%	1.0%	.2%
CADAM	1.7	.0	1.6	0	.3%	.0%	1.0%	.0%
Catalpa	1.6	.5	.9	8	.2%	.1%	.5%	.0%
ISICAD	1.6	.7	.7	17	.2%	.2%	.4%	.1%
XAO Industrie	1.5	.5	.9	82	.2%	.1%	.6%	.4%
Compiegne Science Industrie	1.5	.0	.7	0	.2%	.0%	.5%	.0%
DECAD	1.3	.1	.9	5	.2%	.0%	.6%	.0%
Datagraph	1.2	1.0	.2	5	.2%	.2%	.1%	.0%
Norsk Data	1.2	.9	.1	40	.2%	.2%	.0%	.2%
European Silicon Systems	1.1	.3	.8	6	.2%	.1%	.5%	.0%
Albert Nestler	1.0	.3	.5	32	.2%	.1%	.3%	.1%
Investronica SA	.9	.7	.1	36	.1%	.2%	.1%	.2%
ESRI	.9	.0	.8	0	.1%	.0%	.5%	.0%
Wiechers Datentechnik	.9	.4	.4	20	.1%	.1%	.3%	.1%
Superdraft	.8	.0	.7	0	.1%	.0%	.5%	.0%
Academi Systems	.7	.1	.5	8	.1%	.0%	.3%	.0%
CAD Lab	.6	.0	.5	0	.1%	.0%	.3%	.0%
Vision 3D	.6	.3	.2	0	.1%	.1%	.1%	.0%
Calay	.5	.2	.3	5	.1%	.0%	.2%	.0%
Fides Industrielle Automation	.3	.1	.2	3	.0%	.0%	.1%	.0%
DAT Standard Information syste	.2	.0	.2	0	.0%	.0%	.1%	.0%
t2 Solutions	.2	.1	.1	2	.0%	.0%	.0%	.0%
BETRONEX	.2	.0	.2	0	.0%	.0%	.1%	.0%
Gerber Systems	.2	.1	.0	3	.0%	.0%	.0%	.0%
Robocom	.2	.0	.2	0	.0%	.0%	.1%	.0%
Ziegler	.2	.0	.2	0	.0%	.0%	.1%	.0%
Aucotec	.1	.0	.1	11	.0%	.0%	.0%	.1%
Sycotronic AG	.1	.0	.1	0	.0%	.0%	.0%	.0%
Pathtrace	.1	.0	.0	2	.0%	.0%	.0%	.0%
BATISOFT	.0	.0	.0	1	.0%	.0%	.0%	.0%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 23 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	76.2	49.9	17.9	3,450.3	11.3%	12.8%	11.1%	15.4%
All Companies	672.3	391.3	162.1	22,345.8	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	551.2	345.9	104.2	20,881	82.0%	88.4%	64.3%	93.4%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	121.1	45.4	57.9	1,465.0	18.0%	11.6%	35.7%	6.6%
All Hardware Companies	212.3	184.6	.0	17,598.3	31.6%	47.2%	.0%	78.8%
All Turnkey & SW Companies	460.0	206.7	162.1	4,747.6	68.4%	52.8%	100.0%	21.2%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 24
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Computervision	80.5	37.1	19.2	488	23.5%	22.5%	18.1%	9.2%
Hewlett-Packard	33.7	24.1	3.2	1,512	9.8%	14.6%	3.0%	28.6%
Matra Datavision	22.6	13.6	6.8	0	6.6%	8.2%	6.4%	.0%
Intergraph	22.4	12.3	4.0	240	6.5%	7.5%	3.8%	4.5%
Cisigraph	20.9	8.3	7.5	251	6.1%	5.1%	7.1%	4.7%
Mentor Graphics	15.9	4.6	7.8	210	4.6%	2.8%	7.3%	4.0%
Digital	13.7	10.2	.0	452	4.0%	6.2%	.0%	8.5%
Sun	12.6	11.3	.0	846	3.7%	6.9%	.0%	16.0%
Valid	11.4	2.8	6.1	0	3.3%	1.7%	5.8%	.0%
Secmaf	9.5	5.7	2.0	78	2.8%	3.4%	1.9%	1.5%
McDonnell Douglas	8.9	4.8	3.2	100	2.6%	2.9%	3.1%	1.9%
IBM	8.0	5.2	1.5	72	2.3%	3.1%	1.4%	1.4%
Dazix	7.9	3.0	3.2	79	2.3%	1.8%	3.0%	1.5%
PAFEC	6.1	.0	6.1	0	1.8%	.0%	5.7%	.0%
Racal-Redac	5.8	.0	4.8	20	1.7%	.0%	4.5%	.4%
Schlumberger (Applicon)	5.1	1.9	1.7	48	1.5%	1.2%	1.6%	.9%
Unisys	4.7	2.4	1.6	31	1.4%	1.5%	1.5%	.6%
Silicon Graphics	4.5	4.0	.0	135	1.3%	2.4%	.0%	2.5%
Control Data	4.4	3.1	.5	81	1.3%	1.9%	.5%	1.5%
Framesoft	3.4	.0	3.8	15	1.0%	.0%	3.6%	.3%
Star Informatic	3.3	1.5	1.0	138	1.0%	.9%	.9%	2.6%
Siemens	2.9	1.7	.9	69	.9%	1.1%	.8%	1.3%
Dassault	2.4	.0	2.0	0	.7%	.0%	1.8%	.0%
SDRC	2.0	.0	2.0	0	.6%	.0%	1.9%	.0%
ICL	2.0	1.2	.6	59	.6%	.7%	.5%	1.1%
Catalpa	1.6	.5	.9	8	.5%	.3%	.8%	.1%
XAO Industrie	1.5	.5	.9	82	.4%	.3%	.9%	1.5%
ISICAD	1.4	.7	.5	17	.4%	.4%	.4%	.3%
DECAD	1.3	.1	.9	5	.4%	.0%	.8%	.1%
Compiegne Science Industrie	1.0	.0	.5	0	.3%	.0%	.5%	.0%
Albert Nestler	1.0	.3	.5	28	.3%	.2%	.5%	.5%
European Silicon Systems	.9	.2	.7	4	.3%	.1%	.6%	.1%

(Continued)

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Market Share

TABLE NUMBER: 24 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Norsk Data	.7	.5	.0	25	.2%	.3%	.0%	.5%
Academi Systems	.6	.1	.4	7	.2%	.1%	.4%	.1%
CAD Lab	.6	.0	.4	0	.2%	.0%	.4%	.0%
Calay	.5	.2	.3	5	.1%	.1%	.2%	.1%
ESRI	.3	.0	.3	0	.1%	.0%	.3%	.0%
Wiechers Datentechnik	.3	.1	.1	6	.1%	.1%	.1%	.1%
Ferranti	.3	.1	.1	5	.1%	.1%	.1%	.1%
t2 Solutions	.2	.1	.1	2	.1%	.1%	.1%	.0%
Autodesk	.2	.0	.2	0	.1%	.0%	.2%	.0%
Serbi	.2	.0	.2	0	.1%	.0%	.2%	.0%
Gerber Systems	.2	.1	.0	3	.1%	.1%	.0%	.0%
Fides Industrielle Automation	.1	.0	.0	1	.0%	.0%	.0%	.0%
Aucotec	.0	.0	.0	1	.0%	.0%	.0%	.0%
Other Companies	15.9	2.6	9.9	175.6	4.6%	1.6%	9.3%	3.3%
All Companies	343.1	165.1	106.1	5,295.8	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	253.8	130.3	64.9	4,488	74.0%	78.9%	61.2%	84.7%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	89.4	34.8	41.2	808.2	26.0%	21.1%	38.8%	15.3%
All Hardware Companies	46.9	38.7	.0	2,557.6	13.7%	23.4%	.0%	48.3%
All Turnkey & SW Companies	296.2	126.4	106.1	2,738.2	86.3%	76.6%	100.0%	51.7%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 25
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: France
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
					Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
IBM	79.7	51.6	14.6	836	35.6%	33.8%	47.5%	26.7%
Digital	48.6	36.4	.0	0	21.7%	23.9%	.0%	.0%
Computervision	13.8	6.4	3.3	288	6.2%	4.2%	10.8%	9.2%
Control Data	8.6	6.1	1.0	58	3.8%	4.0%	3.4%	1.8%
Ferranti	5.6	4.2	.4	48	2.5%	2.8%	1.4%	1.5%
Intergraph	5.1	2.6	.8	49	2.3%	1.7%	2.7%	1.6%
Dassault	3.5	.0	2.8	0	1.5%	.0%	9.1%	.0%
Cisigraph	2.3	.9	.8	7	1.0%	.6%	2.7%	.2%
McDonnell Douglas	1.7	.9	.6	54	.8%	.6%	2.0%	1.7%
Hewlett-Packard	1.1	1.0	.0	58	.5%	.6%	.0%	1.8%
Schlumberger (Applicon)	.7	.3	.2	13	.3%	.2%	.7%	.4%
Unisys	.6	.4	.2	17	.3%	.2%	.6%	.6%
SDRC	.5	.0	.5	0	.2%	.0%	1.7%	.0%
ESRI	.5	.0	.4	0	.2%	.0%	1.3%	.0%
Norsk Data	.5	.4	.0	13	.2%	.2%	.1%	.4%
Compiegne Science Industrie	.4	.0	.2	0	.2%	.0%	.7%	.0%
PAFEC	.4	.0	.4	0	.2%	.0%	1.4%	.0%
Siemens	.3	.2	.1	4	.1%	.1%	.3%	.1%
Silicon Graphics	.3	.3	.0	9	.1%	.2%	.0%	.3%
Fides Industrielle Automation	.2	.0	.2	1	.1%	.0%	.5%	.0%
Olivetti	.2	.1	.1	11	.1%	.0%	.2%	.4%
Racal-Redac	.2	.0	.1	1	.1%	.0%	.4%	.0%
DECAD	.1	.0	.0	0	.0%	.0%	.1%	.0%
Aucotec	.0	.0	.0	1	.0%	.0%	.0%	.0%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 25 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: France
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Other Companies	49.1	40.8	3.7	1,652.0	21.9%	26.8%	12.2%	52.8%
All Companies	223.9	152.5	30.6	3,128.7	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	210.3	146.7	25.4	3,033	93.9%	96.2%	82.9%	96.9%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	13.6	5.8	5.2	95.5	6.1%	3.8%	17.1%	3.1%
All Hardware Companies	93.6	77.5	.0	1,712.4	41.8%	50.9%	.0%	54.7%
All Turnkey & SW Companies	130.3	74.9	30.6	1,416.2	58.2%	49.1%	100.0%	45.3%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 26
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Compaq	32.4	32.4	.0	5,398	30.8%	43.9%	.0%	38.8%
Apple Computer	15.3	13.4	.0	2,938	14.5%	18.2%	.0%	21.1%
IBM	12.5	11.8	.0	2,511	11.8%	16.1%	.0%	18.0%
Autodesk	6.1	.0	6.1	0	5.8%	.0%	24.0%	.0%
Hewlett-Packard	5.2	4.3	.0	865	4.9%	5.8%	.0%	6.2%
Datagraphic	3.2	1.5	1.2	54	3.1%	2.0%	4.6%	.4%
Serbi	3.0	.0	3.0	0	2.8%	.0%	11.8%	.0%
Vero International Software	2.7	.0	2.7	0	2.6%	.0%	10.7%	.0%
Olivetti	2.5	.6	1.1	395	2.4%	.9%	4.3%	2.8%
ALS Design	1.9	.2	1.6	34	1.8%	.3%	6.1%	.2%
CADAM	1.7	.0	1.6	0	1.7%	.0%	6.1%	.0%
Datagraph	1.2	1.0	.2	5	1.2%	1.3%	.9%	.0%
Computervision	1.0	.4	.2	25	.9%	.6%	.9%	.2%
Investronica SA	.9	.7	.1	36	.9%	1.0%	.4%	.3%
Superdraft	.8	.0	.7	0	.8%	.1%	2.9%	.0%
Intergraph	.8	.0	.7	0	.7%	.0%	2.8%	.0%
Wiechers Datentechnik	.6	.3	.3	14	.6%	.4%	1.2%	.1%
Vision 3D	.6	.3	.2	0	.6%	.4%	.7%	.0%
European Silicon Systems	.2	.1	.2	2	.2%	.1%	.6%	.0%
DAT Standard Information syste	.2	.0	.2	0	.2%	.0%	.8%	.0%
ISICAD	.2	.0	.2	0	.2%	.0%	.8%	.0%
BETRONEX	.2	.0	.2	0	.2%	.0%	.7%	.0%
Robocom	.2	.0	.2	0	.2%	.0%	.6%	.0%
Ziegler	.2	.0	.2	0	.1%	.0%	.6%	.0%
Secmai	.1	.1	.0	2	.1%	.1%	.1%	.0%
Academi Systems	.1	.0	.1	1	.1%	.0%	.2%	.0%
Aucotec	.1	.0	.1	10	.1%	.1%	.2%	.1%
Sycotronic AG	.1	.0	.1	0	.1%	.0%	.2%	.0%
ESRI	.1	.0	.1	0	.1%	.0%	.3%	.0%
Albert Nestler	.1	.0	.0	3	.1%	.0%	.0%	.0%
Pathtrace	.1	.0	.0	2	.1%	.0%	.2%	.0%
CAD Lab	.0	.0	.0	0	.0%	.0%	.1%	.0%

(Continued)

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Market Share

TABLE NUMBER: 26 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: France
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
					Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
BATISOFT	.0	.0	.0	1	.0%	.0%	.0%	.0%
Racal-Redac	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	11.1	6.5	4.3	1,622.7	10.6%	8.8%	16.9%	11.7%
All Companies	105.3	73.7	25.3	13,921.4	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	87.1	68.9	13.9	13,360	82.7%	93.5%	54.7%	96.0%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	18.2	4.8	11.5	561.3	17.3%	6.5%	45.3%	4.0%
All Hardware Companies	71.8	68.4	.0	13,328.2	68.2%	92.8%	.0%	95.7%
All Turnkey & SW Companies	33.5	5.3	25.3	593.2	31.8%	7.2%	100.0%	4.3%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 27
TITLE: 1989 Market Share
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Computervision	83.8	38.7	20.0	705	19.3%	14.9%	20.1%	5.5%
IBM	82.3	55.3	13.8	2,161	18.9%	21.3%	13.8%	16.9%
Digital	33.6	25.2	.0	230	7.7%	9.7%	.0%	1.8%
Hewlett-Packard	24.5	17.9	2.3	1,361	5.6%	6.9%	2.3%	10.7%
Cisigraph	23.2	9.3	8.3	259	5.3%	3.6%	8.4%	2.0%
Matra Datavision	22.6	13.6	6.8	10	5.2%	5.2%	6.8%	.1%
Compaq	17.2	17.2	.0	2,861	3.9%	6.6%	.0%	22.4%
Control Data	12.4	8.8	1.5	132	2.8%	3.4%	1.5%	1.0%
McDonnell Douglas	10.6	5.7	3.9	154	2.4%	2.2%	3.9%	1.2%
Intergraph	7.6	4.1	1.5	77	1.7%	1.6%	1.5%	.6%
Apple Computer	6.9	6.1	.0	1,322	1.6%	2.3%	.0%	10.4%
Sun	6.7	6.0	.0	448	1.5%	2.3%	.0%	3.5%
Ferranti	5.8	4.3	.5	52	1.3%	1.7%	.5%	.4%
Schlumberger (Applicon)	5.6	2.1	1.8	59	1.3%	.8%	1.8%	.5%
PAFEC	5.4	.0	5.4	0	1.2%	.0%	5.4%	.0%
Unisys	5.3	2.8	1.8	48	1.2%	1.1%	1.8%	.4%
Dassault	5.0	.0	4.1	0	1.1%	.0%	4.1%	.0%
Silicon Graphics	4.8	4.3	.0	143	1.1%	1.7%	.0%	1.1%
Framesoft	3.4	.0	3.8	15	.8%	.0%	3.8%	.1%
Vero International Software	2.7	.0	2.7	0	.6%	.0%	2.7%	.0%
Autodesk	2.6	.0	2.6	0	.6%	.0%	2.6%	.0%
SDRC	2.6	.0	2.6	0	.6%	.0%	2.6%	.0%
Siemens	1.7	1.0	.5	39	.4%	.4%	.5%	.3%
Catalpa	1.6	.5	.9	8	.4%	.2%	.9%	.1%
Olivetti	1.6	.4	.9	245	.4%	.1%	.9%	1.9%
Serbi	1.6	.0	1.6	0	.4%	.0%	1.6%	.0%
XAO Industrie	1.5	.5	.9	82	.4%	.2%	.9%	.6%
Compiegne Science Industrie	1.5	.0	.7	0	.3%	.0%	.7%	.0%
Datagraph	1.2	1.0	.2	5	.3%	.4%	.2%	.0%
Norsk Data	1.2	.9	.1	40	3%	.3%	.1%	.3%
ICL	1.1	.6	.3	33	.2%	.2%	.3%	.3%
Albert Nestler	1.0	.3	.5	32	.2%	.1%	.5%	.3%

(Continued)

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Market Share

TABLE NUMBER: 27 (Continued)
TITLE: 1989 Market Share
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Investronica SA	.9	.7	.1	36	.2%	.3%	.1%	.3%
Wiechers Datentechnik	.9	.4	.4	20	.2%	.2%	.4%	.2%
Superdraft	.8	.0	.7	0	.2%	.0%	.7%	.0%
ISICAD	.6	.3	.3	7	.1%	.1%	.3%	.1%
Vision 3D	.6	.3	.2	0	.1%	.1%	.2%	.0%
CAD Lab	.5	.0	.4	0	.1%	.0%	.4%	.0%
Mentor Graphics	.3	.1	.2	4	.1%	.0%	.2%	.0%
Fides Industrielle Automation	.3	.1	.2	3	.1%	.0%	.2%	.0%
DAT Standard Information syste	.2	.0	.2	0	.0%	.0%	.2%	.0%
Gerber Systems	.2	.1	.0	3	.0%	.0%	.0%	.0%
Robocom	.1	.0	.1	0	.0%	.0%	.1%	.0%
Pathtrace	.1	.0	.0	2	.0%	.0%	.0%	.0%
Ziegler	.0	.0	.0	0	.0%	.0%	.0%	.0%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	41.3	30.8	6.8	2,165.8	9.5%	11.9%	6.9%	17.0%
All Companies	435.1	259.3	99.5	12,760.0	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	349.6	225.4	59.6	11,881	80.3%	86.9%	60.0%	93.1%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	85.5	33.9	39.8	879.0	19.7%	13.1%	40.0%	6.9%
All Hardware Companies	119.1	104.1	.0	9,472.4	27.4%	40.1%	.0%	74.2%
All Turnkey & SW Companies	316.1	155.2	99.5	3,287.7	72.6%	59.9%	100.0%	25.8%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 28
TITLE: 1989 Market Share
APPLICATION: AEC
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	11.4	8.7	1.3	952	16.0%	18.4%	10.0%	19.8%
Intergraph	7.6	4.1	1.5	77	10.7%	8.6%	11.8%	1.6%
Compaq	7.5	7.5	.0	1,241	10.5%	15.8%	.0%	25.8%
Digital	6.9	5.1	.0	47	9.7%	10.9%	.0%	1.0%
Apple Computer	6.6	5.8	.0	1,263	9.3%	12.2%	.0%	26.3%
Hewlett-Packard	5.1	3.9	.4	324	7.2%	8.2%	3.0%	6.7%
Computervision	3.8	1.8	.9	32	5.4%	3.7%	7.1%	.7%
Star Informatic	3.3	1.5	1.0	138	4.6%	3.1%	7.6%	2.9%
Datagraphic	3.2	1.5	1.2	54	4.6%	3.1%	9.2%	1.1%
Autodesk	2.6	.0	2.6	0	3.6%	.0%	20.2%	.0%
PAFEC	1.1	.0	1.1	0	1.5%	.0%	8.5%	.0%
Olivetti	1.0	.3	.3	142	1.4%	.7%	2.0%	3.0%
ISICAD	.9	.4	.4	10	1.3%	.8%	3.3%	.2%
Serbi	.8	.0	.8	0	1.1%	.0%	6.3%	.0%
Dassault	.8	.0	.6	0	1.1%	.0%	4.6%	.0%
Sun	.6	.6	.0	42	.9%	1.2%	.0%	.9%
Control Data	.3	.2	.0	3	.4%	.4%	.2%	.1%
Siemens	.3	.2	.1	5	.4%	.3%	.5%	.1%
t2 Solutions	.2	.1	.1	2	.3%	.3%	.5%	.0%
CAD Lab	.1	.0	.1	0	.2%	.0%	.8%	.0%
Robocom	.1	.0	.1	0	.1%	.0%	.5%	.0%
Schlumberger (Applicon)	.1	.0	.0	1	.1%	.0%	.2%	.0%
Sycotronic AG	.0	.0	.0	0	.0%	.0%	.2%	.0%
BATISOFT	.0	.0	.0	1	.0%	.0%	.1%	.0%
Ziegler	.0	.0	.0	0	.0%	.0%	.2%	.0%

(Continued)

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Market Share

TABLE NUMBER: 28 (Continued)
TITLE: 1989 Market Share
APPLICATION: AEC
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	6.8	5.9	.4	477.4	9.6%	12.4%	3.1%	9.9%
All Companies	70.9	47.3	12.8	4,811.0	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	60.1	43.8	7.5	4,469	84.7%	92.5%	59.0%	92.9%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	10.9	3.5	5.2	342.0	15.3%	7.5%	41.0%	7.1%
All Hardware Companies	35.2	31.4	.0	4,222.5	49.6%	66.4%	.0%	87.8%
All Turnkey & SW Companies	35.7	15.9	12.8	588.5	50.4%	33.6%	100.0%	12.2%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 29
TITLE: 1989 Market Share
APPLICATION: GIS/Mapping
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intergraph	10.1	5.4	2.0	103	30.8%	25.2%	37.8%	8.5%
Digital	6.2	4.7	.0	43	19.0%	21.9%	.0%	3.5%
IBM	3.4	2.4	.5	178	10.3%	11.3%	9.0%	14.7%
Compaq	1.6	1.6	.0	270	4.9%	7.6%	.0%	22.3%
Siemens	1.3	.8	.4	28	4.0%	3.6%	7.3%	2.3%
Computervision	1.0	.4	.2	8	2.9%	2.0%	4.3%	.7%
ICL	.9	.6	.3	27	2.8%	2.7%	4.7%	2.2%
ESRI	.9	.0	.8	0	2.7%	.0%	14.4%	.0%
Apple Computer	.8	.7	.0	147	2.3%	3.1%	.0%	12.1%
Autodesk	.6	.0	.6	0	1.7%	.0%	10.7%	.0%
Control Data	.4	.3	.0	4	1.2%	1.3%	.7%	.3%
Hewlett-Packard	.1	.1	.0	10	.3%	.4%	.0%	.8%
Robocom	.0	.0	.0	0	.0%	.0%	.2%	.0%
Other Companies	5.6	4.4	.6	394.1	17.0%	20.8%	10.9%	32.5%
All Companies	32.8	21.4	5.3	1,211.3	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	30.6	20.0	4.7	1,157	93.2%	93.7%	87.8%	95.5%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	2.2	1.4	.7	54.7	6.8%	6.3%	12.2%	4.5%
All Hardware Companies	14.2	12.2	.0	1,014.0	43.4%	57.1%	.0%	83.7%
All Turnkey & SW Companies	18.6	9.2	5.3	197.3	56.6%	42.9%	100.0%	16.3%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 30
TITLE: 1989 Market Share
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Digital	15.6	11.6	.0	133	11.7%	18.3%	.0%	3.7%
Mentor Graphics	15.6	4.5	7.6	206	11.7%	7.1%	17.2%	5.8%
Valid	11.4	2.8	6.1	0	8.5%	4.5%	13.8%	.0%
Hewlett-Packard	10.3	7.5	.5	740	7.7%	11.8%	1.1%	20.8%
Secmai	9.6	5.7	2.0	80	7.2%	9.1%	4.5%	2.2%
Dazix	7.9	3.0	3.2	79	5.9%	4.7%	7.1%	2.2%
Computervision	6.7	3.0	1.6	56	5.0%	4.7%	3.6%	1.6%
Compaq	6.2	6.2	.0	1,026	4.6%	9.7%	.0%	28.8%
Racal-Redac	6.0	.0	4.9	21	4.5%	.0%	11.0%	.6%
Sun	5.3	4.8	.0	355	4.0%	7.5%	.0%	10.0%
IBM	3.1	2.2	.5	128	2.3%	3.4%	1.1%	3.6%
Intergraph	3.0	1.4	.5	31	2.2%	2.2%	1.2%	.9%
ALS Design	1.9	.2	1.6	34	1.5%	.3%	3.5%	1.0%
CADAM	1.7	.0	1.6	0	1.3%	.0%	3.5%	.0%
DECAD	1.3	.1	.9	5	1.0%	.1%	2.1%	.1%
European Silicon Systems	1.1	.3	.8	6	.8%	.4%	1.8%	.2%
Apple Computer	1.1	.9	.0	206	.8%	1.5%	.0%	5.8%
Serbi	.8	.0	.8	0	.6%	.0%	1.8%	.0%
Academi Systems	.7	.1	.5	8	.5%	.2%	1.0%	.2%
Autodesk	.6	.0	.6	0	.4%	.0%	1.3%	.0%
Calay	.5	.2	.3	5	.4%	.2%	.6%	.1%
BETRONEX	.2	.0	.2	0	.1%	.0%	.4%	.0%
Schlumberger (Applicon)	.2	.0	.1	2	.1%	.1%	.1%	.1%
Aucotec	.1	.0	.1	11	.1%	.1%	.1%	.3%
Dassault	.1	.0	.1	0	.1%	.0%	.2%	.0%
Ziegler	.1	.0	.1	0	.1%	.0%	.2%	.0%
Olivetti	.1	.0	.0	18	.1%	.0%	.1%	.5%
Sycotronic AG	.1	.0	.0	0	.0%	.0%	.1%	.0%

(Continued)

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Market Share

TABLE NUMBER: 30 (Continued)
TITLE: 1989 Market Share
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	22.5	8.8	10.1	413.0	16.8%	13.9%	22.7%	11.6%
All Companies	133.4	63.3	44.5	3,563.5	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	110.9	56.7	32.3	3,374	83.1%	89.5%	72.6%	94.7%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	22.5	6.6	12.2	189.4	16.9%	10.5%	27.4%	5.3%
All Hardware Companies	43.8	36.9	.0	2,889.4	32.8%	58.3%	.0%	81.1%
All Turnkey & SW Companies	89.7	26.4	44.5	674.1	67.2%	41.7%	100.0%	18.9%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 31
TITLE: 1989 Market Share
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Market Share Total Revenue	Market Share Hardware Revenue	Market Share Software Revenue	Market Share Wkstns Shipped
Company								
Mentor Graphics	10.3	3.2	5.1	137	15.9%	10.3%	22.0%	7.3%
Valid	8.0	2.0	4.3	0	12.2%	6.5%	18.6%	.0%
Dazix	6.3	2.5	2.5	63	9.7%	8.2%	11.0%	3.4%
Digital	6.2	4.7	.0	53	9.6%	15.2%	.0%	2.8%
Sun	5.3	4.8	.0	355	8.1%	15.5%	.0%	19.0%
Hewlett-Packard	5.2	4.0	.3	374	7.9%	13.1%	1.1%	20.0%
Compaq	2.8	2.8	.0	459	4.2%	8.9%	.0%	24.6%
Computervision	1.9	.9	.4	16	2.9%	2.9%	1.9%	.9%
ALS Design	1.4	.1	1.1	25	2.2%	.5%	4.9%	1.3%
Racal-Redac	1.1	.0	.9	4	1.7%	.1%	3.9%	.2%
Intergraph	1.1	.6	.2	11	1.6%	1.9%	.8%	.6%
Secmai	.9	.6	.2	8	1.4%	1.9%	.8%	.4%
Serbi	.8	.0	.8	0	1.2%	.0%	3.5%	.0%
Autodesk	.5	.0	.5	0	.8%	.0%	2.2%	.0%
Apple Computer	.5	.4	.0	88	.7%	1.3%	.0%	4.7%
IBM	.3	.2	.0	50	.4%	.8%	.0%	2.7%
Aucotec	.1	.0	.1	11	.2%	.1%	.2%	.6%
Dassault	.1	.0	.1	0	.2%	.0%	.3%	.0%
Ziegler	.1	.0	.1	0	.1%	.0%	.3%	.0%
Academi Systems	.1	.0	.0	1	.1%	.0%	.2%	.0%
Other Companies	12.1	3.9	6.5	210.5	18.6%	12.7%	28.3%	11.3%
All Companies	65.0	30.7	23.1	1,866.4	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	60.3	29.9	19.8	1,817	92.9%	97.4%	85.8%	97.4%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	4.6	.8	3.3	49.5	7.1%	2.6%	14.2%	2.6%
All Hardware Companies	21.8	18.7	.0	1,547.7	33.5%	61.0%	.0%	82.9%
All Turnkey & SW Companies	43.2	12.0	23.1	318.7	66.5%	39.0%	100.0%	17.1%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 32
TITLE: 1989 Market Share
APPLICATION: IC Layout
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Digital	2.5	1.9	.0	21	23.9%	48.6%	.0%	15.9%
Valid	1.1	.3	.6	0	10.9%	7.3%	14.3%	.0%
European Silicon Systems	1.1	.3	.8	6	10.5%	7.0%	19.0%	4.5%
Hewlett-Packard	1.0	.8	.0	90	9.5%	21.9%	.0%	67.2%
Mentor Graphics	.8	.2	.4	11	7.6%	6.3%	9.1%	7.9%
Other Companies	3.9	.3	2.5	6.2	37.6%	8.9%	57.6%	4.6%
All Companies	10.4	3.8	4.3	133.7	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	9.3	3.6	3.5	128	89.5%	93.0%	81.0%	95.5%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	1.1	.3	.8	6.0	10.5%	7.0%	19.0%	4.5%
All Hardware Companies	3.7	2.9	.0	114.5	35.6%	76.2%	.0%	85.6%
All Turnkey & SW Companies	6.7	.9	4.3	19.2	64.4%	23.8%	100.0%	14.4%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 33
TITLE: 1989 Market Share
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Secmai	8.7	5.2	1.8	72	15.0%	18.0%	10.5%	4.6%
Digital	6.9	5.0	.0	58	11.8%	17.5%	.0%	3.7%
Racal-Redac	4.9	.0	4.0	17	8.4%	.0%	23.4%	1.1%
Computervision	4.8	2.1	1.1	40	8.2%	7.3%	6.7%	2.6%
Mentor Graphics	4.4	1.1	2.2	59	7.7%	3.8%	12.7%	3.8%
Hewlett-Packard	4.1	2.6	.3	276	7.1%	8.9%	1.5%	17.7%
Compaq	3.4	3.4	.0	567	5.9%	11.8%	.0%	36.3%
IBM	2.9	1.9	.5	78	5.0%	6.8%	2.8%	5.0%
Valid	2.3	.6	1.2	0	3.9%	2.0%	7.2%	.0%
Intergraph	1.9	.8	.3	20	3.3%	2.9%	2.0%	1.3%
CADAM	1.7	.0	1.6	0	3.0%	.0%	9.1%	.0%
Dazix	1.6	.5	.6	16	2.7%	1.6%	3.7%	1.0%
DECAD	1.3	.1	.9	5	2.3%	.2%	5.5%	.3%
Apple Computer	.6	.5	.0	118	1.1%	1.9%	.0%	7.5%
Academi Systems	.6	.1	.4	7	1.0%	.4%	2.4%	.5%
ALS Design	.5	.1	.4	9	.9%	.2%	2.4%	.6%
Calay	.5	.2	.3	5	.8%	.5%	1.5%	.3%
BETRONEX	.2	.0	.2	0	.3%	.0%	1.1%	.0%
Schlumberger (Applicon)	.2	.0	.1	2	.3%	.1%	.3%	.1%
Olivetti	.1	.0	.0	18	.1%	.0%	.2%	1.2%
Autodesk	.1	.0	.1	0	.1%	.0%	.4%	.0%
Sycotronic AG	.1	.0	.0	0	.1%	.0%	.2%	.0%
Ziegler	.0	.0	.0	0	.0%	.0%	.1%	.0%

(Continued)

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Market Share

TABLE NUMBER: 33 (Continued)
TITLE: 1989 Market Share
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: France
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	6.4	4.6	1.1	196.3	11.1%	15.9%	6.5%	12.6%
All Companies	58.0	28.7	17.1	1,563.4	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	41.2	23.2	9.0	1,430	71.1%	80.6%	52.8%	91.4%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	16.8	5.6	8.1	133.9	28.9%	19.4%	47.2%	8.6%
All Hardware Companies	18.3	15.3	.0	1,227.2	31.5%	53.1%	.0%	78.5%
All Turnkey & SW Companies	39.8	13.5	17.1	336.3	68.5%	46.9%	100.0%	21.5%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 34
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: German Region
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
DAT Standard Information syste	6.5	.0	6.5	0	.4%	.0%	1.7%	.0%
Silicon Graphics	5.8	5.1	.0	172	.4%	.6%	.0%	.4%
LPKF	5.6	3.4	1.7	563	.4%	.4%	.4%	1.2%
Ferranti	5.2	3.9	.4	46	.4%	.5%	.1%	.1%
Cisigraph	4.4	1.8	1.6	49	.3%	.2%	.4%	.1%
Aucotec	4.1	1.7	2.1	462	.3%	.2%	.5%	1.0%
Gerber Systems	4.0	2.4	1.0	56	.3%	.3%	.3%	.1%
Technische Computer Systeme	3.8	1.1	2.7	103	.3%	.1%	.7%	.2%
Cimatron	3.7	1.7	1.6	93	.2%	.2%	.4%	.2%
Albert Nestler	3.5	1.1	1.6	119	.2%	.1%	.4%	.3%
SDRC	3.5	.0	3.5	0	.2%	.0%	.9%	.0%
Marcus Computer Systems	3.5	1.9	1.1	119	.2%	.2%	.3%	.3%
ESRI	3.4	.0	3.0	0	.2%	.0%	.8%	.0%
Fides Industrielle Automation	3.1	.6	2.2	29	.2%	.1%	.6%	.1%
Philips International	2.9	1.0	1.4	5	.2%	.1%	.4%	.0%
Intercad	2.2	1.1	.6	109	.1%	.1%	.2%	.2%
European Silicon Systems	2.1	.5	1.5	11	.1%	.1%	.4%	.0%
Olivetti	1.9	.6	.9	437	.1%	.1%	.2%	.9%
Westward	1.7	1.7	.0	99	.1%	.2%	.0%	.2%
Star Informatic	1.4	.6	.4	61	.1%	.1%	.1%	.1%
CADAM	1.4	.0	1.3	0	.1%	.0%	.3%	.0%
ICL	1.4	.8	.4	43	.1%	.1%	.1%	.1%
Unisys	1.3	.6	.6	42	.1%	.1%	.1%	.1%
CAD-UL	1.0	.3	.7	20	.1%	.0%	.2%	.0%
Sycotronic AG	.8	.0	.7	2	.1%	.0%	.2%	.0%
Vero International Software	.7	.0	.7	0	.1%	.0%	.2%	.0%
Framesoft	.7	.0	.8	3	.0%	.0%	.2%	.0%
Investronica SA	.7	.6	.1	27	.0%	.1%	.0%	.1%
Secmai	.7	.4	.1	5	.0%	.0%	.0%	.0%
Academi Systems	.4	.1	.3	5	.0%	.0%	.1%	.0%
Superdraft	.4	.0	.3	0	.0%	.0%	.1%	.0%

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Market Share

TABLE NUMBER: 34
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: German Region
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	188.5	129.1	30.2	6,436	12.8%	15.3%	8.0%	13.6%
Hewlett-Packard	132.2	94.6	12.2	7,409	9.0%	11.2%	3.2%	15.7%
Computervision	119.1	54.9	28.3	1,001	8.1%	6.5%	7.5%	2.1%
Digital	104.7	78.4	.0	760	7.1%	9.3%	.0%	1.6%
Siemens	92.2	54.4	27.7	2,045	6.3%	6.5%	7.3%	4.3%
Intergraph	87.7	46.1	17.3	895	6.0%	5.5%	4.6%	1.9%
Control Data	58.2	41.3	7.0	621	4.0%	4.9%	1.8%	1.3%
Schlumberger (Applicon)	47.6	17.9	15.3	499	3.2%	2.1%	4.0%	1.1%
Norsk Data	31.9	15.6	9.6	18	2.2%	1.9%	2.5%	.0%
Compaq	29.9	29.9	.0	4,981	2.0%	3.5%	.0%	10.5%
McDonnell Douglas	28.6	15.3	10.4	423	1.9%	1.8%	2.7%	.9%
Mentor Graphics	26.7	7.7	13.1	353	1.8%	.9%	3.5%	.7%
Racal-Redac	18.6	.1	15.3	66	1.3%	.0%	4.0%	.1%
Valid	17.6	4.4	9.5	0	1.2%	.5%	2.5%	.0%
Dazix	17.5	6.7	7.0	174	1.2%	.8%	1.8%	.4%
ISICAD	17.2	7.2	7.3	184	1.2%	.9%	1.9%	.4%
STI-Straessle	16.2	7.4	8.0	72	1.1%	.9%	2.1%	.2%
Sun	15.9	14.3	.0	1,068	1.1%	1.7%	.0%	2.3%
Mannesmann PROCAD	15.0	7.5	4.5	200	1.0%	.9%	1.2%	.4%
Matra Datavision	14.9	8.9	4.5	67	1.0%	1.1%	1.2%	.1%
Autodesk	13.6	.0	13.6	0	.9%	.0%	3.6%	.0%
Wiechers Datentechnik	13.3	6.6	6.6	312	.9%	.8%	1.8%	.7%
Dassault	13.0	.0	10.8	0	.9%	.0%	2.8%	.0%
ABB Cade International	13.0	7.1	3.1	5	.9%	.8%	.8%	.0%
Ziegler	12.5	.5	11.4	416	.8%	.1%	3.0%	.9%
ISYKON Software	11.4	6.3	4.0	111	.8%	.7%	1.1%	.2%
Exept	10.3	6.8	2.3	173	.7%	.8%	.6%	.4%
Calay	10.0	3.1	5.1	100	.7%	.4%	1.3%	.2%
PAFEC	9.9	.0	9.9	0	.7%	.0%	2.6%	.0%
Datagraph	9.2	7.3	1.8	38	.6%	.9%	.5%	.1%
Apple Computer	8.3	7.3	.0	1,594	.6%	.9%	.0%	3.4%
Cadtronic	7.5	5.7	1.0	51	.5%	.7%	.3%	.1%
Rotring EURCAD	6.7	4.1	2.6	185	.5%	.5%	.7%	.4%

(Continued)

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Market Share

TABLE NUMBER: 34 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: German Region
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Vision 3D	.4	.2	.1	0	.0%	.0%	.0%	.0%
ALS Design	.3	.0	.2	5	.0%	.0%	.1%	.0%
Robocom	.3	.0	.3	0	.0%	.0%	.1%	.0%
BETRONEX	.2	.0	.2	0	.0%	.0%	.1%	.0%
Serbi	.2	.0	.2	0	.0%	.0%	.0%	.0%
Sysscan	.2	.1	.0	34	.0%	.0%	.0%	.1%
BATISOFT	.1	.0	.1	6	.0%	.0%	.0%	.0%
CAD Lab	.1	.0	.1	0	.0%	.0%	.0%	.0%
Datagraphic	.1	.0	.0	2	.0%	.0%	.0%	.0%
Pathtrace	.1	.0	.1	2	.0%	.0%	.0%	.0%
FEGS	.1	.0	.1	0	.0%	.0%	.0%	.0%
DECAD	.1	.0	.0	0	.0%	.0%	.0%	.0%
Compiegne Science Industrie	.0	.0	.0	0	.0%	.0%	.0%	.0%
Gable CAD Systems	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	167.3	113.2	38.6	14,257.3	11.4%	13.4%	10.2%	30.2%
All Companies	1,469.3	843.2	378.8	47,242.9	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	1,100.1	676.4	219.2	40,924	74.9%	80.2%	57.9%	86.6%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	369.3	166.8	159.6	6,318.6	25.1%	19.8%	42.1%	13.4%
All Hardware Companies	363.3	314.7	.0	32,890.9	24.7%	37.3%	.0%	69.6%
All Turnkey & SW Companies	1,106.0	528.6	378.8	14,352.0	75.3%	62.7%	100.0%	30.4%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 35
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: German Region
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Hewlett-Packard	110.1	76.4	12.2	3,994	14.1%	19.4%	5.2%	30.3%
Computervision	100.6	46.4	24.0	610	12.9%	11.8%	10.2%	4.6%
Siemens	83.6	49.3	25.1	1,944	10.7%	12.6%	10.7%	14.7%
Intergraph	69.5	38.2	12.5	744	8.9%	9.7%	5.3%	5.6%
Schlumberger (Applicon)	41.7	15.7	13.4	389	5.3%	4.0%	5.7%	3.0%
Mentor Graphics	26.7	7.7	13.1	353	3.4%	2.0%	5.6%	2.7%
McDonnell Douglas	23.7	12.7	8.6	267	3.0%	3.2%	3.7%	2.0%
Digital	23.0	17.1	.0	760	2.9%	4.4%	.0%	5.8%
Control Data	19.8	14.0	2.4	363	2.5%	3.6%	1.0%	2.8%
Racal-Redac	18.1	.1	14.9	63	2.3%	.0%	6.3%	.5%
Valid	17.6	4.4	9.5	0	2.3%	1.1%	4.0%	.0%
Dazix	17.5	6.7	7.0	174	2.2%	1.7%	3.0%	1.3%
Sun	15.9	14.3	.0	1,068	2.0%	3.6%	.0%	8.1%
IBM	15.1	9.7	2.8	136	1.9%	2.5%	1.2%	1.0%
Mannesmann PROCAD	15.0	7.5	4.5	200	1.9%	1.9%	1.9%	1.5%
ISICAD	14.9	7.2	5.1	184	1.9%	1.8%	2.1%	1.4%
Matra Datavision	14.9	8.9	4.5	0	1.9%	2.3%	1.9%	.0%
ABB Cade International	13.0	7.1	3.1	5	1.7%	1.8%	1.3%	.0%
STI-Straessle	12.7	5.8	6.3	57	1.6%	1.5%	2.7%	.4%
Norsk Data	11.8	5.8	3.4	7	1.5%	1.5%	1.5%	.1%
ISYKON Software	11.4	6.3	4.0	111	1.5%	1.6%	1.7%	.8%
Calay	10.0	3.1	5.1	100	1.3%	.8%	2.1%	.8%
PAFEC	9.2	.0	9.2	0	1.2%	.0%	3.9%	.0%
Silicon Graphics	5.4	4.8	.0	162	.7%	1.2%	.0%	1.2%
Dassault	4.3	.0	3.9	0	.6%	.0%	1.7%	.0%
Gerber Systems	4.0	2.4	1.0	56	.5%	.6%	.4%	.4%
Wiechers Datentechnik	4.0	2.0	2.0	94	.5%	.5%	.8%	.7%
Cisigraph	4.0	1.6	1.4	48	.5%	.4%	.6%	.4%
Technische Computer Systeme	3.8	1.1	2.7	103	.5%	.3%	1.1%	.8%
Cimatron	3.3	1.5	1.5	84	.4%	.4%	.6%	.6%
Albert Nestler	3.2	1.0	1.5	95	.4%	.2%	.6%	.7%
SDRC	2.8	.0	2.8	0	.4%	.0%	1.2%	.0%

(Continued)

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Market Share

TABLE NUMBER: 35 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: German Region
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Marcus Computer Systems	2.8	1.6	.8	95	.4%	.4%	.4%	.7%
Rotring EURCAD	2.7	1.9	.9	84	.4%	.5%	.4%	.6%
Exapt	2.3	1.0	1.0	51	.3%	.3%	.4%	.4%
European Silicon Systems	1.6	.4	1.2	7	.2%	.1%	.5%	.1%
Star Informatic	1.4	.6	.4	61	.2%	.2%	.2%	.5%
ICL	1.4	.8	.4	43	.2%	.2%	.2%	.3%
ESRI	1.3	.0	1.1	0	.2%	.0%	.5%	.0%
Unisys	1.0	.4	.5	34	.1%	.1%	.2%	.3%
Westward	1.0	1.0	.0	54	.1%	.3%	.0%	.4%
Framesoft	.7	.0	.8	3	.1%	.0%	.3%	.0%
Secmai	.7	.4	.1	5	.1%	.1%	.1%	.0%
Fides Industrielle Automation	.6	.1	.4	14	.1%	.0%	.2%	.1%
Autodesk	.4	.0	.4	0	.1%	.0%	.2%	.0%
Academi Systems	.4	.1	.3	4	.0%	.0%	.1%	.0%
Aucotec	.2	.1	.1	23	.0%	.0%	.0%	.2%
CAD Lab	.1	.0	.1	0	.0%	.0%	.0%	.0%
Ferranti	.1	.0	.0	2	.0%	.0%	.0%	.0%
DECAD	.1	.0	.0	0	.0%	.0%	.0%	.0%
Gable CAD Systems	.0	.0	.0	0	.0%	.0%	.0%	.0%
Sysscan	.0	.0	.0	0	.0%	.0%	.0%	.0%
Compiegne Science Industrie	.0	.0	.0	0	.0%	.0%	.0%	.0%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	31.7	5.6	19.3	541.7	4.1%	1.4%	8.2%	4.1%
All Companies	781.3	392.9	235.0	13,191.2	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	542.9	283.9	135.5	9,835	69.5%	72.2%	57.7%	74.6%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	238.4	109.1	99.5	3,356.3	30.5%	27.8%	42.3%	25.4%
All Hardware Companies	87.2	70.8	.0	4,486.4	11.2%	18.0%	.0%	34.0%
All Turnkey & SW Companies	694.1	322.2	235.0	8,704.9	88.8%	82.0%	100.0%	66.0%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 36
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: German Region
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	150.0	97.1	27.4	1,573	32.8%	32.6%	35.8%	28.0%
Digital	81.7	61.3	.0	0	17.9%	20.6%	.0%	.0%
Control Data	38.4	27.3	4.6	258	8.4%	9.1%	6.0%	4.6%
Norsk Data	19.8	9.9	6.1	10	4.3%	3.3%	7.9%	.2%
Computervision	17.3	8.0	4.1	360	3.8%	2.7%	5.4%	6.4%
Intergraph	15.8	7.9	2.5	151	3.5%	2.7%	3.3%	2.7%
Dassault	8.7	.0	6.9	0	1.9%	.0%	9.0%	.0%
Siemens	8.6	5.1	2.6	100	1.9%	1.7%	3.4%	1.8%
Exapt	8.0	5.8	1.3	123	1.7%	2.0%	1.8%	2.2%
Schlumberger (Applicon)	5.9	2.2	1.9	110	1.3%	.7%	2.5%	1.9%
Ferranti	5.1	3.9	.4	44	1.1%	1.3%	.5%	.8%
McDonnell Douglas	4.9	2.6	1.8	156	1.1%	.9%	2.3%	2.8%
STI-Straessle	3.6	1.6	1.8	16	.8%	.5%	2.3%	.3%
Fides Industrielle Automation	2.5	.5	1.7	14	.5%	.2%	2.3%	.3%
Hewlett-Packard	2.2	1.9	.0	111	.5%	.6%	.0%	2.0%
ESRI	1.8	.0	1.6	0	.4%	.0%	2.1%	.0%
PAFEC	.7	.0	.7	0	.2%	.0%	.9%	.0%
SDRC	.7	.0	.7	0	.2%	.0%	.9%	.0%
Racal-Redac	.5	.0	.4	3	.1%	.0%	.5%	.1%
Cisigraph	.4	.2	.2	1	.1%	.1%	.2%	.0%
Silicon Graphics	.4	.3	.0	10	.1%	.1%	.0%	.2%
Unisys	.3	.2	.1	8	.1%	.1%	.1%	.1%
Aucotec	.2	.1	.1	23	.0%	.0%	.1%	.4%
Olivetti	.1	.1	.1	9	.0%	.0%	.1%	.2%
Sysscan	.1	.1	.0	34	.0%	.0%	.0%	.6%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%
Compiegne Science Industrie	.0	.0	.0	0	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 36 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: German Region
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	79.4	62.3	9.5	2,438.1	17.4%	20.9%	12.5%	43.4%
All Companies	456.8	298.1	76.5	5,620.2	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	398.5	271.0	54.2	5,175	87.2%	90.9%	70.9%	92.1%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	58.3	27.1	22.3	445.1	12.8%	9.1%	29.1%	7.9%
All Hardware Companies	149.8	123.2	.0	2,540.2	32.8%	41.3%	.0%	45.2%
All Turnkey & SW Companies	307.0	174.9	76.5	3,080.0	67.2%	58.7%	100.0%	54.8%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 37
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: German Region
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Compaq	29.9	29.9	.0	4,981	12.9%	19.6%	.0%	17.5%
IBM	23.4	22.3	.0	4,727	10.1%	14.6%	.0%	16.6%
Hewlett-Packard	19.9	16.3	.0	3,304	8.6%	10.7%	.0%	11.6%
Autodesk	13.1	.0	13.1	0	5.7%	.0%	19.5%	.0%
Ziegler	12.5	.5	11.4	416	5.4%	.3%	16.8%	1.5%
Wiechers Datentechnik	9.3	4.6	4.6	218	4.0%	3.0%	6.9%	.8%
Datagraph	9.2	7.3	1.8	38	4.0%	4.8%	2.7%	.1%
Apple Computer	8.3	7.3	.0	1,594	3.6%	4.8%	.0%	5.6%
Cadtronic	7.5	5.7	1.0	51	3.2%	3.8%	1.4%	.2%
DAT Standard Information syste	6.5	.0	6.5	0	2.8%	.0%	9.6%	.0%
LPKF	5.6	3.4	1.7	563	2.4%	2.2%	2.5%	2.0%
Rotring EURCAD	4.0	2.2	1.7	101	1.7%	1.5%	2.6%	.4%
Aucotec	3.7	1.5	1.9	416	1.6%	1.0%	2.8%	1.5%
Philips International	2.9	1.0	1.4	5	1.2%	.7%	2.1%	.0%
Intergraph	2.3	.0	2.2	0	1.0%	.0%	3.3%	.0%
ISICAD	2.3	.0	2.3	0	1.0%	.0%	3.4%	.0%
Intercad	2.2	1.1	.6	109	.9%	.7%	1.0%	.4%
Olivetti	1.8	.6	.9	428	.8%	.4%	1.3%	1.5%
CADAM	1.4	.0	1.3	0	.6%	.0%	1.9%	.0%
Computervision	1.2	.6	.3	32	.5%	.4%	.4%	.1%
CAD-UL	1.0	.3	.7	20	.4%	.2%	1.0%	.1%
Sycotronic AG	.8	.0	.7	2	.4%	.0%	1.0%	.0%
Vero International Software	.7	.0	.7	0	.3%	.0%	1.1%	.0%
Marcus Computer Systems	.7	.4	.2	24	.3%	.3%	.3%	.1%
Investronica SA	.7	.6	.1	27	.3%	.4%	.1%	.1%
Westward	.7	.7	.0	45	.3%	.4%	.0%	.2%
European Silicon Systems	.4	.1	.3	4	.2%	.1%	.5%	.0%
Cimatron	.4	.2	.2	9	.2%	.1%	.2%	.0%
Superdraft	.4	.0	.3	0	.2%	.0%	.5%	.0%
Vision 3D	.4	.2	.1	0	.2%	.1%	.2%	.0%
Albert Nestler	.3	.1	.1	25	.1%	.1%	.1%	.1%
ALS Design	.3	.0	.2	5	.1%	.0%	.3%	.0%

(Continued)

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Market Share

TABLE NUMBER: 37 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: German Region
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Norsk Data	.3	.0	.2	1	.1%	.0%	.2%	.0%
Robocom	.3	.0	.3	0	.1%	.0%	.4%	.0%
ESRI	.3	.0	.3	0	.1%	.0%	.4%	.0%
BETRONEX	.2	.0	.2	0	.1%	.0%	.4%	.0%
Serbi	.2	.0	.2	0	.1%	.0%	.2%	.0%
BATISOFT	.1	.0	.1	6	.0%	.0%	.1%	.0%
Datagraphic	.1	.0	.0	2	.0%	.0%	.1%	.0%
Pathtrace	.1	.0	.1	2	.0%	.0%	.1%	.0%
Academi Systems	.1	.0	.0	1	.0%	.0%	.1%	.0%
Racal-Redac	.0	.0	.0	0	.0%	.0%	.0%	.0%
Secmai	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	56.2	45.2	9.8	11,277.5	24.3%	29.7%	14.5%	39.7%
All Companies	231.3	152.2	67.4	28,431.5	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	158.7	121.6	29.5	25,914	68.6%	79.9%	43.8%	91.1%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	72.6	30.6	37.9	2,517.2	31.4%	20.1%	56.2%	8.9%
All Hardware Companies	126.4	120.7	.0	25,864.4	54.7%	79.3%	.0%	91.0%
All Turnkey & SW Companies	104.9	31.5	67.4	2,567.2	45.3%	20.7%	100.0%	9.0%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 38
TITLE: 1989 Market Share
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: German Region
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	154.8	104.1	25.9	4,068	16.5%	18.6%	11.5%	15.3%
Computervision	104.8	48.4	24.9	881	11.1%	8.7%	11.1%	3.3%
Hewlett-Packard	85.6	61.6	8.8	4,460	9.1%	11.0%	3.9%	16.8%
Digital	56.5	42.4	.0	386	6.0%	7.6%	.0%	1.5%
Control Data	55.3	39.2	6.6	590	5.9%	7.0%	3.0%	2.2%
Siemens	47.0	27.7	14.1	1,083	5.0%	5.0%	6.3%	4.1%
Schlumberger (Applicon)	45.7	17.3	14.6	479	4.9%	3.1%	6.5%	1.8%
Norsk Data	31.9	15.6	9.6	18	3.4%	2.8%	4.3%	.1%
McDonnell Douglas	26.5	14.2	9.6	386	2.8%	2.5%	4.3%	1.5%
Intergraph	23.5	12.5	4.7	239	2.5%	2.2%	2.1%	.9%
Compaq	15.8	15.8	.0	2,640	1.7%	2.8%	.0%	10.0%
Mannesmann PROCAD	15.0	7.5	4.5	200	1.6%	1.3%	2.0%	.8%
Matra Datavision	14.9	8.9	4.5	67	1.6%	1.6%	2.0%	.3%
Wiechers Datentechnik	13.3	6.6	6.6	312	1.4%	1.2%	3.0%	1.2%
STI-Straessle	13.0	5.9	6.4	58	1.4%	1.1%	2.9%	.2%
ISYKON Software	11.4	6.3	4.0	111	1.2%	1.1%	1.8%	.4%
Dassault	11.0	.0	9.1	0	1.2%	.0%	4.1%	.0%
Exapt	10.3	6.8	2.3	173	1.1%	1.2%	1.0%	.7%
Datagraph	9.2	7.3	1.8	38	1.0%	1.3%	.8%	.1%
ABB Cade International	9.0	5.1	2.1	3	1.0%	.9%	.9%	.0%
Sun	8.4	7.6	.0	566	.9%	1.4%	.0%	2.1%
PAFEC	8.3	.0	8.3	0	.9%	.0%	3.7%	.0%
ISICAD	6.9	3.0	2.7	77	.7%	.5%	1.2%	.3%
DAT Standard Information syste	6.1	.0	6.1	0	.7%	.0%	2.7%	.0%
Silicon Graphics	5.8	5.1	.0	172	.6%	.9%	.0%	.6%
Autodesk	5.6	.0	5.6	0	.6%	.0%	2.5%	.0%
Ferranti	5.2	3.9	.4	46	.5%	.7%	.2%	.2%
Ziegler	4.9	.2	4.4	162	.5%	.0%	2.0%	.6%
Rotring EURCAD	4.5	2.8	1.7	129	.5%	.5%	.7%	.5%
Cisigraph	4.4	1.8	1.6	49	.5%	.3%	.7%	.2%
Gerber Systems	4.0	2.4	1.0	56	.4%	.4%	.4%	.2%
Technische Computer Systeme	3.8	1.1	2.7	103	.4%	.2%	1.2%	.4%
Apple Computer	3.7	3.3	.0	717	.4%	.6%	.0%	2.7%

(Continued)

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Market Share

TABLE NUMBER: 38
TITLE: 1989 Market Share
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: German Region
UNITS: Millions of Dollars/Actual Units

	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Market Share Total Revenue	Market Share Hardware Revenue	Market Share Software Revenue	Market Share Wkstns Shipped
Company								
Cimatron	3.7	1.7	1.6	93	.4%	.3%	.7%	.4%
Albert Nestler	3.5	1.1	1.6	119	.4%	.2%	.7%	.5%
SDRC	3.5	.0	3.5	0	.4%	.0%	1.6%	.0%
Marcus Computer Systems	3.5	1.9	1.1	119	.4%	.3%	.5%	.4%
Fides Industrielle Automation	3.1	.6	2.2	29	.3%	.1%	1.0%	.1%
Philips International	2.9	1.0	1.4	5	.3%	.2%	.6%	.0%
Westward	1.5	1.5	.0	89	.2%	.3%	.0%	.3%
Intercad	1.5	.8	.5	77	.2%	.1%	.2%	.3%
Unisys	1.3	.6	.6	42	.1%	.1%	.2%	.2%
Olivetti	.8	.2	.4	166	.1%	.0%	.2%	.6%
Cadtronic	.8	.6	.1	3	.1%	.1%	.0%	.0%
Vero International Software	.7	.0	.7	0	.1%	.0%	.3%	.0%
Framesoft	.7	.0	.8	3	.1%	.0%	.3%	.0%
Investronica SA	.7	.6	.1	27	.1%	.1%	.0%	.1%
ICL	.7	.4	.2	20	.1%	.1%	.1%	.1%
Mentor Graphics	.5	.2	.3	7	.1%	.0%	.1%	.0%
Superdraft	.4	.0	.3	0	.0%	.0%	.1%	.0%
Vision 3D	.4	.2	.1	0	.0%	.0%	.0%	.0%
Robocom	.1	.0	.1	0	.0%	.0%	.1%	.0%
CAD Lab	.1	.0	.1	0	.0%	.0%	.0%	.0%
Pathtrace	.1	.0	.1	2	.0%	.0%	.0%	.0%
Serbi	.1	.0	.1	0	.0%	.0%	.0%	.0%
FEGS	.1	.0	.1	0	.0%	.0%	.0%	.0%
Compiegne Science Industrie	.0	.0	.0	0	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 38 (Continued)
TITLE: 1989 Market Share
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: German Region
UNITS: Millions of Dollars/Actual Units

	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Market Share Total Revenue	Market Share Hardware Revenue	Market Share Software Revenue	Market Share Wkstns Shipped
Company								
Other Companies	83.8	63.2	14.1	7,446.0	8.9%	11.3%	6.3%	28.1%
All Companies	940.1	559.3	224.7	26,514.8	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	692.4	441.1	123.3	23,211	73.6%	78.9%	54.9%	87.5%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	247.7	118.2	101.5	3,303.4	26.4%	21.1%	45.1%	12.5%
All Hardware Companies	202.6	176.0	.0	17,393.3	21.6%	31.5%	.0%	65.6%
All Turnkey & SW Companies	737.5	383.4	224.7	9,121.6	78.4%	68.5%	100.0%	34.4%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 39
TITLE: 1989 Market Share
APPLICATION: AEC
PLATFORM: All Platforms
REGION: German Region
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intergraph	23.5	12.5	4.7	239	15.5%	12.6%	15.5%	2.4%
IBM	21.4	16.3	2.4	1,792	14.1%	16.4%	8.0%	18.2%
Hewlett-Packard	17.2	12.7	1.5	1,008	11.3%	12.7%	4.8%	10.2%
Digital	11.5	8.6	.0	79	7.6%	8.7%	.0%	.8%
ISICAD	10.3	4.2	4.6	107	6.8%	4.2%	15.2%	1.1%
Siemens	6.9	4.1	2.1	138	4.5%	4.1%	6.9%	1.4%
Compaq	6.9	6.9	.0	1,146	4.5%	6.9%	.0%	11.6%
Autodesk	5.6	.0	5.6	0	3.7%	.0%	18.4%	.0%
Computervision	4.8	2.2	1.1	40	3.1%	2.2%	3.8%	.4%
Cadtronic	4.5	3.5	.6	30	2.9%	3.5%	1.9%	.3%
Apple Computer	3.6	3.1	.0	685	2.3%	3.1%	.0%	6.9%
McDonnell Douglas	2.1	1.1	.8	37	1.4%	1.1%	2.5%	.4%
PAFEC	1.6	.0	1.6	0	1.0%	.0%	5.2%	.0%
Dassault	1.5	.0	1.2	0	1.0%	.0%	4.0%	.0%
Ziegler	1.5	.1	1.4	50	1.0%	.1%	4.5%	.5%
Star Informatic	1.4	.6	.4	61	.9%	.6%	1.4%	.6%
Control Data	1.2	.8	.1	12	.8%	.8%	.4%	.1%
Sun	.8	.7	.0	53	.5%	.7%	.0%	.5%
Olivetti	.7	.3	.3	174	.5%	.3%	1.0%	1.8%
Schlumberger (Applicon)	.5	.2	.2	5	.3%	.2%	.5%	.1%
DAT Standard Information syste	.4	.0	.4	0	.2%	.0%	1.2%	.0%
Sycotronic AG	.3	.0	.2	0	.2%	.0%	.7%	.0%
Robocom	.1	.0	.1	0	.1%	.0%	.4%	.0%
BATISOFT	.1	.0	.1	6	.1%	.0%	.3%	.1%
Datagraphic	.1	.0	.0	2	.1%	.0%	.1%	.0%
Westward	.1	.1	.0	5	.1%	.1%	.0%	.1%
Gable CAD Systems	.0	.0	.0	0	.0%	.0%	.0%	.0%
Serbi	.0	.0	.0	0	.0%	.0%	.1%	.0%
CAD Lab	.0	.0	.0	0	.0%	.0%	.1%	.0%

(Continued)

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Market Share

TABLE NUMBER: 39 (Continued)
TITLE: 1989 Market Share
APPLICATION: AEC
PLATFORM: All Platforms
REGION: German Region
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Other Companies	23.3	21.7	.9	4,203.9	15.3%	21.7%	3.0%	42.6%
All Companies	151.7	99.8	30.2	9,874.2	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	132.5	91.1	21.8	9,408	87.3%	91.3%	72.1%	95.3%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	19.2	8.6	8.4	466.4	12.7%	8.7%	27.9%	4.7%
All Hardware Companies	62.1	56.2	.0	8,640.2	40.9%	56.3%	.0%	87.5%
All Turnkey & SW Companies	89.6	43.6	30.2	1,234.0	59.1%	43.7%	100.0%	12.5%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 40
TITLE: 1989 Market Share
APPLICATION: GIS/Mapping
PLATFORM: All Platforms
REGION: German Region
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Siemens	36.4	21.5	10.9	779	32.7%	33.7%	37.9%	29.0%
Intergraph	31.4	16.7	6.3	319	28.2%	26.3%	21.7%	11.9%
Digital	10.5	7.9	.0	72	9.4%	12.3%	.0%	2.7%
IBM	6.4	4.5	.9	335	5.7%	7.1%	3.2%	12.5%
ESRI	3.4	.0	3.0	0	3.0%	.0%	10.3%	.0%
STI-Straessle	3.2	1.5	1.6	14	2.9%	2.3%	5.5%	.5%
Cadtronic	2.2	1.7	.3	19	2.0%	2.7%	1.0%	.7%
Control Data	1.7	1.2	.2	19	1.6%	1.9%	.8%	.7%
Compaq	1.5	1.5	.0	249	1.3%	2.3%	.0%	9.3%
Autodesk	1.2	.0	1.2	0	1.1%	.0%	4.2%	.0%
Computervision	1.2	.6	.3	10	1.1%	.9%	1.0%	.4%
Ziegler	1.1	.0	1.0	37	1.0%	.1%	3.5%	1.4%
ICL	.8	.5	.2	23	.7%	.7%	.7%	.9%
Apple Computer	.4	.4	.0	80	.4%	.6%	.0%	3.0%
Olivetti	.3	.1	.2	82	.3%	.2%	.7%	3.1%
Hewlett-Packard	.2	.2	.0	19	.2%	.3%	.0%	.7%
Sysscan	.2	.1	.0	34	.1%	.1%	.1%	1.3%
Robocom	.0	.0	.0	0	.0%	.0%	.1%	.0%
Other Companies	9.2	5.4	2.7	593.6	8.3%	8.4%	9.3%	22.1%
All Companies	111.3	63.6	28.8	2,685.1	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	67.1	38.3	14.6	1,696	60.3%	60.2%	50.5%	63.2%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	44.2	25.3	14.3	988.7	39.7%	39.8%	49.5%	36.8%
All Hardware Companies	19.5	16.4	.0	1,294.9	17.5%	25.7%	.0%	48.2%
All Turnkey & SW Companies	91.8	47.3	28.8	1,390.2	82.5%	74.3%	100.0%	51.8%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 41
TITLE: 1989 Market Share
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: German Region
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Hewlett-Packard	29.2	20.1	1.9	1,922	11.0%	16.7%	2.0%	23.5%
Digital	26.2	19.5	.0	224	9.8%	16.2%	.0%	2.7%
Mentor Graphics	26.1	7.6	12.9	346	9.8%	6.3%	13.5%	4.2%
Racal-Redac	18.6	.1	15.3	66	7.0%	.1%	16.1%	.8%
Valid	17.6	4.4	9.5	0	6.6%	3.7%	10.0%	.0%
Dazix	17.5	6.7	7.0	174	6.6%	5.5%	7.4%	2.1%
Calay	10.0	3.1	5.1	100	3.8%	2.6%	5.3%	1.2%
Intergraph	9.3	4.4	1.6	98	3.5%	3.6%	1.7%	1.2%
Computervision	8.3	3.7	2.0	70	3.1%	3.1%	2.1%	.9%
Sun	6.7	6.0	.0	449	2.5%	5.0%	.0%	5.5%
IBM	5.9	4.1	.9	241	2.2%	3.4%	1.0%	2.9%
Compaq	5.7	5.7	.0	946	2.1%	4.7%	.0%	11.6%
LPKF	5.6	3.4	1.7	563	2.1%	2.8%	1.8%	6.9%
Ziegler	5.0	.2	4.5	167	1.9%	.2%	4.8%	2.0%
Aucotec	4.1	1.7	2.1	462	1.6%	1.4%	2.2%	5.7%
ABB Cade International	4.0	2.1	1.0	1	1.5%	1.7%	1.0%	.0%
Rotring EURCAD	2.2	1.2	1.0	56	.8%	1.0%	1.0%	.7%
European Silicon Systems	2.1	.5	1.5	11	.8%	.4%	1.6%	.1%
Siemens	1.9	1.2	.6	44	.7%	1.0%	.6%	.5%
Schlumberger (Applicon)	1.4	.4	.5	15	.5%	.3%	.5%	.2%
CADAM	1.4	.0	1.3	0	.5%	.0%	1.3%	.0%
Autodesk	1.2	.0	1.2	0	.5%	.0%	1.3%	.0%
CAD-UL	1.0	.3	.7	20	.4%	.2%	.7%	.2%
Secmai	.7	.4	.1	5	.2%	.3%	.1%	.1%
Intercad	.7	.3	.2	33	.2%	.3%	.2%	.4%
Apple Computer	.6	.5	.0	112	.2%	.4%	.0%	1.4%
Sycotronic AG	.6	.0	.5	1	.2%	.0%	.5%	.0%
Dassault	.5	.0	.5	0	.2%	.0%	.5%	.0%
Academi Systems	.4	.1	.3	5	.2%	.1%	.3%	.1%
ALS Design	.3	.0	.2	5	.1%	.0%	.2%	.1%
BETRONEX	.2	.0	.2	0	.1%	.%	.3%	.0%
Westward	.1	.1	.0	5	.0%	.1%	.0%	.1%

(Continued)

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Market Share

TABLE NUMBER: 41 (Continued)
TITLE: 1989 Market Share
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: German Region
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
Company	Revenue	Revenue	Revenue	Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
DECAD	.1	.0	.0	0	.0%	.0%	.0%	.0%
Olivetti	.0	.0	.0	15	.0%	.0%	.0%	.2%
Serbi	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	51.0	22.9	20.9	2,013.8	19.1%	19.0%	21.9%	24.7%
All Companies	266.2	120.5	95.0	8,168.8	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	208.1	105.9	59.6	6,609	78.2%	87.9%	62.7%	80.9%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	58.1	14.6	35.4	1,560.2	21.8%	12.1%	37.3%	19.1%
All Hardware Companies	79.1	66.1	.0	5,562.5	29.7%	54.9%	.0%	68.1%
All Turnkey & SW Companies	187.1	54.4	95.0	2,606.3	70.3%	45.1%	100.0%	31.9%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 42
TITLE: 1989 Market Share
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: German Region
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Mentor Graphics	17.3	5.3	8.5	229	13.5%	8.9%	18.2%	5.7%
Dazix	14.0	5.6	5.6	139	10.9%	9.3%	12.0%	3.4%
Hewlett-Packard	13.5	10.2	1.0	861	10.5%	16.9%	2.1%	21.2%
Valid	12.3	3.1	6.7	0	9.6%	5.1%	14.2%	.0%
Digital	10.5	7.9	.0	89	8.2%	13.1%	.0%	2.2%
Sun	6.7	6.0	.0	449	5.2%	10.0%	.0%	11.1%
Aucotec	4.1	1.7	2.1	462	3.2%	2.7%	4.4%	11.4%
Racal-Redac	3.4	.1	2.9	13	2.7%	.1%	6.1%	.3%
Intergraph	3.3	1.8	.6	35	2.6%	3.0%	1.3%	.9%
Compaq	2.5	2.5	.0	423	2.0%	4.2%	.0%	10.4%
Ziegler	2.5	.1	2.3	83	1.9%	.2%	4.8%	2.1%
Computervision	2.4	1.1	.6	20	1.9%	1.8%	1.2%	.5%
Rotring EURCAD	2.2	1.2	1.0	56	1.7%	2.1%	2.0%	1.4%
Autodesk	1.1	.0	1.1	0	.8%	.0%	2.3%	.0%
Intercad	.7	.3	.2	33	.5%	.5%	.4%	.8%
Dassault	.5	.0	.5	0	.4%	.0%	1.0%	.0%
IBM	.5	.5	.0	95	.4%	.7%	.0%	2.3%
Apple Computer	.3	.2	.0	48	.2%	.4%	.0%	1.2%
Westward	.1	.1	.0	5	.1%	.1%	.0%	.1%
Secmai	.1	.0	.0	1	.1%	.1%	.0%	.0%
Serbi	.0	.0	.0	0	.0%	.0%	.1%	.0%
Sycotronic AG	.0	.0	.0	0	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 42 (Continued)
TITLE: 1989 Market Share
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: German Region
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	30.3	12.5	14.0	1,013.3	23.6%	20.7%	29.9%	25.0%
All Companies	128.3	60.2	46.8	4,055.7	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	114.6	56.7	38.0	3,402	89.4%	94.2%	81.1%	83.9%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	13.7	3.5	8.9	653.9	10.6%	5.8%	18.9%	16.1%
All Hardware Companies	38.8	33.4	.0	2,826.7	30.3%	55.5%	.0%	69.7%
All Turnkey & SW Companies	89.4	26.8	46.8	1,229.1	69.7%	44.5%	100.0%	30.3%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 43
TITLE: 1989 Market Share
APPLICATION: IC Layout
PLATFORM: All Platforms
REGION: German Region
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Digital	4.2	3.2	.0	36	22.8%	45.1%	.0%	12.9%
Hewlett-Packard	2.1	1.8	.0	193	11.6%	25.6%	.0%	69.7%
European Silicon Systems	2.1	.5	1.5	11	11.2%	7.3%	20.3%	4.0%
Valid	1.8	.4	1.0	0	9.6%	6.3%	12.6%	.0%
Mentor Graphics	1.3	.4	.7	18	7.2%	5.9%	8.6%	6.4%
Siemens	.1	.1	.0	3	.7%	1.0%	.5%	1.1%
Other Companies	6.8	.6	4.4	16.3	36.9%	8.9%	57.8%	5.9%
All Companies	18.4	7.0	7.5	277.0	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	16.2	6.4	6.0	263	88.1%	91.7%	79.1%	94.9%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	2.2	.6	1.6	14.2	11.9%	8.3%	20.9%	5.1%
All Hardware Companies	6.8	5.4	.0	240.0	36.8%	76.6%	.0%	86.6%
All Turnkey & SW Companies	11.6	1.6	7.5	37.0	63.2%	23.4%	100.0%	13.4%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 44
TITLE: 1989 Market Share
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: German Region
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
					Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Racal-Redac	15.2	.0	12.5	53	12.7%	.0%	30.6%	1.4%
Hewlett-Packard	13.6	8.1	1.0	867	11.4%	15.2%	2.4%	22.6%
Digital	11.5	8.5	.0	98	9.7%	15.9%	.0%	2.6%
Calay	10.0	3.1	5.1	100	8.4%	5.8%	12.4%	2.6%
Mentor Graphics	7.5	1.8	3.7	99	6.2%	3.4%	9.0%	2.6%
Intergraph	6.0	2.6	1.1	63	5.0%	4.8%	2.6%	1.6%
Computervision	6.0	2.6	1.4	50	5.0%	4.9%	3.5%	1.3%
LPKF	5.6	3.4	1.7	563	4.7%	6.3%	4.2%	14.7%
IBM	5.4	3.6	.9	146	4.5%	6.8%	2.2%	3.8%
ABB Cade International	4.0	2.1	1.0	1	3.3%	3.9%	2.3%	.0%
Valid	3.5	.9	1.9	0	2.9%	1.7%	4.7%	.0%
Dazix	3.5	1.1	1.4	35	2.9%	2.0%	3.4%	.9%
Compaq	3.1	3.1	.0	523	2.6%	5.9%	.0%	13.6%
Ziegler	2.5	.1	2.3	83	2.1%	.2%	5.6%	2.2%
Siemens	1.8	1.1	.5	41	1.5%	2.0%	1.3%	1.1%
Schlumberger (Applicon)	1.4	.4	.5	15	1.2%	.7%	1.1%	.4%
CADAM	1.4	.0	1.3	0	1.2%	.0%	3.1%	.0%
CAD-UL	1.0	.3	.7	20	.8%	.5%	1.6%	.5%
Secmai	.6	.4	.1	5	.5%	.7%	.3%	.1%
Sycotronic AG	.5	.0	.4	1	.5%	.0%	1.1%	.0%
Academi Systems	.4	.1	.3	5	.4%	.2%	.7%	.1%
Apple Computer	.3	.3	.0	64	.3%	.5%	.0%	1.7%
ALS Design	.3	.0	.2	5	.2%	.1%	.6%	.1%
BETRONEX	.2	.0	.2	0	.2%	.0%	.6%	.0%
Autodesk	.1	.0	.1	0	.1%	.0%	.3%	.0%
DECAD	.1	.0	.0	0	.0%	.0%	.1%	.0%
Olivetti	.0	.0	.0	15	.0%	.0%	.0%	.4%

(Continued)

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Market Share

TABLE NUMBER: 44 (Continued)
TITLE: 1989 Market Share
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: German Region
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Other Companies	13.9	9.8	2.5	984.2	11.6%	18.5%	6.1%	25.7%
All Companies	119.6	53.3	40.7	3,836.0	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	77.3	42.8	15.7	2,944	64.7%	80.3%	38.5%	76.7%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	42.3	10.5	25.0	892.1	35.3%	19.7%	61.5%	23.3%
All Hardware Companies	33.5	27.3	.0	2,495.9	28.0%	51.3%	.0%	65.1%
All Turnkey & SW Companies	86.1	26.0	40.7	1,340.2	72.0%	48.7%	100.0%	34.9%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 45
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	76.6	52.5	12.3	2,615	17.5%	21.0%	11.0%	18.1%
Digital	45.7	34.2	.0	332	10.5%	13.7%	.0%	2.3%
Hewlett-Packard	42.0	30.4	3.6	2,442	9.6%	12.1%	3.3%	16.9%
Computervision	35.3	16.3	8.4	297	8.1%	6.5%	7.5%	2.1%
ItalCad	24.0	12.2	8.9	250	5.5%	4.9%	8.0%	1.7%
Siemens	14.5	8.6	4.4	322	3.3%	3.4%	3.9%	2.2%
Intergraph	12.7	6.7	2.5	130	2.9%	2.7%	2.2%	.9%
CAD Lab	10.4	.0	8.3	0	2.4%	.0%	7.5%	.0%
Mentor Graphics	9.5	2.8	4.7	126	2.2%	1.1%	4.2%	.9%
Compaq	9.2	9.2	.0	1,529	2.1%	3.7%	.0%	10.6%
Matra Datavision	8.7	5.2	2.6	139	2.0%	2.1%	2.4%	1.0%
Syscan	8.1	3.6	2.1	71	1.9%	1.4%	1.9%	.5%
Dazix	7.1	2.7	2.9	71	1.6%	1.1%	2.6%	.5%
Dassault	5.8	.0	4.8	0	1.3%	.0%	4.3%	.0%
Olivetti	5.0	1.3	1.9	602	1.2%	.5%	1.7%	4.2%
Apple Computer	4.3	3.8	.0	826	1.0%	1.5%	.0%	5.7%
Vero International Software	4.3	.0	4.3	0	1.0%	.0%	3.9%	.0%
Control Data	4.2	3.0	.5	45	1.0%	1.2%	.4%	.3%
Unisys	4.2	1.2	2.5	116	1.0%	.5%	2.2%	.8%
Schlumberger (Applicon)	4.0	1.5	1.3	42	.9%	.6%	1.2%	.3%
PAFEC	3.9	.0	3.9	0	.9%	.0%	3.5%	.0%
Valid	3.7	.9	2.0	0	.8%	.4%	1.8%	.0%
Cimatron	3.3	1.5	1.5	85	.8%	.6%	1.3%	.6%
Sun	3.3	3.0	.0	222	.8%	1.2%	.0%	1.5%
Autodesk	3.0	.0	3.0	0	.7%	.0%	2.7%	.0%
SDRC	1.9	.0	1.9	0	.4%	.0%	1.7%	.0%
Ferranti	1.9	1.1	.5	17	.4%	.4%	.4%	.1%
Racal-Redac	1.8	.0	1.5	7	.4%	.0%	1.4%	.0%
Silicon Graphics	1.8	1.6	.0	53	.4%	.6%	.0%	.4%
Investronica SA	1.7	1.4	.2	68	.4%	.5%	.2%	.5%
McDonnell Douglas	1.6	.9	.6	24	.4%	.3%	.5%	.2%
ISICAD	1.6	.7	.7	17	.4%	.3%	.6%	.1%
ESRI	1.0	.0	.9	0	.2%	.0%	.8%	.0%

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Market Share

TABLE NUMBER: 45
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Secmai	.8	.5	.2	7	.2%	.2%	.1%	.0%
European Silicon Systems	.7	.2	.6	4	.2%	.1%	.5%	.0%
Fides Industrielle Automation	.7	.1	.5	7	.2%	.1%	.4%	.0%
Datagraph	.6	.5	.1	3	.1%	.2%	.1%	.0%
Ziegler	.6	.0	.5	20	.1%	.0%	.5%	.1%
CADAM	.6	.0	.5	0	.1%	.0%	.5%	.0%
Technische Computer Systeme	.5	.1	.3	13	.1%	.1%	.3%	.1%
Star Informatic	.5	.2	.1	20	.1%	.1%	.1%	.1%
Framesoft	.3	.0	.4	1	.1%	.0%	.3%	.0%
Robocom	.3	.0	.3	0	.1%	.0%	.3%	.0%
Cisigraph	.3	.1	.1	3	.1%	.0%	.1%	.0%
Calay	.3	.1	.1	2	.1%	.0%	.1%	.0%
Gerber Systems	.2	.2	.1	3	.1%	.1%	.1%	.0%
BETRONEX	.2	.0	.2	0	.0%	.0%	.2%	.0%
ALS Design	.1	.0	.1	3	.0%	.0%	.1%	.0%
ISYKON Software	.1	.1	.0	1	.0%	.0%	.0%	.0%
t2 Solutions	.1	.1	.0	1	.0%	.0%	.0%	.0%
Pathtrace	.1	.0	.1	2	.0%	.0%	.1%	.0%
Serbi	.1	.0	.1	0	.0%	.0%	.1%	.0%
DAT Standard Information syste	.1	.0	.1	0	.0%	.0%	.1%	.0%
Sycotronic AG	.0	.0	.0	0	.0%	.0%	.0%	.0%
BATISOFT	.0	.0	.0	1	.0%	.0%	.0%	.0%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%

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Market Share

TABLE NUMBER: 45 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Other Companies	63.0	42.3	14.5	3,883.4	14.4%	16.9%	13.0%	26.9%
All Companies	436.5	250.3	111.3	14,434.0	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	328.6	209.2	59.8	12,572	75.3%	83.6%	53.7%	87.1%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	108.0	41.1	51.6	1,862.0	24.7%	16.4%	46.3%	12.9%
All Hardware Companies	134.4	114.8	.0	10,419.7	30.8%	45.9%	.0%	72.2%
All Turnkey & SW Companies	302.1	135.5	111.3	4,014.3	69.2%	54.1%	100.0%	27.8%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 46
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Hewlett-Packard	35.2	24.7	3.6	1,405	16.6%	24.3%	5.2%	39.0%
Computervision	29.8	13.7	7.1	181	14.1%	13.5%	10.2%	5.0%
ItalCad	24.0	12.2	8.9	250	11.3%	12.0%	12.8%	6.9%
Siemens	13.1	7.8	3.9	306	6.2%	7.6%	5.7%	8.5%
Intergraph	10.1	5.5	1.8	108	4.8%	5.4%	2.6%	3.0%
Digital	10.1	7.5	.0	332	4.7%	7.3%	.0%	9.2%
CAD Lab	9.8	.0	7.9	0	4.6%	.0%	11.3%	.0%
Mentor Graphics	9.5	2.8	4.7	126	4.5%	2.7%	6.8%	3.5%
Matra Datavision	8.7	5.2	2.6	0	4.1%	5.1%	3.8%	.0%
Dezix	7.1	2.7	2.9	71	3.4%	2.7%	4.1%	2.0%
IBM	6.1	4.0	1.1	55	2.9%	3.9%	1.6%	1.5%
Unisys	3.7	1.0	2.2	103	1.7%	1.0%	3.1%	2.9%
Valid	3.7	.9	2.0	0	1.7%	.9%	2.8%	.0%
Schlumberger (Applicon)	3.5	1.3	1.2	33	1.7%	1.3%	1.7%	.9%
PAFEC	3.5	.0	3.5	0	1.7%	.0%	5.1%	.0%
Sun	3.3	3.0	.0	222	1.6%	2.9%	.0%	6.2%
Cimatron	3.0	1.4	1.3	76	1.4%	1.4%	1.9%	2.1%
Sysscan	2.0	.9	.5	0	1.0%	.9%	.8%	.0%
Racal-Redac	1.8	.0	1.5	6	.8%	.0%	2.1%	.2%
Silicon Graphics	1.7	1.5	.0	50	.8%	1.5%	.0%	1.4%
Dassault	1.7	.0	1.4	0	.8%	.0%	1.9%	.0%
SDRC	1.6	.0	1.6	0	.7%	.0%	2.2%	.0%
Control Data	1.4	1.0	.2	26	.7%	1.0%	.2%	.7%
ISICAD	1.4	.7	.5	17	.6%	.6%	.7%	.5%
McDonnell Douglas	1.3	.7	.5	15	.6%	.7%	.7%	.4%
Secmai	.8	.4	.2	6	.4%	.4%	.2%	.2%
European Silicon Systems	.6	.1	.4	3	.3%	.1%	.6%	.1%
Technische Computer Systeme	.5	.1	.3	13	.2%	.1%	.5%	.4%
Star Informatic	.5	.2	.1	20	.2%	.2%	.2%	.5%
ESRI	.4	.0	.3	0	.2%	.0%	.5%	.0%
Framesoft	.3	.0	.4	1	.2%	.0%	.5%	.0%
Cisigraph	.3	.1	.1	3	.1%	.1%	.1%	.1%

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Market Share

TABLE NUMBER: 46 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Calay	.3	.1	.1	2	.1%	.1%	.2%	.1%
Gerber Systems	.2	.2	.1	3	.1%	.1%	.1%	.1%
Fides Industrielle Automation	.1	.0	.1	3	.1%	.0%	.1%	.1%
ISYKON Software	.1	.1	.0	1	.1%	.1%	.1%	.0%
t2 Solutions	.1	.1	.0	1	.1%	.0%	.0%	.0%
Autodesk	.1	.0	.1	0	.0%	.0%	.1%	.0%
Ferranti	.1	.0	.0	2	.0%	.0%	.0%	.0%
Other Companies	10.3	2.0	6.5	154.0	4.9%	1.9%	9.3%	4.3%
All Companies	211.8	101.9	69.5	3,602.1	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	139.7	72.5	36.0	2,873	66.0%	71.2%	51.9%	79.7%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	72.1	29.4	33.4	729.4	34.0%	28.8%	48.1%	20.3%
All Hardware Companies	30.1	24.1	.0	1,561.9	14.2%	23.7%	.0%	43.4%
All Turnkey & SW Companies	181.7	77.8	69.5	2,040.2	85.8%	76.3%	100.0%	56.6%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 47
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	60.9	39.5	11.1	639	38.5%	37.7%	45.1%	28.9%
Digital	35.7	26.7	.0	0	22.6%	25.6%	.0%	.0%
Sysscan	6.1	2.7	1.6	71	3.8%	2.6%	6.4%	3.2%
Computervision	5.1	2.4	1.2	107	3.2%	2.3%	4.9%	4.8%
Dassault	4.1	.0	3.5	0	2.6%	.0%	14.0%	.0%
Control Data	2.8	2.0	.3	19	1.8%	1.9%	1.4%	.8%
Intergraph	2.3	1.1	.4	22	1.4%	1.1%	1.5%	1.0%
Ferranti	1.8	1.0	.5	15	1.2%	1.0%	1.9%	.7%
Siemens	1.4	.8	.4	16	.9%	.8%	1.7%	.7%
Hewlett-Packard	.9	.8	.0	46	.6%	.7%	.0%	2.1%
Fides Industrielle Automation	.6	.1	.4	3	.4%	.1%	1.6%	.1%
ESRI	.5	.0	.5	0	.3%	.0%	1.9%	.0%
Unisys	.5	.1	.3	13	.3%	.1%	1.3%	.6%
Schlumberger (Applicon)	.5	.2	.2	9	.3%	.2%	.6%	.4%
Olivetti	.4	.2	.2	29	.3%	.2%	.7%	1.3%
PAFEC	.4	.0	.4	0	.3%	.0%	1.7%	.0%
SDRC	.4	.0	.4	0	.2%	.0%	1.6%	.0%
McDonnell Douglas	.3	.2	.1	9	.2%	.1%	.4%	.4%
Silicon Graphics	.1	.1	.0	3	.1%	.1%	.0%	.1%
Racal-Redac	.1	.0	.0	0	.0%	.0%	.2%	.0%
Cisigraph	.0	.0	.0	0	.0%	.0%	.0%	.0%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 47 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: Italy
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
Company	Revenue	Revenue	Revenue	Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	33.2	26.7	3.2	1,070.9	21.0%	25.5%	13.1%	48.4%
All Companies	158.0	104.6	24.7	2,211.7	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	143.1	99.7	17.7	1,938	90.6%	95.4%	71.7%	87.6%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	14.9	4.9	7.0	274.1	9.4%	4.6%	28.3%	12.4%
All Hardware Companies	65.6	54.0	.0	1,117.5	41.5%	51.6%	.0%	50.5%
All Turnkey & SW Companies	92.5	50.6	24.7	1,094.3	58.5%	48.4%	100.0%	49.5%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 48
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	9.5	9.0	.0	1,920	14.3%	20.6%	.0%	22.3%
Compaq	9.2	9.2	.0	1,529	13.8%	20.9%	.0%	17.7%
Hewlett-Packard	6.0	4.9	.0	990	8.9%	11.1%	.0%	11.5%
Olivetti	4.6	1.1	1.7	573	6.9%	2.4%	9.8%	6.6%
Apple Computer	4.3	3.8	.0	826	6.4%	8.6%	.0%	9.6%
Vero International Software	4.3	.0	4.3	0	6.4%	.0%	25.0%	.0%
Autodesk	2.9	.0	2.9	0	4.3%	.0%	16.9%	.0%
Investronica SA	1.7	1.4	.2	68	2.5%	3.1%	1.0%	.8%
Datagraph	.6	.5	.1	3	.9%	1.1%	.7%	.0%
Ziegler	.6	.0	.5	20	.9%	.0%	3.1%	.2%
CADAM	.6	.0	.5	0	.9%	.0%	3.0%	.0%
CAD Lab	.5	.0	.5	0	.8%	.0%	2.7%	.0%
Computervision	.4	.2	.1	9	.5%	.4%	.4%	.1%
Intergraph	.3	.0	.3	0	.5%	.0%	1.9%	.0%
Cimatron	.3	.2	.2	8	.5%	.4%	.9%	.1%
Robocom	.3	.0	.3	0	.5%	.0%	1.8%	.0%
ISICAD	.2	.0	.2	0	.3%	.0%	1.2%	.0%
BETRONEX	.2	.0	.2	0	.3%	.0%	1.0%	.0%
European Silicon Systems	.2	.0	.1	1	.2%	.1%	.6%	.0%
ALS Design	.1	.0	.1	3	.2%	.0%	.6%	.0%
Pathtrace	.1	.0	.1	2	.1%	.0%	.3%	.0%
ESRI	.1	.0	.1	0	.1%	.0%	.5%	.0%
Serbi	.1	.0	.1	0	.1%	.0%	.5%	.0%
DAT Standard Information syste	.1	.0	.1	0	.1%	.0%	.4%	.0%
Sycotronic AG	.0	.0	.0	0	.1%	.0%	.2%	.0%
BATISOFT	.0	.0	.0	1	.0%	.0%	.1%	.0%
Secmai	.0	.0	.0	0	.0%	.0%	.0%	.0%

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Market Share

TABLE NUMBER: 48 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	19.6	13.6	4.7	2,658.5	29.3%	31.1%	27.5%	30.8%
All Companies	66.7	43.8	17.2	8,620.2	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	45.7	36.9	6.0	7,762	68.6%	84.3%	35.1%	90.0%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	21.0	6.9	11.2	858.5	31.4%	15.7%	64.9%	10.0%
All Hardware Companies	38.8	36.7	.0	7,740.3	58.2%	83.8%	.0%	89.8%
All Turnkey & SW Companies	27.9	7.1	17.2	879.9	41.8%	16.2%	100.0%	10.2%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 49
TITLE: 1989 Market Share
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					..... Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	62.9	42.3	10.5	1,653	23.1%	27.0%	15.1%	21.3%
Computervision	31.0	14.3	7.4	261	11.4%	9.1%	10.6%	3.4%
Hewlett-Packard	26.6	19.2	2.6	1,423	9.8%	12.3%	3.8%	18.3%
Digital	24.7	18.5	.0	169	9.1%	11.8%	.0%	2.2%
ItalCad	12.0	6.1	4.4	125	4.4%	3.9%	6.4%	1.6%
Matra Datavision	8.7	5.2	2.6	139	3.2%	3.3%	3.8%	1.8%
CAD Lab	8.3	.0	6.7	0	3.0%	.0%	9.5%	.0%
Siemens	7.6	4.5	2.3	174	2.8%	2.8%	3.3%	2.2%
Compaq	4.9	4.9	.0	810	1.8%	3.1%	.0%	10.4%
Dassault	4.7	.0	3.9	0	1.7%	.0%	5.6%	.0%
Vero International Software	4.3	.0	4.3	0	1.6%	.0%	6.1%	.0%
Unisys	4.2	1.2	2.5	116	1.5%	.7%	3.6%	1.5%
Control Data	4.0	2.8	.5	43	1.5%	1.8%	.7%	.6%
Schlumberger (Applicon)	3.9	1.5	1.2	40	1.4%	.9%	1.8%	.5%
Olivetti	3.5	.8	1.6	421	1.3%	.5%	2.2%	5.4%
Intergraph	3.4	1.8	.7	35	1.3%	1.2%	1.0%	.4%
Cimatron	3.3	1.5	1.5	85	1.2%	1.0%	2.1%	1.1%
PAFEC	3.3	.0	3.3	0	1.2%	.0%	4.7%	.0%
SDRC	1.9	.0	1.9	0	.7%	.0%	2.8%	.0%
Apple Computer	1.9	1.7	.0	372	.7%	1.1%	.0%	4.8%
Ferranti	1.9	1.1	.5	17	.7%	.7%	.7%	.2%
Silicon Graphics	1.8	1.6	.0	53	.7%	1.0%	.0%	.7%
Sun	1.8	1.6	.0	118	.6%	1.0%	.0%	1.5%
Investronica SA	1.7	1.4	.2	68	.6%	.9%	.2%	.9%
McDonnell Douglas	1.4	.8	.5	21	.5%	.5%	.7%	.3%
Autodesk	1.2	.0	1.2	0	.5%	.0%	1.8%	.0%
Fides Industrielle Automation	.7	.1	.5	7	.3%	.1%	.7%	.1%
ISICAD	.6	.3	.3	7	.2%	.2%	.4%	.1%
Datagraph	.6	.5	.1	3	.2%	.3%	.2%	.0%
Technische Computer Systeme	.5	.1	.3	13	.2%	.1%	.5%	.2%
Framesoft	.3	.0	.4	1	.1%	.0%	.5%	.0%
Cisigraph	.3	.1	.1	3	.1%	.1%	.1%	.0%

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Market Share

TABLE NUMBER: 49 (Continued)
TITLE: 1989 Market Share
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
Company	Revenue	Revenue	Revenue	Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Gerber Systems	.2	.2	.1	3	.1%	.1%	.1%	.0%
Ziegler	.2	.0	.2	8	.1%	.0%	.3%	.1%
Mentor Graphics	.2	.1	.1	3	.1%	.0%	.1%	.0%
Robocom	.2	.0	.2	0	.1%	.0%	.2%	.0%
ISYKON Software	.1	.1	.0	1	.0%	.0%	.1%	.0%
Pathtrace	.1	.0	.1	2	.0%	.0%	.1%	.0%
DAT Standard Information syste	.1	.0	.1	0	.0%	.0%	.1%	.0%
Serbi	.0	.0	.0	0	.0%	.0%	.1%	.0%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	32.7	22.7	7.2	1,567.1	12.0%	14.5%	10.3%	20.2%
All Companies	271.7	156.9	69.8	7,769.6	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	205.0	133.0	35.1	6,583	75.4%	84.7%	50.3%	84.7%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	66.8	24.0	34.7	1,186.9	24.6%	15.3%	49.7%	15.3%
All Hardware Companies	73.2	62.5	.0	5,012.5	26.9%	39.8%	.0%	64.5%
All Turnkey & SW Companies	198.5	94.4	69.8	2,757.2	73.1%	60.2%	100.0%	35.5%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 50
TITLE: 1989 Market Share
APPLICATION: AEC
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
ItalCad	9.8	5.0	3.6	103	18.1%	14.7%	29.1%	3.4%
IBM	8.7	6.6	1.0	728	16.0%	19.5%	7.8%	24.1%
Hewlett-Packard	5.4	4.1	.4	329	10.0%	11.9%	3.5%	10.9%
Digital	5.0	3.8	.0	34	9.2%	11.1%	.0%	1.1%
Intergraph	3.4	1.8	.7	35	6.3%	5.3%	5.4%	1.1%
Compaq	2.1	2.1	.0	352	3.9%	6.2%	.0%	11.7%
CAD Lab	2.1	.0	1.7	0	3.8%	.0%	13.3%	.0%
Apple Computer	1.9	1.6	.0	355	3.4%	4.7%	.0%	11.8%
Computervision	1.4	.7	.3	12	2.6%	1.9%	2.7%	.4%
Autodesk	1.2	.0	1.2	0	2.3%	.0%	9.8%	.0%
Siemens	1.1	.7	.3	22	2.0%	1.9%	2.6%	.7%
ISICAD	.9	.4	.4	10	1.7%	1.1%	3.4%	.3%
Dassault	.9	.0	.8	0	1.7%	.0%	6.2%	.0%
Olivetti	.8	.4	.2	111	1.4%	1.0%	1.4%	3.7%
PAFEC	.7	.0	.7	0	1.2%	.0%	5.2%	.0%
Star Informatic	.5	.2	.1	20	.9%	.6%	1.1%	.7%
McDonnell Douglas	.2	.1	.1	3	.3%	.3%	.5%	.1%
Sun	.2	.2	.0	11	.3%	.4%	.0%	.4%
Robocom	.1	.0	.1	0	.3%	.0%	1.1%	.0%
t2 Solutions	.1	.1	.0	1	.2%	.1%	.2%	.0%
Control Data	.1	.1	.0	1	.2%	.2%	.1%	.0%
Ziegler	.1	.0	.1	2	.1%	.0%	.5%	.1%
Schlumberger (Applicon)	.0	.0	.0	0	.1%	.0%	.2%	.0%
BATISOFT	.0	.0	.0	1	.0%	.0%	.1%	.0%
Serbi	.0	.0	.0	0	.0%	.0%	.2%	.0%
Sycotronic AG	.0	.0	.0	0	.0%	.0%	.1%	.0%

(Continued)

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Market Share

TABLE NUMBER: 50 (Continued)
TITLE: 1989 Market Share
APPLICATION: AEC
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	7.6	6.5	.7	889.1	13.9%	19.0%	5.3%	29.5%
All Companies	54.3	34.1	12.5	3,018.2	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	37.3	27.4	4.6	2,739	68.7%	80.3%	36.4%	90.7%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	17.0	6.7	7.9	279.5	31.3%	19.7%	63.6%	9.3%
All Hardware Companies	21.8	19.3	.0	2,564.9	40.1%	56.6%	.0%	85.0%
All Turnkey & SW Companies	32.5	14.8	12.5	453.3	59.9%	43.4%	100.0%	15.0%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 51
TITLE: 1989 Market Share
APPLICATION: GIS/Mapping
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Sysscan	8.1	3.6	2.1	71	22.9%	18.4%	24.7%	8.9%
Siemens	5.9	3.5	1.8	125	16.5%	17.8%	20.6%	15.7%
Digital	4.6	3.4	.0	31	12.9%	17.7%	.0%	3.9%
Intergraph	4.6	2.4	.9	46	12.8%	12.5%	10.6%	5.8%
IBM	2.6	1.9	.4	136	7.3%	9.6%	4.3%	17.1%
ItalCad	2.2	1.1	.8	23	6.1%	5.7%	9.4%	2.8%
ESRI	1.0	.0	.9	0	2.8%	.0%	10.4%	.0%
Olivetti	.8	.1	.1	68	2.3%	.6%	1.4%	8.5%
Compaq	.5	.5	.0	76	1.3%	2.4%	.0%	9.6%
Computervision	.4	.2	.1	3	1.0%	.9%	.9%	.4%
Autodesk	.3	.0	.3	0	.8%	.0%	3.2%	.0%
Apple Computer	.2	.2	.0	41	.6%	1.0%	.0%	5.2%
Control Data	.1	.1	.0	1	.3%	.5%	.1%	.2%
Newlett-Packard	.1	.1	.0	8	.3%	.4%	.0%	1.0%
Ziegler	.1	.0	.1	2	.1%	.0%	.6%	.2%
Robocom	.0	.0	.0	0	.1%	.0%	.2%	.0%
Other Companies	4.2	2.4	1.1	164.2	12.0%	12.5%	13.5%	20.6%
All Companies	35.5	19.4	8.5	795.9	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	17.8	10.8	3.4	492	50.2%	55.7%	40.3%	61.8%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	17.7	8.6	5.1	304.1	49.8%	44.3%	59.7%	38.2%
All Hardware Companies	8.1	6.7	.0	419.4	22.9%	34.8%	.0%	52.7%
All Turnkey & SW Companies	27.3	12.6	8.5	376.6	77.1%	65.2%	100.0%	47.3%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 52
TITLE: 1989 Market Share
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Digital	11.4	8.5	.0	98	15.2%	21.3%	.0%	3.4%
Hewlett-Packard	9.9	7.0	.6	682	13.2%	17.6%	2.8%	23.9%
Mentor Graphics	9.3	2.7	4.6	123	12.4%	6.8%	22.4%	4.3%
Dazix	7.1	2.7	2.9	71	9.5%	6.8%	13.9%	2.5%
Valid	3.7	.9	2.0	0	4.9%	2.3%	9.6%	.0%
Computervision	2.5	1.1	.6	21	3.3%	2.8%	2.8%	.7%
IBM	2.4	1.7	.4	98	3.2%	4.2%	1.8%	3.4%
Racal-Redac	1.8	.0	1.5	7	2.5%	.0%	7.4%	.2%
Compaq	1.7	1.7	.0	291	2.3%	4.4%	.0%	10.2%
Sun	1.4	1.3	.0	93	1.9%	3.1%	.0%	3.3%
Intergraph	1.4	.6	.2	14	1.8%	1.6%	1.1%	.5%
Secmai	.8	.5	.2	7	1.0%	1.1%	.8%	.2%
European Silicon Systems	.7	.2	.6	4	1.0%	.4%	2.7%	.1%
CADAM	.6	.0	.5	0	.8%	.0%	2.5%	.0%
Apple Computer	.3	.3	.0	58	.4%	.7%	.0%	2.0%
Autodesk	.3	.0	.3	0	.4%	.0%	1.3%	.0%
Calay	.3	.1	.1	2	.3%	.2%	.6%	.1%
Ziegler	.2	.0	.2	8	.3%	.0%	1.1%	.3%
BETRONEX	.2	.0	.2	0	.2%	.0%	.9%	.0%
Dassault	.2	.0	.2	0	.2%	.0%	.7%	.0%
ALS Design	.1	.0	.1	3	.2%	.0%	.5%	.1%
Schlumberger (Applicon)	.1	.0	.0	1	.2%	.1%	.2%	.0%
Sycotronic AG	.0	.0	.0	0	.0%	.0%	.1%	.0%
Serbi	.0	.0	.0	0	.0%	.0%	.1%	.0%

(Continued)

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Market Share

TABLE NUMBER: 52 (Continued)
TITLE: 1989 Market Share
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					..... Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	18.6	10.7	5.5	1,263.1	24.7%	26.7%	26.7%	44.3%
All Companies	75.0	39.9	20.5	2,850.2	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	68.5	38.0	16.7	2,759	91.3%	95.3%	81.4%	96.8%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	6.5	1.9	3.8	91.5	8.7%	4.7%	18.6%	3.2%
All Hardware Companies	31.3	26.3	.0	2,423.0	41.7%	65.8%	.0%	85.0%
All Turnkey & SW Companies	43.7	13.6	20.5	427.2	58.3%	34.2%	100.0%	15.0%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 53
TITLE: 1989 Market Share
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Mentor Graphics	6.2	1.9	3.1	82	15.6%	8.9%	26.7%	4.5%
Dazix	5.7	2.3	2.3	57	14.4%	10.6%	20.0%	3.1%
Hewlett-Packard	4.8	3.7	.3	325	12.0%	17.2%	2.5%	17.7%
Digital	4.6	3.4	.0	39	11.6%	16.0%	.0%	2.1%
Valid	2.6	.6	1.4	0	6.5%	3.0%	12.1%	.0%
Sun	1.4	1.3	.0	93	3.5%	5.8%	.0%	5.1%
Compaq	.8	.8	.0	130	2.0%	3.6%	.0%	7.1%
Computervision	.7	.3	.2	6	1.8%	1.5%	1.4%	.3%
Intergraph	.5	.3	.1	5	1.2%	1.2%	.7%	.3%
Racal-Redac	.3	.0	.3	1	.9%	.0%	2.4%	.1%
Autodesk	.2	.0	.2	0	.6%	.0%	2.1%	.0%
IBM	.2	.2	.0	38	.5%	.8%	.0%	2.1%
Dassault	.2	.0	.2	0	.5%	.0%	1.3%	.0%
Apple Computer	.1	.1	.0	25	.3%	.5%	.0%	1.4%
Ziegler	.1	.0	.1	4	.3%	.0%	1.0%	.2%
Secmai	.1	.0	.0	1	.2%	.1%	.2%	.0%
Serbi	.0	.0	.0	0	.1%	.0%	.2%	.0%
Other Companies	11.2	6.5	3.4	1,023.2	28.2%	30.5%	29.5%	55.8%
All Companies	39.6	21.4	11.4	1,833.5	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	37.5	20.6	10.3	1,787	94.6%	96.2%	90.4%	97.5%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	2.2	.8	1.1	46.4	5.4%	3.8%	9.6%	2.5%
All Hardware Companies	15.7	13.7	.0	1,594.6	39.6%	64.0%	.0%	87.0%
All Turnkey & SW Companies	23.9	7.7	11.4	238.8	60.4%	36.0%	100.0%	13.0%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 54
TITLE: 1989 Market Share
APPLICATION: IC Layout
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Digital	1.8	1.4	.0	16	28.5%	50.9%	.0%	14.6%
Hewlett-Packard	.8	.7	.0	75	12.9%	25.8%	.0%	70.8%
European Silicon Systems	.7	.2	.6	4	11.4%	6.3%	22.8%	3.7%
Mentor Graphics	.5	.2	.2	6	7.5%	5.5%	10.0%	5.9%
Valid	.4	.1	.2	0	5.8%	3.3%	8.3%	.0%
Other Companies	2.2	.2	1.4	5.2	34.0%	8.1%	58.9%	4.9%
All Companies	6.4	2.7	2.4	106.6	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	5.7	2.5	1.9	103	88.6%	93.7%	77.2%	96.3%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	.7	.2	.6	4.0	11.4%	6.3%	22.8%	3.7%
All Hardware Companies	2.9	2.2	.0	94.6	44.4%	82.7%	.0%	88.8%
All Turnkey & SW Companies	3.6	.5	2.4	12.0	55.6%	17.3%	100.0%	11.2%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 55
TITLE: 1989 Market Share
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: Italy
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Digital	5.0	3.7	.0	43	17.4%	23.5%	.0%	4.7%
Hewlett-Packard	4.3	2.6	.3	282	14.9%	16.6%	4.3%	31.0%
Mentor Graphics	2.7	.7	1.3	35	9.2%	4.1%	19.7%	3.9%
IBM	2.2	1.5	.4	59	7.6%	9.4%	5.5%	6.5%
Computervision	1.8	.8	.4	15	6.1%	5.0%	6.3%	1.6%
Racal-Redac	1.5	.0	1.2	5	5.2%	.0%	18.4%	.6%
Dazix	1.4	.4	.6	14	4.9%	2.7%	8.5%	1.6%
Compaq	1.0	1.0	.0	161	3.3%	6.1%	.0%	17.6%
Intergraph	.9	.4	.2	9	3.0%	2.3%	2.2%	1.0%
Valid	.7	.2	.4	0	2.5%	1.1%	5.8%	.0%
Secmai	.7	.4	.1	6	2.4%	2.7%	2.1%	.7%
CADAM	.6	.0	.5	0	2.0%	.0%	7.6%	.0%
Calay	.3	.1	.1	2	.9%	.5%	1.8%	.3%
BETRONEX	.2	.0	.2	0	.6%	.0%	2.7%	.0%
Apple Computer	.2	.2	.0	33	.6%	1.0%	.0%	3.6%
ALS Design	.1	.0	.1	3	.5%	.1%	1.6%	.3%
Schlumberger (Applicon)	.1	.0	.0	1	.4%	.2%	.6%	.1%
Ziegler	.1	.0	.1	4	.4%	.0%	1.6%	.4%
Autodesk	.0	.0	.0	0	.1%	.0%	.4%	.0%
Sycotronic AG	.0	.0	.0	0	.1%	.0%	.3%	.0%
Other Companies	5.2	3.9	.7	234.6	17.9%	24.7%	10.3%	25.8%
All Companies	29.0	15.8	6.7	910.2	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	25.3	14.9	4.5	869	87.4%	94.4%	67.6%	95.5%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	3.6	.9	2.2	41.2	12.6%	5.6%	32.4%	4.5%
All Hardware Companies	12.8	10.3	.0	733.7	44.0%	65.4%	.0%	80.6%
All Turnkey & SW Companies	16.2	5.5	6.7	176.4	56.0%	34.6%	100.0%	19.4%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 56
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	69.9	47.7	11.3	2,266	16.9%	19.5%	12.0%	15.8%
Computervision	45.8	21.1	10.9	385	11.1%	8.6%	11.5%	2.7%
Digital	42.5	31.8	.0	308	10.3%	13.0%	.0%	2.1%
Hewlett-Packard	41.5	30.2	3.4	2,479	10.1%	12.3%	3.6%	17.3%
Intergraph	41.5	21.8	8.2	424	10.1%	8.9%	8.6%	3.0%
Autodesk	16.2	.0	16.2	0	3.9%	.0%	17.1%	.0%
Norsk Data	11.2	5.5	3.4	16	2.7%	2.2%	3.6%	.1%
Mentor Graphics	9.7	2.8	4.8	129	2.4%	1.2%	5.1%	.9%
Sun	9.3	8.4	.0	623	2.2%	3.4%	.0%	4.3%
Compaq	8.8	8.8	.0	1,460	2.1%	3.6%	.0%	10.2%
Apple Computer	7.7	6.8	.0	1,489	1.9%	2.8%	.0%	10.4%
McDonnell Douglas	7.1	3.8	2.6	107	1.7%	1.6%	2.7%	.7%
PAFEC	5.7	.0	5.7	0	1.4%	.0%	6.0%	.0%
Control Data	5.1	3.6	.6	54	1.2%	1.5%	.6%	.4%
Sysscan	3.9	1.7	1.0	6	.9%	.7%	1.1%	.0%
BATISOFT	3.4	.5	2.6	197	.8%	.2%	2.7%	1.4%
Siemens	3.3	1.9	1.0	72	.8%	.8%	1.0%	.5%
Dassault	3.0	.0	2.5	0	.7%	.0%	2.7%	.0%
Dazix	2.2	.8	.9	22	.5%	.3%	.9%	.2%
Schlumberger (Applicon)	1.8	.7	.6	18	.4%	.3%	.6%	.1%
Westward	1.6	1.6	.0	91	.4%	.6%	.0%	.6%
Matra Datavision	1.5	.9	.5	6	.4%	.4%	.5%	.0%
Investronica SA	1.5	1.2	.2	59	.4%	.5%	.2%	.4%
Racal-Redac	1.4	.0	1.1	5	.3%	.0%	1.2%	.0%
SDRC	1.3	.0	1.3	0	.3%	.0%	1.3%	.0%
ESRI	1.0	.0	.9	0	.2%	.0%	.9%	.0%
Exapt	.9	.6	.2	16	.2%	.2%	.3%	.1%
CADAM	.9	.0	.8	0	.2%	.0%	.9%	.0%
Olivetti	.9	.3	.4	181	.2%	.1%	.4%	1.3%
Silicon Graphics	.9	.8	.0	26	.2%	.3%	.0%	.2%
Aucotec	.8	.3	.4	85	.2%	.1%	.4%	.6%
Unisys	.7	.4	.3	12	.2%	.1%	.3%	.1%

(Continued)

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Market Share

TABLE NUMBER: 56 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
ABB Cade International	.7	.4	.2	0	.2%	.2%	.2%	.0%
Valid	.6	.2	.3	0	.1%	.1%	.3%	.0%
Vero International Software	.6	.0	.6	0	.1%	.0%	.6%	.0%
BETRONEX	.6	.0	.6	0	.1%	.0%	.6%	.0%
Datagraph	.5	.4	.1	2	.1%	.2%	.1%	.0%
European Silicon Systems	.4	.1	.3	2	.1%	.0%	.3%	.0%
Ziegler	.4	.0	.4	15	.1%	.0%	.4%	.1%
Secmai	.4	.2	.1	3	.1%	.1%	.1%	.0%
Gerber Systems	.3	.2	.1	4	.1%	.1%	.1%	.0%
Cisigraph	.3	.1	.1	3	.1%	.0%	.1%	.0%
Calay	.3	.1	.1	2	.1%	.0%	.1%	.0%
Sycotronic AG	.2	.0	.2	0	.1%	.0%	.2%	.0%
Ferranti	.2	.2	.0	2	.1%	.1%	.0%	.0%
Pathtrace	.2	.0	.1	4	.0%	.0%	.1%	.0%
Superdraft	.2	.0	.1	0	.0%	.0%	.1%	.0%
Robocom	.2	.0	.2	0	.0%	.0%	.2%	.0%
ALS Design	.1	.0	.1	3	.0%	.0%	.1%	.0%
Academi Systems	.1	.0	.1	2	.0%	.0%	.1%	.0%
Intercad	.1	.0	.0	5	.0%	.0%	.0%	.0%
DAT Standard Information syste	.1	.0	.1	0	.0%	.0%	.1%	.0%
Gable CAD Systems	.1	.0	.0	1	.0%	.0%	.0%	.0%
Star Informatic	.1	.0	.0	2	.0%	.0%	.0%	.0%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	53.6	39.2	9.3	3,543.1	13.0%	16.0%	9.8%	24.7%
All Companies	412.8	245.2	94.6	14,351.7	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	368.4	229.1	72.4	13,349	89.2%	93.4%	76.5%	93.0%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	44.4	16.1	22.2	1,002.6	10.8%	6.6%	23.5%	7.0%
All Hardware Companies	139.5	119.7	.0	11,005.9	33.8%	48.8%	.0%	76.7%
All Turnkey & SW Companies	273.4	125.4	94.6	3,345.8	66.2%	51.2%	100.0%	23.3%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 57
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Computervision	38.7	17.8	9.2	235	20.9%	18.0%	20.2%	6.1%
Hewlett-Packard	34.9	24.7	3.4	1,493	18.8%	25.0%	7.5%	38.9%
Intergraph	32.9	18.1	5.9	353	17.8%	18.3%	13.0%	9.2%
Mentor Graphics	9.7	2.8	4.8	129	5.3%	2.9%	10.5%	3.4%
Digital	9.4	6.9	.0	308	5.1%	7.0%	.0%	8.0%
Sun	9.3	8.4	.0	623	5.0%	8.4%	.0%	16.2%
Norsk Data	6.4	3.1	1.9	10	3.4%	3.1%	4.3%	.3%
McDonnell Douglas	5.8	3.1	2.1	65	3.1%	3.1%	4.7%	1.7%
IBM	5.7	3.7	1.0	51	3.1%	3.7%	2.3%	1.3%
PAFEC	5.1	.0	5.1	0	2.8%	.0%	11.3%	.0%
Siemens	2.9	1.7	.9	69	1.6%	1.8%	1.9%	1.8%
Dazix	2.2	.8	.9	22	1.2%	.8%	2.0%	.6%
Control Data	1.7	1.2	.2	32	.9%	1.2%	.5%	.8%
Schlumberger (Applicon)	1.6	.6	.5	14	.8%	.6%	1.1%	.4%
Matra Datavision	1.5	.9	.5	0	.8%	.9%	1.0%	.0%
Racal-Redac	1.4	.0	1.1	5	.7%	.0%	2.4%	.1%
SDRC	1.0	.0	1.0	0	.5%	.0%	2.2%	.0%
Sysscan	1.0	.4	.3	0	.5%	.4%	.5%	.0%
Dassault	1.0	.0	.8	0	.5%	.0%	1.7%	.0%
Westward	.9	.9	.0	50	.5%	.9%	.0%	1.3%
Silicon Graphics	.8	.7	.0	25	.4%	.7%	.0%	.6%
ABB Cade International	.7	.4	.2	0	.4%	.4%	.4%	.0%
Valid	.6	.2	.3	0	.3%	.2%	.7%	.0%
Unisys	.6	.3	.2	10	.3%	.3%	.5%	.3%
Autodesk	.5	.0	.5	0	.3%	.0%	1.1%	.0%
Exapt	.4	.2	.2	8	.2%	.2%	.3%	.2%
ESRI	.4	.0	.3	0	.2%	.0%	.7%	.0%
European Silicon Systems	.4	.1	.3	2	.2%	.1%	.6%	.0%
Secmai	.4	.2	.1	3	.2%	.2%	.1%	.1%
Gerber Systems	.3	.2	.1	4	.2%	.2%	.2%	.1%
Cisigraph	.3	.1	.1	3	.1%	.1%	.2%	.1%
Calay	.3	.1	.1	2	.1%	.1%	.3%	.1%

(Continued)

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Market Share

TABLE NUMBER: 57 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Academi Systems	.1	.0	.1	1	.1%	.0%	.2%	.0%
Gable CAD Systems	.1	.0	.0	1	.0%	.0%	.1%	.0%
Star Informatic	.1	.0	.0	2	.0%	.0%	.0%	.1%
Aucotec	.0	.0	.0	4	.0%	.0%	.0%	.1%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	6.2	1.2	3.5	116.5	3.4%	1.2%	7.7%	3.0%
All Companies	184.9	99.1	45.6	3,836.8	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	162.2	90.8	34.0	3,480	87.7%	91.6%	74.6%	90.7%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	22.7	8.3	11.6	357.2	12.3%	8.4%	25.4%	9.3%
All Hardware Companies	35.4	29.0	.0	2,029.5	19.1%	29.2%	.0%	52.9%
All Turnkey & SW Companies	149.6	70.1	45.6	1,807.3	80.9%	70.8%	100.0%	47.1%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 58
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	56.2	36.4	10.3	590	36.0%	34.4%	47.4%	27.6%
Digital	33.1	24.9	.0	0	21.2%	23.5%	.0%	.0%
Intergraph	7.5	3.7	1.2	71	4.8%	3.5%	5.5%	3.3%
Computervision	6.6	3.1	1.6	138	4.2%	2.9%	7.3%	6.5%
Norsk Data	4.8	2.4	1.5	5	3.1%	2.2%	6.7%	.2%
Control Data	3.3	2.4	.4	22	2.1%	2.2%	1.8%	1.0%
Sysscan	2.9	1.3	.8	6	1.9%	1.2%	3.5%	.3%
Dassault	2.0	.0	1.7	0	1.3%	.0%	8.0%	.0%
McDonnell Douglas	1.3	.7	.5	42	.8%	.7%	2.2%	2.0%
Hewlett-Packard	1.1	.9	.0	54	.7%	.8%	.0%	2.5%
Exapt	.5	.4	.1	8	.3%	.3%	.4%	.4%
PAFEC	.5	.0	.5	0	.3%	.0%	2.4%	.0%
ESRI	.5	.0	.5	0	.3%	.0%	2.1%	.0%
Siemens	.3	.2	.1	4	.2%	.2%	.4%	.2%
SDRC	.3	.0	.3	0	.2%	.0%	1.2%	.0%
Schlumberger (Applicon)	.2	.1	.1	4	.1%	.1%	.3%	.2%
Ferranti	.2	.2	.0	2	.1%	.1%	.0%	.1%
Unisys	.1	.1	.0	2	.1%	.0%	.2%	.1%
Olivetti	.1	.0	.0	3	.0%	.0%	.1%	.2%
Silicon Graphics	.1	.1	.0	2	.0%	.0%	.0%	.1%
Aucotec	.0	.0	.0	4	.0%	.0%	.1%	.2%
Racal-Redac	.0	.0	.0	0	.0%	.0%	.1%	.0%
Cisigraph	.0	.0	.0	0	.0%	.0%	.0%	.0%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%
Gable CAD Systems	.0	.0	.0	0	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 58 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Market Share Total Revenue	Market Share Hardware Revenue	Market Share Software Revenue	Market Share Wkstns Shipped
Company								
Other Companies	34.6	29.1	2.2	1,177.9	22.1%	27.5%	10.1%	55.0%
All Companies	156.4	105.7	21.7	2,141.2	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	144.9	101.3	16.9	2,103	92.6%	95.8%	78.2%	98.2%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	11.5	4.4	4.7	38.1	7.4%	4.2%	21.8%	1.8%
All Hardware Companies	65.0	54.0	.0	1,227.8	41.6%	51.1%	.0%	57.3%
All Turnkey & SW Companies	91.3	51.7	21.7	913.4	58.4%	48.9%	100.0%	42.7%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 59
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Autodesk	15.7	.0	15.7	0	22.0%	.0%	57.4%	.0%
Compaq	8.8	8.8	.0	1,460	12.2%	21.7%	.0%	17.4%
IBM	8.1	7.7	.0	1,625	11.3%	19.0%	.0%	19.4%
Apple Computer	7.7	6.8	.0	1,489	10.8%	16.9%	.0%	17.8%
Hewlett-Packard	5.6	4.6	.0	932	7.8%	11.4%	.0%	11.1%
BATISOFT	3.4	.5	2.6	197	4.8%	1.3%	9.4%	2.4%
Investronica SA	1.5	1.2	.2	59	2.1%	2.9%	.5%	.7%
Intergraph	1.1	.0	1.0	0	1.6%	.0%	3.8%	.0%
CADAM	.9	.0	.8	0	1.3%	.0%	3.0%	.0%
Olivetti	.8	.3	.4	177	1.2%	.7%	1.4%	2.1%
Aucotec	.7	.3	.3	76	1.0%	.7%	1.2%	.9%
Westward	.6	.6	.0	41	.9%	1.5%	.0%	.5%
Vero International Software	.6	.0	.6	0	.9%	.0%	2.2%	.0%
BETRONEX	.6	.0	.6	0	.8%	.0%	2.1%	.0%
Datagraph	.5	.4	.1	2	.7%	1.0%	.4%	.0%
Computervision	.5	.2	.1	12	.6%	.5%	.4%	.1%
Ziegler	.4	.0	.4	15	.6%	.0%	1.5%	.2%
Sycotronic AG	.2	.0	.2	0	.3%	.0%	.7%	.0%
Pathtrace	.2	.0	.1	4	.2%	.1%	.4%	.0%
Superdraft	.2	.0	.1	0	.2%	.0%	.5%	.0%
Robocom	.2	.0	.2	0	.2%	.0%	.6%	.0%
ALS Design	.1	.0	.1	3	.2%	.0%	.4%	.0%
Intercad	.1	.0	.0	5	.1%	.1%	.1%	.1%
European Silicon Systems	.1	.0	.1	1	.1%	.0%	.2%	.0%
ESRI	.1	.0	.1	0	.1%	.0%	.3%	.0%
DAT Standard Information syste	.1	.0	.1	0	.1%	.0%	.3%	.0%
Norsk Data	.0	.0	.0	1	.1%	.0%	.0%	.0%
Academi Systems	.0	.0	.0	0	.0%	.0%	.1%	.0%

(Continued)

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Market Share

TABLE NUMBER: 59 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	12.8	9.0	3.6	2,248.7	17.8%	22.2%	13.1%	26.9%
All Companies	71.5	40.4	27.4	8,373.7	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	61.3	37.0	21.5	7,766	85.7%	91.6%	78.4%	92.7%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	10.2	3.4	5.9	607.4	14.3%	8.4%	21.6%	7.3%
All Hardware Companies	39.1	36.7	.0	7,748.6	54.6%	91.1%	.0%	92.5%
All Turnkey & SW Companies	32.5	3.6	27.4	625.2	45.4%	8.9%	100.0%	7.5%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 60
TITLE: 1989 Market Share
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
IBM	57.7	38.7	9.7	1,444	23.6%	25.4%	19.4%	17.4%
Computervision	40.3	18.6	9.6	339	16.5%	12.2%	19.2%	4.1%
Hewlett-Packard	25.8	18.8	2.5	1,410	10.6%	12.3%	4.9%	17.0%
Digital	22.9	17.2	.0	157	9.4%	11.3%	.0%	1.9%
Intergraph	11.1	5.9	2.2	113	4.6%	3.9%	4.4%	1.4%
Autodesk	6.6	.0	6.6	0	2.7%	.0%	13.3%	.0%
McDonnell Douglas	5.9	3.2	2.1	86	2.4%	2.1%	4.3%	1.0%
Sun	4.9	4.4	.0	330	2.0%	2.9%	.0%	4.0%
Control Data	4.8	3.4	.6	51	2.0%	2.2%	1.2%	.6%
Compaq	4.6	4.6	.0	774	1.9%	3.0%	.0%	9.3%
PAFEC	4.6	.0	4.6	0	1.9%	.0%	9.2%	.0%
Apple Computer	3.5	3.1	.0	670	1.4%	2.0%	.0%	8.1%
Norsk Data	3.2	1.6	1.0	16	1.3%	1.0%	1.9%	.2%
Dassault	2.5	.0	2.1	0	1.0%	.0%	4.2%	.0%
Schlumberger (Applicon)	1.7	.6	.5	18	.7%	.4%	1.1%	.2%
Siemens	1.7	1.0	.5	39	.7%	.7%	1.0%	.5%
Matra Datavision	1.5	.9	.5	6	.6%	.6%	.9%	.1%
Investronica SA	1.5	1.2	.2	59	.6%	.8%	.3%	.7%
Westward	1.4	1.4	.0	82	.6%	.9%	.0%	1.0%
SDRC	1.3	.0	1.3	0	.5%	.0%	2.5%	.0%
Exapt	.9	.6	.2	16	.4%	.4%	.5%	.2%
Silicon Graphics	.9	.8	.0	26	.4%	.5%	.0%	.3%
Unisys	.7	.4	.3	12	.3%	.2%	.5%	.1%
Olivetti	.6	.2	.3	122	.3%	.1%	.6%	1.5%
Vero International Software	.6	.0	.6	0	.2%	.0%	1.2%	.0%
ABB Cade International	.6	.3	.1	0	.2%	.2%	.3%	.0%
Datagraph	.5	.4	.1	2	.2%	.3%	.2%	.0%
Gerber Systems	.3	.2	.1	4	.1%	.1%	.1%	.1%
Cisigraph	.3	.1	.1	3	.1%	.1%	.2%	.0%
Ferranti	.2	.2	.0	2	.1%	.1%	.0%	.0%
Mentor Graphics	.2	.1	.1	3	.1%	.0%	.2%	.0%
Pathtrace	.2	.0	.1	4	.1%	.0%	.2%	.0%

(Continued)

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Market Share

TABLE NUMBER: 60 (Continued)
TITLE: 1989 Market Share
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Superdraft	.2	.0	.1	0	.1%	.0%	.3%	.0%
Ziegler	.2	.0	.2	6	.1%	.0%	.3%	.1%
Robocom	.1	.0	.1	0	.0%	.0%	.2%	.0%
DAT Standard Information syste	.1	.0	.1	0	.0%	.0%	.1%	.0%
Intercad	.1	.0	.0	3	.0%	.0%	.0%	.0%
FEGS	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	30.3	24.5	3.5	2,293.8	12.4%	16.1%	7.1%	27.7%
All Companies	244.4	152.3	50.0	8,290.5	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	223.7	144.4	39.2	7,730	91.5%	94.8%	78.5%	93.2%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	20.7	7.9	10.8	560.6	8.5%	5.2%	21.5%	6.8%
All Hardware Companies	78.6	68.0	.0	6,143.2	32.2%	44.7%	.0%	74.1%
All Turnkey & SW Companies	165.8	84.3	50.0	2,147.4	67.8%	55.3%	100.0%	25.9%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 61
TITLE: 1989 Market Share
APPLICATION: AEC
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
Company	Revenue	Revenue	Revenue	Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intergraph	11.1	5.9	2.2	113	17.8%	16.7%	12.4%	3.6%
IBM	7.8	5.9	.9	620	12.4%	16.6%	5.1%	19.7%
Autodesk	6.6	.0	6.6	0	10.6%	.0%	37.2%	.0%
Norsk Data	5.8	2.9	1.8	0	9.3%	8.1%	9.8%	.0%
Hewlett-Packard	5.4	4.0	.4	331	8.6%	11.3%	2.3%	10.5%
Digital	4.7	3.5	.0	32	7.5%	9.9%	.0%	1.0%
BATISOFT	3.4	.5	2.6	197	5.5%	1.4%	14.5%	6.3%
Apple Computer	3.3	2.9	.0	640	5.3%	8.3%	.0%	20.3%
Compaq	2.0	2.0	.0	336	3.2%	5.7%	.0%	10.7%
Computervision	1.8	.9	.4	15	2.9%	2.4%	2.4%	.5%
McDonnell Douglas	1.2	.7	.5	22	2.0%	1.9%	2.6%	.7%
PAFEC	1.1	.0	1.1	0	1.7%	.0%	5.9%	.0%
Sun	.5	.4	.0	31	.7%	1.2%	.0%	1.0%
Dassault	.4	.0	.3	0	.6%	.0%	1.8%	.0%
Siemens	.3	.2	.1	5	.4%	.4%	.4%	.2%
Olivetti	.2	.1	.1	48	.4%	.3%	.4%	1.5%
Control Data	.1	.1	.0	1	.2%	.2%	.1%	.0%
Sycotronic AG	.1	.0	.1	0	.1%	.0%	.3%	.0%
Westward	.1	.1	.0	5	.1%	.2%	.0%	.1%
Gable CAD Systems	.1	.0	.0	1	.1%	.1%	.2%	.0%
Robocom	.1	.0	.1	0	.1%	.0%	.4%	.0%
Star Informatic	.1	.0	.0	2	.1%	.1%	.1%	.1%
Ziegler	.1	.0	.1	2	.1%	.0%	.3%	.1%
Schlumberger (Applicon)	.0	.0	.0	0	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 61 (Continued)
TITLE: 1989 Market Share
APPLICATION: AEC
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	6.5	5.5	.7	745.5	10.4%	15.4%	3.9%	23.7%
All Companies	62.6	35.5	17.8	3,146.3	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	51.0	31.7	11.8	2,888	81.6%	89.4%	66.0%	91.8%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	11.5	3.8	6.1	258.7	18.4%	10.6%	34.0%	8.2%
All Hardware Companies	22.0	19.5	.0	2,630.3	35.2%	55.0%	.0%	83.6%
All Turnkey & SW Companies	40.5	16.0	17.8	516.0	64.8%	45.0%	100.0%	16.4%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 62
TITLE: 1989 Market Share
APPLICATION: GIS/Mapping
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intergraph	14.9	7.9	3.0	151	40.4%	39.5%	34.1%	22.2%
Digital	4.2	3.2	.0	29	11.5%	15.9%	.0%	4.3%
Sysscan	3.9	1.7	1.0	6	10.6%	8.6%	11.6%	.8%
IBM	2.3	1.7	.3	117	6.3%	8.3%	3.9%	17.1%
Norsk Data	2.2	1.1	.7	0	6.1%	5.4%	7.8%	.0%
Autodesk	1.5	.0	1.5	0	3.9%	.0%	16.7%	.0%
Siemens	1.3	.8	.4	28	3.6%	3.8%	4.5%	4.1%
ESRI	1.0	.0	.9	0	2.6%	.0%	9.8%	.0%
Computervision	.5	.2	.1	4	1.3%	1.0%	1.3%	.6%
Compaq	.4	.4	.0	73	1.2%	2.2%	.0%	10.7%
Apple Computer	.4	.3	.0	74	1.1%	1.7%	.0%	10.9%
Control Data	.2	.1	.0	2	.4%	.5%	.2%	.2%
Hewlett-Packard	.1	.1	.0	9	.3%	.4%	.0%	1.4%
Ziegler	.0	.0	.0	1	.1%	.0%	.5%	.2%
Robocom	.0	.0	.0	0	.0%	.0%	.1%	.0%
Other Companies	3.9	2.5	.8	180.0	10.6%	12.5%	9.4%	26.4%
All Companies	36.8	20.0	8.7	682.2	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	29.3	16.4	6.6	639	79.6%	82.2%	75.5%	93.7%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	7.5	3.6	2.1	42.8	20.4%	17.8%	24.5%	6.3%
All Hardware Companies	8.3	7.0	.0	463.3	22.6%	34.9%	.0%	67.9%
All Turnkey & SW Companies	28.5	13.0	8.7	218.9	77.4%	65.1%	100.0%	32.1%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 63
TITLE: 1989 Market Share
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Digital	10.6	7.9	.0	91	15.4%	21.1%	.0%	4.1%
Hewlett-Packard	10.3	7.4	.5	728	14.9%	19.8%	3.0%	32.6%
Mentor Graphics	9.6	2.8	4.7	126	13.8%	7.4%	26.0%	5.7%
Intergraph	4.4	2.1	.8	46	6.4%	5.6%	4.3%	2.1%
Sun	3.9	3.5	.0	262	5.6%	9.4%	.0%	11.7%
Computervision	3.2	1.4	.8	27	4.6%	3.8%	4.2%	1.2%
Dazix	2.2	.8	.9	22	3.2%	2.2%	4.9%	1.0%
IBM	2.2	1.5	.3	84	3.1%	4.0%	1.9%	3.8%
Compaq	1.7	1.7	.0	277	2.4%	4.4%	.0%	12.4%
Autodesk	1.5	.0	1.5	0	2.1%	.0%	8.1%	.0%
Racal-Redac	1.4	.0	1.1	5	2.0%	.0%	6.3%	.2%
CADAM	.9	.0	.8	0	1.3%	.0%	4.5%	.0%
Aucotec	.8	.3	.4	85	1.1%	.8%	2.1%	3.8%
Valid	.6	.2	.3	0	.9%	.4%	1.8%	.0%
BETRONEX	.6	.0	.6	0	.8%	.0%	3.2%	.0%
Apple Computer	.5	.5	.0	104	.8%	1.3%	.0%	4.7%
European Silicon Systems	.4	.1	.3	2	.6%	.3%	1.8%	.1%
Secmai	.4	.2	.1	3	.5%	.6%	.3%	.1%
Calay	.3	.1	.1	2	.4%	.2%	.7%	.1%
Ziegler	.2	.0	.2	6	.3%	.0%	.9%	.3%
Sycotronic AG	.2	.0	.1	0	.2%	.0%	.7%	.0%
ALS Design	.1	.0	.1	3	.2%	.0%	.6%	.1%
Academi Systems	.1	.0	.1	2	.2%	.1%	.5%	.1%
Dassault	.1	.0	.1	0	.1%	.0%	.4%	.0%
ABB Cade International	.1	.0	.0	0	.1%	.1%	.1%	.0%
Westward	.1	.1	.0	5	.1%	.2%	.0%	.2%
Schlumberger (Applicon)	.1	.0	.0	1	.1%	.0%	.1%	.0%
Olivetti	.1	.0	.0	11	.1%	.1%	.1%	.5%
Intercad	.0	.0	.0	1	.0%	.0%	.1%	.1%

(Continued)

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Market Share

TABLE NUMBER: 63 (Continued)
TITLE: 1989 Market Share
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	12.9	6.8	4.2	323.7	18.6%	18.1%	23.4%	14.5%
All Companies	69.1	37.4	18.1	2,232.7	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	64.4	36.5	14.9	2,092	93.2%	97.5%	82.2%	93.7%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	4.7	.9	3.2	140.6	6.8%	2.5%	17.8%	6.3%
All Hardware Companies	30.5	25.3	.0	1,769.2	44.1%	67.5%	.0%	79.2%
All Turnkey & SW Companies	38.6	12.1	18.1	463.5	55.9%	32.5%	100.0%	20.8%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 64
TITLE: 1989 Market Share
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Market Share Total Revenue	Market Share Hardware Revenue	Market Share Software Revenue	Market Share Wkstns Shipped
Company								
Mentor Graphics	6.3	2.0	3.1	84	17.8%	9.8%	31.8%	6.6%
Hewlett-Packard	5.1	4.0	.3	360	14.3%	19.9%	2.8%	28.5%
Digital	4.3	3.2	.0	36	11.9%	16.1%	.0%	2.9%
Sun	3.9	3.5	.0	262	11.0%	17.6%	.0%	20.7%
Dazix	1.8	.7	.7	18	5.0%	3.6%	7.3%	1.4%
Intergraph	1.6	.9	.3	17	4.4%	4.4%	2.9%	1.3%
Autodesk	1.3	.0	1.3	0	3.7%	.0%	13.3%	.0%
Computervision	.9	.4	.2	8	2.6%	2.1%	2.2%	.6%
Aucotec	.8	.3	.4	85	2.1%	1.5%	3.9%	6.7%
Compaq	.7	.7	.0	124	2.1%	3.7%	.0%	9.8%
Valid	.4	.1	.2	0	1.2%	.6%	2.4%	.0%
Racal-Redac	.3	.0	.2	1	.7%	.1%	2.0%	.1%
Apple Computer	.2	.2	.0	45	.6%	1.0%	.0%	3.5%
IBM	.2	.2	.0	33	.4%	.8%	.0%	2.6%
Dassault	.1	.0	.1	0	.3%	.0%	.8%	.0%
Ziegler	.1	.0	.1	3	.3%	.0%	.8%	.2%
Westward	.1	.1	.0	5	.2%	.4%	.0%	.4%
Intercad	.0	.0	.0	1	.1%	.1%	.1%	.1%
Secmai	.0	.0	.0	0	.1%	.2%	.0%	.0%
Other Companies	7.6	3.7	2.9	182.6	21.3%	18.4%	29.8%	14.5%
All Companies	35.6	19.9	9.8	1,261.9	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	34.3	19.5	9.0	1,167	96.2%	97.8%	92.3%	92.5%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	1.3	.4	.8	94.8	3.8%	2.2%	7.7%	7.5%
All Hardware Companies	15.8	13.5	.0	999.1	44.5%	67.9%	.0%	79.2%
All Turnkey & SW Companies	19.8	6.4	9.8	262.8	55.5%	32.1%	100.0%	20.8%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 65
TITLE: 1989 Market Share
APPLICATION: IC Layout
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Digital	1.7	1.3	.0	15	34.3%	50.4%	.0%	12.8%
Hewlett-Packard	1.0	.8	.0	85	19.2%	31.1%	.0%	75.1%
Mentor Graphics	.5	.2	.2	6	9.9%	5.9%	17.0%	5.7%
European Silicon Systems	.4	.1	.3	2	8.9%	4.3%	23.4%	2.1%
Valid	.1	.0	.0	0	1.2%	.8%	2.1%	.0%
Other Companies	1.3	.2	.8	5.0	26.6%	7.5%	57.4%	4.4%
All Companies	5.0	2.5	1.4	113.7	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	4.5	2.4	1.1	111	91.1%	95.7%	76.6%	97.9%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	.4	.1	.3	2.4	8.9%	4.3%	23.4%	2.1%
All Hardware Companies	2.8	2.2	.0	103.3	57.1%	87.4%	.0%	90.9%
All Turnkey & SW Companies	2.1	.3	1.4	10.3	42.9%	12.6%	100.0%	9.1%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 66
TITLE: 1989 Market Share
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Digital	4.7	3.4	.0	40	16.4%	22.9%	.0%	4.7%
Hewlett-Packard	4.3	2.6	.3	283	14.9%	17.7%	3.9%	33.0%
Intergraph	2.8	1.2	.5	30	9.9%	8.1%	7.3%	3.5%
Mentor Graphics	2.7	.7	1.3	36	9.5%	4.5%	19.5%	4.2%
Computervision	2.3	1.0	.5	19	8.0%	6.8%	7.8%	2.2%
IBM	2.0	1.3	.3	52	7.0%	9.0%	4.9%	6.0%
Racal-Redac	1.1	.0	.9	4	4.0%	.0%	13.5%	.5%
Compaq	.9	.9	.0	153	3.2%	6.2%	.0%	17.9%
CADAM	.9	.0	.8	0	3.2%	.0%	11.8%	.0%
BETRONEX	.6	.0	.6	0	2.0%	.0%	8.4%	.0%
Dazix	.4	.1	.2	4	1.5%	.9%	2.6%	.5%
Secmai	.3	.2	.1	3	1.1%	1.4%	.9%	.3%
Apple Computer	.3	.3	.0	60	1.1%	1.8%	.0%	6.9%
Calay	.3	.1	.1	2	.9%	.5%	1.7%	.3%
Autodesk	.2	.0	.2	0	.6%	.0%	2.3%	.0%
Sycotronic AG	.2	.0	.1	0	.6%	.0%	1.9%	.0%
ALS Design	.1	.0	.1	3	.5%	.1%	1.6%	.3%
Academi Systems	.1	.0	.1	2	.5%	.1%	1.3%	.2%
Valid	.1	.0	.1	0	.4%	.2%	1.0%	.0%
Ziegler	.1	.0	.1	3	.3%	.0%	1.2%	.3%
ABB Cade International	.1	.0	.0	0	.3%	.3%	.3%	.0%
Schlumberger (Applicon)	.1	.0	.0	1	.2%	.1%	.3%	.1%
Olivetti	.1	.0	.0	11	.2%	.1%	.3%	1.3%

(Continued)

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Market Share

TABLE NUMBER: 66 (Continued)
TITLE: 1989 Market Share
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: Scandinavia
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	4.0	2.9	.5	136.1	13.8%	19.5%	7.4%	15.9%
All Companies	28.6	15.0	6.9	857.2	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	25.7	14.6	4.7	814	89.8%	97.5%	68.9%	94.9%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	2.9	.4	2.1	43.4	10.2%	2.5%	31.1%	5.1%
All Hardware Companies	11.9	9.5	.0	666.8	41.4%	63.7%	.0%	77.8%
All Turnkey & SW Companies	16.7	5.4	6.9	190.3	58.6%	36.3%	100.0%	22.2%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 67
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Computervision	97.1	44.8	23.1	816	12.3%	10.0%	11.3%	3.3%
IBM	95.0	65.3	15.1	3,366	12.0%	14.6%	7.4%	13.7%
Intergraph	77.9	41.0	15.3	795	9.9%	9.2%	7.5%	3.2%
Digital	72.0	53.8	.0	522	9.1%	12.0%	.0%	2.1%
Compaq	44.1	44.1	.0	7,344	5.6%	9.8%	.0%	30.0%
Hewlett-Packard	42.3	31.4	3.0	2,700	5.4%	7.0%	1.5%	11.0%
McDonnell Douglas	34.2	18.3	12.4	719	4.3%	4.1%	6.1%	2.9%
Mentor Graphics	23.9	7.0	11.8	316	3.0%	1.6%	5.7%	1.3%
PAFEC	19.9	.0	19.9	0	2.5%	.0%	9.7%	.0%
Sun	19.9	17.9	.0	1,335	2.5%	4.0%	.0%	5.5%
Dazix	13.8	5.3	5.5	138	1.8%	1.2%	2.7%	.6%
Engineering Computer Services	13.5	5.4	4.6	247	1.7%	1.2%	2.2%	1.0%
Recal-Redac	13.1	.1	10.8	46	1.7%	.0%	5.2%	.2%
Ferranti	12.6	7.1	3.3	113	1.6%	1.6%	1.6%	.5%
ICL	12.0	7.5	3.2	329	1.5%	1.7%	1.6%	1.3%
Autodesk	11.3	.0	11.3	0	1.4%	.0%	5.5%	.0%
t2 Solutions	10.3	5.4	3.4	96	1.3%	1.2%	1.7%	.4%
Westward	9.4	9.4	.0	547	1.2%	2.1%	.0%	2.2%
Schlumberger (Applicon)	8.9	3.4	2.9	94	1.1%	.8%	1.4%	.4%
ISICAD	7.8	3.3	3.3	83	1.0%	.7%	1.6%	.3%
Valid	7.8	1.9	4.2	0	1.0%	.4%	2.0%	.0%
Apple Computer	7.7	6.8	.0	1,478	1.0%	1.5%	.0%	6.0%
SDRC	5.6	.0	5.6	0	.7%	.0%	2.7%	.0%
Radan Computational	5.4	3.2	1.6	220	.7%	.7%	.8%	.9%
Silicon Graphics	4.2	3.7	.0	125	.5%	.8%	.0%	.5%
Siemens	2.6	1.6	.8	58	.3%	.3%	.4%	.2%
Vero International Software	2.6	.0	2.6	0	.3%	.0%	1.3%	.0%
Norsk Data	2.5	1.2	.7	0	.3%	.3%	.4%	.0%
Robocom	2.5	.0	2.5	0	.3%	.0%	1.2%	.0%
Pathtrace	2.4	.7	1.6	57	.3%	.1%	.8%	.2%
Gable CAD Systems	2.4	1.5	1.0	20	.3%	.3%	.5%	.1%
Superdraft	2.3	.0	2.2	0	.3%	.0%	1.1%	.0%
European Silicon Systems	2.2	.6	1.7	12	.3%	.1%	.8%	.0%

(Continued)

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Market Share

TABLE NUMBER: 67
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
Company	Revenue	Revenue	Revenue	Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Sysscan	2.1	.9	.6	0	.3%	.2%	.3%	.0%
Dassault	2.0	.0	1.7	0	.3%	.0%	.8%	.0%
Olivetti	2.0	.7	1.0	415	.2%	.2%	.5%	1.7%
Matra Datavision	1.9	1.1	.6	13	.2%	.2%	.3%	.1%
Unisys	1.7	.4	1.0	24	.2%	.1%	.5%	.1%
Wiechers Datentechnik	1.5	.8	.8	36	.2%	.2%	.4%	.1%
Calay	1.5	.5	.7	15	.2%	.1%	.4%	.1%
CADAM	.9	.0	.8	0	.1%	.0%	.4%	.0%
ESRI	.8	.0	.7	0	.1%	.0%	.4%	.0%
FEGS	.8	.0	.7	0	.1%	.0%	.3%	.0%
Exapt	.8	.5	.2	13	.1%	.1%	.1%	.1%
Control Data	.8	.5	.1	8	.1%	.1%	.0%	.0%
Gerber Systems	.5	.3	.1	7	.1%	.1%	.1%	.0%
Investronica SA	.5	.4	.1	19	.1%	.1%	.0%	.1%
LPKF	.5	.3	.1	45	.1%	.1%	.1%	.2%
BETRONEX	.4	.0	.4	0	.0%	.0%	.2%	.0%
Serbi	.2	.0	.2	0	.0%	.0%	.1%	.0%
DAT Standard Information syste	.2	.0	.2	0	.0%	.0%	.1%	.0%
Computational Mechanics	.2	.0	.2	0	.0%	.0%	.1%	.0%
Intercad	.2	.1	.1	10	.0%	.0%	.0%	.0%
Marcus Computer Systems	.2	.1	.1	6	.0%	.0%	.0%	.0%
Secmai	.1	.1	.0	1	.0%	.0%	.0%	.0%
Academi Systems	.1	.0	.1	1	.0%	.0%	.0%	.0%
ALS Design	.1	.0	.1	1	.0%	.0%	.0%	.0%
Sycotronic AG	.1	.0	.0	0	.0%	.0%	.0%	.0%
Aucotec	.1	.0	.0	5	.0%	.0%	.0%	.0%
Framesoft	.1	.0	.0	0	.0%	.0%	.0%	.0%
Star Informatic	.1	.0	.0	2	.0%	.0%	.0%	.0%
Ziegler	.1	.0	.1	0	.0%	.0%	.0%	.0%
CAD-UL	.0	.0	.0	1	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 67 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	80.1	49.4	21.3	2,289.8	10.1%	11.1%	10.4%	9.4%
All Companies	789.1	447.3	205.0	24,488.7	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	673.9	403.9	144.3	22,407	85.4%	90.3%	70.4%	91.5%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	115.1	43.5	60.7	2,081.3	14.6%	9.7%	29.6%	8.5%
All Hardware Companies	235.0	204.2	.0	17,699.7	29.8%	45.6%	.0%	72.3%
All Turnkey & SW Companies	554.1	243.2	205.0	6,789.0	70.2%	54.4%	100.0%	27.7%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 68
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Computervision	82.0	37.8	19.5	497	19.7%	18.9%	14.8%	6.9%
Intergraph	61.8	34.0	11.1	661	14.8%	17.0%	8.4%	9.1%
Hewlett-Packard	35.8	26.1	3.0	1,799	8.6%	13.0%	2.3%	24.8%
Mentor Graphics	23.9	7.0	11.8	316	5.7%	3.5%	8.9%	4.4%
Sun	19.9	17.9	.0	1,335	4.8%	8.9%	.0%	18.4%
McDonnell Douglas	18.1	9.7	6.6	203	4.3%	4.8%	5.0%	2.8%
PAFEC	17.6	.0	17.6	0	4.2%	.0%	13.4%	.0%
Digital	15.8	11.7	.0	522	3.8%	5.9%	.0%	7.2%
Dazix	13.8	5.3	5.5	138	3.3%	2.6%	4.2%	1.9%
Racal-Redac	12.8	.1	10.5	44	3.1%	.0%	7.9%	.6%
ICL	12.0	7.5	3.2	329	2.9%	3.7%	2.4%	4.5%
t2 Solutions	10.3	5.4	3.4	96	2.5%	2.7%	2.6%	1.3%
Schlumberger (Applicon)	7.8	2.9	2.5	73	1.9%	1.5%	1.9%	1.0%
Valid	7.8	1.9	4.2	0	1.9%	1.0%	3.2%	.0%
IBM	7.5	4.9	1.4	68	1.8%	2.4%	1.0%	.9%
Engineering Computer Services	7.3	2.9	2.5	78	1.7%	1.5%	1.9%	1.1%
ISICAD	6.8	3.3	2.3	83	1.6%	1.6%	1.7%	1.2%
Westward	5.6	5.6	.0	301	1.3%	2.8%	.0%	4.1%
Radan Computational	5.4	3.2	1.6	220	1.3%	1.6%	1.2%	3.0%
SDRC	4.5	.0	4.5	0	1.1%	.0%	3.4%	.0%
Silicon Graphics	3.9	3.5	.0	117	.9%	1.7%	.0%	1.6%
Siemens	2.4	1.4	.7	55	.6%	.7%	.5%	.8%
Gable CAD Systems	2.2	1.3	.9	19	.5%	.7%	.7%	.3%
Matra Datavision	1.9	1.1	.6	0	.4%	.5%	.4%	.0%
European Silicon Systems	1.8	.4	1.3	8	.4%	.2%	1.0%	.1%
Calay	1.5	.5	.7	15	.4%	.2%	.6%	.2%
Unisys	1.3	.3	.8	15	.3%	.2%	.6%	.2%
Norsk Data	1.1	.5	.3	0	.3%	.3%	.2%	.0%
Sysscan	.5	.2	.1	0	.1%	.1%	.1%	.0%
Dassault	.5	.0	.4	0	.1%	.0%	.3%	.0%
Gerber Systems	.5	.3	.1	7	.1%	.1%	.1%	.1%
Wiechers Datentechnik	.5	.2	.2	11	.1%	.1%	.2%	.1%

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Market Share

TABLE NUMBER: 68 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Autodesk	.3	.0	.3	0	.1%	.0%	.3%	.0%
ESRI	.3	.0	.3	0	.1%	.0%	.2%	.0%
FEGS	.3	.0	.3	0	.1%	.0%	.2%	.0%
Ferranti	.3	.1	.1	6	.1%	.1%	.1%	.1%
Control Data	.3	.2	.0	5	.1%	.1%	.0%	.1%
Exapt	.2	.1	.1	5	.1%	.0%	.1%	.1%
Marcus Computer Systems	.2	.1	.0	5	.0%	.0%	.0%	.1%
Secmai	.1	.1	.0	1	.0%	.0%	.0%	.0%
Academi Systems	.1	.0	.1	1	.0%	.0%	.0%	.0%
Star Informatic	.1	.0	.0	2	.0%	.0%	.0%	.0%
Computational Mechanics	.0	.0	.0	0	.0%	.0%	.0%	.0%
Framesoft	.0	.0	.0	0	.0%	.0%	.0%	.0%
Serbi	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	19.8	2.7	13.2	218.3	4.8%	1.3%	10.0%	3.0%
All Companies	416.6	200.2	131.9	7,252.6	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	339.3	172.2	89.6	6,136	81.5%	86.0%	67.9%	84.6%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	77.3	27.9	42.3	1,116.7	18.5%	14.0%	32.1%	15.4%
All Hardware Companies	58.8	48.9	.0	3,409.9	14.1%	24.4%	.0%	47.0%
All Turnkey & SW Companies	357.8	151.3	131.9	3,842.7	85.9%	75.6%	100.0%	53.0%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 69
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	75.0	48.5	13.7	787	29.1%	28.6%	33.5%	20.7%
Digital	56.1	42.1	.0	0	21.8%	24.8%	.0%	.0%
McDonnell Douglas	16.1	8.7	5.9	516	6.3%	5.1%	14.3%	13.6%
Computervision	14.1	6.5	3.4	293	5.5%	3.8%	8.2%	7.7%
Intergraph	14.0	7.0	2.2	134	5.4%	4.1%	5.5%	3.5%
Ferranti	12.2	7.0	3.2	108	4.8%	4.1%	7.9%	2.8%
PAFEC	2.2	.0	2.2	0	.9%	.0%	5.5%	.0%
Sysscan	1.6	.7	.4	0	.6%	.4%	1.0%	.0%
Hewlett-Packard	1.5	1.3	.0	77	.6%	.7%	.0%	2.0%
Dassault	1.5	.0	1.2	0	.6%	.0%	3.0%	.0%
Norsk Data	1.3	.7	.4	0	.5%	.4%	1.0%	.0%
SDRC	1.1	.0	1.1	0	.4%	.0%	2.7%	.0%
Schlumberger (Applicon)	1.1	.4	.4	21	.4%	.2%	.9%	.5%
Exapt	.5	.4	.1	8	.2%	.2%	.2%	.2%
FEGS	.5	.0	.4	0	.2%	.0%	1.0%	.0%
Control Data	.5	.4	.1	3	.2%	.2%	.1%	.1%
ESRI	.4	.0	.4	0	.2%	.0%	1.0%	.0%
Unisys	.4	.1	.2	9	.1%	.1%	.5%	.2%
Racal-Redac	.3	.0	.3	2	.1%	.0%	.7%	.1%
Siemens	.3	.2	.1	3	.1%	.1%	.2%	.1%
Silicon Graphics	.3	.2	.0	7	.1%	.1%	.0%	.2%
Gable CAD Systems	.2	.1	.1	2	.1%	.1%	.2%	.0%
Olivetti	.2	.1	.1	12	.1%	.0%	.2%	.3%
Computational Mechanics	.2	.0	.2	0	.1%	.0%	.4%	.0%
Framesoft	.0	.0	.0	0	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 69 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Other Companies	55.9	45.8	5.0	1,810.2	21.7%	26.9%	12.1%	47.6%
All Companies	257.5	170.0	40.9	3,804.7	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	236.5	160.9	32.2	3,658	91.8%	94.7%	78.9%	96.1%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	21.0	9.1	8.6	147.0	8.2%	5.3%	21.1%	3.9%
All Hardware Companies	106.1	87.7	.0	1,886.1	41.2%	51.6%	.0%	49.6%
All Turnkey & SW Companies	151.5	82.3	40.9	1,918.6	58.8%	48.4%	100.0%	50.4%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 70
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Compaq	44.1	44.1	.0	7,344	38.3%	57.1%	.0%	54.7%
IBM	12.5	11.8	.0	2,511	10.8%	15.3%	.0%	18.7%
Autodesk	11.0	.0	11.0	0	9.6%	.0%	34.1%	.0%
Apple Computer	7.7	6.8	.0	1,478	6.7%	8.8%	.0%	11.0%
Engineering Computer Services	6.2	2.5	2.1	169	5.4%	3.2%	6.6%	1.3%
Hewlett-Packard	5.0	4.1	.0	824	4.3%	5.3%	.0%	6.1%
Westward	3.8	3.8	.0	247	3.3%	4.9%	.0%	1.8%
Vero International Software	2.6	.0	2.6	0	2.2%	.0%	8.0%	.0%
Robocom	2.5	.0	2.5	0	2.2%	.0%	7.7%	.0%
Pathtrace	2.4	.7	1.6	57	2.1%	.9%	5.0%	.4%
Superdraft	2.3	.0	2.2	0	2.0%	.1%	6.7%	.0%
Intergraph	2.1	.0	2.0	0	1.8%	.0%	6.1%	.0%
Olivetti	1.8	.6	.9	403	1.6%	.8%	2.8%	3.0%
Wiechers Datentechnik	1.1	.5	.5	25	.9%	.7%	1.6%	.2%
ISICAD	1.0	.0	1.0	0	.9%	.0%	3.2%	.0%
Computervision	1.0	.4	.2	26	.8%	.6%	.7%	.2%
CADAM	.9	.0	.8	0	.8%	.0%	2.5%	.0%
Investronica SA	.5	.4	.1	19	.4%	.5%	.2%	.1%
LPKF	.5	.3	.1	45	.4%	.3%	.4%	.3%
European Silicon Systems	.4	.1	.3	4	.4%	.1%	1.0%	.0%
BETRONEX	.4	.0	.4	0	.3%	.0%	1.1%	.0%
Serbi	.2	.0	.2	0	.2%	.0%	.7%	.0%
DAT Standard Information syste	.2	.0	.2	0	.2%	.0%	.7%	.0%
Intercad	.2	.1	.1	10	.2%	.1%	.2%	.1%
ESRI	.1	.0	.1	0	.1%	.0%	.2%	.0%
Norsk Data	.1	.0	.0	0	.1%	.1%	.1%	.0%
ALS Design	.1	.0	.1	1	.1%	.0%	.2%	.0%
Sycotronic AG	.1	.0	.0	0	.1%	.0%	.1%	.0%
Aucotec	.1	.0	.0	5	.0%	.0%	.1%	.0%
Ziegler	.1	.0	.1	0	.0%	.0%	.2%	.0%
Marcus Computer Systems	.0	.0	.0	1	.0%	.0%	.1%	.0%
CAD-UL	.0	.0	.0	1	.0%	.0%	.1%	.0%

(Continued)

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Market Share

TABLE NUMBER: 70 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Racal-Redac	.0	.0	.0	0	.0%	.0%	.1%	.0%
Academi Systems	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	4.4	1.1	3.1	261.3	3.8%	1.4%	9.8%	1.9%
All Companies	115.0	77.2	32.2	13,431.4	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	98.1	70.7	22.5	12,614	85.3%	91.6%	69.8%	93.9%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	16.9	6.5	9.7	817.7	14.7%	8.4%	30.2%	6.1%
All Hardware Companies	70.1	67.7	.0	12,403.7	61.0%	87.6%	.0%	92.3%
All Turnkey & SW Companies	44.8	9.5	32.2	1,027.7	39.0%	12.4%	100.0%	7.7%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 71
TITLE: 1989 Market Share
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Computervision	85.4	39.5	20.3	718	19.0%	14.9%	18.8%	5.3%
IBM	77.8	52.5	13.0	2,115	17.3%	19.7%	12.0%	15.5%
Digital	38.8	29.1	.0	265	8.6%	11.0%	.0%	2.0%
Hewlett-Packard	25.0	18.4	2.2	1,445	5.5%	6.9%	2.0%	10.6%
Compaq	23.4	23.4	.0	3,892	5.2%	8.8%	.0%	28.6%
Intergraph	20.9	11.1	4.2	212	4.6%	4.2%	3.8%	1.6%
PAFEC	16.5	.0	16.5	0	3.7%	.0%	15.2%	.0%
Engineering Computer Services	13.5	5.4	4.6	247	3.0%	2.0%	4.3%	1.8%
Ferranti	12.6	7.1	3.3	113	2.8%	2.7%	3.1%	.8%
Sun	10.5	9.5	.0	708	2.3%	3.6%	.0%	5.2%
McDonnell Douglas	10.0	5.4	3.6	146	2.2%	2.0%	3.4%	1.1%
Schlumberger (Applicon)	8.6	3.3	2.8	90	1.9%	1.2%	2.5%	.7%
Westward	8.4	8.4	.0	492	1.9%	3.2%	.0%	3.6%
SDRC	5.6	.0	5.6	0	1.2%	.0%	5.2%	.0%
ICL	5.6	3.3	1.6	165	1.2%	1.2%	1.5%	1.2%
Autodesk	4.6	.0	4.6	0	1.0%	.0%	4.3%	.0%
Radan Computational	4.6	2.8	1.4	187	1.0%	1.0%	1.3%	1.4%
Silicon Graphics	4.2	3.7	.0	125	.9%	1.4%	.0%	.9%
Apple Computer	3.5	3.0	.0	665	.8%	1.1%	.0%	4.9%
ISICAD	3.1	1.4	1.2	35	.7%	.5%	1.1%	.3%
Vero International Software	2.6	.0	2.6	0	.6%	.0%	2.4%	.0%
Norsk Data	2.5	1.2	.7	0	.6%	.5%	.7%	.0%
Pathtrace	2.4	.7	1.6	57	.5%	.2%	1.5%	.4%
Superdraft	2.3	.0	2.2	0	.5%	.0%	2.0%	.0%
Matra Datavision	1.9	1.1	.6	13	.4%	.4%	.5%	.1%
Unisys	1.7	.4	1.0	24	.4%	.2%	1.0%	.2%
Dassault	1.6	.0	1.4	0	.4%	.0%	1.3%	.0%
Wiechers Datentechnik	1.5	.8	.8	36	.3%	.3%	.7%	.3%
Siemens	1.4	.8	.4	32	.3%	.3%	.4%	.2%
Olivetti	1.3	.4	.7	262	.3%	.1%	.6%	1.9%
Robocom	1.2	.0	1.2	0	.3%	.0%	1.1%	.0%
FEGS	.8	.0	.7	0	.2%	.0%	.6%	.0%

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Market Share

TABLE NUMBER: 71 (Continued)
TITLE: 1989 Market Share
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Exapt	.8	.5	.2	13	.2%	.2%	.2%	.1%
Control Data	.7	.5	.1	8	.2%	.2%	.1%	.1%
Gerber Systems	.5	.3	.1	7	.1%	.1%	.1%	.0%
Mentor Graphics	.5	.2	.2	6	.1%	.1%	.2%	.0%
Investronica SA	.5	.4	.1	19	.1%	.1%	.0%	.1%
DAT Standard Information syste	.2	.0	.2	0	.0%	.0%	.2%	.0%
Computational Mechanics	.2	.0	.2	0	.0%	.0%	.2%	.0%
Marcus Computer Systems	.2	.1	.1	6	.0%	.0%	.1%	.0%
Intercad	.1	.1	.0	7	.0%	.0%	.0%	.0%
Serbi	.1	.0	.1	0	.0%	.0%	.1%	.0%
Framesoft	.1	.0	.0	0	.0%	.0%	.0%	.0%
Ziegler	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	43.1	31.1	8.0	1,502.9	9.6%	11.7%	7.4%	11.0%
All Companies	450.6	265.7	107.9	13,613.4	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	383.7	238.1	73.7	12,212	85.1%	89.6%	68.3%	89.7%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	66.9	27.5	34.2	1,401.8	14.9%	10.4%	31.7%	10.3%
All Hardware Companies	132.2	115.4	.0	9,519.5	29.3%	43.4%	.0%	69.9%
All Turnkey & SW Companies	318.5	150.3	107.9	4,093.9	70.7%	56.6%	100.0%	30.1%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 72
TITLE: 1989 Market Share
APPLICATION: AEC
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intergraph	20.9	11.1	4.2	212	18.6%	16.4%	14.4%	4.4%
McDonnell Douglas	13.8	7.4	5.0	241	12.3%	10.9%	17.4%	5.0%
IBM	11.0	8.4	1.2	948	9.8%	12.5%	4.2%	19.7%
t2 Solutions	10.3	5.4	3.4	96	9.2%	8.0%	11.8%	2.0%
Compaq	10.1	10.1	.0	1,689	9.0%	15.0%	.0%	35.2%
Digital	7.9	5.9	.0	54	7.0%	8.8%	.0%	1.1%
Hewlett-Packard	5.4	4.1	.4	354	4.8%	6.0%	1.2%	7.4%
ISICAD	4.7	1.9	2.1	48	4.2%	2.8%	7.2%	1.0%
Autodesk	4.6	.0	4.6	0	4.1%	.0%	16.1%	.0%
Computervision	3.9	1.8	.9	33	3.5%	2.7%	3.2%	.7%
PAFEC	3.4	.0	3.4	0	3.1%	.0%	11.9%	.0%
Apple Computer	3.3	2.9	.0	636	2.9%	4.3%	.0%	13.2%
Gable CAD Systems	2.4	1.5	1.0	20	2.2%	2.2%	3.4%	.4%
Robocom	1.1	.0	1.1	0	1.0%	.0%	3.9%	.0%
Sun	1.0	.9	.0	67	.9%	1.3%	.0%	1.4%
Radan Computational	.8	.5	.2	33	.7%	.7%	.8%	.7%
Westward	.5	.5	.0	27	.4%	.7%	.0%	.6%
Olivetti	.3	.1	.1	69	.2%	.2%	.5%	1.4%
Dassault	.3	.0	.2	0	.2%	.0%	.7%	.0%
Siemens	.2	.1	.1	4	.2%	.2%	.2%	.1%
Schlumberger (Applicon)	.1	.0	.0	1	.1%	.0%	.1%	.0%
Serbi	.1	.0	.1	0	.1%	.0%	.2%	.0%
Star Informatic	.1	.0	.0	2	.0%	.0%	.0%	.0%
Control Data	.0	.0	.0	0	.0%	.0%	.0%	.0%
Sycotronic AG	.0	.0	.0	0	.0%	.0%	.0%	.0%
Ziegler	.0	.0	.0	0	.0%	.0%	.1%	.0%

(Continued)

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Market Share

TABLE NUMBER: 72 (Continued)
TITLE: 1989 Market Share
APPLICATION: AEC
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	6.2	4.9	.8	266.9	5.5%	7.2%	2.7%	5.6%
All Companies	112.2	67.6	28.8	4,801.6	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	92.8	59.5	19.2	4,550	82.7%	88.0%	66.5%	94.8%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	19.4	8.1	9.6	251.9	17.3%	12.0%	33.5%	5.2%
All Hardware Companies	35.3	31.6	.0	3,894.3	31.4%	46.7%	.0%	81.1%
All Turnkey & SW Companies	77.0	36.1	28.8	907.4	68.6%	53.3%	100.0%	18.9%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 73
TITLE: 1989 Market Share
APPLICATION: GIS/Mapping
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intergraph	27.9	14.8	5.6	284	40.2%	36.8%	35.8%	16.8%
McDonnell Douglas	10.4	5.6	3.8	333	15.0%	13.8%	24.4%	19.7%
Digital	7.2	5.4	.0	49	10.4%	13.4%	.0%	2.9%
ICL	5.6	3.7	1.4	143	8.1%	9.1%	9.0%	8.4%
IBM	3.2	2.3	.5	176	4.6%	5.7%	2.9%	10.4%
Compaq	2.2	2.2	.0	367	3.2%	5.5%	.0%	21.7%
Sysscan	2.1	.9	.6	0	3.0%	2.3%	3.5%	.0%
Siemens	1.1	.6	.3	23	1.5%	1.6%	2.1%	1.3%
Autodesk	1.0	.0	1.0	0	1.5%	.0%	6.6%	.0%
Computervision	1.0	.4	.2	8	1.4%	1.1%	1.5%	.5%
ESRI	.8	.0	.7	0	1.2%	.0%	4.8%	.0%
Apple Computer	.4	.3	.0	74	.5%	.8%	.0%	4.4%
Olivetti	.3	.1	.1	58	.4%	.3%	.6%	3.4%
Robocom	.2	.0	.2	0	.2%	.0%	1.1%	.0%
Hewlett-Packard	.1	.1	.0	13	.2%	.3%	.0%	.8%
Control Data	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	5.9	3.7	1.2	164.4	8.6%	9.2%	7.7%	9.7%
All Companies	69.4	40.3	15.5	1,692.1	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	60.2	35.0	13.0	1,469	86.7%	86.7%	83.6%	86.8%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	9.2	5.4	2.5	223.0	13.3%	13.3%	16.4%	13.2%
All Hardware Companies	14.7	12.5	.0	817.8	21.2%	30.9%	.0%	48.3%
All Turnkey & SW Companies	54.7	27.9	15.5	874.3	78.8%	69.1%	100.0%	51.7%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 74
TITLE: 1989 Market Share
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Mentor Graphics	23.4	6.8	11.5	310	14.9%	9.2%	21.8%	7.1%
Digital	18.0	13.4	.0	154	11.5%	18.1%	.0%	3.5%
Dazix	13.8	5.3	5.5	138	8.8%	7.1%	10.5%	3.1%
Racal-Redac	13.1	.1	10.8	46	8.4%	.1%	20.4%	1.1%
Hewlett-Packard	11.8	8.7	.5	888	7.5%	11.8%	.9%	20.3%
Compaq	8.4	8.4	.0	1,395	5.3%	11.4%	.0%	31.8%
Sun	8.4	7.5	.0	561	5.3%	10.2%	.0%	12.8%
Intergraph	8.3	3.9	1.5	87	5.3%	5.3%	2.8%	2.0%
Valid	7.8	1.9	4.2	0	5.0%	2.6%	8.0%	.0%
Computervision	6.8	3.0	1.6	57	4.3%	4.1%	3.1%	1.3%
IBM	3.0	2.1	.5	126	1.9%	2.8%	.9%	2.9%
European Silicon Systems	2.2	.6	1.7	12	1.4%	.7%	3.1%	.3%
Calay	1.5	.5	.7	15	.9%	.6%	1.4%	.3%
Autodesk	1.0	.0	1.0	0	.7%	.0%	1.9%	.0%
CADAM	.9	.0	.8	0	.6%	.0%	1.5%	.0%
ICL	.8	.5	.2	21	.5%	.7%	.4%	.5%
Apple Computer	.5	.5	.0	103	.3%	.6%	.0%	2.4%
Westward	.5	.5	.0	27	.3%	.6%	.0%	.6%
LPKF	.5	.3	.1	45	.3%	.4%	.2%	1.0%
BETRONEX	.4	.0	.4	0	.2%	.0%	.7%	.0%
Schlumberger (Applicon)	.3	.1	.1	3	.2%	.1%	.2%	.1%
Dassault	.1	.0	.1	0	.1%	.0%	.2%	.0%
Secmai	.1	.1	.0	1	.1%	.1%	.1%	.0%
Academi Systems	.1	.0	.1	1	.1%	.0%	.1%	.0%
Olivetti	.1	.0	.0	26	.1%	.1%	.1%	.6%
ALS Design	.1	.0	.1	1	.0%	.0%	.1%	.0%
Intercad	.1	.0	.0	3	.0%	.0%	.0%	.1%
Serbi	.1	.0	.1	0	.0%	.0%	.1%	.0%
Aucotec	.1	.0	.0	5	.0%	.0%	.0%	.1%
Sycotronic AG	.0	.0	.0	0	.0%	.0%	.1%	.0%
CAD-UL	.0	.0	.0	1	.0%	.0%	.0%	.0%
Robocom	.0	.0	.0	0	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 74 (Continued)
TITLE: 1989 Market Share
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Ziegler	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	24.9	9.7	11.3	355.6	15.9%	13.2%	21.4%	8.1%
All Companies	156.8	73.7	52.8	4,381.6	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	137.3	71.3	38.5	4,177	87.5%	96.6%	72.9%	95.3%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	19.6	2.5	14.3	204.7	12.5%	3.4%	27.1%	4.7%
All Hardware Companies	52.9	44.8	.0	3,468.2	33.7%	60.7%	.0%	79.2%
All Turnkey & SW Companies	104.0	28.9	52.8	913.4	66.3%	39.3%	100.0%	20.8%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 75
TITLE: 1989 Market Share
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Mentor Graphics	15.5	4.8	7.6	206	19.5%	11.9%	29.9%	8.8%
Dazix	11.1	4.4	4.4	110	13.9%	11.0%	17.3%	4.7%
Sun	8.4	7.5	.0	561	10.5%	18.7%	.0%	23.9%
Digital	7.2	5.4	.0	61	9.1%	13.4%	.0%	2.6%
Hewlett-Packard	6.2	4.9	.2	471	7.8%	12.2%	.9%	20.0%
Valid	5.5	1.4	2.9	0	6.9%	3.4%	11.5%	.0%
Compaq	3.8	3.8	.0	624	4.7%	9.3%	.0%	26.6%
Intergraph	3.0	1.6	.5	31	3.7%	4.1%	2.1%	1.3%
Racal-Redac	2.4	.1	2.0	9	3.0%	.1%	7.8%	.4%
Computervision	1.9	.9	.5	16	2.4%	2.2%	1.8%	.7%
Autodesk	.9	.0	.9	0	1.1%	.0%	3.6%	.0%
Westward	.5	.5	.0	27	.6%	1.2%	.0%	1.2%
IBM	.3	.2	.0	50	.3%	.6%	.0%	2.1%
Apple Computer	.2	.2	.0	44	.3%	.5%	.0%	1.9%
Dassault	.1	.0	.1	0	.1%	.0%	.4%	.0%
Intercad	.1	.0	.0	3	.1%	.1%	.1%	.1%
Serbi	.1	.0	.1	0	.1%	.0%	.2%	.0%
Aucotec	.1	.0	.0	5	.1%	.0%	.1%	.2%
Academi Systems	.0	.0	.0	0	.0%	.0%	.1%	.0%
Ziegler	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	12.5	4.5	6.2	129.8	15.7%	11.2%	24.2%	5.5%
All Companies	79.5	40.2	25.6	2,350.3	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	76.3	39.6	23.3	2,305	96.0%	98.6%	91.3%	98.1%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	3.2	.6	2.2	45.5	4.0%	1.4%	8.7%	1.9%
All Hardware Companies	27.4	23.7	.0	1,895.4	34.4%	58.9%	.0%	80.6%
All Turnkey & SW Companies	52.2	16.5	25.6	454.9	65.6%	41.1%	100.0%	19.4%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 76
TITLE: 1989 Market Share
APPLICATION: IC Layout
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Digital	2.9	2.2	.0	25	20.7%	45.5%	.0%	13.9%
European Silicon Systems	2.2	.6	1.7	12	15.8%	11.6%	24.7%	6.8%
Hewlett-Packard	1.3	1.1	.0	116	9.2%	22.4%	.0%	65.7%
Mentor Graphics	1.2	.4	.6	16	8.6%	7.8%	8.8%	9.0%
Valid	.8	.2	.4	0	5.6%	4.0%	6.3%	.0%
Other Companies	5.6	.4	4.0	8.2	40.0%	8.7%	60.1%	4.6%
All Companies	13.9	4.7	6.7	176.4	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	11.7	4.2	5.0	164	84.2%	88.4%	75.3%	93.2%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	2.2	.6	1.7	12.0	15.8%	11.6%	24.7%	6.8%
All Hardware Companies	4.4	3.5	.0	144.1	32.0%	73.2%	.0%	81.7%
All Turnkey & SW Companies	9.4	1.3	6.7	32.3	68.0%	26.8%	100.0%	18.3%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 77
TITLE: 1989 Market Share
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Racal-Redac	10.7	.0	8.8	37	16.9%	.0%	42.7%	2.0%
Digital	7.9	5.8	.0	68	12.5%	20.2%	.0%	3.6%
Mentor Graphics	6.7	1.6	3.3	89	10.6%	5.7%	16.0%	4.8%
Intergraph	5.3	2.3	.9	56	8.3%	7.9%	4.5%	3.0%
Computervision	4.9	2.1	1.2	41	7.6%	7.4%	5.6%	2.2%
Compaq	4.6	4.6	.0	771	7.3%	16.1%	.0%	41.6%
Hewlett-Packard	4.3	2.8	.2	301	6.8%	9.6%	1.2%	16.2%
Dazix	2.8	.8	1.1	28	4.4%	2.9%	5.4%	1.5%
IBM	2.7	1.8	.5	76	4.3%	6.4%	2.2%	4.1%
Valid	1.6	.4	.8	0	2.5%	1.4%	4.1%	.0%
Calay	1.5	.5	.7	15	2.3%	1.6%	3.6%	.8%
CADAM	.9	.0	.8	0	1.4%	.0%	3.8%	.0%
ICL	.8	.5	.2	21	1.2%	1.7%	1.0%	1.2%
LPKF	.5	.3	.1	45	.7%	.9%	.6%	2.4%
BETRONEX	.4	.0	.4	0	.6%	.0%	1.8%	.0%
Apple Computer	.3	.3	.0	59	.5%	.9%	.0%	3.2%
Schlumberger (Applicon)	.3	.1	.1	3	.4%	.2%	.4%	.2%
Autodesk	.1	.0	.1	0	.2%	.0%	.5%	.0%
Secmai	.1	.1	.0	1	.2%	.2%	.1%	.0%
Olivetti	.1	.0	.0	26	.1%	.1%	.2%	1.4%
Academi Systems	.1	.0	.0	1	.1%	.0%	.1%	.0%
ALS Design	.1	.0	.1	1	.1%	.0%	.2%	.1%
Sycotronic AG	.0	.0	.0	0	.1%	.0%	.1%	.0%
CAD-UL	.0	.0	.0	1	.0%	.0%	.1%	.0%
Robocom	.0	.0	.0	0	.0%	.0%	.1%	.0%
Ziegler	.0	.0	.0	0	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 77 (Continued)
TITLE: 1989 Market Share
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: United Kingdom
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	6.9	4.8	1.1	217.7	10.9%	16.6%	5.4%	11.7%
All Companies	63.4	28.8	20.5	1,854.9	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	49.3	27.5	10.1	1,708	77.7%	95.3%	49.2%	92.1%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	14.2	1.4	10.4	147.2	22.3%	4.7%	50.8%	7.9%
All Hardware Companies	21.0	17.7	.0	1,428.7	33.2%	61.3%	.0%	77.0%
All Turnkey & SW Companies	42.4	11.1	20.5	426.2	66.8%	38.7%	100.0%	23.0%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 78
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
					Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Hewlett-Packard	24.3	16.8	2.7	1,199	12.7%	16.6%	4.5%	20.5%
Investronica SA	17.4	13.9	1.7	696	9.1%	13.8%	3.0%	11.9%
Computervision	16.9	7.8	4.0	142	8.9%	7.7%	6.9%	2.4%
Intergraph	13.3	7.0	2.6	135	6.9%	6.9%	4.4%	2.3%
IBM	11.8	8.1	1.9	402	6.2%	8.0%	3.2%	6.9%
Mentor Graphics	9.1	2.6	4.5	120	4.8%	2.6%	7.6%	2.1%
Control Data	8.0	5.7	1.0	85	4.2%	5.6%	1.6%	1.5%
Siemens	6.7	3.9	2.0	147	3.5%	3.9%	3.4%	2.5%
Digital	6.5	4.9	.0	47	3.4%	4.8%	.0%	.8%
Compaq	5.4	5.4	.0	904	2.8%	5.4%	.0%	15.5%
STI-Straessle	4.1	1.8	2.0	18	2.1%	1.8%	3.4%	.3%
Autodesk	3.7	.0	3.7	0	1.9%	.0%	6.3%	.0%
Dazix	3.5	1.3	1.4	35	1.9%	1.3%	2.4%	.6%
Cimatron	3.4	1.6	1.5	88	1.8%	1.6%	2.6%	1.5%
Assigraph	2.9	.0	2.3	35	1.5%	.0%	3.9%	.6%
Star Informatic	2.8	1.2	.8	116	1.4%	1.2%	1.4%	2.0%
Fides Industrielle Automation	2.5	.5	1.8	24	1.3%	.5%	3.0%	.4%
Apple Computer	2.3	2.0	.0	441	1.2%	2.0%	.0%	7.5%
BETRONEX	1.5	.0	1.5	0	.8%	.0%	2.5%	.0%
LPKF	1.4	.9	.4	143	.7%	.8%	.7%	2.4%
Racal-Redac	1.4	.0	1.1	5	.7%	.0%	1.9%	.1%
Vero International Software	1.4	.0	1.4	0	.7%	.0%	2.3%	.0%
Schlumberger (Applicon)	1.3	.5	.4	14	.7%	.5%	.7%	.2%
Ziegler	1.2	.1	1.1	40	.6%	.0%	1.8%	.7%
Dassault	1.2	.0	1.0	0	.6%	.0%	1.7%	.0%
Matra Datavision	.8	.5	.2	5	.4%	.5%	.4%	.1%
ACERI SA	.8	.3	.3	14	.4%	.3%	.6%	.2%
Unisys	.8	.2	.5	13	.4%	.2%	.8%	.2%
Pathtrace	.8	.2	.5	18	.4%	.2%	.9%	.3%
Sysscan	.8	.3	.2	0	.4%	.3%	.3%	.0%
ESRI	.7	.0	.7	0	.4%	.0%	1.1%	.0%
Olivetti	.7	.3	.3	115	.4%	.2%	.5%	2.0%
PAFEC	.7	.0	.7	0	.4%	.0%	1.2%	.0%

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Market Share

TABLE NUMBER: 78
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Wiechers Datentechnik	.7	.3	.3	16	.4%	.3%	.6%	.3%
Sun	.7	.6	.0	45	.3%	.6%	.0%	.8%
Secmai	.6	.4	.2	4	.3%	.4%	.3%	.1%
Academi Systems	.6	.1	.4	7	.3%	.1%	.8%	.1%
Cisigraph	.6	.2	.2	7	.3%	.2%	.4%	.1%
CAD Lab	.5	.0	.4	0	.2%	.0%	.6%	.0%
Ferranti	.5	.3	.1	4	.2%	.3%	.2%	.1%
McDonnell Douglas	.4	.2	.1	6	.2%	.2%	.2%	.1%
European Silicon Systems	.4	.1	.3	2	.2%	.1%	.4%	.0%
BATISOFT	.4	.1	.3	20	.2%	.0%	.4%	.3%
CADAM	.4	.0	.3	0	.2%	.0%	.5%	.0%
Silicon Graphics	.3	.3	.0	10	.2%	.3%	.0%	.2%
Computational Mechanics	.3	.0	.3	0	.2%	.0%	.5%	.0%
Gerber Systems	.3	.2	.1	4	.2%	.2%	.1%	.1%
ALS Design	.3	.0	.2	5	.2%	.0%	.4%	.1%
Datagraphic	.3	.1	.1	4	.1%	.1%	.2%	.1%
Datagraph	.2	.2	.1	1	.1%	.2%	.1%	.0%
Robocom	.3	.0	.2	0	.1%	.0%	.4%	.0%
Technische Computer Systeme	.2	.1	.2	6	.1%	.1%	.3%	.1%
FEGS	.2	.0	.2	0	.1%	.0%	.3%	.0%
Vision 3D	.2	.1	.1	0	.1%	.1%	.1%	.0%
Gable CAD Systems	.2	.1	.1	2	.1%	.1%	.1%	.0%
Sycotronic AG	.2	.0	.1	0	.1%	.0%	.2%	.0%
SDRC	.1	.0	.1	0	.1%	.0%	.2%	.0%
DAT Standard Information syste	.1	.0	.1	0	.1%	.0%	.2%	.0%
ISYKON Software	.1	.1	.0	1	.1%	.1%	.1%	.0%
Serbi	.1	.0	.1	0	.1%	.0%	.2%	.0%
t2 Solutions	.1	.1	.0	1	.1%	.0%	.1%	.0%
Intercad	.1	.0	.0	5	.1%	.0%	.1%	.1%
CAD-UL	.0	.0	.0	1	.0%	.0%	.0%	.0%
DECAD	.0	.0	.0	0	.0%	.0%	.0%	.0%

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Market Share

TABLE NUMBER: 78 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Framesoft	.0	.0	.0	0	.0%	.0%	.0%	.0%
Other Companies	21.9	9.8	9.7	680.0	11.4%	9.7%	16.5%	11.6%
All Companies	191.2	101.1	58.6	5,839.0	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	125.4	68.9	32.2	4,149	65.6%	68.1%	54.9%	71.1%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	65.8	32.2	26.5	1,689.8	34.4%	31.9%	45.1%	28.9%
All Hardware Companies	30.8	26.6	.0	3,059.3	16.1%	26.3%	.0%	52.4%
All Turnkey & SW Companies	160.4	74.6	58.6	2,779.7	83.9%	73.7%	100.0%	47.6%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 79
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Hewlett-Packard	20.0	13.2	2.7	475	20.8%	29.3%	8.6%	31.8%
Computervision	14.3	6.6	3.4	87	15.0%	14.6%	11.1%	5.8%
Intergraph	10.5	5.8	1.9	113	11.0%	12.8%	6.1%	7.5%
Mentor Graphics	9.1	2.6	4.5	120	9.5%	5.8%	14.6%	8.1%
Siemens	6.0	3.5	1.8	140	6.3%	7.8%	5.9%	9.4%
Dazix	3.5	1.3	1.4	35	3.7%	3.0%	4.6%	2.4%
STI-Straessle	3.2	1.4	1.6	14	3.3%	3.2%	5.1%	.9%
Cimatron	3.1	1.4	1.4	79	3.2%	3.2%	4.4%	5.3%
Star Informatic	2.8	1.2	.8	116	2.9%	2.7%	2.7%	7.8%
Control Data	2.7	1.9	.3	50	2.8%	4.3%	1.1%	3.3%
Assigraph	1.9	.0	1.5	0	2.0%	.0%	4.8%	.0%
Digital	1.4	1.1	.0	47	1.5%	2.3%	.0%	3.1%
Racal-Redac	1.4	.0	1.1	5	1.4%	.0%	3.6%	.3%
Schlumberger (Applicon)	1.2	.4	.4	11	1.2%	1.0%	1.2%	.7%
IBM	1.0	.6	.2	8	1.0%	1.3%	.5%	.6%
Matra Datavision	.8	.5	.2	0	.9%	1.1%	.8%	.0%
Unisys	.7	.2	.4	11	.7%	.4%	1.3%	.7%
Sun	.7	.6	.0	45	.7%	1.3%	.0%	3.0%
PAFEC	.7	.0	.7	0	.7%	.0%	2.1%	.0%
Secmai	.6	.4	.2	4	.7%	.8%	.5%	.3%
Cisigraph	.5	.2	.2	6	.6%	.5%	.6%	.4%
Academi Systems	.5	.1	.4	6	.5%	.2%	1.2%	.4%
Fides Industrielle Automation	.5	.1	.4	12	.5%	.2%	1.2%	.8%
CAD Lab	.4	.0	.4	0	.5%	.0%	1.1%	.0%
Dassault	.4	.0	.3	0	.4%	.0%	1.1%	.0%
Silicon Graphics	.3	.3	.0	10	.3%	.6%	.0%	.6%
McDonnell Douglas	.3	.2	.1	4	.3%	.4%	.4%	.2%
Gerber Systems	.3	.2	.1	4	.3%	.4%	.2%	.3%
ESRI	.3	.0	.3	0	.3%	.0%	.8%	.0%
European Silicon Systems	.3	.1	.2	1	.3%	.2%	.7%	.1%
Technische Computer Systeme	.2	.1	.2	6	.3%	.2%	.6%	.4%
Gable CAD Systems	.2	.1	.1	2	.2%	.3%	.3%	.1%

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Market Share

TABLE NUMBER: 79 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Technical Workstation
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Market Share Total Revenue	Market Share Hardware Revenue	Market Share Software Revenue	Market Share Wkstns Shipped
Company								
Wiechers Datentechnik	.2	.1	.1	5	.2%	.2%	.3%	.3%
Sysscan	.2	.1	.1	0	.2%	.2%	.2%	.0%
Autodesk	.1	.0	.1	0	.1%	.0%	.4%	.0%
ISYKON Software	.1	.1	.0	1	.1%	.1%	.1%	.1%
SDRC	.1	.0	.1	0	.1%	.0%	.4%	.0%
t2 Solutions	.1	.1	.0	1	.1%	.1%	.1%	.1%
FEGS	.1	.0	.1	0	.1%	.0%	.3%	.0%
Computational Mechanics	.1	.0	.1	0	.1%	.0%	.2%	.0%
DECAD	.0	.0	.0	0	.0%	.0%	.1%	.0%
Framesoft	.0	.0	.0	0	.0%	.0%	.1%	.0%
Other Companies	5.0	.7	3.3	69.0	5.2%	1.6%	10.8%	4.6%
All Companies	95.8	45.2	30.8	1,493.0	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	71.4	35.7	19.1	1,088	74.6%	79.0%	62.0%	72.8%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	24.4	9.5	11.7	405.4	25.4%	21.0%	38.0%	27.2%
All Hardware Companies	7.6	6.0	.0	245.4	7.9%	13.2%	.0%	16.4%
All Turnkey & SW Companies	88.2	39.3	30.8	1,247.6	92.1%	86.8%	100.0%	83.6%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 80
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
IBM	9.4	6.1	1.7	98	23.6%	28.8%	15.0%	23.5%
Control Data	5.3	3.7	.6	35	13.2%	17.7%	5.5%	8.4%
Digital	5.0	3.8	.0	0	12.7%	18.1%	.0%	.0%
Computervision	2.5	1.1	.6	51	6.2%	5.4%	5.0%	12.2%
Intergraph	2.4	1.2	.4	23	6.0%	5.5%	3.3%	5.4%
Fides Industrielle Automation	2.0	.4	1.4	12	5.1%	1.9%	12.5%	2.8%
Assigraph	1.0	.0	.8	35	2.6%	.0%	7.2%	8.4%
STI-Straessle	.9	.4	.5	4	2.2%	1.9%	4.0%	1.0%
Dassault	.8	.0	.7	0	1.9%	.0%	5.7%	.0%
Siemens	.6	.4	.2	7	1.6%	1.8%	1.7%	1.8%
Sysscan	.6	.3	.2	0	1.4%	1.2%	1.3%	.0%
Ferranti	.5	.3	.1	4	1.2%	1.3%	1.1%	1.0%
ESRI	.4	.0	.4	0	1.0%	.0%	3.1%	.0%
Computational Mechanics	.3	.0	.3	0	.6%	.0%	2.2%	.0%
Schlumberger (Applicon)	.2	.1	.1	3	.4%	.3%	.4%	.7%
FEGS	.1	.0	.1	0	.4%	.0%	1.0%	.0%
Unisys	.1	.0	.1	3	.3%	.1%	.6%	.6%
Olivetti	.1	.1	.0	7	.3%	.2%	.4%	1.7%
McDonnell Douglas	.1	.0	.0	3	.2%	.2%	.3%	.7%
Cisigraph	.1	.0	.0	0	.2%	.1%	.2%	.0%
PAFEC	.1	.0	.1	0	.2%	.0%	.5%	.0%
Racal-Redac	.0	.0	.0	0	.1%	.0%	.3%	.1%
SDRC	.0	.0	.0	0	.1%	.0%	.3%	.0%
Gable CAD Systems	.0	.0	.0	0	.1%	.0%	.0%	.0%
Silicon Graphics	.0	.0	.0	1	.1%	.1%	.0%	.1%
Framesoft	.0	.0	.0	0	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 80 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Host/Server
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Other Companies	7.4	3.3	3.3	127.5	18.5%	15.5%	28.6%	30.5%
All Companies	39.7	21.1	11.4	418.8	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	32.7	19.3	7.1	344	82.3%	91.6%	62.2%	82.2%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	7.0	1.8	4.3	74.7	17.7%	8.4%	37.8%	17.8%
All Hardware Companies	8.4	6.9	.0	117.2	21.1%	32.5%	.0%	28.0%
All Turnkey & SW Companies	31.3	14.2	11.4	301.6	78.9%	67.5%	100.0%	72.0%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 81
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Investronica SA	17.4	13.9	1.7	696	31.2%	40.0%	10.6%	17.7%
Compaq	5.4	5.4	.0	904	9.7%	15.6%	.0%	23.0%
Hewlett-Packard	4.3	3.6	.0	724	7.8%	10.2%	.0%	18.4%
Autodesk	3.6	.0	3.6	0	6.4%	.0%	21.7%	.0%
Apple Computer	2.3	2.0	.0	441	4.1%	5.8%	.0%	11.2%
BETRONEX	1.5	.0	1.5	0	2.6%	.0%	8.9%	.0%
IBM	1.5	1.4	.0	295	2.6%	4.0%	.0%	7.5%
LPKF	1.4	.9	.4	143	2.6%	2.4%	2.6%	3.6%
Vero International Software	1.4	.0	1.4	0	2.4%	.0%	8.2%	.0%
Ziegler	1.2	.1	1.1	40	2.1%	.1%	6.5%	1.0%
ACERI SA	.8	.3	.3	14	1.4%	.8%	2.0%	.4%
Pathtrace	.8	.2	.5	18	1.4%	.6%	3.2%	.5%
Olivetti	.6	.2	.3	108	1.1%	.6%	1.6%	2.7%
Wiechers Datentechnik	.5	.2	.2	11	.9%	.7%	1.4%	.3%
Intergraph	.4	.0	.3	0	.6%	.0%	2.0%	.0%
BATISOFT	.4	.1	.3	20	.6%	.1%	1.6%	.5%
CADAM	.4	.0	.3	0	.6%	.0%	1.9%	.0%
Cimatron	.3	.2	.2	9	.6%	.5%	.9%	.2%
ALS Design	.3	.0	.2	5	.5%	.1%	1.4%	.1%
Datagraphic	.3	.1	.1	4	.4%	.3%	.5%	.1%
Datagraph	.2	.2	.1	1	.4%	.5%	.3%	.0%
Robocom	.2	.0	.2	0	.4%	.0%	1.5%	.0%
Vision 3D	.2	.1	.1	0	.4%	.3%	.4%	.0%
Computervision	.2	.1	.0	5	.3%	.2%	.2%	.1%
Sycotronic AG	.2	.0	.1	0	.3%	.0%	.8%	.0%
DAT Standard Information syste	.1	.0	.1	0	.2%	.0%	.8%	.0%
Serbi	.1	.0	.1	0	.2%	.0%	.7%	.0%
Intercad	.1	.0	.0	5	.2%	.1%	.2%	.1%
Academi Systems	.1	.0	.1	1	.2%	.1%	.4%	.0%
European Silicon Systems	.1	.0	.1	1	.1%	.1%	.3%	.0%
ESRI	.1	.0	.1	0	.1%	.0%	.4%	.0%
CAD-UL	.0	.0	.0	1	.1%	.0%	.1%	.0%

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Market Share

TABLE NUMBER: 81 (Continued)
TITLE: 1989 Market Share
APPLICATION: All Applications
PLATFORM: Personal Computer
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
CAD Lab	.0	.0	.0	0	.0%	.0%	.1%	.0%
Other Companies	9.5	5.9	3.1	483.4	17.1%	16.8%	18.7%	12.3%
All Companies	55.7	34.8	16.5	3,927.2	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	21.3	13.9	6.0	2,717	38.3%	39.8%	36.4%	69.2%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	34.4	21.0	10.5	1,209.7	61.7%	60.2%	63.6%	30.8%
All Hardware Companies	14.8	13.7	.0	2,696.7	26.6%	39.4%	.0%	68.7%
All Turnkey & SW Companies	40.9	21.1	16.5	1,230.5	73.4%	60.6%	100.0%	31.3%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 82
TITLE: 1989 Market Share
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					..... Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Investronica SA	17.4	13.9	1.7	696	15.5%	20.9%	6.2%	19.9%
Hewlett-Packard	16.9	12.0	1.9	812	15.1%	17.9%	6.9%	23.2%
Computervision	14.9	6.9	3.6	125	13.3%	10.3%	12.7%	3.6%
IBM	9.7	6.5	1.6	254	8.6%	9.8%	5.8%	7.3%
Control Data	7.6	5.4	.9	81	6.7%	8.1%	3.3%	2.3%
Intergraph	3.6	1.9	.7	36	3.2%	2.8%	2.5%	1.0%
Digital	3.5	2.6	.0	24	3.1%	3.9%	.0%	.7%
Siemens	3.5	2.0	1.0	80	3.1%	3.1%	3.7%	2.3%
Cimatron	3.4	1.6	1.5	88	3.1%	2.4%	5.4%	2.5%
STI-Straessle	3.2	1.5	1.6	14	2.9%	2.2%	5.8%	.4%
Compaq	2.9	2.9	.0	479	2.6%	4.3%	.0%	13.7%
Fides Industrielle Automation	2.5	.5	1.8	24	2.3%	.7%	6.4%	.7%
Autodesk	1.5	.0	1.5	0	1.3%	.0%	5.4%	.0%
Vero International Software	1.4	.0	1.4	0	1.2%	.0%	4.8%	.0%
Schlumberger (Applicon)	1.3	.5	.4	13	1.1%	.7%	1.5%	.4%
Apple Computer	1.0	.9	.0	198	.9%	1.4%	.0%	5.7%
Dassault	.9	.0	.8	0	.8%	.0%	2.8%	.0%
Matra Datavision	.8	.5	.2	5	.7%	.7%	.9%	.1%
ACERI SA	.8	.3	.3	14	.7%	.4%	1.2%	.4%
Unisys	.8	.2	.5	13	.7%	.3%	1.7%	.4%
Pathtrace	.8	.2	.5	18	.7%	.3%	1.9%	.5%
Wiechers Datentechnik	.7	.3	.3	16	.6%	.5%	1.2%	.5%
Cisigraph	.6	.2	.2	7	.5%	.4%	.8%	.2%
PAFEC	.6	.0	.6	0	.5%	.0%	2.0%	.0%
Olivetti	.5	.2	.2	75	.5%	.2%	.8%	2.1%
Ferranti	.5	.3	.1	4	.4%	.4%	.4%	.1%
Ziegler	.5	.0	.4	15	.4%	.0%	1.5%	.4%
CAD Lab	.4	.0	.3	0	.3%	.0%	1.1%	.0%
Sun	.4	.3	.0	24	.3%	.5%	.0%	.7%
Silicon Graphics	.3	.3	.0	10	.3%	.5%	.0%	.3%
Computational Mechanics	.3	.0	.3	0	.3%	.0%	1.1%	.0%
Gerber Systems	.3	.2	.1	4	.3%	.3%	.3%	.1%

(Continued)

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Market Share

TABLE NUMBER: 82 (Continued)
TITLE: 1989 Market Share
APPLICATION: Mechanical
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Datagraph	.2	.2	.1	1	.2%	.3%	.2%	.0%
Technische Computer Systeme	.2	.1	.2	6	.2%	.1%	.6%	.2%
FEGS	.2	.0	.2	0	.2%	.0%	.7%	.0%
McDonnell Douglas	.2	.1	.1	3	.2%	.2%	.3%	.1%
Vision 3D	.2	.1	.1	0	.2%	.2%	.3%	.0%
Mentor Graphics	.2	.1	.1	2	.2%	.1%	.3%	.1%
SDRC	.1	.0	.1	0	.1%	.0%	.5%	.0%
DAT Standard Information syste	.1	.0	.1	0	.1%	.0%	.4%	.0%
ISYKON Software	.1	.1	.0	1	.1%	.1%	.1%	.0%
Robocom	.1	.0	.1	0	.1%	.0%	.4%	.0%
Intercad	.1	.0	.0	3	.1%	.0%	.1%	.1%
Serbi	.1	.0	.1	0	.1%	.0%	.2%	.0%
Framesoft	.0	.0	.0	0	.0%	.0%	.1%	.0%
Other Companies	6.9	4.0	2.2	343.5	6.2%	6.1%	7.9%	9.8%
All Companies	112.3	66.7	27.9	3,496.2	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	71.1	44.0	13.5	2,401	63.4%	65.9%	48.4%	68.7%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	41.1	22.7	14.4	1,095.1	36.6%	34.1%	51.6%	31.3%
All Hardware Companies	18.2	15.8	.0	1,717.1	16.2%	23.7%	.0%	49.1%
All Turnkey & SW Companies	94.1	50.9	27.9	1,779.1	83.8%	76.3%	100.0%	50.9%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 83
TITLE: 1989 Market Share
APPLICATION: AEC
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intergraph	3.6	1.9	.7	36	14.4%	12.8%	10.9%	3.3%
Hewlett-Packard	3.2	2.3	.3	170	13.0%	15.6%	5.0%	15.4%
Star Informatic	2.8	1.2	.8	116	11.1%	8.4%	13.0%	10.5%
Autodesk	1.5	.0	1.5	0	6.1%	.0%	23.6%	.0%
IBM	1.3	1.0	.2	112	5.4%	6.9%	2.3%	10.1%
Compaq	1.3	1.3	.0	208	5.1%	8.5%	.0%	18.8%
Apple Computer	1.0	.9	.0	189	4.0%	5.9%	.0%	17.1%
Digital	.7	.5	.0	5	2.9%	3.6%	.0%	.4%
Computervision	.7	.3	.2	6	2.8%	2.1%	2.3%	.5%
Siemens	.5	.3	.2	10	2.1%	2.0%	2.3%	.9%
BATISOFT	.4	.1	.3	20	1.4%	.3%	4.1%	1.8%
Datagraphic	.3	.1	.1	4	1.0%	.8%	1.4%	.4%
Gable CAD Systems	.2	.1	.1	2	.9%	.9%	1.3%	.2%
Dassault	.2	.0	.2	0	.7%	.0%	2.7%	.0%
McDonnell Douglas	.2	.1	.1	3	.7%	.7%	.9%	.3%
Control Data	.2	.1	.0	2	.6%	.7%	.3%	.2%
Olivetti	.2	.1	.1	26	.6%	.5%	1.1%	2.4%
PAFEC	.2	.0	.2	0	.6%	.0%	2.5%	.0%
Ziegler	.1	.0	.1	5	.6%	.1%	2.0%	.4%
Robocom	.1	.0	.1	0	.4%	.0%	1.7%	.0%
t2 Solutions	.1	.1	.0	1	.4%	.3%	.5%	.1%
CAD Lab	.1	.0	.1	0	.4%	.0%	1.1%	.0%
Sycotronic AG	.1	.0	.0	0	.2%	.0%	.6%	.0%
Serbi	.0	.0	.0	0	.1%	.0%	.5%	.0%
Sun	.0	.0	.0	2	.1%	.2%	.0%	.2%
Schlumberger (Applicon)	.0	.0	.0	0	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 83 (Continued)
TITLE: 1989 Market Share
APPLICATION: AEC
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	6.0	4.3	1.3	188.3	24.2%	29.5%	19.8%	17.0%
All Companies	24.7	14.7	6.4	1,106.0	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	14.6	9.0	3.2	809	58.9%	61.3%	49.2%	73.1%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	10.1	5.7	3.3	297.4	41.1%	38.7%	50.8%	26.9%
All Hardware Companies	5.5	4.9	.0	711.0	22.4%	33.5%	.0%	64.3%
All Turnkey & SW Companies	19.2	9.8	6.4	395.0	77.6%	66.5%	100.0%	35.7%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 84
TITLE: 1989 Market Share
APPLICATION: GIS/Mapping
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Intergraph	4.7	2.5	.9	48	36.2%	39.1%	22.4%	19.7%
Siemens	2.7	1.6	.8	57	20.5%	24.2%	19.1%	23.3%
STI-Straessle	.8	.4	.4	4	6.2%	5.5%	9.8%	1.5%
Sysscan	.8	.3	.2	0	5.7%	5.1%	4.8%	.0%
ESRI	.7	.0	.7	0	5.7%	.0%	15.8%	.0%
Digital	.6	.5	.0	4	4.9%	7.4%	.0%	1.8%
IBM	.4	.3	.1	21	3.1%	4.3%	1.2%	8.5%
Autodesk	.3	.0	.3	0	2.5%	.0%	7.9%	.0%
Compaq	.3	.3	.0	45	2.1%	4.2%	.0%	18.4%
Control Data	.2	.2	.0	3	1.8%	2.8%	.7%	1.0%
Computervision	.2	.1	.0	1	1.2%	1.1%	1.0%	.6%
Apple Computer	.1	.1	.0	22	.8%	1.5%	.0%	9.0%
Ziegler	.1	.0	.1	4	.8%	.0%	2.4%	1.5%
Olivetti	.1	.0	.0	14	.5%	.5%	.2%	5.8%
Robocom	.0	.0	.0	0	.2%	.0%	.5%	.0%
Other Companies	1.0	.3	.6	21.7	7.9%	4.3%	14.3%	8.9%
All Companies	13.1	6.5	4.2	245.3	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	8.7	4.2	2.7	167	66.2%	64.7%	63.2%	67.9%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	4.4	2.3	1.5	78.6	33.8%	35.3%	36.8%	32.1%
All Hardware Companies	1.4	1.2	.0	110.9	10.7%	18.5%	.0%	45.2%
All Turnkey & SW Companies	11.7	5.3	4.2	134.4	89.3%	81.5%	100.0%	54.8%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 85
TITLE: 1989 Market Share
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
	Total	Hardware	Software	Wkstns	Total	Hardware	Software	Wkstns
Company	Revenue	Revenue	Revenue	Shipped	Revenue	Revenue	Revenue	Shipped
Mentor Graphics	8.9	2.6	4.4	118	21.6%	19.5%	21.9%	11.9%
Hewlett-Packard	4.2	2.5	.4	218	10.1%	19.1%	2.1%	22.0%
Dazix	3.5	1.3	1.4	35	8.6%	10.1%	7.1%	3.6%
Assigraph	2.9	.0	2.3	35	7.1%	.0%	11.5%	3.5%
Digital	1.6	1.2	.0	14	3.9%	9.3%	.0%	1.4%
BETRONEX	1.5	.0	1.5	0	3.6%	.0%	7.3%	.0%
LPKF	1.4	.9	.4	143	3.5%	6.4%	2.1%	14.4%
Intergraph	1.4	.7	.2	15	3.4%	4.9%	1.2%	1.5%
Racal-Redac	1.4	.0	1.1	5	3.4%	.1%	5.6%	.5%
Computervision	1.2	.5	.3	10	2.9%	3.9%	1.3%	1.0%
Compaq	1.0	1.0	.0	172	2.5%	7.8%	.0%	17.3%
Secmai	.6	.4	.2	4	1.6%	2.8%	.8%	.4%
Academi Systems	.6	.1	.4	7	1.5%	.9%	2.2%	.7%
Ziegler	.5	.0	.4	16	1.2%	.2%	2.1%	1.6%
IBM	.4	.3	.1	15	.9%	2.0%	.2%	1.5%
European Silicon Systems	.4	.1	.3	2	.9%	.8%	1.3%	.2%
CADAM	.4	.0	.3	0	.8%	.0%	1.5%	.0%
Autodesk	.3	.0	.3	0	.8%	.0%	1.7%	.0%
ALS Design	.3	.0	.2	5	.7%	.2%	1.1%	.5%
Sun	.3	.3	.0	19	.7%	1.9%	.0%	1.9%
Apple Computer	.2	.1	.0	31	.4%	1.1%	.0%	3.1%
Sycotronic AG	.1	.0	.1	0	.3%	.0%	.4%	.0%
Schlumberger (Applicon)	.0	.0	.0	0	.1%	.1%	.1%	.0%
CAD-UL	.0	.0	.0	1	.1%	.1%	.1%	.1%
Dassault	.0	.0	.0	0	.1%	.0%	.1%	.0%
DECAD	.0	.0	.0	0	.1%	.0%	.1%	.0%
Intercad	.0	.0	.0	1	.1%	.1%	.0%	.1%
Serbi	.0	.0	.0	0	.1%	.0%	.1%	.0%
DAT Standard Information syste	.0	.0	.0	0	.0%	.0%	.0%	.0%

(Continued)

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Market Share

TABLE NUMBER: 85 (Continued)
TITLE: 1989 Market Share
APPLICATION: Electronic Design Automation
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	7.9	1.2	5.6	126.5	19.2%	8.8%	27.7%	12.8%
All Companies	41.2	13.2	20.1	991.5	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	31.1	11.7	12.8	773	75.5%	88.5%	63.9%	78.0%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	10.1	1.5	7.2	218.6	24.5%	11.5%	36.1%	22.0%
All Hardware Companies	5.7	4.7	.0	520.3	13.8%	35.2%	.0%	52.5%
All Turnkey & SW Companies	35.5	8.6	20.1	471.2	86.2%	64.8%	100.0%	47.5%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 86
TITLE: 1989 Market Share
APPLICATION: Electronic CAE
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
Company	Revenue	Revenue	Revenue	Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Mentor Graphics	5.9	1.8	2.9	78	28.9%	27.7%	28.9%	17.8%
Dazix	2.8	1.1	1.1	28	13.9%	17.2%	11.2%	6.4%
Assigraph	1.9	.0	1.5	24	9.5%	.0%	15.1%	5.6%
Hewlett-Packard	1.6	1.1	.2	61	7.6%	16.3%	2.1%	13.9%
Digital	.7	.5	.0	6	3.2%	7.6%	.0%	1.3%
Intergraph	.5	.3	.1	5	2.4%	4.1%	.8%	1.2%
Compaq	.5	.5	.0	77	2.3%	7.0%	.0%	17.5%
Computervision	.3	.2	.1	3	1.7%	2.3%	.8%	.6%
Autodesk	.3	.0	.3	0	1.5%	.0%	3.0%	.0%
Sun	.3	.3	.0	19	1.4%	3.8%	.0%	4.2%
Racal-Redac	.3	.0	.2	1	1.3%	.2%	2.0%	.2%
Ziegler	.2	.0	.2	8	1.2%	.2%	2.1%	1.8%
Apple Computer	.1	.1	.0	13	.3%	.9%	.0%	3.0%
Dassault	.0	.0	.0	0	.1%	.0%	.3%	.0%
IBM	.0	.0	.0	6	.1%	.5%	.0%	1.3%
Intercad	.0	.0	.0	1	.1%	.2%	.1%	.3%
Serbi	.0	.0	.0	0	.1%	.0%	.3%	.0%
DAT Standard Information syste	.0	.0	.0	0	.0%	.0%	.1%	.0%
Secmai	.0	.0	.0	0	.0%	.2%	.0%	.0%
Other Companies	4.9	.8	3.3	109.2	24.2%	12.2%	33.2%	24.8%
All Companies	20.4	6.6	10.1	440.1	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	17.9	6.5	8.1	405	87.5%	99.4%	80.0%	92.1%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	2.6	.0	2.0	34.8	12.5%	.6%	20.0%	7.9%
All Hardware Companies	2.4	2.1	.0	250.1	11.6%	31.6%	.0%	56.8%
All Turnkey & SW Companies	18.1	4.5	10.1	190.0	88.4%	68.4%	100.0%	43.2%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 87
TITLE: 1989 Market Share
APPLICATION: IC Layout
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Mentor Graphics	.5	.1	.2	6	21.3%	24.6%	20.0%	27.1%
European Silicon Systems	.4	.1	.3	2	17.1%	17.5%	22.6%	9.0%
Digital	.3	.2	.0	2	12.3%	35.1%	.0%	9.9%
Hewlett-Packard	.1	.1	.0	9	4.3%	12.3%	.0%	39.0%
Other Companies	.9	.1	.7	3.3	45.0%	10.5%	57.4%	15.0%
All Companies	2.1	.6	1.2	22.2	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	1.8	.5	.9	20	82.9%	82.5%	77.4%	91.0%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	.4	.1	.3	2.0	17.1%	17.5%	22.6%	9.0%
All Hardware Companies	.4	.3	.0	12.9	17.5%	50.9%	.0%	57.8%
All Turnkey & SW Companies	1.7	.3	1.2	9.4	82.5%	49.1%	100.0%	42.2%

Source: Dataquest
May 1990

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Market Share

TABLE NUMBER: 88
TITLE: 1989 Market Share
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

	Total	Hardware	Software	Wkstns	Market Share			
Company	Revenue	Revenue	Revenue	Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Mentor Graphics	2.6	.6	1.3	34	13.7%	10.2%	14.1%	6.4%
Hewlett-Packard	2.5	1.4	.2	148	13.5%	22.9%	2.4%	28.0%
BETRONEX	1.5	.0	1.5	0	7.9%	.0%	16.6%	.0%
LPKF	1.4	.9	.4	143	7.7%	14.0%	4.8%	26.9%
Racal-Redac	1.1	.0	.9	4	6.1%	.0%	10.5%	.7%
Assigraph	1.0	.0	.8	11	5.4%	.0%	8.9%	2.0%
Intergraph	.9	.4	.2	9	4.8%	6.3%	1.8%	1.8%
Computervision	.9	.4	.2	7	4.6%	6.1%	2.1%	1.3%
Dazix	.7	.2	.3	7	3.8%	3.5%	3.3%	1.3%
Digital	.7	.5	.0	6	3.8%	8.7%	.0%	1.1%
Secmai	.6	.4	.2	4	3.4%	5.9%	1.8%	.7%
Academi Systems	.6	.1	.4	7	3.3%	2.0%	5.0%	1.4%
Compaq	.6	.6	.0	95	3.1%	9.4%	.0%	17.9%
CADAM	.4	.0	.3	0	1.9%	.0%	3.5%	.0%
IBM	.3	.2	.1	9	1.8%	3.8%	.6%	1.7%
ALS Design	.3	.0	.2	5	1.6%	.5%	2.6%	.9%
Ziegler	.2	.0	.2	8	1.3%	.2%	2.4%	1.5%
Sycotronic AG	.1	.0	.1	0	.6%	.0%	1.0%	.0%
Apple Computer	.1	.1	.0	18	.5%	1.3%	.0%	3.3%
Autodesk	.0	.0	.0	0	.2%	.0%	.5%	.0%
Schlumberger (Applicon)	.0	.0	.0	0	.2%	.2%	.2%	.1%
CAD-UL	.0	.0	.0	1	.2%	.2%	.2%	.1%
DECAD	.0	.0	.0	0	.2%	.0%	.2%	.0%

(Continued)

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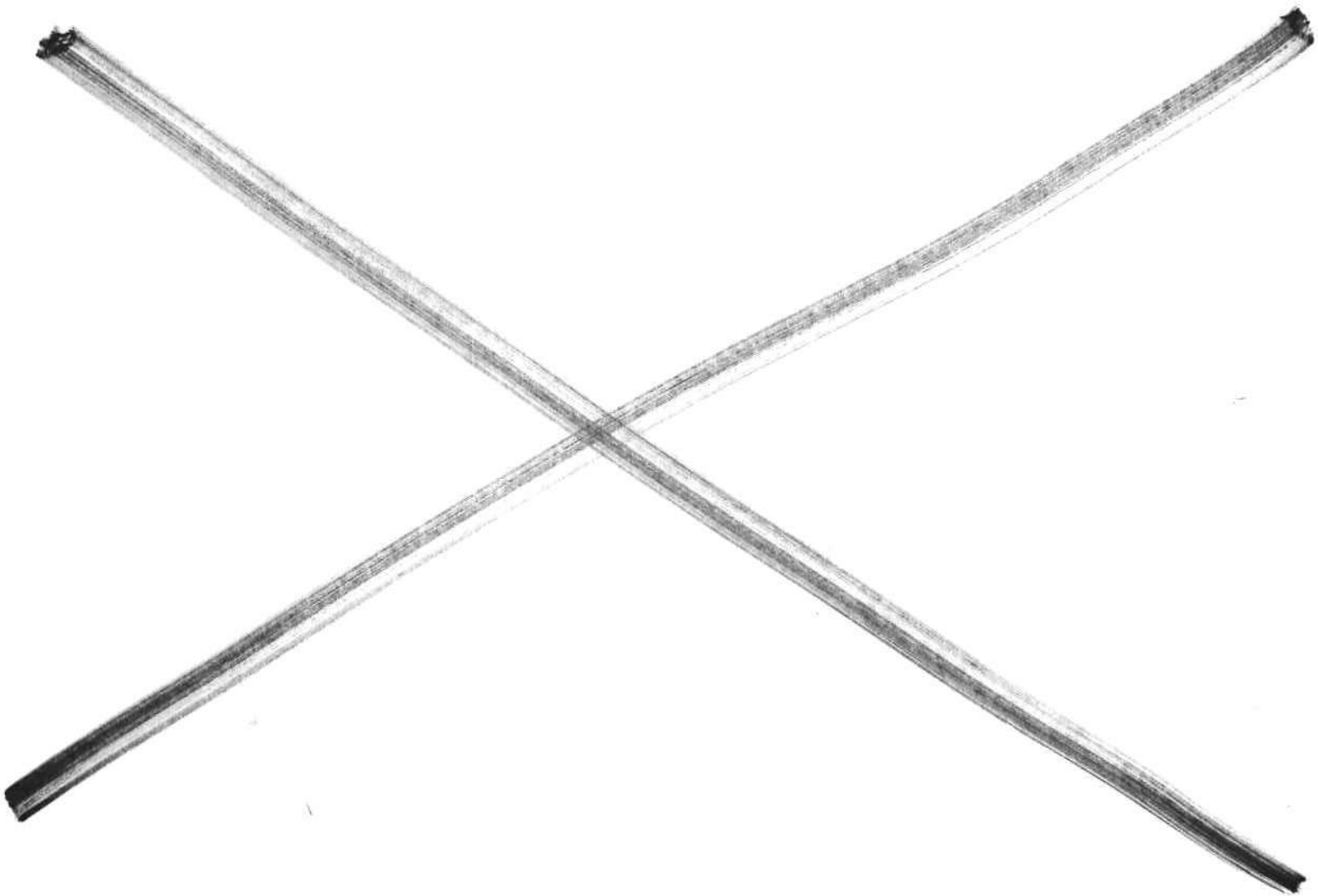
Market Share

TABLE NUMBER: 88 (Continued)
TITLE: 1989 Market Share
APPLICATION: PCB Layout
PLATFORM: All Platforms
REGION: Rest of Europe
UNITS: Millions of Dollars/Actual Units

					Market Share			
Company	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped	Total Revenue	Hardware Revenue	Software Revenue	Wkstns Shipped
Other Companies	2.0	.3	1.6	14.0	10.8%	4.9%	17.6%	2.6%
All Companies	18.7	6.1	8.9	529.2	100.0%	100.0%	100.0%	100.0%
All U.S.-Based Companies	11.5	4.7	3.9	347	61.6%	77.3%	44.0%	65.7%
All Asian-Based Companies	.0	.0	.0	.0	.0%	.0%	.0%	.0%
All European-Based Companies	7.2	1.4	5.0	181.8	38.4%	22.7%	56.0%	34.3%
All Hardware Companies	2.9	2.3	.0	257.3	15.8%	37.7%	.0%	48.6%
All Turnkey & SW Companies	15.7	3.8	8.9	271.9	84.2%	62.3%	100.0%	51.4%

Source: Dataquest
May 1990

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Historical Company Data

TABLE NUMBER: 1
TITLE: Company History
COMPANY: ABB Cade International
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	6.9	8.0	13.6	NA
Workstation Shipments	NA	20	23	5	NA
Mechanical					
Total Revenue	NA	.0	.0	9.5	NA
Workstation Shipments	NA	0	0	4	NA
AEC					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
IC Layout					
Total Revenue	NA	2.8	2.9	.0	NA
Workstation Shipments	NA	12	13	0	NA
PCB Layout					
Total Revenue	NA	4.1	5.1	4.1	NA
Workstation Shipments	NA	8	9	2	NA
Technical Workstation					
Total Revenue	NA	6.9	8.0	13.6	NA
Workstation Shipments	NA	20	23	5	NA
Host-Dependent					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Personal Computer					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 2
TITLE: Company History
COMPANY: Academi Systems
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	.9	.9	1.9	NA
Workstation Shipments	NA	14	17	23	NA
Mechanical					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
AEC					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	.0	.0	.1	NA
Workstation Shipments	NA	1	1	1	NA
IC Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
PCB Layout					
Total Revenue	NA	.8	.9	1.8	NA
Workstation Shipments	NA	13	16	22	NA
Technical Workstation					
Total Revenue	NA	.8	.8	1.6	NA
Workstation Shipments	NA	12	14	19	NA
Host-Dependent					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Personal Computer					
Total Revenue	NA	.1	.1	.3	NA
Workstation Shipments	NA	2	3	3	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER:	3
TITLE:	Company History
COMPANY:	Accugraph
REGION:	Europe
UNITS:	Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	.1	.6	.7	1.1	362.6%
Workstation Shipments	0	20	19	32	877.0%
Mechanical					
Total Revenue	.1	.6	.7	.2	119.1%
Workstation Shipments	0	20	19	7	368.7%
AEC					
Total Revenue	.0	.0	.0	.8	NA
Workstation Shipments	0	0	0	24	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	1	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	.0	.3	.4	.9	NA
Workstation Shipments	0	7	11	23	NA
Host-Dependent					
Total Revenue	.0	.1	.1	.1	123.6%
Workstation Shipments	0	6	1	6	1127.8%
Personal Computer					
Total Revenue	.0	.2	.2	.1	58.1%
Workstation Shipments	0	7	6	3	204.0%

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 4
TITLE: Company History
COMPANY: ACERI SA
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	NA	.4	.8	NA
Workstation Shipments	NA	NA	10	14	NA
Mechanical					
Total Revenue	NA	NA	.4	.8	NA
Workstation Shipments	NA	NA	10	14	NA
AEC					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
GIS/Mapping					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
Electronic CAE					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
IC Layout					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
PCB Layout					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
Technical Workstation					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
Host-Dependent					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
Personal Computer					
Total Revenue	NA	NA	.4	.8	NA
Workstation Shipments	NA	NA	10	14	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 5
TITLE: Company History
COMPANY: Albert Nestler
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	4.1	5.4	4.6	NA
Workstation Shipments	NA	100	138	151	NA
Mechanical					
Total Revenue	NA	4.1	5.4	4.6	NA
Workstation Shipments	NA	100	138	151	NA
AEC					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
IC Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
PCB Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Technical Workstation					
Total Revenue	NA	3.7	4.9	4.2	NA
Workstation Shipments	NA	75	106	123	NA
Host-Dependent					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Personal Computer					
Total Revenue	NA	.4	.5	.4	NA
Workstation Shipments	NA	25	32	28	NA

Source: Dataquest
July 1990

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TABLE NUMBER: 6
TITLE: Company History
COMPANY: ALS Design
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	1.9	2.3	2.9	NA
Workstation Shipments	NA	40	45	50	NA
Mechanical					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
AEC					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	1.0	1.1	1.4	NA
Workstation Shipments	NA	20	22	25	NA
IC Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
PCB Layout					
Total Revenue	NA	1.0	1.1	1.4	NA
Workstation Shipments	NA	20	23	25	NA
Technical Workstation					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Host-Dependent					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Personal Computer					
Total Revenue	NA	1.9	2.3	2.9	NA
Workstation Shipments	NA	40	45	50	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 7
TITLE: Company History
COMPANY: Apple Computer
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	7.5	15.0	23.7	49.9	158.3%
Workstation Shipments	2,685	5,371	5,527	9,600	89.1%
Mechanical					
Total Revenue	4.0	7.9	15.0	22.5	138.1%
Workstation Shipments	1,423	2,846	3,500	4,320	74.2%
AEC					
Total Revenue	1.7	5.4	5.7	21.5	260.8%
Workstation Shipments	591	1,933	1,330	4,128	164.3%
GIS/Mapping					
Total Revenue	.4	.5	1.0	2.5	158.9%
Workstation Shipments	134	161	238	480	89.1%
Electronic CAE					
Total Revenue	.9	.5	.5	1.5	29.1%
Workstation Shipments	322	161	126	288	-5.5%
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.6	.8	1.4	2.0	82.1%
Workstation Shipments	215	269	333	384	33.7%
Technical Workstation					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	7.5	15.0	23.7	49.9	158.3%
Workstation Shipments	2,685	5,371	5,527	9,600	89.1%

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER:	8
TITLE:	Company History
COMPANY:	Assigraph
REGION:	Europe
UNITS:	Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	7.0	6.2	2.9	NA
Workstation Shipments	NA	48	35	35	NA
Mechanical					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
AEC					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	3.5	3.2	1.9	NA
Workstation Shipments	NA	24	18	24	NA
IC Layout					
Total Revenue	NA	1.4	1.1	.0	NA
Workstation Shipments	NA	10	6	0	NA
PCB Layout					
Total Revenue	NA	2.1	1.9	1.0	NA
Workstation Shipments	NA	14	11	11	NA
Technical Workstation					
Total Revenue	NA	2.8	3.3	1.9	NA
Workstation Shipments	NA	17	20	0	NA
Host-Dependent					
Total Revenue	NA	4.2	2.9	1.0	NA
Workstation Shipments	NA	31	16	35	NA
Personal Computer					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA

Source: Dataquest
July 1990

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TABLE NUMBER: 9
TITLE: Company History
COMPANY: Aucotec
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	3.5	4.6	6.0	5.2	22.3%
Workstation Shipments	317	418	550	578	35.0%
Mechanical					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	3.5	4.6	6.0	5.2	22.3%
Workstation Shipments	317	418	550	578	35.0%
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	.2	.2	.3	.3	26.0%
Workstation Shipments	16	21	28	29	35.1%
Host-Dependent					
Total Revenue	.2	.2	.3	.3	26.0%
Workstation Shipments	16	21	28	29	34.4%
Personal Computer					
Total Revenue	3.1	4.1	5.4	4.7	21.9%
Workstation Shipments	285	376	495	520	35.0%

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 10
TITLE: Company History
COMPANY: Auto-Trol
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	2.0	9.9	9.7	8.5	103.8%
Workstation Shipments	23	116	270	100	107.6%
Mechanical					
Total Revenue	1.0	6.4	5.8	8.5	188.2%
Workstation Shipments	12	75	180	100	193.6%
AEC					
Total Revenue	1.0	3.5	3.9	.0	-100.0%
Workstation Shipments	12	41	90	0	-100.0%
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	2.0	9.4	9.7	8.5	103.8%
Workstation Shipments	23	110	254	100	107.6%
Host-Dependent					
Total Revenue	.0	.5	.0	.0	NA
Workstation Shipments	0	6	16	0	NA
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 11
TITLE: Company History
COMPANY: Autodesk
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	10.6	20.6	38.2	57.9	133.5%
Workstation Shipments	0	0	0	0	NA
Mechanical					
Total Revenue	3.9	10.0	15.9	23.7	145.6%
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	5.6	7.8	15.0	23.7	105.3%
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.6	1.7	2.7	5.2	189.9%
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	3.5	4.6	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.4	1.1	1.0	.6	15.1%
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	.1	.2	1.9	1.8	318.3%
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	10.5	20.4	36.2	56.1	131.1%
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 12
TITLE: Company History
COMPANY: BATISOFT
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	2.9	3.4	4.0	NA
Workstation Shipments	NA	197	207	227	NA
Mechanical					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
AEC					
Total Revenue	NA	2.9	3.4	4.0	NA
Workstation Shipments	NA	197	207	227	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
IC Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
PCB Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Technical Workstation					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Host-Dependent					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Personal Computer					
Total Revenue	NA	2.9	3.4	4.0	NA
Workstation Shipments	NA	197	207	227	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 13
TITLE: Company History
COMPANY: BETRONEX
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	1.9	2.3	3.1	NA
Workstation Shipments	NA	0	0	0	NA
Mechanical					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
AEC					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
IC Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
PCB Layout					
Total Revenue	NA	1.9	2.3	3.1	NA
Workstation Shipments	NA	0	0	0	NA
Technical Workstation					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Host-Dependent					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Personal Computer					
Total Revenue	NA	1.9	2.3	3.1	NA
Workstation Shipments	NA	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 14
TITLE: Company History
COMPANY: CADAM
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	6.1	11.2	10.3	12.3	42.5%
Workstation Shipments	20	34	0	0	-100.0%
Mechanical					
Total Revenue	1.9	2.6	3.4	4.7	55.9%
Workstation Shipments	14	20	0	0	-100.0%
AEC					
Total Revenue	1.0	1.3	.7	.9	-2.6%
Workstation Shipments	3	14	0	0	-100.0%
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.5	.1	.0	.0	-100.0%
Workstation Shipments	1	0	0	0	-100.0%
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	2.7	7.2	6.3	6.7	58.0%
Workstation Shipments	3	0	0	0	-100.0%
Technical Workstation					
Total Revenue	.0	.1	1.4	1.6	1172.8%
Workstation Shipments	0	0	0	0	-100.0%
Host-Dependent					
Total Revenue	3.5	5.0	3.0	2.0	-23.9%
Workstation Shipments	8	22	0	0	-100.0%
Personal Computer					
Total Revenue	2.6	6.1	5.9	8.7	84.2%
Workstation Shipments	12	12	0	0	-100.0%

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Historical Company Data

TABLE NUMBER: 15
TITLE: Company History
COMPANY: Cadence
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	3.0	7.3	9.3	10.1	82.7%
Workstation Shipments	5	2	0	0	-100.0%
Mechanical					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.1	.0	1.4	3.1	460.4%
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	2.9	7.2	7.7	6.9	54.2%
Workstation Shipments	5	2	0	0	-100.0%
PCB Layout					
Total Revenue	.0	.1	.2	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	2.1	7.1	7.4	7.3	88.8%
Workstation Shipments	5	2	0	0	-100.0%
Host-Dependent					
Total Revenue	1.0	.2	1.9	2.8	69.0%
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 16
TITLE: Company History
COMPANY: CAD Lab
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	3.1	6.5	10.0	11.5	92.6%
Workstation Shipments	0	0	0	0	NA
Mechanical					
Total Revenue	1.9	4.6	7.0	9.2	122.4%
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	1.2	2.0	3.0	2.3	36.2%
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	.0	5.9	9.0	10.9	NA
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	3.1	.0	.0	.0	-100.0%
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	.0	.7	1.0	.6	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 17
TITLE: Company History
COMPANY: Cadtronic
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	2.0	2.6	2.8	7.5	93.1%
Workstation Shipments	80	90	36	51	-19.9%
Mechanical					
Total Revenue	.4	.5	.3	.8	36.9%
Workstation Shipments	16	18	4	3	-55.1%
AEC					
Total Revenue	1.2	1.6	1.7	4.5	93.0%
Workstation Shipments	48	54	22	30	-21.6%
GIS/Mapping					
Total Revenue	.4	.5	.9	2.2	136.6%
Workstation Shipments	16	18	11	19	7.9%
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	2.0	2.6	2.8	7.5	93.1%
Workstation Shipments	80	90	36	51	-19.9%

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 18
TITLE: Company History
COMPANY: CAD-UL
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	.5	.7	1.0	1.1	46.2%
Workstation Shipments	0	19	27	40	NA
Mechanical					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.5	.7	1.0	1.1	46.2%
Workstation Shipments	0	19	27	40	NA
Technical Workstation					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	.5	.7	1.0	1.1	46.2%
Workstation Shipments	0	19	27	40	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 19
TITLE: Company History
COMPANY: Calay
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	13.7	13.6	9.0	13.5	-.7%
Workstation Shipments	100	105	108	134	15.6%
Mechanical					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	13.7	13.6	9.0	13.5	-.7%
Workstation Shipments	100	105	108	134	15.6%
Technical Workstation					
Total Revenue	13.7	13.6	9.0	13.5	-.7%
Workstation Shipments	100	105	108	134	15.6%
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 20
TITLE: Company History
COMPANY: Catalpa
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	.5	.6	1.1	1.7	88.7%
Workstation Shipments	15	18	22	14	-2.5%
Mechanical					
Total Revenue	.5	.6	1.1	1.7	88.7%
Workstation Shipments	15	18	22	14	-2.5%
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	.5	.6	1.1	1.7	88.7%
Workstation Shipments	15	18	22	14	-2.5%
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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TABLE NUMBER: 21
TITLE: Company History
COMPANY: Cimatron
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	8.8	10.7	13.3	11.1	12.5%
Workstation Shipments	228	278	340	331	20.6%
Mechanical					
Total Revenue	8.8	10.7	13.3	11.1	12.5%
Workstation Shipments	228	278	340	331	20.6%
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	7.9	9.6	12.0	10.0	12.5%
Workstation Shipments	205	250	306	298	20.6%
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	.9	1.1	1.3	1.1	12.3%
Workstation Shipments	23	28	34	33	20.6%

Source: Dataquest
July 1990

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TABLE NUMBER: 22
TITLE: Company History
COMPANY: Cimlinc
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	5.3	10.0	14.7	12.1	51.9%
Workstation Shipments	129	142	750	1,048	185.4%
Mechanical					
Total Revenue	5.3	10.0	14.3	12.1	51.9%
Workstation Shipments	129	142	728	1,048	185.4%
AEC					
Total Revenue	.0	.0	.5	.0	NA
Workstation Shipments	0	0	22	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	5.3	10.0	14.0	12.1	51.9%
Workstation Shipments	129	142	703	1,048	185.4%
Host-Dependent					
Total Revenue	.0	.0	.7	.0	NA
Workstation Shipments	0	0	47	0	NA
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 23
TITLE: Company History
COMPANY: Cisigraph
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	21.0	23.3	20.0	29.3	18.2%
Workstation Shipments	397	824	400	327	-9.2%
Mechanical					
Total Revenue	21.0	23.3	20.0	29.3	18.2%
Workstation Shipments	397	824	400	327	-9.2%
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	21.0	2.3	6.0	26.4	12.1%
Workstation Shipments	397	35	67	318	-10.5%
Host-Dependent					
Total Revenue	.0	19.8	14.0	2.9	NA
Workstation Shipments	0	751	333	9	NA
Personal Computer					
Total Revenue	.0	1.2	.0	.0	NA
Workstation Shipments	0	38	0	0	NA

Source: Dataquest
July 1990

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TABLE NUMBER: 24
TITLE: Company History
COMPANY: Club Informatico SA
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	NA	NA	5.9	NA
Workstation Shipments	NA	NA	NA	130	NA
Mechanical					
Total Revenue	NA	NA	NA	1.0	NA
Workstation Shipments	NA	NA	NA	22	NA
AEC					
Total Revenue	NA	NA	NA	4.9	NA
Workstation Shipments	NA	NA	NA	108	NA
GIS/Mapping					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
Electronic CAE					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
IC Layout					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
PCB Layout					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
Technical Workstation					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
Host-Dependent					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
Personal Computer					
Total Revenue	NA	NA	NA	5.9	NA
Workstation Shipments	NA	NA	NA	130	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 25
TITLE: Company History
COMPANY: Compaq
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	8.3	34.0	61.4	139.0	310.2%
Workstation Shipments	2,500	9,550	11,798	23,166	204.4%
Mechanical					
Total Revenue	.4	17.0	38.1	73.7	1240.5%
Workstation Shipments	125	4,775	7,315	12,278	891.1%
AEC					
Total Revenue	6.2	10.2	11.1	32.0	127.2%
Workstation Shipments	1,875	2,865	2,124	5,328	68.6%
GIS/Mapping					
Total Revenue	.0	.0	.0	7.0	NA
Workstation Shipments	0	0	0	1,158	NA
Electronic CAE					
Total Revenue	.8	3.4	6.1	11.8	277.2%
Workstation Shipments	250	955	1,180	1,969	180.7%
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.8	3.4	6.1	14.6	319.4%
Workstation Shipments	250	955	1,180	2,432	211.9%
Technical Workstation					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	8.3	34.0	61.4	139.0	310.2%
Workstation Shipments	2,500	9,550	11,798	23,166	204.4%

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 26
TITLE: Company History
COMPANY: Compiegne Science Industrie
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	1.1	1.3	1.5	NA
Workstation Shipments	NA	0	0	0	NA
Mechanical					
Total Revenue	NA	1.1	1.3	1.5	NA
Workstation Shipments	NA	0	0	0	NA
AEC					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
IC Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
PCB Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Technical Workstation					
Total Revenue	NA	.7	.9	1.1	NA
Workstation Shipments	NA	0	0	0	NA
Host-Dependent					
Total Revenue	NA	.3	.4	.5	NA
Workstation Shipments	NA	0	0	0	NA
Personal Computer					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 27
TITLE: Company History
COMPANY: Computational Mechanics
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	.4	.4	.5	NA
Workstation Shipments	NA	0	0	0	NA
Mechanical					
Total Revenue	NA	.4	.4	.5	NA
Workstation Shipments	NA	0	0	0	NA
AEC					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
IC Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
PCB Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Technical Workstation					
Total Revenue	NA	.1	.1	.1	NA
Workstation Shipments	NA	0	0	0	NA
Host-Dependent					
Total Revenue	NA	.3	.3	.4	NA
Workstation Shipments	NA	0	0	0	NA
Personal Computer					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 28
TITLE: Company History
COMPANY: Computervision
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	280.6	382.3	421.1	458.0	27.8%
Workstation Shipments	2,224	2,769	3,974	3,851	31.6%
Mechanical					
Total Revenue	227.0	293.8	331.6	403.0	33.2%
Workstation Shipments	1,784	2,077	3,044	3,389	37.8%
AEC					
Total Revenue	24.5	59.8	57.1	18.3	-13.6%
Workstation Shipments	165	408	669	154	-3.4%
GIS/Mapping					
Total Revenue	4.9	3.3	4.9	4.6	-3.2%
Workstation Shipments	32	29	39	39	10.4%
Electronic CAE					
Total Revenue	7.2	6.4	8.2	9.2	12.7%
Workstation Shipments	101	65	87	77	-12.9%
IC Layout					
Total Revenue	.0	.0	.1	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	17.0	19.0	19.3	22.9	16.1%
Workstation Shipments	142	190	134	193	16.5%
Technical Workstation					
Total Revenue	70.5	198.0	268.0	387.0	134.2%
Workstation Shipments	545	1,863	2,985	2,345	107.4%
Host-Dependent					
Total Revenue	193.2	170.3	136.5	66.4	-41.4%
Workstation Shipments	1,050	691	846	1,383	14.8%
Personal Computer					
Total Revenue	16.9	14.0	16.6	4.6	-48.0%
Workstation Shipments	629	215	143	122	-56.0%

Source: Dataquest
July 1990

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TABLE NUMBER: 29
TITLE: Company History
COMPANY: Control Data
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	60.0	59.5	93.4	93.7	24.9%
Workstation Shipments	640	566	1,000	1,000	25.0%
Mechanical					
Total Revenue	54.3	52.6	81.3	89.0	28.0%
Workstation Shipments	569	415	870	950	29.2%
AEC					
Total Revenue	.0	1.2	1.9	1.9	NA
Workstation Shipments	0	4	20	20	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	2.8	NA
Workstation Shipments	0	0	0	30	NA
Electronic CAE					
Total Revenue	.0	2.8	7.5	.0	NA
Workstation Shipments	0	2	80	0	NA
IC Layout					
Total Revenue	.0	.9	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	5.8	1.9	2.8	.0	-100.0%
Workstation Shipments	71	144	30	0	-100.0%
Technical Workstation					
Total Revenue	.0	5.8	24.5	31.8	NA
Workstation Shipments	0	104	434	585	NA
Host-Dependent					
Total Revenue	60.0	51.9	68.9	61.8	1.5%
Workstation Shipments	640	318	567	415	-19.5%
Personal Computer					
Total Revenue	.0	1.8	.0	.0	NA
Workstation Shipments	0	144	0	0	NA

Source: Dataquest
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Historical Company Data

TABLE NUMBER: 30
TITLE: Company History
COMPANY: Dassault
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	18.2	14.9	28.0	31.6	31.7%
Workstation Shipments	0	0	0	0	NA
Mechanical					
Total Revenue	18.2	14.1	23.8	26.4	20.5%
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	.0	.8	3.4	4.1	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.9	1.1	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	.0	2.2	5.6	10.5	NA
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	18.2	12.6	22.4	21.1	7.7%
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 31
TITLE: Company History
COMPANY: DAT Standard Information systeme
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	3.6	4.4	5.5	7.7	46.6%
Workstation Shipments	0	0	0	0	NA
Mechanical					
Total Revenue	3.0	3.7	4.6	7.3	56.1%
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	.1	.1	.2	.4	102.8%
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.1	.1	.2	.0	-100.0%
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.4	.5	.6	.0	-84.2%
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	3.6	4.4	5.5	7.7	46.6%
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 32
TITLE: Company History
COMPANY: Data I/O
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	3.1	2.3	1.5	1.1	-38.9%
Workstation Shipments	59	0	0	0	-100.0%
Mechanical					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	2.4	1.9	1.5	1.1	-31.6%
Workstation Shipments	50	0	0	0	-100.0%
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.6	.5	.0	.0	-100.0%
Workstation Shipments	9	0	0	0	-100.0%
Technical Workstation					
Total Revenue	.0	.0	.2	.1	NA
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	.0	.0	.1	.1	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	3.1	2.3	1.3	1.0	-43.6%
Workstation Shipments	59	0	0	0	-100.0%

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 33
TITLE: Company History
COMPANY: Datagraph
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	NA	NA	12.2	NA
Workstation Shipments	NA	NA	NA	50	NA
Mechanical					
Total Revenue	NA	NA	NA	12.2	NA
Workstation Shipments	NA	NA	NA	50	NA
AEC					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
GIS/Mapping					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
Electronic CAE					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
IC Layout					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
PCB Layout					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
Technical Workstation					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
Host-Dependent					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
Personal Computer					
Total Revenue	NA	NA	NA	12.2	NA
Workstation Shipments	NA	NA	NA	50	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 34
TITLE: Company History
COMPANY: Datagraphic
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	NA	NA	3.6	NA
Workstation Shipments	NA	NA	NA	60	NA
Mechanical					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
AEC					
Total Revenue	NA	NA	NA	3.6	NA
Workstation Shipments	NA	NA	NA	60	NA
GIS/Mapping					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
Electronic CAE					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
IC Layout					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
PCB Layout					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
Technical Workstation					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
Host-Dependent					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
Personal Computer					
Total Revenue	NA	NA	NA	3.6	NA
Workstation Shipments	NA	NA	NA	60	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 35
TITLE: Company History
COMPANY: Dazix
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	47.5	54.0	79.7	55.3	7.9%
Workstation Shipments	630	376	761	551	-6.5%
Mechanical					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	35.8	42.8	50.2	44.3	11.1%
Workstation Shipments	525	332	534	441	-8.4%
IC Layout					
Total Revenue	5.2	4.6	2.6	.0	-100.0%
Workstation Shipments	41	14	17	0	-100.0%
PCB Layout					
Total Revenue	6.5	6.7	26.9	11.1	30.4%
Workstation Shipments	64	29	210	110	30.9%
Technical Workstation					
Total Revenue	24.4	35.9	73.0	55.3	50.5%
Workstation Shipments	230	166	679	551	54.7%
Host-Dependent					
Total Revenue	2.3	8.1	5.4	.0	-100.0%
Workstation Shipments	0	84	82	0	NA
Personal Computer					
Total Revenue	20.8	10.0	1.3	.0	-100.0%
Workstation Shipments	400	125	0	0	-100.0%

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 36
TITLE: Company History
COMPANY: DECAD
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	.6	.9	2.4	1.4	50.3%
Workstation Shipments	0	0	9	11	NA
Mechanical					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.6	.9	2.4	1.4	50.3%
Workstation Shipments	0	0	9	11	NA
Technical Workstation					
Total Revenue	.6	.8	2.3	1.3	50.1%
Workstation Shipments	0	0	7	10	NA
Host-Dependent					
Total Revenue	.0	.0	.1	.1	52.8%
Workstation Shipments	0	0	2	1	NA
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 37
TITLE: Company History
COMPANY: Dell Computer
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	.5	.7	.8	NA
Workstation Shipments	NA	163	178	194	NA
Mechanical					
Total Revenue	NA	.2	.3	.3	NA
Workstation Shipments	NA	67	73	79	NA
AEC					
Total Revenue	NA	.2	.3	.3	NA
Workstation Shipments	NA	63	69	76	NA
GIS/Mapping					
Total Revenue	NA	.0	.1	.1	NA
Workstation Shipments	NA	11	12	14	NA
Electronic CAE					
Total Revenue	NA	.0	.1	.1	NA
Workstation Shipments	NA	11	12	14	NA
IC Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
PCB Layout					
Total Revenue	NA	.0	.0	.1	NA
Workstation Shipments	NA	10	11	12	NA
Technical Workstation					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Host-Dependent					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Personal Computer					
Total Revenue	NA	.5	.7	.8	NA
Workstation Shipments	NA	163	178	194	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 38
TITLE: Company History
COMPANY: Digital
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	188.4	237.5	324.0	359.8	38.2%
Workstation Shipments	218	927	668	2,612	246.3%
Mechanical					
Total Revenue	109.4	142.5	175.0	194.2	33.2%
Workstation Shipments	120	556	361	1,327	232.9%
AEC					
Total Revenue	26.2	16.6	35.6	39.6	22.9%
Workstation Shipments	29	65	73	270	206.8%
GIS/Mapping					
Total Revenue	10.2	23.8	32.4	36.0	88.1%
Workstation Shipments	11	93	67	246	368.3%
Electronic CAE					
Total Revenue	25.9	35.6	38.9	36.0	18.1%
Workstation Shipments	38	139	80	307	185.3%
IC Layout					
Total Revenue	6.5	7.1	16.2	14.4	49.1%
Workstation Shipments	3	28	33	123	496.0%
PCB Layout					
Total Revenue	10.3	11.9	25.9	39.7	95.8%
Workstation Shipments	17	46	53	338	347.0%
Technical Workstation					
Total Revenue	21.6	30.9	32.4	79.1	91.2%
Workstation Shipments	218	927	668	2,612	246.3%
Host-Dependent					
Total Revenue	166.8	206.6	291.6	280.7	29.7%
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 39
TITLE: Company History
COMPANY: ESRI
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	NA	4.9	8.5	NA
Workstation Shipments	NA	NA	7	0	NA
Mechanical					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
AEC					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
GIS/Mapping					
Total Revenue	NA	NA	4.9	8.5	NA
Workstation Shipments	NA	NA	7	0	NA
Electronic CAE					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
IC Layout					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
PCB Layout					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
Technical Workstation					
Total Revenue	NA	NA	.8	3.3	NA
Workstation Shipments	NA	NA	3	0	NA
Host-Dependent					
Total Revenue	NA	NA	3.3	4.5	NA
Workstation Shipments	NA	NA	4	0	NA
Personal Computer					
Total Revenue	NA	NA	.8	.7	NA
Workstation Shipments	NA	NA	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 40
TITLE: Company History
COMPANY: European Silicon Systems
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	6.6	4.1	7.3	NA
Workstation Shipments	NA	0	0	40	NA
Mechanical					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
AEC					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
IC Layout					
Total Revenue	NA	6.6	4.1	7.3	NA
Workstation Shipments	NA	0	0	40	NA
PCB Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Technical Workstation					
Total Revenue	NA	3.3	3.2	5.8	NA
Workstation Shipments	NA	0	0	27	NA
Host-Dependent					
Total Revenue	NA	3.3	.3	.0	NA
Workstation Shipments	NA	0	0	0	NA
Personal Computer					
Total Revenue	NA	.0	.7	1.5	NA
Workstation Shipments	NA	0	0	13	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 41
TITLE: Company History
COMPANY: Evans & Sutherland
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	9.2	10.8	13.0	NA
Workstation Shipments	NA	192	200	232	NA
Mechanical					
Total Revenue	NA	9.2	10.8	13.0	NA
Workstation Shipments	NA	192	200	232	NA
AEC					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
IC Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
PCB Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Technical Workstation					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Host-Dependent					
Total Revenue	NA	9.2	10.8	13.0	NA
Workstation Shipments	NA	192	200	232	NA
Personal Computer					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 42
TITLE: Company History
COMPANY: Everex Systems
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	.4	2.0	1.3	NA
Workstation Shipments	NA	187	1,013	388	NA
Mechanical					
Total Revenue	NA	.2	1.2	.4	NA
Workstation Shipments	NA	112	607	105	NA
AEC					
Total Revenue	NA	.1	.7	.5	NA
Workstation Shipments	NA	65	354	147	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.1	NA
Workstation Shipments	NA	0	0	23	NA
Electronic CAE					
Total Revenue	NA	.0	.1	.2	NA
Workstation Shipments	NA	5	31	58	NA
IC Layout					
Total Revenue	NA	.0	.0	.1	NA
Workstation Shipments	NA	0	0	16	NA
PCB Layout					
Total Revenue	NA	.0	.0	.1	NA
Workstation Shipments	NA	4	21	39	NA
Technical Workstation					
Total Revenue	NA	.0	.0	.1	NA
Workstation Shipments	NA	0	0	8	NA
Host-Dependent					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Personal Computer					
Total Revenue	NA	.4	2.0	1.2	NA
Workstation Shipments	NA	187	1,013	380	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 43
TITLE: Company History
COMPANY: Exapt
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	9.7	11.4	12.1	12.4	13.3%
Workstation Shipments	146	173	189	212	20.2%
Mechanical					
Total Revenue	9.7	11.4	12.1	12.4	13.3%
Workstation Shipments	146	173	189	212	20.2%
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	2.4	2.9	3.7	3.1	13.5%
Workstation Shipments	37	43	61	69	36.7%
Host-Dependent					
Total Revenue	7.3	8.5	8.5	9.3	13.2%
Workstation Shipments	110	129	128	143	14.2%
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 45
TITLE: Company History
COMPANY: FEGS
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	.6	.7	1.2	NA
Workstation Shipments	NA	0	0	0	NA
Mechanical					
Total Revenue	NA	.6	.7	1.2	NA
Workstation Shipments	NA	0	0	0	NA
AEC					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
IC Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
PCB Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Technical Workstation					
Total Revenue	NA	.3	.3	.5	NA
Workstation Shipments	NA	0	0	0	NA
Host-Dependent					
Total Revenue	NA	.4	.4	.7	NA
Workstation Shipments	NA	0	0	0	NA
Personal Computer					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 46
TITLE: Company History
COMPANY: Ferranti
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	31.2	32.3	31.1	28.0	-5.2%
Workstation Shipments	239	275	266	252	2.6%
Mechanical					
Total Revenue	31.2	32.3	31.1	28.0	-5.2%
Workstation Shipments	239	275	266	252	2.6%
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	.6	.6	.8	.8	9.8%
Workstation Shipments	7	8	11	16	50.0%
Host-Dependent					
Total Revenue	30.5	31.6	30.3	27.3	-5.5%
Workstation Shipments	232	267	255	236	.8%
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER:	47
TITLE:	Company History
COMPANY:	Fides Industrielle Automation
REGION:	Europe
UNITS:	Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	4.8	9.2	13.2	NA
Workstation Shipments	NA	31	46	62	NA
Mechanical					
Total Revenue	NA	4.8	9.2	13.2	NA
Workstation Shipments	NA	31	46	62	NA
AEC					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
IC Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
PCB Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Technical Workstation					
Total Revenue	NA	1.0	1.8	2.6	NA
Workstation Shipments	NA	13	20	31	NA
Host-Dependent					
Total Revenue	NA	3.9	7.3	10.6	NA
Workstation Shipments	NA	17	26	31	NA
Personal Computer					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 48
TITLE: Company History
COMPANY: Framesoft
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	2.0	2.5	5.5	NA
Workstation Shipments	NA	0	0	24	NA
Mechanical					
Total Revenue	NA	2.0	2.5	5.5	NA
Workstation Shipments	NA	0	0	24	NA
AEC					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
IC Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
PCB Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Technical Workstation					
Total Revenue	NA	1.6	2.0	5.5	NA
Workstation Shipments	NA	0	0	24	NA
Host-Dependent					
Total Revenue	NA	.4	.5	.0	NA
Workstation Shipments	NA	0	0	0	NA
Personal Computer					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 49
TITLE: Company History
COMPANY: Gable CAD Systems
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	1.8	2.1	2.8	NA
Workstation Shipments	NA	14	17	23	NA
Mechanical					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
AEC					
Total Revenue	NA	1.8	2.1	2.8	NA
Workstation Shipments	NA	14	17	23	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
IC Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
PCB Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Technical Workstation					
Total Revenue	NA	1.6	1.9	2.5	NA
Workstation Shipments	NA	13	16	21	NA
Host-Dependent					
Total Revenue	NA	.1	.2	.2	NA
Workstation Shipments	NA	1	1	2	NA
Personal Computer					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 50
TITLE: Company History
COMPANY: Gerber Systems
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	3.6	4.2	5.4	6.1	29.9%
Workstation Shipments	43	64	86	85	41.2%
Mechanical					
Total Revenue	3.6	4.2	5.4	6.1	29.9%
Workstation Shipments	43	64	86	85	41.2%
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	3.6	4.2	5.4	6.1	29.9%
Workstation Shipments	43	64	86	85	41.2%
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 51
TITLE: Company History
COMPANY: Hewlett-Packard
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	66.7	59.4	158.8	352.6	129.9%
Workstation Shipments	1,532	3,110	6,296	20,462	265.4%
Mechanical					
Total Revenue	41.4	35.1	92.7	223.2	132.3%
Workstation Shipments	911	1,838	3,228	11,936	261.9%
AEC					
Total Revenue	6.6	5.4	27.4	45.6	162.5%
Workstation Shipments	168	279	1,358	2,756	304.8%
GIS/Mapping					
Total Revenue	.0	.0	1.5	.7	NA
Workstation Shipments	0	0	114	67	NA
Electronic CAE					
Total Revenue	6.4	4.9	17.5	39.9	150.0%
Workstation Shipments	172	258	864	2,710	296.5%
IC Layout					
Total Revenue	.6	.6	1.6	6.9	231.9%
Workstation Shipments	7	28	55	629	871.4%
PCB Layout					
Total Revenue	11.7	13.5	18.1	36.2	75.7%
Workstation Shipments	274	706	676	2,363	193.8%
Technical Workstation					
Total Revenue	66.7	59.4	140.4	295.0	110.3%
Workstation Shipments	1,532	3,110	3,328	11,756	177.0%
Host-Dependent					
Total Revenue	.0	.0	.0	7.6	NA
Workstation Shipments	0	0	0	384	NA
Personal Computer					
Total Revenue	.0	.0	18.4	50.0	NA
Workstation Shipments	0	0	2,968	8,322	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 52
TITLE: Company History
COMPANY: IBM
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	359.8	380.3	604.0	589.0	27.9%
Workstation Shipments	13,615	17,942	17,015	20,113	21.5%
Mechanical					
Total Revenue	307.7	317.0	526.8	483.8	25.4%
Workstation Shipments	9,307	10,873	12,513	12,712	16.9%
AEC					
Total Revenue	20.8	31.2	39.8	66.9	79.5%
Workstation Shipments	1,712	4,130	3,281	5,601	80.9%
GIS/Mapping					
Total Revenue	8.3	10.9	18.1	19.9	54.9%
Workstation Shipments	210	420	510	1,048	123.4%
Electronic CAE					
Total Revenue	9.7	12.3	1.8	1.5	-61.0%
Workstation Shipments	1,244	1,894	300	295	-51.3%
IC Layout					
Total Revenue	.0	1.1	.0	.0	-100.0%
Workstation Shipments	8	219	0	0	-100.0%
PCB Layout					
Total Revenue	13.3	7.8	17.5	16.9	12.7%
Workstation Shipments	1,133	406	410	457	-36.5%
Technical Workstation					
Total Revenue	15.5	15.9	26.7	47.1	74.7%
Workstation Shipments	135	270	570	424	77.4%
Host-Dependent					
Total Revenue	271.9	270.2	506.5	468.6	31.3%
Workstation Shipments	2,816	3,311	5,406	4,917	32.1%
Personal Computer					
Total Revenue	72.4	94.3	70.9	73.3	.6%
Workstation Shipments	10,664	14,360	11,040	14,772	17.7%

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 53
TITLE: Company History
COMPANY: ICL
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	8.3	16.6	20.9	15.4	36.0%
Workstation Shipments	190	380	380	432	50.7%
Mechanical					
Total Revenue	3.7	7.5	9.9	7.3	39.9%
Workstation Shipments	86	171	180	218	59.6%
AEC					
Total Revenue	.4	.8	.0	.0	-100.0%
Workstation Shipments	10	19	0	0	-100.0%
GIS/Mapping					
Total Revenue	3.7	7.5	9.9	7.3	39.7%
Workstation Shipments	86	171	180	192	50.0%
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.4	.8	1.1	.8	36.3%
Workstation Shipments	10	19	20	21	50.2%
Technical Workstation					
Total Revenue	8.3	16.6	20.9	15.4	36.0%
Workstation Shipments	190	380	380	432	50.7%
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 54
TITLE: Company History
COMPANY: Instrumatic Espanola
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	NA	NA	.2	NA
Workstation Shipments	NA	NA	NA	0	NA
Mechanical					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
AEC					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
GIS/Mapping					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
Electronic CAE					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
IC Layout					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
PCB Layout					
Total Revenue	NA	NA	NA	.2	NA
Workstation Shipments	NA	NA	NA	0	NA
Technical Workstation					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
Host-Dependent					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
Personal Computer					
Total Revenue	NA	NA	NA	.2	NA
Workstation Shipments	NA	NA	NA	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 55
TITLE: Company History
COMPANY: Intercad
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	1.8	2.3	6.5	3.3	37.9%
Workstation Shipments	202	260	336	168	-8.8%
Mechanical					
Total Revenue	.0	.0	3.1	2.3	NA
Workstation Shipments	0	0	161	118	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.7	.9	1.3	1.0	22.2%
Workstation Shipments	78	100	67	50	-19.4%
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	1.1	1.4	2.1	.0	-100.0%
Workstation Shipments	124	160	108	0	-100.0%
Technical Workstation					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	1.8	2.3	6.5	3.3	37.9%
Workstation Shipments	202	260	336	168	-8.8%

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 56
TITLE: Company History
COMPANY: Intergraph
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	133.9	132.9	232.4	288.4	46.8%
Workstation Shipments	1,248	1,278	2,545	2,944	53.6%
Mechanical					
Total Revenue	37.5	38.5	62.8	77.3	43.6%
Workstation Shipments	349	457	687	786	50.2%
AEC					
Total Revenue	58.9	60.7	62.8	77.3	14.6%
Workstation Shipments	548	484	687	786	19.8%
GIS/Mapping					
Total Revenue	33.5	32.6	83.7	103.3	75.6%
Workstation Shipments	311	328	916	1,050	83.8%
Electronic CAE					
Total Revenue	1.4	1.1	7.0	11.0	183.8%
Workstation Shipments	14	9	76	115	186.2%
IC Layout					
Total Revenue	1.4	.0	2.3	.0	-100.0%
Workstation Shipments	14	0	26	0	-100.0%
PCB Layout					
Total Revenue	1.3	.0	13.9	19.6	282.6%
Workstation Shipments	12	0	153	206	310.4%
Technical Workstation					
Total Revenue	16.1	81.4	151.1	228.8	276.9%
Workstation Shipments	167	782	1,122	2,448	282.7%
Host-Dependent					
Total Revenue	115.2	48.2	77.2	51.9	-32.9%
Workstation Shipments	989	497	1,423	496	-29.2%
Personal Computer					
Total Revenue	2.6	3.3	4.1	7.7	72.5%
Workstation Shipments	92	0	0	0	-100.0%

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 57
TITLE: Company History
COMPANY: Investronica SA
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	NA	19.6	23.6	NA
Workstation Shipments	NA	NA	872	943	NA
Mechanical					
Total Revenue	NA	NA	19.6	23.6	NA
Workstation Shipments	NA	NA	872	943	NA
AEC					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
GIS/Mapping					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
Electronic CAE					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
IC Layout					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
PCB Layout					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
Technical Workstation					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
Host-Dependent					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
Personal Computer					
Total Revenue	NA	NA	19.6	23.6	NA
Workstation Shipments	NA	NA	872	943	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 58
TITLE: Company History
COMPANY: ISICAD
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	5.8	8.7	20.7	31.2	133.1%
Workstation Shipments	80	135	213	334	103.8%
Mechanical					
Total Revenue	.0	6.8	16.5	12.5	NA
Workstation Shipments	0	61	169	140	NA
AEC					
Total Revenue	5.8	1.9	4.3	18.7	80.5%
Workstation Shipments	80	74	44	194	55.3%
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	5.8	8.6	18.7	27.1	117.1%
Workstation Shipments	80	77	213	334	103.8%
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	.0	.1	2.1	4.1	NA
Workstation Shipments	0	58	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 59
TITLE: Company History
COMPANY: ISYKON Software
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	5.8	7.5	11.7	NA
Workstation Shipments	NA	95	125	220	NA
Mechanical					
Total Revenue	NA	5.8	7.5	11.7	NA
Workstation Shipments	NA	95	125	220	NA
AEC					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
IC Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
PCB Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Technical Workstation					
Total Revenue	NA	3.5	5.0	11.7	NA
Workstation Shipments	NA	32	125	220	NA
Host-Dependent					
Total Revenue	NA	2.3	2.5	.0	NA
Workstation Shipments	NA	63	0	0	NA
Personal Computer					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 60
TITLE: Company History
COMPANY: ItalCad
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	21.0	18.0	13.0	24.0	6.9%
Workstation Shipments	210	180	220	250	9.1%
Mechanical					
Total Revenue	11.5	9.9	7.8	12.0	2.0%
Workstation Shipments	115	98	132	125	4.5%
AEC					
Total Revenue	6.3	5.4	3.2	9.8	25.1%
Workstation Shipments	60	52	55	103	30.5%
GIS/Mapping					
Total Revenue	3.2	2.7	1.9	2.2	-17.3%
Workstation Shipments	35	30	33	23	-20.2%
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	20.5	17.6	13.0	24.0	8.1%
Workstation Shipments	202	173	220	250	11.3%
Host-Dependent					
Total Revenue	.5	.4	.0	.0	-100.0%
Workstation Shipments	8	7	0	0	-100.0%
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 61
TITLE: Company History
COMPANY: LPKF
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	5.3	6.3	7.5	NA
Workstation Shipments	NA	650	700	750	NA
Mechanical					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
AEC					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
IC Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
PCB Layout					
Total Revenue	NA	5.3	6.3	7.5	NA
Workstation Shipments	NA	650	700	750	NA
Technical Workstation					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Host-Dependent					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Personal Computer					
Total Revenue	NA	5.3	6.3	7.5	NA
Workstation Shipments	NA	650	700	750	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 62
TITLE: Company History
COMPANY: LSI Logic
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	3.0	5.5	5.0	NA
Workstation Shipments	NA	0	19	19	NA
Mechanical					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
AEC					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	3.0	5.0	4.5	NA
Workstation Shipments	NA	0	17	17	NA
IC Layout					
Total Revenue	NA	.0	.6	.6	NA
Workstation Shipments	NA	0	2	2	NA
PCB Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Technical Workstation					
Total Revenue	NA	1.8	4.0	4.5	NA
Workstation Shipments	NA	0	19	17	NA
Host-Dependent					
Total Revenue	NA	1.2	1.5	.5	NA
Workstation Shipments	NA	0	0	2	NA
Personal Computer					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 63
TITLE: Company History
COMPANY: MacNeal-Schwendler
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	6.8	8.4	9.5	NA
Workstation Shipments	NA	0	0	0	NA
Mechanical					
Total Revenue	NA	6.8	8.4	9.5	NA
Workstation Shipments	NA	0	0	0	NA
AEC					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
IC Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
PCB Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Technical Workstation					
Total Revenue	NA	.3	.8	1.0	NA
Workstation Shipments	NA	0	0	0	NA
Host-Dependent					
Total Revenue	NA	6.3	7.4	8.2	NA
Workstation Shipments	NA	0	0	0	NA
Personal Computer					
Total Revenue	NA	.2	.2	.3	NA
Workstation Shipments	NA	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 64
TITLE: Company History
COMPANY: Mannesmann PROCAD
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	NA	12.5	15.0	NA
Workstation Shipments	NA	NA	175	200	NA
Mechanical					
Total Revenue	NA	NA	12.5	15.0	NA
Workstation Shipments	NA	NA	175	200	NA
AEC					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
GIS/Mapping					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
Electronic CAE					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
IC Layout					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
PCB Layout					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
Technical Workstation					
Total Revenue	NA	NA	12.5	15.0	NA
Workstation Shipments	NA	NA	175	200	NA
Host-Dependent					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA
Personal Computer					
Total Revenue	NA	NA	.0	.0	NA
Workstation Shipments	NA	NA	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 65
TITLE: Company History
COMPANY: Manufacturing Consultants
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	.7	1.6	2.7	3.0	111.8%
Workstation Shipments	0	0	0	0	NA
Mechanical					
Total Revenue	.7	1.6	2.7	3.0	111.8%
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	.2	.5	1.0	1.1	131.3%
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	.3	.7	1.2	1.3	98.5%
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	.1	.4	.5	.6	113.0%
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 66
TITLE: Company History
COMPANY: Marcus Computer Systems
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	2.6	3.1	3.7	NA
Workstation Shipments	NA	100	110	125	NA
Mechanical					
Total Revenue	NA	2.6	3.1	3.7	NA
Workstation Shipments	NA	100	110	125	NA
AEC					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
IC Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
PCB Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Technical Workstation					
Total Revenue	NA	2.1	2.5	3.0	NA
Workstation Shipments	NA	80	88	100	NA
Host-Dependent					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Personal Computer					
Total Revenue	NA	.5	.6	.7	NA
Workstation Shipments	NA	20	22	25	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 67
TITLE: Company History
COMPANY: McDonnell Douglas
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	38.5	45.5	75.6	86.9	50.3%
Workstation Shipments	428	869	1,545	1,499	87.2%
Mechanical					
Total Revenue	29.1	34.1	52.6	58.9	42.2%
Workstation Shipments	313	652	1,165	857	65.5%
AEC					
Total Revenue	9.4	5.7	21.5	17.7	37.2%
Workstation Shipments	115	109	355	309	64.2%
GIS/Mapping					
Total Revenue	.0	5.7	1.5	10.4	NA
Workstation Shipments	0	109	25	333	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	6.1	1.4	24.4	61.8	217.5%
Workstation Shipments	83	48	534	695	189.4%
Host-Dependent					
Total Revenue	30.4	44.2	51.2	25.1	-9.2%
Workstation Shipments	297	821	1,011	804	64.6%
Personal Computer					
Total Revenue	1.9	.0	.0	.0	-100.0%
Workstation Shipments	48	0	0	0	-100.0%

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 68
TITLE: Company History
COMPANY: Mentor Graphics
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	43.7	105.3	77.8	105.8	55.7%
Workstation Shipments	543	1,290	991	1,400	60.6%
Mechanical					
Total Revenue	.0	.0	.0	2.1	NA
Workstation Shipments	0	0	0	28	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	35.9	74.1	52.1	68.8	38.5%
Workstation Shipments	462	1,012	763	910	40.4%
IC Layout					
Total Revenue	3.8	11.1	6.2	5.3	18.8%
Workstation Shipments	37	113	51	70	37.0%
PCB Layout					
Total Revenue	4.1	20.1	19.5	29.6	170.2%
Workstation Shipments	44	165	177	392	198.7%
Technical Workstation					
Total Revenue	42.5	105.0	77.8	105.8	57.9%
Workstation Shipments	526	1,285	991	1,400	63.2%
Host-Dependent					
Total Revenue	1.2	.3	.0	.0	-100.0%
Workstation Shipments	17	5	0	0	-100.0%
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 69
TITLE: Company History
COMPANY: Micrograph
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	5.5	6.7	8.0	NA
Workstation Shipments	NA	100	150	200	NA
Mechanical					
Total Revenue	NA	3.0	3.7	4.4	NA
Workstation Shipments	NA	55	83	110	NA
AEC					
Total Revenue	NA	.6	.7	.8	NA
Workstation Shipments	NA	10	15	20	NA
GIS/Mapping					
Total Revenue	NA	.4	.5	.6	NA
Workstation Shipments	NA	8	12	16	NA
Electronic CAE					
Total Revenue	NA	1.0	1.2	1.4	NA
Workstation Shipments	NA	18	27	36	NA
IC Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
PCB Layout					
Total Revenue	NA	.5	.6	.7	NA
Workstation Shipments	NA	9	14	18	NA
Technical Workstation					
Total Revenue	NA	.6	.7	.8	NA
Workstation Shipments	NA	14	21	29	NA
Host-Dependent					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Personal Computer					
Total Revenue	NA	5.0	6.0	7.2	NA
Workstation Shipments	NA	86	129	171	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 70
TITLE: Company History
COMPANY: Norsk Data
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	15.0	29.0	43.5	47.7	78.3%
Workstation Shipments	83	303	484	521	150.6%
Mechanical					
Total Revenue	15.0	29.0	36.5	39.7	62.6%
Workstation Shipments	83	303	484	521	150.6%
AEC					
Total Revenue	.0	.0	5.0	5.8	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	2.0	2.2	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	15.0	.0	17.4	20.5	16.9%
Workstation Shipments	83	0	205	300	90.1%
Host-Dependent					
Total Revenue	.0	29.0	25.2	26.8	NA
Workstation Shipments	0	303	243	179	NA
Personal Computer					
Total Revenue	.0	.0	.9	.4	NA
Workstation Shipments	0	0	36	42	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 71
TITLE: Company History
COMPANY: Olivetti
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	10.1	12.9	16.8	13.8	16.9%
Workstation Shipments	655	2,425	2,933	2,303	87.5%
Mechanical					
Total Revenue	9.1	8.9	11.2	8.7	-2.1%
Workstation Shipments	583	1,572	1,911	1,365	53.0%
AEC					
Total Revenue	1.0	2.6	3.6	3.4	81.5%
Workstation Shipments	72	547	647	638	198.6%
GIS/Mapping					
Total Revenue	.0	1.0	1.4	1.5	NA
Workstation Shipments	0	211	258	221	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.4	.6	.3	NA
Workstation Shipments	0	95	117	78	NA
Technical Workstation					
Total Revenue	5.1	.0	.0	.0	-100.0%
Workstation Shipments	93	0	0	0	-100.0%
Host-Dependent					
Total Revenue	.0	1.2	1.2	1.0	NA
Workstation Shipments	0	85	84	73	NA
Personal Computer					
Total Revenue	5.1	11.7	15.6	12.8	59.0%
Workstation Shipments	562	2,340	2,850	2,229	99.1%

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 72
TITLE: Company History
COMPANY: PAFEC
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	13.6	20.0	31.4	51.4	94.5%
Workstation Shipments	0	0	0	0	NA
Mechanical					
Total Revenue	10.2	15.0	25.2	42.6	104.5%
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	2.7	5.0	6.2	8.8	79.7%
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.7	.0	.0	.0	-100.0%
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	3.8	16.0	26.6	46.6	249.9%
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	9.8	4.0	4.8	4.8	-30.1%
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 73
TITLE: Company History
COMPANY: Pathtrace
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	2.1	2.5	3.8	NA
Workstation Shipments	NA	72	64	88	NA
Mechanical					
Total Revenue	NA	2.1	2.5	3.8	NA
Workstation Shipments	NA	72	64	88	NA
AEC					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
IC Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
PCB Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Technical Workstation					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Host-Dependent					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Personal Computer					
Total Revenue	NA	2.1	2.5	3.8	NA
Workstation Shipments	NA	72	64	88	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 74
TITLE: Company History
COMPANY: PDA Engineering
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	2.2	2.6	6.4	5.6	59.0%
Workstation Shipments	0	0	0	0	NA
Mechanical					
Total Revenue	2.2	2.6	6.4	5.6	59.0%
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	.7	.9	2.6	3.1	103.4%
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	1.5	1.7	3.9	2.5	30.9%
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 75
TITLE: Company History
COMPANY: Philips International
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	1.7	2.1	2.5	2.9	31.3%
Workstation Shipments	0	0	0	10	NA
Mechanical					
Total Revenue	1.7	2.1	2.5	2.9	31.3%
Workstation Shipments	0	0	0	10	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	1.7	2.1	2.5	2.9	31.3%
Workstation Shipments	0	0	0	10	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 76
TITLE: Company History
COMPANY: Racal-Redac
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	46.1	48.8	36.3	46.0	-.1%
Workstation Shipments	310	134	105	163	-27.5%
Mechanical					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	5.9	6.7	8.5	NA
Workstation Shipments	18	21	21	33	36.6%
IC Layout					
Total Revenue	1.3	1.0	.0	.0	-100.0%
Workstation Shipments	3	0	0	0	-100.0%
PCB Layout					
Total Revenue	44.8	42.0	29.6	37.5	-8.5%
Workstation Shipments	290	113	84	130	-33.1%
Technical Workstation					
Total Revenue	37.8	32.7	35.3	44.8	8.9%
Workstation Shipments	310	134	100	155	-29.4%
Host-Dependent					
Total Revenue	.0	.0	.9	1.2	NA
Workstation Shipments	0	0	5	8	NA
Personal Computer					
Total Revenue	8.4	16.1	.1	.1	-90.8%
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 77
TITLE: Company History
COMPANY: Radan Computational
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	3.4	4.2	10.2	5.4	26.4%
Workstation Shipments	0	0	205	220	NA
Mechanical					
Total Revenue	2.9	3.5	8.7	4.6	26.5%
Workstation Shipments	0	0	174	187	NA
AEC					
Total Revenue	.5	.6	1.5	.8	26.0%
Workstation Shipments	0	0	31	33	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	3.4	4.2	10.2	5.4	26.4%
Workstation Shipments	0	0	205	220	NA
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 78
TITLE: Company History
COMPANY: Robocom
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	2.0	2.3	2.9	4.0	41.2%
Workstation Shipments	0	0	0	0	NA
Mechanical					
Total Revenue	1.3	1.1	1.4	1.9	18.8%
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	.7	.8	1.2	1.8	65.1%
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.5	.1	.3	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.1	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.1	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	2.0	2.3	2.9	4.0	41.2%
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 79
TITLE: Company History
COMPANY: Rotring EURCAD
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	10.1	2.6	3.2	6.7	-18.6%
Workstation Shipments	0	0	24	200	NA
Mechanical					
Total Revenue	6.1	.0	.0	4.5	-13.9%
Workstation Shipments	0	0	0	139	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	4.0	2.6	3.2	2.2	-26.0%
Workstation Shipments	0	0	24	61	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	5.1	2.6	3.2	2.7	-26.3%
Workstation Shipments	0	0	24	91	NA
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	5.1	.0	.0	4.0	-11.4%
Workstation Shipments	0	0	0	109	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER:	80
TITLE:	Company History
COMPANY:	Schlumberger (Applicon)
REGION:	Europe
UNITS:	Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	57.8	63.5	67.2	70.4	10.4%
Workstation Shipments	613	1,390	936	738	9.7%
Mechanical					
Total Revenue	52.0	59.0	66.2	67.6	14.0%
Workstation Shipments	555	1,304	921	708	13.0%
AEC					
Total Revenue	.0	.0	.0	.7	NA
Workstation Shipments	0	0	0	7	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	1.4	.0	.0	.0	-100.0%
Workstation Shipments	15	0	0	0	-100.0%
PCB Layout					
Total Revenue	4.3	4.5	1.0	2.1	-30.3%
Workstation Shipments	44	86	15	22	-28.8%
Technical Workstation					
Total Revenue	.0	14.8	45.7	61.7	NA
Workstation Shipments	0	446	619	576	NA
Host-Dependent					
Total Revenue	57.8	48.7	21.5	8.7	-61.3%
Workstation Shipments	613	944	317	162	-48.6%
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 81
TITLE: Company History
COMPANY: Scientific Calc.
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	14.0	28.1	10.8	9.1	-19.5%
Workstation Shipments	43	46	35	42	-1.3%
Mechanical					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.4	.0	.0	.3	-19.8%
Workstation Shipments	0	0	0	1	NA
IC Layout					
Total Revenue	.6	.0	.0	.0	-100.0%
Workstation Shipments	1	0	0	0	-100.0%
PCB Layout					
Total Revenue	13.0	28.1	10.8	8.8	-17.7%
Workstation Shipments	42	46	35	41	-2.1%
Technical Workstation					
Total Revenue	3.9	8.4	7.0	6.8	31.9%
Workstation Shipments	10	30	32	33	82.8%
Host-Dependent					
Total Revenue	9.7	19.7	3.8	2.3	-51.5%
Workstation Shipments	33	17	4	9	-46.8%
Personal Computer					
Total Revenue	.4	.0	.0	.0	-100.0%
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER:	82
TITLE:	Company History
COMPANY:	SDRC
REGION:	Europe
UNITS:	Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	3.2	6.1	12.6	15.8	123.2%
Workstation Shipments	0	0	0	0	NA
Mechanical					
Total Revenue	3.2	6.1	12.6	15.8	123.2%
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	1.9	3.7	8.6	12.7	158.3%
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	1.3	2.4	4.0	3.2	57.1%
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 83
TITLE: Company History
COMPANY: Secmai
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	11.6	10.4	9.7	12.4	3.1%
Workstation Shipments	68	62	80	101	22.1%
Mechanical					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	1.0	1.0	1.1	NA
Workstation Shipments	0	10	8	10	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	11.6	9.4	8.7	11.2	-1.6%
Workstation Shipments	68	52	72	92	16.1%
Technical Workstation					
Total Revenue	8.2	8.9	9.5	12.2	21.7%
Workstation Shipments	7	46	77	99	264.9%
Host-Dependent					
Total Revenue	3.4	1.6	.0	.0	-100.0%
Workstation Shipments	61	16	0	0	-100.0%
Personal Computer					
Total Revenue	.0	.0	.2	.2	NA
Workstation Shipments	0	0	3	2	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 84
TITLE: Company History
COMPANY: Serbi
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	1.6	1.6	3.8	NA
Workstation Shipments	NA	0	0	0	NA
Mechanical					
Total Revenue	NA	.8	.8	1.9	NA
Workstation Shipments	NA	0	0	0	NA
AEC					
Total Revenue	NA	.4	.4	1.0	NA
Workstation Shipments	NA	0	0	0	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	.4	.4	1.0	NA
Workstation Shipments	NA	0	0	0	NA
IC Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
PCB Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Technical Workstation					
Total Revenue	NA	.1	.1	.2	NA
Workstation Shipments	NA	0	0	0	NA
Host-Dependent					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Personal Computer					
Total Revenue	NA	1.5	1.5	3.6	NA
Workstation Shipments	NA	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 85
TITLE: Company History
COMPANY: Siemens
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	50.0	100.0	105.6	127.1	59.4%
Workstation Shipments	540	1,080	2,238	2,819	128.5%
Mechanical					
Total Revenue	31.0	62.0	72.9	65.2	45.0%
Workstation Shipments	450	583	1,604	1,502	82.6%
AEC					
Total Revenue	2.5	5.0	14.3	9.6	95.2%
Workstation Shipments	16	49	270	192	242.3%
GIS/Mapping					
Total Revenue	16.5	33.0	14.3	50.5	74.8%
Workstation Shipments	73	448	270	1,080	284.0%
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	2.1	.1	NA
Workstation Shipments	0	0	47	3	NA
PCB Layout					
Total Revenue	.0	.0	2.1	1.8	NA
Workstation Shipments	0	0	47	41	NA
Technical Workstation					
Total Revenue	.0	50.0	97.3	115.2	NA
Workstation Shipments	0	524	2,169	2,680	NA
Host-Dependent					
Total Revenue	50.0	50.0	8.3	12.0	-51.1%
Workstation Shipments	540	556	69	139	-49.3%
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 86
TITLE: Company History
COMPANY: Silicon Compiler Systems
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	.8	2.3	6.3	13.0	302.5%
Workstation Shipments	9	0	0	0	-100.0%
Mechanical					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	1.9	3.4	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.8	2.3	4.4	9.6	246.2%
Workstation Shipments	9	0	0	0	-100.0%
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	.3	1.3	6.3	13.0	592.8%
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	.5	1.0	.0	.0	-100.0%
Workstation Shipments	9	0	0	0	-100.0%
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 87
TITLE: Company History
COMPANY: Silicon Graphics
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	7.7	17.3	19.1	NA
Workstation Shipments	NA	220	421	569	NA
Mechanical					
Total Revenue	NA	7.7	17.3	19.1	NA
Workstation Shipments	NA	220	421	569	NA
AEC					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
IC Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
PCB Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Technical Workstation					
Total Revenue	NA	7.7	17.3	18.0	NA
Workstation Shipments	NA	220	421	535	NA
Host-Dependent					
Total Revenue	NA	.0	.0	1.2	NA
Workstation Shipments	NA	0	0	34	NA
Personal Computer					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 88
TITLE: Company History
COMPANY: Silvar-Lisco
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	9.3	11.2	9.0	3.2	-41.4%
Workstation Shipments	0	0	0	0	NA
Mechanical					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	4.0	5.6	3.6	.9	-53.2%
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	5.1	4.8	5.4	2.3	-32.5%
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.2	.8	.0	.0	-100.0%
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	2.8	8.2	7.4	2.9	1.6%
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	6.5	3.0	1.6	.3	-77.9%
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 89
TITLE: Company History
COMPANY: Solbourne
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	NA	NA	1.0	NA
Workstation Shipments	NA	NA	NA	70	NA
Mechanical					
Total Revenue	NA	NA	NA	.3	NA
Workstation Shipments	NA	NA	NA	21	NA
AEC					
Total Revenue	NA	NA	NA	.1	NA
Workstation Shipments	NA	NA	NA	5	NA
GIS/Mapping					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	2	NA
Electronic CAE					
Total Revenue	NA	NA	NA	.4	NA
Workstation Shipments	NA	NA	NA	32	NA
IC Layout					
Total Revenue	NA	NA	NA	.1	NA
Workstation Shipments	NA	NA	NA	7	NA
PCB Layout					
Total Revenue	NA	NA	NA	.1	NA
Workstation Shipments	NA	NA	NA	4	NA
Technical Workstation					
Total Revenue	NA	NA	NA	.8	NA
Workstation Shipments	NA	NA	NA	56	NA
Host-Dependent					
Total Revenue	NA	NA	NA	.2	NA
Workstation Shipments	NA	NA	NA	14	NA
Personal Computer					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 90
TITLE: Company History
COMPANY: Star Informatic
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	6.5	7.5	9.3	NA
Workstation Shipments	NA	197	295	394	NA
Mechanical					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
AEC					
Total Revenue	NA	6.5	7.5	9.3	NA
Workstation Shipments	NA	197	295	394	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
IC Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
PCB Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Technical Workstation					
Total Revenue	NA	6.5	7.5	9.3	NA
Workstation Shipments	NA	197	295	394	NA
Host-Dependent					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Personal Computer					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 91
TITLE: Company History
COMPANY: STI-Straessle
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	11.8	14.2	17.1	20.3	31.2%
Workstation Shipments	19	23	27	137	170.3%
Mechanical					
Total Revenue	8.2	9.9	12.0	16.2	40.3%
Workstation Shipments	11	13	16	111	223.1%
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	3.5	4.3	5.1	4.1	7.1%
Workstation Shipments	8	10	12	26	78.2%
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	9.1	10.9	13.2	15.8	32.2%
Workstation Shipments	12	14	17	117	216.1%
Host-Dependent					
Total Revenue	2.7	3.3	4.0	4.5	27.9%
Workstation Shipments	7	8	10	20	68.3%
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 92
TITLE: Company History
COMPANY: Sun
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	6.3	16.0	33.9	66.3	225.2%
Workstation Shipments	290	694	1,614	4,450	291.6%
Mechanical					
Total Revenue	1.6	4.0	14.3	35.1	373.1%
Workstation Shipments	73	174	681	2,358	470.2%
AEC					
Total Revenue	.0	.0	1.2	3.3	NA
Workstation Shipments	0	0	57	223	NA
GIS/Mapping					
Total Revenue	.0	.0	.9	.0	NA
Workstation Shipments	0	0	43	0	NA
Electronic CAE					
Total Revenue	1.9	5.0	9.7	27.8	278.8%
Workstation Shipments	90	215	459	1,869	355.9%
IC Layout					
Total Revenue	1.9	5.0	4.6	.0	-100.0%
Workstation Shipments	90	215	215	0	-100.0%
PCB Layout					
Total Revenue	.8	2.1	3.3	.0	-100.0%
Workstation Shipments	38	90	158	0	-100.0%
Technical Workstation					
Total Revenue	6.3	16.0	28.8	66.3	225.2%
Workstation Shipments	290	694	1,451	4,450	291.6%
Host-Dependent					
Total Revenue	.0	.0	5.1	.0	NA
Workstation Shipments	0	0	163	0	NA
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 93
TITLE: Company History
COMPANY: Swanson Analysis
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	2.0	2.4	2.7	2.8	17.8%
Workstation Shipments	0	0	0	0	NA
Mechanical					
Total Revenue	1.9	2.4	2.7	2.8	21.5%
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	.1	.0	.0	.0	-100.0%
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	.2	.3	.5	.9	143.6%
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	1.6	1.9	1.8	1.6	-.9%
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	.3	.2	.3	.3	12.2%
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
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TABLE NUMBER: 94
TITLE: Company History
COMPANY: Sycotronic AG
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	.8	1.1	1.4	1.6	41.9%
Workstation Shipments	0	0	0	3	NA
Mechanical					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	.0	.0	.0	.5	NA
Workstation Shipments	0	0	0	1	NA
GIS/Mapping					
Total Revenue	.3	.4	.5	.0	-100.0%
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.1	.0	-42.3%
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.5	.7	.9	1.1	46.2%
Workstation Shipments	0	0	0	2	NA
Technical Workstation					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	.8	1.1	1.4	1.6	41.9%
Workstation Shipments	0	0	0	3	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 95
TITLE: Company History
COMPANY: Synercom
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	1.7	1.0	NA	5.3	73.7%
Workstation Shipments	0	0	NA	0	NA
Mechanical					
Total Revenue	.0	.0	NA	.0	NA
Workstation Shipments	0	0	NA	0	NA
AEC					
Total Revenue	.0	.0	NA	.0	NA
Workstation Shipments	0	0	NA	0	NA
GIS/Mapping					
Total Revenue	1.7	1.0	NA	5.3	73.7%
Workstation Shipments	0	0	NA	0	NA
Electronic CAE					
Total Revenue	.0	.0	NA	.0	NA
Workstation Shipments	0	0	NA	0	NA
IC Layout					
Total Revenue	.0	.0	NA	.0	NA
Workstation Shipments	0	0	NA	0	NA
PCB Layout					
Total Revenue	.0	.0	NA	.0	NA
Workstation Shipments	0	0	NA	0	NA
Technical Workstation					
Total Revenue	.0	.0	NA	3.0	NA
Workstation Shipments	0	0	NA	0	NA
Host-Dependent					
Total Revenue	1.7	1.0	NA	2.3	14.0%
Workstation Shipments	0	0	NA	0	NA
Personal Computer					
Total Revenue	.0	.0	NA	.0	NA
Workstation Shipments	0	0	NA	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 96
TITLE: Company History
COMPANY: Sysscan
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	17.0	18.0	17.9	15.6	-4.1%
Workstation Shipments	100	125	102	116	7.7%
Mechanical					
Total Revenue	3.2	3.4	.1	.0	-100.0%
Workstation Shipments	43	24	0	0	-100.0%
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	13.8	14.6	17.8	15.6	6.5%
Workstation Shipments	57	101	102	116	43.1%
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	.0	.0	.0	3.8	NA
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	17.0	18.0	17.9	11.9	-16.5%
Workstation Shipments	100	125	102	116	7.7%
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 97
TITLE: Company History
COMPANY: t2 Solutions
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	6.0	8.1	10.9	NA
Workstation Shipments	NA	50	118	102	NA
Mechanical					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
AEC					
Total Revenue	NA	6.0	8.1	10.9	NA
Workstation Shipments	NA	50	118	102	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
IC Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
PCB Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Technical Workstation					
Total Revenue	NA	.0	5.1	10.9	NA
Workstation Shipments	NA	0	61	102	NA
Host-Dependent					
Total Revenue	NA	5.8	2.9	.0	NA
Workstation Shipments	NA	45	57	0	NA
Personal Computer					
Total Revenue	NA	.2	.0	.0	NA
Workstation Shipments	NA	5	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 98
TITLE: Company History
COMPANY: Technische Computer Systeme
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	2.5	3.3	4.3	4.8	38.5%
Workstation Shipments	46	61	80	128	66.8%
Mechanical					
Total Revenue	.0	.0	.0	4.8	NA
Workstation Shipments	0	0	0	128	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	2.5	3.3	4.3	.0	-100.0%
Workstation Shipments	46	61	80	0	-100.0%
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	2.5	3.3	4.3	4.8	38.5%
Workstation Shipments	46	61	80	128	66.8%
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 99
TITLE: Company History
COMPANY: Teradyne
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	2.4	2.6	4.5	4.0	30.5%
Workstation Shipments	0	0	0	0	NA
Mechanical					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	2.4	2.6	4.5	4.0	30.5%
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	.4	.4	1.3	1.2	85.2%
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	2.0	2.2	2.2	2.0	.0%
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	.0	.0	.9	.8	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 100
TITLE: Company History
COMPANY: TOOL Software
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	NA	NA	.1	NA
Workstation Shipments	NA	NA	NA	5	NA
Mechanical					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
AEC					
Total Revenue	NA	NA	NA	.1	NA
Workstation Shipments	NA	NA	NA	5	NA
GIS/Mapping					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
Electronic CAE					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
IC Layout					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
PCB Layout					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
Technical Workstation					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	1	NA
Host-Dependent					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
Personal Computer					
Total Revenue	NA	NA	NA	.1	NA
Workstation Shipments	NA	NA	NA	4	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 101
TITLE: Company History
COMPANY: Unisys
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	7.2	8.0	10.0	14.6	42.5%
Workstation Shipments	88	100	196	275	77.1%
Mechanical					
Total Revenue	7.2	8.0	10.0	14.6	42.5%
Workstation Shipments	88	100	196	275	77.1%
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	2.2	6.4	7.5	12.5	140.9%
Workstation Shipments	26	74	134	222	190.4%
Host-Dependent					
Total Revenue	5.0	1.6	2.5	2.1	-35.6%
Workstation Shipments	61	26	61	53	-7.1%
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 102
TITLE: Company History
COMPANY: Valid
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	21.3	22.1	41.4	43.5	42.8%
Workstation Shipments	438	216	356	475	4.2%
Mechanical					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	19.6	20.3	34.1	30.5	24.6%
Workstation Shipments	413	210	330	333	-10.2%
IC Layout					
Total Revenue	1.5	1.6	3.1	4.4	71.1%
Workstation Shipments	22	5	9	47	47.6%
PCB Layout					
Total Revenue	.2	.2	4.2	8.7	528.9%
Workstation Shipments	3	1	17	95	439.0%
Technical Workstation					
Total Revenue	19.4	20.4	39.7	43.5	49.9%
Workstation Shipments	368	216	332	475	13.6%
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	2.0	1.6	1.7	.0	-100.0%
Workstation Shipments	69	0	24	0	-100.0%

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 103
TITLE: Company History
COMPANY: Vero International Software
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	NA	NA	12.3	NA
Workstation Shipments	NA	NA	NA	0	NA
Mechanical					
Total Revenue	NA	NA	NA	12.3	NA
Workstation Shipments	NA	NA	NA	0	NA
AEC					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
GIS/Mapping					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
Electronic CAE					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
IC Layout					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
PCB Layout					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
Technical Workstation					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
Host-Dependent					
Total Revenue	NA	NA	NA	.0	NA
Workstation Shipments	NA	NA	NA	0	NA
Personal Computer					
Total Revenue	NA	NA	NA	12.3	NA
Workstation Shipments	NA	NA	NA	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 104
TITLE: Company History
COMPANY: View Logic
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	.7	1.0	.9	3.7	134.0%
Workstation Shipments	0	0	0	0	NA
Mechanical					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.7	1.0	.9	3.7	134.0%
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	.0	.0	.2	.9	NA
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	.0	.0	.1	.0	-100.0%
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	.7	.9	.7	2.8	104.1%
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 105
TITLE: Company History
COMPANY: Vision 3D
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	.8	1.0	1.2	1.2	21.9%
Workstation Shipments	10	12	15	12	11.7%
Mechanical					
Total Revenue	.8	1.0	1.2	1.2	21.9%
Workstation Shipments	10	12	15	12	11.7%
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	.8	1.0	1.2	1.2	21.9%
Workstation Shipments	10	12	15	12	11.7%

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 106
TITLE: Company History
COMPANY: VLSI Technology
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	2.3	NA	7.1	7.2	77.8%
Workstation Shipments	8	NA	91	24	71.3%
Mechanical					
Total Revenue	.0	NA	.0	.0	NA
Workstation Shipments	0	NA	0	0	NA
AEC					
Total Revenue	.0	NA	.0	.0	NA
Workstation Shipments	0	NA	0	0	NA
GIS/Mapping					
Total Revenue	.0	NA	.0	.0	NA
Workstation Shipments	0	NA	0	0	NA
Electronic CAE					
Total Revenue	.0	NA	4.3	4.4	NA
Workstation Shipments	0	NA	55	14	NA
IC Layout					
Total Revenue	2.3	NA	2.8	2.9	12.3%
Workstation Shipments	8	NA	36	9	8.2%
PCB Layout					
Total Revenue	.0	NA	.0	.0	NA
Workstation Shipments	0	NA	0	0	NA
Technical Workstation					
Total Revenue	1.7	NA	6.0	6.2	89.2%
Workstation Shipments	8	NA	91	20	58.0%
Host-Dependent					
Total Revenue	.6	NA	1.1	1.1	37.6%
Workstation Shipments	0	NA	0	4	NA
Personal Computer					
Total Revenue	.0	NA	.0	.0	NA
Workstation Shipments	0	NA	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 107
TITLE: Company History
COMPANY: Westward
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	7.8	9.5	11.6	13.0	29.5%
Workstation Shipments	734	899	1,100	760	1.8%
Mechanical					
Total Revenue	7.4	9.0	11.0	11.7	26.0%
Workstation Shipments	697	854	1,045	684	-1.0%
AEC					
Total Revenue	.4	.5	.6	.7	29.1%
Workstation Shipments	37	45	55	38	1.7%
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.0	.0	.0	.7	NA
Workstation Shipments	0	0	0	38	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	.0	.0	.0	7.8	NA
Workstation Shipments	0	0	0	417	NA
Host-Dependent					
Total Revenue	6.2	7.6	9.3	.0	-100.0%
Workstation Shipments	178	218	267	0	-100.0%
Personal Computer					
Total Revenue	1.5	1.9	2.3	5.2	83.8%
Workstation Shipments	556	681	833	343	-21.5%

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER:	108
TITLE:	Company History
COMPANY:	Wiechers Datentechnik
REGION:	Europe
UNITS:	Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	5.5	6.8	8.5	17.0	75.7%
Workstation Shipments	32	40	50	400	252.0%
Mechanical					
Total Revenue	4.1	5.1	6.4	17.0	102.9%
Workstation Shipments	24	30	38	400	306.4%
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	1.4	1.7	2.1	.0	-100.0%
Workstation Shipments	8	10	13	0	-100.0%
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	.0	.0	.0	5.1	NA
Workstation Shipments	0	0	0	120	NA
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	5.5	6.8	8.5	11.9	47.0%
Workstation Shipments	32	40	50	280	194.5%

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 109
TITLE: Company History
COMPANY: XAO Industrie
REGION: Europe
UNITS: Millions of Dollars and Actual Units .

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	.9	1.1	1.5	1.7	40.6%
Workstation Shipments	46	61	80	91	40.5%
Mechanical					
Total Revenue	.0	.0	.0	1.7	NA
Workstation Shipments	0	0	0	91	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	.9	1.1	1.5	.0	-100.0%
Workstation Shipments	46	61	80	0	-100.0%
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	.9	1.1	1.5	1.7	40.6%
Workstation Shipments	46	61	80	91	40.5%
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER:	110
TITLE:	Company History
COMPANY:	Xilinx
REGION:	Europe
UNITS:	Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	1.9	2.5	3.2	4.5	55.3%
Workstation Shipments	0	0	0	0	NA
Mechanical					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
AEC					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
GIS/Mapping					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Electronic CAE					
Total Revenue	1.9	2.5	3.2	4.5	55.3%
Workstation Shipments	0	0	0	0	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Technical Workstation					
Total Revenue	.0	.0	.0	.2	NA
Workstation Shipments	0	0	0	0	NA
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	1.9	2.5	3.2	4.3	51.3%
Workstation Shipments	0	0	0	0	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 111
TITLE: Company History
COMPANY: Ziegler
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	16.9	8.1	14.1	15.0	-5.8%
Workstation Shipments	129	0	0	495	96.0%
Mechanical					
Total Revenue	4.0	2.4	4.2	5.8	20.3%
Workstation Shipments	0	0	0	193	NA
AEC					
Total Revenue	1.5	.9	1.8	1.8	9.1%
Workstation Shipments	0	0	0	59	NA
GIS/Mapping					
Total Revenue	1.1	.6	1.0	1.3	9.5%
Workstation Shipments	0	0	0	45	NA
Electronic CAE					
Total Revenue	3.9	2.3	4.2	3.1	-11.6%
Workstation Shipments	0	0	0	99	NA
IC Layout					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
PCB Layout					
Total Revenue	6.3	2.0	2.8	3.0	-31.3%
Workstation Shipments	129	0	0	99	-12.3%
Technical Workstation					
Total Revenue	3.0	.0	.0	.0	-100.0%
Workstation Shipments	129	0	0	0	-100.0%
Host-Dependent					
Total Revenue	.0	.0	.0	.0	NA
Workstation Shipments	0	0	0	0	NA
Personal Computer					
Total Revenue	13.9	8.1	14.1	15.0	3.9%
Workstation Shipments	0	0	0	495	NA

Source: Dataquest
July 1990

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Historical Company Data

TABLE NUMBER: 112
TITLE: Company History
COMPANY: Zycad
REGION: Europe
UNITS: Millions of Dollars and Actual Units

	1986	1987	1988	1989	CAGR 86-89
All Applications					
Total Revenue	NA	5.4	5.3	7.9	NA
Workstation Shipments	NA	9	11	38	NA
Mechanical					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
AEC					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
GIS/Mapping					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Electronic CAE					
Total Revenue	NA	5.4	5.3	7.9	NA
Workstation Shipments	NA	9	11	38	NA
IC Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
PCB Layout					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA
Technical Workstation					
Total Revenue	NA	.0	.1	.1	NA
Workstation Shipments	NA	0	0	0	NA
Host-Dependent					
Total Revenue	NA	5.4	5.2	7.8	NA
Workstation Shipments	NA	9	10	37	NA
Personal Computer					
Total Revenue	NA	.0	.0	.0	NA
Workstation Shipments	NA	0	0	0	NA

Source: Dataquest
July 1990

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