

FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

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By Richard D. Buchanan
DTN 264-3663

Prepared for Chris Sullivan
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Andrea Schulman, Manager/Editor
MK01-1/K11 DTN 264-6911

Martha Brunelle, Production Editor

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PURPOSE AND METHODOLOGY

Managers of CSS contracted with Consulting and Research Service for research into the cost of sales for systems integrators. The researcher was asked to examine the publicly available financial records of systems integrators as well as secondary sources available from third-party market research firms. In addition to reporting the results of these financial analyses, it was hoped that such comparisons might reveal patterns indicative of the structure of this emerging industry, allowing Digital managers to more effectively plan their competitive strategy.

Information was derived from three sources: *publicly available financial reports* such as Annual reports and 10Ks; *Third party market research reports* such as Input's report on Systems Integration and *trade press* sources, most notably Computer Systems News' Systems Integration whitepaper.

Brief familiarity with the systems integration literature reveals a bewildering variety of estimates as to the size and growth rate of the overall systems integration market. Many of these estimates differ by a factor of two or three. This is true not only of the industry revenues and profits but of the number of competitors and the size of the workforce they employ.

The primary reason for these diverse estimates is that the term systems integration means dramatically different things to different analysts. Some analysts distinguish between systems services and programming and strictly hardware integration. Information systems design and auditing as practiced by the Big Eight accounting firms is yet a third definition of systems integration. Depending upon where the line is drawn, estimates of the size of the systems integration market can vary dramatically. Compounding the problem is the paucity of information available from third-party market research firms on how their estimates have been reached. Unlike some other areas of computer market research, systems integration data gathering has not been tested over time. This lack of testing can lead to double-counting or undercounting of revenues and headcounts.

Another important factor which explains the diverse market size estimates is the unavailability of disaggregated financial reports. Because the systems integration function is only now beginning to be recognized as a distinct business, many of the primary competitors have never divisionalized these groups. The integration function may be the result of a collaboration between diverse groups within a corporation, and revenues are not recognized as "systems integration" revenues as such. It is definitely the case that many firms have no real idea of what revenues they receive from "systems integration" services, or how many of their personnel are involved.

Despite these facts, data gathered by industry experts using consistent methodologies is roughly comparable. The primary sources of information for this report rely heavily on Input Corporation's Systems Integration Service, and on the special report on Systems Integration prepared by Computer Industry News. While their overall estimates of the size of the market differ, comparisons between competitors can be made within each group's data.

EXECUTIVE SUMMARY

Systems Integration is only recently being recognized as a distinct business comprised of a variety of services, skills and technologies which have traditionally been spread throughout most business organizations. The forces which are driving the growth of systems integration are fundamental, worldwide economic changes coincident with the emergence of new, cost effective computing and communication technologies.

The relative youth of the systems integration function makes measurement of revenues and costs difficult since many firms do not disaggregate their financial statements to reflect the work done by systems integrators. This difficulty is compounded by the fact that definitions of systems integration vary widely.

The size of the systems integration market in the United States is variously estimated to be between \$4.8 and \$6 billion. Growth rates overall are expected to be in the range of 25% between 1988 and 1993, but rates of growth are different in the two primary sectors; government spending growth is likely to average 19%, while commercial spending growth is likely to average 30%. Overall spending on systems integration in the U.S. is expected to reach \$14.7 billion by 1993.

Profiles of major systems integrators and analysis of their financial statements suggests that systems integration is a capital intensive business dominated by large firms that are able to afford the significant investments in software development and contract management that the business demands. Buying behavior of customers, especially their aversion to risk when faced with a major investment of strategic importance, also contributes to the advantage that well established, financially strong, reputable firms have when bidding against smaller competitors. The business entails significant barriers to the entry of competitors, which are likely to remain for the foreseeable future.

OVERVIEW OF THE SYSTEMS INTEGRATION FUNCTION

Systems Integration is only recently beginning to be recognized as a distinct business. From a marketing perspective, the systems integration function is developing *its own* identity, which can be defined in terms of the marketing mix. *Definable Products* are being recognized by potential customers who choose them based upon *Price, Distribution and Promotional attributes*.

This was not always the case. Formerly, customers depended upon hardware vendors, internal MIS managers or perhaps their accountants to recommend and possibly implement information systems.

The complexity of the task led initially to a centralized MIS approach. This solution proved to be inappropriate for many decentralized organizations and for those businesses whose operations required geographic and information system autonomy.

The availability of cost effective alternatives to the centralized mainframe encouraged the proliferation of diverse and, at times, internally inconsistent information systems. Support for these multiple systems came from professional service firms that were hired to provide programming and system design services at the time of initial startup or conversion. This relieved central MIS of the need to employ large staffs to support the irregular work-flow, but left the door open for the acquisition of disparate computer systems and software packages.

Systems integration as a distinct function handled by third-party contractors is emerging to solve this constellation of technological and organizational problems.

The growing importance of systems integration, especially in the commercial sector, reflects fundamental changes in the economic and organizational climate for large scale computing.

Integration of the world economy has forced businesses to link operations and information systems for coordination of operations and financial strategies and to achieve the economies of scale demanded by...

Increased international competition. The diffusion of economic power that has accompanied large scale economic development in the third world and especially in Asia, has been encouraged by a fundamental shift in the importance of the traditional **Factors of Production**.

The relative importance of **Physical Resources, Manpower, Capital, and Managerial Talent** has changed such that **Capital and Managerial Talent** (especially the talented exploitation of information), can overcome the limitations imposed by **Physical Resources** and raw **Manpower**. Businesses as well as governments are recognizing that the strategic use of information is a critical success factor for the achievement of their goals. Investments in computing resources are driven by attempts to marshal the critical mass of information required for strategic decision making.

FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

Ironically, the rapid development of computing technologies has often served to undercut the success of any particular organization's computing strategy. Shortened Computer Product Life Cycles have left many computer customers with unintegrated computing systems and with organizational problems that distract from the organization's fundamental mission. Computers are expected by customers to be a means to an end, not an end in themselves. Increasingly, corporations are turning to third parties to manage their internal computing resources, allowing managers to address themselves to fundamental business problems.

Kodak Company, recently hired Businessland, Inc. to manage Kodak's personal computer operations, and Kodak managers are seeking third-party integrators to manage DP and telecommunications functions as well. This is coincident with Kodak's desire, like that of many modern corporations, to concentrate their resources and managerial talent on their core business, photography.

"Such thinking puts Kodak in the vanguard of a movement reshaping the computer industry. Hardware and software companies that have simply pushed the technology as hard and as fast as they could are finding that it is not enough..."¹ "Companies are getting increasingly bogged down running their own systems, and they are increasingly willing to pay the price to be relieved of these headaches, which show no sign of diminishing."²

The Federal Government was the first major organization to embrace systems integration as a solution to these problems. This market was the largest source of systems integration revenues in 1988 but a drastic decrease in government spending will allow commercial systems integration revenues to surpass government market revenues during 1989.³

The differences between the Federal government market and the commercial market are significant in terms of the buying behavior of the customers, the expertise of the vendors, the methods of doing business and the prospects for market growth. Because of these differences, analysis of relative competitive strength of systems integration vendors must consider the proportion of their revenues derived from each sector. While the technological/systems design task may be similar, the marketing task is quite different.

1 "Computer Firms Find That Service is What Sells, Not Fancier Hardware"; Wall Street Journal; August 15, 1989; pp. 1; col. 6.

2 Naomi Karton, Computer Consultant; Quoted in "Computer Firms Find Service..", ibid.

3 "Systems Integration- A Competitive Analysis"; Input, December 1988.

FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

The following represents some of the contrasts between each of these market sectors: ⁴

<i>Characteristic</i>	<i>Commercial</i>	<i>Federal</i>
<i>Customers</i>		
REQUIREMENTS	Low	High
TECHNICAL KNOWLEDGE	Variable	High
INTERFACE	Multiple	Single
<i>Vendors</i>		
VERTICAL MKT EXPERTISE	Preferred	Mandatory
CUSTOMER BASE	Leveragable	Reference
BUSINESS KNOWLEDGE	Required	Optional
REPUTATION	Media-Based	Historic
<i>Business Conditions</i>		
LEAD GENERATION	Field Sales	CBD/budgets
COMPETITIVE BIDS	Optional	Required
EXPENDITURE COMMITMENT	Deferrable	"Guaranteed"
RISK EXPOSURE	High	Contained
CONTRACT TYPE	Fixed Price	Combination
PRICE RESTRICTIONS	Competitive	Ceilings
BONUSES	Unlikely	Awards/Incentives
PENALTIES	Unlikely	Exception
PROFIT POTENTIAL	High	Limited

⁴ "Systems Integration Forecast and Trends"; Input; December, 1988.

FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

The Commercial Sector

The commercial market for systems integration is divided, by Input, into thirteen industry sectors:

The Four Largest Segments

- **State and Local Government**
- **Discrete Manufacturing**
- **Banking and Finance**
- **Retail Distribution**

Additional Segments

- **Process Manufacturing**
- **Insurance**
- **Wholesale Distribution**
- **Utilities**
- **Telecommunications**
- **Medical**
- **Services**
- **Transportation**
- **Other**

FINANCIAL ANALYSIS

The Size of the U.S. Systems Integration Market;

Exhibit #1 details Input's estimates of the total size of the U.S. Systems Integration Market. Exhibits #2, #3 and #4 portray these same data graphically.

Input estimates the entire U.S. expenditure on systems integration to have been \$4.8 billion in 1988, approximately evenly divided between Commercial and Federal Government sectors. Growth rates for the two sectors differ significantly. Input estimates that the commercial segment will grow at a cumulative annual growth rate (CAGR) of 30% between 1988 and 1993, while the government sector will average 19% over the same period. For the U.S. systems integration market as a whole, Input forecasts a 25% CAGR.

FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

Exhibit #1

INPUT ESTIMATE OF SYSTEMS INTEGRATION MARKET GROWTH

=====

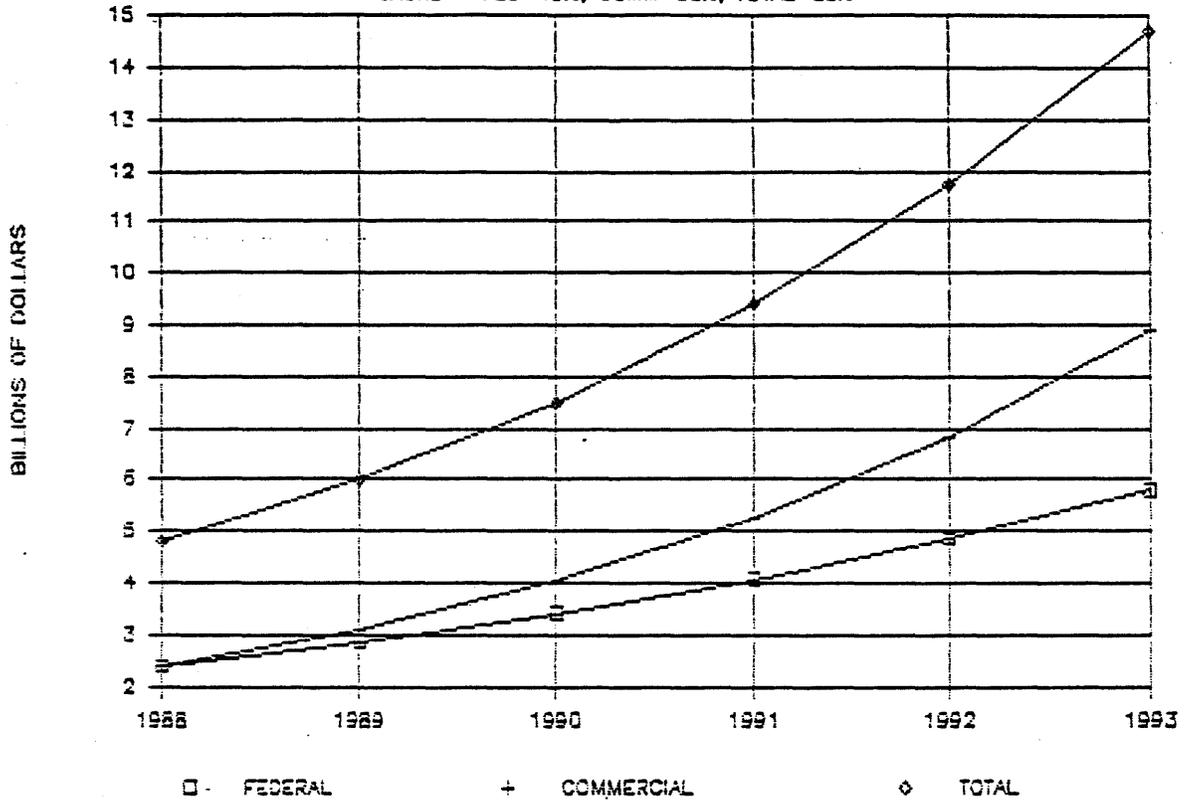
U.S. EXPENDITURES (\$B)

	1988	1989	1990	1991	1992	1993	CAGR 88-93
FEDERAL	\$2.4	\$2.9	\$3.4	\$4.1	\$4.9	\$5.8	19%
COMMERCIAL	\$2.4	\$3.1	\$4.1	\$5.3	\$6.8	\$8.9	30%
TOTAL	\$4.8	\$6.0	\$7.5	\$9.4	\$11.8	\$14.7	25%
=====	=====	=====	=====	=====	=====	=====	=====

FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

INPUT ESTIMATE OF SYS INT MRKT GROWTH

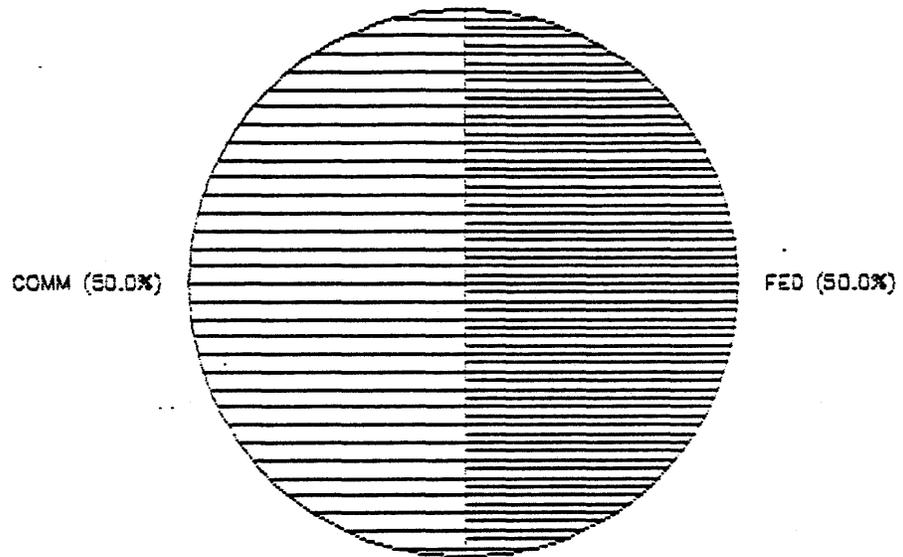
CAGRS- FED=19%, COMM=30%, TOTAL=25%



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U.S. SYSTEM INTEGRATION EXPENDITURES

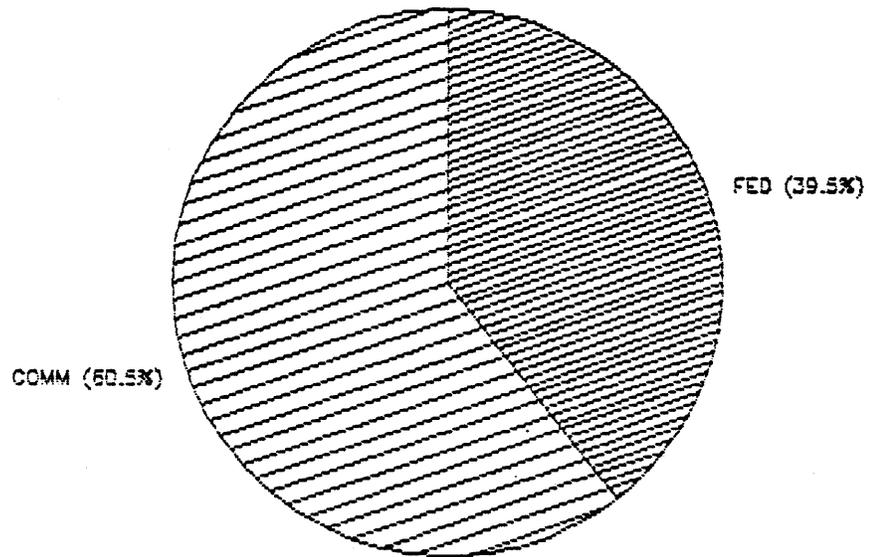
INPUT ESTIMATE 1988= \$4.8 B



FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

U.S. SYSTEM INTEGRATION EXPENDITURES

INPUT PROJECTION 1993= \$14.7 B



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FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

U.S. Systems Integration; Input's Market Share Estimates

Exhibit #5 details Input's estimates of the 1988 U.S. systems integration market shares enjoyed by the fifteen top competitors, together with the portion of their systems integration revenues derived from commercial and federal government contracts. In this exhibit, the competitors are ranked by level of total systems integration revenue.

Note that the percentage market share rankings are dominated by IBM and EDS with 21% and 13% shares respectively, while other competitors trail significantly. Note that Digital's share of the overall systems integration market is estimated by Input to be only 3.5% of the total.

Exhibit #6 details Input's estimates of the 1988 U.S. commercial systems integration market. In this exhibit, the competitors have been reordered to reflect their commercial market share rankings. Here again, IBM dominates with a 26% market share, Anderson Consulting shows a 22% share and EDS drops to number three with a 9.9% share. The distribution of revenues is still highly concentrated by this ranking. Digital's share of this portion of the market is estimated to be 6.5%.

Exhibit #7 details Input's estimates of the 1988 Federal Government systems integration market. The competitors have been reordered according the Federal Government market shares. The distribution is significantly wider than the commercial sector, with the top five competitors garnering roughly 65% of the revenues. Digital's share of the government systems integration market is estimated to be 1.6%.

The differences in industry concentration suggested by the comparisons between the commercial and government sectors highlights the contrasts between the markets previously described.

FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

Exhibit #5

INPUT ESTIMATES SYSTEMS INTEGRATION REVENUES, 1988

Ranked by Total Systems Integration Revenues

Revenue Rank	Firm Name	Commercial Rev (\$M)	Government Rev (\$M)	Total Rev (\$M)	Percentage Mrkt Shr
1	IBM	400	450	850	21.28%
2	EDS	155	350	505	12.64%
3	ANDERSON CNSLT	338	45	383	9.59%
4	COMP. SCIENCES CORP.	45	300	345	8.64%
5	UNYSIS	100	235	335	8.39%
6	SAIC	15	265	280	7.01%
7	GRUMMAN	0	250	250	6.26%
8	BOEING	25	175	200	5.01%
9	CONTROL DATA	120	60	180	4.51%
10	PLANNING RESEARCH	43	116	159	3.98%
11	DEC	100	40	140	3.51%
12	AMERICAN MNGMT SYS	103	13	116	2.90%
13	SHL SYSTEMHOUSE	37	54	91	2.28%
14	NYNEX/AGS	70	10	80	2.00%
15	MARTIN MARIETTA	0	80	80	2.00%
	Total	\$1,551.00	\$2,443.00	\$3,994.00	100.00%
	Average	\$103.40	\$162.87	\$266.27	
	Average Excl IBM	\$82.21	\$142.36	\$224.57	

FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

Exhibit #6

INPUT ESTIMATES SYSTEMS INTEGRATION REVENUES, 1988

Ranked by Commercial Systems Integration Revenues

Revenue Rank	Firm Name	Commercial Rev (\$M)	Government Rev (\$M)	Total Rev (\$M)	Commercial Percentage Hrkt Shr
1	IBM	400	450	850	25.79%
2	ANDERSON CNSLT	338	45	383	21.79%
3	EDS	155	350	505	9.99%
4	CONTROL DATA	120	60	180	7.74%
5	AMERICAN MNGMT SYS	103	13	116	6.64%
6	UNYSIS	100	235	335	6.45%
7	DEC	100	40	140	6.45%
8	HYNEX/AGS	70	10	80	4.51%
9	COMP. SCIENCES CORP.	45	300	345	2.90%
10	PLANNING RESEARCH	43	116	159	2.77%
11	SHL SYSTEMHOUSE	37	54	91	2.39%
12	BOEING	25	175	200	1.61%
13	SAIC	15	265	280	0.97%
14	GRUMMAN	0	250	250	0.00%
15	MARTIN MARIETTA	0	80	80	0.00%
	Total	\$1,551.00	\$2,443.00	\$3,994.00	100.00%
	Average	\$103.40	\$162.87	\$266.27	
	Average Excl IBM	\$82.21	\$142.36	\$224.57	

FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

Exhibit #7

INPUT ESTIMATES SYSTEMS INTEGRATION REVENUES, 1988

Ranked by Federal Government Systems Integration Revenues

Revenue Rank	Firm Name	Commercial Rev (\$M)	Government Rev (\$M)	Total Rev (\$M)	Government Percentage Mrkt Shr
1	IBM	400	450	850	18.42%
2	EDS	155	350	505	14.33%
3	COMP. SCIENCES CORP.	45	300	345	12.28%
4	SAIC	15	265	280	10.85%
5	GRUMMAN	0	250	250	10.23%
6	UNYSIS	100	235	335	9.62%
7	BOEING	25	175	200	7.16%
8	PLANNING RESEARCH	43	116	159	4.75%
9	MARTIN MARIETTA	0	80	80	3.27%
10	CONTROL DATA	120	60	180	2.46%
11	SHL SYSTEMHOUSE	37	54	91	2.21%
12	ANDERSON CNSLT	338	45	383	1.84%
13	DEC	100	40	140	1.64%
14	AMERICAN MNGMT SYS	103	13	116	0.53%
15	NYNEX/AGS	70	10	80	0.41%
	Total	\$1,551.00	\$2,443.00	\$3,994.00	100.00%
	Average	\$103.40	\$162.87	\$266.27	
	Average Excl IBM	\$82.21	\$142.36	\$224.57	

FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

The Size of the U.S. Systems Integration Market; Computer Systems News' Estimates

Computer Systems News' Systems Integrators whitepaper, published in May of 1989 provides interesting details on the Top 50 Systems Integrators in the United States. Based upon mailed questionnaires, the data includes information on employee head counts as well as revenues. This data enables calculation of a useful statistic; **Systems Integration Revenue per Systems Integration Employee**. This statistic is the only available information on efficiency or costs.

Exhibit #8 ranks the Top 50 systems integrators by total systems integration revenue. The estimated amounts of revenue differ significantly from those estimated by Input. This is a result of the difference in definition and accounting standards previously alluded to.

The Top 50 systems integrators garnered \$5.9 billion in revenues during 1988 according to Computer System News. This compares to the \$4.8 billion estimated by Input. The amounts of systems integration revenue attributed to each firm also differ considerably. Despite these discrepancies the top systems integrators appear in both lists.

Computer Systems News distinguished competitors by type. Vendors are those firms whose primary business mission is hardware sales. Facilitators, typically the Big Eight accounting firms, sell expertise in accounting information systems and auditing, with systems integration as a means to promote those services. Integrators, per se, have identified SI to be their primary business mission.

Exhibits #9 through #11 detail some of the contrasts among these three segments.

Note first the differences in the number of competitors: twenty-two integrators, sixteen facilitators, and twenty-two integrators.

Excluding IBM's systems integration revenue of over \$1 billion, the average 1988 SI revenue for each segment was: \$63 million for facilitators, \$86.27 million for vendors and \$125.14 million for integrators. Average SI revenue per SI employee was estimated to be \$212,564 for hardware vendors, \$93,381 for integrators and \$65,499 for facilitators. These segment averages compare to the overall (Top 50) SI revenue per SI employee statistic of \$80,761.

These statistics point to a fundamental fact about the systems integration business. While the market is growing quickly and while systems integration is generally considered to be more profitable than pure professional services (10% margins vs services' 6%), it is very capital intensive. It does not require investment in manufacturing plants like the hardware business but most systems integration firms fund software development programs, testing facilities and training programs. Project development costs and costs for bidding on contracts are significant, amounting to up to 4% of a given contract's value, according to Mark Hodges of G2 Research.⁵

⁵ "Big Business Dominates Systems Integration Sector"; John Moore; Systems Integration whitepaper; Computer Systems News; May 1989.

FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

By contrast with the systems integrators' 10% to 12% margins, hardware manufacturers typically receive margins on equipment in excess of 25%. This fact may account for the higher average SI revenue per employee enjoyed by the vendor segment.

FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

Exhibit 88

TOP 50 SYSTEMS INTEGRATORS Financial Analysis

SI REV RANK	FIRM NAME	FIRM TYPE	SI REV	SI REV	1988 TTL REV	EMPLOYEES			TTL REV	SI REV	SI REV
			(\$ M)	% TTL	(\$ M)	TTL	SI %	SI #	PER TTL EMP	PER TTL EMP	PER SI EMP
1	IBM	VENDOR	\$1,200	2%	\$59,681	375000	3%	11250	\$159,149	\$3,200	\$106,667
2	EDS	INTEGRATOR	\$630	1%	\$4,844	50000	20%	10000	\$96,880	\$12,600	\$63,000
3	COMPUTER SCIENCES	INTEGRATOR	\$500	4%	\$1,253	19000	40%	7600	\$65,947	\$26,316	\$65,789
4	ANDERSON CONSULTING	FACILITATOR	\$350	5%	\$632	9000	66%	5940	\$70,222	\$38,889	\$58,923
5	BOEING COMPUTER	INTEGRATOR	\$274	2%	\$1,225	11244	20%	2248.8	\$108,947	\$24,369	\$121,843
6	DEC	VENDOR	\$250	2%	\$11,475	124500	4%	4980	\$92,169	\$2,008	\$50,201
7	MCDONNELL DOUGLAS	INTEGRATOR	\$229	1%	\$1,290	8816	15%	1322.4	\$146,325	\$25,975	\$173,170
8	UNYSIS	VENDOR	\$160	2%	\$9,902	90000	4%	3600	\$110,022	\$1,778	\$44,444
9	GRUBMAN	INTEGRATOR	\$131	7%	\$175	3000	75%	2250	\$58,333	\$43,667	\$58,222
10	TRW	INTEGRATOR	\$125	2%	\$6,982	NA	NA	NA	NA	NA	NA
11	BDM	INTEGRATOR	\$120	3%	\$320	4000	30%	1200	\$80,000	\$30,000	\$100,000
12	TEXAS INSTRUMENTS	VENDOR	\$120	2%	\$6,295	75000	6%	4500	\$83,933	\$1,600	\$26,667
13	AMS	FACILITATOR	\$116	5%	\$213	2700	50%	1350	\$78,889	\$42,963	\$85,926
14	EMHART	INTEGRATOR	\$115	1%	\$654	9000	20%	1800	\$72,667	\$12,778	\$63,889
15	SAIC	INTEGRATOR	\$110	1%	\$865	10000	75%	7500	\$86,500	\$11,000	\$14,667
16	CDC	VENDOR	\$110	3%	\$3,628	32000	3%	960	\$113,375	\$3,438	\$114,583
17	MARTIN MARIETTA	INTEGRATOR	\$100	1%	\$950	3700	27%	999	\$229,730	\$27,027	\$100,100
18	SEQUA	FACILITATOR	\$100	6%	\$1,780	2400	NA	NA	\$741,667	\$41,667	NA
19	PEAT MARWICK	FACILITATOR	\$95	3%	\$300	2000	50%	1000	\$150,000	\$47,500	\$95,000
20	SBL SYSTEMHOUSE	INTEGRATOR	\$90	5%	\$180	2600	65%	1690	\$69,231	\$34,615	\$53,254
21	ERNST WHINNEY	FACILITATOR	\$80	4%	\$2,191	35600	5%	1780	\$61,545	\$2,247	\$44,944
22	LITTON INDUSTRIAL	INTEGRATOR	\$78	1%	\$600	3800	20%	760	\$157,895	\$20,526	\$102,632
23	ARTHUR YOUNG	FACILITATOR	\$76	7%	\$101	1462	75%	1096.5	\$69,083	\$51,984	\$69,311
24	HYNEX	INTEGRATOR	\$75	1%	\$420	5500	5%	275	\$76,364	\$13,636	\$272,727
25	GTE	VENDOR	\$70	1%	\$700	7000	10%	700	\$100,000	\$10,000	\$100,000
26	AT&T	VENDOR	\$65	0%	\$35,210	NA	NA	NA	NA	NA	NA
27	BOLT BERANEK	VENDOR	\$60	2%	\$305	3000	33%	990	\$101,667	\$20,000	\$60,606
28	HONEYWELL	VENDOR	\$60	1%	\$7,100	NA	NA	1750	NA	NA	\$34,286
29	SD-SCICON	INTEGRATOR	\$50	5%	\$93	1500	55%	825	\$62,000	\$33,333	\$60,606
30	CINCINNATI BELL	INTEGRATOR	\$47	2%	\$187	3100	40%	1240	\$60,323	\$15,161	\$37,903
31	COMPUTER TASK GROUP	FACILITATOR	\$44	2%	\$219	4000	10%	400	\$54,750	\$11,000	\$110,000
32	DNR	FACILITATOR	\$35	3%	\$100	1600	40%	640	\$62,500	\$21,875	\$54,688
33	ORACLE COMPLEX SYS	VENDOR	\$30	100%	\$30	120	100%	120	\$250,000	\$250,000	\$250,000
34	AVIS INFO SYSTEMS	INTEGRATOR	\$27	2%	\$95	350	30%	105	\$271,429	\$77,143	\$257,143
35	CACI	FACILITATOR	\$25	1%	\$138	2000	19%	380	\$69,000	\$12,500	\$65,789
36	CAP GEMMI	FACILITATOR	\$25	1%	\$164	2500	10%	250	\$65,600	\$10,000	\$100,000
37	COOPERS AND LYBRAND	FACILITATOR	\$20	1%	\$205	15000	5%	750	\$13,667	\$1,333	\$26,667
38	XEROX	VENDOR	\$20	0%	\$16,400	67000	1%	670	\$244,776	\$299	\$29,851
39	TECHNALYSIS	FACILITATOR	\$16	0%	\$18	275	90%	247.5	\$65,455	\$58,182	\$64,646
40	C3	INTEGRATOR	\$15	1%	\$102	450	15%	67.5	\$226,667	\$33,333	\$222,222
41	COMPUTER POWER GRP	INTEGRATOR	\$11	2%	\$55	1000	15%	150	\$55,000	\$11,000	\$73,333
42	BUSINESSLAND	INTEGRATOR	\$10	1%	\$872	3200	10%	320	\$272,500	\$3,125	\$31,250
43	COMPUTER HORIZONS	INTEGRATOR	\$8	1%	\$80	1300	10%	130	\$61,538	\$6,154	\$61,538
44	COMPUTER DATA SYS	FACILITATOR	\$8	1%	\$66	2800	15%	420	\$23,571	\$2,857	\$19,048
45	IMI SYSTEMS	FACILITATOR	\$8	2%	\$33	550	30%	165	\$60,000	\$14,545	\$48,485
46	ASK COMPUTER SYS	FACILITATOR	\$7	5%	\$142	800	5%	40	\$177,500	\$8,750	\$175,000
47	PROCESS CONTROL	INTEGRATOR	\$6	7%	\$8	60	90%	54	\$133,333	\$100,000	\$111,111
48	INSCI	VENDOR	\$4	2%	\$14	135	25%	33.75	\$103,704	\$29,630	\$118,519
49	INTERMETRICS	FACILITATOR	\$3	6%	\$50	600	17%	102	\$83,333	\$5,000	\$29,412
50	ITP BOSTON	INTEGRATOR	\$2	100%	\$2	200	100%	200	\$10,000	\$10,000	\$10,000
Total			\$5,910.00		\$178,244.00	998862		84851	\$5,607,185	\$1,265,003	\$4,038,062
Average			\$118.20		\$3,564.88	19977		1697	\$112,144	\$25,300	\$80,761
Average Excluding IBM			\$96.12		\$2,419.65	12732		1502	\$111,184	\$25,751	\$80,233

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FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

Exhibit #9

TOP 50 SYSTEMS INTEGRATORS Financial Analysis

SYSTEMS VENDORS

SI REV RANK	FIRM NAME	FIRM TYPE	SI REV (\$ M)	SI REV % TTL	1988 TTL REV (\$ M)	EMPLOYEES TTL	SI %	SI #	TTL REV PER TTL EMP	SI REV PER TTL EMP	SI REV PER SI EMP
1	IBM	VENDOR	\$1,200	2X	\$59,681	375000	3X	11250	\$159,149	\$3,200	\$106,667
2	DEC	VENDOR	\$250	2X	\$11,475	124500	4X	4980	\$92,169	\$2,008	\$50,201
3	UNYSIS	VENDOR	\$160	2X	\$9,902	90000	4X	3600	\$110,022	\$1,778	\$44,444
4	TEXAS INSTRUMENTS	VENDOR	\$120	2X	\$6,295	75000	6X	4500	\$83,933	\$1,600	\$26,667
5	CDC	VENDOR	\$110	3X	\$3,628	32000	3X	960	\$113,375	\$3,438	\$114,583
6	GT&E	VENDOR	\$70	10X	\$700	7000	10X	700	\$100,000	\$10,000	\$100,000
7	AT&T	VENDOR	\$65	0X	\$35,210	NA	NA	NA	NA	NA	NA
8	BOLT BERANEK	VENDOR	\$60	20X	\$305	3000	33X	990	\$101,667	\$20,000	\$60,606
9	HONEYWELL	VENDOR	\$60	1X	\$7,100	NA	NA	1750	NA	NA	\$34,286
10	ORACLE COMPLEX SYS	VENDOR	\$30	100X	\$30	120	100X	120	\$250,000	\$250,000	\$250,000
11	XEROX	VENDOR	\$20	0X	\$16,400	67000	1X	670	\$244,776	\$299	\$29,851
12	INSCI	VENDOR	\$4	29X	\$14	135	25X	33.75	\$103,704	\$29,630	\$118,519
	Total		\$2,149.00		\$150,740.00	773755		29554	\$1,358,795.05	\$321,951.45	\$5,739,241
	Average		\$179.08		\$12,561.67	398755		18304	\$113,232.92	\$26,829.29	\$212,564
	Average Excluding IBM		\$86.27		\$8,278.09	36250		1664	\$109,058.70	\$28,977.40	\$219,538

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FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

Exhibit #10

TOP 50 SYSTEMS INTEGRATORS Financial Analysis

SYSTEMS INTEGRATORS

SI REV RANK	FIRM NAME	FIRM TYPE	SI REV (\$ M)	SI REV % TTL	1988 TTL REV (\$ M)	TTL EMPLOYEES	SI %	SI #	TTL REV PER TTL EMP	SI REV PER TTL EMP	SI REV PER SI EMP
1	EDS	INTEGRATOR	\$630	13%	\$4,844	50000	20%	10000	\$96,880	\$12,600	\$63,000
2	COMPUTER SCIENCES	INTEGRATOR	\$500	40%	\$1,253	19000	40%	7600	\$65,947	\$26,316	\$65,789
3	BOEING COMPUTER	INTEGRATOR	\$274	22%	\$1,225	11244	20%	2248.8	\$108,947	\$24,369	\$121,843
4	MCDONNELL DOUGLAS	INTEGRATOR	\$229	18%	\$1,290	8816	15%	1322.4	\$146,325	\$25,975	\$173,170
5	GRUMMAN	INTEGRATOR	\$131	75%	\$175	3000	75%	2250	\$58,333	\$43,667	\$58,222
6	TRW	INTEGRATOR	\$125	2%	\$6,982	NA	NA	NA	NA	NA	NA
7	BDM	INTEGRATOR	\$120	38%	\$320	4000	30%	1200	\$80,000	\$30,000	\$100,000
8	EMHART	INTEGRATOR	\$115	18%	\$654	9000	20%	1800	\$72,667	\$12,778	\$63,889
9	SAIC	INTEGRATOR	\$110	13%	\$865	10000	75%	7500	\$86,500	\$11,000	\$14,667
10	MARTIN MARIETTA	INTEGRATOR	\$100	12%	\$850	3700	27%	999	\$229,730	\$27,027	\$100,100
11	SHL SYSTEMHOUSE	INTEGRATOR	\$90	50%	\$180	2600	65%	1690	\$69,231	\$34,615	\$53,254
12	LITTON INDUSTRIAL	INTEGRATOR	\$78	13%	\$600	3800	20%	760	\$157,895	\$20,526	\$102,632
13	HYNEX	INTEGRATOR	\$75	18%	\$420	5500	5%	275	\$76,364	\$13,636	\$272,727
14	SD-SCICON	INTEGRATOR	\$50	54%	\$93	1500	55%	825	\$62,000	\$33,333	\$60,606
15	CINCINNATI BELL	INTEGRATOR	\$47	25%	\$187	3100	40%	1240	\$60,323	\$15,161	\$37,903
16	AVIS INFO SYSTEMS	INTEGRATOR	\$27	28%	\$95	350	30%	105	\$271,429	\$77,143	\$257,143
17	C3	INTEGRATOR	\$15	15%	\$102	450	15%	67.5	\$226,667	\$33,333	\$222,222
18	COMPUTER POWER GRP	INTEGRATOR	\$11	20%	\$55	1000	15%	150	\$55,000	\$11,000	\$73,333
19	BUSINESSLAND	INTEGRATOR	\$10	1%	\$872	3200	10%	320	\$272,500	\$3,125	\$31,250
20	COMPUTER HORIZONS	INTEGRATOR	\$8	10%	\$80	1300	10%	130	\$61,538	\$6,154	\$61,538
21	PROCESS CONTROL	INTEGRATOR	\$6	75%	\$8	60	90%	54	\$133,333	\$100,000	\$111,111
22	ITP BOSTON	INTEGRATOR	\$2	100%	\$2	200	100%	200	\$10,000	\$10,000	\$10,000
Total			\$2,753.00		\$21,152.00	141820		40737	\$2,401,607.71	\$571,759.04	\$2,054,400.67
Average			\$125.14		\$961.45	6446		1852	\$109,163.99	\$25,989.05	\$93,381.85

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FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

Exhibit #11

TOP 50 SYSTEMS INTEGRATORS Financial Analysis

----- INTEGRATION FACILITATORS -----

1	ANDERSON CONSULTING FACILITATOR	\$350	55%	\$632	9000	66%	5940	\$70,222	\$38,889	\$58,923
2	AMS FACILITATOR	\$116	54%	\$213	2700	50%	1350	\$78,889	\$42,963	\$85,926
3	SEQUA FACILITATOR	\$100	6%	\$1,780	2400	NA	NA	\$741,667	\$41,667	NA
4	PEAT MARWICK FACILITATOR	\$95	32%	\$300	2000	50%	1000	\$150,000	\$47,500	\$95,000
5	ERNST WHINNEY FACILITATOR	\$80	4%	\$2,191	35600	5%	1780	\$61,545	\$2,247	\$44,944
6	ARTHUR YOUNG FACILITATOR	\$76	75%	\$101	1462	75%	1096.5	\$69,083	\$51,984	\$69,311
7	COMPUTER TASK GROUP FACILITATOR	\$44	20%	\$219	4000	10%	400	\$54,750	\$11,000	\$110,000
8	DNR FACILITATOR	\$35	35%	\$100	1600	40%	640	\$62,500	\$21,875	\$54,688
9	CAP GENNI FACILITATOR	\$25	15%	\$164	2500	10%	250	\$65,600	\$10,000	\$100,000
10	CACI FACILITATOR	\$25	18%	\$138	2000	19%	380	\$69,000	\$12,500	\$65,789
11	COOPERS AND LYBRAND FACILITATOR	\$20	10%	\$205	15000	5%	750	\$13,667	\$1,333	\$26,667
12	TECHNALYSIS FACILITATOR	\$16	89%	\$18	275	90%	247.5	\$65,455	\$58,182	\$64,646
13	COMPUTER DATA SYS FACILITATOR	\$8	12%	\$66	2800	15%	420	\$23,571	\$2,857	\$19,048
14	INI SYSTEMS FACILITATOR	\$8	24%	\$33	550	30%	165	\$60,000	\$14,545	\$48,485
15	ASK COMPUTER SYS FACILITATOR	\$7	5%	\$142	800	5%	40	\$177,500	\$8,750	\$175,000
16	INTERMETRICS FACILITATOR	\$3	6%	\$50	600	17%	102	\$83,333	\$5,000	\$29,412
	Total	\$1,008.00		\$6,352.00	83287		14561	\$1,846,782.14	\$371,292.04	\$1,047,838.09
	Average	\$63.00		\$397.00	5205		910	\$115,423.88	\$23,205.75	\$65,489.88

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VENDOR PROFILES ⁶

Company

IBM

Description

IBM is by far the largest of the systems integrators with a proud history of selling integrated computing solutions at the upper management, strategic level. Extensive experience in Federal Government systems integration projects is being leveraged by changes in the internal organizational environment at IBM. The former Federal Systems Division has been renamed The Systems Integration Division as of April, 1988.

Markets

Very broad base of target markets including Federal, State and Local Governments, Legal, Manufacturing, Insurance, Health Care, Transportation, Utilities, Banking/Financial, Wholesale/Distribution, Business Services, Education and Telecommunications.

Services

Prime and Sub-contracting, facilities design and management, hardware maintenance, software development and maintenance, network design, project management, requirements assessment and personnel training.

Sector Concentration

1988 SI revenue split: 80% Federal 20% Commercial

Typical Contracts

FAA Air Traffic Control Modernization: 10 year, \$3.6 billion

U.S. Health and Human Services - 5 year

Ford Motor Company Corporate DP infrastructure design and installation - 3 year, \$500 million

Hospital Corp of America office automation installation - multi-year

View of the Future

Expects "significant growth" in both major sectors over the next decade. IBM will target all major industries and vertical markets.

6

- Sources of information for this section include:
- Computer Systems News whitepaper on Systems Integration
 - Input's "Systems Integration - A Corporate Analysis"
 - Various articles in the Trade Press

FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

Company

Electronic Data Systems, Corp.

Description

The most significant pioneer in systems integration as a separate business. Considered to be number two in SI revenues by all major analysts. Bought out by GM in 1984, half of EDS' revenues derive from work for the parent company.

Markets

Very broad base of target markets including Federal, State and Local Governments, Legal, Manufacturing, Insurance, Health Care, Transportation, Utilities, Banking/Financial, Wholesale/Distribution, Business Services, Education and Telecommunications.

Services

Prime and Sub-contracting, facilities design and management, hardware maintenance, software development and maintenance, network design, project management, requirements assessment and personnel training.

Sector Concentration

1988 SI revenue split: 70% Federal 30% Commercial

Typical Contracts

U.S. Department of Defense Enrollment Eligibility and Reporting System - 13 years

Army Standard Information Management Systems - 10 years

Navy Inventory Control System - 8 years

U.S. Air Force Unified LAN Architecture Project - 6 years

Enron Corporation Enterprise Management Contract - 10 years

View of the Future

Expects significant growth, especially in the commercial sector. Emphasis on total systems integration combining traditional technological approaches with after-installation optimization of information systems usage. Sees their large size as providing a competitive advantage because of significant economies of scale.

FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

Company

Anderson Consulting

Description

A separate unit of Arthur Anderson & Co., one of the world's largest accounting firms, Anderson Consulting is the locus of the parent firm's management consulting business. Considered by analysts to be number two or three in SI revenues and enjoying almost 10% of the market for SI in the U.S. in 1988.

Markets

Broad base of target markets including Federal, State and Local Governments, Legal, Manufacturing, Insurance, Health Care, Transportation, Utilities, Banking/Financial, Wholesale/Distribution, Education and Telecommunications.

Services

Prime and Sub-contracting, facilities management, hardware maintenance, software development and maintenance, network design, project management, requirements assessment and personnel training, business process change.

Sector Concentration

1988 SI revenue split: 12% Government 88% Commercial

Typical Contracts

Chicago Title and Trust Co. WAN Project - 4 years

Boeing Aerospace Factory/Office Integration System \$2.7 million

U.S. Social Security Administration Integrated Financial Administrative Systems: Subcontract with American Management Systems - \$12 million

View of the Future

Believes there will be consolidation within the industry leaving a small number of truly excellent prime contractors and a host of smaller niche marketers targeting specific industries or computing technologies. Customers will demand strategic solutions from their information systems.

FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

Company

AT&T

Description

A long history of managing systems integration type projects for voice networks would seem to make AT&T a natural for computer systems integration problems. A formal strategy for entering the business was not formulated until early 1988 when the Systems Integration Division was formed. This division has now been renamed the Integrated Communications Systems Division and will concentrate on network integration solutions.

Markets

Federal, State and Local Governments, Education, Banking/Finance

Services

Network and Platform Integration

Sector Concentration

Not Available

Typical Contracts

Bank of America Network Switching Project - 2 years, \$3 million

University of Southern California Voice/Data Network - 2 years, \$22 million

State of Wisconsin Voice/Data Network Integration Project - \$200 million

Tenneco Corp. Voice/Data Network Integration Project - 2 years, \$10 million

View of the Future

Not Available

FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

Company

Bolt Beranek and Newman, Inc.

Description

Designer of integrated voice/data networks for government and commercial customers.

Markets

Federal Government, Banking/Finance, Manufacturing, Transportation

Services

Prime and Sub-contractor, Maintenance, Software Development, Network Design, Project Management, Requirements Assessment, Personnel Training, Hardware Development

Sector Concentration

1988 SI revenue split: 80% Government 20% Commercial

Typical Contracts

U.S. Department of Defense Data Network - \$50 million

SIMNET - \$25 million

View of the Future

Customers will demand one point of contact for information systems and those firms that are able to control the quality and delivery of the critical required components will have a competitive advantage.

FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

Company

Computer Task Group Inc.

Description

A firm with a strong international focus CTG specializes in "strategic business systems" and real-time automation development for commercial customers. They also promote their systems migration and documentation services.

Markets

Banking/Finance, Business Services, Federal State and Local Governments, Education, Legal, Manufacturing, Transportation, Utilities, Wholesale/Retail distribution and Telecommunications.

Services

Prime and Sub-contractor, facilities management, maintenance, software development, network design, project management, requirements assessment, training.

Sector Concentration

Not Available

Typical Contracts

USS-Posco Industries - 3 years, \$30 million

View of the Future

Expects commercial systems integration market to grow 30% over the next five years. Professional services component will grow faster than the systems integration market as a whole. CTG sees their concentration in the manufacturing industry as an advantage since they expect especially high growth in this vertical market.

FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

Company

Litton Industrial Automation Group

Description

A division of Litton Industries, LIAG concentrates on the manufacturing automation segment and on emerging areas such as optical-based document management systems and image processing.

Markets

Federal Government, Manufacturing, Telecommunications, Retail, Transportation, Wholesale/Distribution, Aerospace and Automotive

Services

Prime and Subcontractor, Facilities Management, Maintenance, Software Development, Project Management, Requirements Assessment, Training.

Sector Concentration

1988 SI revenue split: 80% Government 20% Commercial

Typical Contracts

Boeing Aircraft Co. - 3 years, \$25 million

View of the Future

Views systems integration as very important to national competitiveness and a strategic area for concentration of Litton's resources.

FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

Company

SHL Systemhouse, Inc.

Description

A Canadian firm founded in 1974, half of its revenues derive from U.S. accounts. SHL addresses both the government and commercial sectors and provides systems planning, design, implementation, operations supports and services.

Markets

Broad base of target markets including Federal, State and Local Governments, Legal, Manufacturing, Insurance, Health Care, Transportation, Utilities, Banking/Financial, Wholesale/Distribution, Education and Telecommunications.

Services

Prime and Subcontractor, Facilities Management, Maintenance, Software Development, Project Management, Requirements Assessment, Training.

Sector Concentration

1988 SI revenue split: 55% Government 45% Commercial

Typical Contracts

U.S. Naval Avionics Center Manufacturing Requirements Planning Project - \$23.8 million

PetroCanada - \$25 million

Canadian Federal Government Department of National Defense

View of the Future

Foresees a blurring of data and telecommunications industries and has formed an alliance with Ameritech to exploit this phenomenon. They note that 50% of major systems are being composed of microcomponents and they feel that expertise in this area of growth is a critical success factor. Accordingly, SHL purchased all of the Computerland outlets in Canada in 1988.

FINANCIAL ANALYSIS OF SYSTEMS INTEGRATORS

Company

Unysis Corp.

Description

Comprised of the merged Burroughs and Sperry computer firms, Unysis offers a variety of services to the government and commercial segments focusing particularly on platform integration and network integration.

Markets

Very broad base of target markets including Federal, State and Local Governments, Legal, Manufacturing, Insurance, Health Care, Transportation, Utilities, Banking/Financial, Wholesale/Distribution, Business Services, Education and Telecommunications.

Services

Prime and Sub-contracting, facilities design and management, hardware maintenance, software development and maintenance, network design, project management, requirements assessment and personnel training.

Sector Concentration

1988 SI revenue split: 60% Government 40% Commercial

Typical Contracts

U.S. Coast Guard - \$82 million

U.S. Navy On-Board DP Systems, 4, 1 year options, \$36 million

Department of Labor Unix-based Employee Benefits System- \$10 million

Royal Thai Air Force Air Defense System

View of the Future

Foresee 25% to 30% growth in the commercial market but a slower rate of growth in the government sector.

Company

Digital Equipment Corporation

Description

Having offered SI service for the last ten years, a formal SI strategy was disclosed only in September of 1988. Enterprise-wide network management systems are being devised with the active participation of third party vendors. Skills for integration activities are drawn from a large number of different groups within the company, rather than from a central SI division.

Markets

Federal Government, Banking/Finance, Manufacturing, Telecommunications and Media.

Services

Prime and Subcontractor, Facilities Management, Maintenance, Software Development, Network Design, Project Management, Requirements Assessment, Training.

Sector Concentration

1988 SI revenue split: 40% Government 60% Commercial

Typical Contracts

Boeing Aircraft Co. Factory Control System - \$54 million

Over 100 systems integration contracts in the pipeline worth an estimated \$30 million per year for the next five years.

View of the Future

The approach of an integrated global market place and business environment will make it imperative that information systems match the business requirements of all types of enterprises. Customers are looking for partners they can trust so that they can concentrate on their core businesses and areas of expertise.