1986 INFORMATION SERVICES INDUSTRY REPORT

SEPTEMBER 1986

Published by
INPUT
1943 Landings Drive
Mountain View, CA 94043
U.S.A.

Company Analysis and Monitoring Service (CAMS)

1986 Information Services Industry Report

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ABSTRACT

This report is a comprehensive look at the information services industry in 1985 and 1986. Performance is analyzed for companies which offer processing services, software products, professional services, and turnkey systems.

For each of these modes of software and services delivery, the report provides statistics and analyses covering the market, the distribution of revenue by type of company, and lists the largest and/or fastest growing vendors in that market. Case studies of public companies in each market are also provided.

This report contains 95 pages, including 40 exhibits.

1986 INFORMATION SERVICES INDUSTRY REPORT

CONTENTS

EXHIBITS

1 INTRODUCTION

I INTRODUCTION

A. PURPOSE

- This INPUT Information Services Industry Annual Report is designed for industry managers and financial analysts who wish to gain a fuller understanding of the size, growth trends, and key issues of this rapidly changing industry.

B. SCOPE

- The data contained in this report resulted from the integration of numerous INPUT research programs:

  - INPUT's Company Analysis and Monitoring Service (CAMS) tracks over 4,500 information services companies. CAMS data was used to verify and supplement data obtained from the interview program outlined below.

  - Data on public companies was obtained from INPUT's Vendor Financial Watch (VFW) which tracks the quarterly financial performance of over 100 public information services companies. Company data is extracted from published sources, annual reports, and 10-K reports, supplemented by INPUT's best judgment where data is not currently available.

- Financial data provided in the VFW include each vendor's revenue and net income. Data is reported on a calendar basis. Comparisons on performance are provided for:

  - 1985 versus 1984 (year-on-year, by quarter).
  - 1985 versus 1984 (year-on-year).
  - Last calendar nine months results compared to the year earlier.
  - Last calendar six months results compared to the year earlier.

- An extensive, ongoing interview program (see Methodology, below) was used as the vehicle for the primary research data that represents much of this report. The questionnaire used in this program is included as Appendix B.

- The information contained herein is based on vendor revenue, not user expenditures, which are provided in INPUT's annual forecasts. Consequently, due to double counting and dollars that pass through a variety of distribution channels, user expenditure numbers for most delivery modes in 1985 differ from the vendor revenue.

- A complete list of related INPUT reports is included as Appendix C.

C. METHODOLOGY

- From January through April 1986, INPUT interviewed over 350 information processing vendors. The major research activities included:

- A census of 200 companies with annual revenue of $10 million or more from noncaptive U.S. information services.

- A stratified random sample of companies with non-captive U.S. annual revenue greater than $250,000 but less than $10 million. Over 150 companies were interviewed by telephone.

- The revenue data in this report, unless otherwise noted, includes only the following:

  - U.S. revenue - Only revenue derived from products or services sold in the U.S. All foreign revenue is excluded.

  - Information services revenue - Revenue from processing services, software products, professional services, and turnkey systems. Revenue from hardware-only sales, telecommunications, and field engineering services are excluded.

  - Noncaptive revenue - Only revenue available to all vendors in a competitive marketplace is included. Revenue derived from sales to parent or affiliated organizations is excluded.

  - Calendar year revenue - Approximately 30% of the companies have fiscal years that do not coincide with calendar years. Revenue of these companies has been adjusted to a calendar year basis for consistency.

- All revenue data was rounded to the nearest $1,000 when gathered and tabulated, then rounded to the nearest $1 million when reported in this study.

  - Rounding to the nearest $1 million was done to normalize for the lesser degree of accuracy where data was estimated by INPUT.

- Revenue reported by private companies, subsidiaries of larger corporations, computer manufacturers, and CPA firms is generally subject to a wider margin of error than is revenue of other companies.

- Companies that are not exclusively involved in information services are identified as follows:

  - If a division or its subsidiary markets all information services for a company and is generally known by the name of that group, then it is identified by that name rather than the parent's name. An example is Boeing Computer Services Company.

  - If more than one division or its subsidiary markets information services, the information is included in, and identified by, the parent's name. An example is Control Data Corporation.

  - Organizations are reported according to their legal status as of the end of December 1985.

- Companies have been classified according to the mode of service from which they derive the largest proportions of their U.S. noncaptive information service revenue. The modes of service, defined in detail in Appendix A, Section B, include processing services, software products, professional services, and turnkey systems.

II EXECUTIVE SUMMARY

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A. INFORMATION SERVICES INDUSTRY VENDORS, 1985

- Information services vendors continued their significant rate of growth in 1985, advancing from 1984 revenue of $40.4 billion to 1985 revenue of $46.4 billion. Although revenue increase is healthy, it is lower than the 20-25% growth of previous years (see Exhibit II-1). However, inflationary impact last year was practically nonexistent.

- Although the overall growth of the information services business slowed in 1985 (from 22% in 1983-1984 to 15% in 1984-1985), INPUT expects that growth in the industry will renew its vigor and will average growth in excess of 20% over the next five years.

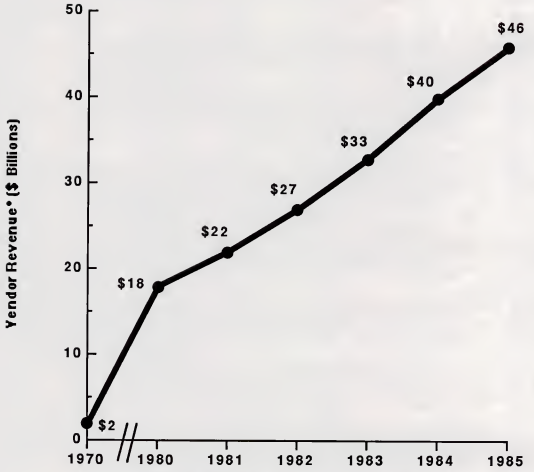
- However, vendor characteristics in the market will change appreciably.

  - Computer manufacturers will increase their share as they seek to retain profit margins and growth being rapidly eroded by declining hardware prices. All leading manufacturers are aggressively expanding their service offerings.

  - Communications companies, particularly the Regional Bell Operating Companies (RBOCs), will target network services and software as they seek to add value to their "commodity" communications services.

EXHIBIT II-1

REVENUE GROWTH IN THE
INFORMATION SERVICES INDUSTRY, 1970-1985



*Note: Definition changes have slightly affected gross market sizes on a year-to-year basis.

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- Information companies will deliver an increasing amount of their product electronically.

- Companies from other industry sectors, notably finance and banking, will offer specialized services which extend their normal product/service lines. Such companies will include distributors, transportation companies, and utility companies as well as the traditional large manufacturers.

B. PUBLIC INFORMATION SERVICES VENDORS ANALYSIS

- The comparison of the quarter growth rates (e.g., 1985 growth in fourth quarter compared to 1984 growth in fourth quarter for a given service sector) enables the rate of growth and recovery (or lack thereof) to be clearly observed (see Exhibit II-2).

- Overall, revenue growth for public information services companies was 15% in first quarter 1986, which is consistent with 1985 results. Net income improved substantially first quarter 1986, growing 19% from first quarter 1985. The improvement was due to the turnaround situation in the turnkey systems sector and the excellent performance of the software products sector.

- The processing/network services sector finished with two excellent quarters in 1985. Steady growth in revenue continued throughout the year. Net income grew dramatically in third and fourth quarters, although it was due greatly to Anacomp. Even without Anacomp, overall growth in net income was above the average for the past two years.

- The professional services sector continued its higher than average revenue growth in fourth quarter. However, the steady growth in net income experienced the first three quarters of the year declined drastically in the fourth

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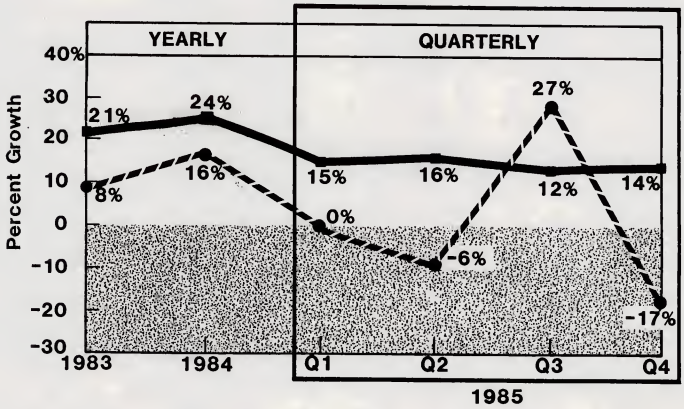
PUBLIC INFORMATION SERVICES VENDORS



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quarter, due mainly to the results of two companies--Intermetrics and Systems and Computer Technology. Intermetrics took losses on ADA contract, and Systems and Computer Technology's loss included a $14.9 million charge to operations for a class action litigation settlement, legal fees, and related expenses. Performance of these companies will affect this sector's recovery in first quarter 1986.

- The software products sector continued its slowdown in revenue growth through 1985. Overall net income grew slightly more in 1985 than in 1984. Results were especially poor in the first quarter; however, the rolling three quarters average exhibits an apparent positive trend in net income for this sector.

- The turnkey systems sector has reached rock bottom. By fourth quarter revenue growth had become completely flat. Net income results over the past year have been disastrous. Losses for this sector totaled $58 million in fourth quarter; overall net income for the sector was -$17.5 million in fourth quarter.

- Overall, the information services industry suffered its fourth successive bad quarter with growth well below previous norms. The only sector that performed moderately well in both revenue and net income from previous years was the processing/network services sector.

C. SALES LEADERS BY DELIVERY MODE, 1985

- As in the past four years, ADP was the leader of the processing segment with a 1985 calendarized sales volume of $882 million, as shown in Exhibit II-3. ADP became the first independent service company (i.e., not a hardware manufacturer) to reach $1 billion in information services revenue.

EXHIBIT II-3

SALES LEADERS BY DELIVERY MODE, 1985

COMPANY	DELIVERY MODE	REVENUE* ($ Millions)
ADP	Processing Services	$882
IBM	Software Products	$3,374
IBM	Professional Services	$977
Intergraph Corp.	Turnkey Systems	$408

* Calendarized Revenue (January 1 through December 31)

- IBM dominates the software products market with $3.4 billion of sales and professional services revenue of $977 million in 1985. These are IBM's prime growth targets for the late 1980s, and INPUT expects IBM's influence in both markets to become as pervasive as its position in computer hardware.

- Of the pure information services vendors, CSC continues to be the largest provider of professional services. This is a market where the "Big Eight" accounting firms, particularly Arthur Andersen & Company, are making a strong push.

- Intergraph emerged as the leading turnkey systems vendor in 1985 in the CAE/CAD/CAM area. Competition in this area is fierce and sales demand is weak, which accounts for the severe pressures this sector is experiencing in net income performance.

D. GROWTH LEADERS BY DELIVERY MODE, 1985

- The information services industry, for all its restructuring and ups and downs, is replete with opportunity and growth potential.

- In the professional services sector, Peat, Marwick and Mitchell was the fastest growing company at over $10 million, as shown in Exhibit II-4. They went from $103 million in 1984 to $220 million in 1985 for professional service revenue.

- In the software products arena, Sterling Software Inc. had the highest growth primarily due to its acquisition of Informatics General.

- Redshaw Inc. and Shared Medical Systems both tied for first place in the turnkey market with 100% growth. Shared Medical Systems grew from $50 million to $100 million while Redshaw increased from $20 million to $40 million.

EXHIBIT II-4

GROWTH LEADERS BY DELIVERY MODE, 1985

COMPANY	DELIVERY MODE	GROWTH RATE 1984-1985 (Percent)
Redshaw Inc.	Turnkey Systems	100%
Shared Medical Systems	Turnkey Systems	100%
Peat, Marwick, & Mitchell	Professional Services	113%
Sterling Software Inc.	Software Products	258%
Lockheed Corp.	Processing Services	1,100%

- Lockheed Corporation had the highest growth rate in the processing services market, but started from a very small 1984 installed base of $4 million and had $48 million in revenue in 1985. The acquisition of Metier accounted for this.

III INFORMATION SERVICES MARKETPLACE

III INFORMATION SERVICES MARKETPLACE

- The companies that comprise the information services industry continued their growth in 1985. In this section of the report, this growth and the factors that contributed to it are explored.

A. OVERVIEW

- Over 7,300 companies comprised the information services industry in 1985, and these companies generated $46.4 billion in U.S. noncaptive revenue from computer software and services, as shown in greater detail in Exhibit III-1. The number of companies decreased slightly from 1984-1985 due to mergers, acquisitions, and small business failures under market conditions that were weaker than prior years.

  - Processing services companies led the industry in U.S. noncaptive revenue ($18.9 billion). However, the increasing number of companies establishing their own in-house processing service and using microcomputers contributed to a revenue growth rate below that of the industry rate.

  - Software products companies, the second largest segment in terms of revenue within the year, continued their growth, but at 19%--much lower than preceding years.

EXHIBIT III-1

KEY INFORMATION SERVICES INDUSTRY STATISTICS

TYPE OF COMPANY	NUMBER OF COMPANIES	NONCAPTIVE U.S. REVENUE		
		1984 ($ Billions)	1985 ($ Billions)	Growth (Percent)
Processing Services	2,121	$17.0	$18.9	11%
Software Products	2,488	10.0	11.9	19%
Professional Services	1,475	7.8	9.2	19%
Turnkey Systems	1,229	5.7	6.4	12%
Total All Types	7,313	$40.5	$46.4	15%

- Professional services companies, the third largest sector in number of companies and revenue, also grew at 19%.

- Turnkey systems companies radically decreased their rapid growth from 29% to 12%, despite the plethora of new VAR (value-added reseller) programs.

B. REVENUE DISTRIBUTION BY MODE OF SERVICE

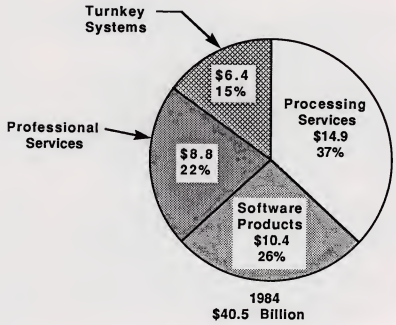
- By mode of service, without regard for the type of company offering the service, processing services continued to hold a commanding market share at 35%, but did lose share to the other services, as shown in Exhibit III-2. Software products increased in market share from 26% in 1984 to 27% in 1985.

- The proportion of the industry revenue captured by companies of various sizes, as classified by their total U.S. noncaptive revenue, indicated a modest change in industry concentration. Large companies, although only 344 in number, comprise approximately 60% of the industry revenue. Exhibit III-3 depicts market growth by size and type of company.

- The growth of larger (over $10 million in annual revenues) companies has slowed in recent years as their products and markets have matured. The 40% market share held by the numerous smaller companies is growing. This is despite the aggressive acquisition programs of larger companies which would tend to increase their share of the market.

EXHIBIT III-2

REVENUE DISTRIBUTION BY MODE OF SERVICE



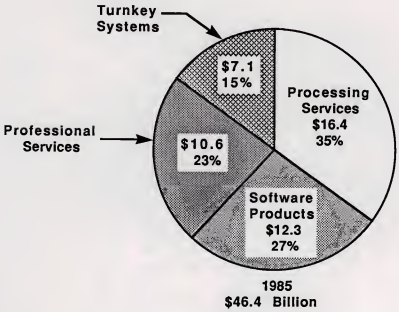


EXHIBIT III-3

REVENUE AND GROWTH RATE OF INFORMATION SERVICES BY TYPE AND SIZE OF COMPANY

TYPE OF COMPANY SIZE*	MARKET ($ Millions)		GROWTH 1984-1985 (Percent)
	REVENUE 1984	REVENUE 1985	
Processing Services			
<$10	$5,900	$6,543	11%
>$10	$11,074	$12,325	11%
All Processing	$16,974	$18,868	11%
Software Products			
<$10	$3,659	$4,413	20%
>$10	$6,378	$7,531	18%
All Software	$10,037	$11,944	19%
Professional Services			
<$10	$3,059	$3,645	19%
>$10	$4,733	$5,595	18%
All Professional	$7,792	$9,240	19%
Turnkey Systems			
<$10	$3,409	$3,825	12%
>$10	$2,274	$2,541	12%
All Turnkey	$5,683	$6,366	12%
All Types			
<$10	$16,027	$18,426	15%
>$10	$24,459	$27,992	14%
All Types	$40,486	$46,418	15%

C. REVENUE AND GROWTH RATE BY MODE OF SERVICE

- The change in product mix for the four types of companies was as follows:

  - Processing services companies experienced strong revenue growth in software products and professional services. Growth in turnkey systems was at the industry average of 11%. This provides a strong indication that processing services companies intend to combat the move to in-house processing by providing their own "in-house" alternative.

  - Software companies had major revenue increases in professional services. This is due to the trend of adding consulting and education and training offerings as supplements to packaged software product sales.

  - Professional services companies continued their strong growth in software products revenue.

  - Turnkey systems companies increased by 20% in professional services and 21% in software products while processing services revenue growth was only 10%.

- Exhibit III-4 shows these revenue and growth rates.

D. TOP TWENTY-FIVE SALES AND GROWTH STARS

- The top 25 information services companies represent less than 1% of the industry membership but captured 28% (or over $13 billion) of the 1985 industry revenue.

EXHIBIT III-4

REVENUE AND GROWTH RATES BY MODE OF SERVICE

TYPE OF COMPANY	MODE OF SERVICE (Revenue in $ Millions)				TOTAL BY COMPANY
	Processing Services	Software Products	Professional Services	Turnkey Systems	
Processing Svcs.					
1984 Revenue	$13,941	$890	$1,271	$872	$16,974
1985 Revenue	15,343	1,034	1,519	971	18,867
Growth Rate (%)	10%	16%	20%	11%	11%
Software Prod.					
1984 Revenue	$183	$8,615	$1,046	$193	$10,037
1985 Revenue	201	10,251	1,278	214	11,944
Growth Rate (%)	10%	19%	22%	11%	19%
Professional Svcs.					
1984 Revenue	$578	$664	$6,283	$267	$7,792
1985 Revenue	636	798	7,508	298	9,240
Growth Rate (%)	10%	20%	20%	11%	19%
Turnkey Systems					
1984 Revenue	$191	$189	$255	$5,048	$5,683
1985 Revenue	210	228	307	5,622	6,366
Growth Rate (%)	10%	21%	20%	11%	12%
Total by Mode					
1984 Revenue	$14,893	$10,358	$8,855	$6,380	$40,486
1985 Revenue	16,390	12,311	10,612	7,105	$46,418
Growth Rate (%)	10%	19%	20%	11%	15%

- IBM has targeted three information services markets--software products (program products), professional services, and processing services (information network). IBM's progress in all instances has been dramatic, but INPUT believes the best is yet to come. IBM's opportunity for growth in software products is gigantic and represents one of the best long-term potential markets that IBM has yet to fully exploit.

- ADP, after excellent revenue and net income growth in the 16-18% per annum, continues to grow. ADP became the first independent services vendor to reach $1 billion in revenue in 1985. It is the archtype of the hard-driving, goal-oriented company with excellent top management.

- Control Data is gradually losing its preeminent role in the information services market and has been unable to grow at a rate comparable with its peers.

- EDS made substantial progress in 1985. GM offers EDS a test bed for the development of new skills and services in process control, CAE, and network design/management. In the years to come, this could make EDS more formidable than ever. However, EDS may also become excessively occupied trying to make GM internal systems work, which could deter their market presence.

- Exhibit III-5 shows the 1985 ranking of the top 25 revenue leaders, and Exhibit III-6 shows the 1985 ranking of the top growth leaders from companies with revenue over $10 million.

EXHIBIT III-5

TOP TWENTY-FIVE SALES STARS
U.S. MARKET, NON-CAPTIVE REVENUE 1985

RANK 1985	COMPANY
1	International Business Machines (IBM)
2	Automatic Data Processing
3	Electronic Data Systems (excluding GM business)
4	Computer Sciences Corporation
5	Control Data Corporation
6	McDonnell Douglas Information Services
7	Intergraph Corporation
8	General Electric Information Services
9	Digital Equipment Corp.
10	Computervision Corporation
11	Burroughs Corporation
12	Arthur Anderson & Company
13	Shared Medical Systems
14	Boeing Computer Services
15	Sterling Software/Informatics General
16	Peat, Marwick & Mitchell
17	NCR
18	Equifax, Inc.
19	TRW Incorporated
20	Science Applications International, Inc.
21	Quotron Systems, Inc.
22	HBO & Company
23	Lotus Development Corporation
24	Martin Marietta Data Systems
25	Planning Research Corporation

EXHIBIT III-6

TOP GROWTH STARS
U.S. MARKET FOR 1985

RANK	COMPANY
1	Sterling Software
2	Science Applications International
3	Prime Computer Inc.
4	Peat, Marwick & Mitchell
5	Bolt Beranek and Newman
6	Apple Computer Inc.
6	Tandy Computer
7	Metier Management Systems
8	SAS Institute
9	The Continuum Company
10	Computer Associates
11	Information Builders
12	Software AG
13	Gerber Scientific
14	Redshaw Inc
15	Policy Management Systems

IV PUBLIC COMPANY ANALYSIS

IV PUBLIC COMPANY ANALYSIS

A. CENSUS OF PUBLIC COMPANIES BY SERVICE MODE

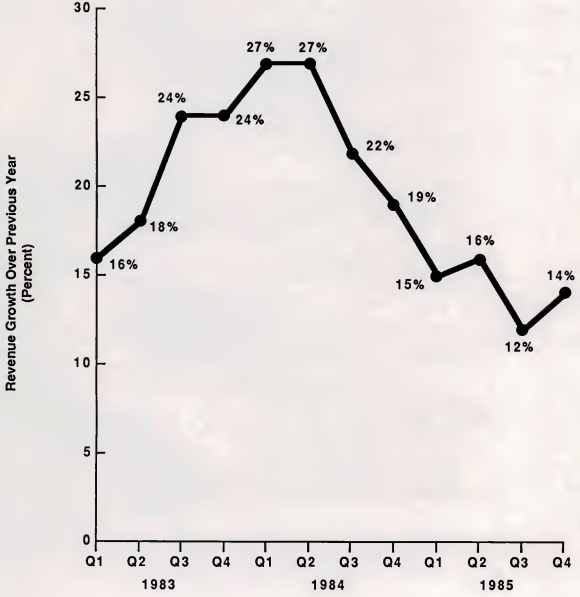
- INPUT's census of public information services vendors includes 112 companies:
  - Processing services vendors - 34.
  - Professional services vendors - 24.
  - Software products vendors - 35.
  - Turnkey systems vendors - 19.

B. REVENUE AND NET INCOME PERFORMANCE, 1982-1985

- As a group the public information services companies that INPUT tracked had an average year in 1985, with revenue remaining at 12-15%. Revenue growth averaged 14% while net income averaged close to 0%. The 1985 quarterly performance shows the real trends, however, with a gradually worsening picture developing as the year wore on (see Exhibit IV-1).

EXHIBIT IV-1

PUBLIC INFORMATION SERVICES VENDOR
REVENUE GROWTH, 1983-1986



- The 112 public information services vendors represent as a group approximately 24% of total 1985 information services industry revenue and are therefore strong indicators of the performance of the entire industry.

- Revenue growth remained high in the first two quarters of 1984 following the rapid economic expansion in 1983, but retreated to just below 20% annually by the end of the year. In 1985, the information services industry suffered four successive bad quarters due to economic changes, changes in buying patterns, and user confusion, to name but a few factors.

- Net income growth of the public information services companies, as a group, runs with much wider swings, as shown in see Exhibit IV-2.

  - With continued deterioration in turnkey vendor income growth, income growth for the information services market as a whole bottomed out at -17% in the fourth quarter of 1985.

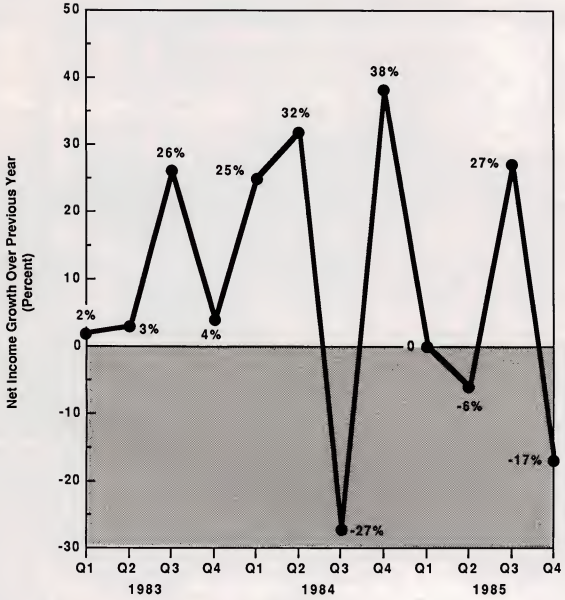
  - For software products, overall net income grew slightly more in 1985 than in 1984. Results were especially poor in the first quarter; however, the rolling three-quarters average exhibits an apparent positive trend in net income for this sector.

  - The steady growth in net income experienced in the first three quarters of the year by professional services vendors declined drastically in the fourth quarter, due mainly to the results of two companies--Intermetrics and Systems and Computer Technology. Performance of these companies will significantly impact this sector's recovery in the first quarter of 1986.

  - The only sector that performed moderately well in both revenue and net income from previous years was the processing/network services sector.

EXHIBIT IV-2

PUBLIC INFORMATION SERVICES VENDORS
NET INCOME GROWTH, 1983-1986



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C. CASE STUDY ANALYSIS OF SELECTED SUCCESS STORIES

- This section analyzes public information services firms which have demonstrated above average revenue and net income growth for the last 12 months of 1985 compared to the same period in 1984.

- To qualify, the company must have had positive revenue and net income growth for January through December 1985 of at least 22% over the year-earlier period. INPUT has called such companies "growth stars."

1. PROCESSING SERVICES

- Specialization in vertical markets is the common thread among most of the five growth stars of the public processing services firms shown in Exhibit IV-3.

- With average revenue and net income growth rates exceeding 20%, the growth stars demonstrate with effective strategies make the remote computing services market a viable opportunity.

a. GTECH Corporation

- GTECH provides hardware, software, and networking for lotteries. It is a leader in the fast growing on-line lottery market. The company has installed over 50% of the on-line lottery terminals worldwide.

- Eighteen states currently operate loteries, and GTECH has won 12 of the last 14 on-line contracts awarded.

- CDC is GTECH's main competitor.

EXHIBIT IV-3

PUBLIC PROCESSING SERVICES "GROWTH STARS"

FIRM	GROWTH (Percent)*	
	REVENUE	NET INCOME
GTECH	124%	59%
Systematics	32%	47%
Paychex	32%	53%
Information Resources	22%	51%
Shared Medical	22%	28%

* April thru December 1985 versus April thru December 1984

b. Systematics, Inc.

- Systematics, Inc., founded in 1968, provides facilities management processing and professional services, applications software products, and turnkey systems to the banking and finance industry.

- In January 1985 Systematics purchased the outstanding stock of Western Data Centers, Inc., Amarillo (TX), for approximately $3.2 million in cash and a $410,000 note. Results of the acquired company have been included from the date of acquisition.

  - Western Data (formerly a subsidiary of First Amarillo Bancorporation, Inc.) provides remote processing services to over 50 banks and thrifts in four states (New Mexico, Colorado, Oklahoma, and Texas).

  - Western Data now operates as a subsidiary of Systematics.

- Approximately 75% of Systematics' fiscal 1985 revenue was derived from facilities management processing services, 16% from remote processing services, and the remaining 9% from software licenses.

- During fiscal 1985 Systematics added six new facilities management clients, bringing the total to 43 at year end. Remote processing services clients increased to 112 at year end from 59 in fiscal 1984.

- One hundred percent of Systematics' revenue is derived from the banking and finance industry in the U.S.

c. Paychex, Inc.

- Paychex, founded in 1979, provides batch payroll processing services to small- and medium-sized businesses.

- One hundred percent of Paychex's fiscal 1985 revenue was derived from payroll processing and payroll tax preparation services for businesses with 1 to 100 employees. At fiscal year end the client base exceeded 46,000.

d. Information Resources, Inc.

- Information Resources, Inc. (IRI) was organized in 1977 to apply new technology to the collection and analysis of market data on consumer purchasing. IRI develops and maintains data bases for batch and on-line processing services and markets decision support software and other applications software products primarily to the consumer packaged goods industry. IRI also provides marketing strategy testing services using its software and data bases.

- Revenue for 1985 reched $75.1 million, a 23% increase over $61.1 million in 1984. Net income icnreased from $5.9 million in 1984 to $8.7 million in 1985.

- In May 1985, IRI acquired Management Decision Systems, Inc. (MDS) and subsidiaries for approximately 1,022,000 shares of IRI common stock in exchange for all issued and outstanding shares of MDS. The acquisition has been accounted for as a pooling-of-interests. MDS currently operates as Information Resources (Massachusetts), Inc. (IRMI), a wholly owned subsidiary.

e. Shared Medical Systems Corporation

- Shared Medical Systems (SMS) was formed in 1969 by R. James Macaleer, Harvey J. Wilson, and Clyde Hyde to provide computer services to the hospital industry. The three founders were former IBM marketing representatives engaged in selling in-house systems to hospitals. In June 1976, SMS became a publicly held corporation.

- SMS is the largest computer services vendor to the hospital industry. Network and distributed processing services and applications software are provided to

nonfederal acute-care hospitals. The company also provides processing services, facilities management, and applications software to group medical practices. In 1983, the company became a value-added remarketer for IBM.

- Shared Medical Systems reports that approximately 60% of total revenue was derived from services associated with remote processing, 32% was derived from services and products associated with processing done on the clients' premises, and 8% was derived from the Physician Services Division.

- INPUT estimates that approximately 75% of Shared Medical Systems' 1985 revenue was derived from processing services, 20% from software/hardware leases and associated maintenance services for its distributed processing/turnkey systems, 2% from professional services (includes facilities management, custom programming, and consulting services), 1% from software licenses for in-hospital systems, and 2% from practice management services.

2. SOFTWARE PRODUCTS

- Growth stars for the software products market are listed in Exhibit IV-4.

a. Sterling Software, Inc.

- Sterling Software, Inc., founded in 1981, provides systems software and banking applications software for use on IBM and compatible mainframes and personal computers. The company was formed by a group of investors whose strategy is to acquire companies and products in selected segments of the software industry and to support these acquisitions with financial and managerial resources and, where appropriate, with a centralized marketing organization.

- In mid-1985 Sterling Software acquired Informatics General Corporation, a computer services company ten times its size. By acquiring Informatics,

EXHIBIT IV-4

PUBLIC SOFTWARE PRODUCTS "GROWTH STARS"

FIRMS	GROWTH (Percent)*	
	REVENUE	NET INCOME
Sterling Software	719%	407
VM Software	58%	71%
Duquesne Systems	46%	55%
Computer Associates International	45%	38%

* April thru December 1985 versus April thru December 1984

Sterling complemented its existing product line as well as branched out into the professional services marketplace.

b. VM Software, Inc.

- VM Software, Inc., founded in 1981, develops, markets, and supports systems software products for IBM's VM operating environment.

- VM Software markets a family of standard system software products for use with IBM's VM operating system that are designed to enhance the control, productivity, and security of a customer's data processing resources. The family consists of seven individual products which can be licensed separately or as an integrated product called VMCENTER . As of December 31, 1985, VM Software had licensed 3,529 products (treating VMCENTER as a single product) to 1,211 customers.

- In March 1985, VM software entered into an agreement with IBM granting IBM a ten-year, worldwide, nonexclusive right to license VM Software's VMBACKUP, VMARCHIVE, and VMTAPE systems software packages. In 1985, VM Software recorded $575,000 in revenue under this marketing agreement with IBM.

c. Duquesne Systems Inc.

- Duquesne Systems Inc. (DSI), founded in 1970, provides systems software products for computer performance management and capacity planning. The products are designed for IBM and IBM-compatible mainframes.

- Ninety-eight percent of DSI's fiscal 1985 revenue was derived from systems software licenses and maintenance agreements; the balance was derived from interest and other revenue.

- DSI's system productivity enhancement software products are designed to run on IBM and compatible mainframes under MVS and VSI. There are currently over 3,500 product installations in over 1,200 computer sites worldwide.

- DSI management attributes fiscal 1985 growth to a 35% growth in sales of existing products, the introduction of a new product in the second quarter of the year, a 64% increase in maintenance revenue, and price increases instituted in the fourth quarter of 1984.

d. Computer Associates International, Inc.

- Computer Associates International, Inc. (CAI) was incorporated in 1974 and now designs, develops, markets, and supports systems software, data base management, and applications software products for mainframes, minicomputers, and microcomputers.

- On April 25, 1985, Computer Associates International (CAI) acquired Value Software, Inc. for 128,823 shares of CAI common stock.

  - Value Software develops, markets, and supports systems software products for IBM mainframes. The company generated an estimated $7 million in revenue in 1984.

  - The acquisition was accounted for as a purchase.

3. PROFESSIONAL SERVICES

- Net income growth for the "growth stars" of public professional services firms shown in Exhibit IV-5 greatly exceeds already healthy revenue growth as market demand took the slack out of staff availability.

EXHIBIT IV-5

PUBLIC PROFESSIONAL SERVICES "GROWTH STARS"

FIRM	GROWTH (Percent)*	
	REVENUE	NET INCOME
Advanced Systems	32%	121%
Computer Task Group	37%	84%
Bolt Beranek and Newman (BBN)	37%	30%
BDM International	33%	33%

* April thru December 1985 versus April thru December 1984

a. Advanced System Applications, Inc.

- Advanced System Applications, a software development firm founded in 1977, markets on-line applications software and data processing services for the health insurance industry. ASA markets its insurance support software to health insurance carriers, Blue Cross and Blue Shield organizations, third-party administrators, and self-insured corporations.

- 1985 revenue is expected to reach $34 million, a 26% increase over $27 million in 1984.

- ASA management attributes the company's growth, in part, to rising health care costs and the continuing concern over health benefit cost management, which ASA addresses through productivity measures and cost containment features within their software products.

- In 1985, ASA acquired the Claims Administration System (CAS) Business Unit of System Development Corporation, a California-based company providing processing services and software for medical, dental, and disability insurance plans.

b. Computer Task Group, Inc.

- Computer Task Group, Inc. (CTG) was founded in 1966 and is one of the largest independent suppliers of computer-related professional services to the commercial market in the U.S.

  - Combining top executive management, marketing, effective product management, and outstanding professional education and training, CTG leverages the value-added skills of its professional staff.

  - Focusing on finance and manufacturing markets, including process control, CTG provides multi-site services to over 30 of the 50 largest Fortune 500/50 industrial/financial corporations.

c. Bolt Beranek and Newman Inc. (BBN)

- Bolt Beranek and Newman Inc. (BBN) was founded in 1948 to provide consulting services in architectural acoustics and noise control. Currently, BBN designs and builds integrated, wide-area digital communications networks for government and industry; provides research, development, and consulting services in computer and information sciences and physical sciences; and develops and markets applications software products.

- BBN's business is conducted through three wholly owned subsidiaries, as follows:

  - BBN Communications Corporation provides data network products and services.

  - BBN Laboratories Incorporated provides research, development, and consulting services in computer and information sciences and non-computer-related physical sciences.

  - BBN Software Products Corporation markets and supports data analysis software products for use by scientists, engineers, and technicians.

- The greatest portion of revenue increases were from the computer and communications products segment and were attributed to higher volume in sales of hardware components and systems engineering for computer communications networks. Software product revenue increases have resulted primarily from continued strong market acceptance of BBN's RS/1 software package.

d. BDM International, Inc.

- BDM International, Inc. is a major provider of professional services in national defense and security, communications, and manufacturing technology.

- In April 1986 the company completed a public stock offering of 1.45 million shares of Class A common stock which resulted in proceeds to BDM of about $40 million. The proceeds will be used for working capital and to fund future growth.

4. TURNKEY SYSTEMS

- Becoming highly successful in strategically selected vertical markets characterizes the public turnkey systems growth stars shown in Exhibit IV-6.

a. HBO & COMPANY

- HBO & Company, formed in 1974, designs, markets, and services turnkey hospital and medical clinic information systems. HBO is the third largest computer services vendor of hospital information systems.

- HBO management attributes its substantial growth in revenue to the growth in installation activity for larger and more complex systems, an increase in add-on sales to existing customers, an increase in contributions made by the IFAS and CLINSTAR systems, an expanded revenue base provided by service agreements on systems installed in prior years, an increase in computer hardware sales, and, to a lesser extent, price increases.

- Effective February 28, 1985, HBO acquired Mediflex Systems Corporation and Amherst Associates Inc. The transactions were accounted for as pooling their interests and were effected by exchanging approximately 7.4 million shares of HBO common stock for the common stock of Amherst Associates and Mediflex Systems.

EXHIBIT IV-6

PUBLIC TURNKEY SYSTEMS "GROWTH STARS"

COMPANY	GROWTH (Percent)*	
	REVENUE	NET INCOME
HBO	112%	40%
Daisy Systems	59%	77%
Reynolds & Reynolds	11%	28%
Intergraph	28%	2%

* April thru December 1985 versus April thru December 1984

- Amherst Associates provides planning and financial modeling processing services, microcomputer software, turnkey systems, and management consulting to hospitals and other health care organizations.

- Mediflex Systems provides facilities management professional services, processing services, and IBM-based applications software products, primarily to hospitals and multi-housing groups.

b. Daisy Systems Corporation

- Daisy Systems Corporation, founded in 1980, designs, manufactures, markets, and services computer-aided engineering (CAE) turnkey systems for the electronics industry. Daisy systems support design entry, verification, test development, and physical layout functions. During 1985, Daisy became a value-added reseller for the DEC Micro VAX II.

- Daisy management attributes increases in revenue to continued growth of the CAE marketplace and increased shipments of the company's existing as well as newly introduced products.

c. The Reynolds and Reynolds Company

- The Reynolds and Reynolds Company (Reynolds) was founded in 1866 in Dayton (OH) to manufacture and distribute standard and custom business forms. In addition to manual business forms, Reynolds now provides batch and remote computing services, turnkey systems, and microcomputer-based terminals, primarily to automobile dealerships. Products and services are also marketed to accountants and medical practices.

- INPUT estimates that in fiscal 1985 approximately 60% of Reynold's Computer Systems segment revenue was derived from turnkey systems sales and support, 15-20% from processing services, and the remainder from terminal sales.

- Reynolds' market has been in providing processing services and turnkey systems to automotive dealerships. Although this market still generates the majority of revenue, Reynolds has expanded its processing services to accountants and now also markets turnkey systems to medical practices.

- Reynolds has installed mroe than 17,000 turnkey systems in dealerships. The company's current product line, VIM/NET 5, introduced in early 1986, is based on the NCR Tower minicomputer.

d. Intergraph Corporation

- Intergraph, incorporated in Alabama in 1969 as M&S Computing, Inc., designs, manufactures, markets, and supports turnkey computer-aided engineering/computer-aided design/computer-aided manufacturing (CAE/CAD/CAM) interactive graphics and data base management systems. The company also provides professional services and engineering consulting.

- Intergraph management attributes the slower rate of revenue growth during 1985 primarily to the following:

  - The average cost-per-seat (cost-per-workstation) declined as a result of the advent of microcomputers as makeshift graphics tools, price-cutting by financially ailing graphics firms, and lower cost per function of new hardware products. Although the number of workstations sold increased significantly over previous years, revenue grew at a slower rate.

  - An uncertain economy caused delays and reductions of capital spending by industrial firms.

V PROCESSING SERVICES SECTOR ANALYSIS

V PROCESSING SERVICES SECTOR ANALYSIS

A. PROCESSING SERVICES MARKET, 1985

- Total processing services revenue from all types of companies was $16.4 billion in 1985, a 10% growth over 1984. This represents a 35% share of the information services marketplace compared to 36% in 1984.

- INPUT predicts the growth in this sector of the industry will gradually accelerate so that expenditures will have doubled by 1990.

- The fundamental reason for growth in this segment is the change of emphasis in user demand and vendor services from computing cycles to network connectivity. This is represented by the change in name from processing to processing/network services.

- There is a $100 million difference (decrease) in user expenditures versus vendor revenues. This is primarily caused by double counting due to reselling in the VAN market. Consequently, 1985 processing user expenditures is $16.3 billion, 1985 vendor revenue $16.4 billion.

- Processing services vendors have become steadily more active in other service areas (i.e., software products, professional services, and turnkey systems) and now obtain 18% of their total revenue from these nonprocessing services activities.

- The source of processing services companies' revenue in 1984 and 1985 is seen in Exhibit V-1, which shows that an increasing share of the processing services companies' growth comes from other activities. Professional services is the favored target, but all three of the other activities grew above 10% in 1985, with most modes well above the growth of the main body of revenue (processing services). However, this trend has subsided this year as compared to the past two years.

B. PUBLIC PROCESSING SERVICES/NETWORK SERVICES COMPANIES

- The processing/network services sector demonstrated 15% growth on a rolling three-quarters basis and 14% on a rolling two-quarters basis, continuing the trend set during the past several quarters (see Exhibits V-2 through V-4).

- Steady growth in revenue continued for the processing/network services sector first quarter 1986. However, a slowdown in earnings growth occurred first quarter 1986 after dramatic growth in third and fourth quarters 1985.

- Overall growth rate for 1985 was 15%, compared to a 22% growth rate for 1984. Growth rate for 1984 reflects changes made in our list of public processing/network services companies--First Data Resources was omitted due to its acquisition by American Express, and GTECH was added.

- For the first three rolling quarters and for 1985 overall, strong revenue growth was exhibited by CCX Network, Computer Network, Computone (with poor net income results), GTECH, and Telerate.

- Anacomp achieved substantial growth (110%) in net income in 1985, after experiencing heavy losses in every quarter of 1984. Excluding Anacomp, the overall growth rate in net income was 26%.

EXHIBIT V-1

PROCESSING SERVICES COMPANIES' REVENUE AND GROWTH RATES BY MODE OF SERVICE

PROCESSING SERVICES REVENUE ($ Billions/Year)	REVENUE SOURCE BY MODE OF SERVICE				TOTAL BY COMPANY
	Processing Services	Software Products	Professional Services	Turnkey Systems	
1984	$13.9	$0.9	$1.3	$0.9	$17.0
1985	$15.3	$1.0	$1.5	$1.0	$18.8
Growth Rate (Percent)	10%	16%	20%	11%	11%
Percent of Total 1985 Market by Type of Vendor	82%	5%	8%	5%	100%

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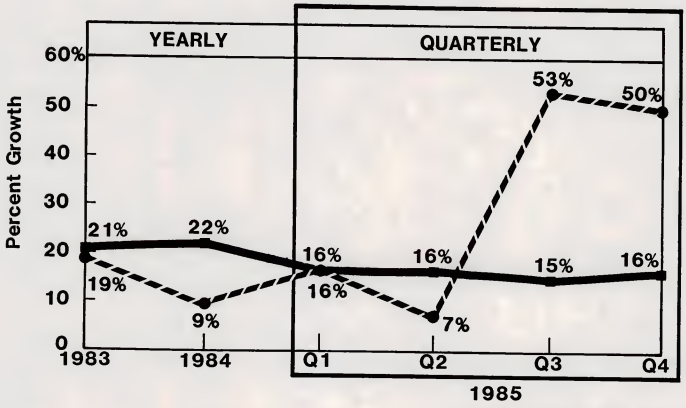
PUBLIC PROCESSING SERVICES VENDORS



REVENUES OF PUBLIC PROCESSING SERVICES COMPANIES

COMPANY NAME	FISCAL YEAR END	REVENUE ($ Thousands) 1984 Q1	Q2	Q3	Q4	TOTAL	1985 Q1	Q2	Q3	Q4	TOTAL	GROWTH (Percent) 1985/1984 %(+/-)	LAST 3 MONTHS ROLLING QUARTRS	LAST 2 MONTHS ROLLING QUARTRS
ADP	06-30	234915	233195	236557	253620	958287	273528	266310	270710	290258	1100806	15	14	14
ANACOMP	09-30	35360	32615	29136	31532	128643	31782	32183	27620	28283	119868	-7	-6	-8
CCX NETWORK	12-31	2580	2810	3274	3141	11805	3319	3969	3899	4641	15828	34	36	33
CITIZENS FIN.	09-30	2620	2504	2458	2423	10005	2683	2551	2494	2735	10463	5	5	7
COMDATA NTWK	12-31	19755	19939	20547	20945	81186	22400	23842	23275	22242	91759	13	13	10
COMPUTER LAN	12-31	35301	26303	17280	19300	98184	36587	24770	17798	19574	98729	1	-1	2
COMPUTER NET	03-31	2684	1787	4345	7848	16664	8800	8726	9056	8952	35534	113	91	48
COMPUTER RES	08-31	2033	1946	1914	2006	7899	2028	1789	1837	1936	7590	-4	-5	-4
COMPUTER SER	02-28	2525	2400	2420	2514	9859	2604	2717	2766	2866	10953	11	14	14
COMPUTONE	05-31	8728	10030	9204	12743	40705	21089	18003	17501	20856	77449	90	76	75
COMSHARE	06-30	18016	18783	16725	15473	68997	14846	16010	16879	18179	65914	-4	0	9
CYCARE	12-31	7987	9402	10931	11754	40074	9938	11611	13281	14361	49191	23	22	22
DST SYSTEMS	12-31	13405	14709	14856	15157	58127	17430	18941	18401	20170	74942	29	29	29
DYATRON	12-31	8503	8305	8248	14460	39516	9592	9574	10568	10369	40103	1	-2	-8
EPSILON	05-31	10065	12779	11265	10210	44319	12072	14020	11227	13410	50729	14	13	15
FIDATA	12-31	36990	39207	38086	38000	152283	33007	31557	24200	29261	118025	-22	-26	-30
FIRST DATA MGT	12-31	7635	8522	9158	9313	34628	9274	9281	9054	8609	36218	5	0	-4
GTECH	02-25	16502	6039	7578	10017	40136	22036	13163	12717	27092	75008	87	124	126
GENESEE	05-31	225	275	317	347	1164	351	402	222	240	1215	4	-8	-30
INFO RESOURCES	12-31	13891	14332	15568	17298	61089	17458	18332	18261	21007	75058	23	22	19
KEYDATA	07-31	1423	1416	1163	1158	5160	1107	987	912	1279	4285	-17	-15	-6
NATL DATA	05-31	37146	34061	33752	34867	139826	36576	36103	38136	37067	147882	6	8	10
NETWORK D.P.	03-31	628	833	659	657	2777	650	763	694	780	2887	4	4	12
NUMERAI	06-30	2094	2184	2304	2404	8986	2499	2663	2494	2638	10294	15	13	9
PAYCHEX	05-31	8049	8683	9577	9917	36226	10936	10936	11700	12077	45649	26	23	22
PAY-FONE	06-30	1305	1425	1698	1980	6408	1713	1614	1686	1980	6993	9	3	0
QUOTRON	12-31	44493	46831	47921	50754	189799	48813	50449	52365	54059	205686	8	8	8
SCI. COMPTR	06-30	3857	4059	3358	3718	14992	3696	3669	3030	3622	14017	-7	-7	-6
SEI	12-31	23037	23043	23968	23655	93703	25029	26894	26890	26929	105742	13	14	13
SHARED MED.	12-31	59763	62818	65726	68446	256753	72708	76876	80292	82332	312208	22	22	21
SYSTEMATICS	05-31	20455	20662	21896	22642	85655	24443	26894	28235	30908	110480	29	32	33
TELECREDIT	04-30	18924	20244	19602	23813	82583	21639	22743	23233	29749	97384	18	19	22
TELERATE	09-30	27460	29323	31574	34209	122566	36926	40661	41757	44986	164330	34	34	32
TSR	05-31	4512	4449	4485	4481	17927	4420	4893	4569	4844	18726	4	7	5
TOTALS		732866	725713	727550	780802	2966931	841979	833896	827759	898311	3401945	15	15	14
												34 COMPANIES		
TOTALS WITHOUT ANACOMP		697506	693098	698414	749270	2838288	810197	801713	800139	870028	3282077	16	15	15

NET INCOME OF PUBLIC PROCESSING SERVICES COMPANIES

COMPANY NAME	FISCAL YEAR END	NET AFTER TAX INCOME ($ Thousands)										GROWTH (Percent)		
		1984					1985					1985/ 1984 Σ(+/-)	LAST 3 ROLLING QUARTRS	LAST 2 ROLLING QUARTRS
		Q1	Q2	Q3	Q4	TOTAL	Q1	Q2	Q3	Q4	TOTAL			
ADP	06-30	22100	21830	15395	20137	79462	26140	26178	18685	24590	95593	20	21	22
ANACOMP	09-30	-27846	-9258	-43312	-2467	-82883	6467	666	745	99	7977	110	103	102
CCX NETWORK	12-31	215	206	514	242	1177	172	352	418	448	1390	18	27	15
CITIZENS FIN.	09-30	393	282	329	254	1258	400	307	297	351	1355	8	10	11
COMDATA NTWK	12-31	3075	3637	3881	2674	13267	3400	3092	3353	2877	12722	-4	-9	-5
COMPUTER LAN	12-31	7145	2762	-1585	-1751	6571	7164	1784	-1785	-2516	4647	-29	-339	-29
COMPUTER NET	03-31	33	-538	-541	107	-939	513	56	115	-1591	-907	3	-46	-240
COMPUTER RES	08-31	114	128	0	21	263	80	-33	-27	21	41	-84	-126	-129
COMPUTER SER	02-28	300	240	205	240	985	185	220	229	241	875	-11	1	6
COMPUTONE	05-31	-818	305	208	266	-39	423	55	-207	-504	-233	-497	-184	-250
COMSHARE	06-30	415	475	-215	-5479	-4804	577	350	171	176	1274	127	113	106
CYCARE	12-31	473	555	731	841	2600	281	309	993	1281	2864	10	21	45
DST SYSTEMS	12-31	2348	2846	2694	1977	9865	2529	2352	2089	1298	8268	-16	-24	-27
DYATRON	12-31	34	-267	-71	806	502	355	301	445	1158	2259	350	307	118
EPSILON	05-31	257	576	-140	176	869	143	396	-338	158	359	-59	-65	-600
FIDATA	12-31	733	1561	-12924	-2622	-13252	1025	-343	-228	1685	2139	116	108	109
FIRST DATA MGT	12-31	646	700	751	989	3086	1821	1777	1551	740	5889	91	67	32
GTECH	02-25	2892	47	587	953	4479	2723	207	457	1863	5250	17	59	51
GENESEE	05-31	4	27	25	28	84	27	22	4	5	58	-31	-61	-83
INFO RESOURCES	12-31	1293	1161	1721	1736	5911	3189	2087	1971	2938	10185	72	51	42
KEYDATA-	07-31	-4	35	-10	-215	-194	18	64	-309	176	-51	74	64	41
NATL DATA	05-31	3191	3280	1106	1876	9453	2220	2340	2539	2635	9734	3	20	74
NETWORK O.P.	03-31	-14	212	-70	-79	49	-49	72	-120	51	-46	-194	-95	54
NUMERAX	06-30	103	86	124	175	488	173	184	89	126	572	17	4	-28
PAYCHEX	05-31	378	413	684	785	2260	608	905	1017	959	3489	54	53	35
PAY-FONE	06-30	-151	-237	83	105	-200	-67	87	-17	138	141	171	524	-36
QUOTRON	12-31	6917	6867	6425	6614	26823	5822	5650	4556	6040	22068	-18	-18	-19
SCI. COMPTR	06-30	317	331	181	10	839	184	192	1	41	418	-50	-55	-78
SEI	12-31	927	936	622	-1928	557	885	955	1016	1087	3943	608	926	261
SHARED MED.	12-31	7535	8195	7729	9333	32792	9359	10050	10868	11471	41748	27	28	31
SYSTEMATICS	05-31	1395	1658	1526	2257	6836	2230	2632	2522	2841	10225	50	47	42
TELECREDIT	04-30	1104	1473	925	918	4420	65	870	783	2224	3942	-11	17	63
TELERATE	09-30	6900	7536	7751	8180	30367	8657	8227	8335	8444	33663	11	7	5
TSR	05-31	254	316	512	529	1611	590	388	312	300	1590	-1	-26	-41
TOTALS		42658	58376	-4159	47688	144563	88309	72751	60530	71851	293441	103	101	204
TOTALS WITHOUT ANACOMP		70504	67634	39153	50155	227446	81842	72085	59785	71752	285464	26	30	47

- Net income for fourth quarter 1985 grew 50% over fourth quarter 1984. A comparison of the last two rolling quarters for 1985 and 1984 yields a 47% growth rate. Performance in net income was significantly less during the first two quarters of 1985.

- With respect to net income, processing/network services companies hit the hardest in 1985 were Computer Research, Computone, Epsilon, Network Data Processing, and Scientific Computers.

- The group with the highest earnings growth in 1985 included Anacomp, Comshare, Dyatron, Fidata, First Data Management, Pay-Fone, and SEI.

C. LARGEST AND FASTEST GROWING PROCESSING SERVICES VENDORS

- All of the top 15 largest processing services vendors are either major corporation in their own right (ADP, CDC, Shared Medical, Quotron, etc.) or subsidiaries of major corporations (EDS, McDonnell Douglas Information Services, GEISCO, etc.), as shown in Exhibit V-5.

- Exhibit V-6 provides a list of the fastest growing processing services vendors in 1985 with revenue over $15 million.

EXHIBIT V-5

LARGEST PROCESSING SERVICES VENDORS

RANK 1985	COMPANY
1	Automatic Data Processing
2	Electronic Data Systems
3	Control Data Corporation
4	McDonnell Douglas Information Services
5	General Electric Information Services
6	Dun & Bradstreet - Business Information Services
7	Boeing Computer Serivces
8	Equifax, Inc.
9	Computer Sciences Corp.
10	Quotron Systems, Inc.
11	Telerate
12	McGraw-Hill, Inc.
13	First Data Resources, Inc.
14	TRW Information Services
15	National Data Corporation
16	MTECH
17	Shared Medical Systems
18	International Business Machines (IBM)
19	Business Services - Bank of America
20	Mead Data Central
21	CCH Computax, Inc.
22	Bunker Ramo Information Systems Division
23	Martin Marietta Data Systems
24	Fidata
25	GTE Corporation

EXHIBIT V-6

FASTEST GROWING PROCESSING SERVICES VENDORS

RANK 1985	COMPANY	GROWTH 1984-1985 (Percent)
1	Lockheed Corporation	1,100%
2	The Continuum Company	700%
3	Martin Marietta Data Systems	107%
4	Policy Management Systems	73%
5	Telerate, Inc.	72%
6	Boeing Computer Services	48%
6	The Computer Company	48%
7	Systematics, Inc.	36%
8	Cycare Systems, Inc.	31%
8	UCCEL Corporation	31%

VI SOFTWARE PRODUCTS SECTOR ANALYSIS

VI SOFTWARE PRODUCTS SECTOR ANALYSIS

A. SOFTWARE PRODUCTS MARKET, 1984

- In 1986 revenue of companies from software products reached $12.3 billion, a 19% growth over 1984. In spite of this growth, many vendors had anticipated the 50-100% growth that had been experienced in previous years. Consequently, they had overproduced and overstaffed, which negatively affected overall net income.

  - A rough way of determining the user expenditures is to double the micro software vendor revenue.

    . In 1985, this amounted to an addition of about $1.35 billion to the revenue base of $12.3 billion for a total of $13.65 billion in software product user expenditure.

  - Of secondary importance in determining software product user expenditure is accounting for double counting or the reselling of a specific software product by a second vendor, e.g., IBM reselling Hogan banking software. Therefore, from the revenue base 5% is subtracted out.

  - The 1985 user expenditures for software products were $13 billion.

- The source of software products companies' revenue by type of activity is shown in Exhibit VI-1.

  - Software products vendors grew their own market at a higher rate than their activities in most other markets.

  - The exception to this is professional services, which was the main source of revenue outside of software products (in excess of $1 billion in 1985).

B. PUBLIC SOFTWARE PRODUCT COMPANIES

- The software products sector experienced a slowdown in growth in 1985. Overall growth rate in revenue for 1985 was 15%, compared to 33% for 1984 (see Exhibits VI-2 through VI-4).

- The software products sector outperformed the other information services sectors in first quarter 1986, experiencing excellent growth in both revenue and net income.

- Ashton-Tate, Computer Associates, Duquesne Systems, Innovative, Oracle, Software Services of America, Sterling Software, and VM Software performed well in 1985, experiencing substantial growth in both revenue and net income for the year.

  - Results for Sterling Software reflect its acquisition of Informatics.

  - Revenue for Software Services of America grew 49% in 1985, and net income grew 62%. However, the company experienced losses in second and third quarters and a loss for the year.

EXHIBIT VI-1

SOFTWARE PRODUCTS COMPANIES' REVENUE AND GROWTH RATES BY MODE OF SERVICE

SOFTWARE PRODUCTS REVENUE ($ Billions/Year)	REVENUE SOURCE BY MODE OF SERVICE				TOTAL BY COMPANY
	Processing Services	Software Products	Professional Services	Turnkey Systems	
1984	$.18	$8.62	$1.05	$.19	$10.04
1985	$.20	$10.25	$1.28	$.21	$11.94
Growth Rate (Percent)	10%	19%	22%	11%	19%
Percent of Total 1985 Market by Type of Vendor	2%	83%	12%	3%	100%

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PUBLIC SOFTWARE PRODUCTS VENDORS

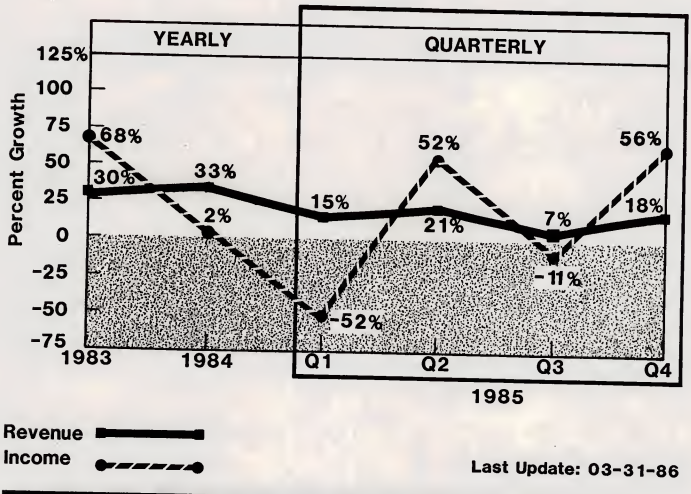

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EXHIBIT VI-3

REVENUES OF PUBLIC SOFTWARE PRODUCTS COMPANIES

COMPANY NAME	FISCAL YEAR END	REVENUE ($ Thousands) 1984 Q1	Q2	Q3	Q4	TOTAL	1985 Q1	Q2	Q3	Q4	TOTAL	GROWTH (Percent) 1985/1984 Σ(+/-)	LAST 3 ROLLING QUARTRS	LAST 2 ROLLING QUARTRS
AMERICAN S/W	04-30	5657	6581	7189	7992	27419	7813	8828	10188	8937	35766	30	28	26
APPLIED COMM	09-30	5676	6697	6875	5490	24738	6833	7997	8128	7336	30294	22	23	25
ASHTON TATE	01-31	11207	19193	24709	27172	82281	23971	27501	28590	41509	121571	48	37	35
BGS SYSTEMS	01-31	1586	1772	2217	3617	9192	2546	2500	2349	3768	11163	21	13	5
BPI SYSTEMS	03-31	2635	2495	2800	1692	9622	2361	2344	2519	2883	10107	5	11	20
BOOLE & BABB.	09-30	7585	6525	8300	6021	28431	7332	7255	7877	7838	30302	7	10	10
CONSERV	12-31	5487	6291	6326	6771	24875	4520	8824	6180	8990	28514	15	24	16
COMPUTER AS.	03-31	24528	22009	31056	38766	116359	37169	31257	41994	60101	170521	47	45	46
CONTINUUM	03-31	8314	9157	9999	11410	38880	17827	13945	14035	12447	58254	50	32	24
CULLINET	04-30	35149	40265	43684	47423	166521	52728	42277	43167	44631	182803	10	-1	-4
CYBERTEK	03-31	6021	4790	5359	5758	21928	5482	4529	5408	6655	22074	1	4	9
DUQUESNE SYS.	09-30	1871	2088	2294	2474	8727	2663	2870	3070	4040	12643	45	46	49
HEALTH SYS.	06-30	3303	4400	1712	1713	11128	100	714	1516	863	3193	-71	-60	-31
HOGAN SYS.	03-31	16469	6695	11342	4604	39110	5604	4066	6586	9184	25440	-35	-12	-1
INFORMATICS	12-31	50921	50076	53835	56982	211814	49918	55443			105361	-50	-66	-100
INF. SCIENCE	04-30	12087	7336	6626	8038	34087	6849	6589	4389	4469	22296	-35	-30	-40
INNOVATIVE	06-30	707	489	1380	1833	4409	1495	1382	2594	2829	8300	88	84	69
ISSCO	12-31	5904	6970	8852	11906	33632	7663	8673	11167	12864	40367	20	18	16
LOTUS DEV.	12-31	28269	32628	45649	50432	156978	44679	59276	49724	71847	225526	44	41	27
MPSI	09-30	4404	6041	6112	4767	21324	4846	5172	6893	4776	21687	2	0	7
MSA	12-31	28369	28541	28516	56390	141816	24974	38124	30919	57644	151661	7	12	4
MICROPRO INT'L	08-31	18887	15661	12384	11679	58611	9959	10275	10736	10357	41327	-29	-21	-12
NCA CORP	12-31	5501	6113	5115	6853	23582	5194	6054	5869	4626	21743	-8	-8	-12
ON-LINE S/W	05-31	6666	6182	6583	6891	26322	7322	8226	7751	8566	31865	21	25	21
ORACLE *	05-31	3844	4226	3558	5627	17255	5516	8458	7070	11447	32491	88	101	102
PANSOPHIC	04-30	14966	12505	16658	20050	64179	18117	16257	18883	24350	77607	21	21	18
POLICY MGMT	12-31	19276	20977	21316	23246	84815	25032	25725	25736	26338	102831	21	19	17
SCIENTIFIC S.	12-31	10323	9142	8332	11084	38881	7429	8144	7907	5339	28819	-26	-25	-32
SOFTECH	05-31	10922	10884	7990	9054	38850	8998	10391	9520	11096	40005	3	11	21
SOFTWARE AG	05-31	10528	12030	11938	12657	47153	12055	14110	16036	16353	58554	24	27	32
SOFTWARE PUB.	09-30	5309	6765	8061	12461	32596	8569	9030	7121	6944	31664	-3	-15	-31
S/W SVC. AM.	05-31	60	351	798	625	1834	606	405	228	1502	2741	49	20	22
‡ STERLING S/W	09-30	4797	4582	5063	4850	19292	6043	6751	42456	69498	124748	547	719	1029
STOCKHLDR SYS.	03-31	2717	2168	3402	3191	11478	3268	2595	3735	2958	12556	9	6	2
UCCEL	12-31	39042	42974	42709	48708	173433	46144	48943	50587	59040	204714	18	18	20
VM SOFTWARE	12-31	1695	2691	2731	3982	11099	3191	4206	4258	6376	18031	62	58	58
TOTALS		420682	428290	471470	542209	1862651	484816	519136	505186	638401	2147539	15	15	13

35 COMPANIES

‡ REFLECTS ACQ. OF INFORMATICS, PENDING RESTATEMENT

EXHIBIT VI-4

NET INCOME OF PUBLIC SOFTWARE PRODUCTS COMPANIES

COMPANY NAME	FISCAL YEAR END	NET AFTER TAX INCOME ($ Thousands) 1984 Q1	Q2	Q3	Q4	TOTAL	1985 Q1	Q2	Q3	Q4	TOTAL	GROWTH (Percent) 1985/1984 Σ(+/-)	LAST 3 QUARTRS ROLLING	LAST 2 QUARTRS ROLLING
AMERICAN S/W	04-30	961	1181	1235	1666	5043	1388	1282	1495	1307	5472	9	0	-3
APPLIED COMM	09-30	673	926	1007	147	2753	734	1395	1218	609	3956	44	55	58
ASHTON TATE	01-31	149	682	3483	3149	7463	2344	3456	4800	5967	16567	122	94	62
BGS SYSTEMS	01-31	138	250	325	622	1335	143	92	23	860	1118	-16	-19	-7
BPI SYSTEMS	03-31	269	-72	-1563	-714	-2080	-212	56	116	154	114	105	114	112
BOOLE & BABB.	09-30	468	206	874	-480	1068	-407	-1022	-4077	266	-5240	-591	-906	-1067
CONSERV	12-31	-2840	-1874	-1135	-9747	-15596	-1967	1775	-519	1902	1191	108	125	113
COMPUTER AS.	03-31	2694	1024	2231	6283	12232	3562	1397	3196	8613	16768	37	38	39
CONTINUUM	03-31	518	1374	1107	1179	4178	2064	169	98	-737	1594	-62	-113	-128
CULLINET	04-30	4812	5501	5977	6354	22644	6900	4233	3638	3846	18617	-18	-34	-39
CYBERTEK	03-31	995	454	370	273	2092	479	-334	-141	720	724	-65	-78	-10
DUDUESME SYS.	09-30	354	390	407	586	1737	582	564	640	941	2727	57	55	59
HEALTH SYS.	06-30	473	666	-348	-348	443	-1238	-1299	-883	-1560	-4980	-1224	-12373	-251
HOGAN SYS.	03-31	4673	-1485	1007	-1352	2843	-12018	-2992	-443	816	-14637	-615	-43	208
INFORMATICS	12-31	673	-1176	1050	4133	4680	68	-579			-511	-111	-114	-100
INF. SCIENCE	04-30	1554	-1053	-1808	-6219	-7526	-2947	-847	-2791	106	-6479	14	61	67
INNOVATIVE	06-30	-162	-1430	-812	-588	-2992	-298	-584	550	620	288	110	121	104
ISSCO	12-31	247	472	1184	2325	4228	420	613	1387	2086	4506	7	3	-1
LOTUS DEV.	12-31	7495	7647	9102	11802	36046	9631	10744	6361	11414	38150	6	0	-15
MPSI	09-30	180	712	523	-50	1365	47	439	1263	535	2284	67	89	280
MSA	12-31	484	-1662	-1791	3212	243	-2721	3063	-3493	10011	6860	2723	4076	359
MICROPRO INT'L	08-31	3130	620	-756	-620	2374	-870	468	1229	657	1484	-37	411	237
NCA CORP	12-31	307	265	-502	155	225	-1202	-55	-528	-3621	-5406	-2503	-5027	-1096
ON-LINE S/W	05-31	-241	-1149	-349	194	-1545	380	646	446	578	2050	233	228	761
ORACLE *	05-31	697	61	-284	222	696	141	1472	111	1147	2871	313	273100	2129
PANSOPHIC	04-30	2197	1174	3001	4374	10746	3266	2038	3355	4923	13582	26	21	12
POLICY MGMT	12-31	3070	3371	3587	3680	13708	3827	3994	3513	3053	14387	5	-1	-10
SCIENTIFIC S.	12-31	634	102	406	827	1969	-342	147	601	-2744	-2338	-219	-250	-274
SOFTECH	05-31	301	547	-347	135	636	198	-1757	442	500	-617	-197	-343	544
SOFTWARE AG	05-31	1662	1783	1873	1876	7194	1276	990	2880	2134	7280	1	9	34
SOFTWARE PUB.	09-30	743	1065	977	2555	5340	1304	1139	845	617	3905	-27	-43	-59
S/W SVC. AM.	05-31	-399	-171	-43	100	-513	175	-480	-191	301	-195	62	-225	93
‡ STERLING S/W	09-30	340	335	245	247	1167	641	576	1459	2159	4835	314	407	635
STOCKHLDR SYS.	03-31	375	304	667	524	1870	514	350	710	363	1937	4	-5	-10
UCCEL	12-31	779	1649	3583	6024	12035	2362	3560	3022	7355	16299	35	24	8
VM SOFTWARE	12-31	157	527	339	784	1807	319	591	669	1563	3142	74	71	99
TOTALS		38560	23216	34822	43310	139908	18543	35300	31001	67461	152305	9	32	26

35 COMPANIES

‡ REFLECTS ACQ. OF INFORMATICS, PENDING RESTATEMENT

- Revenue for Lotus grew at 44% in 1985; however, net income grew at only 6%. Performance declined in the third and fourth quarters, with the two rolling quarters analysis showing a -15%. Results were not consistent between other relatively large software companies, such as Cullinet, MSA, Policy Management, and UCCEL.

- Overall, net income results were poor in the first and third quarters of 1985. For the year, net income grew 9%. Profitability for this sector of the information services industry, however, appears to be improving. The last three rolling quarters in 1985 grew 32% from the same period in 1984.

- Profitability for the software products sector appears to be improving. For first quarter 1986, net income growth rate was 82%.

C. LARGEST AND FASTEST GROWING SOFTWARE PRODUCTS VENDORS

- It is no surprise that the top software products vendor in 1985 as well as 1984 was IBM. The software market (or "program products," using IBM's terminology) is a major revenue growth and net income opportunity for IBM. The industry giant has seen its software products revenue growing very rapidly and has begun to target both applications and system software markets. Exhibit VI-5 lists the vendors by size of software products revenue in 1985.

- Exhibit VI-6 lists the top software products vendors with revenue over $20 million in both 1984 and 1985 and growth rates over 50% by growth rate in 1985.

- Five out of the top seven vendors in this list are micro software-based companies that will find 1986 a much tougher year in which to succeed.

- Sterling Software's #1 rank is due to their acquisition of Informatics General, a leading software vendor.

EXHIBIT VI-5

LARGEST SOFTWARE PRODUCTS COMPANIES

RANK 1985	COMPANY
1	International Business Machines (IBM)
2	Digital Equipment Corp.
3	Lotus Development Corp.
4	Cullinet Software
5	Microsoft Corp.
6	Computer Associates International, Inc.
7	Management Science America
8	Tandy Corp.
9	Applied Data Research
10	Sperry Corp.
11	UCCEL Corp.
12	Ashton-Tate
13	Apple Computer
14	SAS
15	Burroughs
16	Tandem Computers, Inc.
17	Hewlett Packard
18	Data General Crop.
19	Wang
20	Information Builders
21	Pansophic Systems
22	Martin Marietta Data Systems
23	Honeywell
24	Sterling Software
25	TRW
26	NCR

EXHIBIT VI-6

FASTEST GROWING SOFTWARE PRODUCTS COMPANIES

RANK 1985	COMPANY	GROWTH 1984-1985 (Percent)
1	Sterling Software, Inc.	258%
2	Lotus Development Corp.	165%
3	Apple Computer Inc.	100%
3	Tandy Corporation	100%
5	Martin Marietta Data Systems	96%
6	The Kirchman Corporation	85%
7	SAS Institute	77%
8	Information Builders Inc.	72%
9	Data General	70%
9	Computer Associates International	70%
11	Software AG	68%
12	GEISCO	62%
13	Burroughs Corp.	56%
14	Tandem Cormputers	50%

VII PROFESSIONAL SERVICES SECTOR ANALYSIS

VII PROFESSIONAL SERVICES SECTOR ANALYSIS

A. PROFESSIONAL SERVICES MARKET, 1984

- In 1985, the professional services market reached $10.6 billion in sales, growing 19%, well above the information services industry average.

- In the professional service segment, vendor revenue is equal to user expenditure.

- Inroads were made into the professional services market by other types of vendors, particularly the software products vendors who rapidly expanded their activities in 1985. It is far easier for a software products vendor to add professional services activities than it is for a professional services vendor to add software products.

- Exhibit VII-1 shows the growth rates of each category of activity for professional services vendors.

  - The fastest growing markets were software products and professional services.

  - The largest market outside of professional services was software products, which provided 9% of revenue in 1985.

EXHIBIT VII-1

PROFESSIONAL SERVICES COMPANIES' REVENUE AND GROWTH RATES BY MODE OF SERVICE

PROFESSIONAL SERVICES REVENUE ($ Millions/Year)	REVENUE SOURCE BY MODE OF SERVICE				TOTAL BY COMPANY
	Processing Services	Software Products	Professional Services	Turnkey Systems	
1984	$578	$664	$6,283	$267	$7,792
1985	$636	$798	$7,508	$298	$9,240
Growth Rate (Percent)	10%	20%	20%	11%	19%
Percent of Total 1985 Market by Type of Vendor	7%	9%	81%	3%	100%

B. PUBLIC PROFESSIONAL SERVICES COMPANIES

- Exhibits VII-2 through VII-4 show the trend in both revenue and net income over the last three years.

- The professional services sector continued to show signs of accelerating from a fairly stable growth in revenue.

  - Growth rate for 1985 from 1984 was 20% compared to a 13% growth rate for the previous year.

  - Revenue for fourth quarter 1985 grew 22% over fourth quarter 1984.

- In first quarter 1986 the professional services sector continued to grow at approximately the same rate as in the previous three quarters. The revenue growth rate for the quarter was 20%.

- Net income for fourth quarter 1985 for the professional services sector decreased 21% from fourth quarter 1984.

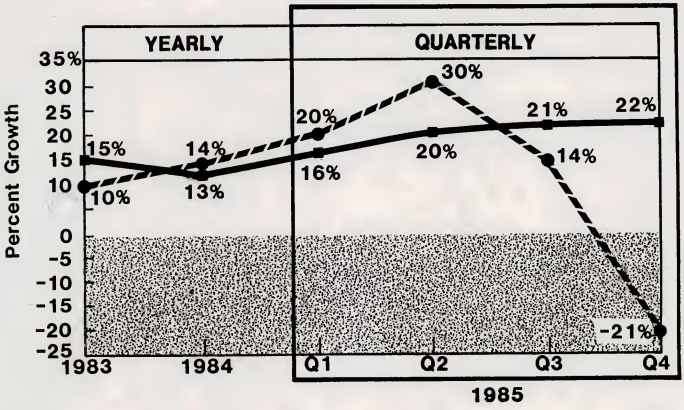
  - For the third, second, and first quarters in 1985, compared to the same periods in 1984, growth rates were 14%, 30%, and 20%, respectively.

  - The growth in earnings for 1984 was 14%; for 1983 it was 10%. It appears the vendors in this sector are investing for growth in lieu of short-term profits.

- Net income continued to decline in first quarter 1986.

- The change was due to the significant drop in income for CSC--the largest professional services organization in the group--and the substantial loss experienced by Intermetrics. Note that the previously reported drop in

PUBLIC PROFESSIONAL SERVICES VENDORS



Last Update: 03-31-86

REVENUES OF PUBLIC PROFESSIONAL SERVICES COMPANIES

COMPANY NAME	FISCAL YEAR END	REVENUE ($ Thousands) 1984 Q1	1984 Q2	1984 Q3	1984 Q4	1984 TOTAL	1985 Q1	1985 Q2	1985 Q3	1985 Q4	1985 TOTAL	GROWTH (Percent) 1985/1984 %(+/-)	LAST 3 ROLLING QUARTRS	LAST 2 ROLLING QUARTRS
202 DATA SYS	10-31	627	491	553	503	2174	489	562	487	494	2032	-7	0	-7
ACT	12-31	2679	3235	2741	3227	11882	3036	3526	4050	4064	14676	24	26	36
ADV.SYSTEMS	10-31	9274	9486	11967	10557	41284	11529	11254	18175	12973	53931	31	32	38
ASS COMPUTER	12-31	53029	52944	56147	61960	224080	65742	70327	67617	75496	279182	25	25	21
AM. MGT. SYS	12-31	20998	23023	25374	27611	97006	26647	27260	26750	31560	112217	16	13	10
ANLYSTS INT.	06-30	8152	8754	9420	10368	36694	11954	12549	11792	11228	47523	30	25	16
AUTON COMP	12-31	5873	5635	6251	6146	23905	6453	7182	7100	7124	27859	17	19	15
BDM INTERN'L	12-31	41607	45730	48838	55225	191400	50764	62021	63727	73786	250298	31	33	32
BBN	06-30	27459	30031	29437	31875	118802	35294	41614	39211	44511	160630	35	37	37
C.A.C.I.	06-30	26070	26736	24303	24622	101811	24961	23990	22818	24335	96104	-6	-6	-4
COMP DATA	06-30	14086	14966	15028	14080	58160	12866	13097	13828	13813	53604	-8	-8	-5
COMP HORIZ	02-28	10144	10435	10588	11636	42803	11973	12507	12605	12901	49986	17	16	15
CSC	04-01	185028	173895	172027	178684	709634	193887	197565	209286	204949	800687	13	15	18
COMP TASK GR	12-31	17377	18629	21876	24741	82623	26035	28166	29565	31945	115711	40	37	32
DATA ARCHTS	11-30	3527	4586	4398	3026	15537	4264	5347	5415	5919	20945	35	39	53
DYNAMICS RES	12-25	11241	11944	12125	17760	53070	14433	14242	14448	20916	64239	21	19	18
INTERMETRICS	02-28	10216	10537	11016	10869	42638	10597	11324	12273	10123	44317	4	4	2
KEANE	12-31	7317	8430	8915	9166	33828	9951	10341	9462	9947	39701	17	12	7
LOGICON	03-31	36691	39380	45541	39446	161258	43689	44100	50277	50438	188504	17	16	18
PRC	06-30	79480	84919	78177	81770	324346	93931	118485	104778	114845	432039	33	38	37
RAND INFO.	02-28	2842	2546	2753	2920	11061	2924	2611	2581	4600	12716	15	19	27
SYSCON CORP	11-30	24006	27253	26084	26687	104030	26174	28462	29867	32783	117286	13	14	19
SYST.& COMP.	09-30	11787	12062	11746	12190	47785	12512	11874	10792	10653	45871	-4	-7	-10
TECHNALYSIS	12-31	2417	2317	2276	2938	9948	3128	3142	3176	3299	12745	28	28	24
TOTALS		611947	627964	637661	668207	2545779	708223	751548	770080	812742	3042593	20	21	21

24 COMPANIES

EXHIBIT VII-4

NET INCOME OF PUBLIC PROFESSIONAL SERVICES COMPANIES

COMPANY NAME	FISCAL YEAR END	NET AFTER TAX INCOME ($ Thousands)										GROWTH (Percent)		
		1984					1985					1985/ 1984	LAST 3 ROLLING	LAST 2 ROLLING
		Q1	Q2	Q3	Q4	TOTAL	Q1	Q2	Q3	Q4	TOTAL	I(+/-)	QUARTRS	QUARTRS
202 DATA SYS	10-31	76	20	14	2	112	5	3	52	126	186	66	403	1013
ACT	12-31	-94	179	23	59	167	83	135	191	117	526	215	70	276
ADV.SYSTEMS	10-31	989	802	335	1064	3190	1166	1204	2489	1170	6029	89	121	162
AGS COMPUTER	12-31	1559	1307	1778	1195	5839	1925	1734	1854	1980	7493	28	30	29
AM. MGT. SYS	12-31	449	643	812	937	2841	1269	1658	1031	1432	5390	90	72	41
ANLYSTS INT.	06-30	-310	-302	-149	78	-683	454	546	102	-142	960	241	236	44
AUXTON COMP	12-31	470	360	490	241	1561	340	461	620	615	2036	30	55	69
BDM INTERN'L	12-31	1747	1921	2051	2354	8073	2130	2512	2600	3314	10556	31	33	34
BRN	06-30	1656	1879	1837	1978	7350	2190	2446	2349	2592	9577	30	30	30
C.A.C.I.	06-30	-777	-1461	564	658	-1016	770	553	297	175	1795	277	529	-61
COMP DATA	06-30	860	509	824	817	3010	723	582	638	642	2585	-14	-13	-22
COMP HORIZ	02-28	720	513	324	539	2096	643	666	500	537	2346	12	24	20
CSC	04-01	7081	4637	3446	12403	27567	7232	5199	4928	4958	22317	-19	-26	-38
COMP TASK GR	12-31	337	511	538	714	2100	773	893	1096	1259	4021	91	84	88
DATA ARCHTS	11-30	-319	322	230	367	600	306	364	291	281	1242	107	2	-4
DYNAMICS RES	12-25	-16	64	483	809	1340	437	252	-1049	668	308	-77	-110	-129
INTERMETRICS	02-28	192	119	147	166	624	155	183	-2615	-2834	-5111	-919	-1319	-1841
KEANE	12-31	91	145	169	214	619	233	191	141	201	766	24	1	-11
LOGICON	03-31	1680	1843	2071	2123	7717	2210	2378	2511	2484	9583	24	22	19
PRC	06-30	2304	2661	650	1625	7240	1398	2333	2136	1767	7634	5	26	72
RAND INFO.	02-28	48	-47	-81	-892	-972	-236	-307	-402	674	-271	72	97	128
SYSCON CORP	11-30	895	1058	924	1188	4065	986	1103	1149	1190	4428	9	9	11
SYST.& COMP.	09-30	1800	1289	-81	814	4122	627	97	-1082	-128	-486	-112	-148	-265
TECHNALYSIS	12-31	224	250	271	276	1021	257	289	311	334	1191	17	17	10
TOTALS		21662	19522	17670	29729	88583	26076	25475	20138	23412	95101	7	3	-8

income for CSC during fourth quarter 1985 was the result of an extraordinary gain experienced in fourth quarter 1984. Excluding the extraordinary item, CSC's net income results improved 34% during fourth quarter 1985 and 18% for the year. Without CSC results, overall earnings grew 7% in fourth quarter 1985 over fourth quarter 1984.

- Other companies showing poor net income results were Systems & Computer Technology and Rand Information Systems, although Rand's 1985 net income actually grew 72% over 1984.

- Professional services firms with the highest 1985 growth rates in income included ACT, Advanced Systems, American Management Systems, Analysts International, Computer Task Group, and Data Architects. Of these, Advanced Systems and Data Architects had the highest profit to revenue ratio.

C. LARGEST AND FASTEST GROWING PROFESSIONAL SERVICES VENDORS

- The list of the largest professional services vendors (see Exhibit VII-5) shows how diverse the types of vendors have become:

  - Mainstream professional services vendors for whom the market is the principal source of income (e.g., Computer Sciences Corporation, Mitre, Logicon, etc.).

  - Big Eight CPA firms who are leveraging their privileged position as CPA to tens of thousands of major corporations into an entree for professional services (and other information services). Examples include Arthur Andersen; Peat, Marwick and Mitchell; and Price Waterhouse, etc.

EXHIBIT VII-5

LARGEST PROFESSIONAL SERVICES VENDORS

RANK 1985	COMPANY
1	International Business Machines (IBM)
2	Computer Sciences Corporation
3	Arthur Andersen & Company
4	Peat, Marwick & Mitchell
5	Burroughs Corporation
6	EDS
7	Logicon
8	Mitre Corporation
9	McGraw Hill
10	Price-Waterhouse
11	Bolt Beranek & Newman
12	Planning Research Corporation
13	AGS Computers
14	Computer Task Group
15	Sterling Software
16	CACI, Inc.
17	Syscon Corporation
18	Cap Gemini America
19	DBA Systems, Inc.
20	GEISCO
21	Grumman Data Systems
22	McDonnell Douglas Information Services
23	Telos
24	Batelle Memorial Institute
25	Arthur D. Little

- Large system manufacturers who are finding that they must provide planning, programming, systems design, and consulting services in order to sell their systems--IBM is the prime example.

- Large processing services companies that are taking on substantial customized systems integration work (often related to MRP or CIM projects), such as GEISCO and McDonnell Douglas Information Services.

- A large segment of the professional services market is government contract-related, which, if managed properly, can provide a steady stream of revenue, but if managed poorly can quickly prove a drain on resources.

- Exhibit VII-6 provides a list of the top fastest growing professional services vendors, with professional services revenue at $30 million and above.

EXHIBIT VII-6

FASTEST GROWING PROFESSIONAL SERVICES VENDORS

RANK 1985	COMPANY	GROWTH 1984-1985 (Percent)
1	Peat, Marwick & Mitchell	113%
2	Dynamics Research Corporation	50%
3	Analyst International	31%
3	Computer Sciences Corporation	31%
4	Telos Corporation	28%
5	Arthur D Little	27%

VIII TURNKEY SYSTEMS SECTOR ANALYSIS

VIII TURNKEY SYSTEMS SECTOR ANALYSIS

A. TURNKEY SYSTEMS MARKET, 1985

- In 1985, the turnkey systems market (user expenditures) was $7.1 billion, growing 11% over 1984.

- In the turnkey segment, vendor revenue is equal to user expenditure.

- Most vendors waited for the sharp downturn in revenue to occur before taking cost-cutting measures with disastrous results on the bottom line. This serious condition has continued through the second quarter of 1986.

- INPUT continues to believe that the customer interest in hardware/software integrated solutions on a packaged basis is very high. However, the current distribution mechanism is flawed in several respects which have contributed to the rapid reduction in industry growth in 1985.

- The revenue sources for turnkey systems vendors in 1984 and 1985 are shown in Exhibit VIII-1.

  - In 1984, 88% of their revenue came from their main markets and less but not minor revenue came from elsewhere.

EXHIBIT VIII-1

TURNKEY SYSTEMS COMPANIES' REVENUE AND GROWTH RATES BY MODE OF SERVICE

TURNKEY REVENUE ($ Millions/Year)	REVENUE SOURCE BY MODE OF SERVICE				TOTAL BY COMPANY
	Processing Services	Software Products	Professional Services	Turnkey Systems	
1984	$191	$189	$255	$5,048	$5,683
1985	$210	$228	$307	$5,622	$6,367
Growth Rate (Percent)	10%	21%	20%	11%	12%
Percent of Total 1985 Market by Type of Vendor	3%	4%	5%	88%	100%

B. PUBLIC TURNKEY SYSTEMS COMPANIES

- Exhibits VIII-2 through VIII-4 show the last three years' trend in revenue and net income growth (or contraction) for the sample.

- The flat growth pattern that emerged during the first three quarters of 1985 continued into the fourth quarter of the year.

- After reaching rock bottom in fourth quarter 1985 with heavy losses in each quarter of the year, the turnkey systems sector experienced a turnaround in earnings growth in first quarter 1986. Revenue growth has remained almost completely flat the past few quarters.

- The growth rate for 1985 was 6%, compared to a growth rate of 37% for 1984.

- Comtek Research, Daisy Systems, HBO, Intergraph, and Reynolds & Reynolds maintained steady growth in revenue in each quarter of 1985, although HBO's results reflect several acquisitions that contributed to growth. In addition, each of these companies achieved growth in income for the year in a segment of the information services industry that performed poorly overall in 1985.

  - Overall growth rate in net income for 1985 was -95%, compared to 52% for 1984.

- Proof of how poorly this segment performed is that 10 of 19 companies lost money in 1985. This has increased from 4 of 19 in 1984.

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PUBLIC TURNKEY SYSTEMS VENDORS

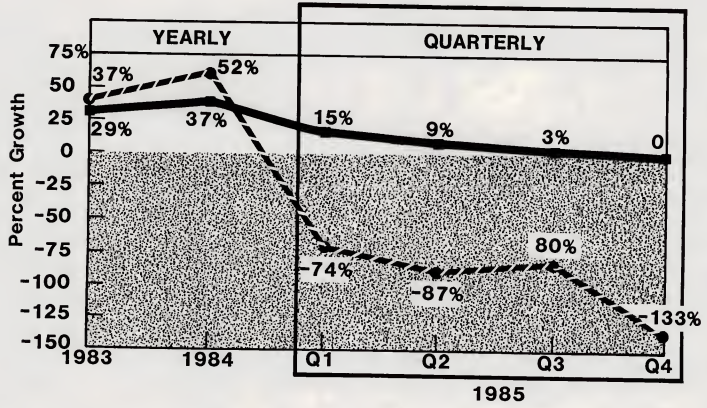

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EXHIBIT VIII-3

REVENUES OF PUBLIC TURNKEY SYSTEMS COMPANIES

COMPANY NAME	FISCAL YEAR END	REVENUE ($ Thousands) 1984 Q1	Q2	Q3	Q4	TOTAL	1985 Q1	Q2	Q3	Q4	TOTAL	GROWTH (Percent) 1985/ 1984 (+/-)	LAST 3 ROLLING QUARTRS	LAST 2 ROLLING QUARTRS
ASK COMPUTER	06-30	17561	19941	18003	21282	76787	19187	20761	12780	19051	71779	-7	-11	-19
AUTO-TROL TECH	12-31	16272	17157	16773	18725	68927	18901	16383	14286	15790	65360	-5	-12	-15
AVANT-GARDE	04-30	4987	6068	5403	5276	21734	3690	5555	3118	3631	15994	-26	-27	-37
C3	03-31	15100	15496	18467	19700	68763	18758	19068	23300	11200	72326	5	0	-10
COMTEX RESEARCH	03-31	6218	5986	6055	6315	24574	6685	6723	7185	6797	27390	11	13	13
COMPTR CONSOLES	12-31	27237	36088	33321	34543	131189	25976	35076	25386	25442	111880	-15	-17	-25
COMPTR DESIGN	08-31	610	574	504	720	2408	768	639	967	760	3134	30	32	41
COMPUTERVISION	12-31	121759	133589	137133	163861	556342	105871	112288	105752	117226	441137	-21	-23	-26
DAISY SYSTEMS	09-30	15700	18538	21810	25484	81532	29042	32511	35511	36573	133637	64	59	52
* DIMIS	12-31	571	718	236	323	1848	345	182	149	120	796	-57	-65	-52
GERBER SCI.	04-30	53733	54586	52615	52530	213464	64427	48341	45089	49420	207277	-3	-11	-10
H80	12-31	20407	21807	22384	24084	88682	44171	46400	49320	48944	188835	113	112	111
INTERGRAPH	12-31	78702	98769	105480	120811	403762	108973	130556	131406	155470	526405	30	28	27
NATL DATA COMM	10-31	1967	1646	1780	1689	7082	1606	1667	1385	1281	5939	-16	-15	-23
PENTA SYSTEMS	12-31	5692	5981	6322	6059	24054	4395	5484	4959	4817	19655	-18	-17	-21
REYNOLDS & R.	09-30	72827	74247	75571	74602	297247	82501	83215	85012	80560	331288	11	11	10
SAI	01-31	6598	6628	8188	9719	31133	8710	8505	6946	8724	32885	6	-1	-12
TERA	06-30	3688	5343	6439	8257	23727	7215	1781	5872	6908	21776	-8	-27	-13
TRIAD SYSTEMS	09-30	31230	29949	35100	23905	120184	22431	27522	33400	27700	111053	-8	0	4
TOTALS		500859	553111	571584	617885	2243439	573652	602657	591823	620414	2388546	6	4	2

* INPUT ESTIMATE

19 COMPANIES

EXHIBIT VIII-4

NET INCOME OF PUBLIC TURNKEY COMPANIES

COMPANY NAME	FISCAL YEAR END	NET AFTER TAX INCOME ($ Thousands) 1984 Q1	Q2	Q3	Q4	TOTAL	1985 Q1	Q2	Q3	Q4	TOTAL	GROWTH (Percent) 1985/1984	LAST 3 ROLLING QUARTRS	LAST 2 ROLLING QUARTRS
ASK COMPUTER	06-30	1758	1487	1706	2138	7089	1788	2317	694	1839	6638	-6	-9	-34
AUTO-TROL TECH	12-31	773	1143	222	614	2752	-251	-4974	-3897	-2557	-11679	-524	-677	-872
AVANT-GARDE	04-30	527	626	396	245	1794	392	-269	-1293	-1279	-2449	-237	-324	-501
C3	03-31	-400	1404	1303	742	3049	873	768	1400	-335	2706	-11	-47	-48
COMTEK RESEARCH	03-31	432	330	338	322	1422	1323	268	240	5	1836	29	-48	-63
COMPTR CONSOLES	12-31	1314	2835	1390	751	6290	-5505	-4610	-4216	-27580	-41911	-766	-832	-1585
COMPTR DESIGN	08-31	17	14	246	98	375	73	74	63	87	297	-21	-37	-56
COMPUTERVISION	12-31	10750	7363	4692	14921	37726	-18766	-19510	-20723	-21778	-80777	-314	-330	-317
DAISY SYSTEMS	09-30	2600	2785	3297	3954	12636	4685	5532	5882	6312	22411	77	77	68
# DIMIS	12-31	-724	-256	-529	-718	-2227	-307	-357	-272	-100	-1036	53	51	70
GERBER SCI.	04-30	5197	5796	6424	6293	23710	6546	4331	4206	4657	19740	-17	-29	-30
HBO	12-31	3229	3420	3608	3639	13896	5867	6107	5903	2965	20842	50	40	22
INTERGRAPH	12-31	10304	16470	17366	18796	62936	14340	16735	18018	18686	67779	8	2	1
NATL DATA COMM	10-31	-14	-447	317	-209	-353	-272	-1073	-638	-331	-2314	-556	-502	-997
PENTA SYSTEMS	12-31	100	111	-482	-1273	-1544	-482	-1307	-1870	-4003	-7662	-396	-337	-235
REYNOLDS & R.	09-30	4201	4462	4789	4121	17573	4785	4984	7182	4901	21852	24	28	36
SAI	01-31	461	546	747	1000	2754	528	50	-1001	153	-270	-110	-135	-149
TERA	06-30	-1720	-1251	30	66	-2875	-1389	-3099	292	408	-3788	-32	-108	629
TRIAD SYSTEMS	09-30	1651	1262	1500	-1623	2790	-3574	207	-517	403	-3481	-225	-92	7
19TALS		40456	48100	47360	53877	189793	10654	6174	9453	-17547	8734	-95	-101	-108

INPUT ESTIMATE

19 COMPANIES

C. LARGEST AND FASTEST GROWING TURNKEY SYSTEMS VENDORS

- Exhibit VIII-5 shows the 1985 list of the largest turnkey vendors. There are likely to be many changes to this list in 1986.

- Exhibit VIII-6 provides the list of the top turnkey systems vendors with revenue of $20 million or more by 1985 growth rate.

EXHIBIT VIII-5

LARGEST TURNKEY SYSTEMS VENDORS

RANK 1985	COMPANY
1	Intergraph Corporation
2	Computervision Corporation
3	Gerber Scientific
4	Calma Company
5	HBO & Company
6	Ultimate Corp. (The)
7	Daisy Systems
8	Shared Medical Systems
9	Reynolds & Reynolds
10	Applicon
11	McDonnell Douglas Information Services
12	Computer Consoles
13	Triad Systems Corporation
14	C3
15	Auto-Trol Technology Corp.
16	Sterling Software
17	Ask Computer Systems, Inc.
18	Metier
19	Control Data Corp.
20	General Instruments
21	Redshaw
22	Planning Research Corp.
23	Evans & Sutherland
24	Symbolics
25	United Telecommunications, Inc.

EXHIBIT VIII-6

FASTEST GROWING TURNKEY SYSTEMS COMPANIES

RANK 1985	COMPANY	GROWTH 1984-1985 (Percent)
1	Redshaw Inc.	100%
1	Shared Medical Systems	100%
2	Daisy Systems	84%
3	Gerber Scientific	64%
4	Intergraph	44%
5	Applicon	33%

APPENDIX A: DEFINITION OF TERMS

APPENDIX A: DEFINITION OF TERMS

A. REVENUE

- CAPTIVE COMPUTER SERVICES REVENUE - Revenue received from users who are part of the same parent corporation as the vendors.

- NONCAPTIVE FOREIGN COMPUTER SERVICES REVENUE - Revenue received for computer services provided outside the U.S. from users who are not part of the same parent corporation as the vendor.

- NONCAPTIVE U.S. COMPUTER SERVICES REVENUE - Revenue received for computer services provided within the U.S. from users who are not part of the same parent corporation as the vendor.

- OTHER REVENUE - Revenue derived from lines of business other than those defined above.

- TOTAL COMPANY REVENUE - Revenue received from total computer services and other sources of revenue.

- TOTAL COMPUTER SOFTWARE AND SERVICES REVENUE - Revenue received from services provided by vendors that perform data processing using vendor computers (processing services), assist users to perform such functions on their own computers (software products and/or professional services), or

provide a combination of hardware and software integrated into a total system (turnkey systems). Revenue derived from computer services games or entertainment is excluded, as is revenue derived solely from the resale of computer services on a retail basis.

B. SERVICE MODES

- PROCESSING SERVICES - Remote computing services, value-added networks, batch services, and facilities management.

  - BATCH SERVICES - This includes data processing performed at vendors' sites of user programs and/or data that are physically transported (as opposed to electronically by telecommunications media) to and from those sites. Data entry and data output services, such as keypunching and computer output microfilm processing, are also included. Batch services include these expenditures by users who take their data to a vendor site that has a terminal connected to a remote computer for the actual processing.

  - FACILITIES MANAGEMENT (FM) (Also referred to as "resource management" or "systems management") - The management of all or part of a user's data processing functions under a long-term contract (not less than one year). This would include both remote computing and batch services. To qualify as FM, the contractor must directly plan and control as well as operate the facility provided to the user on-site, through communications lines or mixed modes. Simply providing resources, even though under a long-term contract and/or for all of a user's processing needs, does not necessarily quality as FM.

  - REMOTE COMPUTING SERVICES - Provision of data processing to a user by means of terminals at the user's site connected by a data communications network to the vendor's central computer.

- VALUE-ADDED NETWORKS (VAN) - Intercommunications services between computing resources to move data and/or textual information. Provided by vendors through common carrier or special-purpose transmission facilities to move data and/or textual information. Special features of VANs that set them apart from conventional public networks include store-and-forward message switching, terminal interfacing, error detection and correction, and host computer interfacing.

- PROFESSIONAL SERVICES - This category is made up of services related to EDP, including software development, consulting, education and training, systems integration, and facilities management. Services are sold to:

  - COMMERCIAL - which includes all nongovernment organizations.

  - GOVERNMENT - which includes federal, state, and local governments and their agencies.

- SOFTWARE PRODUCTS - This category includes users' purchases of applications and systems packages for use on in-house computer systems. Included are lease and purchase revenues as well as fees for work performed by the vendor to implement and maintain the package at the user's site. Fees for work performed by organizations other than the package vendor are counted in professional services. There are several subcategories of software products.

  - APPLICATIONS PRODUCTS - These are software products that perform processing to service user functions. They consist of:

    . CROSS-INDUSTRY PRODUCTS - which are used in multiple user industry sectors. Examples are payroll, inventory control, and financial planning.

- INDUSTRY-SPECIALIZED PRODUCTS - which are used in a specific industry sector such as banking and finance, transportation, or discrete manufacturing. Examples are demand deposit accounting and airline scheduling.

- SYSTEMS PRODUCTS - These are software products that enable the computer/communications system to perform basic functions. They consist of system operations products, systems utilization products, and application development products.

- TURNKEY SYSTEMS - An integration of systems and applications software with hardware packaged as a single entity. The value added by the vendor is primarily in the software, either packaged or custom developed. Most CAD/CAM systems and many small business systems are turnkey systems. This does not include specialized hardware systems such as word processors, cash registers, and process control systems. In previous reports these companies have been referred to as "integrated systems," but the name was changed this eyar to the more common "turnkey systems."

C. TRENDS AND ISSUES

- PROFIT MARGINS - Profits after taxes and extraordinary items.

- REVENUE GROWTH - Derived from one or more of the following:

  - ACQUISITION - Proportion of revenue increase derived from the acquisition of other companies.

  - PRICE INCREASE - Proportion of revenue increase derived solely from increasing the price of services.

  - REAL GROWTH - Proportion of revenue increase derived from all sources net of the effect of price increases and acquisitions.

APPENDIX B: QUESTIONNAIRE

CATALOG NO. CFIAI[ ][ ][ ]

1986 INFORMATION SERVICES INDUSTRY SURVEY

Purpose of the Survey

This survey is the basis of the authoritative presentation of 1985 Information Services Industry performance. The presentation will be delivered to the financial community, the government, the press, and others including user industry groups and associations. Your input is vital to obtain the most accurate picture of performance as possible and to ensure that your company is accurately represented in industry participant rankings.

Calendar vs. Fiscal Year Data

The survey is based on calendar year end results. If calendar results are unavailable please provide quarterly performance information. Please indicate below basis of information for this interview:

☐ Calendar year end data provided

☐ Fiscal year end data provided. Fiscal year end date _____
(Please remember to obtain quarterly information if fiscal data is provided.)

Definitions

A wide variety of industry terms are referred to in this survey. for your convenience, survey term definitions are enclosed.

SURVEY ASSISTANCE HOTLINE: (415) 960-3990

If you have questions about the survey, require clarification of definitions, or would like to complete it with INPUT staff by telephone, please call the hotline. We would be happy to assist you!

1. Company Data

   a. Company Name _____

      Headquarters Address _____

      City _____ State _____ Zip _____

      Telephone _____

      Respondent Name _____

      Title _____

      Phone _____

b. Parent Company (if applicable)

Name _____

Address _____

City _____ State _____ Zip _____

c. Corporate Ownership (check one)

☐ Public Year Incorporated _____

☐ Private Date Company Went Public _____

☐ Subsidiary

d. Mergers/acquisitions involving the company in 1985: (List only those events that affected your information services business.)

Acquired/Divested	Date	Principle Service	Value	1984 Revenue

e. Business Activity

Please briefly describe the principal business of the firm.

_____

_____

_____

_____

2. Performance Data

Please indicate or estimate your company performance in the following categories. Note: Please addend quarterly financial breakdown through 12/31/85 if FY ends 10/31/85 or earlier.

a. Total Information Revenue

	1984	1985	1986 (Projected)
Foreign	$_____	$_____	$_____
Domestic	$_____	$_____	$_____
Captive/Internal	$_____	$_____	$_____
Other	$_____	$_____	$_____
Total	$_____	$_____	$_____
Net Profit	_____%	_____%	_____%

1. What were the primary factors causing revenue growth in 1985?

Price increase	_____%
Acquisition	_____%
Real Growth	_____%
Total	100%

b. Information Services Offered

Please indicate what percent of your domestic and noncaptive (i.e., excludes revenue derived from services you provide to parent company, divisions, subsidiaries) revenue is derived from the following?

1. Industry-specific products and services	_____%
Cross-Industry (functional areas) products & services	_____%
Other (specify)	_____%
Total	100%

2. What are the top three industry-specific or cross-industry product and service segments from which you derive revenue?

_____

_____

2. Performance Data (continued)

3. Please provide the breakdown of your revenues by the following service modes. Please provide as much detail as possible.

	1984	1985	(Projected) 1986
a. Processing Services	$_____	$_____	$_____
Remote Computing/Batch	_____%	_____%	_____%
Facilties Management	_____%	_____%	_____%
Value-added Networks	_____%	_____%	_____%
Other	_____%	_____%	_____%
	100%	100%	100%
b. Software Products	$_____	$_____	$_____
Systems Software	_____%	_____%	_____%
Applications Software	_____%	_____%	_____%
Software Maintenance	_____%	_____%	_____%
Utility Software	_____%	_____%	_____%
	100%	100%	100%
c. Professional Services	$_____	$_____	$_____
Software Development	_____%	_____%	_____%
Systems Consulting	_____%	_____%	_____%
Education and Training	_____%	_____%	_____%
System Integration	_____%	_____%	_____%
Facilities Management	_____%	_____%	_____%
	100%	100%	100%
d. Turnkey Systems	$_____	$_____	$_____
Hardware	_____%	_____%	_____%
Software	_____%	_____%	_____%
Maintenance	_____%	_____%	_____%
	100%	100%	100%
Total Noncaptive U.S. Computer Software and Services Revenue	$_____	$_____	$_____

3. General Data

a. How many information service industry staff do you employ/plan to employ in the U.S.?

	1985	1986	
Total	_____	_____	
Captive	_____	_____	(for internal DP)
Other	_____	_____	

b. What companies do you consider to be your major competitors?

_____

_____

_____

c. Who are your top corporate officers relative to information services products/services?

	Name	Title
CEO/COO	_____	_____
Financial	_____	_____
Marketing	_____	_____
Other	_____	_____

d. Who is the primary contact concerning the information on this questionnaire?

Name _____

Title _____

Telephone _____

Thank you for your participation.

APPENDIX C: RELATED INPUT REPORTS

APPENDIX C: RELATED INPUT REPORTS

- Vendor Financial Watch, published quarterly.
- Company Analysis and Monitoring Program (CAMP) Company Directory, 1986.
- U.S. Information Services Industry Annual Report, 1985-1990, December 1985.