

OPPORTUNITIES IN MARKETING APPLICATIONS
SOFTWARE PRODUCTS

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UNITED STATES, West Coast

2471 East Bayshore Road
Suite 600
Palo Alto, California 94303
(415) 493-1600
Telex 171407

4676 Admiralty Way
#401 C
Marina Del Rey, California 90291
(310) 23-1230

M-1980
APS

AUTHOR
Churilla, Ken.

TITLE

Quantitative Market Research

UNITED STATES, East Coast

1 West-1
, New Jersey 07662

UNITED KINGDOM

(4th Floor)

alia
re, 7-9 Merriwa Street
Gordon N.S.W. 2072

34

URL

D

JAPAN

INPUT Japan
Suite 1106
7-7-26 Nishi-Shinjuku
Tokyo
Japan 160
(03) 371-3082

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TABLE OF CONTENTS

	<u>Page</u>
I INTRODUCTION	1
II EXECUTIVE SUMMARY	5
A. Market Size, Segmentation And Growth Rates	5
B. Vendor Profile	6
C. Key Driving Forces In The Market	6
D. Market Consolidation	11
E. Applications Software Vendor Sales And Marketing Considerations	11
1. Success Factors	11
2. Lead Generation	12
3. Prospect Qualification	13
4. Closing The Sale	14
5. Salesperson Profile	14
6. Sales Cycle	15
7. Advertising	15
8. New Opportunities	16
F. Product Development	16
G. Technological Impacts	17
H. Recommendations For Vendors	19
1. Marketing And Sales	19
2. Product Development	20
3. Organizational Development	21
III STRUCTURE OF THE APPLICATIONS SOFTWARE PRODUCT MARKET	23
A. Number Of Vendors And Products	23
B. Key Driving Forces In The Market	23
1. Driving Forces During The Past Five Years (1976-1980)	23
2. Driving Forces During The Next Five Years (1981-1985)	25
C. Market Size, Segmentation And Growth Rates	28
D. Market Share And Consolidation Trends	33
IV APPLICATIONS SOFTWARE PRODUCT VENDOR PROFILE	39
A. Vendor Description	39

	<u>Page</u>
B. Vendors' Views Of The Market	41
1. General View	41
2. Perceived Success Factors	43
3. Perception Of Major Unmet User Needs	45
C. Sales Strategies	46
1. Lead Generation	46
2. Qualification Of Prospects	49
3. Closing The Sale	52
4. Salesperson Profile	54
5. Perception Of Changes In The Sales Cycle	56
D. Marketing Considerations	57
1. Pricing, Maintenance And Consulting	57
2. Advertising	58
3. Staffing Of Marketing Functions	59
4. Market Segmentation Techniques	60
5. International Considerations	60
E. Product Development	62
1. General View	62
2. Factors Determining Product Development	64
3. Enhancements To The Development Process	64
F. Perception Of The Buying Process	67
1. Roles Of Users And EDP Personnel	67
2. Reasons Why Customers Buy Applications Software Products	69
3. Changes In The Buying Process	70
V APPLICATIONS SOFTWARE PRODUCT BUYER PROFILE	71
A. Buyers' Views Of The Market	71
1. General View	71
2. Views Of Vendors	72
3. Perception Of Major Unmet User Needs	77
B. Buying Strategies	77
1. Identification Of Software Products And Vendors	77
2. Factors Influencing The Decision To Buy	80
3. Evaluation Of Software Products And Vendors	82
VI IMPACT OF TECHNOLOGY	87
VII TURNKEY SYSTEMS AND OTHER DELIVERY VEHICLES	91
A. Turnkey Systems	91
B. Other Delivery Vehicles	94
APPENDIX A: DEFINITIONS	95
APPENDIX B: DATA BASE	105
APPENDIX C: RELATED INPUT REPORTS	107

	<u>Page</u>
APPENDIX D: INTERVIEW PROFILE	109
APPENDIX E: QUESTIONNAIRES	111
User	111
Vendor	124

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OPPORTUNITIES IN MARKETING APPLICATIONS
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LIST OF EXHIBITS

		<u>Page</u>
II	-1 1980 Applications Software Product Market Profiles	7
	-2 Applications Software Product Market Forecasts By Industry Sector, 1980-1985	8
	-3 Importance Ratings Of Various Technological Factors On Applications Software Products	18
III	-1 Market Forecast For The Computer Services Industry, 1980-1985	29
	-2 Applications Software Product Market By Industry Sector, 1979-1985	32
	-3 Applications Software Product Market By Type Of Target Computer In 1979	34
	-4 Computer Manufacturers' 1979 Revenues From Domestic Sales Of Applications Software Products	35
IV	-1 Leading Independent Applications Software Product Vendors And Estimated 1980 Software Revenues	42
	-2 Vendors' Evaluation Of Success Factors In the Applications Software Product Market	44
	-3 Lead-Generation Techniques And Vendors' Assessments Of Effectiveness	47
	-4 Primary Media Used For Lead Generation	50
	-5 Factors Stressed By Vendors In Highly Competitive Sales Situations	53
	-6 Factors Contributing To Enhancements Of Existing Products And Development Of New Products	65
V	-1 Percent Of Applications Software Products Purchased From Applications Software Product Vendors	73
	-2 Buyers' Ratings Of Performance Of Applications Software Product Vendors	74
	-3 Buyers' Ratings Of Vendors By Industry And By Type Of Applications Software Product	75
	-4 Buyers' Effectiveness Ratings Of Sources Of Information About Applications Software Products	78
	-5 Buyers' Ratings Of Selected Publications As Sources Of Information About Software Products And Vendors	79

	<u>Page</u>
-6 Buyers' Ratings Of Factors Influencing The Decision To Purchase Applications Software Products	81
-7 Buyers' Importance Ratings Of Factors Considered During The Procurement Of Applications Software Products	83
-8 Buyers' Current Customization Requirements And Expectations For Future Customization	85
VI -1 Importance Of Technological Factors To Applications Software Products	88
A -1 Industry Sector Definitions	99
B -1 Market Forecast For the Computer Services Industry, 1980-1985	105
-2 Applications Software Market By Industry Sector, 1979-1985	106

I INTRODUCTION

I INTRODUCTION

- This report on the marketing of applications software products is part of INPUT's Market Analysis Service (MAS).
- The topic of this report was selected due to the high degree of client interest and the growing importance of the applications software product segment of the computer services industry.
- Research for this report included a series of in-depth interviews with executives of 10 applications software product companies, and with EDP managers and users employed by 30 companies that have procured applications software products during the past few years.
- All the buyers of applications software products interviewed hold managerial positions in companies with large computer installations.
- The buyers surveyed are distributed by industry as follows:
 - Banking - 11 respondents
 - Insurance - 6 respondents
 - Manufacturing - 13 respondents
- The vendors who were interviewed were selected from among the largest and most well-known vendors of applications software products.

- Of the vendors who participated in the study, six are actively involved in marketing applications software products to the accounting and human resources functions, three to the manufacturing industry, three to the banking industry and two to the insurance industry.
- Research from other INPUT studies, and the experience and analysis of the INPUT staff were also used in preparing this report.
- Due to the wide variety of applications software product functions, delivery vehicles and market segments, no attempt was made to study the entire applications software product market. The study was directed primarily toward vendors and users of applications software products addressing the functional areas of accounting and human resources and the industry areas of banking, insurance and manufacturing.
- The study focused on the domestic market for those applications software products that are designed to run on large mainframe computers. However, during the interviews, topics such as international markets, minicomputers, etc., arose quite frequently. Consequently, where appropriate, issues are discussed in this report that pertain to marketing applications software products outside the domestic market.
- All formal forecasts are for domestic markets only.
- Definitions of terms are presented in Appendix A.
- Expanded definitions of applications software products, users and vendors are as follows:
 - Applications software products:
 - Applications software products (packages) are computer programs which perform specific application functions for user organizations.

- Applications software products are generally divided into two categories:
 - Cross-industry products, which are used to perform functions common to many industries. Examples of cross-industry products are payroll, general ledger, fixed asset management and human resource packages.
 - Industry-specialized products, which are used to perform functions specific to industry sectors such as banking, manufacturing, insurance, etc. Examples of industry-specific products are demand deposit accounting (banking), shop scheduling (discrete manufacturing) and policy administration (insurance) packages.
- Applications software products are distinguished from "systems software products," as described in Appendix A. Applications software products provide solutions to specific end user requirements, whereas systems software products enable the computer and communications systems to perform basic storage, input/output, retrieval and computational functions.
- Users of applications software products:
 - Users of applications software products are defined to be the members of customer organizations who are involved directly in the use of, or managing the use of, the software to perform the functions addressed by the software product. Thus the typical users of an accounts receivable package might include clerical personnel who perform data entry functions, credit managers who use detailed reports generated by the package, and the vice president of finance who uses summary reports generated by the software.

- Members of the data processing department are generally not considered users of applications software products, since their primary functions are to operate the hardware and maintain the systems software under which the applications software runs.
 - Thus, as defined in this report, the two separate parties of a customer organization that actively participate in the procurement of applications software products are "users" and "members of the data processing (EDP) department."
- Vendors of applications software products:
 - Vendors of applications software products are defined as companies in the business of marketing software packages that address specific user requirements.
- Selected data used in the study are presented in Appendix B.
- Related INPUT studies are listed in Appendix C.
- The interview profile is presented in Appendix D.
- User and vendor questionnaires are presented in Appendix E.
- INPUT welcomes inquiries and comments from clients on this report.

II EXECUTIVE SUMMARY

II EXECUTIVE SUMMARY

A. MARKET SIZE, SEGMENTATION AND GROWTH RATES

- The market for applications software products is one of the fastest-growing segments of the computer services industry.
 - The 1980 market for applications software products is \$880 million, representing 6.1% of the total computer services market.
 - The market will grow at approximately 25% per year and will reach over \$2.6 billion in 1985.
- Sales of applications software products by computer manufacturers currently account for 22% of the total market.
 - IBM's share of the total market is approximately 10%.
- Seventy-eight percent of the market is distributed among 1,200 independent software product companies and other noncomputer manufacturing firms that provide in excess of 3,000 applications software products.
- The largest independent applications software product company accounts for 5% of the total market, with annual sales of approximately \$45 million. No other independent company represents more than 2% of the market.

- Approximately seven to ten applications software product companies generate annual sales in excess of \$10 million, and approximately 15 to 20 companies generate sales between \$2 million and \$10 million.
- Applications software products designed to run on IBM-compatible hardware represent approximately 62% of the total market.
- Market data are presented in Exhibits II-1 and II-2.

B. VENDOR PROFILE

- The applications software product industry is currently in a rapid process of change, and most independent applications software product vendors are in the early stages of their life cycles.
- Of the 400 largest applications software product vendors, 300 are highly entrepreneurial in nature and offer a very small product line, 85 are fairly mature in terms of product line, and 15 are fairly mature in both product line and organizational structure.
- No independent applications software product company is fully mature in terms of sophisticated planning, fully integrated lines of products and services, and complete organizational structure.

C. KEY DRIVING FORCES IN THE MARKET

- Key driving forces in the market during the past five years have included:
 - Dramatic increases in user demand due to:

EXHIBIT II-1

1980 APPLICATIONS SOFTWARE PRODUCT MARKET PROFILES

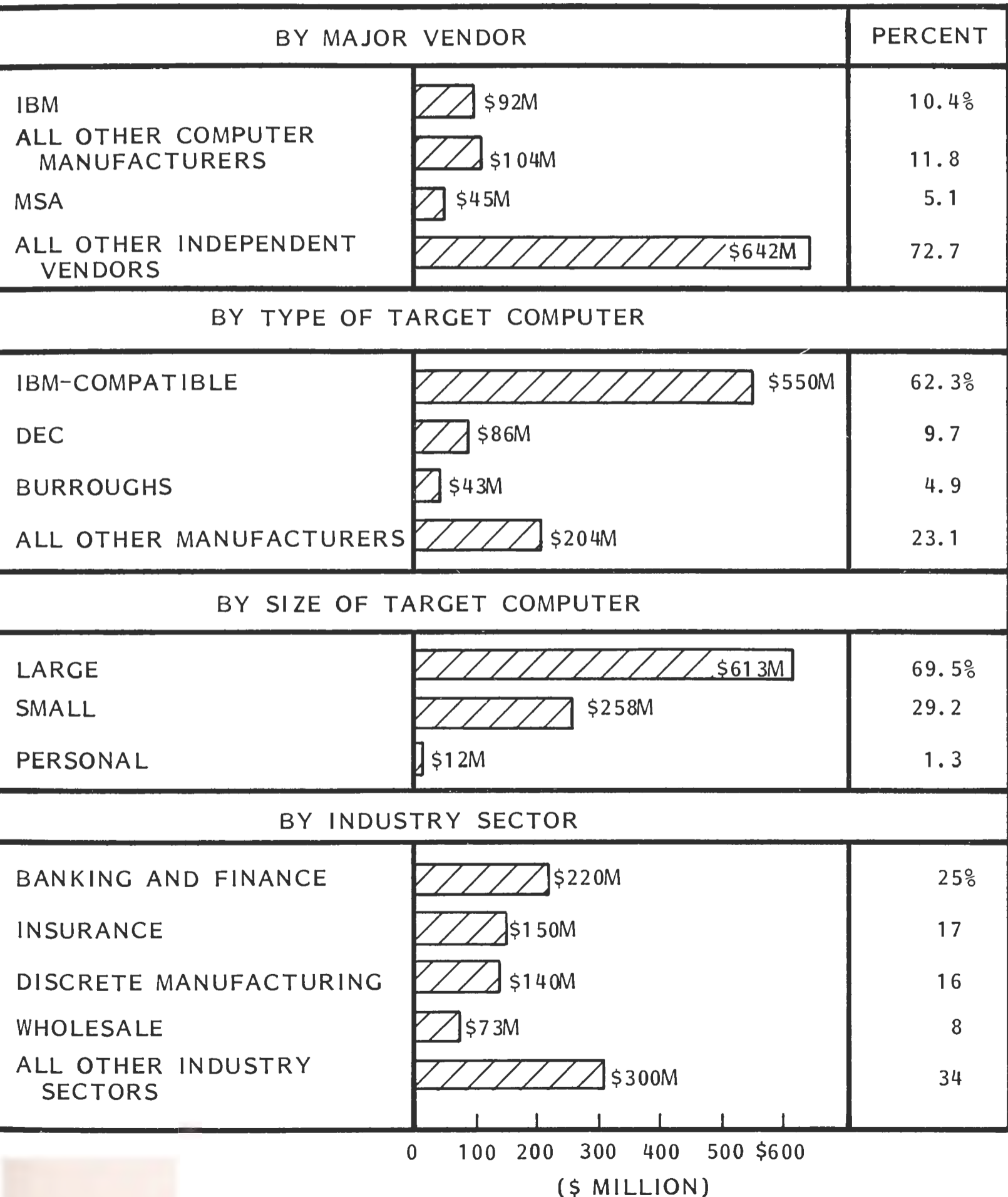


EXHIBIT II-2

APPLICATIONS SOFTWARE PRODUCT MARKET FORECASTS
BY INDUSTRY SECTOR, 1980-1985

INDUSTRY SECTOR	AVERAGE ANNUAL GROWTH RATE, 1980-1985 (PERCENT)	1980 MARKET SIZE AND MARKET SHARE	1985 MARKET SIZE AND MARKET SHARE
BANKING AND FINANCE	16%	\$220	\$470
INSURANCE	15	\$150	\$305
DISCRETE MANUFACTURING	29	\$140	\$510
WHOLESALE	27	\$73	\$300
PROCESS MANUFACTURING	32	\$52	\$205
RETAIL	33	\$47	\$195
MEDICAL	31	\$46	\$180
SERVICES	26	\$36	\$115
TRANSPORTATION	36	\$27	\$125
UTILITIES	20	\$18	\$45
EDUCATION	12	\$17	\$30
STATE AND LOCAL GOVERNMENT	14	\$17	\$34
FEDERAL GOVERNMENT	15	\$6	\$12
ALL OTHER SECTORS	30	\$34	\$125

0 100 \$200 0 100 200 300 400 500 \$600
(\$ MILLION)

- Improved hardware cost performance.
 - Increased awareness by management of uses for applications software.
 - Increased government regulation requiring automated processing of information.
- Rapid increases in out-of-pocket and opportunity costs incurred by user organizations in the development of applications software products. These increases in costs are due to:
 - Inflation in salaries of EDP personnel.
 - Scarcity of qualified applications software development personnel.
- Low level of participation of computer manufacturers in the applications software products marketplace.
- The key driving forces in the market have created a healthy demand for applications software products, which:
 - Has allowed the industry to prosper and grow at 25% per year from 1975 to 1980.
 - Has allowed many small companies to enter the applications software product market with comparative ease.
- In today's environment, user organizations are eager to purchase applications software products rather than commit their scarce EDP personnel to the development of applications software.

- In addition to the forces described above, key driving forces during the next five years will include:
 - Substantially increased competition due to:
 - Entry into the market of computer manufacturers and large companies with substantial financial assets.
 - Increased sophistication of buyers in terms of product knowledge, awareness of competitive products and demand for support services and integrated applications solutions.
 - Advances in technology in areas such as data base technology, on-line technology, minicomputers and microprocessors, communications and networks, and advanced requirements languages.
 - These advances in technology will furnish many new opportunities for applications software products to provide solutions to customer requirements.
- The net result of the driving forces during the next five years will be a substantially larger market that will require applications software product vendors to be excellent in product development, product sales and marketing, and ongoing customer support.
- Future success in the highly penetrated segments of the applications software product market will require a far more sophisticated and balanced performance by applications software product vendors than has been required in the past.

D. MARKET CONSOLIDATION

- Competition in the applications software product marketplace will become more intense during the next few years.
- Computer manufacturers will increase their activities in the development and marketing of applications software products.
- In addition, large diversified companies with expertise and interest in information processing (e.g. EXXON, American Express, McGraw-Hill) are likely to enter the applications software product market.
- Large independent applications software product companies will aggressively acquire smaller companies in order to increase the breadth of their product lines.
- The net result of this consolidation will be a market in which the large and profitable sectors will be dominated by a relatively small number of large, independent applications software product companies, computer manufacturers and divisions of large diversified companies.
- Many small, independent applications software product companies will be acquired or forced to pursue highly specialized market segments.

E. APPLICATIONS SOFTWARE VENDOR SALES AND MARKETING CONSIDERATIONS

I. SUCCESS FACTORS

- In the past, vendors' successes have been primarily due to excellence in:

- Product design and features.
 - Product reliability.
 - Product efficiency.
 - Sales organization.
- Although technical and sales factors will continue to be important in the future, marketing and support activities will be much more significant than they have been in the past.
 - In the future, success will be more highly dependent upon excellence in:
 - Product design and features.
 - Product documentation.
 - Product reliability.
 - Sales organization.
 - Company image.
 - Product marketing.
 - Ongoing user support.

2. LEAD GENERATION

- Vendors and buyers agree that referrals from existing users are the best type of sales lead.

- Most vendors generate leads through direct mailing to prospective customers and advertising in software product directories and trade publications.
- Vendors that use seminars for lead generation and qualification are very enthusiastic about this method of soliciting new business.
- The use of seminars requires substantial organization, planning and availability of personnel resources, but the return of well-qualified prospects warrants the expense for vendors offering products to a broad range of prospective customers.
- Buyers generally feel that advertising in software product directories and trade publications is substantially more useful than information contained in direct mailings.

3. PROSPECT QUALIFICATION

- The most difficult qualification issue facing vendors entails verification that the prospect's internal operating procedures are consistent with the vendor's package.
- It is difficult to verify that all major aspects of the user's requirements can be handled by the vendor's applications software package. Vendors and buyers disagree regarding the basic approach required to resolve this qualification issue:
 - Vendors generally feel that buyers should be willing to modify their "non-standard" operating procedures to accommodate the features available in the software.
 - Buyers generally feel that the vendors must do more to understand the details of their operations, and to design software that requires little or no customization for the user's environment.

- The long-term success of applications software product vendors will be dependent upon their ability to develop packages that require minimal customization effort, yet afford maximum flexibility. This will probably entail entirely new approaches to generating software, since users are not likely to significantly change the procedures used in conducting their businesses.

4. CLOSING THE SALE

- The most important factors in competitive sales situations are:
 - The ability of the salesperson to gain the confidence of the buyer.
 - Technical factors (product design and features, product reliability, etc.).
 - Product reputation.
 - Ongoing user support.
- Users and vendors agree that product pricing is a relatively unimportant factor in the decision-making process in the domestic applications software product marketplace.

5. SALESPERSON PROFILE

- Industry knowledge, applications background and product knowledge are important requirements for salespeople who market industry-specific applications software packages.
- Vendors of cross-industry applications software products are divided in their opinions regarding the effectiveness of salespeople with strong product and applications backgrounds.

- Companies that are primarily "technically driven" rely upon their salespeople to provide "consultant-like" services to their customers.
- Companies that are primarily "sales-driven" rely upon their salespeople to perform only sales functions. These companies employ technical specialists to provide pre-sales technical support.
 - . Companies with the latter approach appear to be better positioned to cope with the complex sales environment of the future.

6. SALES CYCLE

- The sales cycle is becoming longer and more complex due to:
 - Increased scope of applications software products.
 - Increased number of software and hardware alternatives.
 - Trend toward larger packages and integrated applications packages.
 - More "decision by committee" by user organizations.

7. ADVERTISING

- Major vendors have increased their advertising budgets by 40% during the past year. Advertising budgets will grow in excess of 30% per year compounded through 1985.
- Major vendors typically spend 2% of their sales revenue on advertising.

- Eighty percent of major vendors would like to place additional discretionary spending into advertising and promotional activities. In contrast, only 20% of major vendors would put additional budgetary dollars into technical areas, and only 30% would put additional dollars into sales activities.

8. NEW OPPORTUNITIES

- Most cross-industry vendors of applications software products plan to substantially increase the industry specialization of their products and sales forces.
- Substantially greater leverage is likely to result from industry-specialized activities.
- Although entry into the international market is difficult due to differences in applications specifications, sales techniques and sales cycles, several major vendors are aggressively pursuing the international marketplace as a major growth opportunity.
- Most vendors are pursuing the international market with a direct sales force comprised of foreign nationals.
- The international market is in an early stage of development and contains many substantial opportunities for growth. However, the competition will become keener during the next few years as additional U.S. and foreign companies develop products and sales organizations geared to the international market.

F. PRODUCT DEVELOPMENT

- In the future, product development will continue to be a key factor in the success of applications software product companies.

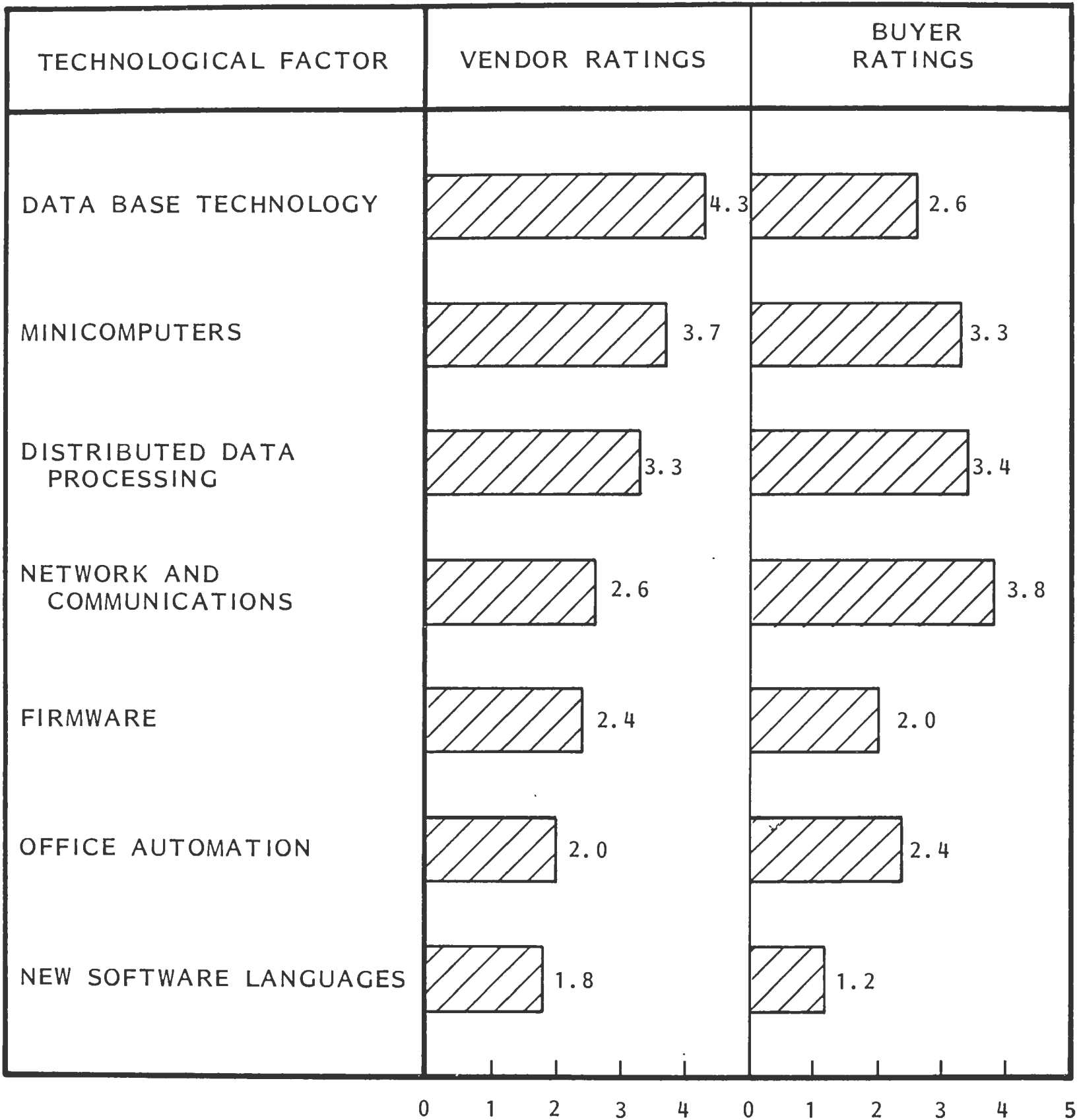
- Vendors are placing a heavy emphasis on enhancing their existing products to address a broader range of customer requirements and delivery vehicles.
- Minicomputer, on-line and distributed data processing environments represent fertile areas for future expansion of applications software products.
- Although the rate of introduction of brand new product functions will decrease during the next five years, there will be a rapid acceleration in the rate at which current products are modified to enable them to function on new delivery vehicles and in new processing environments.
- The vendors that are most successful in developing complete and integrated lines of products will be ideally positioned to compete in the applications software product market of the mid-1980s.

G. TECHNOLOGICAL IMPACTS

- Vendors and buyers vary in their assessments of the impacts on the applications software product market of various types of technologies, as shown in Exhibit II-3.
- Vendors rate data base technology and minicomputers as the primary technological impact on their future requirements for applications software products.
- Both users and vendors feel that new software languages will have minor impacts on the future of applications software products. If the key to solving the problem of providing customized solutions with relatively little effort lies in the development of new "requirements languages," this factor could be dramatically more important than is currently perceived by either vendors or buyers.

EXHIBIT II-3

IMPORTANCE RATINGS OF VARIOUS TECHNOLOGICAL FACTORS ON APPLICATIONS SOFTWARE PRODUCTS



SCALE: 1-5, WHERE 1 IS UNIMPORTANT AND 5 IS HIGHLY IMPORTANT.

- Vendors and buyers agree that although the technological factors will introduce additional development and support burdens, these factors will benefit both vendor and user organizations by opening up many new uses for applications software products.

H. RECOMMENDATIONS FOR VENDORS

I. MARKETING AND SALES

- Vendors should analyze the potential impacts of the major driving forces over the next five years, and plan their strategies accordingly.
- Major vendors should carefully define their target markets as those industry sectors and functions to which they can offer a high-quality and complete line of integrated applications software products.
- Small vendors should aggressively pursue specialty functions and industry sectors where they already possess or can develop a strong competitive advantage.
- Vendors should analyze techniques for achieving improved marketing leverage through appropriate industry specialization of their sales and marketing personnel and of their products.
- Vendors should consider raising their annual software product maintenance charges to 13-15% of purchase price. Vendors with rapidly evolving products will probably meet no substantial resistance from their customers in this regard.

- Vendors of large software packages should perfect their techniques of "selling to committees" within customer organizations. Vendors can take some positive actions to enhance communications and decision making within customer committees charged with evaluating applications software products.
- Vendors should consider broadening their lines of services in order to provide additional "value added" to their customers in the more competitive environment of the future. Various types of consulting services are natural additions to the services provided by applications software product companies.
- Vendors should place a higher degree of emphasis on product documentation, promotion and support than has been the case in the past.
- Vendors should refine their lead-generation techniques to include active programs of user referrals as well as increased exposure in the ICP Directory and Datapro reports.
- Vendors should develop marketing programs to demonstrate to buyers that they are committed to understanding the buyers' industry requirements and that they intend to provide long-term, specialized solutions.
- Vendors should stress product upgradability more than they have in the past. Product upgradability is very important to buyers of applications software products.

2. PRODUCT DEVELOPMENT

- Insofar as possible, vendors should develop products that can be customized with minimal effort on the part of the vendor and the buyer.
- Vendors should adopt development techniques that result in highly modular, machine-independent code.

- Product documentation and project management techniques should be emphasized in all product development projects.
- Vendors should design their products to interface to standard DBMS and retrieval languages such as IMS, MARK IV and TOTAL.
- Vendors must develop an on-line orientation.
 - On-line development techniques and tools should be used.
 - Products must operate on-line and with networks, as this is the direction that users are moving.

3. ORGANIZATIONAL DEVELOPMENT

- Large vendors should acquire applications software product companies as a means of expanding their product lines and enhancing their market penetration.
- Vendors should develop their organizations to become more mature in terms of planning, R&D based upon input received from the marketplace, and marketing strategies.
- Vendors should carefully analyze the international marketplace and aggressively pursue attractive international opportunities.

III STRUCTURE OF THE APPLICATIONS
SOFTWARE PRODUCT MARKET

III STRUCTURE OF THE APPLICATIONS SOFTWARE PRODUCT MARKET

A. NUMBER OF VENDORS AND PRODUCTS

- Users of applications software products are found in all major sectors of the U.S. economy. The number of people who either directly interface with, or directly use, information generated by applications software products is growing rapidly, and probably already exceeds 1 million people.
- INPUT estimates that there are approximately 3,000 individual applications software products marketed in the U.S. by approximately 1,200 vendors.
- More detailed information regarding the distribution by industry sector of these vendors and products is presented later in this section.

B. KEY DRIVING FORCES IN THE MARKET

I. DRIVING FORCES DURING THE PAST FIVE YEARS (1976-1980)

- There have been several key driving forces in the market for applications software products during the past five years.

- Dramatic increases in user demand for applications software products have resulted from:
 - . Substantially improved hardware cost-performance, which is a result of improvements in hardware technology made during the past several years.
 - . The advent of a generation of management that is increasingly aware of the types of applications that can be addressed with computer software.
- High rates of inflation in salaries of EDP personnel and a general scarcity of qualified applications development personnel have made the development of applications software by user organizations a very costly process.
- Computer manufacturers have generally chosen to devote their resources to the development and marketing of hardware, rather than to activities involving applications software, thus leaving a void between the systems software provided by computer manufacturers and software required by end users.
- Government regulation in certain industries such as banking and insurance, and in certain functional areas such as human resources and accounting, has had a substantial impact on increasing the demand for automated applications systems.
- These key driving forces have created a very healthy demand for applications software products that:
 - Has allowed the applications software product industry to prosper and grow at an average annual rate of approximately 20-25% from 1975-1980.

- Has allowed many small companies to enter the applications software product market with comparative ease.

- The attractive market conditions have resulted in a proliferation of products.
- Many of the most successful products have been targeted at cross-industry functions, such as general ledger and payroll, and industry-specific functions, such as demand deposit accounting and bill of materials processing, where the need for automated solutions was very obvious.
- Demand in the marketplace has been so strong that many firms have established a position in the market with initial offerings of products of only marginal quality. As the market has developed, quality has become a more important issue.
- There has been a rapid change in users' attitudes regarding the procurement of applications software products. A few years ago, users generally preferred to develop their own applications software because the costs of development were manageable, and suitable features and functions were generally not available in packages purchased from applications software vendors. Today, few user organizations are eager to commit their scarce EDP personnel to developing applications software that can alternatively be purchased from software product vendors.
- In summary, the key driving forces during the past five years have created a substantial demand for applications software products, have motivated user organizations to turn outside their own companies for software solutions, and have fostered a proliferation of software vendors and products.

2. DRIVING FORCES DURING THE NEXT FIVE YEARS (1981-1985)

- The following driving forces are continuations of key driving forces that have been in effect during the past several years:

- Continued advancements in computer technology will result in further reductions in the cost of computing and communications.
- The market will continue to expand at a rapid rate due to the availability of relatively inexpensive hardware for running applications, and due to the increased awareness of users regarding applications that can be addressed with computers. Almost every computer system installed is a prospective site for a solution provided by applications software products.
- Further increases in the costs of finding, training and retaining EDP personnel will continue to drive up the cost to users of developing their own applications software.
- Government regulation will continue to increase the demand for applications software products.
- The driving forces listed above will all contribute to increased demand for applications software products and to a continued decrease of in-house development of applications software that can be alternatively purchased from software vendors.
- The following forces have not been key driving forces in the past, but are expected to become critical forces during the next few years:
 - Competition among applications software product vendors addressing the heavily penetrated functions (accounting) and industries (banking, insurance and manufacturing) will become much more intense than in the past.
 - The cost of entry into the marketplace for new vendors supplying applications software packages to the accounting function and to the banking and insurance industries will be very high. In order to have a reasonable chance of success, new vendors will have to address

specialty functions or industry sectors that have not been heavily penetrated by existing applications software product vendors.

- In order to prosper as the industry matures, applications software product vendors will have to be proficient in product development, product promotion and sales, and ongoing product support. This is in contrast to the past, during which companies have been able to prosper through excellence in one of these areas. In the future, excellence in all these areas will be a prerequisite to success.
- As more applications software products become rich in design and features, customers will place increasingly large demands on applications software vendors for support services.
- Increased capabilities of minicomputers, microprocessors, distributed data processing techniques and on-line techniques will open up many new opportunities for applications software product vendors. Although user organizations will be able to understand the capabilities of the available hardware, and although the funds for implementing complex systems will be available, the great majority of user organizations will have neither the software knowledge nor the system integration expertise to implement systems without the substantial aid of computer services companies, including applications software product vendors.
- Some computer manufacturers and applications software product companies will attempt to address software development bottlenecks by developing "requirements languages" with which the user may specify requirements and easily generate a highly customized application package.
- The financial "staying power" required to remain competitive in the applications software product marketplace will force consolidation within the industry. A relatively small number of large vendors will come to dominate the heavily penetrated functions and industries.

- Customers will become increasingly sophisticated in their evaluations of software products.
- A potentially important driving force is the role of the major computer manufacturers. IBM's recent promotional campaign of "Why Re-invent the Reel?" is a sign of its increased interest in applications software products. IBM could add substantially more credence to the applications software product industry if it decided to become appreciably more active in the applications software product marketplace.
- The forces listed above are most advantageous to the large applications software product companies that already have a market presence in the heavily penetrated functions and industries. These companies should be able to broaden their organizations to handle environmental changes in the market, and they should be able to take good advantage of the opportunities for growth during the next five years.
- Small companies and companies that have not become dominant in specialized functional or industry sectors, will be forced to cope with an environment that will substantially stretch their organizational and financial resources.

C. MARKET SIZE, SEGMENTATION AND GROWTH RATES

- INPUT's market forecast for the entire computer services industry is shown in Exhibit III-1.
- Applications software products represent approximately 6.1% of the total 1980 domestic market for computer services.
- The growth of the applications software product sector of the computer services industry is expected to be higher than that of all other sectors except the systems software product sector. If it were not for trends of computer

EXHIBIT III-1

MARKET FORECAST FOR THE
COMPUTER SERVICES INDUSTRY, 1980-1985

MODE OF DELIVERY	1980 (\$ MILLION)	1985 (\$ MILLION)	AVERAGE ANNUAL GROWTH RATE
REMOTE COMPUTING SERVICES	\$ 4,270	\$11,450	22%
BATCH SERVICES	2,680	4,190	9
FACILITIES MANAGEMENT	1,610	3,180	15
TOTAL PROCESSING SERVICES	\$ 8,560	\$18,800	17%
SYSTEMS SOFTWARE PRODUCTS	1,530	6,030	32
APPLICATIONS SOFTWARE PRODUCTS	880	2,650	25
TOTAL SOFTWARE PRODUCTS	\$ 2,410	\$ 8,680	29%
SHORT-TERM PROFESSIONAL SERVICES	2,740	6,540	19
LONG-TERM PROFESSIONAL SERVICES	650	1,020	10
TOTAL PROFESSIONAL SERVICES	\$ 3,390	\$ 7,560	17%
INDUSTRY TOTAL	\$14,360	\$35,040	20%

manufacturers to unbundle their systems software products, the growth rate of the applications software product sector would exceed the growth rate of the systems software product sector.

- Recent events and publications verify the excellent growth prospects for the applications software product industry.
 - Recent feature articles in business publications such as Business Week (September 1, 1980) and The Wall Street Journal (September 29, 1980) focus on the current shortage of software and predict that the primary thrust of computer technology during the next several years must be in the areas of systems and applications software.
 - The trade press, such as Computerworld and Datamation, have been placing far more emphasis on software packages and the software development process. This is a very important sign in view of the historical bias of the trade press toward emphasizing developments in hardware, rather than in software.
 - The first formal show (SOFTWARE-INFO) devoted entirely to software was held in Chicago during the week of September 22, 1980. SOFTWARE-INFO was regarded as a success and is expected to be held again in 1981.
- In recent years, the applications software product market has been growing rapidly in number of vendors, number and diversity of products and number of users.
- At present, there are approximately 3,000 individual applications software products offered by approximately 1,200 vendors. Of these vendors, only about 400 are actively promoting their products through advertising, listings in software directories, etc.

- INPUT's market forecast for applications software products is summarized by industry sector in Exhibit III-2. Key observations are as follows:
 - The bulk of the current market for applications software products is contained in the banking, insurance and discrete manufacturing industry sectors. These three sectors account for approximately 70% of all major applications software products and 58% of applications software product revenues.
 - Overall growth is strong. User expenditures for applications software products are expected to accelerate slightly through 1985, growing at an average annual rate of 25% from 1981-1985.
 - The highest growth rates are forecasted for large industry sectors (e.g., retail, transportation, etc.) that have not yet been heavily penetrated. Buyers in these industry sectors are looking more closely than ever before at the advantages in economics of buying application software products.
 - Relatively low growth rates occur in the industries (banking and insurance) that are the most "mature" sectors in terms of already being substantial users of applications software products. The "absolute" growth of the applications software product market in the banking and insurance industries is expected to continue to be very strong, although their percentage growth is expected to lag behind several other industry sectors'.
 - Relatively low growth rates are also expected to occur in the government sectors. Government sectors have not been attractive targets for applications software products because of the very limited market and because there is limited commonality in the way that various government entities gather, store and report their data. For these reasons, the government sectors are much more attractive markets for professional services than for applications software products.

EXHIBIT III-2

APPLICATIONS SOFTWARE PRODUCT MARKET BY
INDUSTRY SECTOR, 1979-1985

INDUSTRY SECTOR	1980 \$ MILLION	GROWTH RATE 1979-1980	1985 \$ MILLION	AVERAGE ANNUAL GROWTH RATE 1980-1985
DISCRETE MANUFACTURING	\$140	29%	\$510	29%
PROCESS MANUFACTURING	52	31	205	32
TRANSPORTATION	27	35	125	36
UTILITIES	18	20	45	20
BANKING AND FINANCE	220	16	470	16
INSURANCE	150	15	305	15
MEDICAL	46	32	180	31
EDUCATION	17	12	30	12
RETAIL	47	35	195	33
WHOLESALE	73	33	300	27
FEDERAL GOVERNMENT	6	20	12	15
STATE AND LOCAL GOVERNMENT	17	14	34	14
SERVICES	36	25	115	26
OTHER	34	30	125	30
TOTAL	\$883	23%	\$2,651	25%

= LARGEST

- Currently, the typical applications software product vendor markets four products.
- The majority of applications software product revenues are generated from products designed to run on IBM and IBM-compatible computers, as shown in Exhibit III-3.
- Market shares by type of target computer are not expected to change dramatically during the next five years, although there will be a gradual increase in the market share of applications software products designed to run on minicomputers and microprocessors.

D. MARKET SHARE AND CONSOLIDATION TRENDS

- Of ten vendors surveyed, only two felt that they had a reasonable idea of their respective market shares.
- The absence of information regarding market size and market share is due primarily to the diversity of products and delivery vehicles available in the marketplace. Also, applications software product companies have not placed much emphasis on marketing and planning activities that would yield this information.
- INPUT estimates that computer manufacturers' sales of applications software products accounted for 22% of the 1979 domestic market, as shown in Exhibit III-4. This share could be substantially higher by 1985 if IBM makes a major effort to market applications software products during this time period.
- In 1979, the largest independent applications software product vendor was estimated to hold a 3.5% share of the total applications software product market, compared with IBM's 10.4%. No other vendor held more than a 2% share of the market.

EXHIBIT III-3

APPLICATIONS SOFTWARE PRODUCT MARKET
BY TYPE OF TARGET COMPUTER IN 1979

HARDWARE MANUFACTURER	1979 MARKET BY SIZE OF COMPUTER (\$ MILLION)			PERCENT OF MARKET
	LARGE	SMALL	PERSONAL	
BURROUGHS	\$ 30	\$ 5	\$ 0	4.9%
COMPUTER AUTOMATION	0	15	0	2.1
DATA GENERAL	0	25	0	3.5
DEC	5	65	0	9.7
HEWLETT-PACKARD	0	15	0	2.1
HONEYWELL	15	5	0	2.8
IBM AND PLUG COMPATIBLES	425	25	0	62.3
NCR	10	5	0	2.1
TEXAS INSTRUMENTS	0	10	0	1.4
UNIVAC	15	5	0	2.8
OTHER	0	35	10	6.3
TOTAL	\$500	\$210M	\$10M	100.0%

LARGE = \geq \$10,000 PER MONTH HARDWARE COST

SMALL = $<$ \$10,000 PER MONTH HARDWARE COST, BUT $>$ \$15,000 PURCHASE PRICE

PERSONAL = UNDER \$15,000 PURCHASE PRICE

 = LARGEST

EXHIBIT III-4

COMPUTER MANUFACTURERS' 1979 REVENUES
FROM DOMESTIC SALES OF
APPLICATIONS SOFTWARE PRODUCTS

COMPUTER MANUFACTURER	ESTIMATED 1979 SALES (\$ MILLION)	SHARE OF TOTAL MARKET
IBM	\$75	10.4%
BURROUGHS	15	2.1
DEC	10	1.4
HONEYWELL	10	1.4
NCR	10	1.4
OTHERS	40	5.6
TOTAL	\$160	22.3%

- In the past, computer manufacturers have chosen to concentrate their resources on developing and marketing hardware and systems software.
 - In large measure, the computer manufacturers have ignored the applications software product segment of the industry.
 - The absence of computer manufacturers has been a major contributing factor to the ease of entry into the marketplace and to the success of many independent applications software product companies.
- In the past, computer manufacturers have generally been allies of the applications software product vendors.
 - Advances in computer systems have created many opportunities for the applications software product vendors.
 - The applications software product vendors have fulfilled a need most manufacturers did not want to address.
 - Most manufacturers, including IBM, have in fact functioned as distributors for vendors' applications products.
- Aggressive entry by computer manufacturers into the applications software product market is a factor that would alter the basic nature of the industry.
 - In the short term, the position computer manufacturers have adopted toward the applications software product market will not have a major new impact.
 - However, for 1983 and beyond, computer manufacturers will increasingly emphasize systems and applications software product opportunities, and they will devote substantially more resources to these markets.

- Most computer manufacturers will concentrate on sectors of the industry in which they already enjoy a substantial hardware presence. For example, companies such as IBM, Univac and Hewlett-Packard will attempt to enhance their current positions in the manufacturing industry.
- Computer manufacturers will eventually expand their business in the applications software product market through the selective acquisition of software product companies that already have the personnel and applications expertise in the targeted market segments.
 - An early example of this is Burroughs' acquisition of SDC, a company possessing substantial systems and applications software product capabilities.
 - Antitrust considerations will inhibit IBM from acquiring applications software product companies.
- Other companies with substantial assets and demonstrated interests in information processing technology (such as Exxon, Sun Oil, General Electric, McGraw-Hill, American Express, Dun and Bradstreet, etc.) will probably also enter the applications software product business through programs of selected acquisition of software product companies.
- Large applications software product companies will conduct aggressive acquisition campaigns to broaden their bases of business.
- The net result of increased activity by computer manufacturers and industry consolidation will be a marketplace in which computer manufacturers will participate more heavily than in the past, and in which well-established independent software product firms and software product subsidiaries of major corporations will command larger shares of the profitable sectors of the applications software product market.

IV APPLICATIONS SOFTWARE PRODUCT
VENDOR PROFILE

IV APPLICATIONS SOFTWARE PRODUCT VENDOR PROFILE

A. VENDOR DESCRIPTION

- Applications software product vendors are companies which market software products addressing specific end user functions. Detailed definitions of applications software products and users are contained in the Introduction of this report.
- Applications software product companies range in size from entrepreneurial firms with one or two employees to "large" software companies with annual sales of software in excess of \$10 million.
- A typical large applications software product company's history can be considered to consist of the following phases:
 - "Start-up" (entrepreneurial) phase, in which the company generates business by selling a software package, usually based on an excellent technical idea, to a small group of users who have a requirement and are willing to try the package.
 - "Product evolutionary" phase, in which the company broadens its product line to include several products and in which the packages in the product line are refined to address a broader class of applications requirements and a broader customer base.

- "Organizational evolutionary" phase, in which the company broadens its marketing approach, refines its product development techniques, perhaps acquires some products, and perhaps extends its marketing to include opportunities in the international marketplace.
 - "Maturing" phase, in which the company solidifies its marketing strategies, develops a complete line of products for the functions or industry to which it markets its products, and perhaps begins a diversification program by acquiring companies that are already established in complementary markets.
 - The final phase is that of a mature and aggressive organization planning the future of its products and markets, with real research and development budgets (as opposed to product enhancement budgets), a stable and growing line of integrated products and services, and all the organizational components required to handle its future expansion.
- At the current time, INPUT estimates that the 400 largest vendors of applications software products are distributed in their evolutionary phases approximately as follows:

<u>PHASE</u>	<u>NUMBER OF VENDORS</u>
Entrepreneurial	280 - 310
Product evolutionary	75 - 100
Organizational evolutionary	15 - 20
Maturing	1
Mature	0

- Most of the vendor interviews for this market study were conducted with well-established companies currently in the "organizational evolutionary" phase.
- These companies are on the "leading edge" of the industry in terms of the primary topics addressed in this report (sales strategies, marketing strategies, market segmentation techniques, product development techniques, breadth of product line, etc.).

- It should be noted that these companies are not necessarily on the "leading edge" in highly entrepreneurial areas such as producing applications software products for microprocessors and personal computers, penetrating very specialized industry sectors, using new data base concepts, using firmware, etc.
- As shown in Exhibit IV-1, the largest independent applications software product company is Management Sciences America. MSA has been in business for more than 15 years, and it is approximately twice as large as the next largest independent applications software product company.

B. VENDORS' VIEWS OF THE MARKET

I. GENERAL VIEW

- Large applications software product vendors believe that the market for their products will grow at a rapid rate due to:
 - Continued improvements in the performance per unit cost of computer hardware, which will sustain the proliferation of sites for applications software product solutions.
 - Advancements in technologies and increased variety of hardware delivery vehicles, which will open up many new areas for applications software product solutions.
 - Increasing acceptance by management of computer-based solutions.
 - Continued escalation of the costs incurred by users when developing applications using in-house resources.

EXHIBIT IV-1

LEADING INDEPENDENT APPLICATIONS
SOFTWARE PRODUCT VENDORS AND
ESTIMATED 1980 SOFTWARE REVENUES

REVENUE FROM APPLICATIONS SOFTWARE SALES	VENDORS
<p>GREATER THAN \$20 MILLION</p> <p>\$10 MILLION TO \$20 MILLION</p> <p>\$2 MILLION TO \$10 MILLION</p>	<p>MANAGEMENT SCIENCE AMERICA</p> <p>ANACOMP FLORIDA SOFTWARE INFORMATION SCIENCES INSURANCE SYSTEMS OF AMERICA McCORMACK AND DODGE SOFTWARE INTERNATIONAL UNIVERSITY COMPUTING COMPANY</p> <p>ARTHUR ANDERSON CYBERTEK FINANCIAL INDUSTRY SYSTEMS FINANCIAL TECHNOLOGY FORTEX DATA INFORMATICS LOCKHEED ELECTRONICS MARTIN MARIETTA McAUTO MEDICUS SYSTEMS STOCKHOLDER SYSTEMS SYSTEMS MANAGEMENT TMI SYSTEMS UNITED INFORMATION SYSTEMS</p>

- General lack of availability of in-house personnel with the skills to develop the applications software.
 - Other priorities for in-house EDP personnel.
 - Government resultation.
- Vendors also consider that:
 - Competition will become keener among applications software product vendors.
 - Customers will become more sophisticated in their evaluations of applications software products and vendors.
 - Support issues will play a larger role in the buying process.

2. PERCEIVED SUCCESS FACTORS

- The applications software product vendors interviewed in the survey assessed the primary reasons for their past success and for their anticipated future success, as shown in Exhibit IV-2.
- The data of Exhibit IV-2 indicate that success in the past has been primarily due to excellence in technical areas (product design and features, product reliability, product efficiency and installation performance).
- The vendors' sales organizations have also played an important role in past success.
- Marketing and support functions (product documentation, ongoing user support, product training and marketing programs) have played a notably smaller role in the past.

EXHIBIT IV-2

VENDORS' EVALUATION OF SUCCESS FACTORS IN THE APPLICATIONS SOFTWARE PRODUCT MARKET

SUCCESS FACTOR	IMPORTANCE FOR PAST GROWTH		IMPORTANCE FOR FUTURE GROWTH		CHANGE	
	RATING	RANK	RATING	RANK	RATING	RANK
PRODUCT DESIGN AND FEATURES	4.1	1	4.5	1	+0.4	10
PRODUCT RELIABILITY	3.7	2	4.4	4	+0.7	8
SALES ORGANIZATION	3.7	3	4.3	5	+0.6	9
PRODUCT EFFICIENCY	3.5	4	3.4	12	-0.1	13
INSTALLATION PERFORMANCE	3.3	5	3.6	11	+0.3	11
USER DEMAND	3.3	6	4.5	1	+1.2	4
COMPANY IMAGE	3.2	7	4.2	6	+1.0	6
PRODUCT DOCUMENTATION	3.1	8	4.5	1	+1.4	2
ONGOING USER SUPPORT	3.0	9	4.1	8	+1.1	5
PRODUCT TRAINING	2.9	10	3.8	10	+0.9	7
USER BUDGETS	2.9	11	3.0	13	+0.1	12
PRODUCT MARKETING	2.8	12	4.2	6	+1.4	2
USER SOPHISTICATION	2.3	13	4.1	8	+1.8	1

= LARGEST

- User sophistication has not been an important factor in contributing to past growth.
- Most of the factors listed in Exhibit IV-2 will become more important in the future, and a more "balanced" approach will be necessary to ensure continued growth.
- In general, support activities such as product documentation, product marketing and ongoing user support are expected to play a much more vital role in the future than in the past.
- A substantial increase in the general level of user sophistication is also expected to have a positive impact on future growth.
- Product efficiency is expected to have less relative importance due to the anticipated improvements in hardware cost-performance.
- User budgets will continue to be fairly unimportant, since the economics of purchasing applications software products, rather than developing applications software, seems now to be well documented and fairly well understood in the domestic marketplace.
- The most important general point from the data presented in Exhibit IV-2 is that the growth of the applications software product industry in the future is expected to be much more highly dependent upon excellence in support and marketing functions, and less highly dependent upon the technical factors that have been the key factors for past success.

3. PERCEPTION OF MAJOR UNMET USER NEEDS

- Respondent vendors believe that the primary unmet customer needs in the marketplace are in specific functional requirements. Technical improvements, such as interfacing packages with a variety of data base management systems and easy-to-use, on-line packages, were also frequently cited.

- Other unmet needs include:
 - Ongoing training programs.
 - Post-installation reviews to ensure that the customer is receiving optimal benefits from the package.
 - Qualified implementation consulting services to assist users in establishing new procedures to enhance the usability of available software packages.

C. SALES STRATEGIES

I. LEAD GENERATION

- The sales cycle begins with the generation of a lead (i.e., a prospective buyer of the applications software product).
- A list of commonly used lead-generation techniques, and vendors' satisfaction ratings with those techniques, is provided in Exhibit IV-3.
- Inviting prospective customers to seminars at which users' needs and product solutions are presented, and cultivating leads through consultants and trade organizations, are very popular with the companies employing these methods. The leads generated by these methods tend to be well-qualified prospects.
 - The successful use of seminars requires substantial organization and planning, the availability of personnel resources, and a large potential base of prospective customers. Therefore, seminars are used primarily by large companies that market cross-industry applications software packages.

EXHIBIT IV-3

LEAD-GENERATION TECHNIQUES AND VENDORS'
ASSESSMENTS OF EFFECTIVENESS

LEAD-GENERATION TECHNIQUE	PERCENT OF LARGE VENDORS USING THE TECHNIQUE	AVERAGE EFFECTIVENESS RATING
DIRECT MAILINGS	100%	3.3
ADVERTISING IN SOFTWARE DIRECTORIES	100	2.8
ADVERTISING IN TRADE PUBLICATIONS	100	2.7
COLD TELEPHONE CALLS	70	2.0
ADVERTISING IN GENERAL BUSINESS PUBLICATIONS	60	1.8
TRADE SHOWS	60	1.8
COLD IN-PERSON CALLS	50	1.7
CULTIVATING LEADS THROUGH CONSULTANTS AND TRADE ORGANIZATIONS	50	3.6
SEMINARS	30	4.3

= HIGHEST RATING

- Participants are typically invited to seminars through direct mail or advertising in trade or general business publications.
- Companies that use seminars as a lead-generation technique feel that they generate an exceptional number of well-qualified prospects.
- Direct mailings are considered fairly effective means of lead generation. The cost of contacting the prospect with a direct mailing is relatively low, the number of potential customers that can be easily reached is large, and the solutions provided by the product can be presented attractively and completely.
- Advertising in software product directories and trade publications also received generally favorable ratings.
- Vendors marketing cross-industry applications software products gave exceptionally high ratings to the value of the exposure of their products in the International Computer Programs (ICP) directory of software. Datapro and Auerbach reports were perceived as being substantially less effective. (The average effectiveness ratings of ICP, Datapro and Auerbach were 3.3, 2.3 and 1.7 respectively. The average effectiveness rating for ICP for vendors of cross-industry software was 4.0.)
- Advertising in general business publications, participation at trade shows and cold calls are generally considered poor lead-generation techniques.
- All vendors indicated that referrals from existing customers are the best type of lead.
 - Management Science America, the largest vendor of applications software, has been running a major advertising program based on specific customer referrals.

- Effectiveness ratings for the primary advertising media for lead generation are summarized in Exhibit IV-4.
- Vendors generally felt that their techniques for lead generation were not as mature as desired, but would improve in the future.
- In the past, due to the strong "demand-pull" of the marketplace, sophisticated lead-generation techniques have not been necessary to sustain rapid growth. Strong demand for applications software products will probably allow the vendors to continue to pursue obvious leads for a few more years, but sophisticated lead generation will eventually become a necessary part of a vendor's marketing strategy.

2. QUALIFICATION OF PROSPECTS

- Qualification of prospects for applications software products follows a fairly standard pattern for the computer services industry. Areas for verification are that:
 - The prospect has computer hardware that is compatible with the software packages being sold.
 - The prospect has the funds available to purchase the package.
 - The customer contact is the "real" decision maker.
 - The prospect really needs and wants a software package solution.
 - The prospect's timeframe for making a decision is consistent with the investment of time required from the applications software product vendor to close the sale.

EXHIBIT IV-4

PRIMARY MEDIA USED
FOR LEAD GENERATION

MEDIUM	VENDORS' SATISFACTION LEVEL REGARD- ING QUANTITY OF LEADS GENERATED	VENDORS' SATISFACTION LEVEL REGARD- ING QUALITY OF LEADS GENERATED
DIRECT MAIL	3.2	3.2
ICP DIRECTORY	3.1	3.1
COMPUTERWORLD	2.5	2.5
COMPUTED DECISIONS	2.5	2.5
INDUSTRY PUBLICATIONS	2.2	2.3
DATAMATION	2.0	2.0
DATAPRO	1.0	2.0

- Applications software product vendors are not experiencing unusual problems in qualifying prospects on the basis of these relatively straightforward qualification issues.
- The most difficult qualification issue facing vendors of applications software products entails verification that the prospect's internal operating procedures are consistent with the conventions of the vendor's applications software package.
- Both vendors and users agree that it is often very difficult to verify that all major aspects of the user's requirements can be handled by the vendor's software package. However, vendors and users disagree regarding the basic approach required to resolve this difficult qualification issue.
 - In general, vendors feel that users should be more willing to modify their internal procedures to accommodate the features available in the applications software packages.
 - Vendors feel that users who insist on retaining "non-standard" procedures cause major support problems and higher costs of doing business for both vendors and users.
 - In contrast, users generally feel that vendors must make more concerted efforts to understand the details of their operations, and to design the applications software products so that only very minor changes are required in the procedures of the user organizations.
- No easy solutions to this dilemma are apparent. Vendors addressing the industry areas of banking, insurance and manufacturing seem to have accepted that their applications software products will generally require moderate to heavy customization. Vendors addressing the accounting and human resource functions appear to be more successful, although not totally successful, in marketing software products that require little or no customization.

- The long-term leverage and profitability of applications software product vendors will hinge in large measure upon their abilities to develop packages that require little customization effort. Development of sophisticated tools and techniques will be necessary to produce the generation of highly customized applications solutions with a minimal expenditure of personnel resources by the vendor and the customer.

3. CLOSING THE SALE

- A salesperson's ability to understand the customer's requirements, and to effectively communicate the vendor's solution, is the most important factor in closing sales of applications software products.
- Product design and features and a solid reference base of satisfied customers are also very important factors in generating sales.
- Pricing, advertising and product demonstrations are generally not important factors in closing sales for applications software products.
- Company image and the possession of a complete product line have not been key factors in the past, but these factors are expected to become much more significant in the future. Several vendors have initiated programs to improve their positions in these areas.
- A summary of vendors' ratings of factors stressed in highly competitive sales situations is presented in Exhibit IV-5.
 - The data of Exhibit IV-5 indicate that factors pertaining to product functionality (design and features, reliability, user references) are the most highly stressed factors.
 - Factors related to cost and "futures" (pricing, efficiency, upgradability) are generally not regarded as key factors in competitive sales situations.

EXHIBIT IV-5

FACTORS STRESSED BY VENDORS IN
HIGHLY COMPETITIVE SALES SITUATIONS

PRODUCT FACTOR	EFFECTIVE- NESS RATING
DESIGN AND FEATURES	4.5
REPUTATION AND REFERENCES	4.5
RELIABILITY AND MAINTENANCE	4.3
SUPPORT	4.0
EASE OF USE	3.5
UPGRADABILITY	3.1
EFFICIENCY	3.1
PRICING	2.0

- Estimates of "capture rates" (i.e., the ratio of closed sales to qualified prospects) varies substantially among vendors.
 - All vendors interviewed estimated their capture rates in excess of 20%, and three vendors estimated capture rates in excess of 50%. The average estimated capture rate was 40%.
 - Vendors estimated that approximately 25% of their qualified prospects were lost to competitors, and approximately 35% of qualified prospects decided against purchasing an applications software package within a reasonable period of time.

4. SALESPERSON PROFILE

- A productive salesperson of applications software products must possess the fundamental skills for selling intangible, high-technology, applications-oriented products. These skills include:
 - The ability to ask appropriate questions, to listen to the prospect and to understand the prospect's general requirements.
 - The ability to qualify the prospect as a "real" potential buyer.
 - The ability to cope with highly competitive situations.
 - The ability to effectively communicate solutions and benefits to the prospect.
 - The ability to persist in closing the sale.
 - The ability to follow-up after the sale is closed through the installation and final signoff phases.

- Industry knowledge, applications background and product knowledge are important requirements for salespersons who market industry-specific applications software packages. The possession of strong industry, application and product knowledge is consistent with the heavy degree of customization that is typical for applications software products addressing the banking, insurance and manufacturing industries.

- Vendors marketing cross-industry products express very divergent views regarding the desirability of employing salespeople with strong product and applications knowledge.
 - Half of the respondent vendors marketing cross-industry products felt that product knowledge was fundamental to the salesperson's effectiveness. These companies have been generally "technically driven" in the past, and they generally rely upon a "consulting approach" for selling their products. These companies expected their sales staffs to perform the major part of the technical analysis required to close the sale.

 - The other half of the vendors marketing cross-industry products felt very strongly that product knowledge was not important to a salesperson's success. These companies are generally "marketing driven" and rely upon a relatively large staff of technical support personnel to provide pre-sales analysis and support to their salespeople.

- Both schools of thought regarding the sales personnel's product knowledge contain companies that are growing well and doing a good job of selling and installing their products. It is clear that either approach can succeed.

- However, as product design and features become more advanced, as the number of qualified prospects grows, and as buyers become more sophisticated, it appears that companies employing salespersons to perform marketing functions and technical specialists to perform technical functions will be better positioned to perform well.

- Other key characteristics for salespeople of applications software products include intelligence, maturity, ambition, "dollar motivation" and the ability to coordinate the activities involving vendor personnel and customer personnel during the evaluation and installation phases of the sales cycle.
- Sales compensation plans are addressed in detail in INPUT's recent report entitled "Improving Sales Productivity in the Computer Services Industry."

5. PERCEPTION OF CHANGES IN THE SALES CYCLE

- The sales cycle for applications software products is becoming longer and more complex due primarily to the following factors:
 - Applications software packages are becoming broader in scope.
 - Customers are becoming more sophisticated in their analyses and evaluations of applications software products.
 - Increased competition in the marketplace is providing customers with more alternatives, thus increasing the time and data required to evaluate the contending vendors.
 - Trends toward buying larger packages and multiple applications software products all at once are resulting in more decisions by committee, and hence a lengthened sales cycle.
- The lengthening of the sales cycle is inherent in the evolution of the applications software product marketplace.
- In order to cope with lengthening sales cycles, vendors should attempt to optimize their lead-generation and prospect-qualification techniques.

D. MARKETING CONSIDERATIONS

I. PRICING, MAINTENANCE AND CONSULTING

- Vendors generally establish pricing of applications software products by examining competitive product prices and by estimating the value provided to the user by the package.
- Value provided is the most important factor in pricing decisions.
- The cost of developing the software package plays an important role only in the pricing of very large, multimillion dollar products that are usually developed for a select group of customers (such as a large, highly-customized system developed for a consortium of banks).
- Both vendors and buyers rate product pricing as the least important factor in the selection of applications software packages. Pricing is substantially less important than all other major factors.
- Product maintenance for one year is almost always included in the "perpetual license" price of applications software packages.
- After the first year, vendors charge an annual product maintenance fee of approximately 10-12% of the purchase price of the product.
- Most vendors feel that they could increase their maintenance charges to 15% of the purchase price.
- At least one vendor is offering a discount on maintenance charges to customers who contract for a three-year maintenance period.
- Consulting services are priced on a time and materials basis.

- All vendors marketing industry-specialized applications software products offer consulting services along with their software. The heavy customization requirements of industry-specialized software has forced the vendors to supply these consulting services.
- One-half of the vendors interviewed who market cross-industry applications software do not provide consulting services to their customers.
- Almost all vendors prefer to minimize direct consulting activities since these activities divert scarce personnel resources from more "leveraged" types of activities.
- Many applications software product companies refer ex-employees and outside applications specialists to customers who desire consulting assistance. In so doing, they are missing a major market opportunity to provide a complete line of services to their customers.

2. ADVERTISING

- Several advertising issues pertaining to lead generation are presented in Section IV.C.1 and are not repeated in this section.
- Vendors rate advertising in software product directories (especially the ICP Directory) and trade publications as moderately effective means of lead generation.
- However, except for referrals from existing users, buyers of applications software products rate advertising in trade publications above all other sources of information about software products and vendors.
- Both vendors and buyers consider advertising in general business publications as poor methods of reaching the marketplace.

- As competition becomes keener in the marketplace, applications software product vendors will increasingly utilize advertising to stimulate sales leads and to foster company reputation and recognition.
- Advertising budgets in 1980 ranged from 0.6-2.7% of sales. Advertising budgets averaged approximately 1.9% of sales.
- Large applications software product vendors are rapidly increasing their advertising budgets. Advertising budgets for 1980 are up approximately 40% over advertising expenditures for 1979.
- Advertising budgets for applications software products are expected to grow at approximately 34% per year during the next five years.

3. STAFFING OF MARKETING FUNCTIONS

- Marketing functions, as defined in this section, include pricing, advertising and promotion, product positioning, product planning, competitive analysis, market research and analysis, market strategy formulation, etc.
- Vendors are generally in the process of increasing the size of their marketing staffs. Marketing activities will play a much more vital role in the future than has been the case in the past.
- Current staffing levels for large applications software product vendors range from one equivalent full-time marketing person per 12 sales personnel, to one equivalent full-time marketing person per four sales personnel.
- Expressed in terms of revenues, current staffing levels range from one equivalent full-time marketing person per \$3.5 million in sales, to one equivalent full-time marketing person per \$1 million in sales.
- Eighty percent of vendors interviewed indicated that, if they had additional dollars to spend, they would put the additional dollars into marketing activi-

ties. (In contrast, only 20% indicated that they would put additional dollars into technical areas, and only 30% indicated that they would put additional dollars into sales areas.)

4. MARKET SEGMENTATION TECHNIQUES

- In the past, market segmentation has been addressed primarily through specialization of vendors' product lines.
- Vendors marketing cross-industry products have done little to specialize their sales forces along either industry or product lines.
- However, these vendors generally agree that effective market segmentation will result in lower costs of sales and better penetration of targeted markets.
- Industry-specialized activities are perceived by vendors as the most effective method for generating future growth.
- Substantially increased specialization of the sales force along industry lines during the next few years is anticipated by 60-70% of responding vendors of cross-industry applications software products.
- The direction of new products introduced by cross-industry vendors is also expected to be heavily geared to their desire to move toward industry-specialized activities.
- Several vendors plan to further encourage market segmentation through the use of special incentive programs and special marketing programs geared toward specific industries.

5. INTERNATIONAL CONSIDERATIONS

- Approaches to international marketing vary substantially among vendors.

- Several large vendors of accounting and human resource applications software products are currently generating 15-20% of their total revenues from overseas markets. These vendors are aggressively pursuing overseas opportunities and expect the overseas share of their business to grow substantially during the next five years.
- Some vendors addressing the manufacturing industry sector are already generating in excess of 30% of their business from overseas sales.
- Vendors addressing the banking and insurance industry sectors are not directing substantial resources to penetrating international markets. These vendors typically handle international sales on an opportunistic basis with marketing personnel who are stationed in the U.S.
- Vendors acknowledge that establishing a viable overseas marketing program is difficult due to:
 - Differences in application specifications.
 - Different accounting practices and standards.
 - Different data routines.
 - Different payroll conventions.
 - Differences in the sales cycle.
 - More emphasis on product pricing.
 - A higher occurrence of "not-invented-here" objections.
 - Difficulties in establishing productive relationships with overseas marketing agents.

- Most vendors who are aggressively pursuing international markets employ a direct sales force comprised of foreign nationals, although one major vendor is pursuing a strategy of employing only sales agents.
- The international market for accounting, human resource and manufacturing software products will grow in excess of 30-35% per year during the next five years.
- The international market is wide open at the current time, but will undoubtedly become substantially more competitive with the entry of additional foreign and software product companies into the market.

E. PRODUCT DEVELOPMENT

I. GENERAL VIEW

- In the past, product development has been the major vehicle for building product sales and profits.
- In the future, product development will continue to be a key factor in the success of applications software product companies, although it will not be the dominant factor to the same extent as in the past.
- Large vendors of applications software products have averaged two new major product introductions per year during 1979 and 1980.
- Most vendors predict that the rate of new product introductions will decline slightly during the next five years. However, vendors will place a very heavy emphasis on enhancing their existing products to address a broader scope of customer requirements and delivery vehicles. Product enhancements will include versions of applications software products that address minicomputer, on-line and distributed data processing environments.

- In the past, almost all large vendors have employed a joint strategy of developing new products using in-house resources and purchasing appropriate software from outside sources. Software products purchased from outside sources are always substantially or completely rewritten by the vendor.
- Although many vendors have relied on products developed by outside sources in the past, only one vendor surveyed indicated that procurement of products from outside sources is expected to provide the major thrust of product development in the future.
- Vendors are planning to develop new products that are closely aligned with their existing product lines.
- Only 30% of vendors surveyed plan to develop new software products to address functions or industries outside those to which they currently market their products.
- Movements by large applications software product companies into new industries and functions will be accomplished through the acquisition of companies possessing the people, products and expertise required to address new market segments.
- Developing a complete family of applications software products is a goal of many vendors of applications software products.
- Vendors that offer a complete line of packages for addressing a function or industry sector can sell the concept of "one-stop shopping" to their customers. This concept of purchasing a set of interlinking packages is already attractive to customers. It will become even more attractive in the future, as applications requirements become more complex and as improvements in the cost-performance of hardware and the capabilities of systems software make the implementation of large, multifunctional, integrated data bases more practical and commonplace.

2. FACTORS DETERMINING PRODUCT DEVELOPMENT

- Product enhancements are primarily marketing-driven, and developments of brand new products are primarily technology-driven, as shown in Exhibit IV-6.
 - Decisions to enhance existing products are most often stimulated by requirements perceived by field personnel and by losses to competitive products. Some vendors noted that user groups were also very influential in determining product enhancement priorities and strategies.
 - In-house ideas, the trend toward industry specialization, and new technologies such as on-line processing and distributed data processing, exert moderate influence on decisions to enhance existing products.
 - Market research has little impact on vendors' decisions to enhance existing products.
 - The development of brand new products is driven most strongly by technological advances, such as on-line processing, and by the vendors' objectives to develop complete product lines for the function or industry to which they market their products.
 - Market research, requirements perceived by field personnel and losses to competition play minor roles in vendors' decisions to develop brand new products.

3. ENHANCEMENTS TO THE DEVELOPMENT PROCESS

- The importance of new product development, combined with the fact that new products are substantially more comprehensive in scope than their predecessors, has resulted in vendors becoming much more formalized in their methods for developing new products.

EXHIBIT IV-6

FACTORS CONTRIBUTING TO ENHANCEMENTS OF
EXISTING PRODUCTS AND DEVELOPMENT OF NEW PRODUCTS

FACTOR	IMPORTANCE RATING REGARDING ENHANCEMENTS TO EXISTING PRODUCTS	IMPORTANCE RATING REGARDING DEVELOPMENT OF NEW PRODUCTS
REQUIREMENT PERCEIVED BY SALES FORCE	3.9	2.4
LOSS TO COMPETITIVE PRODUCT	3.9	2.2
TREND TO ON-LINE PROCESSING	3.5	3.9
RESULT OF IN-HOUSE DEVELOPMENT	3.0	2.7
TREND TO DISTRIBUTED DATA PROCESSING	2.8	2.9
TREND TO INDUSTRY SPECIALIZATION	2.7	3.1
NEW HARDWARE INTRODUCED BY HARDWARE VENDOR	2.5	1.9
DESIRE TO DEVELOP A BROADER PRODUCT LINE	2.4	3.2
RESULT OF IN-HOUSE MARKET RESEARCH	2.2	2.3

= HIGHEST RATINGS

- Some of the improvements to the development process that several vendors have implemented are as follows:
 - Most vendors are using some type of structured approach to system design and programming.
 - Vendors are also striving for improved machine independence and flexibility in their products.
 - Much more attention is being devoted to overall product designs that are:
 - Highly modular in nature, so that each routine contains a small number of statements and thus is relatively easy to support.
 - Highly machine-independent, so that common software routines can be used on a variety of mainframes and minicomputers.
 - Highly flexible, so that the products can be interfaced with on-line environments, a variety of data base management systems, etc.
 - In order to enhance the development process, several large vendors now have their development personnel utilizing on-line environments. On-line environments provide development personnel with many development aids, fast turnaround in testing, and improved continuity of thought during the development process.
 - Many vendors are putting much more effort into quality control procedures, design reviews, documentation and project management.
 - Other techniques that are becoming more popular include the establishment of corporatwide libraries of routines, use-of-code translators to generate code for minicomputers from code for mainframes, isolation

of system dependencies into a very small number of routines, and increasing the use of "beta sites" to accelerate product testing and shakedown.

- None of the techniques listed above was viewed by vendors as extraordinarily revolutionary. Vendors felt that, as the industry has matured, it has been possible to insert more discipline into the development process, and that the techniques listed above represent good common sense derived from several years of experience.
- Changes to the development process are generally stretching out the development cycle (sometimes by a substantial amount).
- Vendors are counting on a return on their investment in the form of smaller numbers of software bugs, lower required support levels, and products that will be more easily implemented on a variety of delivery vehicles.
- Vendors of applications software products generally lag behind the more sophisticated user organizations in the area of applications software development techniques. Recent research by INPUT, in its project entitled "Improving the System and Software Development Process," has shown a variety of development techniques being used with varying degrees of success.

F. PERCEPTION OF THE BUYING PROCESS

I. ROLES OF USERS AND EDP PERSONNEL

- End users are generally responsible for the following functions during the procurement cycles:
 - Determining the functional requirements of the application.

- Justifying the worth of the application.
- Certifying that an applications software product satisfies the requirements of the application.
- EDP personnel are generally responsible for the following functions during the procurement cycle:
 - Identifying potential vendors.
 - Evaluating vendors' capabilities.
 - Evaluating the technical facets of the applications software packages.
 - Evaluating the maintainability of the applications software product.
 - Evaluating the interplay between the applications software products, corporate data bases and other resident systems software.
- Vendors of industry-specialized applications software products estimate that end users and EDP personnel have approximately equal influence in the buying process.
- Vendors of cross-industry applications software products estimate that end users have more than twice the influence of EDP personnel in the buying process.
- This difference in the influence of EDP personnel is primarily due to the fact that industry-specialized applications in banking, insurance and manufacturing are generally very large and are often critical to the day-to-day operation of the customer's business. Technical issues such as efficiency, reliability and compatibility with resident systems software are critical to the success of these types of applications, and thus the EDP personnel play very key roles in the decision-making process.

- Cross-industry accounting and human resources applications are not nearly as large or as critical to the real-time operation of the customer's business. Thus the functionality of the product, as perceived by the end user, is the key issue in procuring applications software for these types of applications.

2. REASONS WHY CUSTOMERS BUY APPLICATIONS SOFTWARE PRODUCTS

- Vendors and buyers are generally in agreement regarding the primary reasons for purchasing applications software products.
- The reasons, in order of importance as ranked by vendors, are as follows:
 - High cost of developing the applications software by the customer.
 - Customer's lack of qualified development personnel.
 - Customer's lack of applications expertise.
 - Customer's desire for implementing the applications solution in a timely manner.
 - Customer's desire to have access to the most current applications solutions (i.e., the customer's desire to keep up with the state of the art for a given application area).
 - Risk to the customer of incurring a development disaster in terms of cost and timing.
 - The availability of applications documentation along with the applications software.
 - Customer's lack of machine resources to perform the development.

3. CHANGES IN THE BUYING PROCESS

- As discussed in earlier sections of this report, the buying process is evolving along with the applications software product industry.
- Changes that work to the advantage of vendors include:
 - An increasing acceptance on the part of customers of the concept of purchasing applications software products.
 - A trend toward purchases of larger packages and multiple packages.
 - Increased appreciation on the part of management of solutions that can be provided by applications software products.
- Changes that will require increased discipline and professionalism on the part of vendors include:
 - Buyers' increasing sophistication and appreciation of alternatives.
 - The trend toward longer and more complex buying cycles (usually involving a committee of evaluators and recommendors).
 - Increased competition within the marketplace.
 - Increased user involvement and influence in the buying process.
 - Releases of new computer systems, such as IBM's H-series, with accompanying changes in the systems software provided by the computer manufacturers.

V APPLICATIONS SOFTWARE PRODUCT
BUYER PROFILE

V APPLICATIONS SOFTWARE PRODUCT BUYER PROFILE

A. BUYERS' VIEWS OF THE MARKET

I. GENERAL VIEW

- Buyers of applications software products consider that the market will continue to grow rapidly due to:
 - Continued strong requirements by user organizations for the applications addressed by applications software packages.
 - The attractive economics of buying applications software products rather than developing them in-house.
 - A general lack of availability of internal development personnel with the skills and the time available to develop the applications software.
- Buyers also feel that more applications software products are becoming available, and hence the marketplace is becoming much more competitive and complex.
- Buyers currently spend a relatively small fraction of their total software budgets on the procurement of applications software packages. Much larger sums are spent on internal development and maintenance of existing applica-

tions software. If the relevant packages were available, buyer organizations would gladly purchase them from outside vendors.

- Research in INPUT's Field Service program has shown a lower degree of satisfaction with applications software product maintenance than with maintenance provided for hardware and systems software.
- Based upon the responses of the companies surveyed, the percent of applications solutions that are purchased from applications software product vendors are shown in Exhibit V-1.
- The data indicate that there are many opportunities for vendors of applications software products to increase their current penetration of the industries surveyed.

2. VIEWS OF VENDORS

- Buyers generally feel that applications software product vendors are doing a credible job of developing and marketing products.
- Buyers' qualitative feelings about the general performance of applications software product vendors are summarized in Exhibit V-2.
- The data of Exhibit V-2 indicate that buyers feel that 75-85% of applications software product vendors are generally performing well. Accounting applications software generally received high ratings from users, as shown in Exhibit V-3, although there is a high degree of variation in the satisfaction with accounting software among the industry sectors surveyed.
- The degree of buyer satisfaction with human resources software products is generally mediocre, and varies little among industry sectors.
- The degree of satisfaction with industry-specialized software products is generally favorable. Users in the insurance industry seem to be substantially

EXHIBIT V-1

PERCENT OF APPLICATIONS
SOFTWARE PRODUCTS PURCHASED FROM
APPLICATIONS SOFTWARE PRODUCT VENDORS

INDUSTRY SECTOR	PERCENT OF SOFTWARE PURCHASED FROM VENDORS	PERCENT OF APPLICATIONS SOFTWARE DE- VELOPED WITH IN- HOUSE RESOURCES OR OUTSIDE PROFES- SIONAL SERVICES
BANKING	50%	50%
INSURANCE	27	73
MANUFACTURING	25	75

EXHIBIT V-2

BUYERS' RATINGS OF PERFORMANCE OF
APPLICATIONS SOFTWARE PRODUCT VENDORS

ITEM	RATING
NUMBER OF BUYERS SURVEYED	30
TOTAL NUMBER OF FAVORABLE RATINGS GIVEN BY BUYERS	43
TOTAL NUMBER OF UNFAVORABLE RATINGS GIVEN BY BUYERS	12
NUMBER OF VENDORS MENTIONED	32
NUMBER OF VENDORS RECEIVING FAVORABLE RATINGS	28
NUMBER OF VENDORS RECEIVING UNFAVORABLE RATINGS	9
NUMBER OF VENDORS RECEIVING A HIGHER NUMBER OF FAVORABLE RATINGS THAN UNFAVORABLE RATINGS	25
NUMBER OF VENDORS RECEIVING AN EQUAL NUMBER OF FAVORABLE AND UNFAVORABLE RATINGS	3
NUMBER OF VENDORS RECEIVING A LOWER NUMBER OF FAVORABLE RATINGS THAN UNFAVORABLE RATINGS	4

EXHIBIT V-3

BUYERS' RATINGS OF VENDORS
BY INDUSTRY AND BY TYPE OF
APPLICATIONS SOFTWARE PRODUCT

INDUSTRY OF BUYERS PROVIDING RATINGS	TYPE OF APPLICATIONS SOFTWARE PRODUCT				
	ACCOUNT-ING	HUMAN RESOURCES	BANKING	IN-SURANCE	MANUFAC-TURING
BANKING	3.5	2.8	3.0	-	-
INSURANCE	2.8	2.7	-	3.6	-
MANUFACTURING	4.0	2.8	-	-	3.2
TOTAL AVERAGE	3.6	2.8	3.0	3.6	3.2

= HIGHEST RATINGS

more pleased with the performance of their vendors than are users in the banking and manufacturing industries.

- Buyers generally feel that vendors provide good installation and training services.
- Buyers of banking and insurance software products are generally pleased with the maintenance and support services provided by their vendors.
- However, buyers of manufacturing software products generally feel that their vendors could do a substantially better job of post-installation maintenance and support.
- Buyers generally gave mediocre ratings to vendors' understanding of the unique characteristics of the industries to which they market software products.
- The primary areas in which buyers feel that vendors should improve their performance are as follows:
 - Increased awareness of the needs of buyers' specific industry sectors.
 - Improved ongoing product support.
 - Development of multimodule, integrated software packages.
- In addition to the items listed above, buyers cited many industry-specific applications needs such as special software for electronics funds transfer systems, automated teller systems, etc.
- No other recommendations were made by a substantial fraction of the buyers surveyed.

3. PERCEPTION OF MAJOR UNMET USER NEEDS

- Buyers consider that the provision of specific industry application solutions is the primary unmet user need in the marketplace.
- More general comments included the needs for improved support, more "flexible" packages, packages with improved on-line capabilities and packages that interface well with the most commonly used data base management systems software.

B. BUYING STRATEGIES

1. IDENTIFICATION OF SOFTWARE PRODUCTS AND VENDORS

- A list of commonly used sources of information about applications software products, and buyers' effectiveness ratings for the sources, is provided in Exhibit V-4.
- The data of Exhibit V-4 confirm the opinions expressed by vendors that referrals from existing users are by far the most valuable source of information to buyers of applications software products.
- Several buyers indicated that they would like vendors to provide lists of current users.
- Advertising in software product directories and trade publications also received generally high effectiveness ratings.
- Buyers' ratings of the usefulness of information contained in selected popular publications are summarized in Exhibit V-5.

EXHIBIT V-4

BUYERS' EFFECTIVENESS RATINGS OF
SOURCES OF INFORMATION ABOUT
APPLICATIONS SOFTWARE PRODUCTS

SOURCE OF INFORMATION	AVERAGE BUYER'S RATINGS BY INDUSTRY			
	BANKING	INSUR- ANCE	MANU- FACTURING	ALL
REFERRAL FROM EXISTING USER	3.5	4.0	3.9	3.8
ADVERTISING IN SOFTWARE DIRECTORIES AND TRADE PUBLICATIONS	2.7	2.8	3.2	3.0
DIRECT MAILINGS FROM VENDORS	2.5	2.5	2.3	2.4
IN-PERSON CALLS BY VENDORS	2.6	2.2	2.2	2.4
ADVERTISING IN GENERAL PUBLICATIONS	2.2	2.2	2.3	2.2
COLD TELEPHONE CALLS FROM VENDORS	2.1	1.0	1.5	1.6

= HIGHEST RATING

EXHIBIT V-5

BUYERS' RATINGS OF SELECTED PUBLICATIONS
AS SOURCES OF INFORMATION ABOUT
SOFTWARE PRODUCTS AND VENDORS

PUBLICATION	AVERAGE BUYER'S EFFECTIVENESS RATINGS BY INDUSTRY			
	BANKING	INSUR- ANCE	MANUFAC- TURING	ALL
DATAPRO	4.0	3.7	4.1	4.0
I.C.P.	4.0	2.8	3.6	3.6
DATAMATION	3.0	2.7	3.0	2.9
AUERBACH	2.3	2.0	3.2	2.6

= HIGHEST RATING .

- Buyers feel that the information contained in Datapro reports and the ICP Directory are very useful in identifying and selecting applications software packages.
- Vendors and buyers are in general agreement regarding the media that are most effective in conveying information about applications software products to buyers.
- Substantial differences in perception are:
 - Buyers have much more faith in Datapro reports than do vendors. (Please see Exhibit IV-4 for a summary of vendor ratings of ICP, Datapro, etc.)
 - Vendors are more enthusiastic about the use of direct mailings than are buyers.

2. FACTORS INFLUENCING THE DECISION TO BUY

- The data of Exhibit V-6 indicate that buyers agree with vendors that the primary reasons for procuring applications software products are:
 - The cost efficiency of buying rather than developing the applications software.
 - The lack of in-house personnel to perform the applications development.
 - The lack of in-house expertise to develop the software.
- Buyers generally expect these factors to remain the most important factors in decisions to purchase applications software products during the next several years.

EXHIBIT V-6

BUYERS' RATINGS OF FACTORS INFLUENCING THE DECISION TO PURCHASE APPLICATIONS SOFTWARE PRODUCTS

FACTOR	BANKING		INSURANCE		MANUFACTURING		ALL	
	PRE-SENT IMPOR-TANCE	FU-TURE IMPOR-TANCE	PRE-SENT IMPOR-TANCE	FU-TURE IMPOR-TANCE	PRE-SENT IMPOR-TANCE	FU-TURE IMPOR-TANCE	PRE-SENT IMPOR-TANCE	FU-TURE IMPOR-TANCE
COST EFFICIENCY OF PURCHASING	4.4	4.1	4.2	4.3	3.9	4.2	4.1	4.2
LACK OF IN-HOUSE DEVELOPMENT PERSONNEL	3.4	3.7	3.5	3.7	4.1	4.1	3.7	3.4
LACK OF IN-HOUSE DEVELOPMENT EXPERTISE	3.3	3.4	3.5	3.3	3.7	4.5	3.5	3.9
OBSOLESCENCE OF PROCESSING SOFTWARE	2.9	2.7	3.0	2.7	3.5	3.5	3.2	3.1
NEED TO STAY COMPETITIVE	3.5	3.7	2.7	2.5	2.6	2.8	3.0	3.1
GOVERNMENT REGULATION	3.1	3.5	2.8	2.8	2.5	3.0	2.8	3.2
UPGRADE OF COMMUNICATIONS AND PERIPHERALS	2.1	2.1	2.3	2.8	2.2	2.4	2.2	2.4
UPGRADES OF HARDWARE	1.8	1.7	2.3	2.0	2.0	3.2	2.0	2.0

= HIGHEST RATINGS

- Buyers in the banking and manufacturing industries feel that government regulation will become a more influential factor in their decisions to purchase applications software products.
- Upgrades in communications and peripheral equipment are expected to breed new opportunities in the insurance industry.
- Obsolescence of previous software is the only major factor expected to diminish in importance in the future.

3. EVALUATION OF SOFTWARE PRODUCTS AND VENDORS

- A summary of buyers' ratings of the most important factors used in the evaluation of products is provided in Exhibit V-7.
- Some conclusions from the data are as follows:
 - Pricing was by far the least important factor in the evaluation of applications software products.
 - Product functionality and upgradability were key factors to buyers in all industry sectors surveyed.
 - Product upgradability received a much higher importance rating by buyers than by vendors. (Please refer to Exhibit IV-5 for data regarding vendors' emphasis on product upgradability in competitive sales situations.)
 - Ongoing support from the vendor was also a key factor for all sectors surveyed.
 - Product ease of use was extremely important to buyers in the manufacturing industry.

EXHIBIT V-7

BUYERS' IMPORTANCE RATINGS OF FACTORS
 CONSIDERED DURING THE PROCUREMENT
 OF APPLICATIONS SOFTWARE PRODUCTS

FACTOR	IMPORTANCE RATING			
	BANK- ING	INSUR- ANCE	MANU- FACTUR- ING	ALL
PRODUCT FUNCTIONALITY	3.8	4.8	4.1	4.1
PRODUCT UPGRADABILITY	3.8	4.3	4.0	4.0
ONGOING SUPPORT FROM VENDOR	3.9	3.8	4.2	4.0
PRODUCT EASE OF USE	3.7	3.7	4.3	4.0
PRODUCT REPUTATION	4.0	4.0	3.8	3.9
VENDOR REPUTATION	3.5	4.3	3.8	3.8
PRICING OF PRODUCT	3.4	2.7	3.5	3.3

- Product reputation was considered important by all buyers, but received substantially more weight relative to other factors by buyers in the banking industry.
- Vendor reputation was important to all buyers surveyed, but was given substantially more weight by buyers in the insurance industry.
- In evaluating differences among vendors, buyers were primarily concerned with the following factors:
 - The functionality of the vendors' products.
 - The level of support provided by the vendor.
 - The commitment of the vendor to understanding industry-specific requirements and to providing long-term solutions to the industry.
- Buyers considered all other factors (such as location of the vendor, delivery timetable, age of the product, number of installations, etc.), of far less importance than the three factors listed above.
- Buyers were very concerned about the degree of customization required for applications software products.
- As shown in Exhibit V-8, buyers in general are hoping for and expecting the development of applications software products requiring substantially less customization effort than that required for currently available, industry-specific applications software.
- The great majority of buyers surveyed are willing to absorb extra overhead in machine resources consumed if, in exchange, they can realize software that requires less customization.

EXHIBIT V-8

BUYERS' CURRENT CUSTOMIZATION REQUIREMENTS AND EXPECTATIONS FOR FUTURE CUSTOMIZATION

CURRENT CUSTOMIZATION REQUIREMENTS

AMOUNT OF CUSTOMIZATION REQUIRED	PERCENT OF APPLICATIONS SOFTWARE PURCHASES REQUIRING A GIVEN AMOUNT OF CUSTOMIZATION			
	BANK-ING	INSUR-ANCE	MANUFAC-TURING	ALL
SMALL	18%	17%	23%	20%
MODERATE	64	50	62	60
LARGE	18	33	15	20

EXPECTATIONS FOR FUTURE CUSTOMIZATION

AMOUNT OF CUSTOMIZATION EXPECTED	PERCENT OF BUYERS EXPECTING A GIVEN AMOUNT OF CUSTOMIZATION IN THE FUTURE			
	BANK-ING	INSUR-ANCE	MANUFAC-TURING	ALL
LESS THAN THE CURRENT AMOUNT	55%	50%	62%	57%
SAME AMOUNT	36	50	38	40
MORE THAN THE CURRENT AMOUNT	9	0	0	3

- Many buyers cite table-driven software, parameter-driven software and data base interfaces as vehicles for achieving greater software flexibility, reducing the need for expensive customization.
- Several buyers indicated that in the future they would put substantially more emphasis on minimizing the customization of applications software products purchased from outside vendors.
- Buyers generally confirmed the changes to the buying process described in Section IV.F.3 of this report.
- Buyers were especially vocal in pointing out that users would be more heavily involved in the buying process in the future.
- EDP personnel generally indicated a strong desire for user organizations to become more heavily involved in all stages of the buying process.

VI IMPACT OF TECHNOLOGY

VI IMPACT OF TECHNOLOGY

- Exhibit VI-1 provides a summary of importance ratings assessed by vendors and buyers regarding the impact of technological innovation on applications software products.
- Vendors perceive that data base technology and minicomputers will have the most profound impacts on future applications software products.
- Vendors also rate distributed data processing (DDP) as having a substantial future impact.
- In contrast, buyers perceive that networks and communications will have the most substantial impact on their use of applications software products. They also believe that minicomputers and DDP will have substantial impacts.
- Communications technology, minicomputers and DDP will result in further proliferation of computer installations, and hence will generate many new needs for applications solutions. In general, user organizations will not be able to address these needs with their own limited personnel resources and expertise.
- Buyers in the banking and insurance industries expect improvements to data base technology to have a substantial impact. However, buyers in the manufacturing industry expect relatively little impact from improvements to data base technology. This is not surprising, since the operation of banks and

EXHIBIT VI-1

IMPORTANCE OF TECHNOLOGICAL FACTORS
TO APPLICATIONS SOFTWARE PRODUCTS

TECHNOLOGICAL FACTOR	VENDORS' RATINGS	BUYERS' RATINGS			
		BANKING	IN- SURANCE	MANUFAC- TURING	ALL
DATA BASE TECHNOLOGY	4.3	3.0	3.3	1.8	2.6
MINICOMPUTERS	3.7	2.8	4.0	3.5	3.3
DISTRIBUTED DATA PROCESSING	3.3	2.8	3.4	3.8	3.4
NETWORKS AND COMMUNICATIONS	2.6	4.0	3.5	3.7	3.8
FIRMWARE	2.4	2.0	2.8	1.5	2.0
OFFICE AUTOMATION	2.0	2.2	3.8	1.8	2.4
NEW SOFTWARE LANUGAGES	1.8	1.5	1.2	1.1	1.2

= HIGHEST RATINGS

insurance companies involves large transaction volumes on large data bases of information, while the operations of manufacturing organizations generally involve much smaller transaction volumes on smaller data bases.

- During the next several years, office automation is expected to be a substantial factor only in the insurance industry.
- Technological advances in firmware are not expected to be significant factors, although a few vendors have "blue-sky" projects underway to explore the feasibility of using firmware in selected future products.
- In general, both vendors and buyers agree that evolving technology in areas such as minicomputers and DDP will open up many new applications for the use of vendor-supplied applications software products.
- Pursuing opportunities provided through the use of these technologies will place additional development and support burdens on both vendors and user organizations. However, the number and size of the opportunities should make the pursuit of these opportunities worthwhile.
- Since increased support services are implicit in many of the new technologies, vendors are expected to unbundle the pricing of their various support services in order to accurately reflect the revenues and costs of providing support services, and in order to motivate user organizations to absorb some of the increased support burden.
- Some vendors are already offering "tiered" levels of support in order to motivate users to absorb some of the support burden.

VII TURNKEY SYSTEMS AND OTHER
DELIVERY VEHICLES

VII TURNKEY SYSTEMS AND OTHER DELIVERY VEHICLES

A. TURNKEY SYSTEMS

- A "turnkey system" is defined as an integrated hardware/software package supplied to the user by a single vendor.
- Approximately half of the applications software product vendors surveyed think that turnkey systems will have a measurable impact on their business.
- However, only 10-20% of major applications software product vendors are making serious efforts to develop turnkey systems.
- Although most vendors are enthusiastic about the positive impact of mini-computers on their business and are actively developing software to run on minicomputers, few vendors are interested in packaging their products into turnkey products.
- Some of the reasons for the reluctance of vendors to enter into the turnkey applications business are:
 - The burden required to provide support for the hardware.
 - The additional effort required to train the sales force to sell turnkey solutions.

- A general complication of the sales cycle due to hardware-oriented concerns of the customer.
 - The potential loss of hardware flexibility and objectivity during an era of rapidly changing hardware performance.
 - A prognosis that hardware prices will continue to fall, resulting in a loss of profit margins on turnkey sales.
- The reluctance of vendors to enter into the turnkey systems business is reinforced by the perceptions of many buyers.
 - Large users of highly centralized applications perceive major problems in providing support for, and maintaining control over, turnkey systems. These users give very low ratings to the impact of turnkey systems on their applications requirements.
 - These users feel that large, centralized mainframes are best suited to handle their applications.
 - The general trend toward larger and more complex applications software requirements in banking and insurance makes turnkey solutions impractical for many types of applications needs in these industry sectors.
 - However, the markets for manufacturing, accounting and human resources applications software contain many potential turnkey applications.
 - Turnkey systems have major appeal to:
 - Small, first-time users who want basic systems to automate their operations.

- Users of highly decentralized, multisite applications who want one vendor to be responsible for all hardware and software support and maintenance.
- Small, first-time users have generally not been pursued by the major applications software product vendors. Most major applications software product companies, apart from those addressing the manufacturing industry sector, do not plan to focus significant marketing efforts on small prospects.
- Multisite, decentralized applications normally require heavy customization, and thus lack the degree of leverage desired by major applications software product vendors.
- Thus it appears that the major applications software product vendors have made a logical business decision in maintaining a very conservative attitude toward turnkey systems.
- The major risks of this strategy are that:
 - The applications software product vendors will be at a competitive disadvantage for some types of applications that are well-suited for turnkey solutions.
 - The comparative absence of applications software product vendors from the turnkey systems market will allow computer manufacturers with relevant applications software expertise to capture some large sales relatively easily, and to build their credibility in the applications software product marketplace.
- The conclusions of most vendors and buyers surveyed (with the exception of those in the manufacturing sector) are that the benefits of turnkey applications do not yet warrant the risks that accompany turnkey solutions.

B. OTHER DELIVERY VEHICLES

- As discussed earlier in this report, most vendors surveyed consider that minicomputers represent a very major opportunity for growth in sales and profits.
- Some of these vendors have acquired companies with minicomputer software expertise in order to accelerate their offering of minicomputer-based products.
- Some of the major vendors are considering expanding their services by offering processing services or by entering into some joint ventures with processing-oriented companies.

APPENDIX A: DEFINITIONS

APPENDIX A: DEFINITIONS

COMPUTER SERVICES

- 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 and/or professional services).

- Following are definitions of the modes of service used in this report:
 - Remote Computing Services. The provision of 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. There are three submodes of RCS:
 - Interactive (timesharing) is characterized by the interaction of the user with the system, primarily for problem-solving time-sharing but also for data entry and transaction processing. The user is on-line to the program/files.

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

- Date Base inquiry is characterized by the retrieval of information from a vendor-maintained data base. This may be owned by the vendor or a third party.
- User Site Hardware Services (USHS). These are offerings, typically provided by RCS vendors, which place programmable hardware at the user's site (rather than at the EDP center). USHS offers:
 - Access to a communications network.
 - Access through the network to the RCS vendor's larger computers.
 - Significant software as part of the service.
- Batch Services. This includes data processing performed at vendors' sites, of user programs and/or data that are physically transported (as opposed to electronically by telecommunications media) to and/or from those sites. Data entry and data output services, such as keypunching and COM processing, are also included. Batch services include those expenditures by users that take their data to a vendor site, where a terminal connected to a remote computer is used for the actual processing.
- Processing Services Facilities Management (FM). FM involves the provision of processing services to the user on a long-term basis (greater than one year). The user purchases services using the vendor's computer and staff.

USE OF PROCESSING SERVICES

- Processing services encompass facilities management, remote computing services, batch services and user site hardware services. They are categorized by use as follows:
 - Transaction Processing 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.
 - Information Analysis 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.
 - User Data Base Management 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 an ad hoc or fixed form.
 - Vendor Data Base 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:

- Inquiry data base services provide a means of selection and retrieval of data only. They neither provide for, 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.
- Application Processing services, in addition to providing a means of selection and retrieval, 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.

TYPES OF PROCESSING SERVICES

- Processing services are further categorized by three types:
 - Industry-Specific services provide processing for particular functions or problems unique to an industry or industry group. The applications software provided usually satisfies all of the processing requirements of a specific function within the industry, but may include application tools that are packaged to meet unique requirements of an industry. Examples of industry-specific services include tax processing for the accounting industry, seismic data processing, hospital information systems, demand deposit accounting for banks and material requirements planning for small manufacturers. Industry sectors used in this report are defined in Exhibit A-1.

EXHIBIT A-1

INDUSTRY SECTOR DEFINITIONS

INDUSTRY SECTOR	INDUSTRY SIC	INDUSTRY NAME
MANUFACTURING	23	APPAREL
	25	FURNITURE
	27	PRINTING
	31	LEATHER
	34	METAL
	35	MACHINERY
	36	ELECTRONICS
	37	TRANSPORTATION
	38	SCIENTIFIC AND CONTROL INSTRUMENTS
	39	MISCELLANEOUS MFG.
	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	

EXHIBIT A-1 (CONT.)

INDUSTRY SECTOR DEFINITIONS

INDUSTRY SECTOR	INDUSTRY SIC	INDUSTRY NAME
TRANSPORTATION	40	RAILROADS
	41	LOCAL TRANSIT
	42	MOTOR FREIGHT
	43	U.S. POSTAL SERVICE
	44	WATER TRANSPORTATION
	45	AIR
	46	PIPELINES
UTILITIES	47	TRANSPORTATION SERVICES
	48	COMMUNICATIONS
BANKING AND FINANCE	49	ELECTRIC, GAS & SANITARY
	60	BANKS
	61	CREDIT AGENCIES
	62	SECURITY AND COMMODITY BROKERS
INSURANCE	67	HOLDING AND INVESTMENT OFFICES
	63	INSURANCE (LIFE, HEALTH, ETC.)
MEDICAL	64	INSURANCE AGENTS
	80	HEALTH SERVICES

EXHIBIT A-1 (CONT.)

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
GOVERNMENT	91-97	AS APPROPRIATE
SERVICES	73	BUSINESS SERVICES

- Functionally Specific services provide products that address a specific function across multiple industry sectors. Examples are payroll, personnel, cash management systems and most general business, scientific and engineering applications.
- Nonspecific services include all services not included in the above two categories. Typical services would be based on languages, data base management systems, information retrieval software, and statistical, graphical and scientific library routines or packages. Software in this category could be used to develop applications software that would then be placed in one of the industry-specific or functionally specific categories.

PROFESSIONAL SERVICES

- This category is made up of services related to EDP, including system design, custom/contract programming, consulting, education, training and facilities management. Services are provided on the basis of:
 - Time and Materials - The billing rate is measured in units of time, rather than actual costs.
 - Fixed Price - A firm price is agreed upon for a defined piece of work.
 - Cost Plus Fee - The billing rate depends on actual costs plus a fixed fee.
 - Professional Services Facilities Management - The provision of professional or contract services to the user when the vendor's staff runs the user's computer facility.

SOFTWARE PRODUCTS

- This category includes users' purchases 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 users' site(s). Fees for work performed by organizations other than the package vendor are counted in professional services. There are several subcategories of software products:
 - Applications Products are software that perform processing to serve user functions. They consist of:
 - Cross-industry products, which are used in multiple user industry sectors. Examples are payroll, inventory control and financial planning.
 - Industry-specialized products, which are used in a specific industry sector such as banking and finance, transportation or discrete manufacturing. Examples are demand deposit accounting and airline scheduling.
 - System Products are software that enable the computer/communications system to perform basic functions. They consist of:
 - System operations products, which function during applications program execution to manage the computer system resource. Examples include operating systems, DBMS, communication monitors, emulators and spoolers.
 - System utilization products, which are used by operations personnel to utilize the computer system more effectively. Examples include performance measurement, job accounting, computer operations scheduling and utilities.

- System implementation products, which are 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, program library management systems and retrieval systems.

TURNKEY SYSTEMS

- A turnkey system is a combination of hardware and software integrated into a total system designed to fulfill the processing requirements of an application (or applications) for a user.

NOTE

- When any ambiguity arises concerning the proper place to count certain user expenditures, INPUT seeks the user's viewpoint and categorizes the expenditures accordingly.

APPENDIX B: DATA BASE

EXHIBIT B-1

MARKET FORECAST FOR THE COMPUTER
SERVICES INDUSTRY, 1980-1985

MODE OF DELIVERY	1979 (\$ MILLION)	1980 (\$ MILLION)	GROWTH RATE 1979-1980	1985 (\$ MILLION)	AVERAGE ANNUAL GROWTH RATE 1980-1985
REMOTE COMPUTING SERVICES	\$ 3,528	\$ 4,270	21%	\$11,450	22%
BATCH SERVICES	2,481	2,680	8	4,190	9
FACILITIES MANAGEMENT	1,413	1,610	14	3,180	15
TOTAL PROCESSING SERVICES	\$ 7,422	\$ 8,560	15%	\$18,800	17%
SYSTEMS SOFTWARE	1,147	1,530	33	6,030	32
APPLICATIONS SOFTWARE	720	880	23	2,650	25
TOTAL SOFTWARE	\$ 1,867	\$ 2,410	29%	\$ 8,680	29%
SHORT-TERM PROFESSIONAL SERVICES	2,325	2,740	18	6,540	19
LONG-TERM PROFESSIONAL SERVICES	607	650	7	1,020	10
TOTAL PROFESSIONAL SERVICES	\$ 2,932	\$ 3,390	16%	\$ 7,560	17%
INDUSTRY TOTAL	\$12,221	\$14,360	18%	\$35,040	20%

EXHIBIT B-2

APPLICATIONS SOFTWARE MARKET BY INDUSTRY SECTOR, 1979-1985

INDUSTRY SECTOR	1979 (\$M)	1980 (\$M)	GROWTH 1979-1980 (%)	1981 (\$M)	1982 (\$M)	1983 (\$M)	1984 (\$M)	1985 (\$M)	AVERAGE ANNUAL GROWTH RATE 1980-1985 (%)
DISCRETE MANUFACTURING	\$110	\$140	29%	\$ 180	\$ 240	\$ 305	\$ 400	\$ 510	29%
PROCESS MANUFACTURING	40	52	31	69	90	120	155	205	32
TRANSPORTATION	20	27	35	37	50	67	90	125	36
UTILITIES	15	18	20	22	26	31	38	45	20
BANKING & FINANCE	190	220	16	255	300	345	400	470	16
INSURANCE	130	150	15	170	200	230	260	305	15
MEDICAL	35	46	32	61	81	110	140	180	31
EDUCATION	15	17	12	19	21	24	27	30	12
RETAIL	35	47	35	64	90	115	150	195	33
WHOLESALE	55	73	33	97	130	170	230	300	27
FEDERAL GOVERNMENT	5	6	20	7	8	9	11	12	15
STATE AND LOCAL GOVERNMENT	15	17	14	19	22	25	29	34	14
SERVICES	29	36	25	45	57	71	90	115	26
OTHER	26	34	30	44	58	75	100	125	30
TOTAL	\$720	\$883	23%	\$1,089	\$1,373	\$1,697	\$2,120	\$2,651	25%

APPENDIX C: RELATED INPUT REPORTS

APPENDIX C: RELATED INPUT REPORTS

<u>TITLE</u>	<u>PUBLICATION DATE</u>	<u>PRICE</u>
Trends in Service and Software Pricing	7/78	\$1,000
Sales and Sales Support Training	6/79	2,000
Opportunities in Marketing Systems Software Products, 1979-1984	9/79	2,000
Turnkey System Opportunities, 1979-1984	12/79	2,000
Computer Services Industry Annual Report (1979)	12/79	4,000
Trends in Computer Services Pricing	7/80	2,500
Improving Computer Services Sales Productivity	10/80	3,500
Effective Computer Services Marketing and Planning	12/80	3,000
Computer Services Industry Annual Report (1980)	12/80	4,000

APPENDIX D: INTERVIEW PROFILE

APPENDIX D: INTERVIEW PROFILE

- Applications Software Product Vendors Interviewed 10
- Buyers of Applications Software Products Interviewed 30

APPENDIX E: QUESTIONNAIRES

Marketing Applications Software Products

User Questionnaire

INPUT is studying the use of applications software packages over the next five years.

Our goal is to gather data and perform some analyses from which we can determine industry trends in hardware, software, customer requirements, etc.

For participating in this research, you will receive a summary report on trends and issues.

Any proprietary information provided in this interview will be kept in strict confidence.

In this interview, I would like to cover the following areas:

- Some general background information.
- Your current use of applications software packages in accounting/finance, human resources and your industry specialized areas.
- Your perceptions of the buying process for applications software packages.
- Technological factors that will impact your future use and procurements of applications software packages.
- Your perceptions of what the applications software vendors should be doing in order to serve your needs better.

Several questions in this interview will involve your providing a quantitative rating. We have adopted a convention that all ratings will be on a scale from 1 to 5, where a rating of '1' signifies lowest, least desirable, least important, etc. and where a rating of '5' signifies highest, most desirable, most important, etc.

1. General Background Information

- A. Name: _____
- B. Title: _____
- C. Phone Number: _____
- D. Company: _____
- E. Address: _____

2. Current Use of Applications Software

A. What fraction of your applications software is developed:

	Number of Applications	Percent of Software Budget
1) Internally by your EDP department?	_____	_____
2) Internally by the End User?	_____	_____
3) What fraction is purchased from outside vendors?	_____	_____
a) In the form of custom development?	_____	_____
b) In the form of applications software packages?	_____	_____

**For the remainder of this interview, when we refer to applications software, we will be referring specifically to applications software procured from outside vendors (unless explicitly stated otherwise).

2. B. Please summarize your company's current use of applications software packages by completing the following table:

	Names of Applications Software Packages	Date Acquired	Software Package Function	Computer System
1)	_____	_____	_____	_____
2)	_____	_____	_____	_____
3)	_____	_____	_____	_____
4)	_____	_____	_____	_____
5)	_____	_____	_____	_____
6)	_____	_____	_____	_____

2. C. Please rate the following factors by degree of importance in both your past and future decisions to procure applications software. (A rating of '5' signifies the factor is very important; a rating of '1' signifies the factor is unimportant.)

Factor	Importance Rating in Past Procurements of Applications Software	Importance Rating for Future Procurements of Applications Software
1) User demand for applications software solutions	_____	_____
2) Government regulation	_____	_____
3) Need to stay competitive in your business	_____	_____
4) Obsolescence of previous software	_____	_____
5) Hardware upgrades	_____	_____
6) Upgrades of communications or peripherals	_____	_____
7) Availability of internal development skills	_____	_____
8) Availability of internal development capacity	_____	_____
9) Cost effectiveness of developing the application	_____	_____
10) Other _____	_____	_____

2. D. Please rate the general performance of applications software vendors in developing packages that meet your requirements.

A rating of '1' indicates poor performance and a rating of '5' indicates excellent performance.

Functional or Industry Area	General Rating of Vendor's Ability to Meet Your Needs	Comments
1) Accounting/Finance	_____	_____
2) Human Resources	_____	_____
3) Banking, Insurance or Manufacturing	_____	_____

E. What are the most important differences between applications software package companies?

Which companies do you rate good or bad and why?

2. F. Please rate the effectiveness of applications software packages as a function of the degree of customization provided in the package.

Effectiveness Rating

Type of Applications Software Packages	Accounting/ Finance	Human Resources	Banking, Insurance Manufac- turing	Comments
1) Standard 'Off-the-Shelf' packages that require no customization	_____	_____	_____	_____
2) Semicustomized (parameter-driven) packages	_____	_____	_____	_____
3) Packages that require a large amount of customization	_____	_____	_____	_____

- G. What degree of 'customization' do you now generally require for your applications software packages?

	Rating
1) Large amount of customization	_____
2) Moderate amount of customization	_____
3) Small amount of customization	_____
4) No amount of customization	_____

- H. Please comment on how the degree of customization might change in the future. For example, do you see packages becoming more flexible? Is the level of customization inherently necessary?

2. I. Please rate the effectiveness of your organization and applications software vendors during the installation and training phases. A rating of '1' indicates poor performance, a rating of '5' indicates excellent performance.

Activity	Performance Rating	
	Of Your Organization	Of the Vendor
1) Understanding the problem	_____	_____
2) Installation requirements	_____	_____
3) Training requirements	_____	_____
4) Post-installation maintenance and support	_____	_____

3. The Buying Process

- A. Please rate the following sources as a means of finding out about applications software packages. A rating of '1' indicates that the source is very ineffective in reaching you; a rating of '5' indicates that the source is very effective.

Source of Information	Effectiveness Rating
1) 'Cold' telephone call from the vendor	_____
2) In-person call from the vendor	_____
3) Direct mailing from the vendor	_____
4) Referral from an existing user	_____
5) Advertising in a trade publication	_____
6) Advertising in a general publication	_____
7) Your contacting the vendor for information	_____
8) Other _____	_____
_____	_____

3. B. Do you utilize applications software vendor's advertising and promotion in order to identify and select applications software packages?

Yes No

Which media are most successful in reaching you?

C. Please rate the following publications for effectiveness in package identification and selection. A rating of '1' indicates low effectiveness and '5' indicates high effectiveness.

	Publication	Effectiveness Rating for Package Identification and Selection
1)	ICP	_____
2)	Datapro	_____
3)	Auerbach	_____
4)	Datamation	_____
5)	Other _____	_____
	_____	_____
	_____	_____

D. Who in your organization makes the final decision regarding the selection and purchase of applications software packages?

How do you expect this to change in the future?

3. E. What is the role of the EDP manager in the selection and buying process?

F. What is the role of the end user in the selection and buying process?

G. Please rate the following factors by degree of importance in justifying purchases of applications software. A rating of '1' signifies unimportant; a rating of '5' signifies very important.

	Factor	Importance Rating
1)	Pricing of the package	_____
2)	Product functionality	_____
3)	Package reputation	_____
4)	Package ease-of-use	_____
5)	Package upgradeability	_____
6)	Ongoing support from the vendor	_____
7)	Reputation of the vendor	_____
8)	Other _____	_____
	_____	_____

H. What are the most important changes that you expect to occur in the selection and buying process during the next five years?

3. I. How can the buying process be improved?

4. Future Requirements

A. What average annual rates of growth do you expect to occur in the areas listed below during the next 3-5 years?

Expected Average Annual Rates of Growth
for Applications Software

	Estimated Annual Growth Rate for Total Number of Applications (Both developed internally and purchased outside)	Estimated Annual Growth Rate for Expenditures in Procuring Applications Software from Outside Vendors	Custom- ized Solution	Estimated Annual Growth Rate for Expenditures in Developing Applications Software In-house	
Application Area		Package		Developed by EDP Department	Developed by End Users
1) Accounting/ Finance		_____	_____	_____	_____
2) Human Resources		_____	_____	_____	_____
3) Banking, Insurance or Manufacturing		_____	_____	_____	_____

B. What are the major factors that could result in a substantial increase or decrease in your purchases of applications software packages from outside vendors?



4. C. Do you anticipate movement toward 'turnkey' systems for solutions to your requirements?

Yes No

Why? _____

5. Technological Factors

A. Please rate how technological advances in the following areas will impact your use of applications software packages. A rating of '1' signifies no impact, a rating of '5' signifies a very large positive impact and '-5' signifies a very large negative impact.

Technology Area	Impact Rating	Positive/ Negative	Comment
Minicomputers	_____	_____	_____
Distributed Data Processing	_____	_____	_____
Networks and Communications	_____	_____	_____
Office Automation	_____	_____	_____
New Software Languages	_____	_____	_____
Data Base Technology	_____	_____	_____
Integration of Software and Chips (Firmware)	_____	_____	_____
Turnkey Systems	_____	_____	_____
Other _____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

5. B. What are the roles and directions of the computer hardware manufacturers in the development of applications software packages, particularly IBM?

- C. Do you foresee any change in the size of computers required to run your applications?

Yes No

What applications are trending toward larger CPUs?

6. Meeting Your Needs

- A. What are your major unmet needs in applications software?

- B. What do you think the applications software package vendors should be doing in order to best serve your requirements in the future?

Years in your current position _____

Years in your current company _____

To whom should the summary report be sent?

THANK YOU FOR YOUR ASSISTANCE.

MARKETING APPLICATIONS SOFTWARE PRODUCTS
VENDOR QUESTIONNAIRE

INPUT is preparing a report on marketing of applications software. In this study, we are concentrating on software which is designed to perform specific functions in accounting/finance, banking, human resources, insurance or manufacturing. We are limiting this study to software products which are designed to run on the customer's machine. In this study, we will be addressing the next five years.

Our goal is to gather data and perform some analyses from which we can determine industry trends in hardware, software, pricing, marketing opportunities, etc.

Any proprietary information provided in this interview will be kept in strict confidence.

In this interview I would like to cover the following areas:

- * Your product line,
- * Environmental and marketing issues.
- * Your perception of the buying process.
- * Your perceptions regarding the impact of evolving technology in your marketplace.
- * Competition in your marketplace.

Several questions in this interview will involve your providing a quantitative rating. We have adopted a convention that all ratings will be on a scale from 1 to 5, where a rating of '1' signifies lowest, least desirable, least important, etc.; and where a rating of '5' signifies highest, most desirable, most important, etc.

1. Product Line

- A. Please describe your product line in the areas of accounting/financial, banking, human resources, insurance and manufacturing software. Please complete the following table:

Product Name	Product Function	Targeted Industries	Hardware on which it runs	Approx. Price	Approx. No. of Installs	Title of Buyer	Approx. 1979 Revenue	Growth Rate in 1979	Percent of Total Revenue	Estimated Total 1979 Market (Dollars)	Annual Growth Rate '80-'85	Primary Competition	Days To Install	Days to Train	Profitability Rating (1-5)

1. B. Do you also sell professional services (e.g., programming, systems design) along with your software? Yes No

C. If so, please list the types of professional services that you sell.

D. For your typical products:

1) What is the average age of the product (in years)? _____

2) What is the average life cycle (in years)? _____

3) Where and how were the products developed?

4) How many new products were introduced in 1979? _____

5) How is product maintenance handled and priced?

E. Are new products currently being developed by your company?

Yes No

1. F. Are the new products being developed in-house or are they being purchased?

- In-house
- Purchased
- Both

G. Is there anything new in the ways in which products are being developed in-house?

- Yes
- No

What are the innovations?

1. H. What new technologies are being used in your development process?

I. Typically, how many person-years are being invested in a typical new product? _____ years

Is this a change from older products? [] Yes [] No

In what way?

2. Environmental Issues

A. What are the primary driving forces in the applications software marketplace? (e.g., government regulation, competition in the marketplace, explosion of user requirements, etc.)

2. B. What are the major positive factors which have helped or will help the growth of the applications software market for your products? Please rate each factor in degree of importance (where a '1' signifies not important, and a '5' signifies very important, and '2', '3', and '4' signify intermediate levels of importance).

Positive Factor	Importance Rating in Past Growth	Importance Rating for Future Growth
1) Product Design & Features	_____	_____
2) Product Efficiency	_____	_____
3) Product Reliability	_____	_____
4) Product Documentation	_____	_____
5) Installation Performance	_____	_____
6) Product Training	_____	_____
7) On-going User Support	_____	_____
8) User Budgets	_____	_____
9) User Sophistication	_____	_____
10) User Demand for Applications Software	_____	_____
11) Vendor (your) Sales Organization	_____	_____
12) Your Marketing Program	_____	_____
13) Your Company Image	_____	_____
14) Government Regulation	_____	_____
15) User's Need to Remain Competitive in the Marketplace	_____	_____
1.6) Other (please identify)		
_____	_____	_____
_____	_____	_____
_____	_____	_____

2. C. What are the major negative factors which have impeded or might impede the growth of the market for your products?

Negative Factor	Importance Rating in Impeding Past Growth	Importance Rating in Impeding Future Growth
1) Product Design & Features	_____	_____
2) Product Efficiency	_____	_____
3) Product Reliability	_____	_____
4) Product Documentation	_____	_____
5) Product Installation Performance	_____	_____
6) Product Training	_____	_____
7) On-going Support for the User	_____	_____
8) User Budgets	_____	_____
9) User Sophistication	_____	_____
10) User Resistance to Buying Software	_____	_____
11) Inadequate Sales Performance by Vendor	_____	_____
12) Inadequate Marketing Support	_____	_____
13) Company or Industry Image	_____	_____
14) Government Regulation	_____	_____
15) Technological Uncertainty	_____	_____
16) Vendor R&D Budgets	_____	_____
17) Vendor Sales and Marketing Budgets	_____	_____
18) Other (please identify)	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

2. D. Which factors from the two tables provided above are changing the most rapidly? How are they changing?

<u>Factor</u>	<u>Nature of Change</u>

E. Are there any factors which could dramatically alter the nature of the applications software business as we know it today?

Yes No

What are they?

3. Marketing Issues

A. Do you lease as well as sell your products? Yes No

B. What is the relative volume of sales to leases?

_____ Number of Sales/Number of Leases

C. Do you also sell maintenance? Yes No

D. Do you require a maintenance contract with all sales?

Yes No

E. What type of sales force do you use domestically and overseas?

Type of Sales Force	% Domestic *	% Overseas *
1) Direct Sales	_____ %	_____ %
2) Sales Agents	_____ %	_____ %
3) Joint Ventures	_____ %	_____ %
4) Other		
_____	_____ %	_____ %
_____	_____ %	_____ %
_____	_____ %	_____ %

(* Totals should add to 100% for both domestic and overseas)

F. How many salespeople and sales managers do you employ?

_____ Salespeople

_____ Sales Managers

G. How many people are devoted to marketing (not sales) activities?

H. On whom do you call to sell your products (specify job titles)?

3. I. Please rate the effectiveness of the various types of lead generation techniques listed below:

Lead Generation Technique	Effectiveness Rating (1-5)
1. Cold telephone call to the prospect	_____
2. Cold in-person call on the prospect	_____
3. Direct mailing to the customer	_____
4. Referral from existing user	_____
5. Advertising in trade publication	_____
6. Advertising in general publication	_____
7. Prospect contacts you for information	_____
8. Datapro/ICP/Auerbach surveys & reports	_____
9. Other (please specify)	_____
_____	_____
_____	_____
_____	_____

J. What are the keys to qualifying your prospects?

K. What is your 'hit ratio' of closed business to qualified prospects?

_____ %

L. Is your marketplace highly competitive? Yes No

3. M. What are usually the keys to making the sale?

N. Is the sales cycle changing? Yes No

How? _____

O. How many calls are made for a typical sale?

_____ Phone _____ In person

P. What are the key characteristics of a good salesperson for your products?

3. Q. What types of accounts are you now targeting as primary future sales prospects?

Type of Account	Sales Target Rating (1-5)
1) Fortune 500/1000 and other very large organizations	_____
2) Medium sized (\$50M-\$500M) businesses	_____
3) Relatively small (\$10M-\$50M) businesses	_____
4) Small businesses	_____
5) Government	_____
6) Other (please specify)	_____
_____	_____
_____	_____
_____	_____

R. Please rate the effectiveness of your advertising program.

Advertising Medium	No. of Leads Generated	Quality of Leads Generated*	Products Advertised

(* Use a scale of 1 to 5 where '1' represents the worst quality and '5' represents the best quality.)

3. S. What is your total annual advertising budget in 1980? \$ _____

What was it in 1979? \$ _____

How rapidly do you expect your advertising budget to grow (or shrink) during the next five years (percent change per year)?

_____ %

T. How do you rate the effectiveness of the following methods for differentiating your product in the marketplace?

Method for Differentiating Products	Effectiveness Rating *
1) Pricing	_____
2) Product Functionality	_____
3) Product Reputation	_____
4) Product Ease-of-use	_____
5) Product Upgradeability	_____
6) Product on-going support	_____
7) Company reputation	_____
8) Other (Please identify)	_____
_____	_____
_____	_____
_____	_____

(* Use a scale of 1 to 5 where '1' represents the least effective and '5' represents the most effective.)

U. Which area does your company emphasize most: selling, marketing, or development?

Selling Marketing Development All Equal

V. If you had additional dollars to spend, where would you spend them?

3. W. How do you expect your marketing strategy to evolve in the future?

X. Please rate the following publications for effectiveness in product identification and selection.

Publication	Effectiveness Rating for Product Identification and Selection *
1) ICP	_____
2) Datapro	_____
3) Auerbach	_____
4) Other (Please identify)	_____
_____	_____
_____	_____
_____	_____

(* Use a scale of 1 to 5 where '1' represents the least effective and '5' represents the most effective.)

Y. Does your company do market research? Yes No

If so, please list the types of market research.

3. Z. Please rate your emphasis on the following techniques for addressing present and future market segments. *

Method for Addressing Segmentation of Your Marketplace	Emphasis at Present	Emphasis in the Future
1) Specialization of the Sales Force	_____	_____
2) Specialization of the Product Line	_____	_____
3) Direction of New Products	_____	_____
4) Special Incentive Programs for salespeople	_____	_____
5) Special Marketing Programs	_____	_____
6) Other (please identify)	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

(* Use a scale of 1 to 5 where '1' indicates the lowest emphasis and '5' the highest emphasis.)

3. AA. How do you know whether to develop a new product, or to modify existing products? Please rate the importance of the following factors. *

Factor	Develop a New Product	Enhance an Existing Product
1) Requirement perceived by the Sales Force	_____	_____
2) Loss to Competition	_____	_____
3) Result of in-house Development	_____	_____
4) Market Research Performed In-house	_____	_____
5) Market Research Performed Outside	_____	_____
6) New Hardware Introduced by Hardware Manufacturer	_____	_____
7) Trend to On-line Processing	_____	_____
8) Trend to Distributed Processing	_____	_____
9) Industry Specialization	_____	_____
10) Other		
_____	_____	_____
_____	_____	_____
_____	_____	_____

(* Use a scale of 1 to 5 where '1' indicates the lowest importance and '5' the highest importance.)

3. BB. Where are the most substantial opportunities for growth in sales and profits for your company?

Four horizontal lines for writing the answer to question BB.

CC. How does your company view the 'Turnkey Systems' business (where 'Turnkey' is defined as a total hardware + software solution in a single integrated package)?

Four horizontal lines for writing the answer to question CC.

DD. Are 'Turnkey Solutions' a natural migration for your products?

Yes No

Why?

Four horizontal lines for writing the answer to question DD.

EE. Are you considering any new methods of distributing your applications software (e.g., providing your products to service companies, systems houses, or computer manufacturers)? Yes No

List the methods:
Four horizontal lines for writing the answer to question EE.

3. FF. Please rate the following factors by degree of importance in establishing pricing for your products:

Factor	Importance Rating in Establishing Pricing *
1) Cost + Percent Profit	_____
2) Competition's Pricing	_____
3) What the Market will bear	_____
4) Other (please identify)	_____
_____	_____
_____	_____
_____	_____

(* Use a scale of 1 to 5 where '1' indicates the lowest importance and '5' the highest importance.)

GG. Please rate the importance of the following problems encountered during the installation process:

Problem Area	Importance Rating *
1) User is not prepared for the installation	_____
2) Software Problems	_____
3) Hardware Problems	_____
4) Specifications of your Product are not understood by the User	_____
5) User Requirements are not understood by your Organization	_____
6) User does not allocate enough time to do the installation properly	_____
7) Other (please identify)	_____
_____	_____
_____	_____
_____	_____

(* Use a scale of 1 to 5 where '1' indicates the lowest importance and '5' the highest importance.)

4. The Buying Process

A. What is your perception of the buying process? Please answer by filling in the following table:

Buying Cycle Stage	Title of Customer Employee with Primary Responsibility	Length of Stage (in Weeks)
1) Identification of Products and Vendors	_____	_____
2) Evaluation of Products and Vendors	_____	_____
3) Justification of Applications Software Solution	_____	_____
4) Selection of Product	_____	_____
5) Approval and Purchase of Product	_____	_____

B. What is the role of the end user in the buying process?

C. What is the role of the EDP Manager in the buying process?

4. D. What are the primary reasons why customers buy applications software rather than developing the application in-house?

E. In a highly competitive situation, what are the primary factors you stress about your product and company?

Factor	Importance Rating in Highly Competitive Situations *
1) Product Pricing	_____
2) Product Design and Features	_____
3) Product Efficiency	_____
4) Product Reliability and Maintenance Provided	_____
5) On-going Support to the User	_____
6) Company Reputation	_____
7) Other (please identify)	_____
_____	_____
_____	_____
_____	_____

(* Use a scale of 1 to 5 where '1' indicates the lowest importance and '5' the highest importance.)

F. Is the buying process changing? Yes No

How? _____

4. G. What changes would improve the buying process?

5. Impact of Evolving Technology

A. Rate how major developments in the following areas will impact your products and markets:

Technology Area	Impact Rating *
1) Minicomputers	_____
2) Distributed Data Processing	_____
3) Networks and Communications	_____
4) Office Automation	_____
5) New Software Languages	_____
6) Data Base Technology	_____
7) Integration of Software and Chips (Firmware)	_____
8) Other (please identify)	_____
_____	_____
_____	_____
_____	_____

(* Use a scale of 1 to 5 where '1' indicates the lowest impact and '5' the highest impact.)

B. Please describe in detail the nature of the impacts of the most important factors listed above:

5. C. Is there likely to be an impact from 'Turnkey Systems'?

Yes No

Please describe that impact.

D. Are there any new approaches toward developing applications software which are or will impact your product development cycle?

Yes No

What are they?

E. What are the most significant trends in application installation and maintenance?

5. F. How important are security features in an applications software product?

Lowest Highest
 1 2 3 4 5

G. Are technological breakthroughs likely to improve security features?

Yes No

How?

H. What are the major unmet user needs in your marketplace?

6. Competition

A. What are the market shares for the leading companies in your market?

Company Name	Market Share (%)
1) _____	_____
2) _____	_____
3) _____	_____
4) _____	_____

6. B. Why are some companies successful in your market while others are not?

C. What are the roles of the hardware manufacturers in your marketplace?

D. What do you perceive will be IBM's role in your marketplace?

E. Are there any evident trends of hardware manufacturers moving more aggressively into your marketplace for applications software?

6. F. What are the trends in CPU size for your types of applications products?

G. What do you think will be the most substantial changes in the competitive environment over the next 1-5 years?

7. General Wrap-up

A. What are the primary problems which must be solved by your company for it to prosper in the applications software business?

B. What are the primary problems which user organizations must solve in order for them to utilize your applications software most effectively?

