ERNST & YOUNG LLP ■ Mergers & Acquisitions ■ Southwest Area/Dallas

May 28, 1998

To: Steve Carey - Sterling Software, Inc.

From: Brett Enzor - E & Y Dallas

cc: Tim Larson - E&Y Dallas
David Dorsett - E&Y Dallas

Re: Reimbursed Foreign Expenses - Information Required With Respect to Direct and Proximate Benefit Issues

The items set forth below identify certain information we believe necessary in determining whether various costs (the "Expenses") incurred by foreign subsidiaries of Sterling Software, Inc. and subsequently reimbursed by Sterling (the U.S. entity) were reasonably expected, at the time incurred, to create a "direct and proximate" benefit for Sterling.

Information provided in response to the items below should be specific, demonstrable and, if appropriate, quantifiable, and should contemplate both tangible and intangible benefits (*e.g.*, increased R&D, sales, markets, customer base, etc.). Additionally, information should be provided from the perspective of Sterling rather than the foreign subsidiaries.

- Please describe the activities, capabilities and market perception of the Applications Management Group ("AMG"), both before and after the Expenses were incurred, in line with our discussion May 27, 1998. Specifically, we would like to understand the environment for planning, modeling, designing and building applications and components both before and after the Expenses were incurred. Please describe how enhanced activities, capabilities and/or market perception has affected (or is expected to affect) AMG's market share and/or customer base. Can we identify specific new customers or targets (creating U.S. revenue) as a result? New markets?

- Please describe the anticipated benefits (*e.g.*, accelerated revenue growth, enhanced EPS, etc.) to Sterling of becoming the recognized leader in the fastest growing segment of the applications development market: component-based development.

- Please describe the anticipated benefits (if any) to Sterling from bridging the technology behind TI's Composer™ and Sterling's KEY™ software suite to create the new COOL family of products (including the COOL:Cubes™ application), and please describe how the Expenses relate to such anticipated benefits. Please describe how the combination of such technologies is expected to affect Sterling's market share and/or customer base. Can we identify specific new customers/targets as a result of the acquisition which created U.S. revenue?

- Please describe the activities, capabilities, potential and market perception of Sterling's R&D function both before and after the Expenses were incurred.

- Please identify specific markets, specific customers (*e.g.*, the intelligence community), and/or specific financial benefits (if any) which are anticipated to accrue to Sterling in connection with the Expenses.

- Please identify specific "economies of scale" and/or specific "critical mass" benefits (if any) anticipated by Sterling in connection with the Expenses. Additionally, please identify market perception / customer base benefits anticipated to accrue to Sterling in connection with the Expenses.

- Please identify and describe specific harm (financial, market-share, reputation, goodwill, etc.) which the Expenses were designed and/or intended to prevent.

- Are there data/forecasts prepared in connection with the acquisition which reflect management's expectation that increased U.S. revenue will result from the acquisition?

Sterling Software Inc.
Transaction Cost Analysis

12. Reimbursed Foreign Subsidiary Expenses

The analysis thus far has not attempted to distinguish between costs incurred by foreign subsidiaries of Sterling and costs incurred by Sterling. That is, the discussion above has addressed the U.S. federal income tax consequences of various acquisition-related expenses under the assumption that Sterling (or a U.S. affiliate of Sterling) incurred such costs. As discussed in the Facts and Assumptions section above, many of the acquisition-related costs (specifically, foreign business integration costs) were initially paid by various foreign subsidiaries of Sterling and subsequently reimbursed by Sterling. The issue is whether such costs can be reflected in the U.S. federal income tax return of Sterling.

The separate corporate identities of a parent company and its subsidiary, and the long-standing common law respecting such separateness,[1] generally preclude the parent from deducting expenses paid or incurred by its subsidiary. The theory is that such costs relate to the business of the subsidiary rather than the business of the parent.[2] However, when an expense incurred by a subsidiary directly relates to the business of the parent, and the parent pays or reimburses such expense, the courts have been willing to allow the parent to recognize the deduction for U.S. federal income tax purposes.[3]

The test for determining whether a reimbursed expense incurred by a subsidiary is deductible by a reimbursing parent company is the "direct and proximate" benefit test. That is, when an expense incurred by a subsidiary creates a "direct and proximate" (rather than an "indirect and incidental") benefit for a reimbursing parent, the parent may generally deduct the reimbursement payments as ordinary and necessary business expenses.[4] Amounts relating to the day-to-day operations of a subsidiary's business and amounts relating to payments made to a subsidiary's employees have been held to create "indirect and incidental" benefits for a parent.[5] Distinguishing between "indirect and incidental" benefits and "direct and proximate" benefits requires a careful analysis of the facts and circumstances of each case.

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[1] See e.g. *Moline Properties, Inc. v. Comm'r*, 319 U.S. 436 (1943).

[2] See *Interstate Transit Lines v. Comm'r*, 319 U.S. 590 (1943); *South American Gold & Platinum Co. v. Comm'r*, 8 TC 1297 (1947); *Specialty Restaurants Corp. v. Comm'r*, 63 TCM 2759 (1992); *Columbian Rope Co. v. Comm'r*, 42 TC 800 (1964).

[3] See *Coulter Electronics, Inc. v. Comm'r*, 59 TCM 350 (1990); *Fall River Gas Appliance Company, Inc. v. Comm'r*, 42 TC 850 (1964), *aff'd*, 349 F.2d 515 (1st Cir. 1965); *Young & Rubicom, Inc. v. U.S.*, 410 F2d 1233 (Ct. Cl. 1969); *Fishing Tackle Products Co. v. Comm'r*, 27 TC 638 (1957).

[4] *E.g. Young & Rubicom v. Comm'r, supra; Austin Co. v. Comm'r*, 71 TC 955 (1979).

[5] *Austin Co. v. Comm'r, supra; Columbian Rope Co. v. Comm'r, supra.*

In *Coulter Electronics*,[6] a U.S. parent company ("Coulter") manufactured and distributed medical instruments which automatically counted blood cells. Coulter distributed its products throughout the world through wholly-owned foreign subsidiaries. Coulter provided its customers, primarily hospitals and laboratories, with repair and maintenance services pursuant to instrument warranties and service contracts. Because of the advanced technology within the instruments, and because customers were so dependent on the instruments in treating patients, approximately 95% of customers purchased repair and maintenance service contracts offered by Coulter. Coulter believed the quality of the warranty services it provided had a direct effect on its sales because independent surveys consistently indicated that after-sale service support was the primary reason customers chose Coulter products over products manufactured by competitors. Coulter required its foreign subsidiaries to offer their customers the same warranty and service contracts that Coulter offered its U.S. customers. Coulter believed inadequate post-sale services in one country (or multiple countries) could adversely affect the sale of Coulter products in other countries.

Coulter Electronics of Canada, Inc. ("CEC"), a Canadian corporation and wholly-owned subsidiary of Coulter, marketed and distributed Coulter's products throughout Canada. The mandate from Coulter to provide warranty and service contracts created financial problems for CEC because, in part, CEC customers were widely dispersed over a huge, thinly populated geographical area, and the cost of providing warranty services over such a large area was prohibitive. Furthermore, Coulter and CEC concluded CEC could not offset the large warranty service costs by increasing the prices of its products because of Canada's close proximity to the U.S. Thus, Coulter decided to reimburse CEC its costs related to warranty and service contracts. Coulter reimbursed such costs from 1974 through 1978 and deducted the costs on its U.S. federal income tax return.

The Tax Court held that the reimbursed warranty expenses were deducted by Coulter on its U.S. federal income tax return because such costs were directly related to Coulter's business. The Court held that such costs were directly related to Coulter's business because the costs were necessary to protect Coulter's reputation for providing outstanding after-sale services.

In *Fall River Gas Appliance Company*,[7] a parent company (the "Gas Company)" was engaged in the sale and distribution of gas to domestic and industrial users. A wholly-owned subsidiary of the Gas Company (the "Appliance Company") was engaged in the selling and leasing of gas-consuming appliances. The Gas Company believed that an increase in the number of gas appliances used by existing customers or new customers had the effect of increasing their

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[6] *Coulter Electronics, Inc. v. Comm'r*, 59 TCM 350 (1990).

[7] *Fall River Gas Appliance Company, Inc. v. Comm'r*, 42 TC 850 (1964), *aff'd*, 349 F.2d 515 (1st Cir. 1965).

consumption of gas. With this in mind, the Gas Company entered into an agreement with the Appliance Company whereby the Gas Company paid the delivery, installation, and selling expenses related to appliances sold or leased by the Appliance Company. The Gas Company deducted such expenses on its federal income tax return. The IRS disallowed the expenses, arguing that such expenses were the expenses of the Appliance Company rather than the Gas Company.

The Tax Court held that the expenses were properly deductible by the Gas Company because the Gas Company had a substantial interest in increasing its own sales of gas, and the expenses paid by it were intended to promote its own business wholly apart from that of the Appliance Company.

In *Young & Rubicom, Inc.*,[8] a U.S advertising agency made payments to personnel employed by its foreign subsidiaries. The Court of Claims was asked to determine whether the U.S. company could deduct compensation paid to foreign personnel as its own expense, or whether such compensation was more properly an expense of the foreign subsidiaries. In concluding that some of the compensation was deductible by the U.S. company, the Court stated:

> "A deduction is allowable insofar as plaintiff has proved that a particular individual was involved in a specific activity clearly for plaintiff's proximate and direct benefit; e.g., plaintiff's foreign expansion program, marketing surveys and advice for plaintiff's clients who planned to enter foreign markets (other than the specific market covered by the subsidiary wherein the individual was employed, because in that situation he would have been soliciting additional business for the subsidiary corporation), or perhaps attempting to convince a particular client of the subsidiary to employ Young & Rubicom, Inc. as its U.S. representative. Where plaintiff has proved, in detailed rather than general terms, that an individual was involved in this kind of activity, a deduction for the compensation paid for these activities is allowable."

In light of the authorities set forth above and the documentation demonstrating the direct and proximate test is met, we believe substantial authority exists to support the position that the business integration costs initially incurred by foreign subsidiaries and subsequently reimbursed by Sterling are deductible by Sterling for U.S. federal income tax purposes.

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[8] *Young & Rubicom, Inc. v. U.S.*, 410 F2d 1233 (Ct. Cl. 1969). See also *Fishing Tackle Products, Inc. v. Comm'r, supra* (payments made by parent to reimburse subsidiary's operating losses are deductible by parent as an ordinary and necessary business expense where payments were made to maintain and preserve a source of supply).

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E-MAIL: BURTGRAD@AOL.COM

Date: January 18, 1999

To: Marty Silberberg

From: Burton Grad

Subject: SSI/TIS Restructuring Expenses

The following notes are suggestions on what information may be helpful on answering Q2 (other benefits values):

A. TIS Customer Base
- how many customers - US, International
- TIS revenues from these customers
- overlap with previous ADD customers
- any other ADD products to sell to these customers
- quality of the accounts - Fortune 500 or equivalent
- quantification
  - cost of acquiring a customer
  - additional revenue/operating income from other ADD products/services
  - contribution to being #1 world wide (may need to include in C or E)

B. Economies of Scale
- increase in revenues, employees, offices, etc. from TIS acquisition related to previous ADD business
- what was forecast for ADD pre-acquisition on growth vs. post-acquisition (revenues, employees, operating income, number of customers)
- what was operating income margin pre-acquisition and post acquisition for TIS and ADD
- BGAI forecast of operating income margin for TIS products and new products using TIS technologies (see Appendix E and Appendix F)
- quantification
  - effect of 1% improvement in operating income margin on TIS products and technologies (operating income, not net present value)
  - effect of 1% improvement on other ADD products and services.

C. Stronger market position (#1 market share)
- lower marketing/selling costs for ADD business
- higher win ratios on new sales
- leadership pricing (e.g. premium prices)
- quantification
  - effect of 1% reduction in marketing/selling costs
  - effect of 1% increase in new license revenues (including effect on maintenance, services, upgrades, etc.)
  - effect of 1% increase in new license prices

D. Setting Standards
- standards for construction of components
- standards for use of data warehousing for program components distribution
- standards for construction of application templates
- standards for tools used in assembling components into templates, software products and user applications
- quantification
  - royalty payments from development organizations using ADD CBD product/standards to build components, templates and software products.
  - shared revenues from marketing channels wishing to use ADD components, templates or "remarket" ADD products in conjunction with other product or services offerings.

E. Public financial market recognition
- premium paid for being #1 in a significant market niche
- greater ability to make key acquisitions in market niche
- attractiveness to potential development partners and marketing channels
- quantification
  - increase in market capitalization for 1% increase in p/~~r~~, p/e or other market valuation increases.
  - lower effective cost of acquisition as measured by reduction in number of shares used for a $25M acquisition.
  - increase in revenues from getting one more development partner and one more marketing channel distributor.

The following notes support an approach to responding to Q4 (map expenses to benefits):

The purposes of restructuring after an acquisition is to ensure that the financial sins of the past are not carried forward into the future. In the case of the TIS acquisition, this was a particularly serious problem.

Texas Instruments used its deep corporate pockets (it was a $10B corporation) to fund the ongoing losses from its TI Software operations and to invest further in new development, additional offices throughout the world and an increasing numbers of employees. Obviously, even TI became tired of this ongoing cash drain and desired to sell the company. But any experienced software company would only acquire TIS if it could see clearly how to make TIS (and the buyer's own related software) operations profitable in the near term.

SSI paid a substantial price for TIS, in spite of its history of financial losses, because it saw how to streamline the TIS operations to become a profit-generating business when combined with a stripped down version of its previous AD operations.

TIS costs were primarily reduced internationally, where TIS had a level of expenses not adequately supported by its revenues. This principally consisted of reducing excess personnel and eliminating excess offices and related facilities. There were three forms of benefits to SSI from these international restructuring costs:

- improved profits for the specific international subsidiaries
- improved profits from international and global U. S. accounts from US sales of the TIS and new AD products
- specific other benefits to SSI, as a corporate entity, from the enhanced customer and financial market view of SSI as the leading supplier of AD software and related services using component based development tools.

In allocating the international restructuring costs, SSI had to try to determine the direct and proximate benefits that the U. S. operation and the corporation as a whole received from these specific costs. In examining the benefits realized by SSI, it was clear that the principal values lay not with the direct TIS products and new products revenues (and operating income), but with the other specific values related to being the successful market leader, being #1 in the AD marketplace.

This position, which could only be achieved if SSI's AD operations were highly profitable on a global basis, enabled SSI to increase profit margins, win a higher percentage of prospect bids and receive a higher market capitalization.

While operating income from the direct revenues from international sales was in the tens of millions, the corporate benefits were in the hundreds of millions.

Even being conservative in the allocation process, one would assign 20% of the international restructuring costs to the international operations, 5% to the US operations (for global accounts) and 75% to SSI corporate for the value of being #1 on a world-wide basis.

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Date: January 13, 1999

To: Marty Silberberg

From: Burton Grad

Subject: SSI TIS-related Expenses

Marty, I have attached a file memo which I prepared (for our use only) to help analyze the benefits received by SSI from the TIS acquisition and the logic for allocating approximately 80% of the SSI foreign corporations TIS-related expenses in absorbing the acquisition.

SSI (Steve Carey) and EY (Tim Larson) are looking to us to provide relatively brief answers to the four questions shown on pages 3 and 4 of the attached file memo. Each answer should probably be only a few paragraphs long, certainly less than one page each.

They are expecting us to talk through the logic, reasoning and calculations with them and may or may not wish to have any written back-up material. Similarly, they may or may not want to reference specific source materials.

Nevertheless, we must review source information in order to draw conclusions and answer the questions.

I believe that you have been previously sent a copy of the BGAI proposal and a copy of the BGAI valuation report (7/15/97) with a few selected appendices.

Appendix B-1 lists our available source materials. The ones of interest to us probably are: 4,6,9,19,21,24,33,40,41 and 45. I have also separately faxed two related documents received from EY:

- Letter to Carey from Brett Enzor (EY) dated 5/28/98
- Reimbursed foreign subsidiary expenses (from EY)

After you have received the material I have sent you , we need to discuss how to proceed, articularly on how to answer questions 2 and 4. You may need to go to Westport to examine the referenced resource items to select what specific information we can use.

I'll call you later today (1/13/99).

SSI/Tax Related
TIS Subsidiary Closing Expenses

The TIS acquisition by SSI gave SSI various benefits which significantly improved SSI's expectations for higher revenues, reduced costs and increases in operating income.

SSI was already in the application development tools and methodology business through previously developed products and acquisitions. SSI had a substantial installed worldwide customer base, but its acquired products and technologies lagged certain of its competitors. As a result, not only was SSI not attracting many new AD customers, but they were actually losing a significant number of their installed customers.

The TIS acquisition gave SSI a number of intangible assets which SSI believed would turn around its then weak product and market situation and give it a high probability of becoming the leader in this vital marketplace:

- A number of strong products
- Major work in progress to produce new products using new technologies
- A broad, well-respected worldwide customer base
- Effective development teams for each of the current and new products
- An extensive operational infrastructure comprising management, marketing, sales, support and administrative personnel positioned throughout the world
- Operational offices in a number of locations to provide working facilities for the TIS staff
- A positive reputation for global leadership and quality
- Trained educational and professional services personnel to assist customers in installing and utilizing the TIS products, including custom application development work
- Copyrights on all products
- Largest market share in target AD markets

However, these positive intangibles came with some negative baggage:

- TIS was losing money on its AD operations, particularly due to the costs of its infrastructure (personnel and offices), much of it outside the U. S.

- The current products and new technologies needed technical integration and effective market positioning

- The AD business needed concentrated executive attention and prioritization

- New partnerships and business relationships were vital to future growth and establishment of worldwide leadership

- Serious investment money was needed to continue (and accelerate) new product development along with building of AD components and new application templates.

So it was critical for SSI to rapidly streamline the TIS infrastructure in order to make the integration with SSI's ADD business operations immediately profitable. Without this type of cost reduction action, the market would wonder if SSI was really focused on the AD business and the existing TIS and ADD customers would start to consider alternate vendors and products. This would have jeopardized the likelihood of SSI being the market leader which would impact pricing, new sales productivity, add-on sales levels and professional services revenues.

Therefore, SSI had its non-American subsidiaries make the necessary personnel reductions and office closings for the acquired TIS resources not just for the benefit of the international operations, but principally to enable the new integrated American-based operation to realize greater gains in revenues, reductions in costs and improvements in operating income.

Specific benefits to the U. S.-based corporation are:

- Major revenues from TIS products and from new products based on use of TIS core technologies and new technologies. Consider revenues from TIS customers, migration of ADD customers and from new customers for new ADD products. Consider North America and international increases in new licenses, maintenance/support, add-ons and internal growth of license revenues and professional services.

- Improvements in cost ratios relative to additional revenues for R&D, sales and marketing, service and support and administrative and operational costs.

- Improvements in pricing levels for the products and services

- Additional revenues/operating income from new marketing channels and from new supplier partnerships.

- Related revenue opportunities from becoming a "standard" for developing and delivering components and application templates.

- Business value increase (market capitalization) from having market leadership (largest market share) and lowest cost operation (economy of scale) as well as higher growth and higher operating income ratio to revenues.

Given this background, BGAI needs to provide answers to four questions. These answers will provide the explanation for the allocation of the foreign corporations expenses to SSI's U.S. corporation:

1. **Direct Benefits (per July 15, 1997 Valuation Report)**

What were the incremental revenue and operating income projections for SSI as a direct result of acquiring these TIS assets?

TIS Products	($000)
Composer	$23,881
Performer	76
Templates	97
Total	$24,054

TIS Technologies	($000)
Adv Computer-Based	
Development Systems	$123,033
Components	9,767
Templates	5,049
Total	$137,849

These are the NPV's based on revenue projections and associated cost estimates for each current and planned product. Each value is based on the projected operating income over the expected life of each product. This is an incremental value over and above any previously planned revenue and operating income. The values were determined using a seven-year projection period.

2. **Other Specific Benefits**

What other specific benefits did SSI obtain from the acquired assets? Where possible, quantify these additional benefits. Consider market share, global market leadership, economies of scale, potential new markets, etc.

SSI will also directly benefit from a number of other acquired intangibles including:

- A worldwide customer base which will be inclined to license other SSI products and purchase other SSI services
- Economies of scale which will reduce costs for these and other SSI products and services
- Stronger market position for acquiring and marketing other directly related products and services. This will provide lower marketing/selling costs, higher win ratios, more favorable prices, higher operating income margins.
- Ability to set standards, to be adopted by others, which will lead to royalties from partnerships and income from joint marketing channels.
- Increased value of stock through being #1 in the Application Development market.
- Quantifying these benefits requires identifying incremental revenues, cost reductions and market capitalization increases

3. Purposes and Amounts for Foreign Acquisition Related Expenses

What were the specific purposes of and amounts for the acquisition-related expenses incurred by the SSI foreign subsidiaries?

<get information from Steve Carey or Tim Larson on actual expenses and purposes>

4. Direct and Proximate Contribution of these Expenses to SSI Benefits

How much did these specific foreign subsidiary expenses contribute to the acquisition benefits expected to be realized by SSI?

<focus is on Personnel reductions and office lease buyouts>

<need to make explicit (direct and proximate)
connection to overall corporate benefits,particularly related to Q2 answers>

Subj: **Sterling TCA**
Date: 1/20/99 11:31:39 AM Eastern Standard Time
From: timothy.larson@ey.com (Timothy A. Larson)
To: Steve_Carey@Sterling.com, burtgrad@aol.com

File: TCA Exp Classification revised.xls (91648 bytes)
DL Time (14400 bps): < 2 minutes

Burt, I've forwarded an excel spreadsheet w/ breakdown of expenses by category and the foreign amounts. Let me know if you have any further questions. Sorry for the delay
Tim
---------------------- Forwarded by Timothy A. Larson/Southwest/TAX/EYLLP/US on 01/20/99 10:29 AM ---------------------------

Brett T. Enzor
01/20/99 09:19 AM
To: Timothy A. Larson/Southwest/TAX/EYLLP/US
cc:
Subject: Sterling TCA

Per your request. The foreign expense detail is in Worksheet 2.

---------------------- Headers --------------------------------
Return-Path: <timothy.larson@ey.com>
Received: from rly-zc02.mx.aol.com (rly-zc02.mail.aol.com [172.31.33.2]) by air-zc04.mail.aol.com (v56.22) with SMTP; Wed, 20 Jan 1999 11:31:39 -0500
Received: from gateway2.ey.com (gateway2.ey.com [199.50.26.3])
by rly-zc02.mx.aol.com (8.8.8/8.8.5/AOL-4.0.0)
with SMTP id LAA17901 for <burtgrad@aol.com>;
Wed, 20 Jan 1999 11:31:38 -0500 (EST)
Received: by gateway2.ey.com (SMTP Gateway) id LAA09238
for burtgrad@aol.com; Wed, 20 Jan 1999 11:31:34 -0500
Message-Id: <199901201631.LAA09238@gateway2.ey.com>
Received: by gateway2.ey.com (Protected-side Proxy Mail Agent-1);
Wed, 20 Jan 1999 11:31:34 -0500
Date: Wed, 20 Jan 1999 10:34:32 -0600
From: "Timothy A. Larson" <timothy.larson@ey.com>
Subject: Sterling TCA
To: Steve_Carey@Sterling.com, burtgrad@aol.com
X-Mailer: Worldtalk (NetTalk for Windows NT 4.5-g5)/MIME
Mime-Version: 1.0
Content-Type: multipart/mixed;
boundary="---- =_WT254.36a605ad.0a0/eyllpwt005.ey.com"

Sterling Software
Invoice Comparison
For the period ended September 30, 1997

Professional Fees	**Ken**	**Lyle**		**Diff.**
Alex Brown	1,557,772	1,557,772		0
Anik & Heiberg	53,260	48,386		(4,874)
Baker McKenzie	14,070	9,096		(4,974)
Blakely Sokoloff Taylor & Zafman	10,082	5,478		(4,604)
Burton Grad Associates	106,182	106,291		109
Ernst & Young LLP	667,566	609,066	*	(58,500)
Gardere & Wynne	29,967	29,467		(500)
Hewitt	667,827	666,235		(1,592)
Jones, Day, Reavis & Pogue	1,872,095	1,893,640		21,545
Staubach	80,000	80,000		0
Invoice Total	5,058,821	5,005,431		(53,390)

* Note: EY invoices are off since Ken included in his total a $56K missing invoice. Consequently, there is only an immaterial diff. between the two invoice totals.

Q3

Subj: **Re: sterling tca**
Date: 1/13/99 7:03:06 PM Eastern Standard Time
From: timothy.larson@ey.com (Timothy A. Larson)
To: burtgrad@aol.com
CC: Steve_Carey@Sterling.com

File: Attachment A.xls (34816 bytes)
DL Time (31200 bps): < 1 minute

sorry for the delay. here is the excel spreadsheet w/ the breakdown of expenses as we have it. burt, let me know if you need anything further. thanks

---------- Headers ----------
Return-Path: <timothy.larson@ey.com>
Received: from rly-yd05.mx.aol.com (rly-yd05.mail.aol.com [172.18.150.5]) by air-yd01.mail.aol.com (v56.14) with SMTP; Wed, 13 Jan 1999 19:03:06 -0500
Received: from gateway2.ey.com (gateway2.ey.com [199.50.26.3])
by rly-yd05.mx.aol.com (8.8.8/8.8.5/AOL-4.0.0)
with SMTP id TAA12758 for <burtgrad@aol.com>;
Wed, 13 Jan 1999 19:03:05 -0500 (EST)
Received: by gateway2.ey.com (SMTP Gateway) id TAA29321
for burtgrad@aol.com; Wed, 13 Jan 1999 19:03:04 -0500
Message-Id: <199901140003.TAA29321@gateway2.ey.com>
Received: by gateway2.ey.com (Protected-side Proxy Mail Agent-1);
Wed, 13 Jan 1999 19:03:04 -0500
Date: Wed, 13 Jan 1999 18:02:18 -0600
From: "Timothy A. Larson" <timothy.larson@ey.com>
Subject: Re: sterling tca
To: burtgrad@aol.com
Cc: Steve_Carey@Sterling.com
X-Mailer: Worldtalk (NetTalk for Windows NT 4.5-g5)/MIME
Mime-Version: 1.0
Content-Type: multipart/mixed;
boundary="---- =_WT264.369d3411.0a0/eyllpwt005.ey.com"

Sterling Software, Inc.
Attachment A - Acquisition Expenses
For the period ended September 30, 1997

	Total Costs
Sterling Software	
Severance Pay	
U.S.	3,468,000
Interntl.	13,738,000
Special Terminations	1,340,000
Bonuses	
Retention Bonuses	1,320,000
Special Bonuses	1,919,000
Other Employee Matters	
Stock Purchase Plan - U.S.	459,000
Stock Purchase Plan - Interntl.	250,000
Transition Employees & Stay Bonuses - U.S.	478,000
Transition Employees & Stay Bonuses - Interntl.	1,379,000
Relocation Costs of Employees - U.S.	1,815,000
Relocation Costs of Employees - Interntl.	466,000
Potential Employee Litigation - U.S.	250,000
Potential Employee Litigation - Interntl.	210,000
Maternity Exceptions	38,000
Outplacement Costs - U.S.	300,000
Outplacement Costs - Interntl.	306,000
Other	959,000
Acquisition Planning & Travel	
Announcement Costs - Interntl.	349,000
Announcement Costs - Corporate	650,000
Facility & Equip. Related Costs	
Excess/Duplicate Office Facilities	7,690,000
Office Relocation Costs	1,864,000
Excess Equip. Leases	1,025,000
Duplication/Transfer of Records	165,000
Termination Costs for Overlapping Distributors	500,000
Professional Fees	
Alex Brown	1,560,000
Anik & Helberg	80,000
Baker McKenzie	225,000
Bank Fees	5,000
Blakely Sokoloff Taylor & Zafman	49,995
Burton Grad Associates	150,000
Ernst & Young LLP	874,000
Expat Fees	60,000
Gardere & Wynne	25,000
Hewitt	1,500,000
Jones, Day, Reavis & Pogue	2,402,000
Staubach	450,000
Systems Union	17,000
Western Europe Other	108,000
Other	
Mainframe Software & License Fees	519,000
Vacation Make Up & Tax Protection	50,000
Employment Costs	61,000
Miscellaneous Business Costs	164,000
India Business Costs	117,000
Marketing/Performer/UST Termination Costs	171,000
Hart Scott Rodino Filing Fee	45,005
Travel	15,000
Contractors Notice	188,000
Total Acquisition Expenses	49,774,000

Sterling Software

Acquisition Expenses - Classification

For the period ended September 30, 1997

	Total Costs	Severance & Related Fees	Retention Costs	Additional Employee Matters/Litigation	Post-Acquisition Expenses	Restructuring & Redundancy Costs
Sterling Software						
Severance Pay						
U.S.	3,468,000	3,468,000	0	0	0	0
Internt'l.	13,738,000	0	0	0	0	0
Special Terminations	1,340,000	1,340,000	0	0	0	0
Bonuses						
Retention Bonuses	1,320,000	0	1,320,000	0	0	0
Special Bonuses	1,919,000	0	0	0	0	0
Other Employee Matters						
Stock Purchase Plan - U.S.	459,000	0	0	0	0	0
Stock Purchase Plan - Internt'l.	250,000	0	0	0	0	0
Transition Employees & Stay Bonuses - U.S.	478,000	0	0	478,000	0	0
Transition Employees & Stay Bonuses - Internt'l.	1,379,000	0	0	0	0	0
Relocation Costs of Employees - U.S.	1,815,000	0	0	0	1,815,000	0
Relocation Costs of Employees - Internt'l.	466,000	0	0	0	0	0
Potential Employee Litigation - U.S.	250,000	0	0	250,000	0	0
Potential Employee Litigation - Internt'l.	210,000	0	0	0	0	0
Maternity Exceptions	38,000	0	0	38,000	0	0
Outplacement Costs - U.S.	300,000	0	0	300,000	0	0
Outplacement Costs - Internt'l.	306,000	0	0	0	0	0
Other	959,000	959,000	0	0	0	0
Acquisition Planning & Travel						
Announcement Costs - Internt'l.	349,000	0	0	0	0	0
Announcement Costs - Corporate	650,000	0	0	0	0	0
Facility & Equip. Related Costs						
Excess/Duplicate Office Facilities	7,690,000	0	0	0	0	896,000
Office Relocation Costs	1,864,000	0	0	0	0	840,000
Excess Equip. Leases	1,025,000	0	0	0	0	0
Duplication/Transfer of Records	165,000	0	0	0	0	165,000
Termination Costs for Overlapping Distributors	500,000	0	0	0	500,000	0

AF	AH
Foreign Sub. Reimbursements	Organizational Expenses
0	0
13,738,000	0
0	0
0	0
1,919,000	0
0	0
250,000	0
0	0
1,379,000	0
0	0
466,000	0
0	0
210,000	0
0	0
0	0
306,000	0
0	0
349,000	0
0	0
6,794,000	0
1,024,000	0
1,025,000	0
0	0
0	0

Sterling Software

Acquisition Expenses - Classification

For the period ended September 30, 1997

Row		Total Costs	Severance & Related Fees	Retention Costs	Additional Employee Matters/Litigation	Post-Acquisition Expenses	Restructuring & Redundancy Costs
40	Professional Fees						
41	Alex Brown	1,560,000	0	0	0	0	0
42	Anik & Heiberg	80,000	0	0	0	0	13,600
43	Baker McKenzie	225,000	0	0	0	0	0
44	Bank Fees	5,000	0	0	0	0	0
45	Blakely Sokoloff Taylor & Zafman	49,995	0	0	0	0	0
46	Burton Grad Associates	150,000	0	0	0	0	0
47	Ernst & Young LLP	874,000	0	0	0	0	0
48	Expat Fees	60,000	0	0	60,000	0	0
49	Gardere & Wynne	25,000	9,000	0	0	0	0
50	Hewitt	1,500,000	0	0	0	0	0
51	Jones, Day, Reavis & Pogue	2,402,000	0	0	0	450,440	0
52	Staubach	450,000	0	0	0	0	70,000
53	Systems Union	17,000	0	0	17,000	0	0
54	Western Europe Other	108,000	0	0	0	0	0
55	Other						
56	Mainframe Software & License Fees	519,000	0	0	0	0	0
57	Vacation Make Up & Tax Protection	50,000	0	0	50,000	0	0
58	Employment Costs	61,000	0	0	61,000	0	0
59	Miscellaneous Business Costs	164,000	0	0	0	164,000	0
60	India Business Costs	117,000	0	0	0	0	0
61	Marketing/Performer/UST Termination Costs	171,000	171,000	0	0	0	0
62	Hart Scott Rodino Filing Fee	45,005	0	0	0	0	0
63	Travel - Cust Supl Shutdown	15,000	0	0	0	15,000	0
64	Contractors Notice	188,000	0	0	0	188,000	0
66	Total Acquisition Expenses	49,774,000	5,947,000	1,320,000	1,254,000	3,132,440	1,984,600

Classification Summary

Costs Deductible under Sections 162 and 165

Organizational Costs Capitalizable under Section 248

Capitalized License Fees

Capitalized Trademarks

AF		AH	
Foreign Sub. Reimbursements		**Organizational Expenses**	
0		0	
0		0	
0		0	
0		0	
0		0	
0		0	
0		0	
0		0	
0		0	
0		0	
0		0	
350,000		0	
0		0	
108,000		0	
0		0	
0		0	
0		0	
0		0	
117,000		0	
0		0	
0		0	
0		0	
0		0	
28,035,000		0	

	A	B	C	D	E	P	Q	R	S	T	U	X	Y	Z	AA
1	**Sterling Software**														
2	**Acquisition Expenses - Classification**														
3	**For the period ended September 30, 1997**														
4															
5															
6															
7										**Additional**				**Restructuring &**	
8				**Total**		**Severance &**		**Retention**		**Employee**		**Post-Acquisition**		**Redundancy**	
9				**Costs**		**Related Fees**		**Costs**		**Matters/Litigation**		**Expenses**		**Costs**	
74				Cost Capitalized into the Basis of T.I. Assets Acquired (incl. audit fees)											
75				Total Costs/Expenses											
76															

AF		AH	
Foreign Sub. Reimbursements		Organizational Expenses	

Sterling Software
Detail of Foreign Corp. Expenses
For the period ended September 30, 1997

	Total Costs	Investigatory & Due Diligence	Evaluation of Employee Benefit Plans	Severance & Related Fees	Retention Costs	Additional Employee Matters/Litigation	Announcement Costs	Post-Acquisiti Expenses
Sterling Software								
Severance Pay								
Interntl.	13,738,000	0	0	13,738,000	0	0	0	0
Bonuses								
Special Bonuses	1,919,000	0	0	0	1,919,000	0	0	0
Other Employee Matters								
Stock Purchase Plan - Interntl.	250,000	0	250,000	0	0	0	0	0
Transition Employees & Stay Bonuses - Interntl.	1,379,000	0	0	0	0	1,379,000	0	0
Relocation Costs of Employees - Interntl.	466,000	0	0	0	0	0	0	466,000
Potential Employee Litigation - Interntl.	210,000	0	0	0	0	210,000	0	0
Outplacement Costs - Interntl.	306,000	0	0	0	0	306,000	0	0
Acquisition Planning & Travel								
Announcement Costs - Interntl.	349,000	0	0	0	0	0	349,000	0
Facility & Equip. Related Costs								
Excess/Duplicate Office Facilities	6,794,000	0	0	0	0	0	0	0
Office Relocation Costs	1,024,000	0	0	0	0	0	0	0
Excess Equip. Leases	1,025,000	0	0	0	0	0	0	0
Professional Fees								
Staubach	350,000	105,000	0	0	0	0	0	0
Western Europe Other	108,000	0	0	0	0	54,000	0	0
Other								
India Business Costs	117,000	0	0	0	0	0	0	0
Total Foreign Corp. Reimbursed Expenses	28,035,000	105,000	250,000	13,738,000	1,919,000	1,949,000	349,000	466,000

Classification Summary

Costs Deductible under Sections 162 a
Organizational Costs Capitalizable unde
Capitalized Trademarks
Cost Capitalized into the Basis of T.I. Assets Acquired
Total Costs/Expenses

Note: All foreign reimbursed expenses were determined from the "TIS Direct Acq Adjustments to Net Book Value" spreadsheet provided by Sterling Software, Ir acquisition cost with a description of "International" or with a foreign country foreign reimbursed expense.

Y	Z	AA	AF
on	Restructuring & Redundancy Costs		Organizational Expenses
	0		0
	0		0
	0		0
	0		0
	0		0
	0		0
	0		0
	0		0
	6,794,000		0
	1,024,000		0
	1,025,000		0
	245,000		0
	0		54,000
	117,000		0
	9,205,000		54,000

juisition Costs
ic. Any
' was assumed to be a

Interview with Steve Carey - 11/6/98
Regarding SSW/SMG Products Valuation

Project

- Need valuation of all SMG products
- 4/1/99 - plan to sell international marketing rights to a Luxembourg corporation
- Will need international valuation and possibly Americas valuation

Estimating Questions

- Number of products
- Schedule
- Staffing: BG, EV, MYS
- Costs: fees, expenses

Other Questions

- What tax rates to use in valuation of international rights
- Would use NPV of projected operating income
- Does SMG have five-year projections? As of when? Are all key assumptions stated?
- Would technologies and products (IPR&D) also be valued?
- What would nature be of future relationship between the new corporation and SSW (USA) and other SSI foreign subs?

SMG International Marketing Rights Valuation

Team: BG, EV, MYS

Schedule: January 4, 1999 - February 29, 1999

Effort Level: Two days per product or product family
Plus three days general setup
Plus three days final report

Fees Cost Estimate: Assume nine products (three divisions):

	Days	BG	EV	MYS
	9x2= 18	2.0	8.0	8.0
	3	2.0	.5	.5
	3	2.0	.5	.5
Total	28	6.0	9.0	9.0
Rate		$ 2,500	$ 1,500	$ 1,500
Fees		15,000	13,500	13,500
Total	$42,000			

Expenses Estimate

	Travel		
Burt Grad	Washington, D. C. Dallas?	500 1,500	$2,000
Marty Silberberg	California	2,000	2,000
Elizabeth Virgo	Washington, D, C.	1,500	1,500
Total Travel			**$5,500**
Telephone/fax/express delivery		500	500
Total Expenses			**$6,000**

Total cost approximately $50,000

Interview with Steve Carey - 11/6/98 regarding SSW/SMG Products Valuation

Project

- Need valuation of all SMG products
- 4/1/99 - plan to sell international marketing rights to a Luxembourg corporation
- Will need international valuation and possibly Americas valuation

~~BGAI Interested~~ Estimating Questions

- Number of products
- Schedule
- Staffing - ~~B~~G, EV, MYS
- Costs - fees, expenses

~~Jim Hoyt to call Chris Bruton 972-801-6802 re electronic software distribution~~

~~Use EV~~
~~Use MS~~

~~Would send proposal~~ Other Questions

What ~~tap~~ tax rates to use in valuation of international rights

Would use ~~WNV~~ NPV of project ed operat~~ion~~ing incr~~ease~~ome

Does SMG have 5 year projections? as of when? are all key assumptions stated?

Would ~~the ipr&d~~ technologies and ~~t~~ products also be valued? (ipr+d)

what would nature be of future relationship between ~~to~~ the new corporation and SSW (USA) and other SSI foreign subs?

SMG Intl MKtg Rights Valuation

Team: BG, EV, MYS

Schedule: 1/4/99 - 2/28/99

Effort Level: 2 days per product or product family
plus 3 days general setup
plus 3 days final report

for cost estimate: assume ~~12~~ 9 products (3 divisions)

		BG	EV	MYS
9 × 2 =	~~22~~ 18 days	2	8	8
	3	2	.5	.5
	3	2	.5	.5
	28 days.	6	9	9
	Rate	2500	1500	1500
	fees	15000 ~~20000~~	13500 ~~15000~~	13500 ~~15000~~

Total ~~$50,000~~
$42,000

Expenses Estimate

travel -

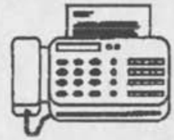
BG - 1 to Wash, D.C. 500 (1 to Dallas? 1500)		2000
MYS - 1 to California	2000	2000
EV - 1 to Wash, D.C.	1500	1500
		5500
phone/fax Express Delivery	500	500
		6000

$5000 - $7000

Total cost around $50,000

SSW/Tax

SMG Valuation



ERNST & YOUNG LLP

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Dallas, Texas 75201
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Facsimile Transmittal Sheet

Please deliver the following	12	pages	(Includes this cover page)
To:	Steve Carey Burt Grad	Date:	12/17/98
Firm:		City:	
Fax No:	214/981-1286 203/222-8728	Telephone:	
From:	Tim Larson	Telephone:	

Please call Jackie, (214) 969-8465,
if the fax you received was incomplete or not legible

Message:

DRAFT

Valuing Technology: Buy-in Payments for Acquisitions

John Wills
Ernst & Young LLP

Abstract: Certain accounting and valuation conventions can lead to a serious overstatement of the value of technology. While these practices may be benign in the context of financial reporting, they create a serious problem when they are used, via section 482 of the tax code, to compute taxable income. This article explains the economic problems underlying technology valuation and discusses how to arrive at economically defensible technology prices.

I. Overview

A. Why the Issue is Important

Many high technology U.S. companies have entered into R&D cost sharing arrangements with their foreign subsidiaries. Such arrangements require an arm's length buy-in payment to whichever participant "... makes intangible property available to [the] cost sharing arrangement ...".[1] Such contributions of pre-existing intangibles most frequently involve payments from the subsidiary to the U.S. parent. Because the subsidiaries in question are often incorporated in low-tax-rate jurisdictions, the identification of previously developed U.S. intangibles and calculation of an arm's length payment for them is of special importance to both the taxpayer and the tax authorities.

Many of these same companies also aggressively pursue acquisitions as part of their business strategy. The acquisitions are usually for the purpose of acquiring the technology of the target, which is often still at a development stage. The prices paid for such acquisitions are frequently very high multiples of the target company's earnings or revenues - if, indeed, the target company even has any earnings or revenues!

The acquiring company is frequently the U.S. parent of the group and the technology of the target was usually developed within the U.S. Subsequent to the acquisition, the target company's technology and development activity is normally incorporated into the acquirer's ongoing R&D. That is, the acquirer contributes the target's technology to the R&D cost sharing arrangement. Hence an arm's length buy-in payment is required. How should this payment be calculated?

B. Two Wrong Answers

To pose the issue as starkly as possible, suppose that the acquired company was a start-up with promising but not yet commercialized technology under development. (Our

[1] Reg. sec. 1.482-7(g)(1).

conclusions also apply when the acquired company has developed technology as well, but to keep the example simple we restrict ourselves to the case where the only asset is "in-process R&D".)

Because the assets contributed to the cost sharing arrangement appear to be related to the acquisition transaction, one natural suggestion is to compute the buy-in as a *pro rata* share of the purchase price. Alternatively, when the acquisition is treated as a purchase for accounting purposes, there is usually a subsequent valuation report that establishes the amount attributable to "in-process R&D." (Usually this amount is based on the discounted present value of a future expected net cash flow.) A *pro rata* share of this valuation amount has also been suggested as the buy-in.

Both of these approaches are conceptually incorrect for two reasons. First, the amount paid to purchase a company reflects not only the value contributed by the seller, but also additional value created by the purchaser, *some of which is captured by the seller*. For this reason, the purchase price in most technology acquisitions reflects more than the value of previously developed intangibles. Similarly, the future cash flow that drives the valuation analysis (if there is one) is based on the utilization of the technology in the hands of the purchaser. The net cash flow reflects the collateral assets that the purchaser brings to bear and so again overstates the value of the pre-developed intangible asset.

The second error is even more fundamental: Notwithstanding common practice, *it is not economically correct to interpret the market value of a firm (or, more carefully, the excess of market value over the value of hard assets) as equivalent to pre-developed intangible assets.* It is true that the market value of a firm is equal to shareholders' expectation of its discounted cash flow. But it is wrong to interpret the value of this *investment opportunity* as if it were an asset that could be booked on a balance sheet. This is not merely a matter of nomenclature: The practice of treating market valuations or discounted cash flows as if they represented assets on a balance sheet is an improper migration of concepts that are relevant to financial assets to the world of an operating business. It has the effect of systematically overstating the value of technology.

Underlying both of these problems is an over-simple view of how intangible assets can be quantified. In particular, *it is not correct that intangible assets can be assigned separate economic values that, when added together, yield the market value of the firm.* Treating asset values as if they were separable and "add up" is an accounting concept, not an economic concept. It would be convenient if intangible assets could be economically analyzed in this way, but they simply cannot. Fortunately, it is also not necessary for purposes of section 482. In the final section of this paper we discuss this fundamental issue at greater length.

C. Organization of This Article

In the remainder of this article we explain the relationship among acquisition prices, in-process R&D valuations, and buy-in royalties. The organization is as follows. Section II explains why the amount paid to purchase assets is not the same thing as the value of the previously developed intangible. Section III explains why the amount allocated to in process R&D in purchase price allocations also overstates the value of the previously developed intangible. Section IV proposes methods for estimating arm's length buy in payments from purchase price amounts or valuations of in process R&D, respectively. The final section discusses the more fundamental issue that the value of a firm cannot be assigned to a set intangible assets in such a way that each asset has a unique value and the sum of all is equal to the value of the firm.

II. Why Purchase Prices Overstate Buy-In Amounts

A. Acquisitions Are Driven by Synergies

As indicated above, purchase prices overstate the value of previously existing intangibles for two reasons.[2] First, purchase prices incorporate expectations about synergies that arise from the use of the purchaser's own collateral assets, a portion of which is captured by the sellers. Second, even in the absence of such premia, the market value of a firm is not identical with the value of its previously developed intangibles, except in a tautological sense. In this section we focus on the first of these problems. We defer discussion of the second issue to the next section.

Acquisitions normally occur because buyers and sellers believe that the value of the merged company will be greater than that of the two independent companies. In other words, mergers are supposed to create business synergies. These synergies may arise for a number of operational or financial reasons: Eliminating duplicative infrastructure, vertical integration, economies of scale, etc. A certain software technology, for example, might be worth $100 in my hands, but $1000 in the hands of Microsoft because of that company's ability to bring superior collateral assets (in the form of, say, a marketing network or complementary software) to bear.

The value of such synergies can be measured by the excess of the market value of the merged companies over their value independently. If acquirer company (A) acquires target company (T), and we designate the resulting combined company as AT, then the value created by the synergies is:

$$\text{Value of synergies} = V(AT) - V(A) - V(T)$$

where V(A) refers to the value of A as an independent company, V(T) refers to the value of T as an independent company, and V(AT) refers to the value of the combined entity. (All values refer to the market value of a firm's equity.)

[2] The conclusions of this paper apply equally to acquisitions of either assets or stock, whether paid for by cash or by stock, and whether treated for accounting purposes as a purchase or a pooling. The more favorable tax treatment of stock swaps and accounting treatment of poolings may result in higher acquisition prices for such transactions. But this has no bearing on the arguments here.

The market's valuation of synergies can be measured by the difference between the values of the independent firms (measured immediately prior to the merger announcement) and their value immediately subsequent to the announcement.[3] For example, suppose that we observed the market information contained in Table 1.

Table 1

Illustration of Synergies Affecting Purchase Price

Pre Offer:

	Target	Acquirer	Total
Shares outstanding	500	1000	
Price per share	$8.00	$15.00	
Market value	$4,000	$15,000	$19,000

Acquirer offers 2/3 of a share of A per share of T and issues new shares:

Post Offer:

		Acquirer:		
	Target	Original	New Shares	Total
Shares outstanding	500	1000	333.3	
Price per share	$10.67	$16.00	$16.00	
Market value	$5,333	$16,000	$5,333	$21,333

There are now two ways to buy the target: By purchasing its shares directly, or by purchasing 2/3 that number of shares in A. Since both yield the same value (assuming the merger is consummated), arbitrage will ensure that they command the same price, and ultimately the price of a share of T will equal 2/3 that of a share of A.[4]

---

[3] As a practical matter, there is often a significant time lag between the announcement of an intended merger and its execution, as well as uncertainty over whether announced mergers will ultimately be executed. Market valuations can move during this period for reasons unrelated to the transaction itself. This is especially true with technology companies, whose share prices tend to be relatively volatile. Hence measuring the market's valuation of the value of a merger is more difficult than this simple explanation indicates.

[4] Again, we repeat our caution that this arbitrage will be imperfect at first, for the reasons discussed in the previous footnote. In the real world example described below, there remained an approximately X%

Even before the merger is consummated, then, the value of the synergies can be measured from stock market data. In the example of Table 1, the value of the synergies is $2,333 ($21,333 - $19,000).[5]

Table 2, below, illustrates the merger value assigned to a recent high technology transaction, the acquisition of Coherent Communications Systems by Tellabs. In this transaction, the market judged the value of the synergies to be approximately $1.5 billion (=$11.3 billion - $9.8 billion), which was roughly equal to 15 percent of the pre-merger value of the companies.

[Insert Table 2 here]

The source of the incremental value is not simply attributable to an asset newly contributed to the cost sharing arrangement, however. Instead, it arises because of the interaction of the acquired technology with other assets, usually either already cost shared or otherwise owned by the participants in the cost sharing arrangement.

B. Sellers Capture Some of These Gains

How much of the synergy value did the seller capture?[6] Again, this can be measured directly. It is simply equal to the premium paid to the sellers of T divided by the total synergy value. In the example of table 1, the sellers captured 57 percent of the value ($1,333 / $2,333). In the real world example of Table 2, Coherent captured XX percent of the value.[7]

The source of the incremental value is not simply attributable to an asset newly contributed to the cost sharing arrangement, however. Instead, it arises because of the interaction of the acquired technology with other assets, usually either already cost shared or otherwise owned by the participants in the cost sharing arrangement.

---

differential between the value of the company computed the two different ways 5 days after the announcement of the intended transaction. A discrepancy of this magnitude appears typical.

[5] Note that the value of the synergies, sometimes also called the *value of the merger*, is different from the value of the *target* or acquired firm. The value of the merger is also not the same thing as the *premium* paid for the target, that is, the excess of the purchase price over market. This latter is sometimes described as a control premium, although it almost certainly represents something more complex than merely the value of controlling the target's assets. In the example of Table 1, the control premium is the excess of the amount paid for the target ($5.33) over its market value prior to the acquisition ($4.0), or $1.33 million.

[6] How much of the value of the merger is captured by the shareholders of T and how much by the shareholders of A is an interesting question in its own right. It is relevant to transfer pricing because it sheds light on the issue of how much of the gains from the transaction accrue to the seller of an intangible and how much to the purchaser. But a full discussion of this is beyond the scope of this paper.

[7] XX% -- [(620.0 - 446.5) / (11252.8 - 9766.4)]. Many real world examples do not work out this neatly because often the market pushes down the shares of the acquireror, so that the target (seller of technology) captures *more than 100 percent* of the synergies. In other transactions, the market appears to conclude (rightly or wrongly) that there are no synergies to begin with.

Synergy intangibles are the anticipated fruits of subsequent development effort. Such effort is associated with investment expenditures that have yet to be made, both in the form of sales and marketing investment and additional R&D. It is not simply associated with expenditures that were made (and deducted) in the past.

The incremental investment is usually significant compared to historic R&D. Since these incremental expenses will be either cost shared or borne individually by the participants in the cost sharing arrangement, the premium attributable to such spending should not also be cost shared. This would be tantamount to double charging.

III. Why In-Process R&D Valuations Overstate Buy-In Amounts

Just as purchase price amounts overstate the buy-in, so also do amounts ascribed to in-process R&D by conventional valuation methods. In part this is for the same reason described above: Valuations of the seller's in-process R&D are based on anticipated profits in the hands of the purchaser, and so reflect the incremental value brought to the asset by the purchaser. As with purchase price amounts, the source of the incremental value is not an asset newly contributed to the cost sharing arrangement, and so must be dis-entangled from the buy-in payment.

There is an additional problem with R&D valuations, however. The conventional methodology for valuing in-process R&D treats the contribution of pre- and post-acquisition date development activity asymmetrically. Such analyses implicitly attribute net expected future profits, after recovery of future R&D costs, entirely to the in-process R&D asset.[8] This disproportionately ascribes value to pre-acquisition development activity as compared to post-acquisition activity, and hence overstates the value of the asset contributed to the buy-in arrangement.

To see this, consider the following example (which is a somewhat simplified example of how in-process R&D is valued). Suppose firm X is a start up technology company with a good idea, some in-process development work, but no product or revenues.

A fairly typical in-process R&D valuation would (1) estimate future revenues net of the incremental expenditures (R&D as well as sales and marketing) necessary to generate such revenues, (2) calculate the discounted net present value of such net revenues, (3) perhaps subtract some amount as a normal return to the firm's other invested capital, and (4) deem the balance to be the value of in process technology. Table 3 illustrates such a calculation.

---

[8] This sentence is a simplification of a model that is explained more carefully below.

Table 3

Simplified Illustration of Valuation of In-Process R&D

[Reverse order of Revenues and Inc. Req'd Cost columns]
[Also, what discount rate?]

	R&D Expense	Revenues	Incremental Req'd Costs[a]	Net Cash Flow
1997	($20.00)			
1998	($20.00)			
Acquisition date: EOY 1998				
1999	($20.00)	$0.00	$0.00	($20.00)
2000	($20.00)	$0.00	$0.00	($20.00)
2001	($20.00)	$0.00	($5.00)	($25.00)
2002		$30.00	($5.00)	$25.00
2003		$30.00	($5.00)	$25.00
2004		$30.00	($5.00)	$25.00
2005		$30.00	($5.00)	$25.00
2006		$30.00	($5.00)	$25.00
NPV @ acquisition date				$17.71
Value typically ascribed to in-process R&D:				$17.71
Pro rata share of NPV on acquisition date:				$7.08

[a] Including a "normal" return to other assets or expense.

The problem with this calculation is that *it attributes 100 percent of the asset value to activity that has occurred prior to the valuation date, notwithstanding that the revenues in questions will require significant subsequent R&D and other expenditures.*

Under the calculation of Table 3, the value of the in-process R&D is the entire $17.71. But of the $100 of R&D necessary to yield the ultimate profits, only $40 had been incurred by the valuation date. The majority of the R&D spending had yet to be incurred.

At most, it seems more plausible to attribute only, say, 40 percent of the expected net cash flow to an asset developed prior to the valuation date. This would be a value of $7.08, not $17.71. The balance is economically attributable to R&D spending that will occur subsequent to the buy in to bring the product to market. Other approaches to the question of how much of the net present value was attributable to the early stage R&D can also be conceived.

The point is that the ultimate revenues are attributable just as much by the activity that takes place subsequent to the valuation date as to that which occurred prior. But interpreting the net present value as if it were an asset in existence on the valuation date implies that all of the value (in excess of covering future expenses and a normal return to hard assets) has been created by that date, which it clearly has not.

In effect, this methodology treats the business as if it were a financial bond: Buy the bond today, and all that is necessary is to hold it into the future and clip coupons to realize its asset value. Clearly this is not a realistic picture of a technology company. The problem lies not with the calculations themselves but rather with their interpretation as an in-process technology asset. A more reasonable interpretation is that this net present value represents the value of a *business opportunity*.

This is not merely a matter of nomenclature. The value of created technology is what requires a buy in payment. But the value of an opportunity, which in order to be realized will require future expenditures, is something different. A business firm represents a wager that certain past spending, *coupled with future spending and execution of a business plan,* will yield future profits. But the risks and uncertainty that will determine ultimate success lie equally in the future as the past. To ascribe the net present value of the cash flow to an asset that exists today is equivalent to treating a business opportunity as if it were a Treasury bond, which clearly it is not.

IV. Calculating Buy-In Payments for Acquired Intangibles

Thus far we have explained how buy-in payments should *not* be calculated. Now we turn to proposals for how they should. A full treatment of this issue would be expand the length of this article beyond any reasonable reader's patience, so we will content ourselves here with a brief overview of some possibilities.

My own preference is to establish buy-in payments (typically, running royalty amounts) based on direct market evidence from licensing transactions. This is not always possible, however. Sometimes the acquired technology will be associated with a well-defined revenue stream of its own, and it is reasonable to try to attach a running royalty rate to the revenue stream. In many other cases, however, the acquired technology will be integrated with the purchaser's technology in a way that does not permit identifying a revenue stream attributable to the target's technology and attaching a running royalty to that revenue stream. Moreover, even in the former case, it is always desirable to have confirming methods in such a judgmental area.

As described above, when starting from a conventionally-prepared valuation of in-process R&D, calculation of a buy-in benchmark requires (i) deflating the value ascribed to in-process R&D to reflect the purchaser's contribution to the asset value and (ii) ascribing the value proportionately to pre- and post- acquisition development activity.

The former step can be done by basing the valuation on the pre-acquisition anticipate cash flows, as opposed to the post-announcement valuation (which includes the value of the synergies attributable to other assets). The latter might be accomplished by deflating the resulting amount by the ratio of pre- and post-acquisition development expense required to commercialize the technology in question. Again, other solutions to this problem can also be conceived.

When starting from a purchase price, calculation of a buy-in benchmark requires (i) deflating the purchase price by the amount of purchaser-contributed value *captured by the seller*, (ii) reducing that amount by value attributable to assets *other than* those contributed to the cost sharing arrangement.

If target isn't a public company, or if acquisition was of assets rather than stock, then there is no easy way to capture the amount of synergies themselves, let alone the share of synergies captured by the seller. A general study of premiums paid in acquisitions of the stock of high tech companies might be interesting here, but for the most part such acquisitions are of very early stage development companies, which tend not to be public. With respect to the second step, in the absence of some kind of post acquisition valuation of the various acquired assets, there does not seem to be any easy way to isolate the value of pre-developed technology.

Both of these methods assume that the starting point should be some kind of lump sum valuation. There are various ways to convert such stock values into into running royalty flows. But a better approach in general seems to be to start with a running royalty, assuming there is an identifiable revenue base associated with the target company's technology.

V. A Fundamental Problem

It is well-established economic conclusion that the riskiness of a financial asset cannot be measured independently of the portfolio of which it is a part. Similarly, the value of an intangible asset cannot be measured independently of the other assets with which it is used. When stated as a business proposition this seems straightforward: It is clear that the value of an asset is different in the hands of different owners. Indeed, the fact that assets are worth different amounts in different people's hands is presumably a principal reason why these transactions occur.

There is a corollary of this that is not so universally accepted, however. The fact that the value of any particular asset depends on the other assets in the portfolio also means that asset values are not unique nor additive within a firm. In other words, the value of a firm cannot meaningfully be allocated across separable assets.

A simple example illustrates: Suppose a firm possesses three assets, A, B, & C, that are utilized together in the firm's business. (To give the example familiar terminology, we might think of the three assets as technology, a marketing network, and workforce in place. Most business firms, realistically, consist of a bundle of intangible assets.) The firm's market value reflects the value of using *all three in conjunction*. But there is no meaningful way to say that asset A is worth some identifiable, fixed amount; asset B is worth so much, and so on.[9] What we *can* do, at least conceptually, is remove any one of the three and observe the value of the remaining two. But this does not yield unique asset values, because removal of any one of the three will ordinarily cause the value of the firm to decline by more than one-third. Imagine that we actually carried out this experiment and observed the following results:

Scenario	Eliminated asset	Remaining assets	Market value
1.	none	A,B,C	$100
2.	A	B,C	$25
3.	B	A,C	$25
4.	C	A,B	$25

Scenario 1 implies that A is worth $75 since the market value of the firm declines by $75 in its absence. But if that is the case, then how can A and C together be worth only $25 (scenario 3)? Moreover, the same test applied to assets B and C also yields asset values of $75 for each of those assets. But we know that the value of the firm with all three assets together is only $100, not $75 + $75 + $75 = $225.

The point is the same either way: The value of the firm cannot be exhaustively assigned to its individual assets, and the value of individual assets cannot be added together to arrive at the value of the firm. The best that can be observed is the collective value of a bundle of intangible assets.[10] (Indeed, as the preceding discussion emphasized, even this interpretation of the market value as a pre-existing asset is problematic when what the firm really represents is essentially a business opportunity.) To try to move beyond this is to try to impose accounting concepts onto a question to which they do not precisely apply.

At first blush this might seem to be an awkward result. The section 482 regulations at numerous points utilize the concept of "the" value of an intangible asset, and implicitly treat it as if it were a unique and measurable magnitude. And both book and tax accounting practices rely on assigning unique values to different intangible assets, and on interpreting the market value of the firm as the sum of the values of its assets.

Our purpose here is not to attack the foundations of either the section 482 regulations nor of valuation practice, however. Section 482 does not require "valuing assets" *per se*. What it requires is setting arm's length prices. We believe that arm's length buy-in

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[9] Most exercises that purport to arrive at such a result do so by adopting using formulas to value n-1 of a firm's assets and assigning the unexplained residual to asset n. Sometimes n is called "goodwill."

[10] For hard assets for which there are real markets, this valuation problem does not arise. The problem arises in the context of intangible assets which are unique, synergistic, and often non-transactable.

payments for acquired technology *can* generally be estimated, either directly from transactional evidence or, in some cases, from the acquisition terms themselves, appropriately adjusted. We simply argue that neither the amount paid for a company in an uncontrolled transaction nor the value assigned to in-process R&D by a purchase price valuation is, without further adjustment, a reliable guide to the buy-in payment. This is merely another example of the fact that accounting conventions are not the same thing as economic theory. Such a conclusion is not startling, nor does it imply that the accounting conventions are not useful.

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BURTGRAD@AOL.COM

January 6, 1999

Mr. Steve Carey
Sterling Software, Inc.
300 Crescent Court, Suite 1200
Dallas, TX 75201-1000

Dear Steve:

At your request, Burton Grad Associates, Inc. (BGAI) proposes to analyze the values received by Sterling Software, Inc. (SSI) from the foreign subsidiary expenses incurred in relation to the acquisition of Texas Instrument Software (TIS) by Sterling Software, Inc.

After discussions between E&Y, SSI and BGAI, an explicit set of questions has been prepared and will be used as the guide for this project to be performed by BGAI. These questions are included as Appendix B.

Work Plan

1. BGAI wil obtain all relevant source materials related to the assets obtained by SSI (both North America and international) from the TIS asset acquisition (see Appendix C for further details on this item).

2. Identify the various benefits received by SSI as a result of the acquisition (see Appendix C for further details on this item).

3. Identify the nature, size and purpose of the various acquisition-related expenses incurred by the SSI foreign subsidiaries.

4. Map the relative significance of these expenses to the benefits identified for SSI.

5. Produce summarized responses to the questions in Appendix B.

Staffing

This project will be performed by Burton Grad, president of BGAI, with senior consulting assistance from Martin Y. Silberberg, a BGAI Associate. Their professional profiles are included as Appendices A-1 and A-2.

SSI and E&Y will provide designated liaisons to work with BGAI on related financial, market and technical matters.

Schedule

The project will begin as soon as SSI approves this agreement. Delivery of relevant documents needs to be completed in early January so that BGAI can complete its work assignments by the end of January, 1999. BGAI will try to produce a preliminary set of responses by January 22, 1999.

Confidentiality

All work performed and all materials and information received by BGAI will be treated as confidential and not disclosed to any third party except as authorized in writing by SSI or as required for any legal proceeding.

Costs and Payments

This project will be performed on a time and expense basis. The fees for the consultants are:

Burton Grad	\$2,500/day
Martin Y. Silberberg	\$1,500/day

As the project is currently described, BGAI estimates that the project may require up to three days each for Grad and Silberberg. This would indicate consultant fees of no more than \$12,000. In addition, SSI would reimburse BGAI for all direct expenses incurred including any needed travel and accommodations, phone/fax, express deliveries, etc. Assuming that there will not need to be any meetings in Dallas for either Grad or Silberberg, the expenses should be less than \$500.

Payments will be due within fifteen days of SSI receiving a BGAI invoice.

If the above project description is satisfactory, please authorize BGAI to proceed by signing below and returning a signed copy to BGAI.

Sincerely,

Burton Grad
President

BG:4044
cc: Tim Larson (E&Y)

Accepted for: Sterling Software, Inc.

by ______________________
Signature

____
Title

____
Date

Appendix B

Reimbursed Foreign Expenses for TIS Acquisition

Scope:

Explain and justify reimbursement by Sterling Software, Inc. (SSI) of certain TIS acquisition-related expenditures incurred by SSI's foreign subsidiaries.

Questions:

1. What were the incremental revenue and operating income projections for SSI as a direct result of acquiring these TIS assets?

2. What other specific benefits did SSI obtain from the acquired assets? Where possible, quantify these additional benefits. Consider market share, global market leadership, economies of scale, potential new markets, etc.

3. What were the specific purposes of and amounts for the acquisition-related expenses incurred by the SSI foreign subsidiaries?

4. How much did these specific foreign subsidiary expenses contribute to the acquisition benefits expected to be realized by SSI?

Appendix C

Certain Details of the Proposed Action Plan

1. SSW to provide all source materials needed:

   - Actual foreign subsidiary expenses
   - Acquisition planning documents
   - Valuation report on TIS intangible assets
   - Pre and post-acquisition financial plans from Sterling Software, Inc. (North America and International)
   - Strategic planning documents from Sterling Software, Inc. (North America and International)
   - Pre-acquisition organization charts and employee numbers by category with retention projections for TIS
   - Pre-acquisition TIS and relevant Sterling Software, Inc. customer base
   - Pre-acquisition TIS and relevant SSI products with migration plans to new products
   - Market research materials relevant to the marketplace and competition

2. Identify the various potential benefits to SSI (North America and international)

   - Reduced costs (one time)
   - Reduced operating costs
   - Additional specific revenues from acquired products, from previous ADD products, from acquired technologies and from related services
   - Reputation and market leadership
   - Global position in terms of worldwide standards
   - Pricing flexibility from stronger market position
   - Copyrights, patents, trademarks

SSW/Tax
Reimbursed Foreign Expenses - TIS

EY Notes (5/28/98 letter to Carey) from Brett Enzor

1. Identify all expenses incurred by foreign SSI subsidiaries; identify portion reimbursed by SSW (USA).

2. What was "direct and proximate" benefit to SSW (USA); include tangible and intangible, from SSW (USA) perspective; items include: reduced costs R&D, other personnel); increased operating income from additional sales of existing acquired products, new markets and sales to acquired customer base.

3. Identify all tangible/intangible assets acquired (business viewpoint).

4. Identify all expenses incurred by SSW (USA); identify portion reimbursed by foreign subsidiaries (e.g., international marketing rights for products and technologies).

5. Analyze AMG business position (products, technologies, markets, personnel, customer base prior to and after TIS acquisition; what specific benefits accrued to SSW (USA) as a result of acquisition?

6. What are additional benefits from market leadership position in the component-based application development marketplace?

7. Identify special values from technology synergy (Key and Composer) in market position, functionality, quality, time to market.

8. Change in value of R&D capabilities (other new products, performance, technologies, etc.).

9. Opportunity to serve new markets in U. S. (intelligence, government, industries, size of customers).

10. Economy of scale or critical mass benefits (e.g., cost reductions).

11. Any avoidance of problems or costs from expenses incurred.

12. Any pre and post-acquisition forecasts/income projections

Concerns

1. How to relate value of acquisition with value of expenses incurred?

2. Do we have to demonstrate foreign benefit from foreign expenses or just U. S. benefit? Is symmetry required on U. S. corporation expenses?

3. Must avoid double counting of benefits.

4. Are all benefits at an operating income level?

5. Ability to quantify value versus providing qualitative statements.

6. Do we use actual results or expected results as of acquisition date?

SSW / Tax

foreign expenses

Steve Carey

Tim Larson - tax partner - EY 12/11/98

ph 214-969 8385 Timothy.Larson@

Transaction cost analyzer fax 214-969-8320 EY.com

Establish benefits to SSI (USA)
from acquisition

$14M Severance -

$9M Office closure -

other

29M ? 80% US, 20% foreign

- to prepare proposal < full report / response to Q's

- to prepare revised Q's

SSW
Intl / Tax

(5)

(do not type)

Steve Carey

11/6/98

TIS Acquisition

Jobs billed restructuring costs
office closings
severance
etc

~$50M

$49,774,000 for US + Intl

Analysis of costs by E+Y
- immediately expensible
- 3 year
- 15 year

some Q's on foreign expenditures
~ $28M

addl detail regarding products
- benefits in becoming leader
- specific units/customers

✓ look at fax

December would be ok for doing this work

- who would be the contacts at SSW and at EY?
- Need to clarify questions and narrow responses

Steve Covey - - -

do not type

11/6/98

1/9/98 - Covey.

Fair Value for Intl mktg rights for TIS acquisition

"..." Information you provided regarding the allocation of these 1 time charges, . . .

=

25,425,000
~~$5,055,000~~ special 1-time charge incurred by international in comp planning & completing the acquisition.

$25,425,600

$106 M total restructuring.

$5,055,000

>

SSW/Tax

Steve Carey, Tim Larson 12/23/98

Steve_Carey@Henly.com

Timothy.Larson@EY.com

Sterling Software Inc.
Transaction Cost Analysis

12. Reimbursed Foreign Subsidiary Expenses

The analysis thus far has not attempted to distinguish between costs incurred by foreign subsidiaries of Sterling and costs incurred by Sterling. That is, the discussion above has addressed the U.S. federal income tax consequences of various acquisition-related expenses under the assumption that Sterling (or a U.S. affiliate of Sterling) incurred such costs. As discussed in the Facts and Assumptions section above, many of the acquisition-related costs (specifically, foreign business integration costs) were initially paid by various foreign subsidiaries of Sterling and subsequently reimbursed by Sterling. The issue is whether such costs can be reflected in the U.S. federal income tax return of Sterling.

The separate corporate identities of a parent company and its subsidiary, and the long-standing common law respecting such separateness,[1] generally preclude the parent from deducting expenses paid or incurred by its subsidiary. The theory is that such costs relate to the business of the subsidiary rather than the business of the parent.[2] However, when an expense incurred by a subsidiary directly relates to the business of the parent, and the parent pays or reimburses such expense, the courts have been willing to allow the parent to recognize the deduction for U.S. federal income tax purposes.[3]

The test for determining whether a reimbursed expense incurred by a subsidiary is deductible by a reimbursing parent company is the "direct and proximate" benefit test. That is, when an expense incurred by a subsidiary creates a "direct and proximate" (rather than an "indirect and incidental") benefit for a reimbursing parent, the parent may generally deduct the reimbursement payments as ordinary and necessary business expenses.[4] Amounts relating to the day-to-day operations of a subsidiary's business and amounts relating to payments made to a subsidiary's employees have been held to create "indirect and incidental" benefits for a parent.[5] Distinguishing between "indirect and incidental" benefits and "direct and proximate" benefits requires a careful analysis of the facts and circumstances of each case.

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[1] See e.g. *Moline Properties, Inc. v. Comm'r*, 319 U.S. 436 (1943).

[2] See *Interstate Transit Lines v. Comm'r*, 319 U.S. 590 (1943); *South American Gold & Platinum Co. v. Comm'r*, 8 TC 1297 (1947); *Specialty Restaurants Corp. v. Comm'r*, 63 TCM 2759 (1992); *Columbian Rope Co. v. Comm'r*, 42 TC 800 (1964).

[3] See *Coulter Electronics, Inc. v. Comm'r*, 59 TCM 350 (1990); *Fall River Gas Appliance Company, Inc. v. Comm'r*, 42 TC 850 (1964), *aff'd*, 349 F.2d 515 (1st Cir. 1965); *Young & Rubicom, Inc. v. U.S.*, 410 F2d 1233 (Ct. Cl. 1969); *Fishing Tackle Products Co. v. Comm'r*, 27 TC 638 (1957).

[4] *E.g. Young & Rubicom v. Comm'r, supra; Austin Co. v. Comm'r*, 71 TC 955 (1979).

[5] *Austin Co. v. Comm'r, supra, Columbian Rope Co. v. Comm'r, supra.*

In *Coulter Electronics*,[6] a U.S. parent company ("Coulter") manufactured and distributed medical instruments which automatically counted blood cells. Coulter distributed its products throughout the world through wholly-owned foreign subsidiaries. Coulter provided its customers, primarily hospitals and laboratories, with repair and maintenance services pursuant to instrument warranties and service contracts. Because of the advanced technology within the instruments, and because customers were so dependent on the instruments in treating patients, approximately 95% of customers purchased repair and maintenance service contracts offered by Coulter. Coulter believed the quality of the warranty services it provided had a direct effect on its sales because independent surveys consistently indicated that after-sale service support was the primary reason customers chose Coulter products over products manufactured by competitors. Coulter required its foreign subsidiaries to offer their customers the same warranty and service contracts that Coulter offered its U.S. customers. Coulter believed inadequate post-sale services in one country (or multiple countries) could adversely affect the sale of Coulter products in other countries.

Coulter Electronics of Canada, Inc. ("CEC"), a Canadian corporation and wholly-owned subsidiary of Coulter, marketed and distributed Coulter's products throughout Canada. The mandate from Coulter to provide warranty and service contracts created financial problems for CEC because, in part, CEC customers were widely dispersed over a huge, thinly populated geographical area, and the cost of providing warranty services over such a large area was prohibitive. Furthermore, Coulter and CEC concluded CEC could not offset the large warranty service costs by increasing the prices of its products because of Canada's close proximity to the U.S. Thus, Coulter decided to reimburse CEC its costs related to warranty and service contracts. Coulter reimbursed such costs from 1974 through 1978 and deducted the costs on its U.S. federal income tax return.

The Tax Court held that the reimbursed warranty expenses were deducted by Coulter on its U.S. federal income tax return because such costs were directly related to Coulter's business. The Court held that such costs were directly related to Coulter's business because the costs were necessary to protect Coulter's reputation for providing outstanding after-sale services.

In *Fall River Gas Appliance Company*,[7] a parent company (the "Gas Company)" was engaged in the sale and distribution of gas to domestic and industrial users. A wholly-owned subsidiary of the Gas Company (the "Appliance Company") was engaged in the selling and leasing of gas-consuming appliances. The Gas Company believed that an increase in the number of gas appliances used by existing customers or new customers had the effect of increasing their

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[6] *Coulter Electronics, Inc. v. Comm'r*, 59 TCM 350 (1990).

[7] *Fall River Gas Appliance Company, Inc. v. Comm'r*, 42 TC 850 (1964), *aff'd*, 349 F.2d 515 (1st Cir. 1965).

consumption of gas. With this in mind, the Gas Company entered into an agreement with the Appliance Company whereby the Gas Company paid the delivery, installation, and selling expenses related to appliances sold or leased by the Appliance Company. The Gas Company deducted such expenses on its federal income tax return. The IRS disallowed the expenses, arguing that such expenses were the expenses of the Appliance Company rather than the Gas Company.

The Tax Court held that the expenses were properly deductible by the Gas Company because the Gas Company had a substantial interest in increasing its own sales of gas, and the expenses paid by it were intended to promote its own business wholly apart from that of the Appliance Company.

In *Young & Rubicom, Inc.*,[8] a U.S advertising agency made payments to personnel employed by its foreign subsidiaries. The Court of Claims was asked to determine whether the U.S. company could deduct compensation paid to foreign personnel as its own expense, or whether such compensation was more properly an expense of the foreign subsidiaries. In concluding that some of the compensation was deductible by the U.S. company, the Court stated:

> "A deduction is allowable insofar as plaintiff has proved that a particular individual was involved in a specific activity clearly for plaintiff's proximate and direct benefit; *e.g.*, plaintiff's foreign expansion program, marketing surveys and advice for plaintiff's clients who planned to enter foreign markets (other than the specific market covered by the subsidiary wherein the individual was employed, because in that situation he would have been soliciting additional business for the subsidiary corporation), or perhaps attempting to convince a particular client of the subsidiary to employ Young & Rubicom, Inc. as its U.S. representative. Where plaintiff has proved, in detailed rather than general terms, that an individual was involved in this kind of activity, a deduction for the compensation paid for these activities is allowable."

In light of the authorities set forth above and the documentation demonstrating the direct and proximate test is met, we believe substantial authority exists to support the position that the business integration costs initially incurred by foreign subsidiaries and subsequently reimbursed by Sterling are deductible by Sterling for U.S. federal income tax purposes.

[8] *Young & Rubicom, Inc. v. U.S.*, 410 F2d 1233 (Ct. Cl. 1969). See also *Fishing Tackle Products, Inc. v. Comm'r, supra* (payments made by parent to reimburse subsidiary's operating losses are deductible by parent as an ordinary and necessary business expense where payments were made to maintain and preserve a source of supply).

X

Sterling Software, Inc - Acquisition Expenses
Period Ending 9/30/97
Related to TI Software acquisition
by SSI Foreign Subsidiaries

	($000)	($000)
Severance Pay - Intl	13 738	
Special Bonuses -	1 919	
Stock Purch Plan - Intl	250	
Trans. Emp & Stay Bonuses - Intl	1 379	
Relocation Costs of Emp - Intl	466	
Potential Emp Litigation - Intl	210	
Outplacement costs - Intl	306	
Total - Staff related costs		18 268
Announcement Costs - Intl	349	
Total - Acq. Plng + Travel costs		349
Excess/Duplicate Office Fac.	6 794	
Office Relocation cost	1 024	
Excess Equip Leases	1 025	
Total - Office & Equip costs		8843
Professional Fees - Stanbach	350	
Professional Fees - West. Eur	108	
Total - Prof Fees		458
India Business Costs	117	
Total - other Costs		117
TOTAL - Acq. Expenses - Intl		28035

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(914) 631-1164 FAX

work copy

July 15, 1997

Mr. Logan Wray
Sterling Software, Inc.
300 Crescent Court
Suite 1200
Dallas, Texas 75201-1000

Dear Logan:

Subject: **Valuation of Intangible Assets Acquired from Texas Instruments Software**

At the request of Sterling Software, Inc. (SSW), Burton Grad Associates, Inc. (BGAI) has determined valuations as of June 30, 1997 for the products and technologies acquired from Texas Instruments Software (TIS). This will assist SSW in the allocation of the purchase price (after the tangible net assets have been deducted) to the intangible assets which were part of the purchase of assets by SSW.

This report deals with the acquired TIS products and technologies which will be developed and marketed by SSW after the acquisition.

The analysis and recommendations in this report are based on examination of materials provided by TIS, information on business plans provided by SSW and interviews with selected business, technical and financial executives at TIS and SSW. Some of the materials provided have not been independently verified as to accuracy, but all information has been compared to relevant industry data.

The definitions, methodology and logic used, as well as the results obtained, are described in this report. The enclosed appendices provide additional information supporting the BGAI allocation recommendations.

These figures are based on information provided by SSW regarding their strategic plans and intentions regarding the future development, marketing, distribution and support of the existing TIS products and the available and in-process TIS technologies. Note particularly that valuation of the current TIS products is dependent on how SSW has planned to balance their sale and support with the current ADD products. Even more significant are SSW's decisions on which of the TIS and which of the ADD technologies (KWI-related and new) will be vital to and incorporated into future application development systems products for the combined SSW/TIS organizations.

The enclosed TIS Products figures have been built on a product family basis, (not by individual products). They reflect the general and individual assumptions stated on: market; continued enhancement; prices; unit sales; renewal rates; timing of replacement or successor products; cost of money; effective American tax rates; marketing of these products internationally; international tax rates; operating costs, etc.

The enclosed TIS Technologies figures have been built on the intended SSW strategies as of 6/30/97 with particular dependency on the significance of the use of available and in-process TIS technologies in each product relative to the significance of the use of available and in-process SSW technologies. These proposed future product family values reflect the general and individual assumptions stated on: markets; competition; technology advances; acceptance of component-based development; American and international tax rates; cost of money; operating costs, etc.

If you or your staff have any questions on these results, assumptions or logic, please contact me.

Sincerely,

Burton Grad

Enclosure
BG:3513
cc: Laura Appling
Steve Carey
Don McDermett

TEXAS INSTRUMENTS SOFTWARE
INTANGIBLE ASSETS ACQUIRED BY
STERLING SOFTWARE, INC.
AS OF JUNE 30, 1997

Valuation Report

Prepared for:

Sterling Software, Inc.
300 Crescent Court
Suite 1200
Dallas, Texas 75201-1000

Prepared by:

Burton Grad Associates, Inc.
235 Martling Avenue
Tarrytown, New York 10591

Burton Grad
Elizabeth Virgo
Martin Silberberg
Sidney Dunayer

Date: July 15, 1997

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G	TIS/SSW Technology Ratios and Values

EXECUTIVE SUMMARY

At the request of Sterling Software, Inc. (SSW), Burton Grad Associates, Inc. (BGAI) assembled a small team of consultants to work with the information requested from and provided by Texas Instruments Software (TIS) and SSW. A number of people at TIS and at SSW were interviewed in order to gather additional information and to understand SSW's planned strategies and directions.

BGAI then constructed a set of models for the existing TIS product families (Composer, Performer and Templates) and for the planned new SSW application development systems offerings. These were separated by Americas and International.

The necessary data on various revenue and cost assumptions were entered into these models. BGAI then constructed appropriate revenue forecasts for each existing and planned product. The models calculated the net present value for the operating income cash flow using the financial assumptions on cost of money and tax rates as provided by SSW.

The assumptions for and results of these calculations for the existing TIS products are shown in Section V. The results are summarized here.

Summary of Product Values	Value	Amortization Life
TIS Products		
Composer	$23,881,000	5 years
Performer	76,000	3 years
Templates	97,000	3 years
Total	$24,054,000	

These product values should be capitalized and amortized over the periods noted starting with the date of acquisition on a straight-line basis.

The assumptions for and results of these calculations for the TIS technologies as incorporated into SSW's intended application development system offerings are shown in Section VI. The results are summarized here.

	Value
TIS Technologies	
Advanced Component-Based Development Systems (Gold)	$123,033,000
Components	9,767,000
Templates	5,049,000
Total	$137,849,000

These available and in-process technology values should be expensed per FAS2 as of the date of acquisition since the products which will incorporate these technologies do not meet FAS86 qualifications for capitalization at this time.

The total measured intangibles are $161,903,000. To determine the goodwill to be capitalized, this figure should be deducted from the net intangible asset purchase value, which is computed by adding the acquisition costs to the asset purchase price and then subtracting the net tangible value (tangible assets less tangible liabilities).

These figures represent BGAI recommendations to SSW for its allocation of the intangible asset purchase value among products, in-process R&D technologies and goodwill.

SECTION I. Objectives and Work Plan

At SSW's request, Burton Grad Associates, Inc. (BGAI) has performed a valuation of the intangible assets obtained by Sterling Software, Inc. (SSW) in its planned acquisition of the Texas Instruments Software Division (TIS).

TIS is the developer and distributor of a number of application development programs currently used by many companies throughout North America and internationally. The TIS products, components and technologies which are currently available and those under development will be of critical value to SSW in its future development and marketing plans for the U.S. and internationally.

BGAI was requested to determine the value of the products, components and technologies acquired from TIS so that the asset purchase price could be properly allocated and the intangible assets capitalized or written off.

SSW retained BGAI because of its extensive experience over the last 16 years in valuing software companies and their assets. BGAI performed this independent valuation using generally accepted valuation techniques. These valuations may be used by SSW to support financial (book), capitalization/amortization decisions and for selected other business purposes.

Work Plan

BGAI performed this valuation study following these steps:

1. SSW and TIS collected materials as specified by BGAI which provided the basis for the valuation study. A list of the materials obtained is shown in Appendix B-1.

2. BGAI examined these materials and conducted telephone interviews with selected SSW and TIS executives to obtain information not available from the source materials or to amplify or clarify these materials, particularly with regard to future strategies and plans. A list of those interviewed is shown in Appendix B-2.

3. BGAI used selected valuation methodologies (principally net present value of projected cash flow, with limited use of reconstruction costs of technologies) and analyzed the materials and interview notes so as to construct the valuation models needed.

4. For these models, key valuation factors were determined including historic customer revenues, operating costs, maintenance renewal rates, along with NPV factors, projected tax rates, etc. Using these factors, the recommended product and technology values were determined as well as expected goodwill values required for book purposes.

5. A preliminary report has been delivered prior to closing of the acquisition to ensure that the key information used is accurate and complete and that the logic, calculations and explanations are clear. After the closing, the final report was prepared and submitted including more detailed descriptions and explanations and additional appendices.

Staffing

The principal valuation work was supervised and performed by Burton Grad. Elizabeth Virgo, Martin Silberberg and Sidney Dunayer (all BGAI Associates) assisted in the analysis and modeling activities. Grad's professional profile is enclosed as Appendix A-1. Virgo's profile is Appendix A-2; Silberberg's profile is Appendix A-3; Dunayer's profile is Appendix A-4.

SSW and TIS assigned various liaison people to work with BGAI to provide financial, marketing, organizational and technical information as required.

SECTION II. Description of TIS Products, Technologies and Business Operations

The TIS comprehensive set of application development products enables developers to build and deploy applications that scale across distributed enterprise computing environments with solutions for both traditional client/server and web-based distributed architectures. The set includes tools for both component-based development (CBD) and traditional information engineering (IE) tools.

Component-based development (CBD) is an application development framework for accelerating system delivery through reuse of software components. Lower development costs, increased overall quality and adaptability of the application are particular benefits for large-scale application development.

A component is an independently deliverable, self-contained package of software built to certain defined standards that allows its combination/integration with other such components. Examples would provide interapplication communications protocols, security and authentication services, human resource business functions and project management functions. A component includes specification, logic, interface and database information as well as actual code.

Key to use of the CBD approach are repositories and encyclopedias which provide for storing, cataloging, growing and examining components of multiple types and their design specifications and the underlying architecture for managing, controlling and sharing components.

TIS tools enable applications to be built in-house, purchased and customized from third parties, recovered from component libraries or migrated from legacy applications.

TIS current product offerings consist of four primary tools and a set of application templates.

A. Products

1. **Composer 4** -- A suite of tools utilizing a model-based paradigm in which specifications of a business process are created at a high level of abstraction such that components can be designed, reused and assembled independent of the underlying technology. It is intended for large-scale development. Composer also includes a wide range of traditional information engineering tools.

2. **Performer 1.0** -- Conceptually the same as Composer, but designed for use by groups comprised of 10 or less developers.

3. **Application Templates** -- Three vertical market applications based on using the Composer toolset. These are flexible application models for rapid construction of custom-tailored applications and are the highest form of component in the TIS component hierarchy.

4. <u>Arranger</u> -- Enables users to create high-quality functional application enhancements and decision support systems using enterprise standard components, without intervention of a centralized IS department. It is a companion product to Composer and Performer and is packaged with them. It employs a catalog consisting of components developed using Composer development tools and legacy systems repackaged in a component wrapper.

5. <u>WebCenter</u> -- Allows enterprises to deploy information systems that combine an Internet-style architecture with applications built using Composer.

The suite of tools in Composer and Performer 1.0 are described in Appendix C-1. The available Templates (InterConnecT, TOPPS, MMS) are described in Appendix C-2.

B. Current and In-Process Technologies

TI has identified primary active product technology development opportunities as:

1. **"Redwood"** -- Would provide an automated interface between Composer-generated applications and SAP R/3.

2. **"BoomBox"** -- A Java-based application assembly tool that would enable the use of Java beans and the Internet to create adaptable applications using components. It is targeted at Web authors seeking to embed application functionality in their sites using applets and components assembled from multiple public network sources.

3. **Microsoft Repository Browser** -- a tool which would enable developers to quickly browse that repository and bring its components into the Composer environment.

4. **"Dynamo"** -- A set of advanced component-based analysis and design functions

5. **Rational Rose** -- A set of functions produced by the Rational Corporation which are licensed to TIS for any form of future use. Rose contains modern, component-oriented specification, analysis and design tools.

The "merger" of TI technology and Sterling Software's product vision would be significant for the Object-Oriented Analysis and Design and Round Trip Engineering phases of SSW's "model" of information systems development. To the extent that CBD facilitates (1) enhancement and extension of existing legacy applications (mostly mainframe-based, written in COBOL), (2) the movement towards client/server architecture on a large scale and (3) the integration of packaged software applications, it will enhance the value of SSW's future ADD product architecture.

In order to understand and compare the technologies in the products and the new technologies from TIS and from SSW's related product divisions (ADD, DAD, DID, IMD (KWI-related), we have identified and structured the TIS products and technologies by the primary application development phases.

Application Development Processes -- A Functional View

1. Specification
    - Business Modeling
    - Application Modeling

2. Analysis
    - Information Engineering Analysis
    - Object-Oriented Analysis

3. Design
    - Information Engineering Design
    - Object-Oriented Design
    - Documentation
    - Reverse Engineering

4. Implementation
    - Code Generation
    - Encyclopedia Implementation
    - Runtime/Communications Functions
    - Platform Support

5. Testing

6. Delivery/Deployment

1. **Specification**

Definition: Enterprise-scale business modeling and application modeling to support business improvement and business process reengineering. Provides a model-based approach to understand all aspects of an organization (people, process, technology) and applications. Includes technology to enable efficient user access to corporate data. The TIS technologies relate to application modeling and are identified as:

Use-Case Modeling
Scenario Modeling
State Modeling.

2. **Analysis**

Definition: Provides customers with the ability to analyze their data and business processes. The technologies include those in Composer for information engineering analysis and component models and technologies in Rational Rose for object-oriented analysis.

3. **Design**

Definition: Provides customers with the ability to design data and business processes and to migrate the relevant portions of their business modeling and information engineering models to object-oriented models. The TI technologies are for object-oriented design and are identified as:

Data/entity design
Business logic design
Screen design/dialog flows
Window design/navigation
Toolset Information Repository
Rational Rose technologies

4. **Implementation**

Definition: ① Generate application/code for client/server and communications application components from platform-independent models

② Assist in delivery of client/server applications which integrate desktop systems with an operational host.

③ Provide platform support, with current focus on Intranet environments.

TIS has multiple technologies for this phase of development as follows:

Code Generators	Runtime/Communications Functions
Relational database definition Referential Integrity Triggers Action blocks/procedures Block mode screen Dialog flow GUI window Cooperative server Assemble & design toolset Composer generators Rational Rose technologies	Transaction enabler Referential integrity runtime Block mode runtime Server runtime GUI runtime Action block runtime Client manager communications Communications bridge "Redwood"
Encyclopedia Implementation	**Platform Support**
Host (MVS) encyclopedia Client/server encyclopedia Model management server Construction generation server Encyclopedia client Component Explorer Interchange Wizard Rational Rose technologies	Internet component WebCenter JAVA Proxy "BoomBox"

5. Testing

Definition: Check performance and validity of the implementation results. TIS does not provide support for this phase.

6. **Delivery/Deployment**

Definition: Mechanisms for getting the resulting applications to end users for their purpose. TI has tools for this purpose.

C. TIS Financials

TIS has significant revenues historically derived from product sales, maintenance and professional services. It recorded a gain in 1994 and losses in both 1995 and 1996.

$M	1994	1995	1996
Revenues	231.2	240.6	245.0
Cost of Sales	113.5	128.0	131.1
Revenue - Cost of Sales	117.7	112.6	113.9
Operating Costs	104.5	132.8	138.1
Operating Profit (Loss)	13.2	(20.2)	(24.2)

Revenue analysis shows that professional services had increased so that, by 1996, revenues from that source equaled software sales at over $80 million each. Maintenance had increased to nearly $60 million, while a significant government contract accounted for the balance (see Appendix D-1).

More than one-half of the company's revenues have been generated outside the Americas since 1995. Both license sales and professional service revenues have been growing internationally and declining in the Americas, while maintenance revenue is slowly growing in both regions. Full details are shown in Appendix D-2.

D. Costs

As a group within a larger parent, TIS has not been in a position to produce "standalone" financial results. Appendix D-3 shows a summary of the historic data recorded, indicating operating losses for 1995 and 1996.

The group has taken steps more recently to reduce costs, downsizing its development personnel, amalgamating U. S. sales regions from four down to two and cutting its international distribution costs in Scandinavia by amalgamating three Scandinavian trading operations to one.

However, there is much more to be done to bring the profit margins to a more normal level for a software company with significant professional services. The future forecast assumes that the losses will be eliminated and the company returned to a profit position.

SECTION III. SSW Strategic Plans for Use of TIS Products and Technologies

In acquiring the Texas Instrument Software (TIS) assets, Sterling Software, Inc. (SSW) was interested primarily in the TIS technologies which would permit SSW to enter the new field of component-based development (CBD) in a professional, timely fashion. While the TIS Composer product was of substantial value (including Arranger and WebCenter), the other current products (Performer and the various Templates) had little interest to SSW since they did not focus on the new CBD style of designing and constructing new applications. The object-oriented TIS technologies, along with the TIS program generation tools and the rights to use the Rational Rose technical capabilities, provide a solid base on which to build a full-function CBD system which can be used by the Fortune 500 companies for their new application development projects.

SSW will need to work further on its integrated strategy to be sure that it focuses properly on the present information engineering products for those current (and future) customers who want to follow traditional development methodologies. But most important, SSW needs to plan how to architect, structure, design and implement its new product line to take best advantage of the available and in-process technologies from TIS and from SSW to deliver state-of-the-art capabilities embedded in an ~~individual~~ industrial strength, supportable company-based development system.

As of the asset acquisition date, SSW has an initial strategy and plan for pursuing or discontinuing the current TIS and related SSW products and for producing future products/offerings which will depend upon and utilize the available and in-process TIS and related SSW technologies.

The following statements summarize the initial SSW strategy and plan and provide the basis for the assumptions made in valuing the TIS current products and technologies:

A. TIS Products

1. **Composer** (including Arranger and WebCenter) -- This product will continue to be marketed and enhanced to the enterprise market for performing traditional information engineering (IE) type development. The component-based (CB) development modules will be separated and incorporated in a new product offering code named Gold.

2. **Performer**-- Will not be pursued as a marketable product after the end of FY97, but installed customers will continue to be supported through the end of FY98. These customers will be migrated to Composer for traditional IE development and to Gold for CB development.

3. **Templates (InterConnecT, TOPPS, MMS)** -- These current template offerings will not be pursued after the end of FY97. However, the InterConnecT installed base will be supported through FY2000.

B. Related SSW Products

1. **Key:Enterprise** (from ADD) will not be actively sold after the end of FY97, but installed customers will be supported through FY2002. Significant effort will be made to migrate these customers to Composer for traditional IE development and to Gold for CB development.

2. **Key:Workgroup**(from ADD) will be marketed through FY98 and then supported through FY2002. There will be a strong marketing thrust to move these customers to Composer for IE development and Gold for CB development.

3. **Other SSW Application Development Products (STAR, CLEAR, VISION:Legacy)** -- These products are not significantly affected by the TIS acquisition, and their future strategies and plans are described separately in another report.

C. New Product Families

1. Advanced CB Enterprise Application Development System--Gold:Enterprise Development

This comprehensive component-based application development system will incorporate best-of-breed technologies from current TIS and ADD products plus in-process development from TIS (Dynamo, Rational Rose) and from ADD (business modeling).

This will be targeted principally at enterprises for their component-based application development. It will provide a new application development system focused only on component-based development.

2. Advanced CB Development System -- Gold:Component Development

This will be a set of development functionalities (using a subset of the technologies from #1) but packaged, priced and targeted for third-party component developers. The focus here is on producing very high quality, high performance components, templates or applications by organizations whose goal is to resell these components, templates and applications.

3. Advanced CB Development System -- Gold:Application Development

This will be a subset of the technologies in #1 aimed at those who just want to produce applications using available components. It will only include those functions from #1 (and those technologies) which would be needed by the less sophisticated application developers. This will be packaged and priced differently from #1 and #2.

4. Components

SSW will itself produce and market selected components using the Gold development system will have third parties produce components under contract and will remarket components developed by third parties or customers. These components would be built using the SSW tools and standards, particularly with the development system specified in #2. The sale and distribution of components is potentially a large and growing market; if SSW can establish itself early and make it attractive for others to use the SSW repository, encyclopedia and marketing channel, then it could build a profitable business. Promoting the licensing of components would also encourage third parties to acquire the SSW component development system (#2).

5. Templates

At an even higher level, SSW may wish to develop, acquire or remarket templates which perform a useful business application. The thought here is that these templates would be modified and customized by end users or by system integrators or VAR's and would not require any ongoing maintenance from SSW. This approach might be akin to the specialized industry directions adopted by various companies (like SAP, etc.) to increase product sales. Use of the templates would encourage companies to acquire the SSW CBD application development system (#3).

D. Technologies Underlying New Product Families

The following table shows the planned use of the available TIS and SSW technologies in the planned future SSW products.

Note: X--Not Used; U--Useful; E--Essential

Development Processes	TIS/ SSW	Technologies	Gold Enter	Gold Comp Dev	Gold App Dev	Com- ponents	Tem- plates
Specification							
Business Modeling Tools	S	Work flow modeling	X	X	X	X	X
	S	Organization flow modeling	X	X	X	X	X
	S	Decomposition modeling	U	U	X	X	U
	S	Activity/job models	X	X	X	X	X
	S	Association matrices	U	U	X	X	U
Application Modeling Tools	T	Use Case Modeling	E	E	X	E	E
	T	Scenario modeling	E	E	X	E	E
	T	State modeling	E	E	U	E	E
Analysis							
Information Engineering Analysis Tools	T	Composer IE analysis tools	U	U	U	U	U

Development Processes	TIS/ SSW	Technologies	Gold Enter	Gold Comp Dev	Gold App Dev	Com-ponents	Tem-plates
	S	Entity relationship models	U	U	U	U	U
	S	Data flow models	X	X	X	X	X
	S	Association matrices	U	U	U	U	U
	S	Decomposition models	U	U	U	U	U
Object Oriented Analysis Tools	T	Component models	E	E	E	E	E
	T	Rational Rose	U	U	U	U	U
	S	Class models	E	E	E	E	E
	S	State transition models	E	E	U	E	E
	S	Sequence models	E	E	U	E	E
	S	Additional UML models	E	E	U	E	E
	S	Component models	E	E	E	E	E
Design							
Information Engineering Design Tools	S	Relational database design	E	E	U	E	E
	S	Application architecture	E	E	U	E	E
	S	Logic design	E	E	X	E	E
	S	Relational database views	E	E	X	E	E
	S	Triggers/stored procedures	U	U	X	U	U
Object Oriented Design Tools	T	Data/entity design	E	E	X	E	E
	T	Business logic design	U	U	X	U	U
	T	Screen design/dialog flows	U	U	X	U	U
	T	Window design/navigation	U	U	X	U	U
	T	Toolset information repository	E	E	E	E	E
	T	Rational Rose	U	U	U	U	U
Documentation Tools	S	KEY:Document	X	X	X	X	X
Reverse Engineering	S	Relational database reverse engineering	E	E	U	E	E
Implementation							
Code Generators	T	Relational database definition	U	U	X	X	X
	T	Referential Integrity Triggers	U	U	X	X	X
	T	Action blocks/procedures	U	U	U	X	X
	T	Block mode screen	X	X	X	X	X
	T	Dialog flow	X	X	X	X	X
	T	GUI window	U	U	U	X	X
	T	Cooperative server	U	U	X	X	X
	T	Assemble & design toolset	E	E	E	X	X

Development Processes	TIS/ SSW	Technologies	Gold Enter	Gold Comp Dev	Gold App Dev	Com-ponents	Tem-plates
	T	Generators	E	E	E	X	X
	T	Rational Rose	U	U	U	X	X
	S	Relational database definition	U	U	X	X	X
	S	Visual development tools	X	X	X	X	X
Encyclopedia	T	Host (MVS) encyclopedia	X	X	X	X	X
	T	Client/server encyclopedia	U	U	X	X	U
	T	Model management server	U	U	X	X	U
	T	Construction generation server	U	U	X	X	X
	T	Encyclopedia client	U	U	X	X	U
	T	Component Explorer	E	E	E	U	U
	T	Interchange Wizard	E	E	E	U	U
	T	Rational Rose	U	U	U	U	U
	T	Team Encyclopedia	U	U	X	X	X
	S	KEY:Team	X	X	X	X	X
	S	KEY:Utilities	X	X	X	X	X
	S	KEY:Coordinate	X	X	X	X	X
Runtime/Communi-cations Functions	T	Transaction enabler	U	U	U	U	U
	T	Referential Integrity runtime	U	U	U	U	U
	T	Block mode runtime	X	X	X	X	X
	T	Server runtime	U	U	U	U	U
	T	GUI runtime	U	U	U	U	U
	T	Action block runtime	U	U	U	U	U
	T	Client mgr. communications	U	U	U	U	U
	T	Communications bridge	U	U	U	U	U
	T	SAP Connector	U	U	U	U	U
Platform Support	T	WebCenter	X	X	X	X	X
	T	JAVA Proxy	E	E	E	E	E
	T	"BoomBox"	X	X	X	X	X
	S	KEY:Webview	U	U	X	X	U
Testing							
High Level Test Tools							
Low Level Test Tools							
Delivery							
Installation/Deploy-ment Tools	T	Installation tools	U	U	U	U	U

SECTION IV. Selection of Valuation Methodologies

The general asset valuation process for acquired intangible assets (after deducting tangible assets) is:

1. Determine valuation of intangible assets (current products, non-compete agreements) to be amortized over their economic life

2. Determine valuation of incomplete/in-process (non-capitalizable) research and development to be written off at acquisition

3. Allocate the remainder to goodwill

This valuation of the intangible assets relates primarily to Software Products in #1 and Technologies in #2.

There are three principal valuation techniques which are typically used for valuing the intangible assets of computer software and services company assets such as products and technologies:

- **Valuation of Projected Operating Profit Stream**

  What would an independent buyer pay for the projected profit stream from the assets to produce a fair rate of return on the investment, considering the risk involved? Valuation is based on revenue, cost and profit projections using revenue history, competitive position, market opportunities and realistic profitability expectations.

- **Resale Value of the Assets**

  What would an independent buyer pay for similar products and other assets based on current market values and recent acquisitions? Valuation is based on: comparable private and public asset acquisitions; price/earnings and price/revenue ratios of public companies in comparable businesses. These values need to have appropriate adjustments for special circumstances and balance sheet tangible values.

- **Reconstruction Costs**

  What would a third party have to pay to reconstruct equivalent products or technologies given reasonable technical skills and market knowledge? Valuation is based on design concept, number and size of programs, complexity of programs, languages and operating systems used. The actual costs incurred to acquire or develop the products and technologies is considered along with estimated reconstruction costs.

Each of these methods has to be used with appropriate consideration of business history, future risk, market direction, product and service quality and balance sheet elements. In each case, there are specific procedures to be followed so as to produce consistent valuations.

A. Software Products Valuation

Often, neither reconstruction cost nor comparable company market value would provide an appropriate valuation methodology for the value of the current products acquired.

Therefore, for software products, BGAI usually uses the net present value of the projected profit stream over the expected economic life of the specific products which the Seller was marketing as of the acquisition date and which the Buyer expects to continue to market and support.

There are four primary steps in determining the net present value of the projected profit to be earned by sales and recurring revenues from the current products to be marketed.

1. Establish the Available Market Opportunity

Information is collected regarding the application development market opportunities with consideration of prospective growth and competition on different platforms for various applications and different markets.

2. Prepare Product Unit Forecasts and Estimate Revenue

Using management information and financial records as a basis, the sales history for the available products is examined. From this work, a profile of each product is built and used as a basis for forecasting. To make realistic future sales projections, this is overlaid with the data derived from the market opportunity analysis and specific Buyer marketing plans.

3. Project Operating Costs and Pre-Tax Operating Profits

Seller, Buyer and industry historic operating costs are analyzed to project future costs. This yields a projected operating profit stream.

4. Determine Economic Life and Compute Net Present Value

The NPV calculations are based on the use of a predetermined cost of money, adjusted to the investment being made at the midpoint of each year. The figure selected has been based on the pre-tax prime rate as of the acquisition date plus a borrowing premium to reflect unusual risk.

The marketable economic life for each product is determined, based on the market opportunity, sales history and experience, product currency, competition, expected technological developments and Buyer strategy. We believe that a three to five-year life is realistic for each of these products, as noted in the analysis in Section V.

The effective tax rates for American profits (Federal and state) and for International profits are projected by the Buyer's financial management.

The NPV calculations are made based on projected cash flow after tax adjustment over the economic life of the products. A straight line (or revenue-ratio) amortization method is used for each product, based on its marketable economic life.

B. Acquired Technologies Valuation

Whether particular acquired technologies are included in the products being capitalized and amortized over the expected economic life of the products or whether they are expensed as in-process research and development depends on the intended use by the acquirer and whether technological feasibility has already been demonstrated for future product releases including these technologies per FAS86 rules. The technology values are not limited to the actual cost of development to date, but should reflect the value to the acquirer for the acquirer's intended use.

BGAI analyzes the planned future products to determine if they meet the FASB86 proven technology feasibility rules for capitalization. If not, the value must be written off at the acquisition date because of FAS2 rules on not capitalizing and amortizing in-process research and development costs.

There are two primary methods for valuing acquired technologies intended for future use: projected profit-based and reconstruction-based valuations.

The projected profit stream approach requires identification of specific future products to be produced and marketed using the acquired technologies; a projection is then made of the revenues, costs and profits from these future products. The net present value of the resulting operating profit stream is calculated over a realistic economic life to produce the valuation figures. The procedure is similar to that described in Section IV A.

1. Establish the available market opportunity
2. Prepare product unit forecasts and estimate revenue
3. Project operating costs and pretax operating profits
4. Determine economic life and compute net present value

The same figures for cost of money and for effective tax rates are used for the technologies as for the software products. We have used seven years as the marketable economic life for the future products using the acquired technologies.

The reconstruction cost-based valuation of acquired technologies for future use depends on the actual and/or the estimated cost of producing, reconstructing or acquiring the technologies plus the enhanced value from more timely product delivery, lower maintenance costs, etc.

The following procedure is used for reconstruction cost-based valuation:

1. Determine the cost to date for acquiring and developing the relevant product technologies. Project the cost and time required to have reconstructed the technologies as a cross-check.

2. Compute the additional market value or reduced future development cost from:

    - add-on sales from more timely delivery of the new products by using the acquired technologies
    - add-on sales to the established installed base migrating to new products
    - reduced risk of failure (functions, usability and performance)
    - reduced maintenance cost because of proven initial quality

In our view, reconstruction cost-based valuation is only useful for the technologies assessment in order to confirm the reasonableness of the projected profit-based valuation.

SECTION V. Valuation of TIS Products

A. TIS Product Plans

TIS currently markets three primary software product families:

- Composer -- which includes, from a forecasting standpoint, Arranger and WebCenter
- Performer -- aimed at smaller customers
- Templates -- which covers three offerings: InterConnecT, TOPPS and MMS

Composer accounts for by far the largest amount of revenues; it is aimed at large and very large companies, institutions and governmental agencies world-wide. However, new sales for Composer have dropped recently, even in the international marketplace.

Performer is a relatively recent release (late 1996) and has been targeted for use by mid-size organizations and smaller development groups. TIS has been seeking other channels (VARs, distributors, etc.) to reach the planned market on a more efficient basis for this new product.

The three existing Templates have a mixed heritage. InterConnecT is owned by TIS and provides telephone billing services to telcos. TOPPS is an EDS-developed product for use by hospital management organizations; TIS has a marketing license for the product from EDS. MMS is a Materials Management System designed for public utility companies. None of these three have yet done well, although InterConnecT has made some significant sales.

In addition, TIS has a few third party-developed components available at its Internet Web Storefront. But, since these are quite limited, they have been omitted from the current product projections.

Finally, TIS has a U.S. government contract for a special project, MDP. Since this can be canceled by the government agency with limited notice and the deliveries do not constitute a software product, this substantial income stream has been omitted from the product valuation. It will be considered as part of the TIS goodwill.

B. Valuation Procedure

Based on historic and planning information from TIS documents and people, from SSW due diligence documents and from SSW strategic planning statements, BGAI has constructed its own revenue and cost projections covering SSW's next five fiscal years starting October 1, 1997. These projections cover the three primary current TIS product families: Composer, Performer and Templates.

From the operating income cash flow projections, BGAI has determined the net present value for each of these product families for the Americas (Commercial and Government) and for International (principally Europe and Asia).

The net present values have been used as the basis for the BGAI value assessment of the current TIS products.

C. General Assumptions Used in Valuations

1. SSW will continue to actively market the Composer product but only for traditional information engineering development projects; it will continue to enhance Composer for three years and support it for two more years. SSW will discontinue new sales of Performer and the three available templates, but will continue support for InterConnecT.

2. SSW will introduce significant new component-based development products within one year which will, for most customers, replace the current products used for component-based development.

3. The market for traditional application development systems will stabilize, and SSW will be able to retain the historic TIS market share for information engineering.

4. The Americas will lead International in retaining and continuing to accept the application development products, so that declines in sales and erosion of the installed base will occur more slowly internationally.

5. Prices for new sales and for maintenance of the current products will be constant during the projected period with no inflation-caused increases and no competitively-induced decreases in price.

6. Professional services will continue to be a significant revenue source for new sales and installations of Composer, but the relative value of the professional services per installation will decline over the years.

7. Operating costs will improve dramatically over past TIS financial performance, but operating income will not reach as high a level as traditional SSW operating income levels during the forecast period. The operating income rates for Americas and International will be the same.

8. A tax rate of 40% will be applied against all Americas operating income and a tax rate of 20% applied against all International operating income.

9. The current U.S. prime rate of 8.5% will be used as the cost of money and applied to the after tax operating income to compute the net present value.

D. Specific Assumptions

There are additional specific assumptions for Americas and International for each product family as shown in the following tables:

- **Composer** *Table 14*
  - New sales rate against previous year sales rate
  - Professional services rate versus new sales revenues
  - Erosion, initial conversion and maintenance fee to license fee ratios

  Table 15
  - Cost ratios for cost of revenues, marketing and sales, R&D and G&A; these are assumed to be the same for Americas and International.

- **Performer** *Table 24*
  - New sales rate against previous year sales rate
  - Professional services rate versus new sales revenues
  - Erosion, initial conversion and maintenance fee to license fee ratios

  Table 25
  - Cost ratios for cost of revenues, marketing and sales, R&D and G&A; these are assumed to be the same for Americas and International.

- **Templates** *Table 34*
  - New sales rate against previous year sales rate
  - Professional services rate versus new sales revenues
  - Erosion, initial conversion and maintenance fee to license fee ratios

  Table 35
  - Cost ratios for cost of revenues, marketing and sales, R&D and G&A; these are assumed to be the same for Americas and International.

E. Forecasts and Calculations

The tables for the product lines are numbered as follows:

	Composer	Performer	Templates
World-wide Summary	12	22	32
Americas and International Summary	13	23	33
Revenue Sources	14	24	34
Cost Calculations	15	25	35
Net present Value - Americas & Int'l	16	26	36

All of the product valuation tables are included in Appendix E with the table numbers noted in the upper right-hand corner.

The overall summary for all of the TIS products is shown in Table 11 in Appendix E.

Based on this projection and analysis procedure, BGAI has determined that the product valuations are:

($000)	Americas	International	Total	Amortizable Life
Composer	7,860	16,021	23,881	5 years
Performer	46	30	76	3 years
Templates	32	65	97	3 years
Total	7,938	16,117	24,054	

SECTION VI. Valuation of TIS Technologies

A. TIS Technologies Assessment Principles

TIS has developed a number of significant application and system technologies over the past ten years as it has become a premier participant in the application development systems marketplace. Many of these technologies have been used in the currently marketed TIS products. Their value, as they are embedded in the current TIS products, has been fully valued as part of the TIS Products Valuation (see Section V). However, some of these technologies have significant additional value, enabling SSW to build future new products and offerings at much lower cost and in a much more timely fashion than if SSW had to specify, design, build and test the comparable technologies needed to construct the new products and offerings.

TIS also has a number of new technologies still in the research and development process which have not yet been incorporated in products or offerings which have met the FAS86 technology and marketing tests of feasibility for capitalization.

SSW determined the price it was willing to pay for the TIS assets not just by considering the value of the current products and the TIS infrastructure, but also by considering what it believed would be the value of the embedded and in-process technologies in future SSW products and offerings.

Therefore, in the allocation of the purchase price, BGAI has assessed the projected value of these embedded and in-process technologies based on SSW's current intentions regarding strategies for use of these technologies and BGAI's projections of the operating income from new products and offerings using these technologies.

Based on the rules of FAS2, any research and development values which cannot meet appropriate technical and market tests (as in FAS86) must be expensed on a current year basis. Since these new products using the TIS technologies have not yet been detail designed or prototyped, they cannot meet the FAS86 tests and the technology values must be expensed as of the date of acquisition.

B. Specific TIS Technologies

BGAI has worked with materials provided and with representatives from TIS and SSW to understand the current and in-process technologies and to determine their significance in future new SSW products and offerings.

A list of all of these TIS technologies has been prepared and mapped against the planned new products with a professional measurement of expected significance, if any. Since the new SSW products may also use previous SSW technologies, these too have been listed, mapped and their relative significance determined.

The application development technologies are grouped in the following primary categories as shown in Section II B:

1. Specification
   - Business Modeling
   - Application Modeling

2. Analysis
   - Information Engineering Analysis
   - Object-Oriented Analysis

3. Design
   - Information Engineering Design
   - Object-Oriented Design
   - Documentation
   - Reverse Engineering

4. Implementation
   - Code Generation
   - Encyclopedia Implementation
   - Runtime/Communications Functions
   - Platform Support

5. Testing

6. Delivery/Deployment

Within each category there are specific technologies available for future use. These have been individually examined and analyzed in terms of their applicability to the planned new SSW products and offerings described in Section III D.

C. Valuation Procedure

Each planned new product family is separately valued for Americas and International, as described in Section IV. The revenues and costs are projected and the net present value of the operating income is determined. This is used as the basis for the TIS Technologies valuation.

The overall value is split between TIS and SSW for each new product family using the relative significance as described in this Section based on the technologies' use identified in Section III B.

In producing the revenue forecasts and the operating cost estimates, a number of business assumptions have been made. These are separated between general and product family-specific assumptions.

D. General Assumptions

1. SSW will introduce its new Gold development system within one year to replace the component-based functions in Composer. This will become the target system to sell to all customers and prospects who wish to do component-based development. There will be substantial parallel use and migration from current TIS and SSW customers.

2. The market for component-based development will grow rapidly, and SSW will get a substantial portion of this marketplace.

3. The Americas will lead international in adopting the new component-based products and other related offerings (components, templates).

4. Professional Services will be a significant revenue source for component-based development product sales, but at a somewhat lower level than TIS has experienced previously.

5. Operating income will gradually increase over the seven-year planning horizon, reaching levels above industry averages, but still slightly below current SSW margins by the end of the planning period.

6. A tax rate of 40% will be applied against all Americas operating income and a tax rate of 20% applied against all International operating income.

7. The current U.S. prime rate of 8.5% will be used as the cost of money and applied to the after tax operating income to compute the net present value.

E. Specific Assumptions

There are additional specific assumptions for Americas and International for each future product family as shown in the following tables:

- **Gold: Enterprise Development**

  Table 14
  - New sales rate against previous year sales rate
  - Professional services rate versus new sales revenues
  - Erosion, initial conversion and maintenance fee to license fee ratios

  Table 15
  - Cost ratios for cost of revenues, marketing and sales, R&D and G&A; these are assumed to be the same for Americas and International.

- **Gold: Component Development**

  Table 24
  - New sales rate against previous year sales rate
  - Professional services rate versus new sales revenues
  - Erosion, initial conversion and maintenance fee to license fee ratios

  Table 25
  - Cost ratios for cost of revenues, marketing and sales, R&D and G&A; these are assumed to be the same for Americas and International.

- **Gold: Application Development**

  Table 34
  - New sales rate against previous year sales rate
  - Professional services rate versus new sales revenues
  - Erosion, initial conversion and maintenance fee to license fee ratios

  Table 35
  - Cost ratios for cost of revenues, marketing and sales, R&D and G&A; these are assumed to be the same for Americas and International.

- **Components**

  Table 44
  - New sales rate against previous year sales rate
  - Professional services rate versus new sales revenues
  - Erosion, initial conversion and maintenance fee to license fee ratios

  Table 45
  - Cost ratios for cost of revenues, marketing and sales, R&D and G&A; these are assumed to be the same for Americas and International.

- **Templates**

  Table 54
  - New sales rate against previous year sales rate
  - Professional services rate versus new sales revenues
  - Erosion, initial conversion and maintenance fee to license fee ratios

  Table 55
  - Cost ratios for cost of revenues, marketing and sales, R&D and G&A; these are assumed to be the same for Americas and International.

F. Forecasts and Calculations

The tables for the future product families are numbered as follows:

	Gold: Enterprise Development	Gold: Component Development	Gold: Application Development	Com-ponents	Tem-plates
Worldwide Summary	12	22	32	42	52
Americas and International Summary	13	23	33	43	53
Revenue Sources	14	24	34	44	54
Cost Calculations	15	25	35	45	55
Net Present Value Americas & International	16	26	36	46	56

All of the technologies valuation tables are included in Appendix F with the table numbers noted in the upper right-hand corner of each table.

The overall summary for all of the new SSW component-based development products and offerings is shown in Table 11 in Appendix F.

Based on this projection and analysis procedure, BGAI has determined that the technology valuations are:

($000)	Americas	International	Total
Gold:Enterprise Development	51,121	73,345	124,466
Gold:Component Development	7,748	9,667	17,415
Gold:Application Development	4,253	2,698	6,951
Gold: Components Development	7,464	4,899	12,363
Gold: Templates Development	5,250	2,286	7,536
Total	75,836	92,895	168,731

G. Allocation of Value between TIS and SSW Technologies

Based on the extensive analysis shown in Section III mapping currently available and in-process technologies from TIS and from SSW to the future product families, we determined the relative significance of these technologies as shown in the following table (see Appendix G):

	Value	% TIS	Value TIS	% SSW	Value SSW
Gold:Enterprise Development	124,466	84	104,551	16	19,915
Gold:Component Development	17,415	71	12,363	29	5,050
Gold:Application Development	6,951	88	6,117	12	834
Gold Components	12,365	79	4,767	21	2,596
Gold Templates	7,536	67	5,049	33	2,487
TOTAL	168,731		137,849		30,882

Therefore, the total value of the TIS technologies, using the net present value of the operating income cash flow of the planned future products is $137,849,000.

H. Reconstruction Value

Reconstruction cost is not an effective measure, in this case, of the value of the acquired technologies. However, as a reasonableness test, TIS has spent well over $200,000,000 in developing the technologies in its current in-process technologies.

Reconstruction cost would be over $100,000,000, but, more important, the necessity for reconstruction would cost SSW valuable time in entering and prospectively leading the component-based development market.

In our opinion, the reconstruction cost approach confirms the NPV-based TIS Technologies valuation.

SECTION VII. Summary of Valuations and Recommendations

In Section V, we determined that the net present value of the current TIS products was $24,054,000, to be amortized from the date of acquisition over five years for Composer and three years for Performer and the InterconnecT Template.

In Section VI, we determined that the net present value of the available and in-process technologies was $137,849,000, to be expensed under FAS2 rules as of the date of acquisition. This figure was confirmed by the reconstruction cost/value analysis.

SSW will determine the effective asset purchase price including appropriate costs associated with the acquisition. SSW will also determine the net value of tangible assets less tangible liabilities.

Based on these figures, the goodwill value will be determined by subtracting the products and technologies values from the total price paid for all the intangible assets.

Under the logic and calculations in this report, with appropriate guidelines from FASB, AICPA, etc., BGAI recommends that SSW use the following valuations for the acquired intangible assets:

	($000) Valuation	Amortization Period	Amortization Method
Products			
Composer	23,881	5 years	S/L or Revenue ratio
Performer	76	3 years	S/L or Revenue ratio
Template:InterconnecT	97	3 years	S/L or Revenue ratio
Total Product Value	24,054		
Technologies			
TIS	137,849	Write off at acquisition	
Grand Total	161,903		

The total valuation of the TIS intangible assets, excluding goodwill, is $161,903,000. This concludes the TIS intangible assets valuation and allocation report.

Materials Received from Sterling Software and TIS

1. Information Memorandum, 3/97, from Broadview Associates
2. TIS LRP Real Time Update
3. TIS Software Revenue by Region
4. TIS P&L by BU (unadjusted)
5. Ratio of SW to Services
6. TIS Cost Components Analysis
7. ADM Research Note, 1/14/97 -- Gartner Group
8. Application Development Strategies Newsletter reprint
9. SSW Applications Development Division Product Vision
10. ADM Strategic Analysis Report, 9/17/96 -- Gartner Group
11. ITD Strategic Analysis Report, 1/31/97 -- Gartner Group
12. TIS CBD Snapshot
13. TIS Component-based Development Fundamentals
14. Project Impala -- TI Proprietary
15. cc:mail from Chris Bruton to Tom McDaniel at TIS -- information request
16. "Software Reuse -- More Lives than a Cat" from CIO Magazine, 3/1/97
17. TIS "The Repository's Role in Component Development"
18. "The Component Conundrum" -- Application Development Trends reprint 12/96
19. Asset Purchase Agreement (TIS and SSW) -- 4/18/97
20. Working Notes for Portfolio Brochure in progress
21. TIS Organization charts
22. TIS Model Summary
23. TIS Annual Plan Review 11/14/96
24. TIS Due Diligence, Phase II: April 15-17, 1997
25. Software Markets
26. TIS Development Tools Price List -- Americas 1997
27. CBD Fundamentals, Standards, Snapshot, Component Conundrum
28. Composer+CD, New feature guide, technical overview of Composer, TI/MS white papers (2)
29. Web Center+ White Paper, Information Matters (3), Performer + CD, Arranger
30. Topps, Interconnect, Utilities Solutions
31. MMS
32. Product Definitions (Roadmap 1997-1998)
33. Composer Installed Base (4/97)
34. Product Component Teams
35. IEF Architecture

36. IEF Product Description
37. Initial Technology list and potential relevance to new products
38. TIS Internet materials
39. TIS Dynamo Business Plan (1/97)
40. Aligning Alliances (1/97)
41. SSW International/Domestic Cost Analyses
42. Rational/TIS Agreement
43. Rational Rose Description
44. Market for CASE tools
45. Financial Analysis from Chris Bruton 5/23
46. Royalty Data from Chris Bruton 5/28

TIS Software Valuation

Revenues in Americas and International			
$m	1994	1995	1996
Americas			
Licenses	56.1	34.7	30.8
Maintenance	22.7	29.2	31.0
Professional Services	37.4	37.8	30.3
Total	116.2	101.7	92.1
International			
Licenses	45.0	50.8	51.2
Maintenance	22.0	26.5	29.0
Professional Services	31.8	42.8	51.4
Other	--	--	0.1
Total	98.8	120.1	131.7
Government (MDP)	15.4	18.2	21.2
Total Operations	230.4	240.0	245.0
Other	0.8	0.6	--
Total Revenue	231.2	240.5	245.0

Costs				
($m)	1994	1995	1996	Forecast 1997
Revenue	231.2	240.6	245.0	249.0
Cost of Sales	113.5	128.0	131.1	122.9
Gross Profit	117.7	112.6	113.9	126.1
%				
Operating Expenses				
Sales & Marketing	60.2	78.8	79.4	56.4
R&D	4.9	11.0	13.0	16.3
G&A	39.4	43.0	45.7	51.2
Total Operating Expense	104.5	132.8	138.1	123.9
Operating Profit (Loss)	13.2	(20.2)	(24.2)	2.2
%				
Revenue	100.0	100.0	100.0	100.0
Cost of Sales	49.1	53.2	53.5	49.4
Gross Profit	50.7	46.8	46.5	50.6
Operating Expenses				
Sales & Marketing	26.1	32.7	32.4	22.6
R&D	2.1	4.6	5.3	6.5
G&A	17.0	17.9	18.7	20.6
Total Operating Expense	45.2	55.2	56.4	49.7
%				
Operating Profit (Loss)	5.7	(8.4)	(9.9)	0.9

TIS Revenue and Costs			
$m	1994	1995	1996
Revenue			
Software	101.1	85.6	82.2
Maintenance	44.7	55.7	59.9
Professional Services	69.2	80.5	81.7
U.S.Govt Prof. Services	15.4	18.2	21.2
Other	0.8	0.6	--
Total	231.2	240.6	245.0
Cost of Sales	113.5	128.0	131.1
Gross Profit	117.7	112.6	113.9
Sales and Marketing	60.2	78.8	79.4
R&D	4.9	11.0	13.0
G&A	39.4	43.0	45.7
Total	104.5	132.8	138.1
Operating Profit (Loss)	13.2	(20.2)	(24.2)
%			
Revenues	100.0	100.0	100.0
Cost of Sales	49.1	53.2	53.5
Gross Profit	50.9	46.8	46.5
%			
Sales & Marketing	26.0	32.7	32.4
R&D	2.1	4.6	5.3
G&A	17.0	17.9	18.7
Total	45.1	55.2	56.4
%			
Operating Profit (Loss)	5.8	(8.4)	(9.9)

	A	B	C	D	E	F	G	H
1								
2	Summary Projection for TIS Products							11
3								
4								
5	($000)	Forecast			Projected			Total
6		1997	1998	1999	2000	2001	2002	1998-2002
7	**World-wide**							
8	**Composer**							
9	Revenue	197800	174061	145174	109501	76437	52426	557599
10	Cost		168839	136464	99646	67265	44562	516776
11	Operating Income		5222	8710	9855	9172	7864	40824
12	Net Present Value		3607	5559	5808	4983	3924	23881
13								
14	**Performer**							
15	Revenue	8600	675	506	380	0	0	1561
16	Cost		655	456	319	0	0	1429
17	Operating Income		20	51	61	0	0	132
18	Net Present Value		13	30	33	0	0	76
19								
20	**Components**							
21	Revenue	0	0	0	0	0	0	0
22	Cost		0	0	0	0	0	0
23	Operating Income		0	0	0	0	0	0
24	Net Present Value		0	0	0	0	0	0
25								
26	**Templates**							
27	Revenue	8001	850	638	414	0	0	1902
28	Cost		825	574	348	0	0	1746
29	Operating Income		26	64	66	0	0	156
30	Net Present Value		18	41	39	0	0	97
31								
32	**Total**							
33	Revenue	214401	175586	146318	110295	76437	52426	561062
34	Cost		170318	137493	100313	67265	44562	519951
35	Operating Income		5268	8825	9982	9172	7864	41111
36	Net Present Value		3638	5630	5880	4983	3924	24054
37								
38	**Total- Americas**							
39	Revenue	89359	71335	58167	43109	29745	21021	223377
40	Cost		69195	54653	39200	26175	17868	207091
41	Operating Income		2140	3514	3909	3569	3153	16285
42	Net Present Value		1234	1867	1914	1611	1312	7938
43								
44	**Total- International**							
45	Revenue	125042	104251	88151	67186	46693	31405	337686
46	Cost		101124	82840	61113	41090	26694	312860
47	Operating Income		3128	5311	6073	5603	4711	24825
48	Net Present Value		2404	3763	3965	3372	2613	16117
49								

	A	B	C	D	E	F	G	H	I
1									
2									11
3				Summary for New Technology-based Development Products					
4									
5	($000)								
6					Projected				Total
7		1998	1999	2000	2001	2002	2003	2004	1998-2004
8	**Gold:Development**								
9	Revenue	38250	87579	152361	233973	322966	398637	434215	1667981
10	Cost	36418	80247	133841	196534	261561	309364	330279	1348243
11	Operating Income	1833	7332	18520	37439	61405	89273	103936	319737
12	Net Present Value	1150	4323	10243	19405	29769	40254	43688	148832
13									
14	**Gold Components**								
15	Revenue	0	5940	10872	18119	26517	33632	36343	131423
16	Cost	0	5049	9241	15401	21213	25224	27257	103386
17	Operating Income	0	891	1631	2718	5303	8408	9086	28037
18	Net Present Value	0	502	866	1354	2446	3594	3601	12363
19									
20	**Gold Templates**								
21	Revenue	0	3000	9550	16633	23080	27257	28546	108065
22	Cost	0	2820	8691	14637	19618	21806	22836	90407
23	Operating Income	0	180	860	1996	3462	5451	5709	17658
24	Net Present Value	0	96	438	967	1558	2278	2199	7536
25									
26	**Total-Americas**								
27	Revenue	28500	67164	110169	156130	198677	230712	232803	1024155
28	Cost	27155	61320	96886	131972	161670	179105	177975	836084
29	Operating Income	1345	5844	13282	24158	37007	51607	54828	188071
30	Net Present Value	776	3107	6503	10900	15387	19786	19376	75835
31									
32	**Total- International**								
33	Revenue	9750	29355	62615	112594	173886	228814	266301	883314
34	Cost	9263	26796	54887	94600	140723	177288	202397	705952
35	Operating Income	488	2559	7728	17994	33163	51526	63904	177361
36	Net Present Value	375	1814	5045	10825	18386	26340	30111	92896
37									
38	**Total**								
39	Revenue	38250	96519	172783	268724	372562	459526	499104	1907469
40	Cost	36418	88116	151773	226572	302392	356394	380372	1542037
41	Operating Income	1833	8403	21010	42152	70170	103133	118731	365432
42	Net Present Value	1150	4921	11548	21725	33773	46126	49487	168731
43									

	A	B	C	D	E	F	G	H	I	K	L
1	TIS/SSW Technology Ratios										
2											
3											
4		Gold Ent.		Gold Comp D		Gold Appl Dev		Comp		Templates	
5											
6		Assum	Comp	Assum	Comp	Assum	Comp	Assum	Comp	Assum	Comp
7		Ratio	Rates	Ratio	Rates	Ratio	Rates	Ratio	Rates	Ratio	Rates
8											
9	**Model Significance**	0.40		0.70		0.30		0.50		0.80	
10	S		0.17		0.29		0.12		0.21		0.33
11	T		0.24		0.41		0.18		0.29		0.47
12											
13	**Spec Signif.**	0.20		0.20		0.20		0.20		0.20	
14	S		0.05		0.05		0.05		0.05		0.05
15	T		0.15		0.15		0.15		0.15		0.15
16	Bus. Model	0.25		0.25		0.25		0.25		0.25	
17	S	1.00	0.25	1.00	0.25	1.00	0.25	1.00	0.25	1.00	0.25
18	T	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	Applic.Model	0.75		0.75		0.75		0.75		0.75	
20	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	T	1.00	0.75	1.00	0.75	1.00	0.75	1.00	0.75	1.00	0.75
22											
23	**Analysis Signif.**	0.30		0.30		0.30		0.30		0.30	
24	S		0.11		0.11		0.11		0.11		0.11
25	T		0.19		0.19		0.19		0.19		0.19
26	IE	0.50		0.50		0.50		0.50		0.50	
27	S	0.25	0.13	0.25	0.13	0.25	0.13	0.25	0.13	0.25	0.13
28	T	0.75	0.38	0.75	0.38	0.75	0.38	0.75	0.38	0.75	0.38
29	OO	0.50		0.50		0.50		0.50		0.50	
30	S	0.50	0.25	0.50	0.25	0.50	0.25	0.50	0.25	0.50	0.25
31	T	0.50	0.25	0.50	0.25	0.50	0.25	0.50	0.25	0.50	0.25
32											
33	**Design Signif.**	0.50		0.50		0.50		0.50		0.50	
34	S		0.25		0.25		0.25		0.25		0.25
35	T		0.25		0.25		0.25		0.25		0.25
36	IE	0.40		0.40		0.40		0.40		0.40	
37	S	1.00	0.40	1.00	0.40	1.00	0.40	1.00	0.40	1.00	0.40
38	T	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	OO	0.40		0.40		0.40		0.40		0.40	
40	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
41	T	1.00	0.40	1.00	0.40	1.00	0.40	1.00	0.40	1.00	0.40
42	RE	0.20		0.20		0.20		0.20		0.20	
43	S	0.50	0.10	0.50	0.10	0.50	0.10	0.50	0.10	0.50	0.10
44	T	0.50	0.10	0.50	0.10	0.50	0.10	0.50	0.10	0.50	0.10
45											
46	**Impl. Signif.**	0.60		0.30		0.70		0.50		0.20	
47	S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48	T	1.00	0.60	1.00	0.30	1.00	0.70	1.00	0.50	1.00	0.20
49											
50	**Total**										
51	S		0.17		0.29		0.12		0.21		0.33
52	T		0.84		0.71		0.88		0.79		0.67

	N	O	P	Q	R	S	T
1	TIS/SSW Technologies Value						
2							
3	($000)	Gold: Ent D	Gold: Comp D	Gold: App D	Comp	Temp	Total
4							
5	World Wide						
6	NPV	124466	17415	6951	12363	7536	168731
7	TIS Ratio	0.84	0.71	0.88	0.79	0.67	
8	TIS Tech Value	104551	12365	6117	9767	5049	137849
9	SSW Ratio	0.16	0.29	0.12	0.21	0.33	
10	SSW Tech Value	19915	5050	834	2596	2487	30882
11	Total Tech Value	124466	17415	6951	12363	7536	168731
12							168731
13							
14	Americas						
15	NPV	51121	7748	4253	7464	5250	75836
16	TIS Ratio	0.84	0.71	0.88	0.79	0.67	
17	TIS Tech Value	42942	5501	3743	5897	3518	61599
18	SSW Ratio	0.16	0.29	0.12	0.21	0.33	
19	SSW Tech Value	8179	2247	510	1567	1733	14237
20	Total Tech Value	51121	7748	4253	7464	5250	75836
21							75836
22	International						
23	NPV	73345	9667	2698	4899	2286	92895
24	TIS Ratio	0.84	0.71	0.88	0.79	0.67	
25	TIS Tech Value	61610	6864	2374	3870	1532	76249
26	SSW Ratio	0.16	0.29	0.12	0.21	0.33	
27	SSW Tech Value	11735	2803	324	1029	754	16646
28	Total Tech Value	73345	9667	2698	4899	2286	92895
29							92895
30							
31							

Marty S-

2nd ¶ Appendix 4 - 1st pg
settle the be acquired

2nd pg.

how did SSI/ADD demonstrate
it was #1

were funds directly used
to buy advertising
promote pro

BG

BURTON GRAD ASSOCIATES, INC.
101 POST ROAD EAST
WESTPORT, CONNECTICUT 06880
(203) 222-8718
(203) 222-8728 FAX
BURTGRAD@AOL.COM

Sterling Software, Inc.
300 Crescent Court
Suite 1200
Dallas, Texas 75201-1000

Attention: Steve Carey

Invoice #2919

February 8, 1999

Project: #133-67

INVOICE

Project: Determine Allocation of Foreign Subsidiary Acquisition Expenses Related to TIS Acquisition

Consulting Services: November 16, 1998 - January 31, 1999

Burton Grad	2.5 days @ $2,500/day		$6,250.00
Martin Y. Silberberg	1.0 day @ $1,500/day		1,500.00
		Total Fees	**$7,750.00**
		Total Invoice	**$7,750.00**

Payment Is Due Within 15 Days of Receipt of Invoice

Distribution relation

($000)	99	00 ~~2~~	01 ~~3~~	02 ~~4~~	03 ~~5~~	04 ~~6~~	05 ~~7~~	
1	500	625	781	977	1221 ~~977~~	1221	1221	
2		500	625	781	977	1221	1221	
3			500	625	781	977	1221	
4				500	625	781	977	
5					500	625	781	
($000)								
Total	500	1125	1906	2883	4104	4825	5421	26185
NPV factor	.935	.813	.707	.615	.534	.465	.404	
NPV	467	915	1348	1773	2192	2244	2190	11129

FACSIMILE COVER SHEET

TO: Burt Grad

FROM: Marty Silberberg

DATE: 2/3/99

NUMBER OF PAGES (including cover sheet) 14

Customer Success

Hundreds of successful large scale client server systems built using TI technology

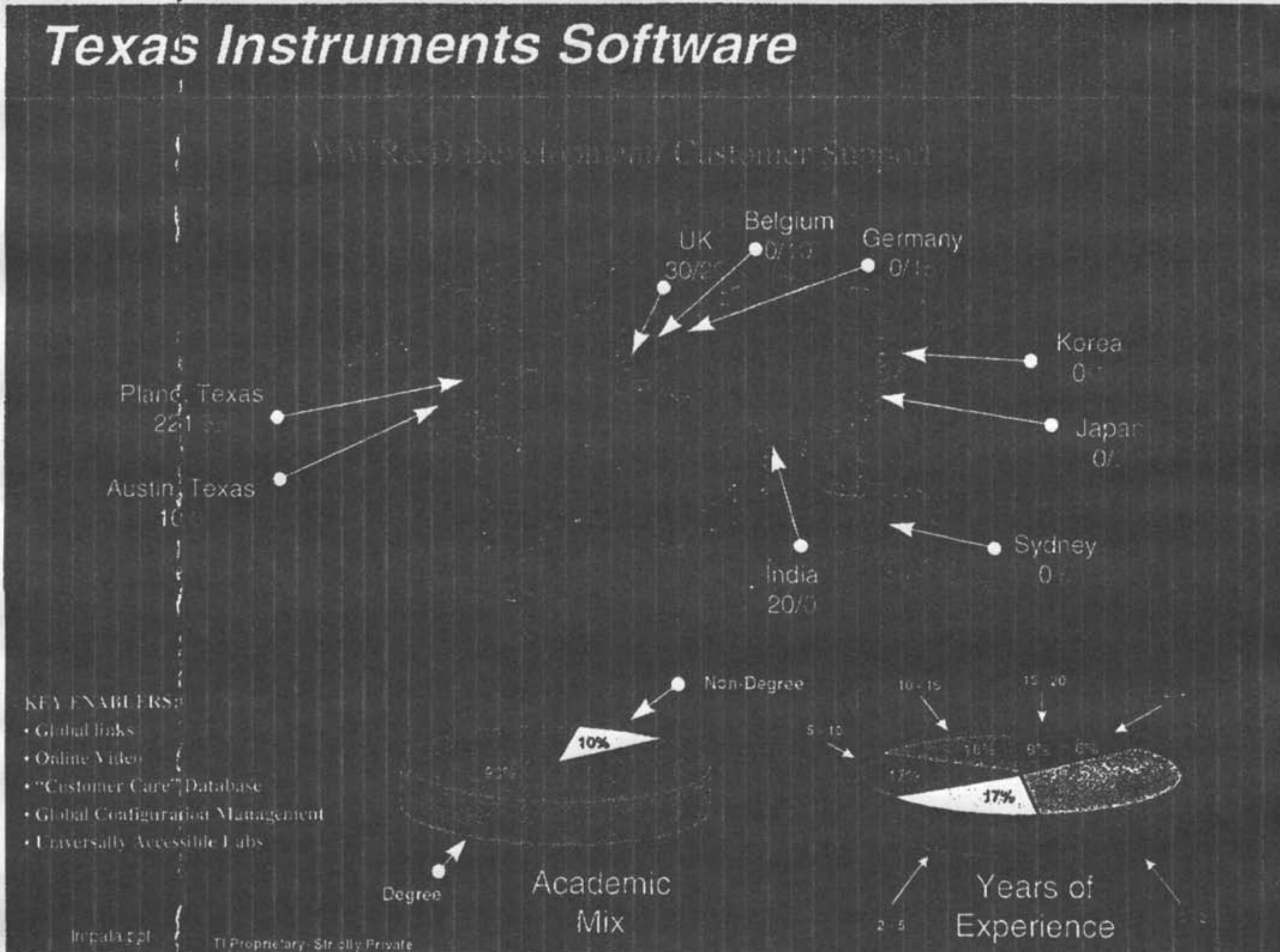
America

- Blue Cross Blue Shield of Fla
- Equitable
- Travelers Insurance
- AT&T
- Bell South
- State of Missouri
- U.S. Dept. of Education
- U.S. Dept. of State
- Arizona Public Service
- Cinergy
- PacificCorp
- Burlington
- EDS
- Monsanto
- McDonnell Douglas

International

- Zurich Group
- Kredietbank
- Bank of Ireland
- British Telcom
- Deutche Telecom
- Australian Dept. of Education
- Swiss Police
- Swedish Student Loans
- British Gas Transco
- Midlands Electricity plc.
- Electrabel
- Volvo
- Swiss Rail
- Air France
- Thai Airlines

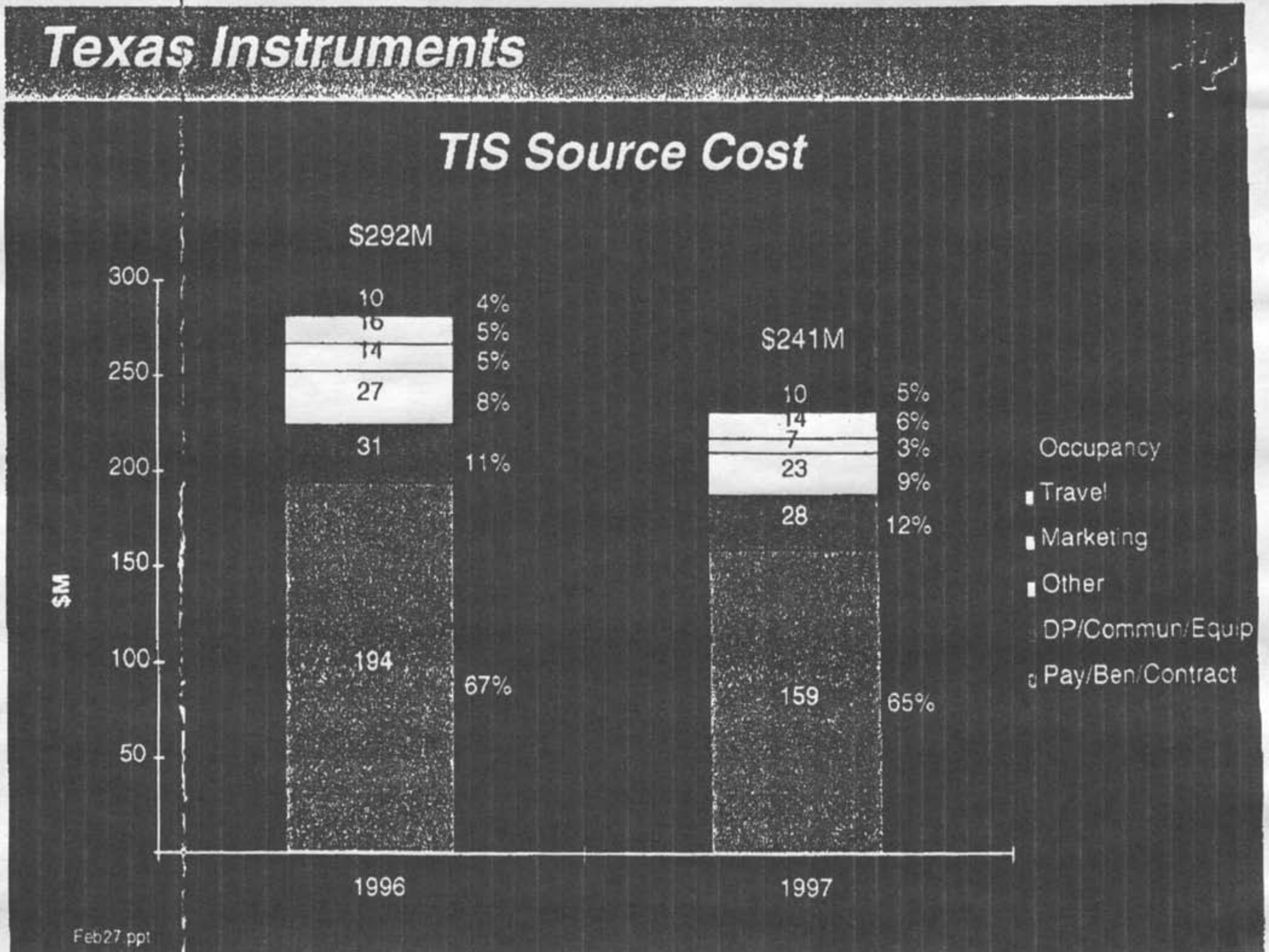
Insurance/finance
Telecommunications
Government
Utilities
Others

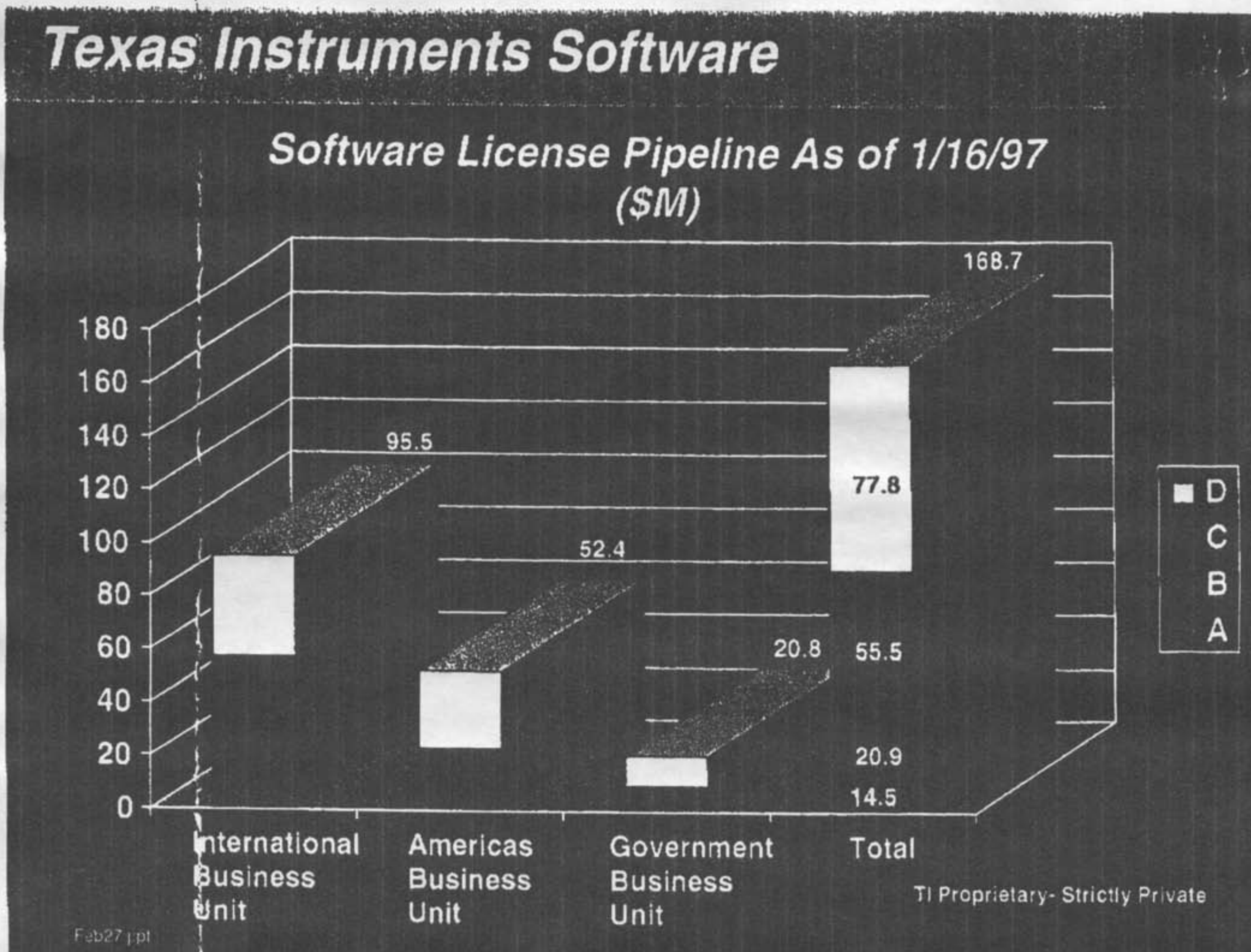

Texas Instruments Software
WW R&D Development/ Customer Support
UK
Belgium
Germany
Korea
Plano, Texas
Austin, Texas
India
Sydney
KEY ENABLERS:
• Global links
• Online Video
• "Customer Care" Database
• Global Configuration Management
• Universally Accessible Labs
Non-Degree
10%
Degree
Academic Mix
17%
Years of Experience
TI Proprietary - Strictly Private

Texas Instruments Software

Consulting Services

- Objectives
  - Accelerated Technology Transfer
  - Successful System Development & Deployment
  - Ultimate source of Composer technical expertise
  - Customer self-sufficiency
  - References for supporting future product sales
- Categories
  - Product Training & Education
  - Technical Consulting Services
  - Project Services
  - Services staff total - 432
    - Americas 81 Government 79 International 262 Other 10
  - Alliances
    - TIer Lockheed Martin E-Systems BDM MTW
    - EDS ISSC Andersen Unisys


Texas Instruments
TIS Source Cost
$292M
$241M
300
250
200
150
100
50
$M
10
4%
16
5%
14
5%
27
8%
31
11%
194
67%
10
5%
14
6%
7
3%
23
9%
28
12%
159
65%
Occupancy
Travel
Marketing
Other
DP/Commun/Equip
Pay/Ben/Contract
1996
1997
Feb27.ppt


Texas Instruments Software
Software License Pipeline As of 1/16/97
($M)
180
160
140
120
100
80
60
40
20
0
95.5
52.4
20.8
168.7
77.8
55.5
20.9
14.5
D
C
B
A
International Business Unit
Americas Business Unit
Government Business Unit
Total
TI Proprietary- Strictly Private
Feb27.ppt

Texas Instruments Software

1996 Sales Profiles
($M)

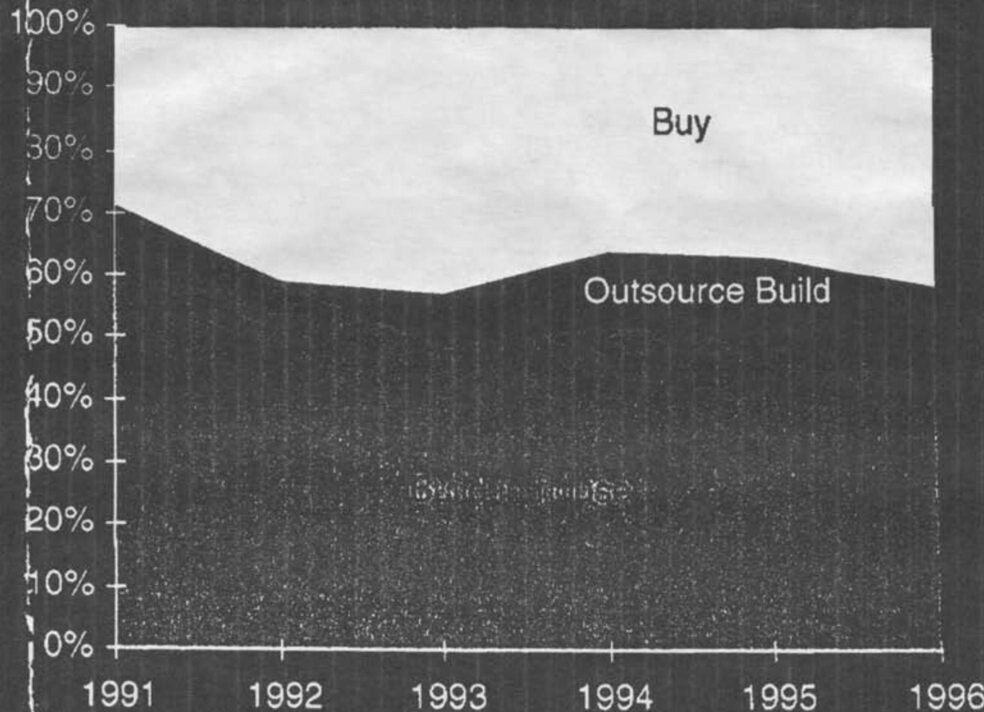
New Customers	> $100K #	> $100K $	Big Deals > $500K #	Big Deals > $500K $
Americas	6	3.7	10	11.7
Europe	26	20.9	23	34.1
Asia/Pacific	6	2.7	2	1.2
Government	7	3.6	6	5.0
Total	45	30.9	41	52.0
1996 SW Revenue		82.2		82.2
%		37.6		63.3

TI Proprietary- Strictly Private

Feb27.ppt

Texas Instruments Software

Key Market Trends



Adapted from [illegible] Market Research

Texas Instruments Software

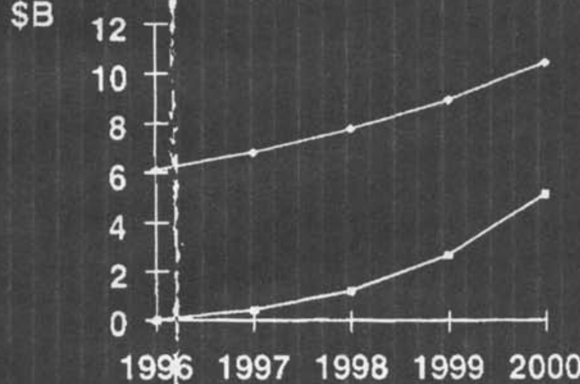
Component Based Development

The Speed of Buy.........
...........with the Flexibility of Build

- "By 2001, 60-70% of all new applications will either be assemblies of business objects, customizations of templates or both, increasing the ability to cope with change."
  - Gartner Group
- "By 2000...the maturity of component architectures will facilitate customers' shopping for best-of-breed components across the supply chain."
  - Meta Group
- "Next generation packaged applications will be built from separate, stand-alone components - sourced from multiple vendors - which users can combine in flexible ways to meet their needs."
  - Forrester Research
- "Components are emerging as the key to a higher level of abstraction, and providing a better foundation for a repository-based reuse metaphor."
  - IDC

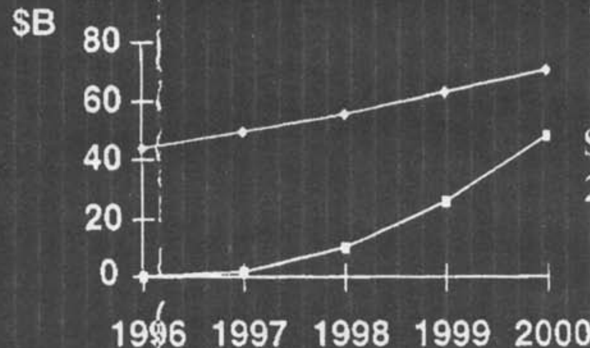
Texas Instruments Software

The CBD Market Opportunity



Total Development Tools
14.4% CAGR

Component Based Development Tools
126.8% CAGR



Total Application Software
12.6% CAGR

Software Templates/Components
200.3% CAGR

Impala ppt

Sources of Data: IDC/Forrester

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Top Ranking in Gartner Group Decision Drivers Released 4Q96

Comprehensive Criteria

- Vision
- Ability to Execute
- Service & Support
- Cost
- Function

Texas Instruments
Forte
Antares
Oracle
Progress
NatSystm
Dynasty
Andersen
Seer

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Texas Instruments Software

A Rich Array of Strategic Partnerships

Alliance Focus	Major Partners
Technology & Marketing	Microsoft
Sales & Marketing	Hewlett Packard IBM Siemens Nixdorf Sun Microsystems
Consulting Services Partners	ISSC EDS SAIC Andersen

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Texas Instruments Software

WWR&D Key Skill Capabilities

Broad base of skills coupled with a demonstrated ability to deliver application development tools across a wide range of platforms and technologies.

- Operating Systems Environments
- Middleware/Communications
- Transaction Processing
- Development/Performance Tools
- Components
- Internet

2. **Competitors (see #25, page 23; #1, pages 7-8)**

3. **Competitive Position (see #14)**

4. **Market Opportunity (see #14)**

5. **Strategic Alliance**
   With Microsoft, IBM, Rational, HP, Siemens-Nixdorf, Sun Microsystems, ISSC, EDS, SAIC, Andersen (#14), and CASTEK, CISS, MTW Consulting, CASE Masters (#12) plus scan #40 and #46

6. **P&L stuff (#4; # 6)**

7. **Standards**
   See #1, pages 1, 2, 4, 16

Note: You may want to skim through #24 quickly.

Forget this if you want to, but do look at # 14.

Marty