DIRECTORY OF LEADING U.S.

INFORMATION SERVICES VENDORS, 1983

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About INPUT

INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions. Continuing services are provided to users and vendors of computers, communications, and office products and services.

The company carries out continuous and in-depth research. Working closely with clients on important issues, INPUT's staff ... interpret the research dat... mendations and innovativ...

needs. Clients receive reports, presentations, access to data on which analyses are based, and continuous consulting.

Many of INPUT's professional staff members have nearly 20 years' experience in their areas of specialization. Most have held senior management positions in operations, marketing, or planning. This expertise enables INPUT to supply practical solutions to complex business problems.

Formed in 1974, INPUT has become a leading ...nning services firm. Clients include ...e world's largest and most techni-...companies.

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Planning Services for Management

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INFORMATION SERVICES VENDORS, 1983

DECEMBER 1983

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I INTRODUCTION

I INTRODUCTION

- This Directory is INPUT's fourth annual listing of the leading information services firms in the United States.

    - It lists all vendors who realized more than $9.5 million in noncaptive U.S. information services revenue in calendar year 1982.

    - It includes revenues for the previous calendar year so that growth can be calculated.

- The Directory was compiled for several reasons.

    - The data are significant to INPUT's market estimates of the U.S. information services market.

    - The list includes all the leading companies of interest to clients of INPUT's Company Analysis and Monitoring Program (CAMP). Many of these companies have been reviewed in depth by that service.

    - The CAMP "Highlights" of vendor companies are highly recommended as a primary source of information for readers who want more detailed information on companies.

    - A list of companies currently highlighted in CAMP is given in Appendix D.

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- Research on candidates for the Directory is conducted continuously throughout the year.

    - INPUT monitors over 3,500 companies in the information services industry. Included in research files on these companies are promotional and product literature, annual reports, press releases, clippings from periodicals, interview questionnaires, and contact reports with company management and industry experts.

    - Company interviews were conducted in April, May, and June of 1983. Over 400 companies were interviewed or researched of which 267 qualified for the Directory.

    - Supplementary research from a variety of independent sources was also used to qualify companies and to verify information gathered.

    - When companies would not provide revenue information, INPUT estimated revenue data based on knowledge of the firms and their positions in the industry.

- The revenue data reported in this study, unless noted otherwise, include only the following:

    - U.S. revenues: Only revenues derived from services sold in the U.S. are included. All foreign information services revenues are excluded.

    - Information services revenues: Revenues from processing services, software products, integrated systems, and professional services are included in information services revenues. Revenues from hardware-only sales, telecommunications, and field engineering services are excluded.

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- Calendar year revenues only are included: Approximately 30% of the companies have fiscal years that do not coincide with calendar years. Their revenues have been adjusted to the calendar year for this report and therefore do not correspond to their published revenues for the corresponding fiscal years.

- Noncaptive revenues: Revenues available to all vendors in a competitive marketplace are included. Captive revenues, derived from sales to parent or affiliated organizations, are excluded.

• All revenue data were rounded to the nearest thousand dollars when gathered and tabulated, but were rounded to the nearest million dollars when reported in this study.

- Rounding to the nearest thousand was done to insure the highest degree of accuracy in collecting data from annual reports or interviews.

- The growth rates from 1981 to 1982 were calculated from the data collected (at the thousand dollar accuracy level); however, all revenues reported are rounded to the nearest million dollars.

- Rounding to the nearest million was done in this report to normalize for the lesser degree of accuracy where the data are estimated by INPUT. All data are reasonably accurate to the nearest million dollars.

- Revenues reported for subsidiaries of large corporations, computer manufacturers, and CPA firms are generally subject to a wider margin of error than revenues for other companies are.

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

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- If a division or subsidiary markets all information services for a company and is generally known by the name of that group, then it will be identified by that name rather than by the parent's name. Examples are McDonnel Douglas Automation Company (MCAUTO), and Boeing Computer Services (BCS).

- If more than one division or subsidiary markets computer services, the organization will be indentified by the parent's name. Examples are Control Data Corporation (includes SBC, Cybernet, Arbitron, and others), Bank of America (includes Decimus Corporation and Corporate Electronic Banking), and General Electric (includes GEISCO and Calma).

- Organizations are reported on according to their legal status as of the end of December 1982. Any changes since that date are not included (e.g., the acquisition by Dun & Bradstreet of McCormick & Dodge in March 1983).

- Companies have been classified as processing services, software products, professional services, or integrated systems vendors by the dominant dollar amount derived from U.S. noncaptive revenues. For example, in 1981 Redshaw, Inc. was classified as a software vendor because the majority of its revenue was derived from software products. In 1982 Redshaw was considered an integrated systems vendor because 65% of its revenue resulted from sales of integrated products.

- There are differences between the 1981 revenue amounts for some companies in this year's Directory and the 1981 revenue published last year. These changes were made for one or more of the following reasons:

  - Companies restated revenue due to acquisitions or divestitures.

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-   Companies were willing, for the first time, to provide INPUT with accurate data, whereas before estimates were made.

-   Estimates were revised based on better knowledge of the operations of some firms.

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II INFORMATION SERVICES

II INFORMATION SERVICES

A. OVERVIEW

- Two hundred and sixty-seven companies qualified for this year's edition of INPUT's <u>Directory of Leading U.S. Information Services Vendors</u> (i.e., vendors with more than $9.5 million in U.S. noncaptive information services revenue). This number represents a 7% increase over the 249 firms in last year's Directory.

- Some companies included in last year's directory will not be found in this edition because:

  - The company was acquired by another firm on the list. For example, Applicon was acquired by Schlumberger in 1982.

  - Some companies, such as Cullinane Database Systems, changed names in 1982 (now Cullinet Software).

  - Several companies, such as Applied Data Systems, Browne Information Systems, and Computer Usage Corporation, were removed from the Directory because their revenues fell below the minimum qualifying level of $9.5 million.

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- A few firms are no longer identified individually because INPUT has consolidated their revenues under their parent corporation for the first time. For example, Medicus Affiliates is now included under Whittaker Corporation.

- In all cases, INPUT has attempted to consolidate all information services revenues under the parent name to reflect total services revenue earned by corporations with multiple information services activities.

B. MAJOR COMPANIES' MARKET SHARE

- Exhibit II-1 summarizes the information services industry and is arranged by company type, size, and market share.

- The companies in the INPUT Directory represent only 4% of the total number of companies in the industry, yet these 267 firms generated 57% or $15.2 billion of the total revenue for the U.S. information services industry.

- The top 10 information services firms generated over $5 billion in revenue, representing 20% of the total U.S. information services market. This is up from 18% in 1981.

- Processing companies continue to hold the largest market. However, this percentage dropped from 53% in 1980. The processing services market had, on average, the slowest revenue growth rate (11%) in the information services industry.

- In 1982 there were 120 processing companies with revenue over $9.5 million. While these 120 companies represent only 2% of all firms in the information services industry, they nevertheless dominate the industry because:

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EXHIBIT II-1

COMPUTER SERVICES INDUSTRY BY COMPANY TYPE, SIZE, AND

MARKET SHARE OF NONCAPTIVE U.S. REVENUE

TYPE OF COMPANY • SIZE ($ millions)	NUMBER OF COMPANIES	PERCENT OF TOTAL COMPANIES	REVENUE ($ millions)		REVENUE GROWTH 1981-1982 (percent)	REVENUE AS A PERCENT OF TOTAL MARKET	
			1981	1982		1981	1980
Processing Companies							
• >$10	120	2%	$6,886	$ 8,058	17%	31%	30%
• <$10	2,010	31	4,321	4,426	2	19	17
Subtotal*	2,130	33%	$11,217	$12,484	11%	50%	47%
Software Products							
• >$10	49	1	1,944	2,592	33	9	10
• <$10	1,830	28	1,821	2,703	48	8	10
Subtotal*	1,879	29%	$ 3,765	$ 5,295	41%	17%	20%
Professional Services							
• >$10	73	1	2,856	3,311	16	13	13
• <$10	1,275	20	1,714	2,018	18	8	8
Subtotal*	1,348	21%	$ 4,570	$ 5,329	17%	20%	20%
Integrated Systems							
• >$10	33	1	1,029	1,230	20	5	5
• <$10	1,080	17	1,727	2,092	21	8	8
Subtotal*	1,113	18%	$ 2,756	$ 3,322	21%	12%	13%
Total Computer Services							
• >$10	275	4	$12,715	$15,191	19	57	57
• <$10	6,195	94	9,593	11,239	17	43	43
Total*	6,470	100%	$22,308	$26,430	18%	100%	100%

* May not total due to rounding.

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- They produce over one-half (53%) of all revenues generated by over-$10 million information services companies.

- They earned over $8 billion, or 30% of the total revenue for the industry.

- Average revenue per company exceeds $67 million, the highest average in the entire information services industry.

- However, revenue growth for these 120 companies was only 17%, lower than the overall growth rate of 19% for all other firms with revenues over $10 million.

- In summary, the over-$10 million processing companies will continue to dominate the industry even though their market share is falling. Dominance will continue because:

  - These companies have the financial resources and technical expertise to take advantage of industry trends.

  - The companies have an established market identity and an existing client base, both of which facilitate expansion into new markets through new delivery modes.

  - Their status as market leaders makes these companies an attractive source of acquisition candidates.

- Software product companies represent the fastest growing sector of the industry with an average 41% increase in revenue in 1982. Companies with over $10 million in software revenue represent only 1% of the industry, but they had an average revenue growth of 33%.

- Software product companies with revenues under $10 million continue to show spectacular growth rates - 48% overall in 1982. Some of these companies - particularly those producing microcomputer software - are growing at unparalleled rates. The number of small software companies (under $10 million) has grown by 17% in 1982, the largest increase in the industry.

- Of all the four industry types, integrated systems companies registered the sharpest drop in revenue growth (down from 32% in 1981 to 21% in 1982). As a group these companies have the lowest per-company average revenue ($3 million) and the smallest market share (13%).

- Integrated system companies in the over $10 million range achieved the second fastest revenue growth rate (20%) in 1982 and maintained their 5% market share ($1.2 billion).

- Exhibit II-2 lists average growth rates for publicly traded information services companies. Software companies had the highest average growth rate in 1982 with a 41% increase in revenue over 1981. The companies have averaged 36% growth in the first two quarters of 1983.

- Publicly traded processing services companies experienced a 13% increase in revenue in 1982. This is the lowest growth rate of the four information services in 1983. First and second quarter growth, however, has improved significantly over 1982.

- Professional services companies listed in Exhibit II-2 have experienced lackluster growth rates, particularly in 1983. These companies have the lowest average growth rate in the first two quarters of 1983 (12.5%) of all information services sectors.

- Integrated systems vendors' revenue dropped in the second and third quarters of 1982 and again in the first quarter of 1983. Revenue growth in the first two quarters of 1983 (average 16%) is significantly lower than in the same period in 1982 (21.5%).

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EXHIBIT II-2

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GROWTH RATES FOR PUBLIC
INFORMATION SERVICES COMPANIES

| | GROWTH RATE (percent) | | | | | |
| | 1982 | | | | 1983 | |
COMPANY TYPE	Q1	Q2	Q3	Q4	Q1	Q2
Processing Services	13%	11%	13%	14%	15%	16%
Software	55	36	36	37	30	41
Professional Services	15	12	17	14	11	14
Integrated Systems	25	18	11	20	13	19

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- Marketshare of the Directory companies is shown in Exhibit II-3.

    - Companies in the Directory have 62% of the professional services market.

    - Processing services companies with over $10 million in revenue have 65% of their market.

    - Software product companies with over $10 million maintain a 49% market share in 1982, the same as in 1981.

    - The largest share of the integrated systems market is controlled by companies under $10 million. Companies with over $10 million have only 37% of the market - the lowest of the four industry segments.

C.   SALES LEADERS IN THE U.S. MARKET

- Exhibit II-4 ranks sales leaders according to U.S. noncaptive information services revenue.

- Thirty-four companies generated information services revenues of over $100 million in 1982 - a 21% increase over the 28 companies listed in the 1981 Directory.

- The top five information services companies have 14% of the U.S. market, or $3.8 billion.

- IBM, with $1.2 billion in U.S. information services revenues, continues to derive most (83%) of its information services revenue from software products.

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EXHIBIT II-3

INFORMATION SERVICES INDUSTRY BY SERVICE MODE
1982
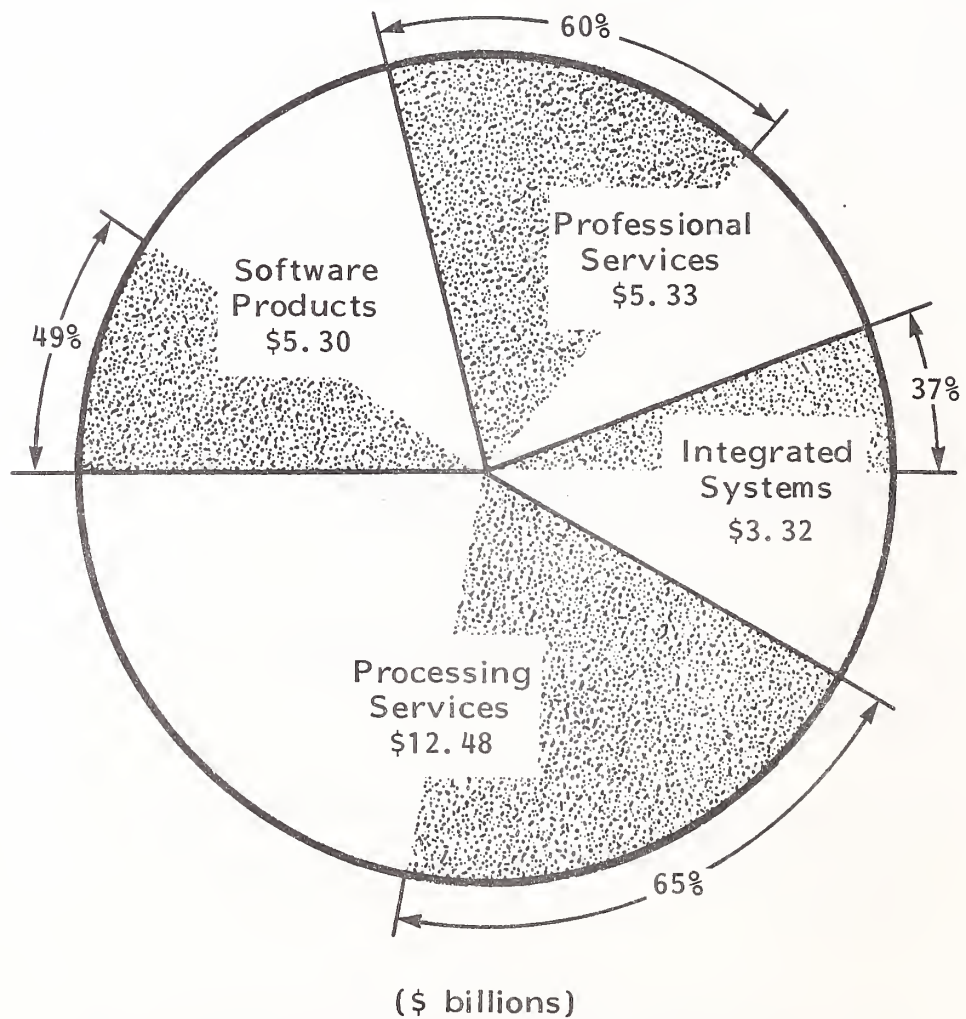
($ billions)

▨ = Market share of companies over $10 million
(i.e., companies in the INPUT Directory)

EXHIBIT II-4

INPUT DIRECTORY OF THE LARGEST INFORMATION SERVICES VENDORS
BY NONCAPTIVE U.S. REVENUE

RANK			CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981	COMPANY	1982	1981	
1	1	International Business Machines (IBM)	$1,240	$985	26%
2	2	Control Data Corporation (CDC)	767	701	9
3	3	Automatic Data Processing, Inc. (ADP)	645	558	16
4	4	Computer Sciences Corporation (CSC)	571	510	12
5	5	Electronic Data Systems Corporation (EDS)	527	455	16
6	6	General Electric Company (GE)	491	399	23
7	7	Burroughs Corporation	328	283	16
8	9	McDonnell Douglas Automation Company (MCAUTO)	312	215	45
9	10	Arthur Andersen and Company	229	192	19
10	11	Computervision	203	164	24
11	8	Tymshare, Inc.	203	216	(6)
12	12	Mitre Corporation	175	151	16
13	18	Shared Medical Systems Corporation	166	132	26
14	16	Boeing Computer Services, Inc. (BCS)	163	140	17
15	14	Litton Industries, Inc.	161	141	14
16	13	Planning Research Corporation (PRC)	160	144	11
17	15	Price Waterhouse	150	140	7
18	19	Informatics General Corporation	150	128	17
19	28	Digital Equipment Corporation (DEC)	142	107	33
20	23	Sperry Corporation	138	118	17
21	17	Dun & Bradstreet	137	137	0
22	32	Anacomp, Inc.	134	95	40
23	22	Equifax, Inc.	131	121	8
24	26	Chase Manhattan Bank	127	108	18
25	21	Securities Industry Automation	125	120	19
26	20	Texas Instruments	122	124	(2)
27	25	McGraw-Hill	122	108	12
28	29	American Express Company	121	105	15
29	27	National Data Corporation Inc. (Rapidata)	118	108	9
30	30	Bradford National Corporation	114	101	13

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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EXHIBIT II-4 (Cont.)

INPUT DIRECTORY OF THE LARGEST INFORMATION SERVICES VENDORS

BY NONCAPTIVE U.S. REVENUE

RANK			CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981	COMPANY	1982	1981	
31	41	Quotron Systems, Inc.	$110	$ 78	40%
32	45	Intergraph Corporation	110	69	58
33	33	CCH Computax, Inc.	103	90	14
34	36	University Computing (WYLY)	101	82	23
35	24	Schlumberger, Ltd.	100	112	(11)
36	34	Bank of America Corporation	97	85	14
37	31	United Telecom Computer Group—	94	99	(5)
38	35	Peat, Marwick and Mitchell	92	84	10
39	40	Triad Systems	90	79	15
40	38	Reynolds and Reynolds Company (The)	87	79	10
41	44	Gerber Scientific, Inc.	86	71	21
42	61	CACI, Inc.	85	51	67
43	37	Honeywell, Inc.	85	81	4
44	46	TRW Information Services	79	68	16
45	53	Martin Marietta Data Systems	76	55	39
46	42	Geosource, Inc.	75	77	(3)
47	50	Management Science America, Inc.	73	57	29
48	43	Xerox Computer Services	73	72	1
49	39	NCR Corporation	72	79	(9)
50	47	Nielsen (A.C.) Company	67	61	10
51	48	Grumman Data Systems	67	61	10
52	78	Tandy Corporation	67	36	86
53	51	Transunion Corporation	66	57	16
54	56	Computer Language Research (FASTAX)	66	53	26
55	52	Syscon (Systems Consultants, Inc.)	64	55	17
56	63	Computer Consoles	63	51	25
57	49	American Management Systems, Inc.	63	60	5
58	58	ADVO Systems, Inc. (ADVO)	62	52	19
59	55	S.I.S. (formerly Sun Information Services)	60	53	13
60	57	Continental Telecom Inc.	60	52	14
61	59	Logicon Inc.	58	52	13
62	60	Telecredit, Inc.	58	52	12
63	71	Systematics	58	42	38
64	54	Westinghouse Electric Corporation	57	53	8
65	67	Hewlett-Packard Corporation	57	46	23

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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EXHIBIT II-4 (Cont.)

INPUT DIRECTORY OF THE LARGEST INFORMATION SERVICES VENDORS
BY NONCAPTIVE U.S. REVENUE

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1982	1981	
66	66	Allied Information Systems	$54	$47	15%
67	62	Comshare, Inc.	53	51	4
68	68	Metromail	52	46	15
69	76	HBO and Company	52	37	41
70	84	Apple Computer	51	34	50
71	65	Citicorp	50	48	4
72	90	Cullinet Software (Formerly Cullinane)	49	32	54
73	64	Science Applications, Inc.	49	48	3
74	69	Digicon, Inc.	48	44	10
75	85	Applied Data Research	45	33	33
76	96	Telerate Systems, Inc.	45	29	52
77	70	Seismograph Services Corporation	44	42	3
78	79	Cable Data	42	36	17
79	77	OAO	42	37	15
80	114	Systems and Applied Sciences	42	23	77
81	73	Cap Gemini Sogeti	41	39	5
82	81	C3	40	35	16
83	87	Mead Corporation	40	34	19
84	75	Computer Task Group, Inc.	39	37	6
85	89	SEI Corporation	39	32	22
86	72	Auto-trol Technology	39	40	(2)
87	83	Kirchman Corporation	39	34	14
88	74	Arthur Young and Co.	38	38	0
89	147	Affiliated Computer Systems	38	18	111
90	92	Compuserv, Inc.	37	31	19
91	86	Ohio Cooperative Library Corporation (OCLC)	37	34	11
92	129	DST, Inc.	37	20	85
93	93	Bolt Beranek and Newman, Inc.	36	31	15
94	80	GTE Telenet Information Systems	35	35	0
95	104	Cincom Systems, Inc.	34	26	33
96	95	International Graphics	34	30	13
97	91	Arthur D. Little, Inc.	34	32	6
98	113	Policy Management Systems	34	23	44
99	108	Statistical Tabulating Corporation	33	25	33
100	139	Computer Data Systems	33	19	75

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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EXHIBIT II-4 (Cont.)

INPUT DIRECTORY OF THE LARGEST INFORMATION SERVICES VENDORS
BY NONCAPTIVE U.S. REVENUE

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1982	1981	
101	119	Systems and Computer Technology	$33	$22	50%
102	109	Reuters North America	32	24	33
103	94	TERA Corporation	32	31	3
104	82	NLT Computer Services Corporation	31	34	(8)
105	97	Seiscom Delta	31	29	7
106	117	McCormack and Dodge	31	22	39
107	106	Whittaker Corporation	31	26	18
108	144	Visicorp (Formerly Personal Software)	30	18	67
109	112	Softech Inc.	30	24	27
110	263	Softsel Computer Products	30	6	428
111	98	Computer Company (The)	30	28	5
112	111	International Computaprint Corporation	30	24	25
113	99	Coopers and Lybrand	30	28	5
114	134	Technicon Data Systems	30	20	50
115	124	Mellon Bank Data Center	29	21	40
116	116	Pansophic Systems, Inc.	29	23	27
117	115	Telos Computing	29	23	25
118	101	Data General Corporation	28	27	4
119	105	Computer Sharing Services, Inc.	28	25	10
120	110	Datacomp Corporation	28	24	17
121	128	Computer Associates, Inc.	28	20	36
122	261	MicroPro International Corporation	27	6	336
123	120	CGG Data Processing Service Inc.	27	22	25
124	100	Real Estate Data	27	28	(4)
125	203	Metier Management Systems, Inc.	27	12	131
126	151	ASK Computer Systems	27	17	55
127	125	CGA Computer Associates	27	21	29
128	133	Comdata Network	26	20	34
129	126	AGS Computers, Inc.	26	20	28
130	143	Compuware	26	18	44
131	102	Analysts International Corporation	26	26	0
132	148	Dynamics Research Corporation	26	18	45
133	137	BDM International	25	19	34
134	150	Intermetrics, Inc.	25	17	43
135	88	Dyatron Corporation	25	33	(25)

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1982	1981	
136	165	System Integrators Inc.	$24	$15	58%
137	142	Management Decision Systems	24	18	28
138	135	Dialog Information Services	23	20	19
139	132	First Bank Systems	23	20	18
140	123	Touche Ross	23	21	10
141	131	M/A Com Sigma Data, Inc. (was Sigma Data)	23	20	14
142	118	Monchik-Weber	22	22	1
143	254	Digital Research Inc.	22	8	160
144	122	Deloitte, Haskins and Sells	22	21	5
145	152	Comserv Corporation	22	17	26
146	121	CISI Group	21	21	0
147	158	Software AG of North America, Inc.	21	16	31
148	107	Ernst and Whinney	21	25	(15)
149	140	Information Science, Inc.	21	19	12
150	154	Software Design Associates, Inc.	21	17	24
151	155	Tandem Computers Inc.	21	17	21
152	145	Pentamation Enterprises, Inc.	21	18	14
153	182	Users, Inc.	20	14	49
154	174	Computer Horizons	20	14	41
155	223	Systems Architects Inc.	20	11	91
156	180	Paychex Inc.	20	14	46
157	166	Candle Corporation	20	15	33
158	130	Online Business Systems	20	20	0
159	153	Cycare Systems	20	17	17
160	127	Systems Research Laboratories	20	20	(4)
161	188	Dow Jones Information Services, Inc.	20	13	50
162	258	Management Systems of Wausau Inc.	20	8	160
163	234	Prime Computer Inc.	20	10	100
164	156	Safeguard Business Systems, Inc.	19	17	14
165	103	Technology Development of California	19	26	(26)
166	198	Hadron Inc.	19	12	59
167	141	Data Communications Corporation	19	19	3
168	171	Mid-Continent Computer	19	15	29
169	162	Systems and Programming Resources Inc.	19	16	20
170	177	3PM Inc.	19	14	32

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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RANK			CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981	COMPANY	1982	1981	
171	173	Mathematica Inc.	$19	$14	29%
172	211	Neshaminey Valley Information Processing	19	11	66
173	146	Datamedix	19	18	3
174	161	National Computer Systems	18	16	16
175	149	Continuum	18	18	2
176	167	Aspen Systems Corporation	18	15	20
177	160	Booz Allen & Hamilton, Inc.	18	16	13
178	189	Calculon Corporation	18	13	39
179	168	Science Dynamics Corporation	18	15	20
180	176	First Data Management Company	18	14	25
181	159	Sterling Systems	18	16	11
182	187	Pharmaceutical Card Systems	18	13	35
183	157	Keane Associates, Inc.	18	16	7
184	227	Information Builders, Inc.	17	10	70
185	209	Strategic Information	17	11	50
186	138	Western Union Corporation	17	19	(10)
187	220	Execucom Systems Corporation	17	11	57
188	199	Gesco Corporation	17	12	40
189	191	Intel Corporation	17	13	31
190	172	Science Management Corporation	17	15	16
191	259	Microsoft	17	8	120
192	164	Command Control and Communications Corp.	16	15	7
193	163	Realtron	16	15	5
194	179	Applied Information Development	16	14	14
195	169	Federal Electric Corporation	16	15	7
196	136	Systems Control Group	16	19	(16)
197	241	National Data Communications	16	9	69
198	193	Budget Timeshare Inc.	16	12	27
199	175	Advanced Systems, Inc.	16	14	10
200	218	Scientific Calculations, Inc.	16	11	46
201	195	Syncsort, Inc.	16	12	30
202	260	American Software Inc.	16	7	116
203	201	Amherst Associates, Inc.	16	12	34
204	202	Comptek Research	16	12	33
205	178	Associated Press	16	14	9

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1982	1981	
206	214	On-line Software International	$15	$11	38%
207	194	TLS Company	15	12	25
208	192	Analytics	15	13	20
209	184	Commodity News Services (Knight-Ridder)	15	13	12
210	197	Wachovia Services	15	12	24
211	266	Hogan Systems, Inc.	15	5	182
212	183	Intercomp	15	14	6
213	239	SAS Institute, Inc.	14	10	50
214	237	Volt Delta Resources Inc.	14	10	48
215	249	Integrated Software Systems Corp. (ISSCO)	14	9	57
216	196	Safecom, Inc.	14	12	17
217	206	Datatel, Inc.	14	12	23
218	181	CL Systems, Inc.	14	14	2
219	253	Pharmacom	14	9	62
220	209	Instacom Inc.	14	12	18
221	185	Computer Network Corporation (COMNET)	14	13	3
222	207	Input Output Computer Services	14	11	19
223	212	I.P. Sharp Associates	14	11	21
224	236	Timesharing Resources Inc.	13	10	39
225	257	Century Analysis Inc.	13	8	67
226	186	Computer Assistance Inc.	13	13	0
227	267	Redshaw Inc.	13	4	266
228	205	Scientific Computers Inc.	13	12	12
229	246	Computer Input Services, Inc.	13	9	40
230	242	Cybertek	13	9	38
231	213	Inco, Inc.	13	11	15
232	217	Systems Management	13	11	16
233	208	Computer Curriculum Corporation	13	11	9
234	228	Compucare (Formerly Space Age Computers)	13	10	24
235	190	Automated Concepts	13	13	(3)
236	200	Rand Information Systems	12	12	4
237	262	Information Resources Inc.	12	6	110
238	247	Technology Development of California	12	10	32
239	243	Computer Corp. of America	12	9	29
240	251	Northwestern National Bank of Minnesota	12	9	36

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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EXHIBIT II-4 (Cont.)

INPUT DIRECTORY OF THE LARGEST INFORMATION SERVICES VENDORS
BY NONCAPTIVE U.S. REVENUE

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1982	1981	
241	230	Software Design Inc. (SDI)	$12	$10	21%
242	226	Par Technology Corporation	12	10	16
243	215	Accounting Corporation of America	12	11	9
244	170	National Sharedata Corporation	12	15	(20)
245	235	Northeast Computer Systems Inc.	12	10	24
246	229	Advanced Computer Techniques (ACT)	12	10	19
247	221	NCA Corporation	12	10	12
248	216	Dial Financial Corporation	12	11	8
249	219	Scientific Software Corporation	12	11	8
250	244	Thomas National Group	12	9	24
251	231	Systems Associates Inc. (SAI)	12	10	15
252	224	Lifeboat Associates, Inc.	12	11	10
253	222	Index Systems, Inc.	11	12	8
254	264	Information Management International	11	6	107
255	210	Data Architects	11	11	1
256	255	Barrister Information Systems Corporation	11	8	38
257	252	Auxton Computer Enterprises	11	9	26
258	225	Academic Financial Services Association	11	11	5
259	256	Advanced Systems Applications	11	8	38
260	232	Continental Computer Services	11	10	10
261	238	Rehab Group Inc.	11	10	11
262	248	Raven Systems and Research	10	9	12
263	240	Racal-Redac, Inc.	10	10	8
264	245	TMI Systems Corporation	10	9	9
265	233	Analysis and Programming Corporation	10	10	0
266	265	Mann, Charles & Associates	10	6	82
267	250	Medical Data Services	10	9	11

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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- Control Data Corporation (CDC) is more diversified in its information services activities than IBM is. CDC's revenues of $767 million increased by 9% over 1981 revenues.

- ADP was the largest independent vendor with $645 million in information services revenues.

- Computer Sciences Corporation, the fourth largest information services vendor, derived 74% of its IS revenues from professional services.

- EDS split its $527 million information services revenue evenly between professional services and processing services. Overall information services revenue growth for EDS in 1982 was 16%.

- Software companies continued to increase revenues at a faster rate than other information services companies and consequently showed substantial gains in the 1982 rankings. The largest declines in position rankings were suffered by professional and processing services companies.

- The five companies showing the greatest gains in the 1982 rankings are:

    - Softsel (software), up 152 positions.

    - MicroPro International (software), up 139 positions.

    - Digital Research (software), up 111 positions.

    - Management Systems of Wausau (processing), up 96 positions.

    - Metier Management Systems (integrated), up 78 positions.

- The five companies that suffered the greatest declines in the 1982 rankings were:

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- National Sharedata Corporation (processing), down 74 positions.

- Technology Development of California (professional), down 60 positions.

- Systems Control Group (professional), down 60 positions.

- Western Union Corporation (processing), down 48 positions.

- Dyatron Corporation (processing), down 46 positions.

D. GROWTH LEADERS

- Seventy companies generated information services revenues of $50 million or more in 1982 - a 17% increase over 1981. Of these, the 15 fastest growing vendors are shown in Exhibit II-5.

- Seven companies on the 1981 list of fastest growing information services companies are also on this year's list. These include:

    - CACI.

    - Intergraph.

    - Quotron Systems.

    - Martin Marietta Data Systems.

    - DEC.

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EXHIBIT II-5

FASTEST GROWING COMPUTER SERVICES VENDORS WITH
NONCAPTIVE U.S. REVENUE OVER $50 MILLION

1982 RANK	COMPANY	CALENDAR YEAR REVENUE ($ millions)		1981/1982 PERCENT GROWTH
		1981	1982	
1	Tandy Corportation	$ 36	$ 67	86%
2	CACI, Inc.	51	85	67
3	Intergraph Corp.	69	110	58
4	Apple	34	51	50
5	McDonnell Douglas Automation Company (MCAUTO)	215	312	45
6	HBO and Company	37	52	41
7	Anacomp, Inc.	95	134	40
8	Quotron Systems Inc.	78	110	40
9	Martin Marietta Data System	55	76	39
10	Systematics	42	58	38
11	Digital Equipment Corportation (DEC)	107	142	33
12	Management Science America, Inc.	57	73	29
13	Shared Medical Systems Corp.	132	166	26
14	International Business Machines Corporation (IBM)	985	1,240	26
15	Computer Language Research	53	66	26

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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- MSA.

- Computer Language Research.

- Almost half (seven) of the companies on the list are processing companies; however, this number is down from nine companies in 1981.

- Of the remaining eight growth leaders:

    - Five are primarily software manufacturers.

    - One is a professional services firm.

    - Two are integrated systems vendors.

- Tandy Corporation, the fastest growing IS vendor, and Apple, the fourth fastest growing vendor, derived most of their services growth from micro-computer software sales.

- Other growth leaders specializing in software generate mostly mini and main-frame computer software products. The companies include:

    - IBM.

    - Digital Equipment Corporation.

    - Management Science America.

- CACI derives most of its revenue from professional services to the federal government.

- Intergraph is the only company on the list to derive the greater portion of its revenues from CAD/CAM sales. At 58%, Intergraph is a revenue growth leader in this particular category.

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- Besides Intergraph, HBO and Company is the only other vendor on the list dealing primarily in integrated systems. HBO is an industry-specific vendor specializing in the hospital market.

- MCAUTO, the second largest vendor on the list, obtains most of its information services revenue from remote computing and facilities management processing services. The company also produces integrated systems and provides commercial professional services.

- Anacomp's 40% revenue growth resulted primarily from batch and remote computing processing services, although the company also experienced a 38% increase in software revenues.

- Quotron is one of only two companies that has remained on the list of fastest growing information services vendors for the last three years. (DEC is the other.) Quotron has supported this growth primarily through expanded processing services to the banking and financial sector.

- Most of Systematics' growth has come from facilities management services for the banking industry.

- Shared Medical Systems' 26% growth rate was supported mainly by facilities management services provided to the medical/hospital market. Approximately 15% of the company's information systems (IS) revenue is derived from integrated systems.

- Although revenue increased at Computer Language Research by only 26% in 1982 (down from 44% in 1981), the company continued to grow faster than its main competitors, CCH Computax (13.9% growth in 1982). CCH Computax is the largest vendor of tax processing services.

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III PROCESSING SERVICES

III PROCESSING SERVICES

A. TOTAL PROCESSING SERVICES

- In 1982 processing services represented 47% of all information services business. Total revenues were $12.5 billion. Sixty-four percent of this amount was generated by the IS companies in INPUT's Directory - up from 60% last year and 58% the year before.

- The top 20 vendors in Exhibit III-1 generated one-third (29%) of 1982 U.S. noncaptive processing services revenues. All 40 companies listed in Exhibit III-1 represent 39% of that market.

- ADP was the largest vendor of processing services. This year the company grew at a rate of 15%, down from 23% last year. Acquisitions, which played an important role in ADP's 1982 growth, included Allied Financial Services Company, the customer payroll unit of Crocker National Bank, National Healthcare Administrators and Computer Statistics, Inc.

- ADP continued to refine its growth strategy by divesting itself of two unprofitable companies, a tax processing service and a commercial operation in France.

- CDC continues to be the largest vendor of processing services whose principal business is not information services. In January 1983 CDC reorganized its information services into four major business units:

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EXHIBIT III-1

LARGEST PROCESSING SERVICES VENDORS BY NONCAPTIVE U.S. REVENUE

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1982	1981	
1	2	Automatic Data Processing, Inc. (ADP)	$599	$520	15%
2	1	Control Data Corporation (CDC)	590	541	9
3	3	General Electric Company	282	250	13
4	4	Electronic Data Systems Corporation (EDS)	256	236	8
5	5	Tymshare, Inc.	178	192	(7)
6	6	McDonnell Douglas Automation Company (MCAUTO)	177	155	14
7	9	Computer Sciences Corporation (CSC)	151	122	24
8	7	Litton Industries, Inc.	148	132	12
9	11	Shared Medical Systems Corporation	141	112	26
10	10	Equifax, Inc.	131	121	8
11	8	Dun & Bradstreet	126	128	(2)
12	13	Securities Industry Automation Company	125	105	19
13	12	National Data Corporation	116	107	8
14	17	Boeing Computer Services, Inc. (BCS)	115	93	24
15	15	Chase Manhattan Bank	114	97	17
16	16	Bradford National Corporation	110	97	13
17	23	Quotron Systems, Inc.	108	77	41
18	19	McGraw-Hill	102	91	12
19	14	·Texas Instruments	100	104	(4)
20	20	Bank Of America Corporation	97	85	14

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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EXHIBIT III-1 (Cont.)

LARGEST PROCESSING SERVICES VENDORS BY NONCAPTIVE U.S. REVENUE

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RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1982	1981	
21	21	American Express Company	$94	$83	12%
22	24	CCH Computax, Inc.	89	77	16
23	25	TRW Information Services	79	68	16
24	28	Anacomp, Inc.	76	57	34
25	22	Geosource, Inc.	75	77	(3)
26	18	United Telecom Computer Group	73	43	(22)
27	27	Nielsen (A.C.) Company	67	61	10
28	26	Xerox Computer Services	65	65	1
29	31	Computer Language Research (formerly FAS)	64	53	23
30	32	ADVO Systems, Inc. (SDVO)	62	52	19
31	33	Telecredit, Inc.	58	52	12
32	41	Systematics	55	41	37
33	30	Informatics General Corp.	55	54	1
34	36	Allied Information Systems	54	47	15
35	37	Metromail	52	46	15
36	35	Citicorp	50	48	4
37	44	Transunion Corporation	50	42	19
38	40	SIS (formerly Sun Information Services)	48	42	14
39	34	Comshare, Inc.	48	48	--
40	29	NCR Corporation	47	65	(15)

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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- Network information services.

- Cybernet.

- Arbitron.

- Ticketron.

- Over 90% of CDC's information services revenues were derived from these four units, and 45% of information services revenue resulted from network information services alone.

- General Electric's subsidiary, GEISCO, increased revenues by 13% in 1982 and maintained GE as the third largest vendor of processing services. GE purchased Honeywell's 16% interest in GEISCO in 1982 and GEISCO now operates as a wholly owned GE subsidiary.

- GEISCO's growth in 1982 was fueled in part by acquisitions of Software International, and Network Consultants, Inc. Divestitures included Genigraphics and Enercom Inc.

- EDS, the fourth largest vendor of processing services, continues to derive a major portion of its revenues from the insurance and banking industries.

- In 1982 EDS reported significant gains in both the government and international markets. Project VIABLE, a 10-year, $650 million contract with the U.S. Army, was awarded to EDS in 1982 and is already a major contributor to revenues.

- Tymshare, Inc. registered the only decline (7%) in total processing services revenue among the top 10 processing services companies. The sale of a business operation - medical services and bankcard processing - was a major

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factor in the decrease in processing services revenues. The combined revenue of these two operations in 1981 was $25 million. It is no secret that Tymshare is for sale. Wang recently purchased a minority holding of the outstanding shares while negotiating with Tymshare, but subsequently withdrew and sold its shares. McDonnell Douglas Corporation announced in November, 1983, that it was negotiating to buy Tymshare. Negotiations have not been concluded at publication of this report.

- The fastest growing processing services vendor (as shown in Exhibit III-2) was Affiliated Computer Systems. Growth is attributed to expansion in the ATM market and the acquisition of the Paisano Computing Company.

- The second fastest growing company was DST. The company provides accounting and record-keeping services to the mutual fund industry.

- Telerate, Inc., the third fastest growing processing services vendor, provides financial market data to securities firms, banks, and other financial institutions on precious metals, commodities, bonds, government securities, and money instruments.

- Other banking and finance processing services companies are on the list of fastest growing companies.

  - Systematics provides processing services to the commercial banking industry.

  - SEI offers a complete, interactive, personal trust information system. Recently the company began offering a trust fund management service to its clients, leveraging the data it already held.

  - Computer Sciences Corporation's INFONET offers a variety of financial and scientific processing services.

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EXHIBIT III-2

FASTEST GROWING PROCESSING SERVICES VENDORS WITH
NONCAPTIVE U.S. REVENUE OVER $30 MILLION

1982 RANK	COMPANY	CALENDAR YEAR REVENUE ($ millions)		1981/1982 PERCENT GROWTH
		1981	1982	
1	Affiliated Computer Systems	$18	$38	111%
2	DST, Inc.	20	37	85
3	Telerate Systems, Inc.	29	45	52
4	Quotron Systems, Inc.	77	108	41
5	Systematics	41	55	37
6	Anacomp, Inc.	57	76	34
7	Reuters North America	24	32	33
8	Shared Medical Systems Corporation	112	141	26
9	International Computaprint Corporation	24	30	25
10	Computer Sciences Corporation (CSC)	122	151	24
11	Boeing Computer Services, Inc. (BCS)	93	115	24
12	Computer Language Research	53	65	23
13	SEI Corporation	25	31	22
14	Transunicon Corporation	42	50	19
15	ADVO Systems	52	62	19

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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- Computer Language Research (formerly FASTAX) is a leader in tax processing services.

- Quotron Systems provides access to a wide range of stock quotation information via the Quotron 800 financial information system. As of 1983 Quotron will act as a distributor of Telerate's bonds, commodities, and financial instrument quotations.

- ADVO Systems, the fastest growing processing services company in 1981, continues to rank as one of the fastest growing companies in 1982. ADVO specializes in direct mail advertising.

- Anacomp's 34% growth in processing services was fueled by the acquisition of DSI Corporation.

- Boeing Computer Services is one of the largest and fastest growing processing services companies. Its ability to offer a full line of services to the computing community is seen as its major strength.

B.   REMOTE COMPUTING SERVICES

- Remote Computing Services (RCS) represented 53% of all processing services in 1982 and 22% of the total information services market. The RCS market grew by 14% in 1982.

- The top 10 vendors in 1982, shown in Exhibit III-3, had a 25% share of the RCS market. This was down from 30% in 1981.

- CDC was the largest RCS vendor, reporting revenues of 50% greater than its nearest rival.

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EXHIBIT III-3

LARGEST REMOTE COMPUTING SERVICES VENDORS BY
NONCAPTIVE U.S. REVENUE

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1982	1981	
1	1	Control Data Corporation (CDC)	$425	$393	8%
2	2	General Electric (GE)	282	250	13
3	3	Automatic Data Processing, Inc. (ADP)	250	223	12
4	4	Tymshare, Inc.	113	122	(7)
5	11	Quotron	108	77	40
6	9	Computer Sciences Corporation (CSC)	108	80	35
7	6	Equifax, Inc.	105	97	8
8	8	National Data Corporation, Inc. (Rapidata)	101	90	12
9	12	Boeing Computer Services, Inc. (BCS)	96	75	27
10	5	Dun & Bradstreet	90	97	(7)
11	10	McDonnell Douglas Automation Company (MCAUTO)	87	77	13
12	14	Chase Manhattan Bank	80	68	19
13	13	TRW Information Services	79	68	16
14	7	United Telecom Computer Group	73	93	(22)
15	15	Xerox Computer Services	62	62	1
16	16	McGraw-Hill	61	58	5
17	17	Telecredit, Inc.	55	49	13
18	19	Allied Information Systems	54	47	15
19	18	Bradford National Corporation	50	49	2
20	22	Computer Language Research	45	37	23

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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EXHIBIT III-3 (Cont.)

LARGEST REMOTE COMPUTING SERVICES VENDORS BY NONCAPTIVE U.S. REVENUE

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1982	1981	
21	26	Mead Corporation	$40	$34	19%
22	23	Informatics General Corporation	39	36	7
23	24	Martin Marietta Data Systems	39	36	8
24	21	Comshare, Inc.	38	38	0
25	45	Affiliated Computer Systems	38	18	111
26	29	Citicorp	38	30	25
27	27	Compuserv, Inc.	37	31	19
28	41	DST, Inc.	37	20	85
29	20	Planning Research Corporation (PRC)	36	40	(10)
30	25	GTE Telenet Information Systems	35	35	0
31	30	University Computing (WYLY)	35	30	17
32	35	Reuters North America	32	24	33
33	33	ADVO Systems, Inc. (ADVO)	31	26	19
34	31	SIS (formerly Sun Information Services)	31	24	29
35	31	Ohio Cooperative Library Corp. (OCLC)	31	27	12
36	40	Transunion Corporation	29	25	18
37	34	Computer Sharing Services, Inc.	28	26	10
38	42	Comdata Network	26	20	34
39	28	NCR Corporation	26	30	(15)
40	69	NLT Computer Services Corporation	26	9	187

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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- General Electric and ADP experienced moderate growth rates in 1982 - 13% and 12% respectively. Average growth rate for the 10 largest RCS vendors was 13%.

- Tymshare and Dun & Bradstreet each suffered a 7% loss in RCS revenues in 1982. Both companies cited economic conditions as a partial cause for this loss.

- United Telecom Computer Group was the only other company among the 20 largest RCS vendors to experience a loss in revenue. The company soffered a 22% loss as a result of declines in the energy, engineering and utilities markets.

- Despite a generally lackluster performance in total revenues, Computer Sciences Corporation posted a 35% increase in RCS revenue. This was largely due to the acquisition of another RCS vendor, Associated Credit Services, Inc.

- The growth leaders in the RCS market are listed in Exhibit III-4. The weighted average growth of these fifteen companies was 36.4% or well over twice the total RCS market growth.

- Only three of the fastest growing RCS vendors were also in the largest vendor list. This indicates that smaller, specialized vendors are continuing to find market niches that offer high growth opportunities.

C.   BATCH SERVICES

- Batch services represented 36% of total processing revenue in 1982 and grew by 3% over 1981.

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EXHIBIT III-4

FASTEST GROWING REMOTE COMPUTING SERVICES VENDORS WITH
NONCAPTIVE U.S. REVENUE OVER $20 MILLION

1982 RANK	COMPANY	CALENDAR YEAR REVENUE ($ millions)		1981/1982 PERCENT GROWTH
		1981	1982	
1	NLT Computer Services Corporation	$ 9	$26	187%
2	Affiliated Computer Systems	18	38	111
3	DST, Inc.	20	37	85
4	Quotron Systems Inc	77	108	40
5	Computer Sciences Corporation	80	108	35
6	Comdata Network	20	26	34
7	Reuters North America	24	32	33
8	SIS (formerly Sun Information Serivces)	24	31	29
9	Boeing Computer Services, Inc. (BCS)	75	96	27
10	Citicorp	30	38	25
11	Computer Languages Research	37	45	23
12	ADVO Systems	26	31	19
13	Mead Corporation	34	40	19
14	Dialog Information Services	20	23	19
15	Compuserve, Inc.	31	37	19

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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- Exhibit III-5 lists the largest batch vendors. These top 20 firms represent 30% of the U.S. batch services market.

- ADP continued to be the largest vendor of batch services. Their 1982 revenue increase was greater than the combined increases reported by the next five largest vendors.

- Twenty percent of the companies on this list are in the seismic data processing business:

    - Western Geophysical (Litton Industries).

    - Geosource (Aetna Life).

    - Geophysical Services (Texas Instruments).

    - Seiscom Delta.

- Bank of America offers payroll management, accounts payable, accounts receivable, and a management information service in California.

- Anacomp, the largest supplier of computer output microfilming in the U.S., sustained its growth in the batch services market with a revenue increase of 42%.

- The leading growth companies in batch processing services are shown in Exhibit III-6.

- Information Resources, Inc. was the fastest growing company in this service mode. IRI designs and maintains computer-based systems for sales analysis of packaged consumer goods.

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EXHIBIT III-5

LARGEST BATCH SERVICES VENDORS BY NONCAPTIVE U.S. REVENUE

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1982	1981	
1	1	Automatic Data Processing, Inc. (ADP)	$349	$297	18%
2	2	Control Data Corporation (CDC)	147	133	11
3	3	Litton Industries, Inc.	134	119	13
4	4	Texas Instruments	100	104	(4)
5	6	CCH Computax, Inc.	87	75	15
6	7	Bank of America Corporation	83	73	14
7	5	Geosource, Inc.	75	77	(3)
8	8	Tymshare, Inc.	65	70	(7)
9	11	Anacomp, Inc.	60	42	42
10	9	Nielsen (A.C.) Company	59	54	10
11	10	Metromail	52	46	15
12	12	Computer Sciences Corporation (CSC)	43	42	3
13	13	McGraw-Hill	41	33	25
14	14	Dun & Bradstreet	36	31	15
15	17	ADVO Systems	31	26	19
16	15	Seiscom Delta	31	29	7
17	20	International Computaprint Corporation	30	24	25
18	16	Real Estate Data	27	28	(4)
19	19	Equifax, Inc.	26	24	16
20	22	Datacomp Corporation	26	22	16

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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EXHIBIT III-6

FASTEST GROWING BATCH SERVICES VENDORS WITH
NONCAPTIVE U.S. REVENUE OVER $10 MILLION

1982 RANK	COMPANY	CALENDAR YEAR REVENUE ($ millions)		1981/1982 PERCENT GROWTH
		1981	1982	
1	Information Resources Inc.	$ 6	$12	110%
2	Paychex Inc.	14	20	46
3	Anacomp, Inc.	42	60	42
4	Mellon Bank Data Center	14	19	40
5	Northwestern National Bank of Minnesota	9	12	36
6	Pharmaceutical Card Systems	13	18	35
7	International Computaprint Corporation	24	30	25
8	CGG Data Processing Service Inc.	20	25	25
9	TLS Company	12	15	25
10	McGraw-Hill	33	41	25

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

- Anacomp continues as a growth leader in batch services, but much of its growth was due to acquisitions.

- Mellon Bank Data Center experienced substantial growth in batch services after increasing its involvement in the ATM market and after acquiring a Chicago data processing firm.

D. PROCESSING FACILITIES MANAGEMENT

- Processing facilities management (PFM) constitutes the smallest sector of processing services, with only 12% of the 1982 U.S. processing services market. Its 15% market growth, however, is higher than either RCS or batch processing services.

- The 10 largest vendors, included in Exhibit III-7, had 67% of the total PFM market in 1982.

- PFM is distinguished from RCS and batch services because of long-term contracted commitments (see definitions). Companies in this category are generally specialized in their markets and are not subject to winning and losing customers on a short-term basis. Most of their contracts run for two to five years.

- These companies are also the most active in providing user site hardware services (DDP, controlled by their networks) and standalone integrated systems.

- EDS continues to maintain its lead in the PFM market with revenues more than twice the size of the second place firm, Shared Medical Systems.

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EXHIBIT III-7

LARGEST FACILITIES MANAGEMENT PROCESSING SERVICES VENDORS
BY NONCAPTIVE U.S. REVENUE

| RANK | | COMPANY | CALENDAR YEAR REVENUES ($ millions) | | 1981/1982 PERCENT GROWTH |
1982	1981		1982	1981	
1	1	Electronic Data Systems (EDS)	$256	$236	8%
2	3	Shared Medical Systems Corporation	127	95	33
3	2	Securities Industry Automation Company	125	105	19
4	4	McDonnell Douglas Automation Company (MCAUTO)	90	78	15
5	6	American Express Co.	75	65	15
6	7	Systematics	55	41	37
7	9	Telerate Systems, Inc.	45	29	52
8	8	Bradford National Corporation	43	33	30
9	10	SEI Corporation	31	25	22
10	15	Burroughs Corporation	21	17	27
11	11	International Graphics	20	21	(5)
12	12	Seismograph Services Corporation	20	20	0
13	16	Continental Telecom Inc.	19	15	27
14	18	Chase Manhattan Bank	18	15	23
15	17	Control Data Corporation (CDC)	18	15	20
16	13	Informatics General Corporation	16	18	(10)
17	14	National Data Corporation, Inc.	15	17	(13)
18	20	Boeing Computer Services Inc. (BCS)	14	12	14
19	19	Digicon, Inc.	12	15	(20)
20	21	Academic Financial Services	11	11	5

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

INPUT
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- While EDS has maintained a growth rate of 24% over the past seven years, growth in 1982 was only 8% - the lowest of the 10 largest PFM vendors.

- EDS provides PFM services to the insurance companies, banks, manufacturing firms, and to government.

- Shared Medical Systems (SMS) is the largest vendor of hospital information services. SMS has reported consistently high growth rates (33% in 1982), due to health care executives' increasing demands for more comprehensive computer services.

- MCAUTO is a principal competitor of SMS in the hospital information services market and is expanding into the communications industry as well as into manufacturing.

- American Express includes the service activities of First Data Resources, the largest provider of credit card services in the U.S.

- Systematics provides PFM services to over 200 banks from the company's 41 data centers.

- Bradford National Corporation offers a range of computerized record-keeping services to the securities industry and PFM services to financial institutions, industry, and government.

- SEI is a leading vendor of personal trust information systems to commercial banks (see description in section III-A).

- Exhibit III-8 lists the fastest growing vendors of PFM services. Telerate was the fastest growing PFM service vendor with a 52% increase in revenues in 1982.

INPUT

EXHIBIT III-8

FASTEST GROWING FACILITIES MANAGEMENT PROCESSING
SERVICES VENDORS WITH NONCAPTIVE U.S. REVENUE OVER $10 MILLION

1982 RANK	COMPANY	CALENDAR YEAR REVENUE ($ millions)		1981/1982 PERCENT GROWTH
		1981	1982	
1	Telerate Systems, Inc.	$29	$45	52%
2	Systematics	41	55	37
3	Shared Medical Systems Corporation	95	127	33
4	Bradford National Corporation	33	43	30
5	Burroughs Corporation	17	21	27
6	Continental Telephone	15	19	27
7	Compucare	8	10	25
8	Chase Manhattan Bank	15	18	23
9	SEI Corporation	25	31	22
10	Control Data Corporation (CDC)	15	18	20

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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- Telerate provides PFM services via a network of over 8,000 terminals linked to a battery of Perkin-Elmer minicomputers in the World Trade Center in New York.

- Systematics, the second fastest growing PFM vendor, also supplies PFM services to the banking industry.

INPUT

IV SOFTWARE PRODUCTS

IV SOFTWARE PRODUCTS

A. TOTAL SOFTWARE PRODUCTS MARKET

- In 1982, 49 companies derived more than $10 million in revenue from the sale or lease of software products in the U.S. This figure is up from 37 companies in 1981 and represents a 32% increase.

- The total software products market grew 41% in 1982 and represented 20% of all information services revenues. Companies in INPUT's Directory had 49% of the $5.29 billion 1982 software market.

- Companies producing microcomputer software continue to grow faster than nonmicrocomputer-based software companies.

- Computer equipment manufacturers again dominate the largest software products vendors list, as shown in Exhibit IV-1. There are nine computer manufacturers in the top 20 vendors of software products. Software revenues reported by hardware vendors were derived primarily from the sales of systems software.

- The top 10 vendors of software products have 28% of the total software products marketplace - down substantially from 38% in 1980.

INPUT

EXHIBIT IV-1

LARGEST SOFTWARE PRODUCTS VENDORS BY NONCAPTIVE U.S. REVENUE

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1982	1981	
1	1	International Business Machines Corpora- tion (IBM)	$1,020	$815	25%
2	2	Digital Equipment Corporation (DEC)	134	100	34
3	3	Sperry Corporation	75	67	12
4	4	Management Science America, Inc.	73	57	29
5	10	Tandy Corporation	67	36	86
6	5	Burroughs Corporation	62	57	10
7	7	Control Data Corporation (CDC)	55	50	10
8	8	Honeywell, Inc.	55	50	10
9	12	Apple Computer	51	34	50
10	9	Informatics General Corp.	50	38	31
11	13	Cullinet Software	49	32	53
12	10	University Computing (WYLY)	49	37	33
13	11	Hewlett-Packard Corporation	43	34	25
14	15	Applied Data Research	40	30	35
15	19	Anacomp, Inc.	33	24	38
16	20	Cincom Systems, Inc.	32	24	35
17	26	VisiCorp	30	18	67
18	64	Softsel Computer Products	30	6	428
19	15	Arthur Andersen and Company	30	28	8
20	58	General Electric Co.	30	7	340

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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- IBM totally dominated the software products marketplace. Their 1982 software products revenue ($1.02 billion) is greater than the combined revenue of the next 20 largest software vendors. In total software products revenue, IBM is more than seven times larger than its nearest rival. IBM's share of the U.S. software products market is 19%, down from 23% in 1980.

- MSA is the largest independent software vendor in the U.S., with $73 million in software revenue. The company produces accounting, human resources, and personal computing software. In addition, they entered the manufacturing software market when they acquired Arista Manufacturing Systems in 1982.

- Apple Computer has increased software sales as a result of the booming personal computer market. Apple software revenue increased by 50% in 1982 to $51 million.

- Tandy Corporation is the fastest growing of the 10 largest software products vendors. Software revenues reflect a 59% improvement in microcomputer sales and an increased emphasis on application software development at Tandy.

- Informatics General's software revenue increased substantially in 1982, partly as a result of acquisitions made in 1981 and partly because of gains in the law office management and life insurance systems products markets.

- Cullinet Software (formerly Cullinane Database Systems) experienced a 53% revenue growth as a result of increased new customer installations and the acquisition of Computer Pictures Corporation.

- University Computing (UCC/Wyly) maintained a 33% growth rate by selling software products for the mini and mainframe computer markets.

- Exhibit IV-2 lists the fastest growing software products vendors. Fifty percent of the companies on this list produce or distribute microcomputer software.

INPUT

EXHIBIT IV-2

FASTEST GROWING SOFTWARE PRODUCTS VENDORS WITH
NONCAPTIVE U.S. REVENUE OVER $10 MILLION

1982 RANK	COMPANY	CALENDAR YEAR REVENUE ($ millions)		1981/1982 PERCENT GROWTH
		1981	1982	
1	Softsel Computer Products	$ 6	$30	428%
2	General Electric Company	7	30	340
3	MicroPro International Corporation	6	27	336
4	Martin Marietta Data Systems	5	15	184
5	Hogan Systems	5	15	182
6	Digital Research Inc.	8	22	182
7	United Telecom Computer Group	6	14	122
8	Microsoft	8	17	120
9	American Software Inc.	7	16	116
10	Tandy Corporation	36	67	86

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

INPU
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- Softsel Computer Products was the fastest growing software products vendor again in 1982, with a growth rate of 428%. Softsel distributes over 2,000 software products to over 2,200 retailers. Growth is due to both the acquisition of CompuVision and the increased demand for home computer software.

- General Electric's growth resulted from acquisitions in 1981 (Banking Systems Inc. and Software International Inc.) as well as in 1982 (Software Resources and Network Consultants).

- MicroPro, the third fastest growing software vendor, produces microcomputer-based, business-oriented applications software. WordStar, MicroPro's best known product, is the largest selling word processing program for microcomputers in the U.S.

- Several other software vendors specializing in microcomputers include:

    - Digital Research (system software).

    - Microsoft (application software).

    - Tandy Corporation (both).

- Martin Marietta's Data Systems Division achieved a 184% increase in revenues in 1982. This increase was based primarily on sales of manufacturing and accounting applications software designed to run on Hewlett-Packard and IBM equipment.

- Hogan Systems, the leading supplier of banking applications software to financial institutions, increased revenue by 182% in 1982. In addition to developing and supporting an integrated line of banking software, the company is also developing software for on-line collections and credit card processing. Hogan Systems opened its first European office in London in March 1983.

INPUT

B.   APPLICATIONS SOFTWARE

- Exhibit IV-3 lists the 20 largest applications software vendors in 1982. Applications software accounts for 12% of all information services revenues and was the fastest growing information service market with a 39% increase in revenue.

- Application software revenues continue to be dispersed throughout the vendor community. Only 25% of this market is shared by the 20 largest vendors - a clear indication that the market is yet to mature. By way of contrast, 67% of the more mature processing facilities market is controlled by the 10 largest vendors.

- IBM was the market leader again with a 6% share. This is down from a 7% share in 1981 and reflects a declining growth rate (43% in 1981 to 23% in 1982).

- MSA derives nearly all of its revenues from applications software products. MSA had specialized in mainframe applications programs, but with the acquisition of Peachtree Software in 1981, it entered the microcomputer applications software market as well.

- DEC has continued to move into the applications software environment as the proliferation of their computers has led users to demand specialized software solutions to applications problems. This is probably the biggest growth opportunity that DEC has and one that would offset recent hardware sales stagnation.

- VisiCorp provides applications software for the microcomputer market. Since the introduction of VisiCalc, a financial spreadsheet program, the company

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EXHIBIT IV-3

LARGEST APPLICATIONS SOFTWARE VENDORS BY
NONCAPTIVE U.S. REVENUE

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1982	1981	
1	1	International Business Machines Corporation (IBM)	$185	$150	23%
2	2	Management Science America, Inc.	73	57	29
3	3	Digital Equipment Corporation (DEC)	40	30	33
4	8	Informatics General Corporation	36	23	56
5	7	Anacomp, Inc.	33	24	38
6	5	Apple Computer	31	20	55
7	12	VisiCorp	30	18	67
8	4	Arthur Andersen and Company	30	28	8
9	34	General Electric Corporation	30	7	340
10	9	McCormack and Dodge	29	21	38
11	6	Sperry Corporation	28	26	8
12	35	MicroPro International Corporation	27	6	336
13	16	Tandy Corporation	27	13	108
14	137	Softsel Computer Products	27	5	400
15	11	Kirchman Corporation	26	20	29
16	13	University Computing (WYLY)	25	16	51
17	17	Technicon Data Systems	24	15	64
18	10	Burroughs Corporation	23	21	12
19	15	Policy Management Systems	18	13	37
20	20	Execucom Systems Corporation	17	11	57

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

INPUT
CAD3

has specialized in financial analysis and business planning software. In April 1982 the company received $6.2 million in venture capital to help fund anticipated rapid growth.

- Arthur Andersen had the lowest growth rate (8%) of any of the 10 largest applications software vendors. The company, in addition to its role as a CPA firm, specializes in manufacturing, planning, and accounting software for minicomputers and small business computers.

- McCormick and Dodge produces financial and accounting software programs primarily for mini and mainframe computers. Revenue growth of 38% was fueled in part by the acquisition of Human Resources Information Systems and the introduction of new software products. McCormick and Dodge was acquired by Dun and Bradstreet in May 1983.

- University Computing's applications software revenue rose to $25 million in 1982, a 51% increase over 1981. Products are primarily designed for IBM mainframes, but in August 1983, UCC's parent, Wyly Corporation, signed a letter of intent to acquire Open Systems. Open Systems is a developer and distributor of microcomputer software.

- The fastest growing vendors of applications software are listed in Exhibit IV-4.

- Softsel remained the fastest growing applications software vendor as a result of the burgeoning market for home/recreational software. Approximately 70% of the software packages marketed by Softsel are recreational.

- United Telecom Computer Group increased its applications software revenue by 116% in 1982 largely through the acquisition of Insurance Systems of America. ISA is a leading software producer for the insurance industry.

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EXHIBIT IV-4

FASTEST GROWING APPLICATIONS SOFTWARE VENDORS WITH
NONCAPTIVE U.S. REVENUE OVER $10 MILLION

1982 RANK	COMPANY	CALENDAR YEAR REVENUE ($ millions)		1981/1982 PERCENT GROWTH
		1981	1982	
1	Softsel Computer Products	$ 5	$27	400%
2	General Electric Company	7	30	340
3	MicroPro International Corporation	6	27	336
4	Martin Marietta Data Systems	5	15	184
5	Hogan Systems, Inc.	5	15	182
6	United Telecom Computer Group	6	13	116
7	American Software Inc.	7	16	116
8	Tandy Corporation	13	27	108
9	Mann, Charles and Associates	6	10	82
10	VisiCorp	18	30	67

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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- MicroPro achieved a 336% revenue growth by capitalizing on the demand for integrated software packages for business microcomputer users (WordStar, CalcStar, MailMerge, SpellStar, etc.). Factors underlying MicroPro's growth include software compatibility (MicroPro software is compatible with most popular microcomputers) and an extensive dealer network (over 2,000 dealers worldwide).

- American Software produces manufacturing, distribution, and financial applications software for IBM and plug-compatible mainframes and minicomputers.

- Charles Mann and Associates achieved a revenue growth of 82% by offering microcomputer software for the professional market. Products include software packages for medical and dental office management.

C.   SYSTEMS SOFTWARE

- Systems software revenues constituted 10% of the information services market in 1982. The market grew at a rate of 35% - second only to applications software as the fastest growing segment of the information services market.

- Exhibit IV-5 lists the largest vendors of systems software. The list continues to be dominated by computer manufacturers. Eight of the top 10 systems software vendors are computer manufacturers, and they control 47% of the systems software market.

- IBM, the market leader in systems software, accounts for 31% of all systems software sales in the U.S. Systems software revenues at IBM grew by 26% in 1982, slightly below the average for other top 10 systems software vendors.

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EXHIBIT IV-5

LARGEST SYSTEMS SOFTWARE VENDORS BY NONCAPTIVE U.S. REVENUE

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1982	1981	
1	1	International Business Machines Corpora-tion (IBM)	$835	$665	26%
2	2	Digital Equipment Corporation (DEC)	94	70	34
3	3	Control Data Corporation (CDC)	55	50	10
4	7	Cullinet Software (formerly Cullinane)	47	32	51
5	4	Sperry Corporation	47	41	15
6	5	Honeywell, Inc.	42	38	11
7	10	Tandy Corporation	40	23	74
8	6	Burroughs	39	36	8
9	8	Applied Data Research	38	28	32
10	9	Hewlett-Packard Corporation	30	24	26
11	12	Cincom Systems, Inc.	30	22	35
12	11	Pansophic Systems, Inc.	28	23	27
13	14	Computer Associates	26	19	36
14	13	University Computing (WYLY)	24	20	19
15	30	Digital Research Inc.	22	8	160
16	19	Software AG of North America, Inc.	21	16	31
17	18	Tandem Computers Inc.	21	17	21
18	21	Candle Corporation	20	15	33
19	15	NCR Corporation	20	19	4
20	16	Data General Corporation	19	18	6

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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- Cullinet Software, the largest independent systems software vendor, derived 98% of its 1982 revenues from the license and maintenance of IBM-compatible systems software products. Cullinet offers a family of data base management systems software centering around its IDMS (Integrated Data base Management System). Cullinet's other software products operate as modular systems based on IDMS.

- Applied Data Research was the second largest independent systems software vendor. ADR is a leading supplier of utility and data base management systems software on IBM and compatible mainframes. The company had over 14,000 installations at the end of 1982.

- Cincom Systems, with over 5,000 clients, is a direct competitor of ADR and Cullinet in data base systems software. While the company specializes in IBM mainframe systems software, it also offers some non-IBM mainframe and minicomputer systems software.

- Pansophic Systems' primary products (Easytrieve, Panvalet, Panexec and Panaudit) operate on medium and large IBM and IBM-compatible computers. Pansophic acquired Software Generation Technology Corporation in February, 1983.

- The fastest growing systems software vendors are listed in Exhibit IV-6.

- Digital Research - producers of CP/M, the most popular independent micro-computer operating system - was the fastest growing systems software vendor. Growth is attributable to the continued popularity of CP/M, new software products, and the acquisition of MT micro systems (in September 1982).

- Information Builders, with 70% growth, is the third fastest growing systems software vendor. One hundred percent of the company's revenue was derived from the FOCUS data base management system. FOCUS is operational on

- 60 -

EXHIBIT IV-6

FASTEST GROWING SYSTEMS SOFTWARE VENDORS WITH
NONCAPTIVE U.S. REVENUE OVER $10 MILLION

1982 RANK	COMPANY	CALENDAR YEAR REVENUE ($ millions)		1981/1982 PERCENT GROWTH
		1981	1982	
1	Digital Research	$ 8	$22	160%
2	Tandy Corporation	23	40	74
3	Information Builders, Inc.	10	17	70
4	Century Analysis	7	12	67
5	Apple Computer	14	20	55
6	Cullinet Software (formerly Cullinane)	32	47	51
7	Intel Corporation	10	14	44
8	Mathematica Inc.	10	14	37
9	Computer Associates, Inc.	19	26	36
10	Cincom Systems, Inc.	22	30	35

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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IBM and compatible mainframes; there are approximately 600 FOCUS instal-
lations worldwide.

- Century Analysis provided data base management systems software primarily
  for NCR hardware. Early in 1983 the company unveiled a multiuser, UNIX-
  based intelligent workstation with bundled software.

- The 37% revenue growth at Mathematica centered around the RAMIS II data-
  base management systems software. International sales of RAMIS II increased
  when the company opened offices in Germany and acquired Graeme Grimsdale
  and Associates in Australia. Mathematica was purchased by Martin Marietta
  Data Systems in 1983.

- Computer Associates markets systems software primarily for medium and
  large-scale IBM systems. The company has an integrated product strategy
  that includes 30 systems software products. CA acquired CAPEX in 1982. In
  1983 the company entered the microcomputer software market by acquiring
  Information Unlimited Software.

- Cullinet Software is clearly committed to continuing its rapid growth of the
  last few years. Acquisitions will play an important role in this growth. A
  prospectus dated December 2, 1982, indicates that the proceeds from sales of
  common shares will be used for the acquisition of software firms.

V   PROFESSIONAL SERVICES

A.   TOTAL PROFESSIONAL SERVICES

- In 1982 professional services represented 20% of all information services business. Total revenues were $5.3 billion. The computer services companies in INPUT's Directory generated almost two-thirds of these professional services revenues.

- The growth rate for professional services was 17%, compared to 18% for the entire information services industry. Programming and analysis continues to dominate as the primary source of revenue, representing 70% of all professional services revenue in 1982.

- Most (87%) of the smaller professional services companies derived their revenue from commercial sources. Larger companies demonstrated a more even distribution, with 58% of their revenue coming from commercial sources and 42% from government sources.

- Exhibit V-1 lists the largest suppliers of professional services in the U.S. by noncaptive revenue.

- Computer Sciences Corporation was the market leader in professional services again in 1982. Contracts with the federal government, particularly the Department of Defense, NASA, and the Federal Emergency Management

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EXHIBIT V-1

LARGEST PROFESSIONAL SERVICES VENDORS BY NONCAPTIVE U.S. REVENUE

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1982	1981	
1	1	Computer Sciences Corporation (CSC)	$420	$389	8%
2	2	Electronic Data Systems Corporation (EDS)	250	206	21
3	3	Burroughs Corporation	232	198	17
4	5	International Business Machines Corporation (IBM)	195	170	15
5	4	Arthur Andersen and Company	187	165	13
6	6	Mitre Corporation	175	151	16
7	7	Price Waterhouse	147	138	7
8	8	Planning Research Corporation (PRC)	116	98	18
9	9	Peat, Marwick and Mitchell	92	84	9
10	16	CACI, Inc.	81	49	66
11	10	Control Data Corporation (CDC)	80	80	0
12	12	General Electric Company (GE)	72	56	29
13	35	McDonnell Douglas Automation Company (MCAUTO)	70	21	233
14	11	Grumman Data Systems	65	59	10
15	13	Syscon	63	54	17
16	15	Sperry Corporation	60	50	20
17	14	Logicon Inc.	58	52	13
18	17	Science Applications, Inc.	49	48	3
19	18	Boeing Computer Services, Inc. (BCS)	46	45	3
20	20	Cap Gemini Sogeti	40	37	9

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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EXHIBIT V-1 (Cont.)

LARGEST PROFESSIONAL SERVICE VENDORS BY NONCAPTIVE U.S. REVENUES

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1982	1981	
21	21	OAO	$ 40	$ 35	14%
22	22	Informatics General Corp.	39	34	15
23	19	Arthur Young and Co.	38	38	0
24	24	American Management Systems, Inc.	36	31	18
25	25	Computer Task Group, Inc.	34	29	17
26	23	Arthur D. Little, Inc.	34	32	6
27	26	Bolt Beranek and Newman, Inc.	33	29	14
28	33	Systems and Applied Sciences	30	17	77
29	27	Coopers and Lybrand	30	28	5
30	34	Telos Computing	29	23	25
31	42	Systems and Computer Technology	28	19	48
32	31	Computer Company (The)	26	25	7
33	41	BDM International	25	19	34
34	28	Analysts International Corporation	25	26	(1)
35	64	Computer Data Systems	25	12	110
36	29	Honeywell, Inc.	24	25	(4)
37	39	Softech Inc.	24	20	18
38	37	Touche Ross	23	21	10
39	46	Intermetrics, Inc.	23	16	43
40	50	Dynamics Research Corporation	22	16	43

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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Agency, helped to fuel CSC's 8% growth in 1982. Federal, state, and local government contracts represent 82% of CSC's professional services revenue.

- EDS derived 43% of its professional services revenue from federal and state governments and 57% from commercial sources particularly in the banking and insurance industries.

- CPA firms continue to rank among the largest of the professional services companies. These include:

  - Arthur Andersen.

  - Price Waterhouse.

  - Peat, Marwick, and Mitchell.

  - Arthur Young and Company.

  - Coopers and Lybrand.

  - Touche Ross.

- Of the CPA companies, Arthur Andersen had the fastest growth (21%) and the highest revenue ($199 million).

- Planning Research Corporation (PRC) continued to derive the greater portion of its income from professional services, particularly from services to the Defense Department. Other sources of professional services revenues include civil agencies, state governments, and the commercial sector.

- CACI achieved the fastest growth (66%) of the 10 largest professional services firms. Government contracts account for over 50% of CACI's revenue.

- MCAUTO obtained 20% of its overall, noncaptive revenues from professional services. Commercial sources accounted for 96% of the company's professional services revenues.

- Syscon was formed primarily to provide professional services to the Department of Defense. By 1982, however, only 50% of the company's total revenue was derived from professional services contracts with the federal government.

- The fastest growing professional services companies are listed in Exhibit V-2.

- MCAUTO achieved a 233% growth in professional services revenue. Increases resulted largely from service expansion in the commercial sector. Medical, discrete manufacturing, and utilities are major industry segments served.

- The 110% increase in professional services revenues at Computer Data Systems was due primarily to a major contract with the General Services Administration.

- Professional services revenue growth at Systems and Computer Technology is attributable to an increase in the number and size of contracts with local governments and higher education institutions. Approximately 86% of SCT's 1982 revenue stemmed from professional services.

- Intermetrics increased professional services revenue by 43% in 1982. Sales to the federal government continue to account for the main portion of the company's revenue.

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EXHIBIT V-2

FASTEST GROWING PROFESSIONAL SERVICES VENDORS WITH
NONCAPTIVE U.S. REVENUE OVER $20 MILLION

1982 RANK	COMPANY	CALENDAR YEAR REVENUE ($ millions)		1981/1982 PERCENT GROWTH
		1981	1982	
1	McDonnell Douglas Automation Company (MCAUTO)	$21	$70	233%
2	Computer Data Systems	12	25	110
3	Systems and Applied Sciences	23	40	77
4	CACI, Inc.	49	81	66
5	Martin Marietta Data Systems	13	22	65
6	Systems and Computer Technology	19	28	48
7	Dynamics Research Corporation	16	22	43
8	Intermetrics, Inc.	16	23	43
9	Computer Horizons	14	20	41
10	Software Design Associates, Inc.	14	20	39

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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B. GOVERNMENT PROFESSIONAL SERVICES

- Exhibit V-3 lists the largest vendors of professional services to government (federal, state, and local).

- Computer Sciences Corporation was, once again, the market leader in providing professional services to the government. CSC's revenue was twice that of its nearest competitor (Burroughs).

- PRC was the fourth largest vendor of government professional services. PRC's Government Information Systems division, which produces over three-fourths of the company's government professional services revenues, provides services primarily to defense-related agencies. PRC's Computer Systems group provides professional services to local government public safety agencies.

- Grumman Data Systems reported an 8% increase in government professional services revenue. This relatively small growth rate reflects Grumman's increased emphasis on developing commercial markets.

- Logicon provides professional services to three defense-related government markets. The first two markets, strategic weapons and tactical systems, are predominantly federal government markets. The third, intelligence systems, includes both state and federal agencies.

- Science Applications derived the major portion of its information services revenues from professional services performed for the U.S. government in the areas of national security, energy, environment, and health.

- Exhibit V-4 lists the fastest growing government professional service vendors.

INPUT

EXHIBIT V-3

LARGEST GOVERNMENT PROFESSIONAL SERVICES VENDORS

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1982	1981	
1	1	Computer Sciences Corporation	$419	$377	11%
2	2	Burroughs Corporation	195	185	5
3	3	Mitre Corporation	175	151	16
4	5	Planning Research Corporation	114	80	43
5	4	Electronic Data Systems	107	88	22
6	6	International Business Machines (IBM)	77	68	13
7	11	CACI, Inc.	66	37	80
8	8	Grumman Data Systems	56	52	8
9	9	Logicon Inc.	55	49	13
10	7	Syscon	54	63	(14)
11	10	Science Applications	40	38	5
12	12	Boeing Computer Services (BCS)	39	35	12
13	13	Control Data Corporation (CDC)	35	35	0
14	14	OAO Corporation	30	26	15
15	15	Systems and Applied Sciences	27	15	80
16	29	Computer Data Systems	25	12	110
17	16	Bolt Beranek and Newman, Inc.	25	22	13
18	18	Systems and Computer Technology	24	16	51
19	17	BDM International	24	17	38
20	19	Dynamics Research Corporation	22	16	43

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

INPUT
CAD3

EXHIBIT V-4

FASTEST GROWING GOVERNMENT PROFESSIONAL SERVICES VENDORS WITH NONCAPTIVE U.S. REVENUE OVER $10 MILLION

1982 RANK	COMPANY	CALENDAR YEAR REVENUE ($ millions)		1981/1982 PERCENT GROWTH
		1981	1982	
1	Computer Data Systems	$ 12	$ 25	110
2	CACI, Inc.	37	66	80
3	Systems and Applied Sciences	15	27	80
4	Arthur Andersen & Company	12	18	55
5	Systems and Computer Technology	16	24	51
6	Planning Research Corporation (PRC)	80	114	43
7	Dynamics Research Corporation	16	22	43
8	Intermetrics, Inc.	10	14	43
9	BDM International	17	24	38
10	Anacomp, Inc.	10	13	38

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

INPUT
CAD3

- Computer Data Systems increased revenues by 110% as a result of major contracts with G.S.A., the departments of Energy and Labor, and the U.S. Navy. The G.S.A. contract alone has a potential value of $40 million.

- Systems and Applied Sciences, the third fastest growing government professional services vendor, specializes in the analysis and verification of software development engineering for aerospace and military projects. SASC is minority owned and is certified as an 8(a) company by the Small Business Administration.

- Dynamics Research Corporation derives 69% of its revenues from professional services to defense and federal agencies. While the number of this company's government contracts actually declined in 1982, the average size of its other contracts increased, resulting in a 43% growth in professional services revenues.

- BDM's professional services revenues grew by 38%, primarily as a result of federal contracts in defense, communications, and energy. Over three-fourths of this increase is attributable to one contract with the Air Force, which brought in $5 million in 1982.

C. COMMERCIAL PROFESSIONAL SERVICES

- Exhibit V-5 lists the largest vendors of professional services to commercial businesses. CPA firms dominate the list. Arthur Andersen, the largest commercial services vendor, has revenues 27% greater than its nearest rival in this market. Other CPA firms in the top 20 list include:

  - Price Waterhouse.

  - Peat Marwick & Mitchell.

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EXHIBIT V-5

LARGEST COMMERCIAL PROFESSIONAL SERVICES VENDORS
BY NONCAPTIVE U.S. REVENUE

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1982	1981	
1	1	Authur Andersen and Co.	$169	$153	10%
2	3	Electronic Data Systems (EDS)	143	118	21
3	2	Price Waterhouse	132	124	6
4	4	International Business Machines (IBM)	118	102	16
5	6	General Electric Co.	70	55	27
6	16	McDonnell Douglas Automation Co. (MCAUTO)	67	19	252
7	5	Peat Marwick and Mitchell	62	60	3
8	7	Control Data Corporation	45	45	1
9	14	CAP Gemini	38	21	81
10	8	Burroughs Corp.	37	34	9
11	10	Computer Task Group, Inc.	32	28	17
12	9	Arthur Young	29	29	1
13	12	Informatics General Corp.	29	25	16
14	13	Analysts International Corp.	25	25	(1)
15	15	Coopers & Lybrand	23	21	10
16	11	Ernst & Whinney	22	26	(18)
17	18	Computer Horizons	19	14	41
18	19	Software Design Associates, Inc.	19	14	39
19	20	Systems & Programming Resources, Inc.	18	14	35
20	17	Arthur D. Little	17	19	(12)

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

INPUT
CAD3

- Arthur Young.

- Coopers & Lybrand.

- Ernst & Whinney.

- Arthur D. Little.

- Four computer manufacturers are on the list:

  - IBM.

  - General Electric.

  - Control Data Corporation.

  - Burroughs Corporation.

- EDS, the second largest vendor of commercial professional services, used an aggressive acquisition campaign to increase commercial professional services revenue by 21%. EDS acquired Weiland Computer Group, Automated Health Systems, and League Data Services in 1982. Banking and Insurance continue to be high-priority areas at EDS.

- Professional services to the commercial sector accounted for 87% of total revenues at Computer Task Group. CTG has grown consistently in this sector largely due to the acquisitions of Neoterics in 1980 and the opening of additional branch offices in new geographic areas. The company specializes in professional services to banking, manufacturing, chemical, and energy industries.

INPU

- Exhibit V-5 shows three companies experiencing a loss in professional services revenues in 1982: Analysts International, Ernst & Whinney, and Arthur D. Little. Of these, Analysis International attributes its losses to increased R&D costs and to decreased sales during the recent recession.

- Exhibit V-6 lists the growth leaders in the commercial professional services market.

- MCAUTO experienced a 252% increase in commercial professional services revenues. Growth resulted primarily from the health care, manufacturing, and engineering markets. Revenue growth was also boosted by acquisitions. These include the medical systems division of Tymshare, Bradford National Corporation, and a minority interest in Sanus.

- Computer Horizons, the third fastest growing commercial services vendor, derived 100% of its revenues from commercial professional services. This company serves the communication and financial services industries. Higher service prices and an increased number of contracts account for the growth in revenues.

- Over 80% of Software Design Associates' revenue resulted from commercial professional services. Revenue was derived primarily from the financial services, manufacturing, telecommunications, and insurance industries. Expanding geographic markets also account for part of this company's growth.

- Eighty-eight percent of Auxton Computer Enterprises' revenue was from commercial professional services, chiefly to the telephone and broadcasting industries. The 25% revenue increase resulted from expanded services and new customers in the telephone market.

- Although it continues to be predominantly a government services company, CACI has made significant gains in the commercial professional services market. The company's 26% growth rate in the commercial market reflects an increase in such services as demographic research and market analysis for diverse business and industrial concerns.

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INPUT

EXHIBIT V-6

FASTEST GROWING COMMERCIAL PROFESSIONAL SERVICES VENDORS
WITH NONCAPTIVE U.S. REVENUE OVER $10 MILLION

1982 RANK	COMPANY	CALENDAR YEAR REVENUE ($ millions)		1981/1982 PERCENT GROWTH
		1981	1982	
1	McDonnel Douglas Automation Company (MCAUTO)	$19	$67	252%
2	Compuware	7	14	84
3	Computer Horizons	14	19	41
4	Software Design Associates, Inc.	14	19	39
5	Systems and Programming Resources, Inc.	14	18	35
6	Applied Information Development	9	12	31
7	General Electric	55	70	27
8	CACI, Inc.	12	15	26
9	Telos Computing	11	14	25
10	Auxton Computer Enterprises	9	11	25

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

INPUT
CAD3

VI INTEGRATED SYSTEMS

VI   INTEGRATED SYSTEMS

- The total market for integrated systems was $3.3 billion or 13% of the total information services market in 1982. Firms included in this Directory (i.e., those with over $10 million in information services revenue) have 37% of the total integrated systems market.

- The growth rate for integrated systems vendors was 21%, compared to 18% for the information services industry.

- Hardware accounted for over 50% of total revenue for integrated systems companies; software accounted for 25%, and maintenance, training, and documentation make up the remaining revenue.

- Exhibit VI-1 lists the top 20 integrated systems vendor.

- Computervision was the revenue leader in integrated systems again in 1982, with almost twice the revenues of their nearest competitor, Calma (GE). Computervision's principal products are CAD/CAM systems (discussed below). The 1982 growth rate of 24% should be surpassed in 1983 due to the pending acquisition of Cambridge Interactive Systems.

- Intergraph Corporation, the third largest vendor of integrated systems, produces CAD/CAM systems for a variety of engineering and mapping applications. The company has 750 CAD/CAM systems installed worldwide.

INPUT

EXHIBIT VI-1

LARGEST INTEGRATED SYSTEMS VENDORS BY NONCAPTIVE U.S. REVENUE

RANK			CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981	COMPANY	1982	1981	
1	1	Computervision	$203	$164	24%
2	2	General Electric Company	108	86	25
3	6	Intergraph Corporation	93	60	55
4	3	Triad Systems	90	79	15
5	5	Gerber Scientific, Inc.	73	60	21
6	4	Schlumberger, LTD.	70	72	(4)
7	7	Computer Consoles	63	51	25
8	10	HBO and Company	52	37	41
9	13	McDonnell Douglas Automation Company (MCAUTO)	50	27	81
10	8	Reynolds and Reynolds Company (The)	47	40	18
11	12	Control Data Corporation	42	30	40
12	9	Auto-trol Technology	39	40	(2)
13	11	C3	38	33	16
14	29	Metier Management Systems, Inc.	27	12	131
15	14	Automatic Data Processing, Inc. (ADP)	26	21	24
16	15	Shared Medical Systems Corporation	25	20	27
17	16	American Express Company	24	20	25
18	17	System Integrators Inc.	24	15	58
19	26	Digicon, Inc.	24	13	80
20	21	Ask Computer Systems	22	15	46

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

INPUT
CAD3

- Triad Systems is the largest non-CAD/CAM industry-specific integrated systems vendor. The company markets integrated systems to retailers of automotive parts, hardware stores, and automobile tire distributors. In 1982 the automotive parts division shipped 15% fewer systems than in 1981. The hardware division and the automobile tire division increased their shipments by 10%.

- Schlumberger entered the integrated systems market in 1982 the same way GE did in 1981 - through acquisitions. Schlumberger acquired Applicon, an important CAD/CAM manufacturer, in January 1982. In October 1982 the company announced plans to acquire Benson, Inc., a French company that develops and manufacturers plotting equipment used in CAD systems.

- Computer Consoles, the seventh largest integrated systems vendor, develops, manufactures, and services turnkey systems for the telephone industry. HBO is the third largest integrated systems vendor of hospital information systems. The company provides both mini- and microcomputer-based systems to over 300 hospitals nationwide. The company experienced a solid 25% growth in 1982, and with new product introductions (see below) this growth should continue or improve in 1982.

- The 10 fastest growing integrated systems vendors are shown in Exhibit VI-2.

- Metier, the fastest growing integrated systems vendor, has experienced an average annual growth of over 100% for the past five years. Industries served include aerospace, engineering, petroleum, and utilities.

- Six of the 10 fastest growing integrated systems vendors are industry-specific vendors:

    - Anacomp.

    - Electronic Data Systems.

INPUT

EXHIBIT VI-2

FASTEST GROWING INTEGRATED SYSTEMS VENDORS WITH
NONCAPTIVE U.S. REVENUE OVER $10 MILLION

1982 RANK	COMPANY	CALENDAR YEAR REVENUE ($ millions)		1981/1982 PERCENT GROWTH
		1981	1982	
1	Metier Management Systems, Inc.	$12	$27	131%
2	Anacomp, Inc,	5	12	120
3	Electronic Data Systems Corporation	7	14	100
4	Users, Inc.	6	12	87
5	McDonnell Douglas Automation Company (MCAUTO)	27	50	81
6	Digicon, Inc.	13	24	80
7	National Data Communications	8	15	80
8	System Integrators, Inc.	15	24	58
9	International Graphics	9	14	56
10	Intergraph	60	93	55

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

INPU
CAD3

- Users, Inc.

- Digicon.

- National Data Systems.

- System Integrators.

- MCAUTO experienced growth in both CAD/CAM and industry-specific integrated systems. Industries served include health, manufacturing, and government. MCAUTO's CAD/CAM systems increased revenue as a result of new product releases.

- Intergraph, the tenth fastest growing integrated systems vendor, derived approximately 84% of its 1982 revenue from CAD/CAM systems. The introduction of new CAD/CAM products contributed significantly to the company's 55% revenue growth.

- Exhibit VI-3 lists the largest cross-industry integrated systems vendors.

- Metier is the largest cross-industry integrated systems vendor. Through its ARTEMIS turnkey systems, the company provides project management support to over 300 customers in 18 countries.

- CCH Computax, the second largest cross-industry integrated systems vendor, markets accounting turnkey systems based on Burroughs B series minicomputers. Over 2,500 of these systems have been installed.

- M/A Com Sigma Data provides integrated systems to both commercial and government clients. 1982 growth was adversely affected by the weak economy and delays in the funding of defense programs.

INPUT

EXHIBIT VI-3

LARGEST CROSS-INDUSTRY INTEGRATED SYSTEMS VENDORS BY
NONCAPTIVE U.S. REVENUE

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1982	1981	
1	3	Metier Management Systems, Inc.	$27	$12	131%
2	1	CCH Computax, Inc.	14	14	5
3	2	General Electric Company	10	13	(21)
4	5	International Graphics	10	6	58
5	4	M/A Com Sigma Data, Inc.	9	8	7
6	7	Automatic Data Processing, Inc. (ADP)	8	5	60
7	8	Systems Architects, Inc.	8	4	91
8	6	Systems Management	6	5	16
9	9	Westinghouse	4	3	8

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

INPU
CAD3

- Systems Management produces an integrated package of business programs for manufacturing, wholesale, and retail industries. The company has installed over 400 systems in the U.S. (70%) and the U.K. (20%).

- Westinghouse Information Services provides integrated turnkey systems for data tabulation and test scoring. Approximately 100 of their systems, which are based on HP 1000 computers, have been sold in the U.S.

- Exhibit VI-4 lists the fastest growing cross-industry integrated systems vendors.

- Metier Management Systems, the fastest growing cross-industry vendor, has experienced an average growth rate of 100% per year for the past five years. The company attributes this growth to an agressive international marketing effort, substantial R&D expenditures (twice the industry average), and a high level of customer support.

- System Architects provides turnkey systems in general financial management, travel agencies, and library management applications. These systems are based on IBM mainframes and DEC and Data General minicomputers.

- ADP is the third fastest growing cross-industry integrated systems vendor in addition to being the largest batch processing services vendor in the U.S. The company provides accounting/financial services to a variety of commercial industries.

- Exhibit VI-5 lists the largest industry-specific integrated systems vendors.

- Triad Systems, the largest industry-specific integrated systems vendor, derives most of its revenue from its automobile parts turnkey system. The company's 15% revenue increase was the lowest among the top 10 industry-specific vendors. Corporate officials attribute slowed growth to the impact of the recession on the automobile aftermarket.

INPUT

EXHIBIT VI-4

FASTEST GROWING CROSS-INDUSTRY INTEGRATED SYSTEMS VENDORS
BY NONCAPTIVE U.S. REVENUE

1982 RANK	COMPANY	CALENDAR YEAR REVENUE ($ millions)		1981/1982 PERCENT GROWTH
		1981	1982	
1	Metier Management Systems, Inc	$12	$27	131%
2	Systems Architects	4	8	91
3	Automatic Data Processing, Inc. (ADP)	5	8	60
4	International Graphics	6	10	58
5	Systems Management	5	6	16
6	Westinghouse	3	4	8
7	M/A Com Sigma Data, Inc.	8	9	7
8	CCH Computax, Inc.	14	14	5
9	General Electric Company	13	10	(21)

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

INPUT
CAD3

EXHIBIT VI-5

LARGEST INDUSTRY-SPECIFIC INTEGRATED SYSTEMS VENDORS
(EXCLUDING CAD/CAM) BY NONCAPTIVE U.S. REVENUE

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1982	1981	
1	1	Triad Systems	$90	$79	15%
2	2	Computer Consoles	63	51	25
3	4	HBO and Company	52	37	41
4	3	Reynolds and Reynolds Co. (The)	47	40	18
5	5	C3	38	33	16
6	6	Control Data Corporation (CDC)	34	25	36
7	7	Shared Medical Systems Corporation	25	20	27
8	8	American Express Company	24	20	25
9	15	System Integrators Inc.	24	15	58
10	18	Digicon, Inc.	24	13	80
11	14	Ask Computer Systems	22	15	46
12	16	Cable Data	19	14	35
13	13	Whittaker Corporation	19	16	20
14	9	Datamedix	19	18	3
15	10	Automatic Data Processing, Inc. (ADP)	18	16	13
16	11	University Computing (WYLY)	18	16	12
17	12	Transunion Corporation	16	16	0
18	24	National Data Communications	15	8	80
19	17	CL Systems, Inc.	14	14	2
20	28	Electronic Data Systems Corporation	14	7	100

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

INPUT
CAD3

- Computer Consoles specializes in integrated systems for the telephone industry. Most of the company's revenue is derived from sales to AT&T, including its affiliates and subsidiaries. A new product line, announced in 1982, marked the company's entry into the integrated office information systems market.

- HBO, the third largest industry-specific integrated systems vendor, provides both financial and clinical integrated systems to the hospital/medical market. Management attributes the 41% revenue growth in 1982 to increasing government pressure on hospitals to automate information processing departments.

- Reynolds and Reynolds provides integrated systems primarily to vehicle dealerships. In January 1983 the company formed Sligos and Reynolds to market turnkey systems to France's 5,000 vehicle dealers.

- C3 designs, markets, and maintains custom turnkey systems for use in communications and scientific applications. Ninety-three percent of C3's revenue was generated by sales and service of customized integrated systems. Virtually all of these systems were sold to the federal government.

- The fastest growing industry-specific integrated systems vendors are listed in Exhibit VI-6.

- Anacomp, with an integrated systems revenue increase of 120%, was the fastest growing industry-specific vendor in 1982. Acquisition in 1982 of CIS, a totally integrated banking system, and Bankserve 10,000 allow Anacomp to enter the banking market. The company previously specialized in manufacturing/distribution systems.

- Users, Inc., the third fastest growing industry-specific vendor, provides turnkey integrated systems to credit unions. The company has installed over 50 Datasafe turnkey systems throughout the U.S. The system consists of developed software on DEC minicomputers.

INPU

EXHIBIT VI-6

FASTEST GROWING INDUSTRY-SPECIFIC VENDORS OF INTEGRATED SYSTEMS
(EXCLUDING CAD/CAM) WITH NONCAPTIVE U.S. REVENUE OVER $10 MILLION

1982 RANK	COMPANY	CALENDAR YEAR REVENUE ($ millions)		1981/1982 PERCENT GROWTH
		1981	1982	
1	Anacomp, Inc	$ 5	$12	120%
2	Electronic Data Systems Corporation (EDS)	7	14	100
3	Users, Inc.	6	12	87
4	McDonnell Douglas Automation Company (McAUTO)	5	10	82
5	Digicon, Inc.	13	24	80
6	National Data Communications	8	15	80
7	System Integrators, Inc.	15	24	58
8	Ask Computer Systems	15	22	46
9	HBO and Company	37	52	41
10	Barrister Information Systems Corp.	8	11	38

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

INPUT
CAD3

- Turnkey Systems, provided mainly to the petroleum industry, accounted for 36% of Digicon's overall 1982 revenue. DISCOVERY, an enhancement to the DISCO turnkey system, helped fuel Digicon's 80% increase in 1982 integrated systems revenue.

- National Data Communications derived 93% of its 1982 revenue from integrated systems designed primarily for the health care sector. The company attributes revenue growth to increased prices as well as to increased equipment/systems sales.

- Exhibit VI-7 lists the largest vendors of CAD/CAM systems.

- Computervision continues to be the market leader in CAD/CAM integrated systems. New hardware products and an increasing commitment to software development have spurred the company's entry into three new interactive computer-aided markets: engineering, manufacturing, and data base management.

- General Electric was the second largest CAD/CAM vendor in 1982 as a result of its 1987 acquisition of Calma. Calma produces CAD/CAM systems for electronics, mechanical, engineering, and construction applications. The company has 1,300 systems installed worldwide. Seventy percent of systems revenue is derived from customers in the U.S.

- Gerber Scientific develops CAD/CAM systems for drafting, photoplotting, and interactive graphics. The introduction of new products and an aggressive international marketing effort have effected a 21% increase in the company's CAD/CAM revenues.

- Schlumberger, the fifth largest CAD/CAM vendor, experienced a 4% revenue loss in this market in 1982. Continued low levels of industrial output and capital spending worldwide were cited as causes for the decline.

INPU

EXHIBIT VI-7

LARGEST CAD/CAM INTEGRATED SYSTEMS
VENDORS BY NONCAPTIVE U.S. REVENUE

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1982	1981	
1	1	Computervision	$203	$164	24%
2	2	General Electric Company	98	74	33
3	5	Intergraph Corporation	93	60	55
4	4	Gerber Scientific, Inc.	73	60	21
5	3	Schlumberger, Ltd.	70	72	(4)
6	7	McDonnell Douglas Automation Company (MCAUTO)	40	22	81
7	6	Auto-trol Technology	39	40	(2)
8	9	Scientific Calculations, Inc.	14	11	33
9	10	Racal-Redac, Inc.	10	10	8
10	11	Control Data Corporation (CDC)	8	5	60
11	16	Prime Computer, Inc.	8	0	–
12	12	Sperry Corporation	3	1	200

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

INPUT
CAD3

- Approximately 67% of Auto-trol's 1982 revenue was derived from CAD/CAM system sales. This percentage is down from 75% in 1981 and 84% in 1980. According to management, introduction of a 32-bit system caused orders for the company's older 16-bit systems to drop sharply. Reduced orders and generally unfavorable market conditions account for the 2% decline in its CAD/CAM systems revenue.

- Exhibit VI-8 lists the fastest growing CAD/CAM vendors.

- MCAUTO was the fastest growing CAD/CAM integrated systems vendor with an 81% revenue increase. Revenue growth is credited to the introduction of new CAD/CAM products in late 1981 and 1982. These include the UNI-GRAPHICS A-100, the D-100, and an interface between the UNIGRAPHICS system and other minicomputers.

- Intergraph attributes the 55% increase in CAD/CAM revenue to three factors: 1) the company's early conversion to a 32-bit product line, 2) the support and availability of third-party software, 3) and entry into the mechanical design and electronics design industries.

- General Electric's Calma division increased CAD/CAM revenue by 33% in 1982 - the fifth fastest growth rate in this market. The introduction of lower cost GE Calma workstations, and a more powerful 32-bit Calma CAD/CAM system, contributed to this increase.

- Scientific Calculations is the fastest growing privately held CAD/CAM vendor. The company specializes in computer-aided design systems for the electronics industry. Revenue increases in 1982 resulted primarily from the new MicroElectronics Design System - a product targeted at both the MOS and Bipolar markets.

INPU

EXHIBIT VI-8

FASTEST GROWING CAD/CAM INTEGRATED SYSTEMS VENDORS
BY NONCAPTIVE U.S. REVENUE OVER $5 MILLION

1982 RANK	COMPANY	CALENDAR YEAR REVENUE ($ millions)		1981/1982 PERCENT GROWTH
		1981	1982	
1	McDonnell Douglas Automation Company (MCAUTO)	$22	$40	81%
2	Control Data Corporation (CDC)	5	8	60
3	Intergraph Corporation	60	93	55
4	General Electric Company	98	74	33
5	Scientific Calculations, Inc.	14	11	33
6	Computervision	203	164	24
7	Gerber Scientific, Inc.	73	60	21
8	Racal-Redac, Inc.	10	10	8
9	Prime Computer, Inc.	8	0	–

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

INPUT
CAD3

VII WORLDWIDE REVENUES OF DIRECTORY FIRMS

VII   WORLDWIDE REVENUES OF DIRECTORY FIRMS

- The worldwide revenue of vendors in this year's Directory are listed in Exhibit VII-I. The largest vendor, IBM, had worldwide services revenue of over $2.5 billion in 1982. Most of IBM's noncaptive revenue was derived from software products ($1.8 billion).   Processing and professional services provided the remaining $700 million. CDC continues to rank second in total information services revenue.   Over two-thirds of CDC's IS revenue is obtained from processing services.

- Exhibit VII-2 ranks the top 20 computer services vendors worldwide and in the U.S. Some firms, such as DEC and Sperry, had a substantially higher ranking worldwide than in the U.S. Others, such as PRC and Shared Medical, are primarily U.S.-based companies and consequently rank higher in the U.S. market than in the world market. The exhibit indicates that the same 20 firms that dominate the U.S. market also dominate worldwide.

- Exhibit VII-3 lists the largest independent software vendors both worldwide and in the U.S. Most of the vendors have a higher worldwide ranking, indicating substantial overseas marketing operations. Nine of the top 10 independent software vendors produce primarily mainframe and minicomputer software.

- Microcomputer software companies are making significant gains in both the worldwide and U.S. markets. Leading software companies include:

INPUT

EXHIBIT VII-1

INPUT DIRECTORY OF THE LARGEST INFORMATION SERVICES VENDORS
BY WORLDWIDE NONCAPTIVE REVENUE

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1981	1982	
1	1	International Business Machines (IBM)	$2,510	$2,085	20%
2	2	Control Data Corporation (CDC)	889	826	8
3	4	Automatic Data Processing, Inc. (ADP)	704	613	15
4	5	General Electric Company (GE)	690	580	19
5	3	Computer Sciences Corporation (CSC)	683	625	9
6	6	Electronic Data Systems Corporation (EDS)	544	471	15
7	7	Burroughs Corporation	370	321	15
8	10	McDonnell Douglas Automation Company (MCAUTO)	328	226	45
9	8	Computervision	325	271	20
10	9	Arthur Andersen and Company	314	267	18
11	15	Digital Equipment Corporation (DEC)	225	180	25
12	12	Sperry Corporation	223	203	10
13	16	Litton Industries, Inc.	214	175	22
14	11	Tymeshare, Inc.	211	225	(6)
15	13	Price Waterhouse	200	190	5
16	19	Mitre Corporation	175	151	16
17	20	Informatics General Corporation	170	150	13
18	21	Boeing Computer Services, Inc. (BCS)	169	144	17
19	24	Shared Medical Systems Corporation	166	132	26
20	22	Planning Research Corporation (PRC)	160	144	11
21	42	Intergraph Corporation	155	90	72
22	17	Texas Instruments	154	157	(2)
23	14	NCR Corporation	153	188	(19)
24	18	Schlumberger, Ltd.	151	152	(1)
25	23	Dun & Bradstreet	142	143	(1)
26	25	Equifax, Inc.	141	131	8
27	26	University Computing (WYLY)	141	119	18
28	39	Anacomp, Inc.	137	98	40
29	31	Chase Manhattan Bank	132	112	17
30	30	McGraw-Hill	129	114	12
31	36	Securities Industry Automation	128	108	14
32	38	Martin Marietta Data Systems	124	100	25
33	33	American Express Company	123	107	15
34	32	National Data Corporation	120	111	8
35	35	Bradford National Corporation	115	102	13

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

Continued

INPUT

EXHIBIT VII-1 (Cont.)

INPUT DIRECTORY OF THE LARGEST INFORMATION SERVICES VENDORS
BY WORLDWIDE NONCAPTIVE REVENUE

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1981	1982	
36	29	Gerber Scientific, Inc.	$115	$114	0%
37	34	Nielsen (A.C.) Company	114	104	9
38	28	Honeywell, Inc.	111	116	(5)
39	48	Quotron Systems, Inc.	110	79	39
40	27	United Telecom Computer Group	109	116	(6)
41	41	Hewlett Packard Corporation	109	91	21
42	40	CCH Computax, Inc.	104	92	13
43	51	Management Science America, Inc.	97	71	38
44	44	Bank of America Corporation	97	85	14
45	57	CACI, Inc.	96	58	64
46	37	Geosource, Inc.	96	100	(4)
47	43	Reynolds and Reynolds Company (The)	95	89	7
48	46	Peat, Marwick and Mitchell	92	84	10
49	49	Triad Systems	91	79	15
50	45	Digicon, Inc.	84	84	0
51	52	TRW Information Services	79	68	16
52	47	Comshare, Inc.	79	82	(4)
53	79	Tandy Corporation	75	40	88
54	50	Xerox Computer Services	73	72	1
55	53	Westinghouse Corporation	70	65	7
56	62	Computer Language Research (formerly FASTAX)	69	53	31
57	54	Transunion Corporation	67	59	14
58	74	Apple Computer	68	45	50
59	55	Grumman Data Systems	67	61	10
60	77	Cullinet Software (formerly Cullinane)	66	40	64
61	92	Metier Management Systems, Inc.	66	34	92
62	67	Applied Data Research	65	50	30
63	59	Syscon (formerly Systems Consultants, Inc.)	64	55	17
64	66	Computer Consoles	63	51	25
65	56	American Management Systems, Inc.	63	60	5
66	63	Advo Systems, Inc. (ADVO)	62	52	19
67	60	Continental Telecom Inc.	61	54	14
68	61	S.I.S. (formerly Sun Information Services)	60	53	13
69	73	Cincom Systems, Inc.	59	46	29
70	64	Logicon Inc.	58	56	13

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

Continued

INPUT

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1981	1982	
71	58	Seismograph Services Corporation	$ 58	$ 56	3%
72	65	Telecredit, Inc.	58	52	12
73	75	Systematics	58	42	38
74	70	Allied Information Systems	54	47	15
75	72	Metromail	53	46	15
76	84	HBO and Company	52	37	41
77	69	Citicorp	50	48	4
78	68	Science Applications, Inc.	50	48	3
79	101	Telerate Systems, Inc.	47	31	52
80	95	Computer Associates, Inc.	46	34	36
81	121	Systems and Applied Sciences	46	23	95
82	82	Mead Corporation	45	38	19
83	71	Auto-trol Technology	44	46	(5)
84	79	Seiscom Delta	43	39	10
85	88	I.P. Sharp Associates	43	35	22
86	76	Data General Corporation	42	41	3
87	87	Cable Data	42	36	17
88	86	OAO	42	37	15
89	80	CAP Gemini Sogeti	41	39	6
90	96	Pansophic Systems, Inc.	41	34	21
91	90	C3	40	35	16
92	98	SEI Corporation	40	33	22
93	83	Computer Task Group, Inc.	39	37	6
94	252	MicroPro International Corporation Inc.	39	9	336
95	85	Arthur D. Little, Inc.	39	37	5
96	94	Kirchman Corporation	39	34	14
97	108	McCormack and Dodge	39	26	47
98	81	Arthur Young and Co.	38	38	0
99	157	Affiliated Computer Systems	38	18	111
100	100	Compuserv, Inc.	37	31	19
101	97	Ohio Cooperative Library Corporation (OCLC)	37	34	11
102	136	DST, Inc.	37	20	85
103	112	Policy Management Systems	36	25	43
104	102	Bolt Beranek and Newman, Inc.	35	31	15
105	89	GTE Telenet Information Systems	35	35	0

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

Continued

INPUT

EXHIBIT VII-1 (Cont.)

INPUT DIRECTORY OF THE LARGEST INFORMATION SERVICES VENDORS BY WORLDWIDE NONCAPTIVE REVENUE

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1981	1982	
106	137	VisiCorp (formerly Personal Software)	$35	$20	75%
107	99	Trans Union Corporation	35	32	8
108	104	International Graphics	34	30	13
109	114	Statistical Tabulating Corporation	33	25	33
110	149	Computer Data Systems	33	19	75
111	102	Whittaker Corporation	33	29	14
112	126	Systems and Computer Technology	33	21	51
113	117	Reuters North America	32	24	33
114	103	Tera Corporation	32	31	3
115	93	NLT Computer Services Corporation	31	34	(8)
116	118	CGG Data Processing Service Inc.	30	24	25
117	154	Prime Computer Inc.	30	18	67
118	116	Tandem Computers Inc.	30	24	24
119	120	Softech Inc.	30	24	27
120	139	Technicon Data Systems	30	20	50
121	252	Softsel Computer Products	30	6	427
122	105	Computer Company (The)	30	28	5
123	119	International Computaprint Corporation	30	24	25
124	106	Coopers and Lybrand	30	28	5
125	115	Datacomp Corporation	30	25	18
126	122	CGA Computer Associates	29	23	29
127	134	Mellon Bank Data Center	29	21	40
128	123	Telos Computing	29	23	25
129	111	Computer Sharing Services, Inc.	28	26	10
130	153	Ask Computer Systems	27	18	51
131	133	Software AG of North America, Inc.	27	21	31
132	150	Compuware	27	19	44
133	107	Real Estate Data	27	28	(3)
134	141	Comdata Network	26	20	34
135	135	AGS Computers, Inc.	26	20	28
136	138	Candle Corporation	26	20	30
137	109	Analysts International Corporation	26	26	(0)
138	158	Dynamics Research Corporation	26	18	45
139	91	Dyatron Corporation	26	35	(26)
140	146	BDM International	25	19	34

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

Continued

INPUT

EXHIBIT VII-1 (Cont.)

INPUT DIRECTORY OF THE LARGEST INFORMATION SERVICES VENDORS
BY WORLDWIDE NONCAPTIVE REVENUE

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1981	1982	
141	159	Comserv Corporation	$25	$18	42%
142	129	Dialog Information Services	25	21	19
143	160	Intermetrics, Inc.	25	18	42
144	145	Management Decision	25	19	28
145	176	System Integrators Inc.	24	15	58
146	142	First Computer Corporation	23	20	18
147	132	Touche Ross	23	21	10
148	140	M/A Com Sigma Data, Inc. (formerly Sigma Data)	23	20	14
149	125	Monchik-Weber	22	22	1
150	256	Digital Research Inc.	22	8	160
151	130	Deloitte, Haskins and Sells	22	21	5
152	155	Software Design Associates, Inc.	22	18	22
153	233	Microsoft	22	10	120
154	143	Information Science, Inc.	22	19	11
155	128	CISI Group	21	21	0
156	113	Ernst and Whinney	21	25	(15)
157	161	Mathematica Inc.	21	17	24
158	144	Advanced Systems, Inc.	21	19	10
159	127	Data Communications Corporation	21	22	(2)
160	190	Dow Jones Information Services, Inc.	21	14	50
161	169	Intel Corporation	21	16	31
162	174	Scientific Calculations, Inc.	21	15	36
163	156	Pentamation Enterprises, Inc.	21	18	14
164	193	Users, Inc.	20	14	49
165	186	Computer Horizons	20	14	41
166	228	Systems Architects Inc.	20	14	91
167	192	Paychex Inc.	20	14	46
168	131	Systems Research Laboratories	20	21	(4)
169	124	Systems Control Group	20	23	(11)
170	139	Online Business Systems	20	20	0
171	162	Cycare Systems	20	19	17
172	147	Datamedix	20	19	3
173	260	Management Systems of Wausau Inc.	20	8	160
174	163	Safeguard Business Systems, Inc.	19	17	14
175	209	Execucom Systems Corporation	19	12	59

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

Continued

INPUT

EXHIBIT VII-1 (Cont.)

INPUT DIRECTORY OF THE LARGEST INFORMATION SERVICES VENDORS
BY WORLDWIDE NONCAPTIVE REVENUE

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1981	1982	
176	164	National Computer Systems	$19	$17	16%
177	227	Information Builders, Inc.	19	11	79
178	110	Technology Development of California	19	26	(26)
179	212	Hadron Inc.	19	12	59
180	184	Mid-Continent Computer	19	15	29
181	151	Continuum	19	19	2
182	167	Software Design Associates Inc.	19	16	18
183	172	Systems and Programming Resources Inc.	19	16	20
184	188	3PM Inc.	19	14	32
185	222	Neshaminey Valley Information Processing	19	11	66
186	182	Command Control and Communications Corp.	18	18	0
187	166	Advanced Computer Techniques Corporation	18	16	13
188	194	Budget Timeshare Inc.	18	14	33
189	211	Strategic Information	18	12	50
190	178	Aspen Systems Corporation	18	15	20
191	170	Booz Allen & Hamilton, Inc.	18	16	13
192	200	Calculon Corporation	18	13	39
193	179	Science Dynamics Corporation	18	15	20
194	187	First Data Management Company	18	14	25
195	199	Pharmaceutical Card Systems	18	13	35
196	177	Safecom, Inc.	18	15	17
197	168	Sterling Systems	18	16	11
198	165	Keane Associates, Inc.	18	16	7
199	195	Syncsort, Inc.	18	14	30
200	183	Scientific Software Corporation	17	15	18
201	180	Science Management Corporation	17	15	15
202	148	Western Union Corporation	17	19	(10)
203	171	Intercomp	17	16	6
204	213	Gesco Corporation	17	12	40
205	226	Integrated Software Systems	17	11	55
206	173	Realtron	16	15	5
207	217	On-Line Software International	16	12	38
208	259	American Software Inc.	16	8	114
209	191	Applied Information Development	16	14	14
210	185	Associated Press	16	15	10

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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EXHIBIT VII-1 (Cont.)

INPUT DIRECTORY OF THE LARGEST INFORMATION SERVICES VENDORS
BY WORLDWIDE NONCAPTIVE REVENUE

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1981	1982	
211	181	Federal Electric Corporation	$16	$15	7%
212	234	SAS Institute, Inc.	16	10	60
213	244	National Data Communications	16	9	69
214	215	Amherst Associates, Inc.	16	12	34
215	264	Hogan Systems, Inc.	16	6	182
216	216	Comptek Research	16	12	33
217	266	Redshaw Inc.	16	5	244
218	175	Bradford National Corporation	15	15	1
219	202	Instacom Inc.	15	13	18
220	207	TLS Company	15	12	25
221	204	Analytics	15	13	15
222	201	Lifeboat Associates, Inc.	15	13	15
223	196	Commodity News Service	15	13	12
224	208	Wachovia Services	15	12	24
225	245	Pharmacom	15	9	59
226	189	CL Systems, Inc.	14	14	3
227	241	Volt Delta Resources Inc.	14	10	48
228	219	Datatel, Inc.	14	12	23
229	206	Inco, Inc.	14	12	14
230	197	Computer Network Corporation (Comnet)	14	13	3
231	220	Input Output Computer Services	14	11	19
232	198	Computer Assistance Inc	14	13	3
233	240	Timesharing Resources Inc.	13	10	39
234	258	Century Analysis Inc.	13	8	67
235	218	Scientific Computers Inc.	13	12	12
236	232	Computer Corporation of America	13	10	29
237	248	Computer Input Services, Inc.	13	9	40
238	246	Cybertek	13	9	38
239	224	Systems Management	13	11	18
240	210	NCA Corporation	13	12	6
241	255	Barrister Information Systems Corp.	13	9	45
242	221	Computer Curriculum Corporation	13	11	10
243	214	Accounting Corporation of America	13	12	6
244	231	Compucare (formerly Space Age Computers)	13	10	24

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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EXHIBIT VII-1 (Cont.)

INPUT DIRECTORY OF THE LARGEST INFORMATION SERVICES VENDORS
BY WORLDWIDE NONCAPTIVE REVENUE

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1981	1982	
245	203	Automated Concepts	$13	$13	(3)%
246	263	Information Resources Inc.	12	6	110
247	249	Technology Development of California	12	9	33
248	253	Northwestern National Bank of Minnesota	12	9	36
249	230	Par Technology Corporation	12	10	16
250	182	National Sharedata Corporation	12	15	(20)
251	239	Northeast Computer Systems Inc.	12	10	24
252	223	Dial Computer Systems Corporation	12	11	8
253	254	Auxton Computer Enterprises	12	9	33
254	225	Index Systems, Inc.	12	11	7
255	262	Mann, Charles & Associates	12	6	92
256	247	Thomas National Group	12	9	24
257	235	SAI Systems Associates	12	10	15
258	265	Information Management International	11	6	107
259	229	Academic Financial Services Association	11	11	5
260	257	Advanced Systems Applications	11	8	38
261	236	Continental Computer Services	11	10	10
262	238	TMI Systems Corporation	11	10	10
263	242	Rehab Group Inc.	11	10	11
264	250	Raven Systems and Research	10	9	12
265	243	Racal-Redac, Inc.	10	10	8
266	237	Analysis and Programming Corp.	10	10	0
267	251	Medical Data Services	10	9	11

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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EXHIBIT VII-2

WORLDWIDE AND U.S. RANKINGS OF
TOP TWENTY INFORMATION SERVICES VENDORS

COMPANY	WORLDWIDE RANKING	U.S. RANKING
International Business Machines Corporation (IBM)	1	1
Control Data Corporation (CDC)	2	2
Automatic Data Processing, Inc. (ADP)	3	3
General Electric Company	4	6
Computer Sciences Corporation (CSC)	5	4
Electronic Data Systems Corporation (EDS)	6	5
Burroughs Corporation	7	7
McDonnell Douglas Automation Company (MCAUTO)	8	8
Computervision	9	10
Arthur Andersen and Company	10	9
Digital Equipment Corporation (DEC)	11	19
Sperry Corporation	12	20
Litton Industries, Inc.	13	15
Tymshare, Inc.	14	11
Price Waterhouse	15	17
Mitre Corporation	16	12
Informatics General Corporation	17	18
Boeing Computer Services, Inc. (BCS)	18	14
Shared Medical Systems Corporation	19	13
Planning Research Corporation (PRC)	20	16

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EXHIBIT VII-3

WORLDWIDE AND U.S. RANKINGS OF INDEPENDENT SOFTWARE VENDORS

RANK	COMPANY	WORLDWIDE RANKING (NONCAPTIVE COMPUTER SERVICES REVENUES)	U.S. RANKING (NONCAPTIVE COMPUTER SERVICES REVENUES)
1	Management Science America, Inc.	42	46
2	Cullinet Software	58	71
3	Informatics General Corporation	17	18
4	Applied Data Research	60	75
5	Cincom Systems, Inc.	68	95
6	University Computing (WYLY)	27	33
7	Computer Associates, Inc.	80	120
8	Pansophic Systems, Inc.	90	115
9	Arthur Andersen and Company	10	9
10	MicroPro International Corporation	94	121
11	McCormack and Dodge	97	107
12	VisiCorp	106	108
13	Policy Management Systems	103	98
14	Anacomp, Inc.	28	22
15	General Electric Company	4	6
16	Securities Industry Automation	114	110
17	Softsel Computer Products	120	110
18	Software AG of North America, Inc.	129	146
19	Kirchman Corporation	96	87
20	Candle Corporation	134	156
21	Martin Marietta Data Systems	31	44
22	Digital Research	148	142
23	Information Science, Inc.	152	148
24	Comserve Corporation	139	144
25	Microsoft	151	190

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- MicroPro.

- VisiCorp.

- Softsel.

- Digital Research.

- Microsoft.

- Exhibit VII-4 lists the largest U.S. vendors of foreign computer services. Seven of the top 10 vendors of foreign information services are computer manufacturers.

- IBM totally dominated this market, with foreign information services revenue greater than the next 15 largest companies combined.

- NCR, the second largest vendor of foreign information services in 1981, dropped to ninth place in 1982. In explaining the company's loss in this market, management mentioned weak foreign currencies and adverse economic conditions.

- General Electric (Calma) and Computervision, the second and third largest foreign information services vendors, both realized strong CAD/CAM sales in the foreign sector, particularly in Europe.

- The fastest growing U.S. vendors of foreign computer services are listed in Exhibit VII-5. MicroPro, a microcomputer software manufacturer and distributor, was the fastest growing vendor of foreign computer services in 1982. Approximately 30% of the company's revenue was derived from sales in over 27 foreign countries.

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EXHIBIT VII-4

LARGEST U.S. VENDORS OF FOREIGN NONCAPTIVE
INFORMATION SERVICES REVENUE

RANK		COMPANY	CALENDAR YEAR REVENUES ($ millions)		1981/1982 PERCENT GROWTH
1982	1981		1982	1981	
1	1	International Business Machines Corporation (IBM)	$1,270	$1,100	16%
2	2	General Electric Company	199	181	10
3	6	Computervision	122	107	14
4	3	Control Data Corporation (CDC)	122	125	(2)
5	4	Computer Sciences Corporation (CSC)	112	114	(2)
6	8	Arthur Andersen and Company	85	74	14
7	7	Sperry Corporation	85	85	0
8	9	Digital Equipment Corporation (DEC)	83	73	14
9	5	NCR Corporation	81	109	(26)
10	10	Automatic Data Processing, Inc. (ADP)	60	55	9
11	21	Litton Industries, Inc.	53	34	57
12	13	Hewlett-Packard Corporation	52	44	18
13	17	Schlumberger, Ltd.	50	40	25
14	11	Price Waterhouse	50	50	0
15	12	Martin Marietta Data Systems	48	45	7
16	15	Nielsen (A.C.) Company	46	43	8
17	28	Intergraph Corporation	45	21	117
18	18	Burroughs Corporation	42	38	11
19	19	University Computing (WYLY)	39	37	7
20	26	Metier Management Systems, Inc.	39	23	72

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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EXHIBIT VII-5

FASTEST GROWING U.S. VENDORS OF FOREIGN INFORMATION SERVICES
WITH NONCAPTIVE REVENUE OVER $10 MILLION

1982 RANK	COMPANY	CALENDAR YEAR REVENUE ($ millions)		1981/1982 PERCENT GROWTH
		1981	1982	
1	MicroPro International Corporation	$ 3	$12	336%
2	Intergraph Corporation	21	45	117
3	Cullinet Software	8	16	105
4	Management Science America (MSA)	13	24	77
5	Metier Management Systems, Inc.	23	39	72
6	Litton Industries, Inc.	34	53	57
7	Apple Computer	11	17	51
8	McDonnel Douglas Automation Company (MCAUTO)	11	16	45
9	CACI, Inc.	7	10	40
10	Computer Associates, Inc.	14	18	36

NOTE: Growth rates are rounded and are based on revenues rounded to the nearest thousand; revenues shown are rounded to the nearest million.

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- Intergraph Corporation, the second fastest growing U.S. vendor of foreign services, increased revenues by 117% in 1982. Management has indicated that it believes Western Europe to be an increasingly important market for CAD/CAM systems. In addition to its European subsidiaries, Intergraph has subsidiaries in Brazil, Singapore, Australia, Mexico, and Venezuela.

- Cullinet, a leading systems software manufacturer, increased foreign information services revenues by 105% in 1982. The company's product installations in over 45 countries are serviced by subsidiaries in Canada, England, Belgium, Brazil, Australia, France, and Mexico.

- MSA management projects that overseas business will represent about one-third of that company's total revenues by 1982. Foreign revenue was approximately 20% of MSA's total 1982 revenues. MSA maintains subsidiaries or offices in Canada, England, Belgium, Singapore, Hong Kong, and Australia.

INPUT

APPENDIX A: ALPHABETICAL LISTING OF THE
INPUT DIRECTORY OF INFORMATION
SERVICES VENDORS' NONCAPTIVE
U.S. REVENUES

ALPHABETICAL LISTING OF THE INPUT DIRECTORY OF
INFORMATION SERVICES VENDORS' NONCAPTIVE U.S. REVENUES

RANK		COMPANY
1982	1981	
257	224	Academic Financial Services Association
242	214	Accounting Corporation of America
245	228	Advanced Computer Techniques (ACT)
258	225	Advanced Systems Applications
198	174	Advanced Systems, Inc.
56	56	ADVO Systems, Inc. (ADVO)
89	146	Affiliated Computer Systems
128	126	AGS Computers, Inc.
65	64	Allied Information Systems
28	28	American Express Company
55	48	American Management Systems, Inc.
201	259	American Software Inc.
202	200	Amherst Associated, Inc.
22	31	Anacomp, Inc.
264	232	Analysis and Programming Corporation
130	103	Analysts International Corporation
207	191	Analytics
69	84	Apple Computer
75	85	Applied Data Research
193	178	Applied Information Development
9	10	Arthur Andersen and Company
97	91	Arthur D. Little, Inc.
88	74	Arthur Young and Co.
125	150	Ask Computer Systems
175	166	Aspen Systems Corporation
204	177	Associated Press
86	71	Auto-trol Technology
234	189	Automated Concepts
3	3	Automatic Data Processing, Inc. (ADP)
256	251	Auxton Computer Enterprises
35	33	Bank of America Corporation
255	254	Barrister Information Systems Corporation
132	136	BDM International
14	16	Boeing Computer Services, Inc. (BCS)
93	93	Bolt Beranek and Newman, Inc.

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ALPHABETICAL LISTING OF THE INPUT DIRECTORY OF INFORMATION SERVICES VENDORS' NONCAPTIVE U.S. REVENUES

RANK		COMPANY
1982	1981	
176	159	Booz Allen & Hamilton, Inc.
29	29	Bradford National Corporation
197	192	Budget Timeshare Inc.
7	7	Burroughs Corporation
41	59	CACI, Inc.
78	79	Cable Data
177	188	Calculon Corporation
156	165	Candle Corporation
81	72	CAP Gemini Sogeti
32	32	CCH Computax, Inc.
224	256	Century Analysis Inc.
126	125	CGA Computer Associates
122	120	CGG Data Processing Service Inc.
24	25	Chase Manhattan Bank
95	105	Cincom Systems, Inc.
145	121	CISI Group
70	63	Citicorp
217	180	CL Systems, Inc.
127	133	Comdata Network
191	163	Command Control and Communications Corp.
208	193	Commodity News Services
203	201	Comptek Research
233	227	Compucare (formerly Space Age Computers)
90	92	Compuserv, Inc.
225	185	Computer Assistance Inc.
120	128	Computer Associates, Inc.
111	99	Computer Company (The)
54	61	Computer Consoles
238	242	Computer Corp. of America
232	207	Computer Curriculum Corporation
101	138	Computer Data Systems
153	173	Computer Horizons
228	245	Computer INPUT Services, Inc.
52	54	Computer Language Research (formerly FASTAX)
220	184	Computer Network Corporation (Comnet)

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ALPHABETICAL LISTING OF THE INPUT DIRECTORY OF
INFORMATION SERVICES VENDORS' NONCAPTIVE U.S. REVENUES

RANK		COMPANY
1982	1981	
4	4	Computer Sciences Corporation (CSC)
118	106	Computer Sharing Services, Inc.
84	75	Computer Task Group, Inc.
10	11	Computervision
129	142	Compuware
144	151	Comserv Corp.
66	60	Comshare, Inc.
259	231	Continental Computer Services
59	55	Continental Telecom Inc.
174	148	Continuum
2	2	Control Data Corporation (CDC)
113	100	Coopers and Lybrand
71	90	Cullinet Software (formerly Cullinane)
229	241	Cybertek
158	152	Cycare Systems
82	81	C3
254	209	Data Architects
166	140	Data Communications Corporation
117	102	Data General Corporation
119	110	Datacomp Corporation
172	145	Datamedix
216	205	Datatel, Inc.
143	122	Deloitte, Haskins and Sells
247	215	Dial Financial Corporation
137	134	Dialog Information Services
73	68	Digicon, Inc.
19	27	Digital Equipment Corporation (DEC)
142	253	Digital Research Inc.
160	187	Dow Jones Information Services, Inc.
92	129	DST, Inc.
21	17	Dun & Bradstreet
134	88	Dyatron Corporation
131	147	Dynamics Research Corporation
5	5	Electronic Data Systems (EDS)
23	21	Equifax, Inc.

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ALPHABETICAL LISTING OF THE INPUT DIRECTORY OF
INFORMATION SERVICES VENDORS' NONCAPTIVE U.S. REVENUES

RANK		COMPANY
1982	1981	
147	107	Ernst and Whinney
186	219	Execucom Systems Corporation
194	168	Federal Electric Corporation
138	132	First Bank Systems
179	175	First Data Management Company
6	6	General Electric Company
45	41	Geosource, Inc.
40	43	Gerber Scientific, Inc.
187	198	Gesco Corporation
50	47	Grumman Data Systems
94	80	GTE Telenet Information Systems
165	197	Hadron Inc.
68	76	HBO and Company
64	65	Hewlett-Packard Corporation
210	265	Hogan Systems, Inc.
42	36	Honeywell, Inc.
222	211	I.P. Sharp Associates
230	212	Inco, Inc.
252	221	Index Systems, Inc.
18	19	Informatics General Corporation
183	226	Information Builders, Inc.
253	263	Information Management International
236	261	Information Resources Inc.
148	139	Information Science, Inc.
221	206	Input Output Computer Services
219	203	Instacom Inc.
214	248	Integrated Software Systems Corp. (ISSCD)
188	190	Intel Corporation
211	182	Intercomp
31	44	Intergraph Corporation
133	149	Intermetrics, Inc.
1	1	International Business Machines (IBM)
112	111	International Computaprint Corporation
96	96	International Graphics
182	156	Keane Associates, Inc.

Continued

INPUT
CAD3

ALPHABETICAL LISTING OF THE INPUT DIRECTORY OF
INFORMATION SERVICES VENDORS' NONCAPTIVE U.S. REVENUES

RANK		COMPANY
1982	1981	
87	83	Kirchman Corporation
251	223	Lifeboat Associates, Inc.
15	14	Litton Industries, Inc.
60	57	Logicon Inc.
140	131	M/A Com Sigma Data, Inc. (formerly Sigma Data)
136	141	Management Decision Systems
46	49	Management Science America, Inc.
161	257	Management Systems of Wausau Inc.
265	264	Mann, Charles & Associates
44	51	Martin Marietta Data Systems
170	172	Mathematica Inc.
107	117	McCormack and Dodge
8	9	McDonnell Douglas Automation Company (MCAUTO)
26	24	McGraw-Hill
83	87	Mead Corporation
266	249	Medical Data Services
114	124	Mellon Bank Data Center
124	202	Metier Management Systems, Inc.
67	67	Metromail
121	260	MicroPro International Corporation
190	258	Microsoft
167	170	Mid-Continent Computer
12	12	Mitre Corporation
141	118	Monchik-Weber
173	160	National Computer Systems
196	240	National Data Communications
29	26	National Data Corporation
243	169	National Sharedata Corporation
246	220	NCA Corporation
48	38	NCR Corporation
171	210	Neshaminey Valley Information Processing
49	46	Nielsen (A.C.) Company
105	82	NLT Computer Services Corporation
239	250	Northwestern National Bank of Minnesota
244	234	Northeast Computer Systems Inc.

Continued

INPUT
CAD3

ALPHABETICAL LISTING OF THE INPUT DIRECTORY OF
INFORMATION SERVICES VENDORS' NONCAPTIVE U.S. REVENUES

RANK		COMPANY
1982	1981	
79	77	OAO
91	86	Ohio Cooperative Library Corporation
205	213	On-line Software International
157	130	Online Business Systems
115	116	Pansophic Systems, Inc.
214	225	Par Technology Corporation
155	179	Paychex Inc.
37	34	Peat, Marwick and Mitchell
151	144	Pentamation Enterprises, Inc.
181	186	Pharmaceutical Card Systems
218	252	Pharmacom
16	13	Planning Research Corporation (PRC)
98	113	Policy Management Systems
17	15	Price Waterhouse
162	233	Prime Computer Inc.
30	40	Quotron Systems, Inc.
262	239	Racal-Redac, Inc.
235	199	Rand Information Systems
261	247	Raven Systems and Research
123	101	Real Estate Data
192	162	Realtron
226	266	Redshaw Inc.
260	237	Rehab Group Inc.
103	109	Reuters North America
39	37	Reynolds and Reynolds Company (The)
215	195	Safecom, Inc.
163	155	Safeguard Business Systems, Inc.
250	230	Systems Associates Inc. (SAI)
212	238	SAS Institute, Inc.
34	23	Schlumberger, Ltd.
72	62	Science Applications, Inc.
178	167	Science Dynamics Corporation
189	171	Science Management Corporation
199	217	Scientific Calculations, Inc.
227	204	Scientific Computers Inc.

Continued

INPUT
CAD3

ALPHABETICAL LISTING OF THE INPUT DIRECTORY OF
INFORMATION SERVICES VENDORS' NONCAPTIVE U.S. REVENUES

RANK 1982	RANK 1981	COMPANY
248	218	Scientific Software Corporation
25	26	Securities Industry Automation
85	89	SEI Corporation
106	98	Seiscom Delta
77	69	Seismograph Services Corporation
13	18	Shared Medical Systems Corporation
109	112	Softech Inc.
110	202	Softsel Computer Products
146	157	Software AG of North America, Inc.
240	229	Software Design Inc.
149	152	Software Design Associates, Inc.
20	22	Sperry Corporation
100	108	Statistical Tabulating Corporation
180	158	Sterling Systems
184	208	Strategic Information
58	53	SIS (formerly Sun Information Services)
200	194	Syncsort, Inc.
53	50	Syscon
135	164	System Integrators Inc.
62	70	Systematics
60	114	Systems and Applied Sciences
102	119	Systems and Computer Technology
168	161	Systems and Programming Resources Inc.
154	222	Systems Architects Inc.
195	135	Systems Control Group
231	216	Systems Management
159	127	Systems Research Laboratories
150	154	Tandem Computers Inc.
51	78	Tandy Corporation
114	134	Technicon Data Systems
164	104	Technology Development of California
61	58	Telecredit, Inc.
76	97	Telerate Systems, Inc.
116	115	Telos Computing
104	95	Tera Corporation

Continued

INPUT
CAD3

ALPHABETICAL LISTING OF THE INPUT DIRECTORY OF
INFORMATION SERVICES VENDORS' NONCAPTIVE U.S. REVENUES

RANK		COMPANY
1982	1981	
26	20	Texas Instruments
249	243	Thomas National Group
223	235	Timesharing Resources Inc.
206	193	TLS Company
263	244	TMI Systems Corporation
159	123	Touche Ross
53	49	Trans Union Corporation
38	39	Triad Systems
43	45	TRW Information Services
11	8	TYMSHARE, Inc.
36	30	United Telecom Computer Group
33	35	University Computing (WYLY)
152	181	Users, Inc.
108	143	VisiCorp
213	236	Volt Delta Resources Inc.
209	196	Wachovia Services
185	137	Western Union Corporation
63	52	Westinghouse Electric Company
108	107	Whittaker Corporation
47	42	Xerox Computer Services
169	176	3PM Inc.

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APPENDIX B: DEFINITION OF TERMS

APPENDIX B: DEFINITION OF TERMS

REVENUES

- TOTAL INFORMATION SERVICES REVENUES - Revenues from services provided by vendors that perform data processing functions using vendor computers (processing services), or assist users to perform such functions on their own computers (software products, professional services, and/or integrated systems).

- CAPTIVE INFORMATION SERVICES REVENUES - Revenues from users who are part of the same parent corporation as the vendors.

- NONCAPTIVE INFORMATION SERVICES REVENUES - Revenues for information services provided within the United States from users who are not part of the same parent corporation as the vendor.

- NONCAPTIVE FOREIGN INFORMATION SERVICES REVENUES - Revenues for information services provided outside the United States from users who are not part of the same parent corporation as the vendor.

- WORLDWIDE REVENUES - Total of U.S. and foreign noncaptive computer services revenues.

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● These are services provided by vendors. They either perform data processing functions using their own computers (processing services), or they assist users to perform such functions on their own computers (with software products and/or professional services).

● The following are definitions of the modes of service used in this report.

- Remote Computing Services (RCS) provide data processing to a user by means of terminals at the user's site(s) connected by a data communications network to the vendor's central computer. The four submodes of RCS follow.

  • Interactive (timesharing) is characterized by the interaction of the user with the system, primarily for problem-solving timesharing but also for data entry and transaction processing: the user is on-line to the program/files.

  • Remote Batch is where the user hands over control of a job to the vendor's computer, which schedules job execution according to priorities and resource requirements.

  • Data Base is characterized by the retrieval and processing of information from a vendor-maintained data base. The data base may be owned by the vendor or a third party.

  • User Site Hardware Services (USHS). These offerings provided by RCS vendors place programmable hardware on the user's site (rather than in the IS center). USHS offers:

    - Access to a communications network.

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- Access through the network to the RCS vendor's larger computers.

- Significant software as part of the service.

- **Videotext** is a variant of interactive remote computing services.

  - Access may be through cable television systems as well as ordinary telephone lines.

  - The display is a television set equipped with a keypad or typewriter keyboard and special circuitry.

  - The user may not create programs on the remote computer.

  - The user may query or enter transactions to the remote computer through menu-driven software.

  - Prestel and QUBE are examples of videotext.

- **Batch Services** include 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/or from those sites. Data entry and data output services, such as keypunching and computer output microfilm (COM) processing, are also included. Batch services include those expenditures by users who take their data to a vendor's site, where a terminal connected to a remote computer is used for the actual processing.

- **Processing Services Facilities Management (PFM)** (Also referred to as "resource management" or "systems management.") The management

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of all or a significant part of the user's data processing functions under a long-term contract (not less than one year). To qualify as processing services PFM, contractors must directly plan and control as well as operate their own computers/communications networks, including providing computers at clients' sites, to deliver the service. Simply providing resources, even though under a long-term contract, and/or providing for all of a user's processing needs do not necessarily qualify as PFM.

TYPES OF PROCESSING SERVICES

- Processing services encompass processing services facilities management, remote computing services, and batch services. They are categorized by the type of services bought by users as follows.

    - Function-Specific services are the processing of applications that are targeted to specific user departments (e.g., finance, personnel, sales) but cut across industry lines. Most general ledger, accounts receivable, payroll and personnel applications fall into this category. General purpose tools such as financial planning systems, linear regression packages, and other statistical routines are also included in this category. However, when the application or tool is designed for specific industry use, then the service is industry specific.

    - Industry-Specific services provide processing for particular functions or problems unique to an industry or industry group. The software is provided by the vendor either as a complete package or as an applications "tool" that the user employs to produce a unique solution. Specialty applications can be either business or scientific. Data base services, where the vendor supplies the data base and controls access to it (although it may be owned by a third party), are also included

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under this category. Examples of industry-specific applications are seismic data processing, numerically controlled machine tool software development, and demand deposit accounting.

-   <u>Utility</u> services are those where the vendor provides access to a computer and/or communications network with basic software that enables users to develop their own problem solutions or processing systems. These basic tools include terminal-handling software, sorts, language compilers, data base management systems, information retrieval software, scientific library routines, and other systems software.

USE OF PROCESSING SERVICES

●   Processing can be categorized by use as follows:

-   <u>Transaction Processing</u> indicates those services where the primary or predominant purpose of the application is to process transactions, usually in a highly repetitive fashion. Most business accounting fits into this category. Payroll, accounts receivable, order entry, portfolio accounting, and inventory control are all good examples of transaction processing.

-   <u>Information Analysis</u> services are processing services where the primary or predominant purpose of the application is to convert data into information through the use of mathematical, statistical, or financial analysis tools that readily and easily display the results in report or graphical form. The tools may be rapidly adapted to address a variety of nonrepetitive problems. These tools are often in the areas of financial analysis, marketing, planning, and statistical analysis. Many of the techniques incorporated have their origins in scientific and engineering applications, which also generally fall within this category.

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- <u>User Data Base Management</u> services are processing services where the primary or predominant purpose of the application is to organize and maintain a data base of user information in a manner that facilitates its rapid and efficient retrieval and display according to user-defined parameters, either in ad hoc or fixed form.

- <u>Vendor Data Base</u> services are processing services where the primary or predominant purpose of the application is to retrieve and/or process data supplied by the vendor who controls access to it (although it may be owned by a third party). There are two modes of delivery of this service:

    - <u>Inquiry</u> data base services provide a means of selection and retrieval of data only. They neither provide, nor usually allow, for the subsequent processing of the data. Stock market statistics, news services, and bibliographic data bases are commonly offered in this mode.

    - <u>Application Processing</u> services, in addition to providing a means of selection and retrieval, also provide a means of further processing the data into information through the full use of information analysis tools and data base management systems, which permit the merging of vendor data with user data. Demographic, marketing, and financial and economic data bases are commonly offered in this mode.

PROFESSIONAL SERVICES

- This category is made up of services related to IS, including professional services facilities management, system design, custom/contract programming, consulting, education, and training. Services are provided on the basis of:

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- <u>Time and Materials,</u> where the billing rate is measured in units of time, rather than actual costs.

- <u>Fixed Price,</u> where a firm price is agreed upon for a defined piece of work.

- <u>Cost Plus Fee,</u> where the billing rate depends on actual costs plus a fixed fee.

- <u>Professional Services Facilities Management (PSFM)</u> is the management of all or a significant part of a user's data processing functions under a long-term contract (not less than one year). To qualify as professional services facilities management, the contractor must directly plan and control as well as operate the client's facility, where the computers are owned by the client. Simply providing resources, even though under a long-term contract, does not necessarily qualify as professional services facilities management.

SOFTWARE PRODUCTS

- This category includes the user's purchase of applications and systems packages for use on in-house computer systems. Included are lease and purchase expenditures 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:

- <u>Applications Products</u> are software products that perform processing to serve user functions. They consist of:

INPUT

- 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 are software products that enable the computer/communications system to perform basic functions. They consist of:

  - Systems Operations Products, which function during applications program execution to manage the computer system resource. Examples include operating systems, communication monitors, emulators, and spoolers.

  - Systems Utilization Products, used by operations personnel to utilize the computer system more effectively. Examples include performance measurement, job accounting, computer operations scheduling, and utilities.

  - Systems Implementation Products, used to prepare applications for execution by assisting in designing, programming, testing, and related functions. Examples include languages, sorts, productivity aids, data dictionaries, report writers, project control systems, retrieval systems, and data base management systems.

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INTEGRATED SYSTEMS (TURNKEY)

- An integrated system is a combination of systems and applications software with hardware, packaged as a single entity. The value added by the vendor is primarily in the software.

    - Most CAD/CAM systems and many small business systems are integrated systems. They do not include specialized hardware systems such as word processors, cash registers, process control systems, and military weapon systems.

    - Products sold by companies that are primarily computer manufacturers are generally excluded.

TELETEXT

- Teletext is an information service that is distinct from processing services.

    - Information is provided to the user through a broadcast transmission.

    - The vendor does not process user data.

    - Information may be selectively displayed through interaction with the receiver, not the vendor's computer.

    - The receiver is usually a television set equipped with special circuitry and sometimes with a device that allows the user to select the portion of the broadcast to be displayed. There are two types of service:

INPUT

- Continuous, where transmission is continuous. The user cannot select information to be displayed.

- Selective, where the user can select a portion of the transmission to be displayed.

- Examples of teletext include cable TV broadcasts of news services and stock quotations.

OTHER CONSIDERATIONS

- All expenditures and revenues addressed are "available" in that they are open for competition. "Captive" figures, which refer to expenditures by a user for services from a subsidiary company, such as Boeing Aircraft with Boeing Computer Services (BCS), are not included. They may be referred to when examining an individual "spin-off" vendor, such as BCS.

- When questions arise about the proper place to count certain user expenditures, INPUT addresses them from the user viewpoint. Expenditures are then categorized according to what the users perceive they are buying.

- Industry sectors referenced in this report are defined in Exhibit B-1.

INPUT

EXHIBIT B-1

INDUSTRY SECTOR DEFINITIONS

INDUSTRY SECTOR	INDUSTRY SIC	INDUSTRY NAME
Discrete Manufacturing	23	Apparel
	25	Furniture
	27	Printing
	31	Leather
	34	Metal
	35	Machinery
	36	Electronics
	37	Transportation
	38	Scientific and Control Instruments
	39	Miscellaneous Manufacturing
Process Manufacturing	10	Metal Mining
	11	Anthracite Mining
	12	Coal Mining
	13	Oil and Gas Extraction
	20	Food Products
	21	Tobacco
	22	Textile Products
	24	Lumber and Wood Products
	26	Paper Products
	28	Chemicals
	29	Petroleum
	30	Rubber and Plastics
	32	Stone, Glass, Clay
	33	Primary Metals

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INDUSTRY SECTOR DEFINITIONS

INDUSTRY SECTOR	INDUSTRY SIC	INDUSTRY NAME
Education	82	Educational Services
Retail	52	Building Materials, Hardware
	53	General Merchandise
	54	Food
	55	Automotive and Gas Stations
	56	Apparel
	57	Furniture
	58	Eating and Drinking
	59	Miscellaneous Retail
Wholesale	50	Durable Goods
	51	Non-Durable Goods
State and Local Government	91-97	As Appropriate
Federal Government	91-97	As Appropriate
Services	73	Business Services

INPUT
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INDUSTRY SECTOR DEFINITIONS

INDUSTRY SECTOR	INDUSTRY SIC	INDUSTRY NAME
Other Industries	01-09	Agriculture, Forestry, and Fishing
	15-17	Construction
	65	Real Estate
	66	Combinations of Real Estate, Insurance, Loans, Law Offices
	70	Hotels, Rooming Houses, Camps, and Other Lodging Places
	72	Personal Services
	75	Automotive Repair, Services, and Garages
	76	Miscellaneous Repair Services
	78	Motion Pictures
	79	Amusement and Recreation Services, Except Motion Pictures
	83	Social Services
	84	Museums, Art Galleries, Botanical and Zoological Gardens
	86	Membership Organizations
	89	Miscellaneous Services

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APPENDIX C: VENDOR QUESTIONNAIRE

GENERAL INFORMATION

1. Fiscal Year End [8][ ] Month End [ ][ ]

2. Company Status [ ] Public   [ ] Private   [ ] Subsidiary/Division

3. Please list the average or mid-year 1982 number of <u>employees</u> associated with U.S. Noncaptive Information Services Revenue.

    1981: _____   1982: _____

4. What are your total worldwide <u>captive</u> information services revenues?
    1981: $_____,000   1982: $_____,000

INPUT

5. PROFILE OF NONCAPTIVE INFORMATION SERVICES REVENUE

DELIVERY MODE	CALENDAR 1981 ($000)		CALENDAR 1982 ($000)	
	UNITED STATES	FOREIGN	UNITED STATES	FOREIGN
● PROCESSING (TOTAL)	$_____ (13)	$_____ (42)	$_____ * (47)	$_____ (76)
— Remote Computing	$_____ * (14)		$_____ * (48)	
— Batch	$_____ * (15)		$_____ * (49)	
— Facilities Management	$_____ * (16)		$_____ * (50)	
Of the Largest Delivery Mode Above				
— Cross Industry	$_____ (17)		$_____ (51)	
— Utility	$_____ (18)		$_____ (52)	
— Industry Specific	$_____ (19)		$_____ (53)	
● SOFTWARE PRODUCTS (TOTAL)	$_____ (20)	$_____ (43)	$_____ * (54)	$_____ (77)
— Applications Total	$_____ (21)		$_____ (55)	
. Cross Industry	$_____ (22)		$_____ (56)	
. Industry Specific	$_____ (23)		$_____ (57)	
— Systems Total	$_____ (24)		$_____ (58)	
. Systems Control	$_____ (25)		$_____ (59)	
. Data Center Management	$_____ (26)		$_____ (60)	
. Application Development Tools	$_____ (27)		$_____ (61)	
● PROFESSIONAL SERVICES (TOTAL)	$_____ (28)	$_____ (44)	$_____ * (62)	$_____ (78)
— Programming	$_____ (29)		$_____ (63)	
— Consulting	$_____ (30)		$_____ (64)	
— Education	$_____ (31)		$_____ (65)	
— Professional Services FM	$_____ (32)		$_____ (66)	
● INTEGRATED SYSTEMS (TOTAL)	$_____ (33)	$_____ (45)	$_____ * (67)	$_____ (79)
— CAD/CAM	$_____ (34)		$_____ (68)	
— Cross Industry (except CAD/CAM)	$_____ (35)		$_____ (69)	
— Industry Specific (except CAD/CAM)	$_____ (36)		$_____ (70)	
TOTAL NONCAPTIVE				
— United States	$_____ (37)		$_____ (71)	
— Foreign		$_____ (46)		$_____ (80)
Worldwide Total Captive Information Services Revenue	$_____ (38)		$_____ (72)	
Worldwide Total Information Services Revenue	$_____ (39)		$_____ (73)	
Worldwide Total Noninformation Services Revenue	$_____ (40)		$_____ (74)	
Worldwide Total Company Revenue	* $_____ (41)	* These should add up	$_____ (75)	

*NOTE: THE LARGEST OF THESE NUMBERS IS YOUR PRIMARY SERVICE.

INPUT

APPENDIX D: CAMP HIGHLIGHTS

CAMP HIGHLIGHTS

ARC Automation Group, Inc.

ADVO Systems

Affiliated Computer Systems

Agency Records Control
  See: ARC Automation Group, Inc.

American Management Systems, Inc.

American Software, Inc.

Amherst Associates

Anacomp, Inc.

Analysts International Corporation

Analytics, Inc.

Applicon

Applied Data Research, Inc.

Applied Information Development, Inc.

Artificial Intelligence Corporation

ASK Computer Systems, Inc.

Astradyne Computer Industries

Automated Concepts, Inc.

Automatic Data Processing, Inc.

Auto-trol Technology Corporation

Auxton Computer Enterprises, Inc.

AVCO Computer Services

BGS Systems, Inc.

BPI Systems, Inc.

Bank of America Business Services

Bibliographic Retrieval Services, Inc.

Boeing Computer Services, Inc.

Bolt Beranek and Newman Inc.

Boole & Babbage, Inc.

Bradford National Corporation

Bunker Ramo Information Systems

CACI

CCH Computax

CGA Computer Associates, Inc.

CTEC

C3, Inc.

CableData

Calma Company

Canada Systems Group

Capex Corporation

Chase Econometrics/Interactive Data

Cincom Systems, Inc.

CISInetwork Corporation

Comdata Network

Command, Control and
  Communications

CompuServe Incorporated

Computax
  See: CCH Computax

INPUT

Computel Systems, Inc.
  See: Canada Systems Group

Computer Associates International, Inc.

Computer Company (The)

Computer Consoles, Inc.

Computer Corporation of America

Computer Data Systems, Inc.

Computer Horizons Corp.

Computer Language Research, Inc.

Computer Network Corporation

Computer Power, Inc.

Computer Sciences Corporation

Computer Sharing Services

Computer Systems Engineering, Inc.

Computer Task Group

Computer Usage Company

Computeristics, Inc.

Computervision Corporation

Computone Systems, Inc.

Compuware Corporation

Comserv Corporation

Comshare, Inc.

Consumer Systems Services Group, Inc.

Continental Software Company

Continuum Company, Inc.

Control Data Corporation

Cullinet Software (formerly
  Cullinane Database Systems, Inc.)

Cullinane Database Systems, Inc.
  See: Cullinet Software

Cutler-Williams, Inc.

Cybernetics & Systems, Inc.

Cyborg Systems, Inc.

CyCare Systems, Inc.

DTSS, Incorporated

DASD Corporation

Data Architects, Inc.

Data Communications Corporation

Data Design Associates

Data Resources, Inc.

Database Design Inc.

Datacrown Inc.

Dialcom, Inc.
  See: ITT Dialcom, Inc.

Dialog Information Services

Digicon, Inc.

Digital Research, Inc.

Distribution Management Systems

Distribution Sciences, Inc.

Diversified Computer Applications
  See: Information Management
    International

INPUT

DYATRON Corporation

Dylakor

E.B.S. Data Processing, Inc.

Electronic Data Systems Corporation

Endata, Inc. (formerly NLT Computer
  Services Corporation)

Equifax Inc.

EXECUCOM Systems Corporation

FAST-TAX
  See: Computer Language Research, Inc.

First Data Resources

Fortex Data Corporation
  See: University Computing

GTE Telenet Information Services

Genasys Corporation

General Electric CAE International Inc.

General Electric Information
  Services Company (GEISCO)

Gerber Scientific, Inc.

Goal Systems International Inc.

HBO & Company

Hancock/Dikewood Services, Inc.

Hewlett-Packard/Computer
  Systems Group

Hogan Systems, Inc.

Honeywell Datanetwork

IBM Information Network

III Systems Inc.

INCO

ISSCO
  See: Integrated Software Systems
        Corporation

ITT Dialcom, Inc.

Industry Data Services, Inc.

Informatics General Corporation

Information Builders, Inc.

Information Management International

Information Science Incorporated

Information Systems of America, Inc.

Innovative Software, Inc.

Insac Software Inc.

Instacom, Inc.

Insurance Systems of America
  See: Information Systems of America

Integral Systems, Inc.

Integrated Software Systems
  Corporation (ISSCO)

Intel Systems Corporation

Interactive Data Corporation
  See: Chase Econometrics

Interactive Systems Corporation

Intergraph Corporation

Intermetrics, Inc.

International Computaprint Corp.

Johnson Systems, Inc.

Keane, Inc.

Keydata Corporation

Libra Group

Lifeboat Associates

INPUT

Litton Computer Services

Litton Mellonics

Logicon, Inc.

Lotus Development Corporation

MRI Systems
  See: Intel Systems Corporation

MacNeal-Schwendler Corporation (The)

Management Science America, Inc.

Manager Software Products, Inc.

Manufacturing Data Systems Inc.

Martin Marietta Data Systems

Mathematica, Inc.

McCormack & Dodge Corporation

McDonnell Douglas Automation Co.
  (MCAUTO)

Mead Data Central

Medical Information Technology
  (MEDITECH)

Medicus Affiliates, Inc.

Metier Management Systems, Inc.

Metromail Corporation

MicroPro International

Microsoft, Inc.

Monchik-Weber Corporation

Morino Associates, Inc.

Multiple Access Inc.
  See: Canada Systems Group

NCA Corporation

NCR Data Services

NLT Computer Services Corporation
  See: Endata, Inc.

National CSS, Inc.

National Data Communications, Inc.

National Data Corporation

Neshaminy Valley Information
  Processing, Inc.

Network Computing Corporation

The New York Times
  Information Service, Inc.

Nixdorf Computer Software

Numerax, Inc.

Ohio Valley Data Control, Inc.

On-Line Business Systems, Inc.

On-Line Software International

Open Systems, Inc.

Pansophic Systems, Inc.

Paychex, Inc.

Pay-Fone Systems, Inc.

Pentamation Enterprises

Personnel Data Systems, Inc.

Petroleum Data Corporation

Planning Research Corporation

Policy Management Systems
  Corporation

Poorman-Douglas Corporation

Proprietary Computer Systems, Inc.
  See: CISInetwork Corporation

Quotron Systems, Inc.

INPUT

Rand Information Systems, Inc.

Rapidata, Inc.
  See: National Data Corporation

Realtron Corporation

Redshaw, Inc.

Remote Computing

Reuters North America

Reynolds and Reynolds Company (The)

Ross Systems, Inc.

Ryan-McFarland Corporation

SAS Institute Inc.

SDI

SEI Corporation

STSC, Inc.

Safecom, Inc.

Safeguard Business Systems, Inc.

Science Applications, Inc.

Science Dynamics

Science Management Corporation

Scientific Computers, Inc.

Shared Medical Systems Corporation

Sharp, I.P. Associates

Shriver, R. Associates

Smith, A. O. Data Systems

SofTech, Inc.

Software AG Systems Group, Inc.

Software Design Associates, Inc.

Software International Corporation
  See: GEISCO

Software Publishing Corporation

Source Telecomputing Corporation

Space Age Computers

Spectra Medical
  See: Medicus Affiliates

Statistical Tabulating Corporation

Sterling Systems

Stockholder Systems, Inc.

Strategic Information

Sun Information Services

Synercom Technology, Inc.

SYSCON Corporation

System Development Corporation

Systematics, Inc.

Systems and Applied Sciences
  Corporation

Systems & Computer Technology

Systems Associates, Inc.

Systems Consultants
  See: SYSCON Corporation

Systems Management

Systems Plus Inc.

TMI Systems Corporation

TRW Information Services

Technicon Data Systems Corporation

Technology Development of California

Telecredit, Inc.

Telerate, Inc.

Telos Corporation

The Thomas National Group

INPUT

Time Sharing Resources, Inc.

Tominy, Inc.

Tone Software Corporation

Transcomm Data Systems Incorporated

TRES Computer Systems, Inc.

Triad Systems Corporation

Tymshare, Inc.

UNI-COLL Corporation
  See: CISInetwork Corporation

United Information Services, Inc.

United Telecom Computer Group
  See: United Information Services and
  Information Systems of America

University Computing Company

Urban Data Processing, Inc.

VisiCorp

Walker Interactive Products

Westinghouse Information Services .

Woodward Ryan Sharp and Davis

Xerox Computer Services

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HIGHLIGHT INDEX
BY
MAJOR SERVICE

PROCESSING SERVICES

ARC Automation Group

ADVO Systems

Affiliated Computer Systems

Amherst Associates

Anacomp

Astradyne Computer Industries

Automatic Data Processing

AVCO Computer Services

Bank of America Business Services

Bibliographic Retrieval Services

Boeing Computer Services

Bradford National

Bunker Ramo

CCH Computax

Canada Systems Group

Chase Econometrics/Interactive
  Data

CISInetwork Corporation

Comdata Network

CompuServe

Computer Company (The)

Computer Language Research

Computer Network

Computer Power

Computer Sciences Corporation

Computer Sharing Services

Computer Usage

Computone Systems

Comshare

Control Data

Cybernetics & Systems

CyCare Systems

Data Communications Corporation

Data Resources

Datacrown

Dialog Information Systems

Digicon

Distribution Sciences

Dow Jones News/Retrieval Service

DYATRON

E.B.S. Data Processing

Electronic Data Systems

Endata

Equifax

First Data Resources

GTE Telenet Information Services

General Electric Information
  Services (GEISCO)

Hancock/Dikewood Services

Honeywell Datanetwork

IBM Information Network

III Systems

ITT Dialcom

Informatics

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PROCESSING SERVICES (Cont.)

Information Management International

Instacom

International Computaprint

Keydata

Litton Computer Services

Litton Mellonics

Manufacturing Data Systems

Martin Marietta

McDonnell Douglas Automation
  (MCAUTO)

Mead Data Central

Medical Information Technology

Medicus Affiliates

Metromail Corporation

NCR Data Services

National CSS

National Data Corporation

Neshaminy Valley Information
  Processing

Network Computing

New York Times Information Service

Numerax

Ohio Valley Data Control

On-Line Business Systems

Pay-Fone Systems, Inc.

Pentamation Enterprises

Petroleum Data

Planning Research Corporation

Poorman-Douglas

Quotron Systems

Realtron Corporation

Remote Computing Corp.

Reuters North America

Reynolds and Reynolds

Ross Systems

SEI Corporation

STSC, Inc.

Safecom

Safeguard Business Systems

Science Dynamics

Scientific Computers

Shared Medical Systems

Sharp, I.P. Associates

Smith, A.O. Data Systems

Source Telecomputing Corp.

Space Age Computers

Statistical Tabulating

Strategic Information

Sun Information Services

Systematics

TRW Information Services

Telecredit

Telerate

Thomas National Group

Time Sharing Resources

Tymshare

United Telecom Computer Group

University Computing

Urban Data Processing

Westinghouse Information Services

Xerox Computer Services

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SOFTWARE PRODUCTS

American Software

Applied Data Research

Artificial Intelligence Corporation

BGS Systems

BPI Systems

Boole & Babbage

Capex

Cincom Systems

Computer Associates

Computer Corporation of America

Computeristics

Comserv

Continuum Company

Cullinet

Cyborg Systems

DTSS

Data Design Associates

Database Design

Digital Research

Dylakor

EXECUCOM Systems

General Electric Information Services
  (GEISCO)

General Electric CAE International

Hogan Systems

Informatics

Information Builders

Information Science Inc.

Insac Software

Insurance Systems of America

Integral Systems

Integrated Software Systems (ISSCO)

Intel Systems Corporation

Interactive Systems

Johnson Systems

Lifeboat Associates

MacNeal-Schwendler

Management Science America

Manager Software Products

Mathematica

McCormack & Dodge

MicroPro International

Microsoft

Morino Associates

NCA Corporation

Nixdorf Computer Software

On-Line Software International

Open Systems

Pansophic Systems

Personnel Data Systems

Policy Management Systems

SAS Institute

SDI

Shriver, R. Associates

Smith, A.O. Data Systems

Software AG

Software Publishing

Stockholder Systems

Systems Management

Systems Plus

TMI Systems

Technicon Data Systems

Tominy

Tone Software

TRES Computer Systems

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SOFTWARE PRODUCTS (Cont.)

University Computing

VisiCorp

Walker Interactive Products

Woodward Ryan Sharp and Davis

TURNKEY SYSTEMS

ARC Automation Group

ASI Teleprocessing

Applicon

ASK Computer Systems

Auto-trol

Calma

C3

Computer Consoles

Computer Corporation of America

Computer Systems Engineering

Computer Usage

Computervision

Digicon

Distribution Management Systems

Gerber Scientific

HBO & Company

Hewlett-Packard/Computer Systems
  Group

Industry Data Services

Intergraph

Manufacturing Data Systems

McDonnell Douglas Automation (MCAUTO)

Medicus Affiliates

Metier Management Systems

National Data Communications

Redshaw

Reynolds and Reynolds

Science Applications

Shriver, R. Associates

Synercom Technology

Systems Associates

TMI Systems

Transcomm Data Systems

Triad Systems

University Computing

PROFESSIONAL SERVICES

American Management Systems

Analysts International

Analytics

Applied Information Development

Automated Concepts

Auxton Computer Enterprises

Boeing Computer Services

Bolt Beranek and Newman

Bradford National

CACI

CGA Computer Associates

CTEC

Command, Control and Communications

Computer Consoles

Computer Corporation of America

Computer Data Systems

Computer Horizons

Computer Sciences Corporation

Computer Task Group

Compuware

INPUT

Consumer Systems Services Group

Continuum Company

Cutler-Williams

DASD

Data Architects

Electronic Data Systems

Genasys Corporation

General Electric Information Services
  (GEISCO)

INCO

Informatics

Intermetrics

Keane

Libra Group

Logicon

Martin Marietta

McDonnell Douglas Automation (MCAUTO)

Monchik-Weber

On-Line Software International

Planning Research Corp.

Rand Information Systems

Ryan-McFarland Corporation

Science Applications

Science Management

SofTech

Software Design Associates

Sterling Systems

SYSCON

System Development Corporation

Systems and Applied Sciences

Systems & Computer Technology

Technology Development of California

Telos Computing

TRES Computer Systems

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