

MARKET TRENDS IN PROFESSIONAL SERVICES

INPUT
LIBRARY

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 members analyze and interpret the research data, then develop recommendations and innovative ideas to meet clients'

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 international consulting firm. Clients include over 100 of the world's largest and most technically advanced companies.

Headquarters

2471 East Bayshore Road
Suite 600
Palo Alto, California 94301
(415) 493-1600
Telex 171407

Detroit

340 N. Main Street
Suite 204
Plymouth, Michigan 48170
(313) 459-8730

Washington, D.C.

1730 North Lynn Street
Suite 400
Arlington, Virginia 22209
(703) 522-2118

V. Hamill M-I98I
OPS

AUTHOR

Market Trends in Professional
TITLE
services

ell Center II
Central Expressway
Texas 75206
01-8565

rk
Plaza West-I
brook, New Jersey 07662
8-9471

ATES

Australia
Centre, 7-9 Merriwa St.,
110,
S.W. 2072
8199
24434

ma SRL

20127 Milano
Via Soperga 36
Italy
Milan 284-2850

7-7-26 Nishi-Shinjuku
Tokyo
Japan 160
(03) 371-3082

INPUT

Planning Services for Management

MARKET TRENDS IN PROFESSIONAL SERVICES

AUGUST 1981



Digitized by the Internet Archive
in 2015

<https://archive.org/details/markettrendsinprunse>

MARKET TRENDS IN PROFESSIONAL SERVICES

CONTENTS

	<u>Page</u>
I INTRODUCTION	1
II EXECUTIVE SUMMARY	3
A. Overview	3
B. Competitive Forces	4
C. Market Forecast	5
D. Market Opportunities	7
E. Recommendations	8
III STRUCTURE OF THE PROFESSIONAL SERVICES INDUSTRY	11
A. Market Share	11
B. "Big Eight" CPA Firms	11
C. Types Of Professional Services	15
1. Consulting And Programming Services	15
2. Facilities Management Services	16
D. Market Segmentation	16
E. Market Size By Type Of Service	18
F. Twenty-Five Largest Vendors Of Professional Services In The U.S.	19
G. Market Forecast	21
H. Facilities Management Services Revenue Forecast	23
IV PROFESSIONAL SERVICES VENDOR PROFILE	27
A. Introduction	27
B. Marketing Considerations	30
1. Geographic Coverage	30
2. Contract Types	30
3. Pricing	33
C. Business Analysis	35
D. Impact Of Skilled DP Professional Shortage	38
V USER REQUIREMENTS	43
A. Most Significant Problem	43
B. Role Of Software Productivity Aids	43
C. Remote Computing Services Vendors Provide Solutions	45
D. New Opportunities	50
1. Minicomputer Systems	50
2. Distributed Data Processing	51
3. Turnkey Systems	52
4. Microcomputers	52

	<u>Page</u>
APPENDIX A: RELATED INPUT REPORTS	57
APPENDIX B: QUESTIONNAIRE	59
APPENDIX C: USERS' VIEW OF THE VENDOR SELECTION PROCESS	65
A. Vendor Proposals And Presentations	65
B. Rating The Vendor	66
C. General Considerations	69

MARKET TRENDS IN PROFESSIONAL SERVICES

EXHIBITS

			<u>Page</u>
II	-1	Market Forecast For Professional Services, 1981-1985	6
III	-1	Professional Services Revenues By Type Of Vendor And Market Segment, 1979-1980	12
	-2	Big Eight CPA Firms' Computer-Related Professional Services Revenues, 1979-1980	14
	-3	Revenue Distribution By Type Of Service And Market Segment, 1980	17
	-4	Twenty-Five Largest Vendors Ranked By 1980 Total Professional Services Revenue	20
	-5	U.S. Professional Services Market Forecast By Type Of Service And Market Segment, 1981-1985	22
	-6	Comparison Of Professional Services FM And Processing Services FM Market Forecast, 1981-1985	24
IV	-1	Professional Fees For Software Consulting And Programming	34
	-2	Employee Productivity By Type Of Computer Services Vendor, 1979 And 1980	36
	-3	Consolidated Income Statement Of Sixteen Public Professional Services Vendors	37
	-4	The Shortage Of Software Personnel	39
	-5	What Techniques Will You Use To Cope With The Personnel Shortage?	41
V	-1	Most Popular Productivity Methods Used By DP Manager Respondents	44
	-2	Level Of Productivity Improvement Expected By DP Manager Respondents	46
	-3	Distribution Of An Application Programmer's Time	47
	-4	Reasons For Changes In Software	48
	-5	Functional Network	53
	-6	Sample Of Current Applications Installed On Personal Computers	56

I INTRODUCTION

I INTRODUCTION

- This report on market trends for professional services (PS) was prepared as part of INPUT's 1981 Information Services Industry Program (ISIP).
- A majority of ISIP subscription clients expressed a high degree of interest in this topic on the basis of increasing market demand and acceptance of information system-oriented professional services.
- Research for this report is based upon an analysis of INPUT's Company Analysis and Monitoring Program (CAMP) data base, previous research conducted during 1980 and 1981, and in-depth interviews with five vendors of professional services to obtain their judgement and experience on important issues.
 - The 1981 CAMP data base is a major, ongoing INPUT research program, maintained and updated with both public and research-based vendor data.
- Within the information services industry, professional services are rendered to client companies and governmental departments and agencies across the following general service categories:
 - Consulting.
 - Systems analyses and design.

- Programming services.
- Facilities management.
- This report will provide ISIP clients with the following:
 - Segmentation of the professional services industry.
 - Market size, and projected growth rates for 1980-1985.
 - Key driving forces and trends.
 - Business analysis of significant vendor characteristics.
 - Current user requirements.
 - Recommendations.

II EXECUTIVE SUMMARY

II EXECUTIVE SUMMARY

A. OVERVIEW

- During 1980, the professional services segment of the information services industry realized its greatest revenue growth since INPUT began analyzing the industry in 1975.
 - Unprecedented demand from both the government and commercial markets contributed to the 25% growth rate in 1980.
- INPUT believes that the high demand for professional services will be sustained throughout the 1980-1985 forecast period.
 - User demand for new and more sophisticated information processing systems has exceeded the supply of cost-effective, in-house solutions.
- INPUT also predicts that acceptance of professional services by both users and information systems directors will increase, paralleling the marketing experiences of software products vendors.
 - The common "not invented here" syndrome with regard to software packages has been almost eliminated as users and information systems

directors increasingly decide in favor of buying rather than building standard business packages and systems tools such as accounting payroll systems, and data base management systems.

- INPUT believes that professional services will be increasingly sought after as a cost-effective alternative to in-house development.
- Information systems management is beginning to realize that the professional services industry can significantly reduce the high costs, in terms of both time and money, associated with large "one-of-a-kind" applications development projects.
- The professional services industry will compensate in part for the projected shortage of skilled DP professionals during the 1980s.
 - INPUT believes that DP-experienced professionals will migrate to the professional services industry in preference to taking on in-house software maintenance responsibilities.

B. COMPETITIVE FORCES

- Large certified public accounting firms, traditionally referred to as the "Big Eight," have emerged as a significant competitive force within the commercial services market.
 - INPUT estimates that the Big Eight had an 11.3% share of the professional services market segment of the computer services industry in 1980.

- CPA firms are also positioning for potential auditing of clients within state and local governments by providing consulting and programming services. This will be done in anticipation of legislation which would require annual audits and reporting by state and local governments.
- Smaller regional and local CPA firms are being forced into a consulting role in terms of recommending appropriate automated information systems to their accounting services clients.
- INPUT believes that CPA firms will expand their traditional client services to small and medium-sized companies with information services.
- INPUT anticipates the emergence of several relatively large professional services companies as the result of mergers and acquisitions. This consolidation will have the effect of replacing "local" firms with stronger regional and national companies.

C. MARKET FORECAST

- INPUT estimates that the total U.S. market for professional services in 1980 was \$3.75 billion, a 25% increase over 1979 revenues of \$3.0 billion. A forecast for the period 1981 through 1985 is provided in Exhibit II-1.
- 1980 government services revenues derived from federal, state, and local departments and agencies increased 28%.
- 1980 commercial services revenues across all industries increased 25%.
- Vendor consulting and programming services are growing at greater than twice the rate of facilities management (FM) revenues.

EXHIBIT II-1

MARKET FORECAST FOR
PROFESSIONAL SERVICES, 1981-1985
(\$ millions)

● MARKET SEGMENT - TYPE OF SERVICE	1981	1982	1983	1984	1985	AAGR 1981-1985 (percent)
● Commercial Services						
- Consulting and Programming	\$2,200	\$2,750	\$3,400	\$4,200	\$ 5,120	23.5%
- FM	110	120	140	160	180	13.1
Subtotal	\$2,310	\$2,870	\$3,540	\$4,360	\$ 5,300	23.1%
● Government Services						
- Consulting and Programming	2,130	2,740	3,540	4,580	5,840	28.7
- FM	330	360	390	420	460	8.6
Subtotal	\$2,460	\$3,100	\$2,930	\$5,000	\$ 6,300	26.5%
Total	\$4,770	\$5,970	\$7,470	\$9,360	\$11,600	24.9%

- Comparison of professional services FM and processing services FM reveals that in 1980, 78% of user expenditures for FM services were based upon vendors' providing processing resources.
 - INPUT forecasts that professional services FM revenues will grow at 10% per year between 1980 and 1985. This is in comparison to processing services-based FM which is expected to grow 15% per year between 1980 and 1985.
- Facilities management services are primarily bought by NASA and both commercial and governmental health insurance providers.
 - Among leading FM contractors, approximately 60% of total contract revenues are based upon the provision of consulting and programming services under a fixed price or cost-plus contract.

D. MARKET OPPORTUNITIES

- Professional services vendors in the commercial sector should initiate marketing strategy development to penetrate the state and local government sector of the government services market in anticipation of both legislation requiring new and improved information systems and the Reagan administration's policy of allowing state and local governments more flexibility in determining their program priorities and expenditures.
 - In particular, vendor expertise in teleprocessing-oriented, data base management systems developed for distributed minicomputers is forecasted to be in high demand.
- Processing services vendors, primarily remote computing services (RCS) vendors, are currently providing clients with significant consulting services as part of a problem-solving or consulting sales strategy.

- These vendors can realize new revenue opportunities by distinguishing between consulting services that have traditionally been "given away," and those for which a fee can be charged.
- Branch technical resources should be leveraged, in the form of professional services, to increase processing revenues.
- In the final analysis, value-added services such as consulting services should be unbundled from processing resource pricing and provided to clients on either a time and materials basis or a fixed price basis.
- INPUT recommends that billable targets be established for branch-technical representatives at a rate of at least 20% of their time.
- For RCS vendors, professional services must be viewed as a competitive edge against user processing alternatives.
- The projected shortfall of skilled in-house DP professionals is fueling the demand for outside processing services.

E. RECOMMENDATIONS

- Information services companies should develop strategies for sharing in the substantial revenue and profit potential in the professional services marketplace.
- New entries into the professional services marketplace must emphasize industry specialization.
- Vendors of professional services not already doing so should initiate marketing strategies to penetrate the state and local government markets.

- Vendors of professional services who are not presently addressing the discrete manufacturing industry should investigate programs to do so.
- Professional services vendors should attempt to place the delivery staff as close to the user markets as possible since resource proximity is one of the major factors in vendor selection.
- Vendors within the commercial market should adhere to the traditional "time and materials" development contract approach.
- Processing services vendors should unbundle processing services and consulting services.
- Processing services vendors should augment their utility processing software tools, primarily data base management systems, with professional services to address the unique, one-of-a-kind application systems. An example is a recently contracted international data collection and style analysis system for a major cosmetics firm.
- RCS vendors should utilize standard professional services techniques of identifying billable and nonbillable staff activities to capture additional service revenues.
- RCS management should establish billable targets for consulting services by technical support representatives of at least eight hours per week.

III STRUCTURE OF THE PROFESSIONAL SERVICES INDUSTRY

III STRUCTURE OF THE PROFESSIONAL SERVICES INDUSTRY

A. MARKET SHARE

- INPUT estimates there are approximately 980 companies and operating divisions providing professional services as their primary line of business.
 - These vendors employed approximately 88,000 people during 1980 and had a 77% market share of total 1980 expenditures for professional services, as indicated in Exhibit III-1.
 - Processing services and software product vendors had the remaining 23%.
- Based upon INPUT's analysis of vendor data, the distribution of the market share of professional services revenues has not changed significantly since 1979.

B. "BIG EIGHT" CPA FIRMS

- Among primary professional services vendors, INPUT includes user expenditures for computer-related professional services provided by the "Big Eight" Certified Public Accounting (CPA) firms.

EXHIBIT III-1

PROFESSIONAL SERVICES REVENUES BY
TYPE OF VENDOR AND MARKET SEGMENT, 1979-1980
(\$ millions)

TYPE OF COMPUTER SERVICES VENDOR	1979		TOTAL 1979	1980		TOTAL 1980
	GOVERN- MENT	COMMER- CIAL		GOVERN- MENT	COMMER- CIAL	
Processing Services Vendors	\$ 210	\$ 210	\$ 420	\$ 270	\$ 250	\$ 520
Percent Total P/S Market	14%	14%	14%	14%	14%	14%
Software Products Vendors	80	200	280	100	230	330
Percent Total P/S Market	5%	13%	9%	5%	12%	9%
Professional Services Vendors	1,200	1,100	2,300	1,540	1,370	2,910
Percent Total P/S Market	81%	73%	77%	81%	74%	77%
Total Professional Services Market	\$1,490	\$1,510	\$3,000	\$1,910	\$1,850	\$3,760

- As shown in Exhibit III-2, INPUT estimates that the Big Eight CPA firms generated approximately \$328 million in revenues for 1980, which represented a 28% increase over 1979 revenues of \$256 million.
- Big Eight accounting firms are increasing their computer services revenues at a greater rate than either processing services vendors or software products vendors.
- Arthur Andersen and Co. is estimated to be the second largest vendor of professional services during 1980.
 - Penetration of the professional services market is a primary growth and market strategy within Arthur Andersen.
- Some CPA firms are positioning themselves in the state and local government segments of the professional services market in anticipation of future audit requirements.
 - These firms are aggressively pricing their services in competition with traditional computer services vendors of professional services.
- Due to their national and international geographic market coverage, the Big Eight are well positioned to exploit the increasing market demand for computer-related professional services.
- Two other major segments of the computer services industry offer professional services as a supporting strategy to their main line business.
 - Processing services vendors provide customer requirements analysis and custom programming in order to increase and accelerate revenues on the vendor's processing network. During 1980, these firms had a 14% market share of PS expenditures.

EXHIBIT III-2

BIG EIGHT CPA FIRMS' COMPUTER-RELATED
PROFESSIONAL SERVICES REVENUES, 1979-1980*
(\$ millions)

FIRMS	1979	1980	GROWTH RATE (PERCENT) 1979-1980
Arthur Andersen	\$ 120	\$ 156	30%
Peat, Marwick and Mitchell	40	50	25
Ernst and Whinney	26	37	42
Arthur Young	20	24	20
Coopers and Lybrand	19	23	21
Touche Ross	13	16	23
Deloitte, Haskins and Sells	9	11	22
Price Waterhouse	9	11	22
Total	\$ 256	\$ 328	28%
Total Professional Services Segment Revenue	\$2,300	\$2,910	26%
Big Eight Market Share	11.1%	11.3%	2%

* INPUT ESTIMATES

- Software products companies offer professional services to provide customer education and training in order to facilitate a smooth installation of the vendor's product(s) such as an application-specific package like general ledger or payroll. Custom programming for non-DP users is normally available from the data base management systems vendors. These vendors derived approximately \$330 million or 9% of the total professional services market in 1980.

C. TYPES OF PROFESSIONAL SERVICES

- Vendors of professional services provide two modes of delivery:
 - Consulting and programming services.
 - Facilities management (FM) services.

I. CONSULTING AND PROGRAMMING SERVICES

- Management consulting normally provides clients with recommendations based upon feasibility studies, cost-benefit analyses, and recommendations for organization, hardware, software, communications, and system conversions.
- Systems analysis and design services provide an analysis of user and applications requirements resulting in a detailed design or specification which the vendor may or may not implement.
- Custom programming services either implement client supplied specifications or client-funded systems analysis and design.
- Documentation services.

- Educational services for client personnel range from data processing fundamentals to advanced computer/communications techniques.

2. FACILITIES MANAGEMENT SERVICES

- FM services normally include all the above consulting and programming services, with the major addition of assuming operations responsibility for a client's computer/communications facility.
 - Vendors of FM services essentially provide their clients with a complete turnkey system and assume responsibility for staffing and managing all DP personnel.
- FM services are generally based on multi-year contracts.

D. MARKET SEGMENTATION

- The market for professional services is divided into two major segments:
 - Commercial services.
 - Government services.
- The commercial market is segmented along industry lines and represents 49% of the total professional services market, as shown in Exhibit III-3.
- The government services market is divided into two major segments which together represent 51% of the total PS market:
 - Federal government.
 - State and local government.

EXHIBIT III-3

REVENUE DISTRIBUTION BY TYPE OF SERVICE
AND MARKET SEGMENT, 1980

(\$ millions)

TYPE OF P/S MARKET SERVICE SEGMENT	CONSULTING AND PROGRAMMING	PERCENT TOTAL SEGMENT	FACILITIES MANAGEMENT	PERCENT TOTAL SEGMENT	TOTAL PROFESSIONAL SERVICES	PERCENT TOTAL MARKET
Commercial	\$1,760	52%	\$ 90	22%	\$1,850	49%
Government	1,600	48	310	78	1,910	51
Total	\$3,360	100%	\$400	100%	\$3,760	100%

- Within the Federal Government market, user expenditures can be further segmented between defense and nondefense agencies:
 - Defense spending for professional services is the larger of the two subsegments.
 - NASA and the General Services Administration are the largest users of PS within nondefense agencies.
- State and local government markets are segmented into administrative and public service agencies.
 - Public service agencies such as health, police, and fire are major users of professional services.

E. MARKET SIZE BY TYPE OF SERVICE

- Programming and consulting services represented 89% or \$3.4 billion of the total 1980 market.
 - Facilities management services contributed 11% or \$400 million to the total 1980 market.
- Facilities management revenues are derived from client-owned and vendor controlled and operated data processing equipment under long-term contract (more than 12 months).
 - Professional services FM is distinguished from processing services FM (also referred to as resource management or systems management) where the vendor "owns" the computing resource, and according to INPUT definitions, provides a "processing service."

- Processing services FM revenues are included within the processing services segment of the computer services industry. These revenues were \$1.4 billion in 1980.

F. TWENTY-FIVE LARGEST VENDORS OF PROFESSIONAL SERVICES IN THE U.S.

- Twenty-five vendors of professional services account for 47% of total 1980 revenues, as shown in Exhibit III-4.
 - Computer Sciences Corporation (CSC) has a 20% market share with calendar 1980 revenues of \$354 million.
 - Excluding CSC, the average vendor revenue among the top 24 companies is \$59 million.
- Forty-four percent of the largest vendors participate in other computer services market segments.
 - Approximately \$1.1 billion is derived from processing services and about \$840 million from the sale of software products.
- The government services market awarded 60% of its 1980 computer based professional services expenditures to these 25 vendors.
 - CSC has a 29% share of this market, with Systems Development Corp. (SDC) having an 11% share in the number 2 market position.
- Within the commercial market, the largest vendor, Arthur Andersen, had a 6% market share.
 - INPUT estimates that approximately 95% of all professional services vendors exclusively target the commercial market, hence user expendi-

EXHIBIT III-4

TWENTY-FIVE LARGEST VENDORS RANKED BY
1980 TOTAL PROFESSIONAL SERVICES REVENUE

(\$ millions)

1980 COMPANY RANK	TOTAL PROFES- SIONAL SERVICES	COMMER- CIAL PROFES- SIONAL SERVICES	GOVERN- MENT PROFES- SIONAL SERVICES	OTHER U.S. COMPUTER SERVICES REVENUES	P/S PERCENT OF TOTAL COMPUTER SERVICES REVENUES	TOTAL COMPUTER SERVICES REVENUES
Computer Sciences Corp.	\$ 354	\$ 16	\$ 338	\$ 206	63%	\$ 560
Arthur Andersen and Co.	156	106	50	49	76	205
Systems Development Corp.	136	11	125	41	77	177
IBM	135	85	50	595	18	730
Mitre Corp.	124	34	90	-	100	124
Electronic Data Systems	90	10	80	324	22	414
Planning Research Corp.	95	15	80	35	73	130
Control Data Corp.	70	40	30	530	11	640
Grumman Data Systems	51	5	46	56	48	107
Peat, Marwick and Mitchell	50	40	10	-	100	50
Systems Consultants, Inc.	46	4	42	-	100	46
Science Applications, Inc.	37	2	35	-	100	37
Systems and Computer Technology	37	-	37	-	100	37
C.A.C.I., Inc.	37	1	36	8	82	45
American Management Systems Inc.	37	26	11	22	63	59
Ernst and Whinney	37	35	2	-	100	37
Arthur D. Little, Inc.	31	20	17	-	100	37
Informatics, Inc.	30	20	10	75	29	105
Lambda Technology	27	26	1	-	100	27
Logicon, Inc.	27	-	27	-	100	27
Bolt Beranck and Newman, Inc.	25	6	19	-	100	25
Arthur Young and Co.	24	18	6	-	100	24
Honeywell, Inc.	23	15	8	-	100	23
Coopers and Lybrand	23	20	3	-	100	23
Analysts International Corp.	21	18	3	-	100	21
Total 25 Companies	\$1,723	\$ 573	\$1,156	\$ 1,941	48%	\$ 3,710
Total 1980 Computer Services Industry	\$3,760	\$1,850	\$1,910	\$11,140	25%	\$14,900
Market Share of Computer Services for 25 Companies	47%	33%	60%	17%	-	25%

SOURCE: 1981 INPUT CAMP DATA BASE AND STAFF ESTIMATES

tures are spread across a larger vendor base than within the government services market.

- The 25 vendors consist of the following types:
 - Fourteen traditional professional service companies.
 - Five large CPA firms.
 - Three hardware manufacturers.
 - Two software products vendors.
 - One aerospace company.
- Data used for this exhibit were extracted from the INPUT Company Analysis and Monitoring Program data base.

G. MARKET FORECAST

- INPUT estimates the total U.S. market for professional services in 1980 was \$3.75 billion, which represented a 25% increase over 1979 revenues of \$3.0 billion.
 - INPUT's 1981 estimate of the 1980 market is approximately \$320 million greater than its previous forecast.
 - 1980 government services revenues increased 28% over 1979, and 1980 commercial services revenues increased 25%, as shown in Exhibit III-5.
- INPUT, therefore, is revising its professional services revenue forecast for the 1981-1986 timeframe, in accordance with the acceleration of user demand for

EXHIBIT III-5

U.S. PROFESSIONAL SERVICES MARKET FORECAST BY
TYPE OF SERVICE AND MARKET SEGMENT, 1981-1985
(\$ millions)

● MARKET SEGMENT - TYPE OF SERVICE	1981	1982	1983	1984	1985	AAGR 1981-1985 (percent)
● Commercial Services						
- Consulting and Programming	\$2,200	\$2,750	\$3,400	\$4,200	\$ 5,120	23.5%
- FM	110	120	140	160	180	13.1
Subtotal	\$2,310	\$2,870	\$3,540	\$4,360	\$ 5,300	23.1%
● Government Services						
- Consulting and Programming	2,130	2,740	3,540	4,580	5,840	28.7
- FM	330	360	390	420	460	8.6
Subtotal	\$2,460	\$3,100	\$2,930	\$5,000	\$ 6,300	26.5%
Total	\$4,770	\$5,970	\$7,470	\$9.360	\$11,600	24.9%

professional services in both the commercial and government segments of the professional services market.

- As indicated in an earlier section of this report, there are key driving forces within the federal sector of the government services segment to enhance and develop defense-oriented applications in accordance with President Reagan's new prioritization on defense spending.
- Data base requirements will continue to expand in all areas of government as well.
- Commercial services revenue growth will be sustained by the confluence of user demands for new and more complex applications, particularly those employing network capabilities and hardware services.
- A shortage of skilled DP professionals will also foster growth.
- Facilities management services for client-owned equipment will grow in accordance with price increases necessitated by attempts to adjust vendor cost increases for inflation.
- Overall, INPUT believes that the demand for consulting and programming services for large, custom application development will fuel revenue across all segments of the computer services industry.
- In 1980, 78% of the total user expenditures for FM services were based upon vendor supplied processing resources.

H. FACILITIES MANAGEMENT SERVICES REVENUE FORECAST

- INPUT forecasts FM services within the professional services segment of the computer services industry will reach \$640 million by 1985, as shown in Exhibit III-6.

EXHIBIT III-6

COMPARISON OF PROFESSIONAL SERVICES FM AND
PROCESSING SERVICES FM MARKET FORECAST, 1981-1985
(\$ millions)

FACILITIES MANAGEMENT	1980	1981	1982	1983	1984	1985	AAGR 1980-1985 (PERCENT)
Professional Services	\$ 400	\$ 440	\$ 480	\$ 530	\$ 580	\$ 640	10%
Percent Total	22%	22%	21%	20%	19%	19%	
Processing Services	1,390	1,600	1,830	2,090	2,400	2,780	15
Percent Total	78%	78%	79%	80%	81%	81%	
Total	\$1,790	\$2,040	\$2,310	\$2,620	\$2,980	\$3,420	14%

- Processing services FM revenues will grow at an average annual rate of 15% and reach \$2.78 billion by 1985.
- Combining both modes of delivery yields a market for facilities management services that is growing from a 1980 base of \$1.79 billion to \$3.42 billion in 1985.
- INPUT believes that processing services FM user preference will be sustained over the forecast period.

IV PROFESSIONAL SERVICES VENDOR PROFILE

IV PROFESSIONAL SERVICES VENDOR PROFILE

A. INTRODUCTION

- The professional services segment of the computer services industry can trace its development back to the mid 1950s.
 - Planning Research Corporation (PRC) was founded in 1954 to perform systems analysis and operations research for the Department of Defense. 1980 revenue from professional services is estimated to be \$90 million.
 - Systems Development Corporation (SDC) now owned by Burroughs Corporation, was founded in 1956 as a spin-off from the Rand Corporation to develop software systems for the U.S. Air Force as a nonprofit organization. SDC professional services revenue in 1980 was \$136 million of which \$123 million or 92% continue to be derived from agencies of the Federal Government.
 - Computer Sciences Corporation, currently the largest professional services vendor with 1980 PS revenues estimated at \$354 million, was founded in 1959 to provide consulting services in the design and implementation of systems software, primarily operating systems and compilers for computer hardware manufacturers.

- Professional services organizations from the mid-1950s to the present have been dependent upon two important factors for their growth and success.
 - Demand for automation.
 - Technical knowledge of their people and performance.
- Many of the largest vendors of professional services derive a significant percentage of their total professional services revenue either directly from the Federal Government or as subcontractors to commercial companies performing work under government contracts.
- This dependency upon the Federal Government has had a profound effect upon the vendors' earnings, management, organizational structure, employees, and the commercial market.
- As with the largest vendors of professional services, most medium-sized and small professional services companies tend to gravitate toward industry specialization.
 - Within the commercial market, the discrete manufacturing industry is the largest user of professional services.
- Government vendors of professional services tend to attract and recruit into their management ranks a higher proportion of ex-government employees who understand how to navigate the complexities and competitiveness of government procurements.
- Government vendors enjoy a high rate of systems enhancements, extensions, and maintenance contract awards associated with initial awards.
 - Many of these follow-on contracts are awarded on a sole-source, noncompetitive basis, due to the vendors' unique experience and knowledge of the recently completed system.

- In order to maintain an equal opportunity atmosphere within government procurement offices, some large scale systems projects are bid and awarded in distinct phases.
 - The systems design phase is awarded to one vendor, while systems engineering is completed by a different vendor.
- As reported in previous INPUT research, RCS vendors are losing market share in utility processing applications to in-house mainframes and powerful, interactive minicomputers.
 - Many RCS vendors are attempting to combat this trend by investing in functional and industry-specific applications software products.
- INPUT recommends that RCS vendors augment their utility processing software tools, primarily data base management systems, with professional services to address the unique, one-of-a-kind application systems.
 - Low-cost processing cycles provided by minicomputers and other in-house mainframes cannot provide all the application solutions needed. Skilled RCS professionals analyzing user requirements and rapidly developing software solutions can help to fill the need.
- The combination of functional and industry-specific applications software packages for frequent and common business processing, and professional services for custom one-of-a-kind applications, enhanced with vendor-supplied, high-value software tools, is a viable and competitive growth strategy.
 - As the cost of computing resources continues to decline, processing services vendors who employ a full-service market strategy will be in a position to maximize their investments in software, hardware, communication networks, and people.

B. MARKETING CONSIDERATIONS

I. GEOGRAPHIC COVERAGE

- Professional services vendors tend to be organized around strategic geographic markets.
 - In addition to reputation and expertise, an essential ingredient of vendor selection by prospective buyers is the local availability of professional services staff.
 - Federal Government suppliers of professional services all have major sales and support divisions or branch offices in the Washington DC area, in addition to local offices at the point of service.
- In a recent survey, 26 responding professional services vendors indicated that their average number of sales offices was five.

2. CONTRACT TYPES

- Professional services are provided under a variety of contract types.
 - Time and materials (T&M).
 - Cost plus.
 - Fixed price.
- The dominant type of contract preferred and utilized by most vendors within the commercial services market is T&M.
 - Of all three contract types, T&M provides vendors with a reduced level of risk in terms of profit impact.

- Within the government service market, contracts are solicited by agencies on the basis of cost-plus fee awards.
 - Vendor costs associated with a specific contract are paid, in addition to either a specified or vendor-negotiated fee.
 - Cost-plus awards essentially regulate the margin of profit allowed, as well as competitive forces.
 - During fiscal year 1980, CSC derived 65% of its contract services revenue from cost-plus contracts and 74% of its revenue from the Federal Government.
- Cost-plus awards are sometimes negotiated to include a fixed fee of three to five times the direct salaries associated with a development project.
- Fixed-price contracts commit vendors to perform and complete a contract at or below a predetermined price ceiling
 - To a significant extent, the profitability associated with fixed-price contracts is dependent upon the vendor's ability to accurately appraise, in advance, the cost of providing services.
 - Managing fixed-price contracts successfully requires an extremely well written and detailed statement of work and project scope.
- In order to reduce some of the risk associated with fixed-price contracts, American Management Systems (AMS) along with other vendors, divides a complex system into a series of standard development phases which aids in the managing of costs and in meeting committed schedules.
 - AMS will contract for one phase of a system at a time in order to adjust for changing user requirements and any additional project costs.

- Many vendors will not bid on contracts that require a fixed price.
 - Computer Task Group (CTG) will not compete for any business that requires a fixed price contract.
 - In 1980, Arthur D. Little Systems stopped all fixed-price computer systems development, when management realized they could not meet profit and control objectives.
- In many competitive situations, vendors are asked to combine their T&M contracts with a "not to exceed" clause which essentially imposes a fixed price ceiling on T&M contracts.
- Unfortunately, software development is more of an art than a science, which leaves room for interpretation and variability.
 - To reduce some of this uncertainty and risk, vendors within the commercial market religiously adhere to the traditional "time and materials" development contract.
 - However, due to competitive forces, vendors very often must commit to a "not to exceed" as part of their T&M contracts.
- Within the industry, vendor reputation, professionalism and quality of work are paramount to survival. Consequently, many vendors will absorb nonbillable activities in support of their commitment to excellence and in the expectation that there will be additional business opportunities as a result of their customers' satisfaction.
 - In fact, an essential ingredient to vendor success is the follow-on project obtained from existing customers. Some vendors report as much as 75% of annual revenues are derived from clients for which they had previously provided professional services.

3. PRICING

- The pricing of professional services is geared specifically to T&M contracts.
 - Fixed-price and cost-plus contracts are priced and negotiated on a custom basis.
 - T&M contracts utilize "published" unit pricing for each level of expertise required to complete a project.
- As shown in Exhibit IV-1, the client cost of engaging vendor consultants can range between \$50 per hour up to \$115 depending upon required expertise and experience.
 - Analysts who translate consultant-developed requirements into detailed system design, receive between \$40 and \$70 per hour.
- Programmers with two to three years experience receive \$30 to \$40 per hour for converting systems design into executable code.
- Project managers receive \$60 to \$90 per hour for assignments.
- Systems and user documentation is prepared and typed by specialists receiving \$20 to \$26 per hour.
- In addition to professional fees, clients are obligated to reimburse vendors for all reasonable and necessary costs associated with travel, lodging, and outside computer resources, should they be required.
- Fees in certain sections of the country, such as New York City, can be considerably higher than those shown in Exhibit IV-1.

EXHIBIT IV-1

PROFESSIONAL FEES FOR SOFTWARE CONSULTING AND PROGRAMMING

CATEGORY	FEE RANGE (dollars per hour)
<u>Consultants</u>	
Principal Consultant	\$90-115
Senior Consultant	70-85
Consultant	50-65
<u>Analysts</u>	
Systems Analyst	40-70
Applications Analyst	40-70
<u>Programmers</u>	
Programmer 2	30-40
Programmer 1	20-30
<u>Project Manager</u>	
Manager	60-90
<u>Documentation</u>	
Specialist	20-26

C. BUSINESS ANALYSIS

- Within the professional services industry, revenues are a function of time.
 - Excluding vacations, sick leave, and holidays, there are approximately 1,900 hours of potentially billable time per consultant/programmer in a year. Assuming an average hourly price of \$40, the average consultant/programmer can contribute \$76,000 ($\$40 \times 1,900$) in revenue per year.
- Assuming that 1,900 hours per year per PS employee are equivalent to 100%, most vendors target 1,700 hours per year, or 90% billable time and 10% nonbillable time, for each PS consultant/programmer.
 - The average professional employee therefore, represents approximately \$68,000 in annual revenue at a 90% billable rate.
 - In 1980, the average revenue for all billable and nonbillable professional services employees was \$39,000 which represented a 19% increase over 1979.
- Professional services companies have the lowest revenue per employee within the computer services industry, based upon the 1981 ADAPSO survey.
 - As shown in Exhibit IV-2, software products vendors had the highest revenue per employee.
- Based upon a compilation of 16 public professional services companies with annual revenues of over \$10 million per year, the average operating margin in 1980 was 9.3% which represented a 35% improvement over 1979, as shown in Exhibit IV-3.

EXHIBIT IV-2

EMPLOYEE PRODUCTIVITY BY TYPE OF COMPUTER SERVICES VENDOR, 1979 and 1980

TYPE OF COMPANY	AVERAGE REVENUE PER EMPLOYEE (\$ THOUSANDS)		PERCENT CHANGE
	1979	1980	
Processing Services	\$42	\$46	11%
Software Products	65	66	0
Professional Services	33	39	19
Weighted Average	\$42	\$47	12%

CONSOLIDATED INCOME STATEMENT OF
SIXTEEN PUBLIC PROFESSIONAL SERVICES VENDORS
(\$ thousands)

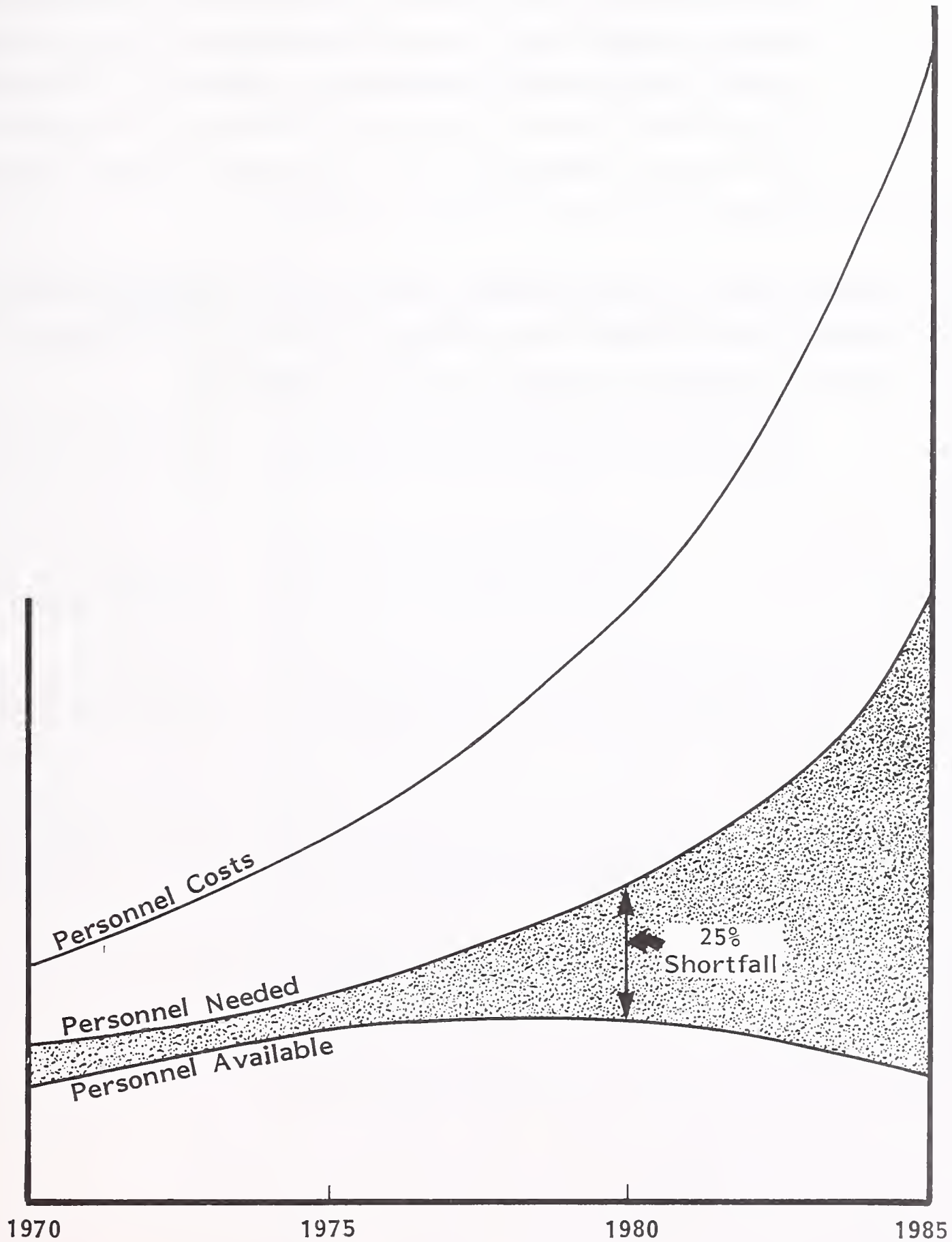
	1979			1980			1979-1980 CHANGE	
	TOTAL	AVERAGE	PERCENT	TOTAL	AVERAGE	PERCENT	CHANGE	PERCENT CHANGE
Revenues	703,600	\$43,975	100.0%	\$885,716	\$55,357	100.0%	\$182,116	25.9%
Less:								
Operating Expenses	\$539,391	33,712	76.7	667,759	41,735	75.4	128,368	23.8
General, Administration and Selling	98,665	6,167	14.0	129,365	8,085	14.6	30,700	31.1
Technical Development	3,770	236	0.5	4,142	259	0.5	372	9.9
Other	670	42	0.1	2,031	127	0.2	1,361	203.1
Total Cost of Operations	\$642,496	\$40,157	91.3%	\$803,297	\$50,206	90.7%	\$160,801	25.0%
Income From Operations	61,104	3,819	8.7	82,419	5,151	9.3	21,315	34.9
Less: Interest Expense	9,526	595	1.4	5,523	345	0.6	(4,003)	(42.0)
Earnings Before Tax and Extraordinary Items	\$ 51,578	\$ 3,224	7.3%	\$ 76,896	\$ 4,806	8.7%	\$ 25,318	49.1%
Less: Income Taxes	23,491	1,468	3.3	35,313	2,207	4.0	11,822	50.3
Extraordinary Items	173	11	0.0	136	9	0.0	(37)	(21.4)
Net Earnings	\$ 27,914	\$ 1,745	4.0%	\$ 41,447	\$ 2,590	4.7%	\$ 13,533	48.5%

D. IMPACT OF SKILLED DP PROFESSIONAL SHORTAGE

- The substantial reduction in the cost of computing power in the past decade has spawned an extraordinary proliferation of computer systems. Unfortunately for the owners and managers of these systems, the population of skilled analysts and programmers has not kept pace with the systems.
- There is a critical shortage of skilled personnel today, and it has been projected that that shortage will increase in the 1980s, as shown in Exhibit IV-4.
- The cost of hardware is expected to continue to decline in the 1980s, while the cost of skilled programmers is expected to continue to rise.
- Regardless of cost, many DP managers are going to find that skilled systems personnel are just not available. In a recent INPUT study, 60% of the respondents reported a "moderate" to "severe" shortage of systems personnel.
- In light of this crisis, professional services may represent the best solution to this problem.
- INPUT has estimated that the professional services segment of the computer services industry was \$3.7 billion in 1980.
 - Assuming the average revenue per PS consultant was \$48,000 in 1980, then the total population of PS consultants is 70,830.
 - By 1985, INPUT forecasts total PS revenue will be \$7.7 billion. Assuming a productivity increase of 25% in revenue per consultant, vendors of PS will employ approximately 128,300 consultants.
- In other words, during the period 1980-1985, PS vendors will have to recruit and train about 57,500 new professional consultants.

EXHIBIT IV-4

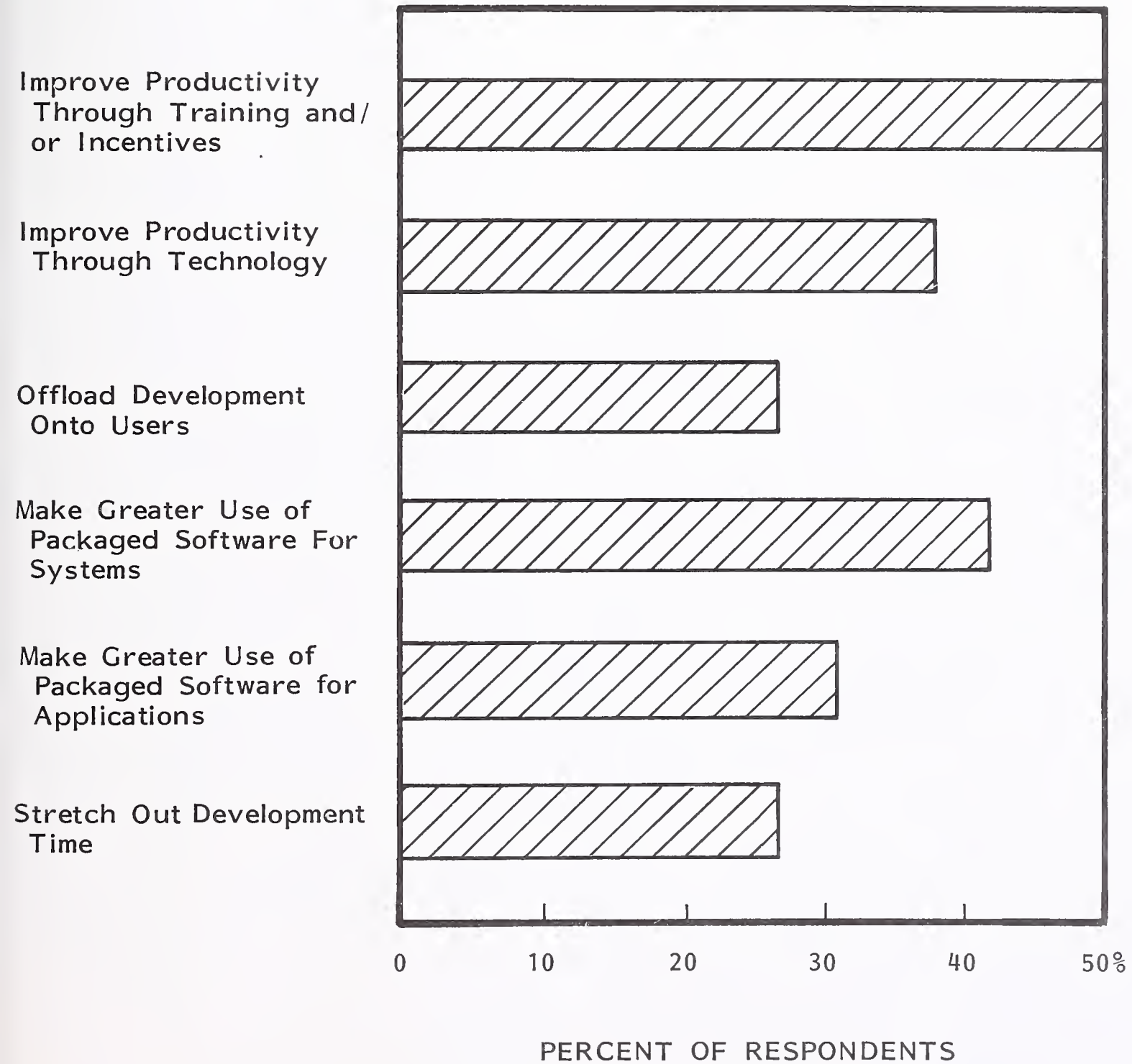
THE SHORTAGE OF SOFTWARE PERSONNEL



- Some vendors believe that the challenge associated with recruiting technical professionals has been exaggerated.
 - They believe that DP professionals within in-house DP organizations are spending at least 50% of their time maintaining existing software systems. These programmers/analysts believe that technology is passing them by and are, therefore, "available" for the leading edge, high-technology assignments that professional services vendors can offer.
- Another group of vendors believes that productivity increases resulting from new software technologies and techniques will, in turn, compensate for any shortfall in available consultants, as shown in Exhibit IV-5.

EXHIBIT IV-5

WHAT TECHNIQUES WILL YOU USE TO
COPE WITH THE PERSONNEL SHORTAGE?



V USER REQUIREMENTS

V USER REQUIREMENTS

A. MOST SIGNIFICANT PROBLEM

- According to over 900 respondents to the INPUT 1980 DP User Panel Survey of Information Systems Directors, personnel-related issues such as recruiting, training, motivating, and turnover were cited as the most significant problem in meeting end user information processing requirements.
 - DP management is becoming acutely aware of the need to reduce the time and cost of applications development.
 - Their efforts to accomplish this huge task have recently been targetted not on buying bigger and faster machines, but on improving productivity - people productivity.

B. ROLE OF SOFTWARE PRODUCTIVITY AIDS

- The increasing use of on-line programming and productivity aids such as IBM's Time Sharing Option (TSO), and software tools such as DBMS, account for 44% of the most popular methods used by the 1980 DP User Panel respondents, as shown in Exhibit V-1.

MOST POPULAR PRODUCTIVITY METHODS USED BY
DP MANAGER RESPONDENTS

INDUSTRY SECTOR	PERCENT OF MENTIONS BY INDUSTRY SECTOR						
	ON-LINE PROGRAM- MING	PURCHASED SOFTWARE PRODUCTS	STRUC- TURED PROGRAM- MING METHODS	PROJECT MANAGE- MENT AND CONTROL SYSTEMS	IMPROVED TRAINING OF PERSONNEL	PRODUC- TIVITY AND PROGRAM- MING AIDS	ALL OTHERS
DISCRETE MANUFACTURING	21%	8%	10%	5%	8%	25%	23%
PROCESS MANUFACTURING	24	10	9	2	4	27	24
TRANSPORTATION	14	9	6	9	9	31	22
UTILITIES	9	8	15	5	10	33	20
BANKING/FINANCE	17	14	4	6	8	30	21
INSURANCE	20	6	12	4	12	27	19
MEDICAL	20	14	6	4	10	26	20
EDUCATION	12	14	12	3	8	18	33
RETAIL	24	7	10	7	5	21	26
WHOLESALE	15	11	11	3	8	30	22
FEDERAL GOVERNMENT	13	-	13	-	19	19	36
STATE AND LOCAL GOVERNMENT	13	5	15	8	9	23	27
SERVICES	25	5	14	7	7	21	21
OTHER	26	5	11	-	-	26	32
AVERAGE	19%	9%	10%	5%	8%	25%	24%

SOURCE: INPUT EDP USER PANEL, 1980

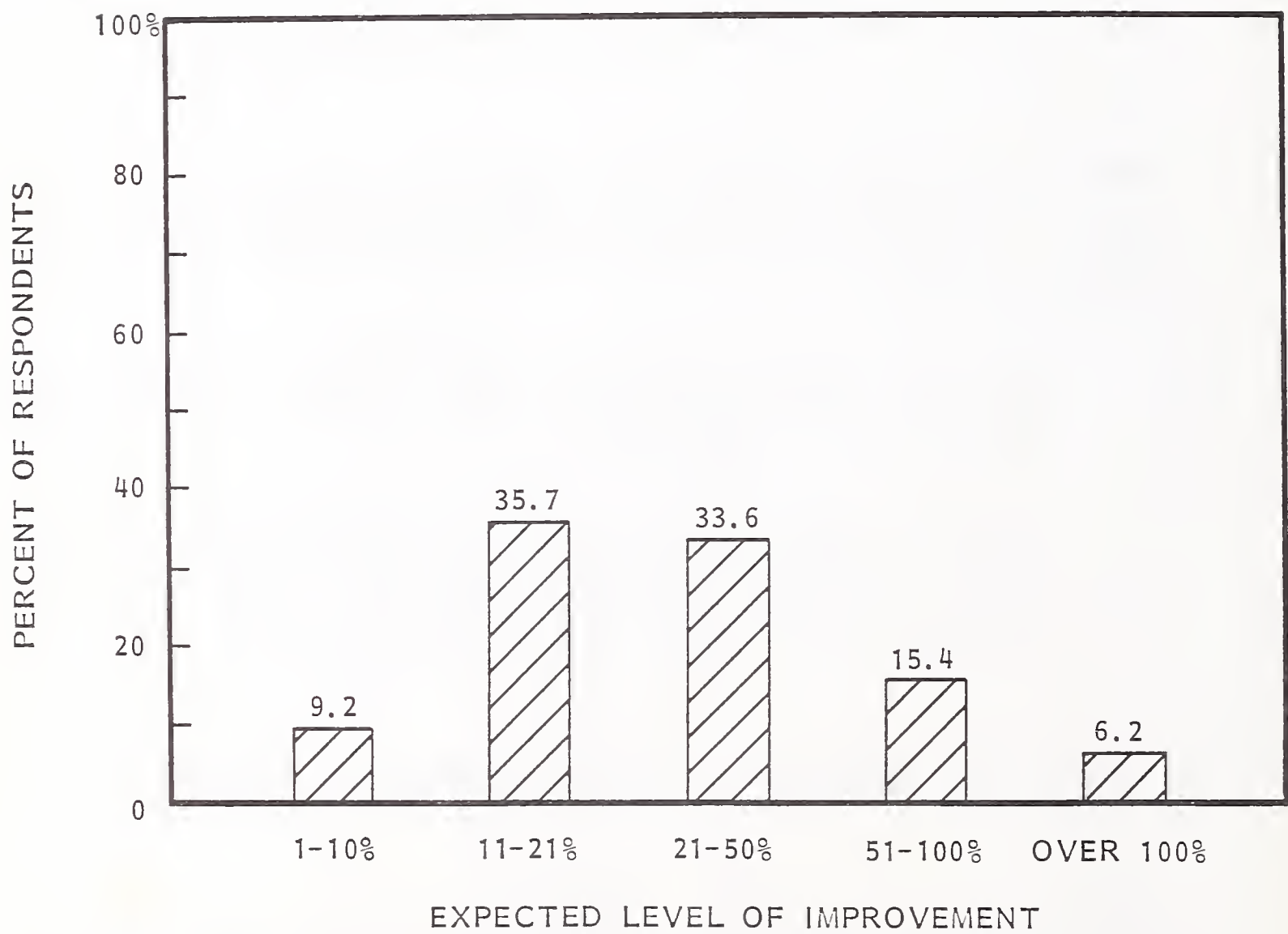
- However, only 22% of the respondents expected a greater than 50% level of improvement in reducing the cost and time of applications development, as shown in Exhibit V-2, by implementing these software productivity aids in combination.
- INPUT strongly believes that many information systems directors who have risen from the ranks of programmer/analysts realize that they will be unable to both maintain and develop user information processing systems.
 - The trend is clear - in-house programmers and analysts are spending increasingly more of their time maintaining and enhancing existing systems, rather than developing new applications, as shown in Exhibit V-3.
- Data processing departments are being pressured by senior corporate management to enhance existing systems due to changing business conditions, as shown in Exhibit V-4.
 - Across all industries, regulatory changes frequently require system enhancements and modifications.
 - Competitive industry pressures such as recent trends within the banking industry to provide automated teller machines is another major factor contributing to the demands placed upon ISDs to perform.

C. REMOTE COMPUTING SERVICES VENDORS PROVIDE SOLUTIONS

- RCS vendors have traditionally provided significant consulting and programming services to their prospects and customers as part of a "problem-solving" or "consultive" sales strategy.

EXHIBIT V-2

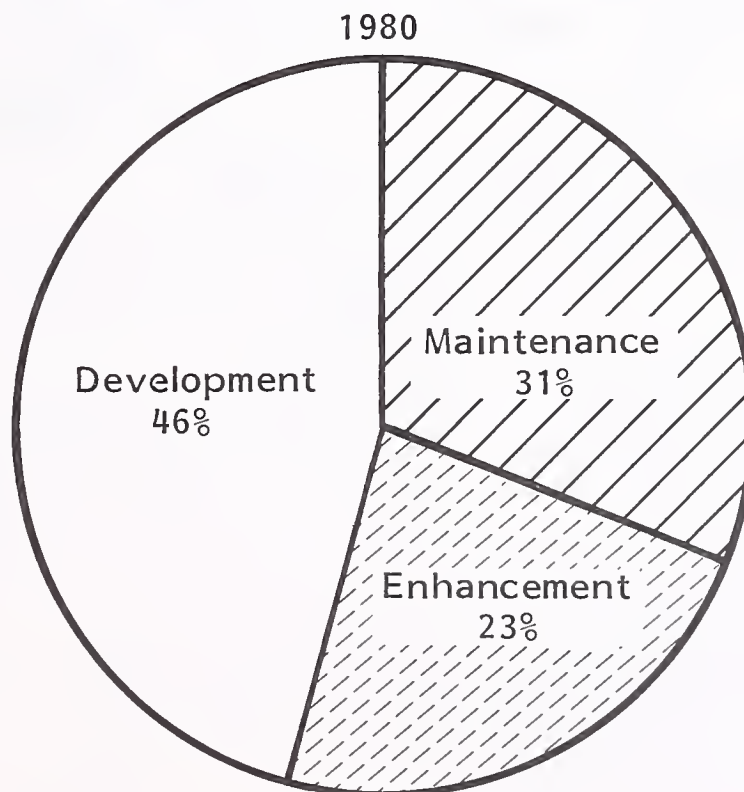
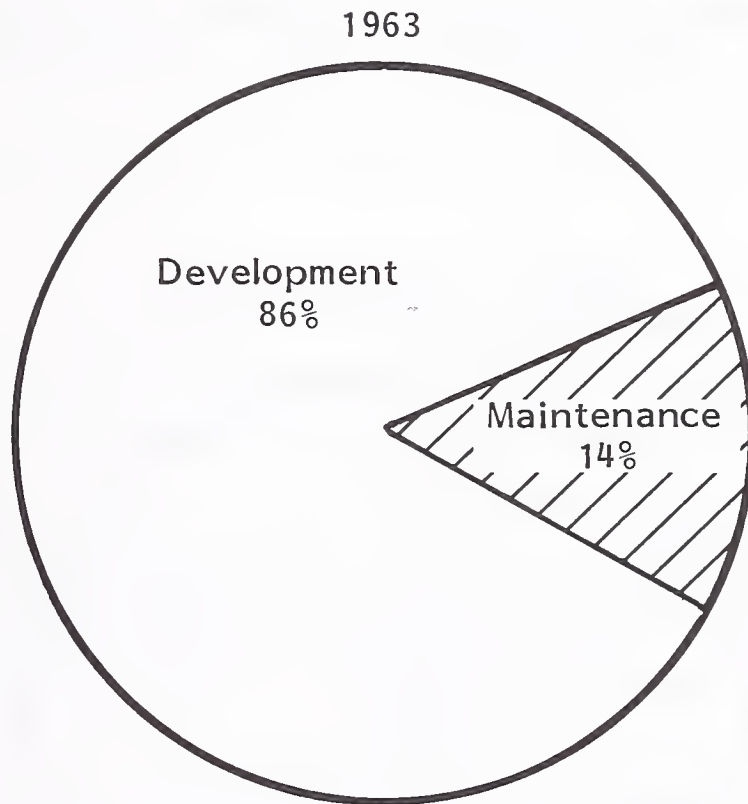
LEVEL OF PRODUCTIVITY IMPROVEMENT EXPECTED BY
DP MANAGER RESPONDENTS



SOURCE: INPUT EDP USER PANEL, 1980

EXHIBIT V-3

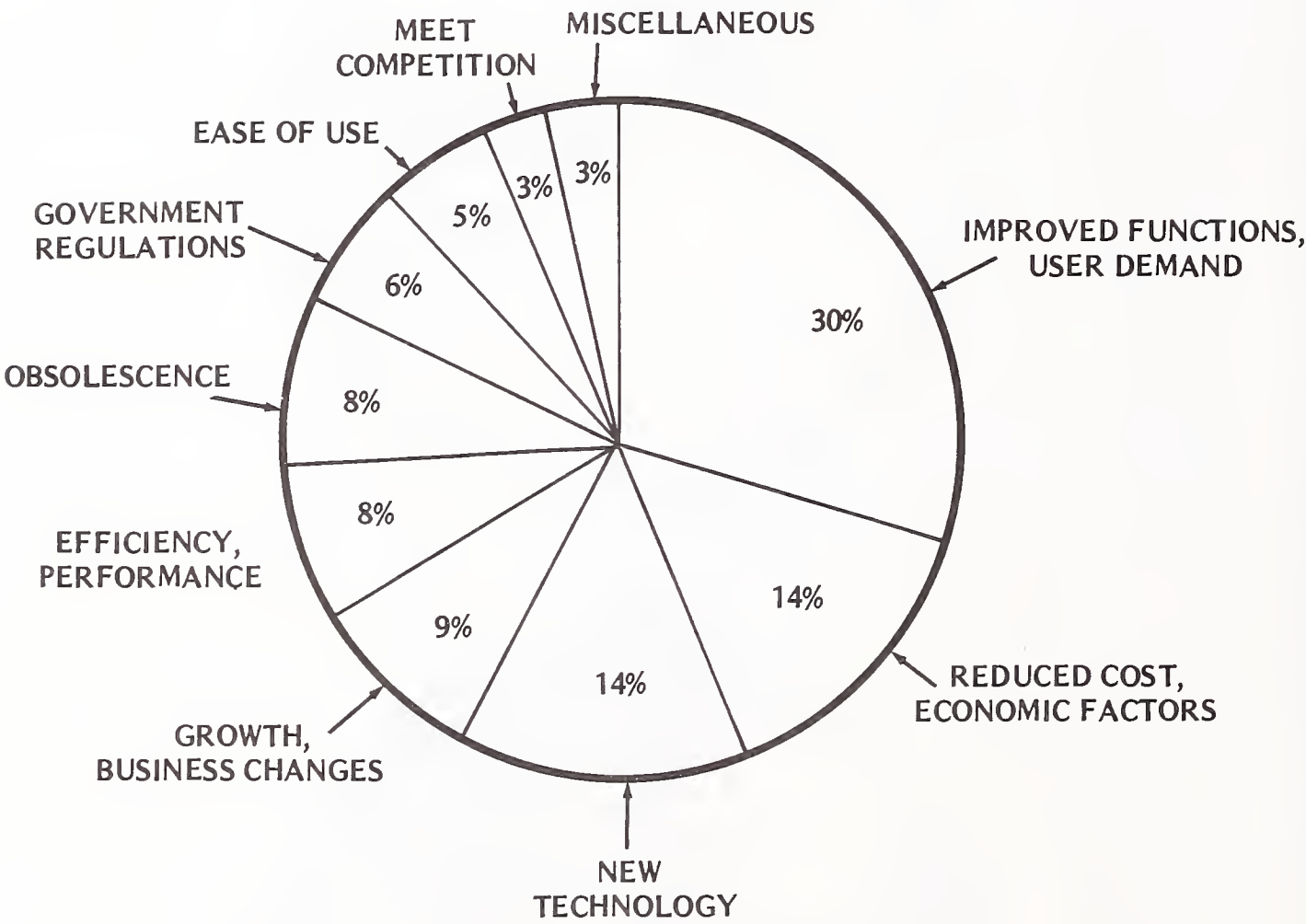
DISTRIBUTION OF AN APPLICATION PROGRAMMER'S TIME



 MAINTENANCE
 ENHANCEMENT

EXHIBIT V-4

REASONS FOR CHANGES IN SOFTWARE



- Sales and technical representatives normally provide professional services in the form of consulting in order to sell network sales solutions.
- In addition, depending upon current and future revenue opportunities and the effort estimated to design and program a network service solution, vendor field branch managers will frequently use branch professionals at no charge, which in effect is granting an "unofficial" customer discount.
- INPUT believes a significant market opportunity exists for RCS vendors to capture additional service revenues by utilizing standard professional services techniques of identifying billable and nonbillable staff activities.
 - INPUT recommends, first that vendor senior management establish initial branch billable targets for consulting services by technical support representatives at 20%, or eight hours, per week.
 - Second, that programming services, depending upon project scope as defined in the requirements analysis "engagement," be delegated to the vendor's regional or national professional services staff, if greater than one man-month.
- INPUT believes that additional benefits will accrue to RCS vendors who implement this field professional services strategy.
 - Branch technical representatives will become aware of the distinctions between providing customer sales support and providing free consulting services.
 - Sales representatives will be provided with a prospect qualification tool which, if used effectively, could reduce the sales cycle and identify serious prospects.

- Clients will benefit by receiving a more thorough analysis of their requirements and ultimately a more effective and efficient solution to their application requirements.

D. NEW OPPORTUNITIES

I. MINICOMPUTER SYSTEMS

- Although INPUT believes that large-scale systems will continue to be important, it expects their growth will decline. The performance level associated with today's large-scale systems will be equaled by the medium-scale systems of the mid-1980s, with these latter systems serving the needs presently served by the large-scale system reduced by the off-loading of applications to minicomputers and intelligent terminals as a result of DDP.
 - As much as 40% of the commercial applications now performed by large-scale central computer facilities could be off-loaded to minicomputers and intelligent terminals by the mid-1980s.
 - Eighty percent or more of the commercial data base applications could be distributed by 1990, the key current obstacle being the lack of appropriate software.
 - One of the frequently mentioned major, unsolved DBMS software problems slowing the implementation of DDP networks is that of file synchronization. As an example, when data in a remote node data base are changed and then, for any reason, this change is not passed on promptly to the central data base:
 - The central data base must be resynchronized with the remote data bases when the problem delaying the update is corrected.

- . The potential for incorrect responses from the central data base exists for intervening queries from other remote nodes.
- The interim residual roles of central computer facilities will be to:
 - Manage the data distribution of the network.
 - Provide secured storage for sensitive data bases.
 - Provide back-up storage for all data bases.
 - Process transactions against central data bases.
- It is INPUT's view that the DBMS capabilities of the remote nodes will fully absorb these roles after the mid-1980s, leaving the central node to serve as a central consolidation point for the DDP network's data base dictionaries and directories.
- The ongoing residual roles of the central computer facilities will be to:
 - Control the internal flow of noncomputer-generated information within the organization (i.e., voice, electronic mail, message switching).
 - Control the external flow of information to government, financial and other institutions.

2. DISTRIBUTED DATA PROCESSING

- Until recently, the "distribution of data processing power to the user" typically meant either:
 - Giving the user a Remote Job Entry (RJE) terminal.

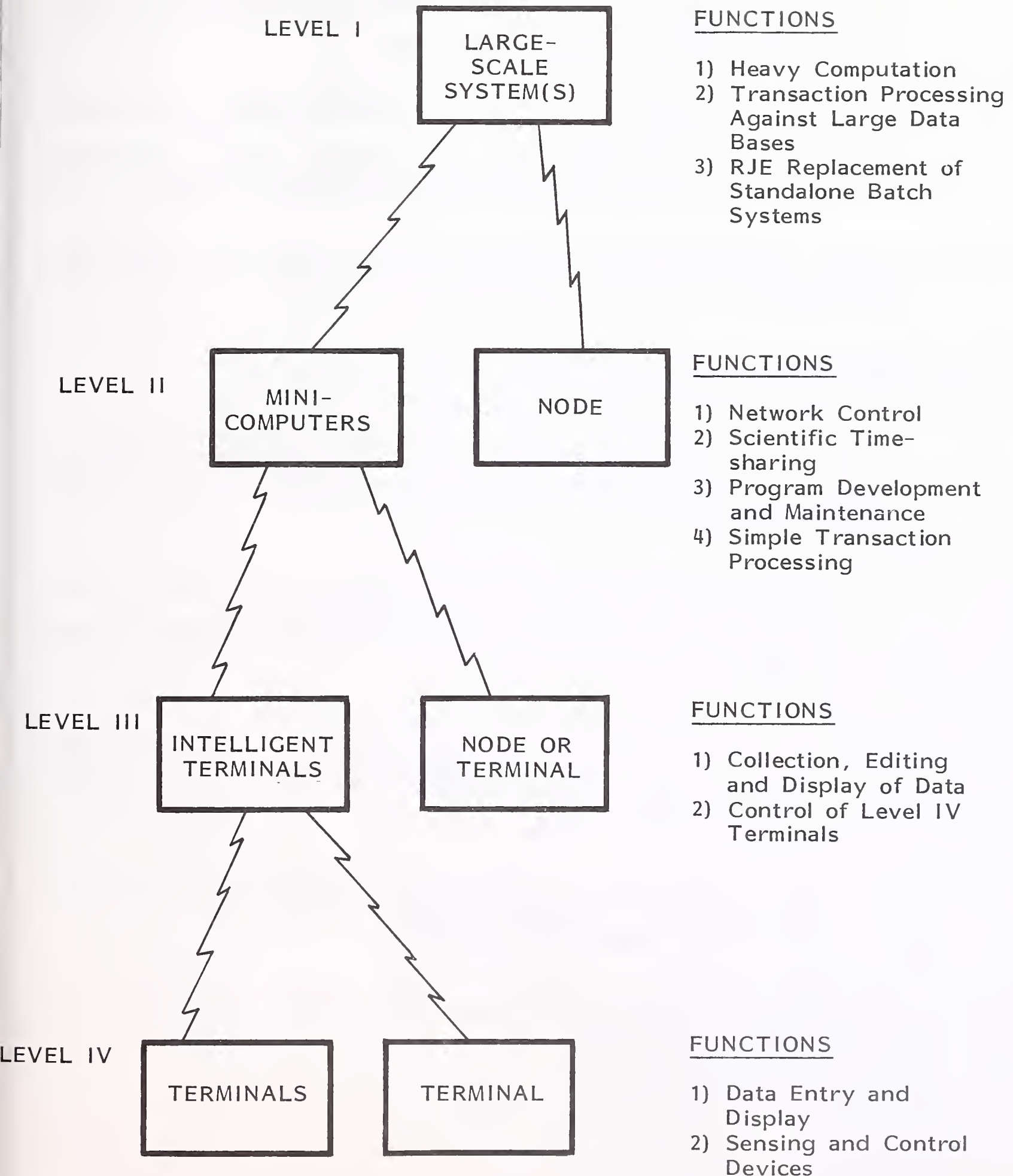
- Giving the user a CRT terminal tied through a controller, and possibly a telecommunications network, to a central computer facility.
- This approach to DDP skips over levels II and III of the functional network, as shown in Exhibit V-5, and gives the user only a time-slice of the central facility's processing capability.
- It assumed a central computer facility to which several minicomputers and/or intelligent terminals would be attached in a radiating pattern.
- Although this approach makes use of all four levels of the defined functional network, all communications between nodes are handled through the next level higher node.
- Serious commercial consideration of a more general form of DDP with the individual minicomputer nodes (level II of Exhibit V-5) directly communicating with each other without passing through the level I node has only begun recently.

3. TURNKEY SYSTEMS

- There are nearly 50 manufacturers who supply hardware to turnkey systems vendors and processing services companies.
- There are at least 15 large processing services companies who currently sell turnkey systems, and that number will grow dramatically in the next five years.
- There are approximately 4,500 turnkey system vendors in the U.S.
- These firms provide hardware and software as a package to satisfy the needs of a particular application.

EXHIBIT V-5

FUNCTIONAL NETWORK



- The growth of this industry indicates that users like vendors who assume complete responsibility for their applications.
- The turnkey system market is presently highly fragmented, with no single turnkey vendor having a significant market share.
- Nearly all turnkey vendors (except hardware manufacturers and processing services firms) cover regional markets. This is changing, however, as some of the larger vendors construct their own nationwide distributor network.
- Turnkey systems should be explored particularly for industry-specialized applications.

4. MICROCOMPUTERS

- In September 1980, INPUT concluded a study, Selling Personal Computers To Large Companies, where personal computers were defined as systems selling for under \$15,000.
 - INPUT estimated that by the end of 1980 there were 85,000 systems installed in large companies, and forecasted growth to 600,000 systems by 1985.
 - Applications implemented on very small systems are down-sized versions of many of the same applications that users are currently buying from RCS vendors.
 - INPUT believes that very small systems will erode current and potential utility processing applications revenues.
 - There is little doubt that very small systems will emerge as a significant force in DDP.

- Exhibit V-6 illustrates applications by functional department applications now running on personal computers.

5. APPLICATIONS SOFTWARE

- The applications software market is still primarily for IBM or IBM plug compatible computers.
 - Over 60% of total 1980 expenditures were for IBM architectures.
 - Nearly 17% of the software product market was minicomputer-based, including those of DEC, Data General, and Hewlett-Packard.
- Computer manufacturers continue to be a significant, but not dominant, factor in the applications software marketplace, holding a declining 22% of the 1980 market.

EXHIBIT V-6

SAMPLE OF CURRENT APPLICATIONS INSTALLED ON PERSONAL COMPUTERS

FUNCTIONAL DEPARTMENT	APPLICATION
Marketing	<ul style="list-style-type: none"> ● Sales Analysis ● Loan Account Analysis ● Customer Base Analysis ● Mailing Labels ● Price Forecasting ● Risk Analysis
Manufacturing	<ul style="list-style-type: none"> ● Inventory Control ● Materials Estimating ● Production Scheduling and Reporting ● Product Mix Calculations ● Bill Of Materials
Engineering	<ul style="list-style-type: none"> ● Structural Analysis ● Numerical Control ● Computer-Aided Design ● Thermal Stress Analysis
Finance	<ul style="list-style-type: none"> ● Payroll ● Budgeting ● Cost Accounting ● Capital Equipment Inventory and Depreciation Analysis ● General Financial Reporting
Personnel	<ul style="list-style-type: none"> ● Salary Administration ● Vacation Time Accounting and Scheduling ● Vending Machine Accounting ● Workmen's Compensation Reports
Legal	<ul style="list-style-type: none"> ● Stock Transfer Analysis ● Patent Payments ● Litigation Reporting and Docketing ● Customer Files for Legal Matters

APPENDIX A: RELATED INPUT REPORTS

APPENDIX A: RELATED INPUT REPORTS

<u>TITLE</u>	<u>PUBLICATION DATE</u>	<u>PRICE</u>
<u>Trends in Computer Services Pricing</u>	July 1980	\$2,500
<u>Computer Services Industry Annual Report 1980</u>	November 1980	\$4,000
<u>Trends in Delivery of Remote Computing Services</u>	November 1980	\$2,500
<u>Managing the Systems Development Process</u>	December 1980	\$2,500

APPENDIX B: QUESTIONNAIRE

1. What percent of total revenues are derived from the following types of service?

(Professional Services)	
Consulting/programming	_____ %
Processing Services	_____ %
Software Products	_____ %
FM	_____ %
Turnkey systems	_____ %

2. What percent of professional services revenues are derived from the following market segments?

Commercial	_____ %
● Major industry	
Federal Government	_____ %
● Defense	
● Non-Defense	
State and Local Government	_____ %

3. What is the distribution of professional services revenues by contract type?

● Time and materials	_____
● Cost-plus	_____
- incentive	
- Fixed fee	
● Fixed-price	_____
● Level-of-effort	_____

4. What are your T&M rates by consultant type and market segment?

<u>CONSULTANT TYPE</u>	<u>COMMERCIAL</u>	<u>GOVERNMENT</u>
Senior	\$ _____	\$ _____
Junior	\$ _____	\$ _____
Principal	\$ _____	\$ _____
Other _____	\$ _____	\$ _____

5. What is the average number of professional services?

Total employees _____

Consultants _____

- Senior _____ %
- Junior _____ %

Salesman _____

6. What is the average starting salary for a:

Senior Consultant? \$ _____

Junior Consultant \$ _____

7. What computer-related skills do you seek in a new consultant?

- Programming languages _____
- Application knowledge _____
- Industry knowledge _____
- Main Frame experience _____

Other skills _____

8. What type of training does your company provide for its professional staff?

9. What are your recruiting objectives for 1981? For 1982?

	<u>1981</u>	<u>1982</u>
Consultants	<hr/>	<hr/>

10. What methods do you use to recruit?

- Employment agencies

- Newspapers

- Referrals

11. Which method is not effective?

12. What are the major reasons that attract a DP consultant to your firm in order of:

- | | |
|----------------------|----------------------------|
| ● Compensation <hr/> | ● Client assignments <hr/> |
| ● Reputation <hr/> | ● Work environment <hr/> |
| ● Other <hr/> | |

13. What are the major reasons for a consultant's resignation?

- | | |
|-----------------------|--------------------------|
| ● Better compensation | <input type="checkbox"/> |
| ● Client job offer | <input type="checkbox"/> |
| ● Work related stress | <input type="checkbox"/> |
| ● Competition | <input type="checkbox"/> |

14. What productivity aids do you provide your consultants?

- Software ☐
- Interaction processing ☐
- Project managment ☐

15. What is the distribution between billable time and non-billable time for your consultants?

16. What percentage of your current customers were clients?

_____ %

17. What is the average length of a client engangement in terms of man-months?

- 1 - 3 Months ☐
- 3 - 6 Months ☐
- 6 - 1 Year ☐

18. What percent of your professional senior business is won on a computer basis?

_____ %

19. In order of importance, what is the buyers selection criteria?

- Cost ☐
- Skill/Expertise ☐
- Qualtiy ☐
- Reputation ☐

20. Between 1980 and 1985, what do you believe the AAGR for the P.S. Industry will be?

_____ %

Your firm's AAGR?

_____ %

21. What are the driving forces?

- Shortage of skilled DP professionals

- More complex application development projects

- Decreasing cost of hardware

- Decreasing cost of communication

22. Professional Services is a labor intensive business - How do vendors improve profit margins?

23. Please describe your company's competitive advantages.

26. What percent of your PS business is for:

- New development _____%
- Enhancements _____%

27. What is your policy on software maintenance for completed contracts?

28. Do you offer a turnkey system? ☐ Yes ☐ No

Application _____

29. What percent of total revenues will be derived from hardware based services by 1984?

_____%

THANK YOU

APPENDIX C: USERS' VIEW OF THE VENDOR
SELECTION PROCESS

APPENDIX C: USERS' VIEW OF THE VENDOR SELECTION PROCESS

A. VENDOR PROPOSALS AND PRESENTATIONS

- After all the vendors have responded to a request for information (RFI), the information gathered should be evaluated and all but two to five vendors eliminated.
 - The request for information is a tool used for the preliminary screening of candidate professional services vendors that enables the buyer to systematically review the prospective capabilities with a minimal expenditure of time.
- At this point, one should issue a request for proposals (RFP).
- The RFP should be more specific than the RFI and may, in fact, be expanded based on the information initially provided by the vendors.
- An extensive list of evaluation factors is provided in the following section (B).
 - A number of these can be used in the RFI stage.
 - All of them should be addressed when soliciting and evaluating proposals.

- In addition to submitting proposals, vendors should be invited to make on-site presentations to a selection committee.
- In both the proposal and the presentation, vendors should be directed to address specific issues that are particularly important.
- The presentation is especially useful for evaluating the people with whom one will be doing business.
 - If the service one is buying is a significant investment and will require continued interface with the vendor's marketing and technical people, this is an excellent time to assess them.
 - Remember, although it's impressive when the vendor's senior management and headquarters specialists are present, it will be the local representatives with whom one will have the most contact and on whom one will mostly depend for service.
- After all the proposals and presentations are made, one should evaluate all the data and make a decision.

B. RATING THE VENDOR

- The vendor should meet all the minimum mandatory specifications.
 - If none of the vendors are able to meet the minimum specifications, then the specifications should be reviewed to determine if they are really essential.

- If the requirements are indeed valid, but none of the vendors can satisfy all of them, a prospective buyer may have to broaden the search, or request that the most promising vendors propose how they could comply with the minimum requirements.
- The vendor should be prepared to provide a level of support commensurate with the cost and complexity of the system to be installed.
- The vendor should provide a clear outline of what is required to install the system, which should include:
 - Any considerations involving a conversion from the buyer's current system to the new installation.
 - Training required for all personnel, from clerks to programmers to managers and users.
 - Qualifications and background of the vendor's personnel who will be providing installation support and training.
 - A reasonable time schedule for the implementation of the software.
- Clear, comprehensive, understandable documentation is essential for the effective use of the resultant software or system.
- Appropriate documentation should be available for all personnel who interface with the system.
- The experience a vendor has should be evaluated in several ways, including:
 - The amount of time a vendor has been in the professional services business.

- The experience of the principals prior to entering the professional services business.
- Generally, larger organizations should rank higher than smaller ones.
- If an organization has more than a million dollars in annual revenues or more than 20 employees, it is probably satisfactory.
- A large customer list is definitely desirable in a vendor.
- It is particularly good when a vendor can provide a list of reference customers.
- Vendors with demonstrated financial stability should be preferred.
- If the vendor is not a public company (which most are not) and the project requires a substantial financial commitment, then one should request copies of audited financial statements going back as far as five years.
- Vendors should be evaluated on the basis of their commitment to the professional services business.
- Buyers should give higher ratings to a company that is primarily dependent on professional services as opposed to one for which they are only a peripheral line of business.
- If the project is with an industry application specialty, buyers should compare the level of commitment each vendor has toward that industry segment.
- If the project is going to involve multiple locations, buyers should determine whether the vendor can provide local support at each one.
- Regardless of geographical proximity, buyers should rate the level of competence that the vendor can provide in support.

- It is very important that references be requested and randomly checked.
- References should be requested and checked only when buyers are about to make a final decision. They should be used primarily to verify and validate the results of the buyers' own investigations.

C. GENERAL CONSIDERATIONS

- Buyers should be sure that the vendor's responsibilities for assisting in the installation are spelled out in the contract.
- Penalties should be spelled out in the contract for incomplete or late installation.
- The amount and kind of installation support and training should be defined in the contract.
 - The contract should include a description of the qualifications of the personnel who will provide the on-site support, or even the names of the specific individuals.
- After installation, a period for evaluation should be set aside before final acceptance of the product.
 - The period should cover a full cycle of use.
 - If the product is not found to be acceptable, buyers should be able to obtain a refund.
- The product should be warranted to be free of bugs for at least a year.
 - Procedures for correcting bugs after installation should be provided.

- A minimum response time for finding bugs should also be defined.
- If buyers intend to modify the software, they should be sure that the modifications do not invalidate any warranties or maintenance agreements.
- The vendor should assume financial liability at least up to the contract price of the software if it fails to perform as warranted and specified.

