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**SURVEY OF ATTITUDES OF
U.S. AND EUROPEAN SEMICONDUCTOR MANUFACTURERS
TOWARD ACCESS TO THE JAPANESE MARKET**

PREPARED FOR

**THE INTERNATIONAL SEMICONDUCTOR COOPERATION
CENTER (INSEC)**

PREPARED BY

DATAQUEST INCORPORATED

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FOREWORD

The following report is in response to the December 3, 1987 proposal submitted by Dataquest Incorporated to the International Semiconductor Cooperation Center.

Dataquest is pleased to have been asked to submit this project to you. According to the terms of our agreement, the following confidentiality statement applies:

CONFIDENTIALITY

International Semiconductor Cooperation Center agrees not to use Dataquest's name, either express or implied, in any of its advertising or sales materials without Dataquest's prior written permission. This report is being prepared for the internal use of INSEC and its members. The information in this report may be shared by INSEC and its member, but may not be republished or distributed, in whole or in part outside of the recipient organizations without Dataquest's prior written permission. INSEC may, however, release the summary results (Sections I and III) of this report to the press. Dataquest agrees to not publish or make known to others the subject or results of this research without International Semiconductor Cooperation Center's prior consent. Dataquest reserves the right, however, to reuse the nonproprietary data and the analysis of industry-related information from the study in its continuing analysis of the industries covered. Dataquest will publish a newsletter summarizing the results of the survey. This newsletter will be reviewed by INSEC and will not be released until the survey has been made available to INSEC's members. Information from Dataquest's Japanese Semiconductor Industry service may only be used within INSEC.

The information provided in this report reflects the contents of our December 3, 1987 proposal.

Once again, Dataquest wishes to thank you very much for the opportunity to be of service and we look forward to assisting you with your consulting needs in the future.

Sincerely,

Stan Bruederle
Vice President
Components Division

INTRODUCTION

PURPOSE OF SURVEY

The International Semiconductor Cooperation Center (INSEC) was founded in March 1987 as a result of the 1986 semiconductor trade agreement between the United State and Japan. INSEC is a public foundation with the stated purpose of "assisting in stimulating international cooperation in the field of semiconductors within the Japanese market".

To determine the best way to serve it's stated purpose, INSEC has conducted a number of surveys of Japanese semiconductor users and foreign based semiconductor manufacturers. For this survey, Dataquest was asked to survey executives located at headquarters of U.S. and European based semiconductor manufacturers to determine their attitudes toward their companies access to the Japanese semiconductor market.

SURVEY CONCLUSIONS

The companies surveyed are seeing an improved attitude by Japanese customers to buy their semiconductor products. As a result of the U.S. - Japan semiconductor trade agreement, MITI's efforts to encourage Japanese companies to buy semiconductors from foreign based manufacturers, and an overall improvement in the business environment, many U.S. and European semiconductor manufacturers are increasing their efforts to improve their share of the Japanese semiconductor market.

Companies that responded to the survey generally feel that the Japanese market is the toughest market to penetrate in the world. Japanese customers demands for quality, service, delivery time and price are challenging. A significant number of companies consider demands for delivery times and prices to be unreasonable compared to customers in other parts of the world. The perceived difficulty of doing business in Japan has caused some companies to limit their investment in doing business in Japan, while others have increased their determination to be successful in the large Japanese market as Japanese customers become more willing to consider foreign sources for their products.

One third of the companies surveyed were not aware of INSEC or of what INSEC's role is. The participants suggest a variety of ways that INSEC can help them sell semiconductors in Japan.

Dataquest believe that INSEC can become more active in resolving issues that act as barriers to market access.

Dataquest also believes that foreign semiconductor manufacturers must recognize that they must equate the performance of Japanese semiconductor suppliers to be able to access the Japanese market.

BASIC QUESTIONNAIRE INFORMATION

Date of Survey: February 1988

Target Survey Group: Major U.S. and European semiconductor manufacturers (34 companies)

Effective Replies Received: 23 companies

Distribution of All Participants: 17 U.S.-based, 6 European-based

Percent of 1987 Worldwide U.S. and European Semiconductor Revenues Represented by All Participants: 60%

SUMMARY OF REMARKS OF U.S. AND EUROPEAN MANUFACTURERS REGARDING DOING BUSINESS IN JAPAN

General:

- Investment in production facilities in Japan is not profitable because of the current low levels of business and high cost.
- Partnerships are considered a lower cost alternative for achieving a presence in the Japanese market, therefore very popular.
- Sales in Japan are increasing due to:
 - Growth of Japanese market.
 - The weak dollar.
 - MITI efforts to encourage acceptance of foreign suppliers by Japanese customers.
 - Effective product positioning for Japanese market.
 - Emphasis on improving service and quality.
 - Companies entering market or product niches where there is less competition.
 - Large investment in the market.

Quality:

- Quality demands tough, but generally not unreasonable.
- Japanese customers demand the highest quality at the lowest price.
- Customers don't supply information with failed devices to help suppliers complete failure analysis.
- Suppliers must meet exact specifications, often requiring special test procedures for product sold in Japan.

Prices:

- Japanese force suppliers to maintain lower prices as yen has grown stronger.
- Demand extremely low prices, expect automatic price reductions twice per year.
- Japanese have multiple sources from local suppliers, maintaining very high level of price competition.

Delivery Time:

- Japanese customers expect on-time delivery and quick response to quick changes in demand. Demands are much more difficult than U.S. or European customers.
- Customers don't commit orders in advance, demand off-the-shelf service.
- Customers demands very difficult for small suppliers without local stock.

Service:

- Service requirements are tough, but generally reasonable.

Why Japanese Companies Buy Foreign Semiconductor Products:

- Sources of products not available from other sources.
- Meet customers demands for price, quality, service, and delivery.
- Suppliers build relationships with Japanese buyers. As relationship progresses, suppliers business increases.
- Companies supply standard products at low prices, with good delivery. Prices set in Japan to provide quick response and fast service.
- Japanese government is pressuring companies to buy more from foreign suppliers.

Why Japanese Companies Don't Buy Foreign Semiconductor Products:

- There is still a perceived bias toward buying from Japanese suppliers.
- Don't meet customers demands for price, quality, service, and delivery.
- Japanese companies are reluctant to add suppliers where several already exist due to high cost.

Differences Between Japanese Purchasing and Quality Assurance Procedures and Foreign Customers:

- Japanese customers require comprehensive reliability and test reports for product approval.
- Quality assurance procedures are secretive, don't share criteria unless failures occur.
- Japanese customers are much more exacting formal and disciplined. Factories, quality assurance and failure analysis procedures are reviewed more extensively.
- Considered by some companies to be unreasonably difficult.

Effect On Ability To Do Business With Japanese Customers:

- Can increase cost of doing business in Japan, requires having large quality staff.
- Makes it harder to enter the market.
- In the long term makes companies stronger competitors in world markets.

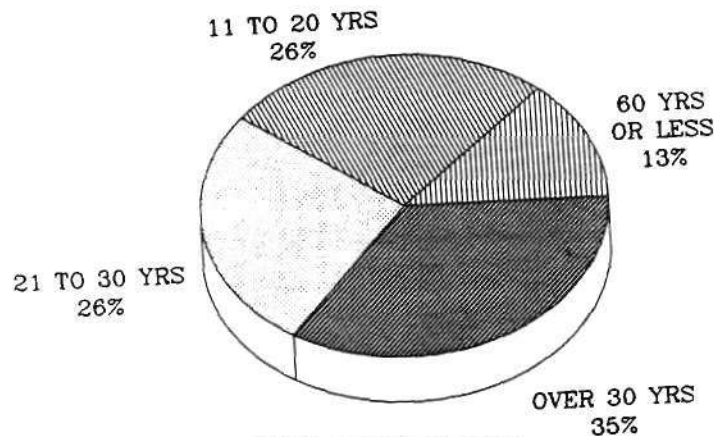
RESULTS OF QUESTIONNAIRE

STATISTICAL PROFILE OF MANUFACTURERS

Years Selling Semiconductors

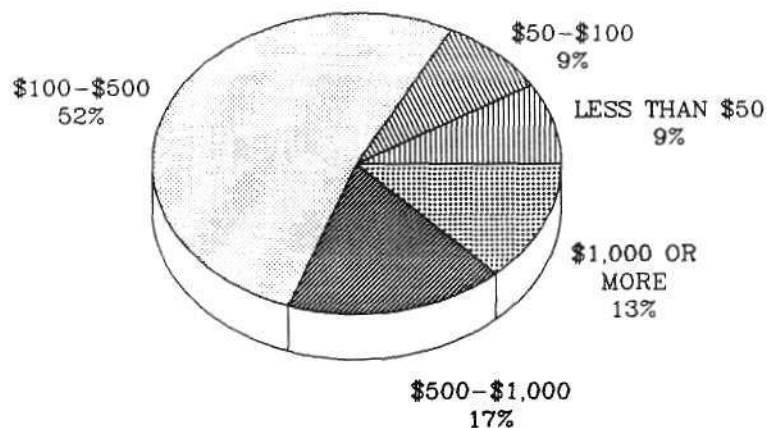
The respondents represented a cross section of companies from recent startups to early industry participants. The target list was the largest U.S. and European manufacturers listed in descending order. The selected companies represent 88 percent of worldwide revenues of U.S. and European manufacturers. The respondents appear to match the distribution of the total target group.

SAMPLE PROFILE: YEARS COMPANY HAS BEEN SELLING SEMICONDUCTORS

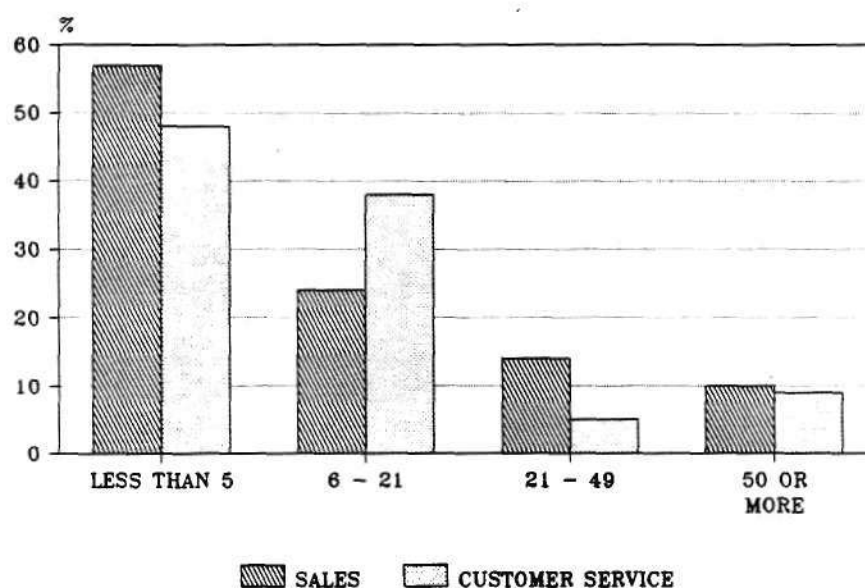


SIZE OF BUSINESS

(1987 Worldwide Revenues in \$ Millions)



How many sales people and customer service/support people do you have in Japan?



Fifty seven percent of the participants surveyed have five or less sales people in Japan. Ten percent have more than 50 sales people. The distribution of customer service people was similar.

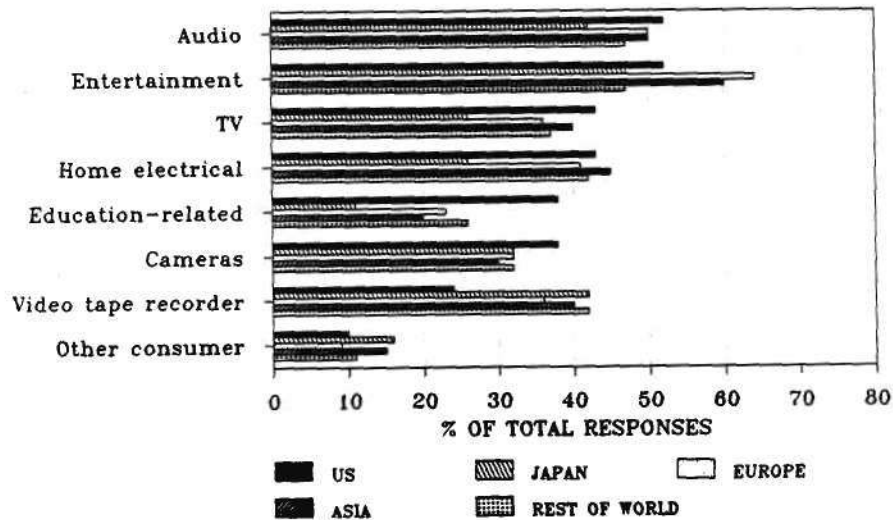
Indicate by geographic area listed the application markets into which you currently sell semiconductors.

PERCENT OF RESPONDENTS SELLING IN EACH MARKET

	<u>U.S.</u>	<u>JAPAN</u>	<u>EUROPE</u>	<u>ASIA</u>	<u>ROW</u>
Industrial					
Communications	95	84	95	90	79
Peripherals	90	79	86	85	79
Measuring Instruments	90	74	77	70	74
Office Machines	86	68	77	70	74
Computers and Terminals	81	68	77	80	74
Other	38	32	32	20	21
Consumer					
Audio	52	42	50	50	47
Entertainment	52	47	64	60	47
TV	43	26	36	40	37
Home Electronics	43	26	41	45	42
Education	38	11	23	20	26
Cameras	38	32	32	30	32
Video Tape Recorder	24	42	36	40	42
Other	10	16	9	15	11
Military	81	32	73	15	32
Other	19	5	23	10	11

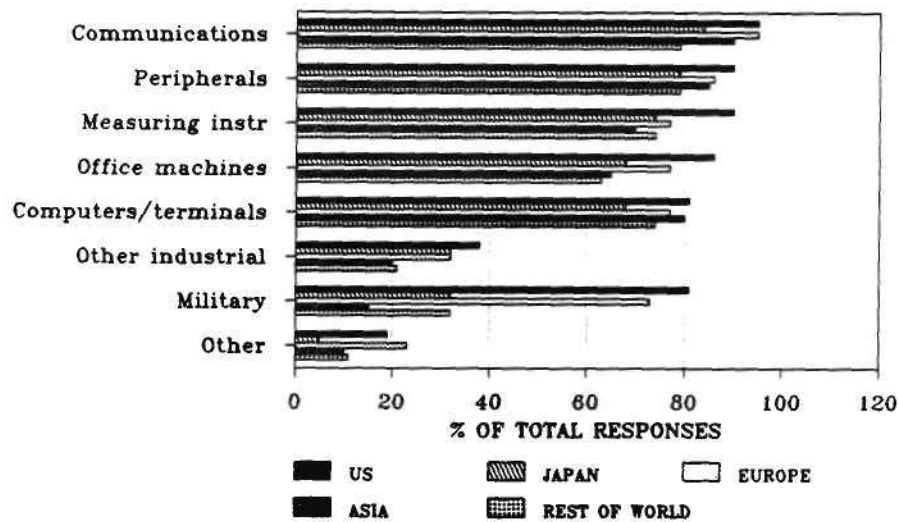
COMPANIES PARTICIPATION IN APPLICATION MARKETS

Industrial/Military Applications Market Where Semiconductors are Sold



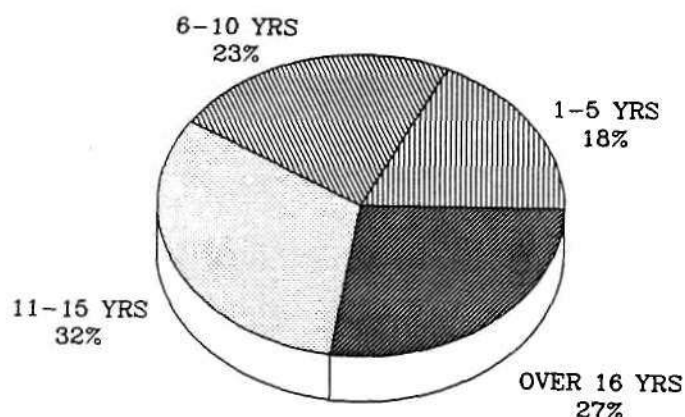
COMPANIES PARTICIPATION IN APPLICATION MARKETS

Consumer Applications Markets Where Semiconductors Are Sold



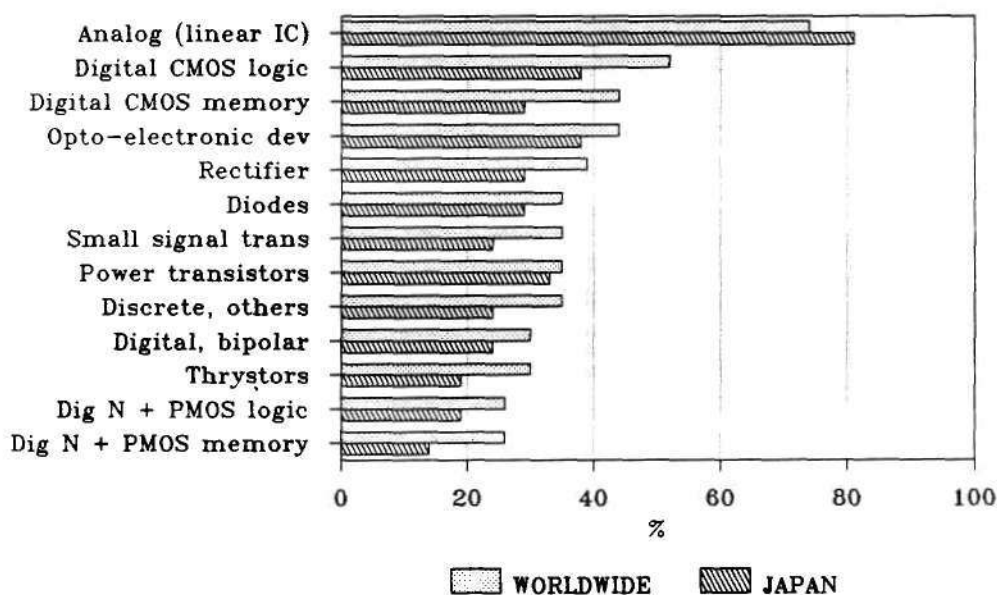
PERCENT OF COMPANIES PARTICIPATING IN EACH MARKET

How many years has your company been selling semiconductors in Japan?



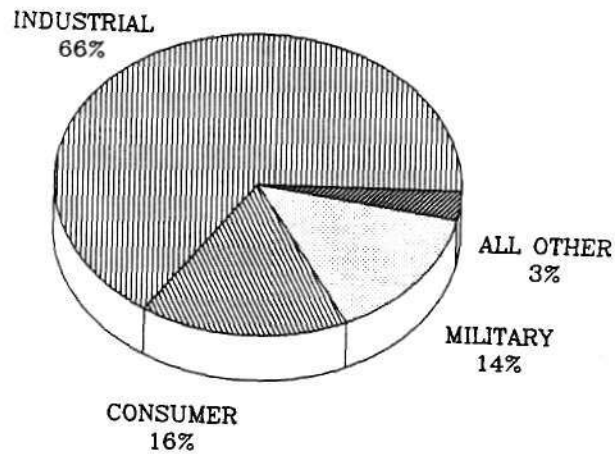
Fifty nine percent of respondents indicated that their company has been selling in Japan more than 10 years. Eighty-seven percent of the companies that responded have been in business for more than ten years.

Which of the following semiconductor types does your company manufacture and sell worldwide? in Japan?



In all product categories but linear fewer companies make and sell their products in Japan than they do in other world markets. This is particularly true of the smaller companies.

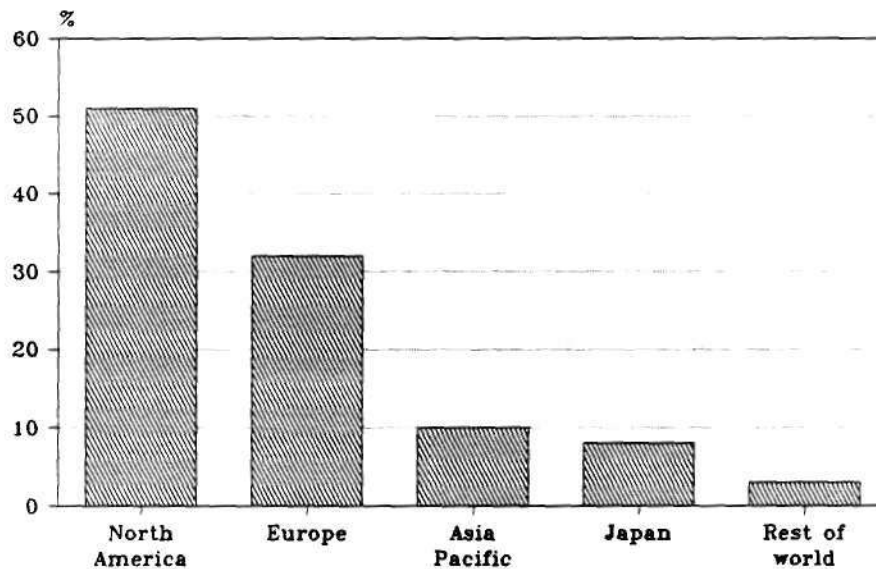
What is the percentage breakdown of the worldwide application markets into which your company sells semiconductor products?



U.S. and European companies sell predominantly to the industrial markets. European companies tend to do a larger part of their business in the consumer markets than U.S. companies.

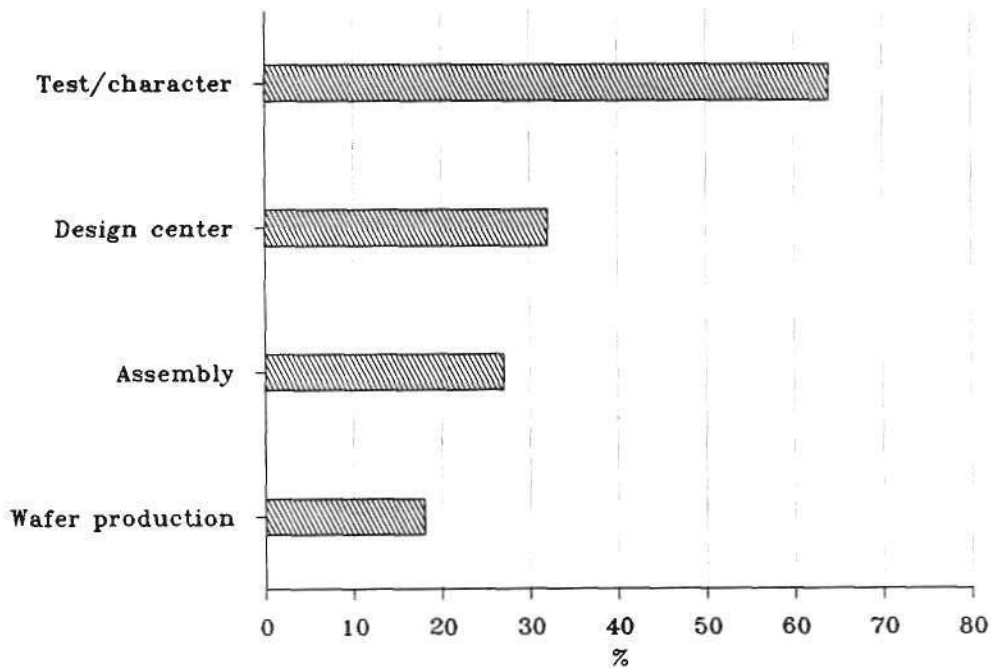
What is the percentage breakdown of the worldwide geographic areas into which your company sells semiconductor products?

COMPANIES' SALES OF SEMICONDUCTORS IN REGIONS OF THE WORLD



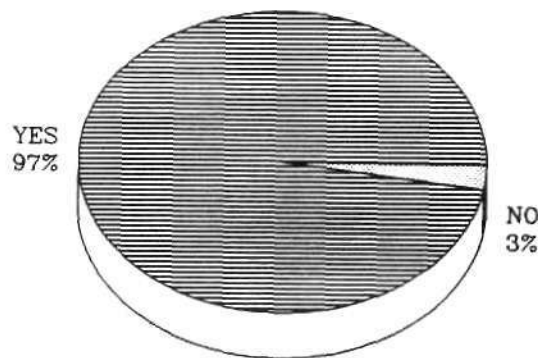
The U.S. and European companies surveyed do an average of about eight percent of their business in Japan and about fifteen percent in Asia/Pacific/ROW.

What facilities do you have in Japan?



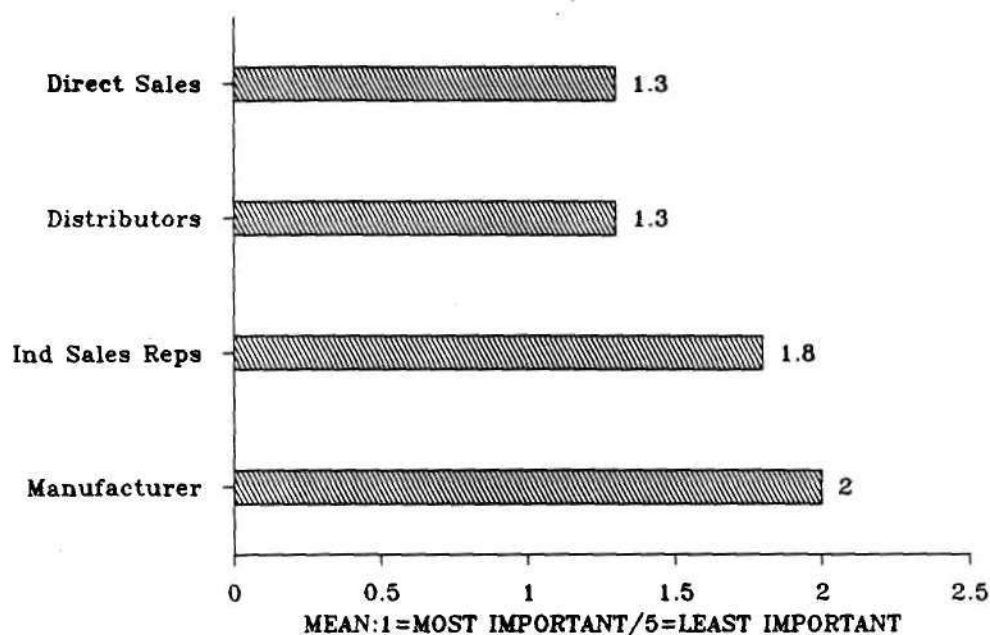
Most of the companies surveyed (64 percent) have test and characterization facilities in Japan. Eighteen percent have wafer fabrication facilities in Japan. Nearly half currently have design centers in Japan.

Do you inventory or stock semiconductor products in Japan?



Almost all companies surveyed stock or inventory products in Japan.

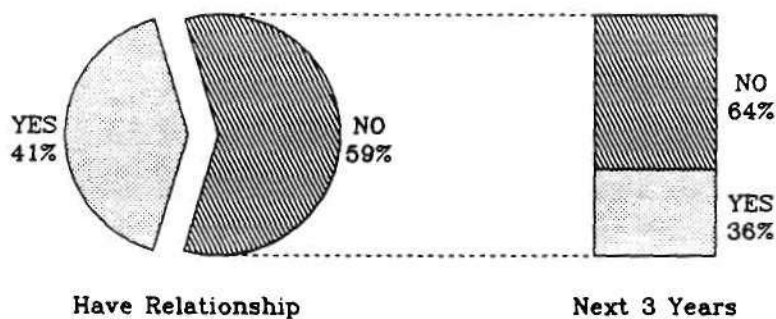
What sales channels do you use in Japan?



All channels listed are on average considered at least somewhat important. Direct sales and distributors are the most important. Another sales channel being used is trading companies. One company commented, "Tried all above, not successful, gave up, can't sell."

ANALYSIS OF MARKET ACCESS ISSUES

Have you established a partnership with a Japanese company for the purpose of increasing your share of business in Japan?

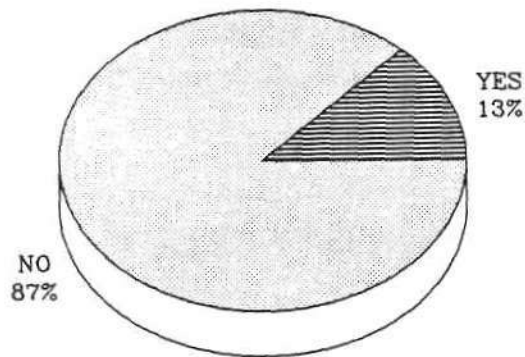


Partnership relationships are considered important to penetrating the Japanese market. Within the next three years 62 percent of the companies surveyed plan to have Japanese partners.

Do you intend to establish a partnership within the next three years?

<u>YES</u>	<u>NO</u>	<u>WHY OR WHY NOT?</u>
X		It depends on market access conditions
X		Foundry relationship
	X	We're doing well without this.
	X	Due to prior difficulty in penetrating the Japanese market, management not geared towards heavy investment in Japan. There is less risk and higher payback in other geographic markets.
X		Access to markets and technology.
X		To break cultural barriers and customers preference for Japanese products.
	X	No need.
	X	Haven't been successful, have no immediate plans to try this.
	X	Doing well without.
X		Japan prefers to buy from local resources.
	X	Already do as well under corporate sponsorship.

Do you intend to build initial or additional production facilities in Japan over the next three years?



The majority of companies do not plan to build manufacturing facilities. They feel that the current strategy of local stock and test/characterization capabilities will support their sales objectives. A number of respondents indicate that it is not financially attractive to start manufacturing in Japan.

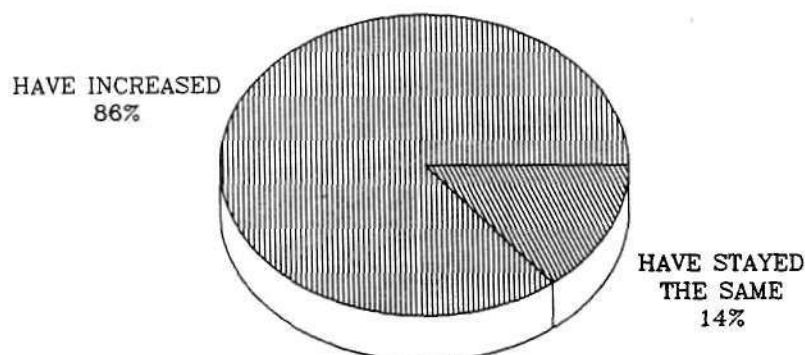
Do you intend to build initial or additional production facilities in Japan?

<u>YES</u>	<u>NO</u>	<u>WHY OR WHY NOT?</u>
X		Extension of local production.
X		We are always considering this but the 3 year period is rather long and all I can say is that at the moment we have no intentions.
	X	Market access too difficult
	X	Sufficient capacity available in existing production facilities.
	X	Primary source from Singapore, secondary from Thailand. However, foundry sources in Japan are of interest.
	X	No need.
	X	Adequate.
	X	Current situation adequate.
	X	Don't see need.
	X	Evaluate the investment, don't feel that payback is adequate, would rather invest in other areas of the world where payback is greater.
	X	Too expensive.
	X	High cost of labor, better geographic areas to invest in presently.
	X	We have intention to do so but not in three years.
	X	No need.
	X	No one will buy from us, spent \$200K, got nowhere.
	X	No need.
	X	Doing well from North America. Might consider sending a salesperson of our own in the near future to help out sales force at Tokyo Electron Limited.

Do you intend to build initial or additional production facilities in Japan? (Continued)

<u>YES</u>	<u>NO</u>	<u>WHY OR WHY NOT?</u>
X		Large market, our business is expanding in Japan.
	X	Market penetration plans do not justify production facilities.
	X	Deemed not cost effective.
	X	Already have adequate capacity.

Have inquiries and orders in the Japanese market increased, decreased, or remained the same over the past one year?



Most of the respondents have seen inquiries and orders increased in the past year. No one has seen a decrease. During the last year, semiconductor sales in Japan have grown almost 20 percent in dollars, but only about 4 percent in yen.

Have your semiconductor sales to Japan increased, decreased, or remained the same over the past one year? over the next one year?

	<u>PAST YEAR</u>	<u>NEXT YEAR</u>
	<u>%</u>	<u>%</u>
Increase	71	90
Decrease	0	0
Stay the same	29	10

U.S. and European companies are seeing increasing sales to Japan. This seems to be attributable to a combination of increased efforts by the semiconductor companies and greater willingness by Japanese customers to buy from their company. MITI's efforts are mentioned by some companies as one reason for Japanese customers willingness to buy from them.

Factors which caused semiconductor sales to Japan to increase, decrease, or remain the same over the past one year?

Increase	Going into market niches.
Increase	Local production
Increase	Higher share in equipment for export.
Increase	Emphasis on service and quality.
Increase	Innovating product range.
Increase	Extending sales force.
Increase	Market growth.
Increase	Introduction of new products.
Increase	Additional distribution channels.
Increase	High quality
Increase	ASIC
Increase	Patient business man on both sides.
Increase	Normal growth.
Same	Didn't meet proposed deadlines.
Same	Yen instability caused customer uncertainty.
Same	Purchases put on hold.
Increase	Factory automation market growth.
Increase	Office automation market growth.
Increase	Automatic test equipment.
Increase	Military market growth.
Increase	Weak dollar.
Increase	Increased willingness of Japanese OEMs to buy foreign components.

Factors which caused semiconductor sales to Japan to increase, decrease, or remain the same over the past one year? (Continued)

Increase	Normal growth.
Increase	Broadening our standard product line.
Same	Japanese competition.
Increase	Recovery of Japanese economy.
Increase	Customer familiarization with our products.
Increase	Currency appreciation.
Increase	Trade imbalance pressure.
Increase	No Japanese competition.
Increase	Excellent quality and service image.
Same	Discontinued product that was a mature product in Japan.
Increase	Larger investment.
Increase	Interest by management is great.
Same	Did not have any individuals located in Japan.
Same	Dollar sales flat.
Same	Unit sales higher
Same	Price erosion.
Increase	Market acceptance and credibility.
Increase	MITI influencing Japanese companies to import more.

Factors which will cause semiconductor sales to Japan to have increase, decrease, or remain the same over the next one year?

Increase	Going into market niches.
Increase	Local production
Increase	Concentration on special "high-tech" ICs.
Increase	Innovating product range.
Increase	Extending sales force.
Increase	Quality
Increase	Only the trend. Market access is too difficult to get fair share.
Increase	New systems going into volume production.
Increase	Using our S/C
Increase	Right product positioned correctly for success with growing customers.
Increase	Normal growth.
Increase	New products.
Increase	Stable yen.
Increase	New products.
Increase	MITI pressure to buy foreign products.
Increase	General increase in economic activity.
Increase	New product/business growth.
Increase	Currently adding more capacity. Demand has already increased beyond our current capacity.
Increase	Normal growth due to broadening of product line.
Increase	New products.
Increase	Expanded sales representation.
Increase	Domestic consumption on the rise.
Increase	Addition of special deal with one of Japanese semiconductor manufacturers.

Factors which will cause semiconductor sales to Japan to have increase, decrease, or remain the same over the next one year? (Continued)

Increase	Customer familiarization.
Increase	Currency appreciation.
Increase	Trade imbalance pressure.
Increase	More use of our companies' proprietary products.
Increase	Increased emphasis in proprietary products for video segment.
Same	Price erosion. (Unit volume will increase but price erosion should cause dollar sales to remain the same.)
Increase	Large investment in this market.
Increase	Management commitment.
Increase	Locating a person in Japan.
Increase	Entering new market with new products.
Increase	Market acceptance and credibility.
Increase	Japanese MITI influencing Japanese companies to import more.

By what percentage do you expect sales to increase?

	<u>PAST YEAR</u>	<u>NEXT YEAR</u>
	<u>%</u>	<u>%</u>
1 - 10%	15	5
10 - 19%	23	21
20 - 49%	31	47
50 - 100%	31	26
<u>MEAN INCREASE:</u>	35	36

The mean sales increase of the companies surveyed was significantly greater than the 1987 or 1988 market growth. The growth rate in 1988 is expected to be higher than it was in 1987. Only 5 percent of the companies are expecting less than 10 percent growth in 1988 compared to 15 percent in 1987.

What steps is your company planning to take to increase its share in the Japanese market?

	<u>%</u>
Increase sales force	77
Develop market-specific product	68
Increase service staff	59
Publish literature in Japanese	45
Increase advertising	36
Increase capital investment	27
Increase service inventories	27
All other steps	32

(May mention more than 1 step)

Most of the companies surveyed plan to add sales and service staff and to become more oriented to the Japanese market by developing market specific products. Forty-five percent plan to publish their literature in Japanese. Only 27 percent of the participants feel that additional capital spending or inventory investment are required to increase their share of the Japanese market.

What steps is your company planning to take to increase its share of the Japanese market? Other steps planned.

Quality improvement.

Enhance distribution channels.

Enhance customer opportunities.

Place American company manager to improve communications.

Business contract with semiconductor manufacturers.

"Tried all, aren't doing anymore".

Customer oriented production, marketing, and sales.

What is the current attitude of Japanese customers toward buying your company's product?

	<u>%</u>
Very positive	40
Somewhat positive	35
Neutral	20
Somewhat negative	0
Very negative	0
Don't know	5

Seventy five percent of the participants believe that the attitudes of Japanese customers toward buying their products are positive.

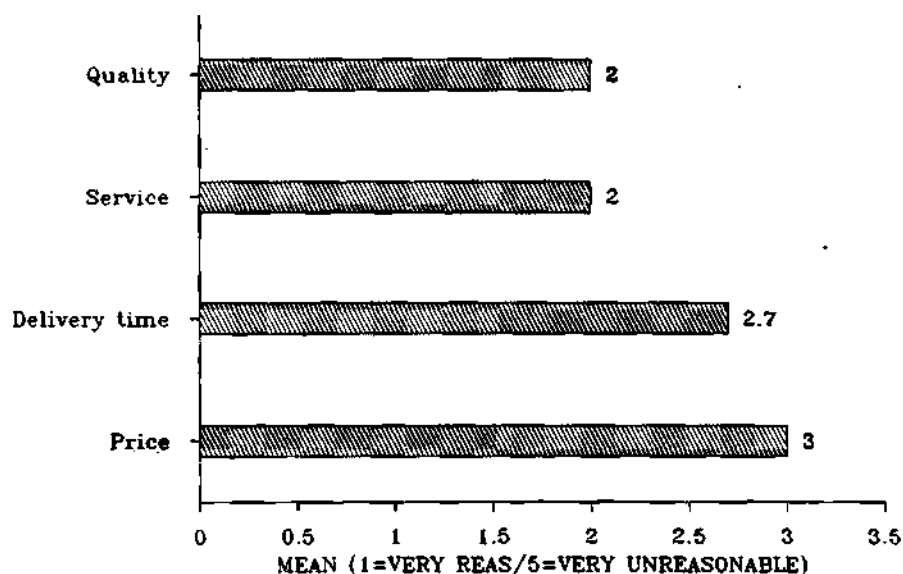
In comparison to one year ago, how would you rate the attitude of Japanese customers toward buying your products?

	<u>%</u>
Much better	15
Somewhat better	65
The same	15
Somewhat worse	0
Much worse	0
Don't know	5

Eighty percent of the participants feel that Japanese attitudes are better than they were one year ago.

On a scale of 1 to 5, with 1 being very reasonable and 5 being very unreasonable, how reasonable do you feel the Japanese semiconductor market demands are with respect to the following areas:

HOW REASONABLE ARE JAPANESE MARKET DEMANDS — MEAN RATINGS



80 percent of the respondents feel that Japanese quality demands are somewhat or very reasonable.

70 percent of the respondents feel that Japanese service demands are somewhat or very reasonable.

60 percent of the respondents feel that Japanese delivery time demands are somewhat or very reasonable while 30 percent felt that they are somewhat or very unreasonable.

40 percent of the respondents feel that Japanese price demands are somewhat or very reasonable. Another 40 percent feel the opposite, that they are somewhat or very unreasonable.

Most U.S. and European semiconductor manufacturers believe that they are able to meet Japanese customers demands for quality and service. In the areas of price and delivery, a significant percentage of the respondents feel that Japanese demands are unreasonable compared to other customers.

SUMMARY OF RATINGS OF JAPANESE SEMICONDUCTOR DEMANDS

	<u>Quality</u>	<u>Service</u>	<u>Time</u>	<u>Price</u>
Very Reasonable	30	30	15	10
Somewhat Reasonable	50	40	45	30
Neutral	10	25	10	20
Somewhat Unreasonable	5	5	20	30
Very Unreasonable	5	0	10	10

Percent of Respondents Indicating Each Rating

- 25 -

Why do you feel the Japanese semiconductor market demands are unreasonable with respect to the following areas?

QUALITY

They want highest quality, demand lowest price.

Very reasonable if you meet exact specifications.

Special test screens had to be set up to satisfy Japanese requirements.

PRICE

They want highest quality, demand lowest price.

Very reasonable if we meet exact specifications.

Always looking for advantage on exchange rate.

They have 3 or 4 sources of supply in their own country. This makes it much tougher to compete.

Too much competition. Prices are so low sometimes.

Very price competitive.

Japanese are dealing with swing of Yen by taking swings as less profit. They are reluctant to raise prices, forcing us to take lower margins too.

DELIVERY TIME

Mitigates against small vendors and non-local stock.

No leeway in delivery time.

Very reasonable if you meet exact specifications.

Over emphasis on J.I.T. delivery.

Customer is God-like, demands off the shelf availability.

Japanese standards are tougher.

Customers strict about delivery. U.S. too sloppy.

They demand short delivery times. This necessitates holding local inventory.

They want lowest price, but won't commit to orders in advance.

Won't go with standard lead-times, want off the shelf service.

SERVICE

Very reasonable if you meet exact specifications.

Why do you feel that Japanese users choose to buy your products?

Due to price and availability.

Distinctive features, build up of reputation as a reliable supplier, recognition of competitiveness concerning price, quality, and delivery.

We are generally accepted for innovation especially when we are price/quality competitive. Otherwise our prices give us the sale.

Unique products offering performance not otherwise possible.

Product application, quality, service, price, relationship.

They like our niche market products.

Quality and service.

Quality, service, price.

We supply standard products at low prices, good delivery, readily available — our pricing people in Japan set prices quickly to ensure fast service.

Unique products with a quality record.

They don't manufacture our specific niche products.

Performance, quality, and reliability.

Excellent quality. Good price, performance ratio.

Technological innovations.

We respond quickly to their needs.

Niche specific products (MPUs, Logic Devices).

We are building our relationship with Japanese buyers, as this progresses, they buy more from us.

Japanese government is pressuring Japanese companies to buy more from American suppliers.

Not enough experience in this market yet to be able to say.

Products have unique features, customizing, going after niche markets.

We conform to customers' exacting specifications, they buy.

Why do you feel that Japanese users choose not to buy your products?

Unreasonable low prices from competitors.

Preference for indigenous products.

Domestic alternative.

Once they have a domestic source.

Poor quality or service.

Pricing not competitive enough.

Not in there at the right time with new products.

Japanese reluctant to switch products (high cost).

No experience.

Bias towards domestic or internal suppliers.

Competition.

We do very well in Japan. Automotive and telecommunications markets are opening up within the past 18 months. Previously these two markets were very difficult to penetrate.

Nationalistic.

Japanese bias.

The Japanese construct strategies to help each other.

Sometimes price and/or delivery.

Find cheaper solutions.

Don't like to buy from the U.S.

Loyalty to primary source on secondary source products.

Why do you feel that Japanese users choose not to buy your products? (Continued)

When price, quality, delivery and service are not competitive.

When all things are equal, Japanese companies prefer to buy Japanese.

Don't known. Not a lot of experience in Japanese market yet.

Other suppliers (Japanese).

Supply (Nationalism). Even when we match the Japanese in terms of price and quality, they still prefer to buy locally.

Inadequate quality.

Nationalism.

How do Japanese purchasing and quality assurance procedures differ from those of U.S. and European customers?

Request very detailed and comprehensive reliability and test reports for product approval.

Their specifications are similar. Quality assurance test differ, e.g., pressure cooker test which is important (some European manufacturers do not have facilities for this test).

QA procedures are very secretive. Usually the criteria are unknown unless part fails.

They are enforced.

Purchasing – procedures don't differ much.

Quality assurance – very demanding, higher quality levels expected, less flexible with respect to their demands.

Expect more from supplier.

They enforce their agreement requirements.

Differences are disappearing. European and U.S. procedures are becoming like those of the Japanese. Quality control are becoming more and more important to U.S. and European semiconductor manufacturers.

Very little.

Unreasonably tight.

Purchasing – expect same prices for small and large quantities.

Quality – much more rigorous.

Not much difference except some particular customers.

How do Japanese purchasing and quality assurance procedures differ from those of U.S. and European customers? (Continued)

Quality specs are company specific.

They don't differ.

Generally expect more data available, even for newly introduced products.

Japanese price more aggressively than European and are obsessed with quality. U.S. doesn't place the same emphasis on quality and is not as aggressive on price.

The Japanese are more exacting, formal and disciplined. They review factories, quality assurance, failure analysis methodologies to a greater extent.

Don't differ greatly.

More stringent.

Too many differences to expound on. More exacting than either U.S. or European procedures.

How do these differences affect your ability to do business with Japanese customers?

Necessity of a large QC group in Japan.

We think our ability is not affected. It just requires a different approach.

Difficult to offer exactly correct product for users need.

Greater challenge.

We pay more attention to quality and provide the Japanese with the information they request.

Need faster reaction time to customer requests. Particularly with respect to delivery time.

We must comply with their needs.

As long as we do it their way, we have no problem doing business with Japanese customers.

Not much affect. We have good quality and reliability and price and delivery.

By making things difficult.

Makes it tough.

We can handle it.

Differences are small, don't really affect us.

Our technology advantage often negates immediate need for complete documentation.

Must respond quickly to their quality and other specifications.

Initially these differences make it more difficult to enter Japanese market. Eventually it makes us a better company and a stronger competitor.

Disadvantageous, because these more stringent requirements raise our costs. Local testing and characterization required (preferred).

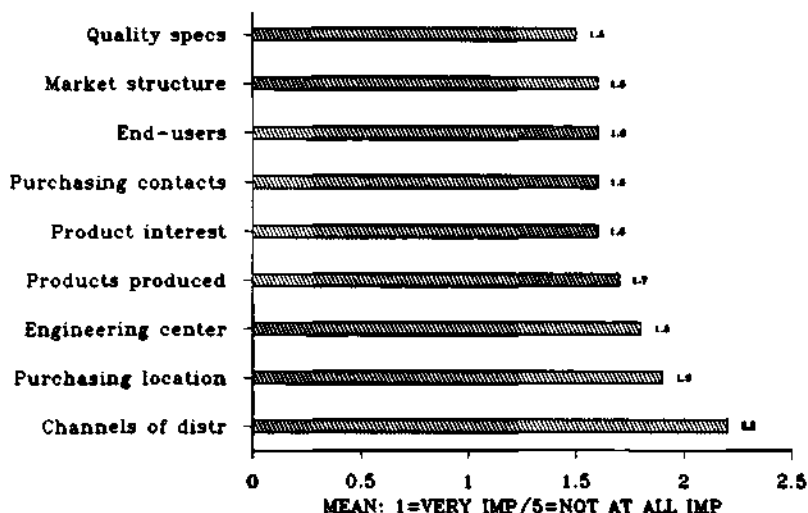
They require us to adapt to the local culture. You can't go into the Japanese market and establish yourself overnight. You must emphasize service and build credibility slowly. Took our company 5-8 years to be doing well.

Will your company provide details of quality assurance system and outgoing quality specifications to Japanese customers?

	<u>ASSURANCE</u>	<u>STANDARDS</u>
	%	%
Yes	95	86
No	5	14

Almost all of the companies are willing to provide detailed quality assurance information to their Japanese customers.

How important is it for your company to obtain the following information about the Japanese market?



The majority of respondents consider all of the types of information listed to be somewhat or very important. More than 80 percent of the respondents considered the first six types of information somewhat or very important. Quality Specification, End-Users, Primary Product Interest, and Products Produced are considered very important by over 60 percent of the respondents.

PERCENT OF RESPONDENTS INDICATING EACH IMPORTANCE RATING

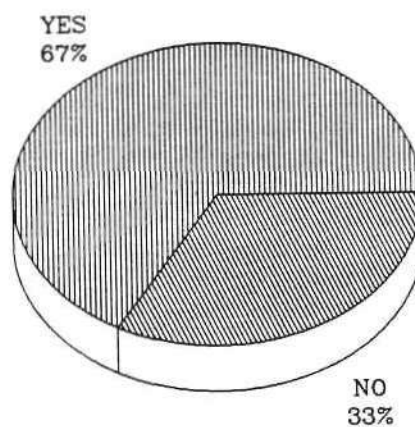
	Important			Unimportant	
	<u>Very</u>	<u>Somewhat</u>	<u>Neutral</u>	<u>Somewhat</u>	<u>Very</u>
Quality Specifications	66	19	10	5	0
Market Structure *	48	38	5	5	0
End Users	66	14	10	10	0
Names of Purchasing Contacts*	47	43	0	5	0
Primary Product Interest	62	24	5	9	0
Products Produced	62	19	10	9	0
Engineering Center(s)*	48	29	14	5	0
Purchasing Locations	47	19	24	5	0
Channels of Distribution*	38	28	10	14	5

* Where noted the figures don't total 100 percent because one of the respondents failed to answer one of the questions.

Other types of information mentioned:

- Proper ways to communicate.
- How to build long-term relationships with Japanese customers.
- Product and design trends.
- Organizations to help sell in Japan.

Is your company aware of INSEC?



One third of the companies that say they were not aware of INSEC or of what INSEC can do to help them are smaller U.S. companies and some of the European companies.

What can an organization like INSEC do to assist your company in selling semiconductors to Japan?

Establish a closer contact to the management level of the Japanese industry.

We don't know INSEC, and so cannot comment.

Organize users to form common QA specs with shared qualifications.

Perhaps we could help INSEC.

Publish memos and send to manufacturers regarding: quality, procedures, government restrictions, market trends.

Very little. Meant mainly for companies not currently in Japan and doing business only through representatives.

Nothing.

Can't be of any help at particular time.

Not sure.

Our gallium arsenide products were left out of recent trade discussions. We are still paying duties to get into Japan. INSEC should assist us in getting these trade restrictions dropped.

Please publish a table of Japanese semiconductor users (with individual name) showing how much parts/materials they buy from U.S. manufacturers and how much they sell their finished goods to U.S. market.

Information on latest product and design trends.

Selling assistance.

By supplying overall market data and industry trends in Japan.

Can't think of anything in particular.

INSEC should attract Japanese engineers and managers to its exhibits. INSEC could meet with our companies marketing department to exchange information periodically. INSEC could conduct seminars for foreign suppliers and invite people from our company.

Don't know what INSEC could do for us at this point.

No idea.

Not much in our particular case.

DATAQUEST ANALYSIS

The companies surveyed are seeing an improved attitude by Japanese customers to buy their semiconductor products. As a result of the U.S. - Japan semiconductor trade agreement, MITI's efforts to encourage Japanese companies to buy semiconductors from foreign based manufacturers, and an overall improvement in the business environment, many U.S. and European semiconductor manufacturers are increasing their efforts to improve their share of the Japanese semiconductor market.

Companies that responded to the survey generally feel that the Japanese market is the toughest market to penetrate in the world. Japanese customers demands for quality, service, delivery time and price are challenging. A significant number of companies consider demands for delivery times and prices to be unreasonable compared to customers in other parts of the world. The perceived difficulty of doing business in Japan has caused some companies to limit their investment in doing business in Japan, while others have increased their determination to be successful in the large Japanese market as Japanese customers become more willing to consider foreign sources for their products.

The companies surveyed are taking a variety of steps to increase their share of the market. The most widely used actions include:

- Increasing their sales force.
- Develop market specific products.
- Increase service staffs.
- Publish literature in Japanese.

Companies must make a large commitment to the Japanese market over a long period of time to successfully increase their business in Japan. Large financially strong U.S. and European companies have done this in the past and are now renewing their efforts since the trade agreement. In 1987 the five largest U.S. and European semiconductor companies in Japan had almost 70 percent of total sales by foreign companies in Japan of \$1.2 Billion. Over 40 companies split \$370 Million in sales for the rest of the market or an average of \$9.3 Million each.

As a result, companies are forming partnerships with Japanese companies to be able to better serve the Japanese market with investments that are consistent with their sales in Japan. Even companies in the top five are doing this. Within three years 62 percent of the responding companies plan to have established partnership relationships with Japanese companies. Only a few companies are planning to manufacture semiconductors in Japan. The business levels of all but the very largest foreign suppliers are too small to justify local manufacture.

While Japanese customers attitudes are seen as improving, foreign semiconductor manufacturers still see Japanese customers as biased towards buying from local sources, all other things being equal. To the extent that this attitude is believed to exist, foreign manufacturers are reluctant to invest in penetrating the Japanese market. It is extremely important to the success of the semiconductor trade relationships between Japan and foreign countries that these perceptions be changed. INSEC can play a key role in accomplishing this. Some recommendations in this are appear in the next section.

On the other hand, foreign semiconductor manufacturers must understand that they will not be able to sell their products in Japan in the long term unless they meet customer demands to the same extent that Japanese semiconductor companies do, even if they are substantially tougher than other customers. Remember, when in Rome,!!

In this area, respondents to the survey seem to fall into three categories:

- Companies that have renewed their determination to succeed in Japan by offering products that Japanese customers need and meeting the tough customer demands. These tend to be the top U.S. and European semiconductor companies in Japan.
- Smaller companies that have innovative products that Japanese customers can't buy from other suppliers. Some of these companies indicated that they could get away without meeting all customers demands because of this technology edge.
- Companies with a limited technological edge, limited market share, and limited expectation for success in Japan.

Dataquest believes that only companies can meet the challenging demands of Japanese customers will be successful in the long term.

The Japanese market is different than the U.S. or European markets in its application market mix. The most obvious example is the large share the consumer electronics industry represents in Japan. This different market mix demands a different product mix from suppliers. Companies that want to successfully participate in the broad Japanese market must establish design centers in Japan to create the products that customers require. A significant number of the respondents to the survey have design centers in Japan.

INSEC has taken numerous steps to accomplish its stated purpose of stimulating international cooperation, but opportunities exist for INSEC to take an even more active role. For example, INSEC could become actively involved in communicating standard of performance in the industry to foreign suppliers. They could also become involved in resolving specific issues where foreign suppliers believe trade barriers exist. By becoming involved in specific cases INSEC can knock down the barriers on both sides of cooperation and facilitate the market success objectives of the semiconductor trade agreements.

DATAQUEST RECOMMENDATIONS

Steps Foreign Semiconductor Manufacturers Should Take

- **Report to INSEC any specific cases of unfair practices by Japanese customers.**
- **Establish programs to improve performance to meet customer demands for services, quality, price and delivery.**
- **Increase investment in Japan to be able to meet Japanese customers demands.**
- **Companies must publish all information in Japanese.**
- **Establish an organization at their headquarters to facilitate communication between local operations and Japanese customers.**
- **Set up design centers to develop products and support for Japanese customers.**

DATAQUEST RECOMMENDATIONS

Steps INSEC Should Take

- **Conduct seminars in the U.S. and Europe to become more widely known and to communicate to headquarters management who INSEC is and what INSEC's role is in Japan.**
- **Collect data and publish typical standards of performance in service, delivery time, and quality currently being accomplished by Japanese customers and their semiconductor suppliers.**
- **Conduct workshops about customer demand and show how Japanese suppliers meet demands.**
- **Set up a program to act as an intermediary in resolving specific cases where foreign suppliers believe unfair practices are occurring.**
- **Encourage Japanese customers to share their quality measurement procedures with foreign suppliers.**
- **Create a program to facilitate partnership relationships between foreign semiconductor manufacturers and Japanese foundry sources, test and characterization companies, design centers, and other organizations that can help foreign suppliers do business in Japan.**
- **Recognize and reward Japanese companies that are using a significant and growing share of foreign semiconductors.**
- **Recognize and reward foreign semiconductor manufacturers who are meeting demands of Japanese customers and gaining position in the Japanese market.**
- **Conduct workshop on Japanese purchasing methods using purchasing executives from Japanese companies.**

