PRICING, PACKAGING, AND SELLING

FIELD SERVICES

INPUT

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INPUT Planning Services for Management

PRICING, PACKAGING, AND SELLING FIELD SERVICES

AUGUST 1981

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EXHIBITS

1 INTRODUCTION

I INTRODUCTION

A. PURPOSE

- This report is part of the INPUT 1981 U.S. Field Service Planning Information Program, and is produced for use by clients in that program.

- The topic, "Pricing, Packaging, and Selling Field Services," was selected based on high client interest in the subject. The purpose is to:

  - Provide a base of data and analysis to which clients can compare their own products and services.

  - Focus on the critical issue of pricing of field services.

  - Highlight opportunities for clients to increase revenues and/or reduce costs through marketing and sales techniques.

  - Provide a set of recommendations for clients' consideration.

- This report is responsive to client requests for a follow-on to the 1980 report, Marketing Field Services; much of the data in the earlier report has been updated and expanded in this current report.

B. SCOPE

- Research for this report was based on 29 telephone interviews with vendors of field services. Not all questions were completed by all respondents and some data are based on fewer interviews; the lower response levels are identified where appropriate.

  - Interviews concentrated on determining the attitudes and procedures among vendors as they related to the revenue generating side rather than to the cost side of the field service business.

  - Reviews of published pricing, contracts, and product information of 20 vendors were also accomplished as part of the project. Results of this phase are contained in Appendix B.

- Other information came from related INPUT studies. Titles are presented in Appendix C.

- The study concentrates on the following categories of equipment: computers, peripherals and terminals, word processors, and "other."

  - Nine responding vendors were primarily computer manufacturers (mainframes and/or minicomputers), eight were manufacturers of peripherals/terminals, and six were manufacturers of word processing equipment.

  - Three respondents in the "other" category were in CAD/CAM or test equipment.

C. REPORT ORGANIZATION

- This report is organized to provide a logical analysis of the subject of pricing, packaging, and selling field services.

  - The Executive Summary contains those points deserving top management attention, and includes recommendations drawn from the total project.

  - The body of the report contains research data presented in exhibits, along with descriptive text and analysis.

  - The appendices contain a section on terms and conditions and other supporting data for individual companies.

- Pricing data provided in this report are believed to be correct. Since multiple sources of information were used and since pricing is subject to fluctuations, clients may want to verify any price that is particularly key to their own decision process.

- While this report draws specific conclusions, the variety of points of view obtained from the vendors interviewed is also reported. As such, the user of the report has access to a diversity of data on which to base his own conclusions.

- Clients' comments regarding this report are welcome.

II EXECUTIVE SUMMARY

II EXECUTIVE SUMMARY

A. SERVICES REVENUES IN PERSPECTIVE

- Any analysis of pricing, packaging, and selling field services must begin with a recognition of the nature of field services as a product. Both opportunities and problems exist for any vendor.

- Opportunities to sell field services stem from the following:
  - Most users are essentially captive to the vendor; less than 10% of users feel they have the alternative of doing maintenance themselves, or using a third party.
  - The installed base of equipment, which has built up over twenty years, provides a stream of almost guaranteed minimum revenue to the field services vendor.

- Problems in selling field services stem from:
  - The potential negative impact on new equipment sales if services are priced at optimum from a profit standpoint.

- The continuing need to service an installed base which was sold in prior years when services costs were often much lower than today, and when competitive situations existed which may have depressed prices.

- The task before field service management is twofold.

  - First, to review today's price levels and selling techniques to ensure that the structure on current products is optimum.

  - Second, to analyze in depth the structure of all yet unannounced products to apply creative thinking prior to announcement; users are more receptive to innovation on a new product than to changes in structure during the market life of the product.

  - Examples of innovative product announcement in the past two years from a field service viewpoint include the IBM 4300, the Hewlett-Packard 3000 Model 44, and the Tandem Non-Stop Two; all included significant departures from past practice.

B. SOURCES AND GROWTH OF SERVICES REVENUE

- The impact on field service revenues of the inertia resulting from past practice and the large installed base is shown in Exhibit II-1.

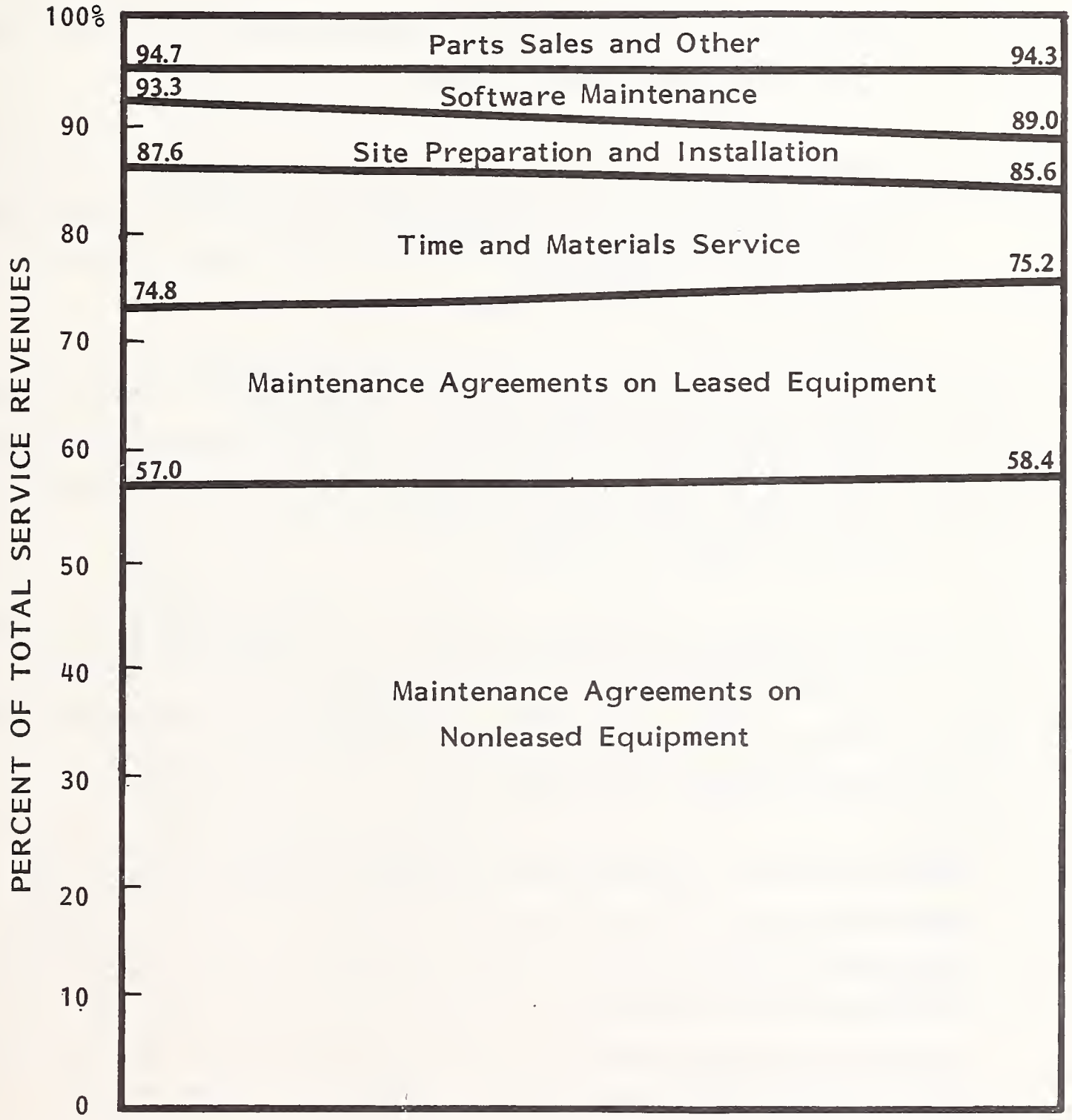
  - Twenty-nine vendors interviewed for this study anticipate only minor changes in the mix of revenues between 1981 and 1985.

  - A less than 1% shift in revenues from maintenance agreements is expected over this period.

  - Only software maintenance revenues show a dramatic gain in share, from 1.4% of the total in 1981 to 5.3% in 1985.

EXHIBIT II-1

RESPONDENTS' CURRENT AND FORECASTED DISTRIBUTION OF REVENUES BY TYPE OF SERVICE



*INPUT FORECAST PER 1981 FIELD SERVICES ANNUAL REPORT

- Rapid shifts in revenue sources are clearly not characteristic of the field services industry.

- While the sources of revenue remain relatively constant, the rate of overall field services revenue growth is dynamic, as shown in Exhibit II-2.

  - Respondents reported an average annual growth over 30%, and expect this rate to continue through 1985.

  - INPUT estimates that the respondent sample is growing one third faster than the 20% rate for the total industry because the respondents did not include all the large established mainframe vendors who have a large market share, and are growing at a slower rate.

  - The fact that all vendors were approached in the survey, and that the faster growing services companies tended to respond, is one indication that these faster growing companies have a higher interest in the subjects covered in this study.

  - On average, respondents expected the rate of growth to accelerate through the period, with word processors expecting a slight decline from a high current rate, and others (CAD/CAM, testing systems) expecting even higher growth from a high current base.

- Rates of hardware shipments vary widely by company. For IBM, 1980 sales were up 15% from 1979, rentals were up 8%, and services were up 33%. While "services" in IBM terms are not totally equivalent to "field services" as used in this report INPUT believes that in IBM, as in the total industry, field service revenues are growing faster than total industry revenues. This is reinforced by the respondent growth rates shown in Exhibit II-2. The high field services growth rates mean that services revenues among respondents will continue to gain as a percent of total company revenues over the forecast period.

EXHIBIT II-2

SERVICE REVENUE GROWTH OF SELECTED COMPANIES
IN THE INFORMATION PROCESSING INDUSTRY
(percent)

RESPONDENT VENDOR	1980-1981	1981-1982	1982-1985
All Respondents	31.2%	31.9%	32.6%
Computers	27.9	29.1	29.1
Peripherals/ Terminals	25.2	25.8	25.1
Word Processors	38.8	39.3	34.8
Others	41.7	41.7	59.0

NUMBER OF RESPONDENTS: 29
AVERAGES ARE STRAIGHT, NOT WEIGHTED

- Many companies now report services revenues are 20-30% of total revenues; the importance of optimum pricing and packaging of services increases as the percentage increases, because the impact on total company performance is greater.

- IBM, with U.S. revenues of $20 billion and INPUT's estimate that 20% of IBM's revenues are from services, actually has annual U.S. services revenues of $4 billion. Small wonder that IBM has placed heavy emphasis on hardware and, with the IBM 4300 announcement, software maintenance.

C. FACTORS IMPACTING SERVICES STRATEGIES AND PRICING

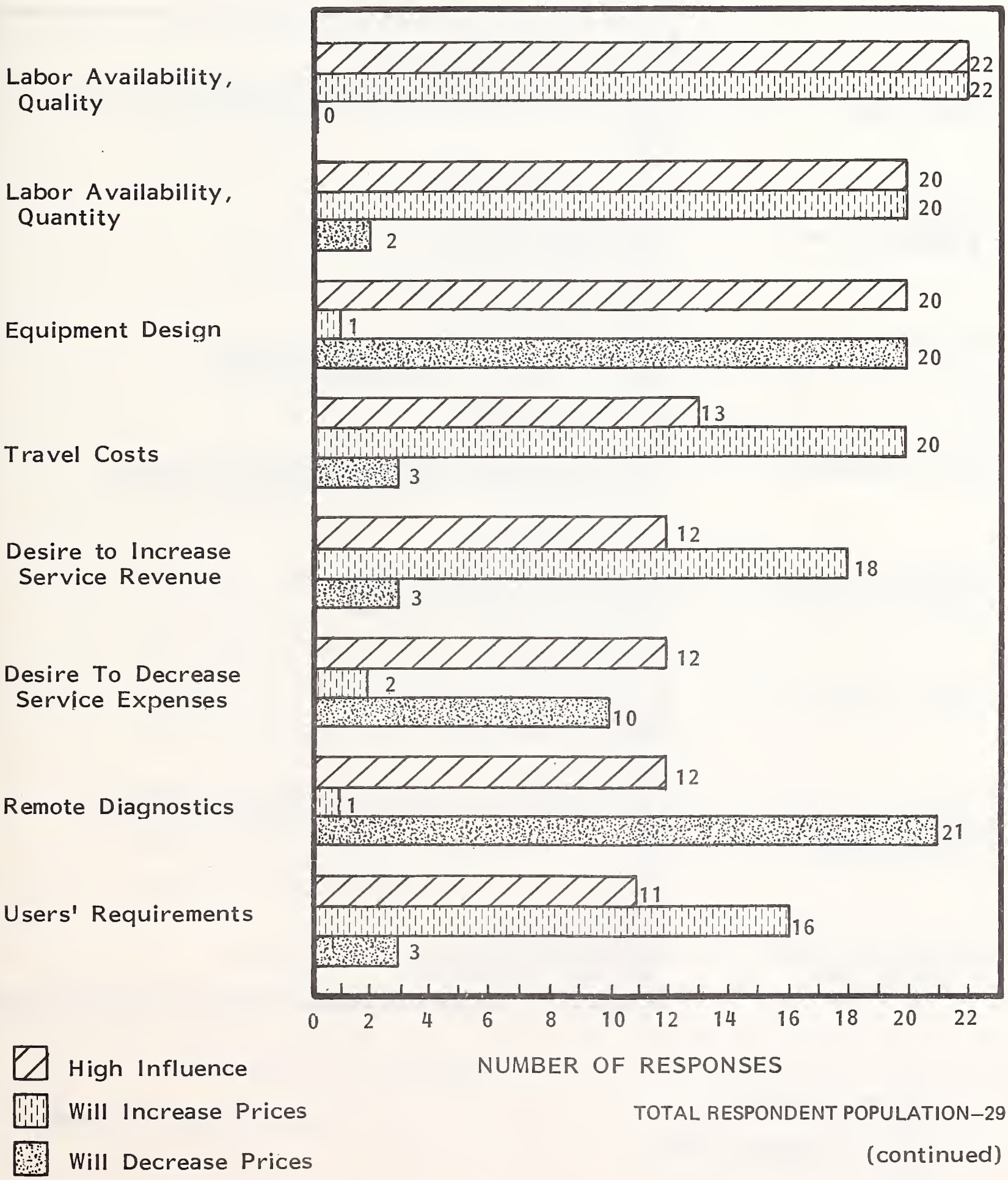
- A recent INPUT survey of 44 users reinforced earlier studies of the importance of maintenance in the mainframe purchase decision. On a scale where 0 = unimportant and 10 = most important, buyers rated mainframe vendors from 7.5 (Univac) to 8.7 (Amdahl). IBM users rated maintenance at 8.5 in importance.

- This high impact of maintenance quality on the purchase decision is reflected in the vendor survey carried out for this study. What is particularly interesting is the relative weighting vendors gave performance factors versus profit factors. As shown in Exhibit II-3, over two thirds of the respondent vendors rated labor factors, quality and quantity, as having high influence on service strategies, a reflection of the importance of performance in the field.

  - Equipment design was the only other factor given a high influence rating on strategy.

EXHIBIT II-3

RATING OF FACTORS IMPACTING
SERVICE STRATEGIES AND PRICING

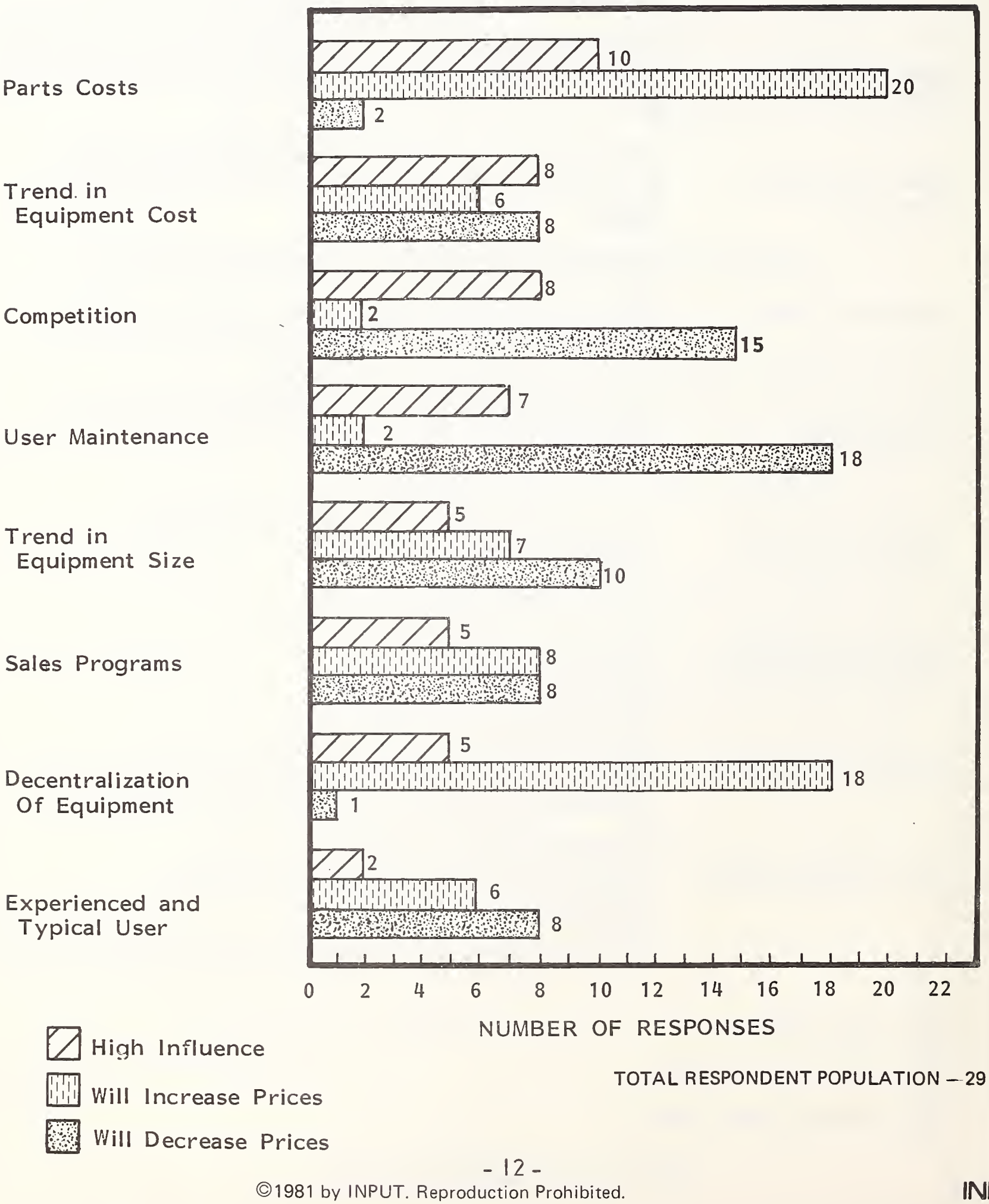


TOTAL RESPONDENT POPULATION–29

(continued)

EXHIBIT II-3 (Cont.)

RATING OF FACTORS IMPACTING
SERVICE STRATEGIES AND PRICING



TOTAL RESPONDENT POPULATION — 29

- Part of the dilemma facing management is that labor factors are expected to have an upward impact on services prices, while equipment design is expected to have a downward impact; the question of the net effect of these opposite forces is a key one.

- Although profit center organization has become the norm for field service (in both the 1980 and 1981 vendor surveys, 95% of respondents are, or expect to be, profit centers), the desire to increase service revenue and/or decrease service expenses was a high influence factor among less than half the respondents.

  - Evidently profit still takes second place to performance in the day-to-day decision process among many vendors.

  - Further complicating the pricing - selling equation is the fact that increasing services revenue is expected to increase services prices, while a desire to decrease services expenses (through remote diagnostics, depot maintenance, etc.) is expected to decrease services prices.

- Aggressive sales programs still have a low rating in the strategies of vendors. Competition also has a relatively low rating, although the impact of competition is felt to be a strong downward influence on prices. The two factors are related in that many vendors evidently feel that competition is more likely to come from price cutting than from better selling.

- The hesitancy of vendors to embark on aggressive selling campaigns is reflected also in the low expected contribution from dedicated services sales groups, as shown in Exhibit II-4.

  - Vendors expect over half of new services revenues to come from either the hardware sales group or from regular services personnel.

EXHIBIT II-4

RELATIVE AMOUNT OF NEW SERVICES REVENUE COMING FROM ALTERNATIVE SOURCES

SOURCE OF NEW SERVICES/REVENUE	PERCENT OF TOTAL NEW REVENUES
Hardware Sales Group	28%
Service Personnel	24
User Initiated	19
Lease Equipment	19
Third Party (includes Dealers, Distributors)	5
Dedicated Sales Group in Service	5

D. RECOMMENDATIONS

- Field service management must improve its techniques for obtaining pricing levels which better balance the long-term impact on profits of maintenance versus the short-term impact of new product sales.

  - Much of this process will involve aggressive participation in the design of new products, and in the structure of pricing on these products.

  - With regard to existing products, management can investigate new techniques, particularly unbundling of services pricing, to create new revenue.

  - The objective is to avoid sacrificing greater long-term profits from field service for smaller one-time, short-term profits from new equipment sales.

- Vendors should review their services offerings for new opportunities. Most respondents to the survey anticipate no significant contributions from new services, and yet opportunities such as consulting, mail-in programs, and customer education programs exist for many vendors.

- Full line vendors must recognize the shift away from the dominant share of revenues from larger mainframes and pay particular attention to the increasing importance of smaller mainframes, peripherals, and terminals. This involves an accommodation to the importance of the large mainframe in terms of account control, and to the smaller equipment in terms of field service revenue and profit.

- Vendors of smaller equipment must realistically evaluate the impact of alternative means of supplying service in addition to on-site service. Depot maintenance, remote diagnostics, and user self-maintenance all have profit potential to vendors due to reduced cost, although they may also reduce revenue due to lower prices.

- Pricing decisions must move from the current vendor emphasis on cost of service to a greater appreciation of the value of the service to the users. Value pricing will:

  - Broaden the range of price alternatives by moving beyond the constraint of "cost plus profit" thinking;

  - Increase the marketability of field service by relating the offering to the issue most important to the users - the value of the service to them;

  - Retard the potential erosion of services revenues as equipment becomes more reliable and less expensive.

- Since buyers make decisions more on perceived quality, or "image," than on actual quality, the creation of an image for quality field service is worthy of management attention.

  - INPUT survey results consistently show that IBM's actual field service performance and user satisfaction levels are only slightly above the norm for the hardware industry. IBM's perceived superiority is largely a result of a positive image built over many years.

  - Image creation is often less expensive than investing in additional field people and inventory which can also have an impact on performance and, therefore, on image.

- Image is marketable at a new account and, therefore, may have more leverage in getting new business than does an incremental improvement in actual performance.

- Image creation often requires that field service management develop new skills, particularly in advertising and packaging.

- On balance, the results of this study reveal that field service management still approaches the pricing, packaging, and selling of field services more as a cost center than as a profit center. Movement to a profit center approach will require the assumption of responsibility both for price on a value versus cost basis, and for taking on packaging and advertising more aggressively. This more aggressive posture will yield more of the total potential profit from the field service function.

III THE ROLE OF MAINTENANCE PRICING IN THE INFORMATION PROCESSING INDUSTRY

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III THE ROLE OF MAINTENANCE PRICING IN THE INFORMATION PROCESSING INDUSTRY

A. DISTINCTIVE ASPECTS OF MAINTENANCE PRICING

- Maintenance pricing is more complex than most pricing situations, for the reasons discussed below.

1. CAPTIVE VERSUS THIRD PARTY

- INPUT estimates that over 90% of maintenance revenues are currently paid by the user to the same vendor who sold the hardware.

  - Of $8 billion in estimated 1981 U.S. revenues, approximately $600 million are third party.

  - Third-party companies typically fall into one of two categories:

    . Companies who compete on a price and/or performance basis with the vendor of the hardware. Examples are Sorbus and Comma (part of Control Data Corporation). The target primarily is IBM, with some activity aimed at other vendors such as Digital Equipment Corporation (DEC).

. Companies who contract with the vendor to take over the maintenance task, and therefore replace the hardware vendor as the available maintenance vendor. A third-party vendor functioning primarily in this mode is TRW. In this instance, the user does not have an alternative maintenance vendor, and is largely "captive" to the third-party vendor.

- The result of the current market structure, as described above, is that over 95% of the users are captive to the vendor of the hardware or to the designated third-party vendor.

- In a typical market with captive users, the vendor usually has the option to price very aggressively because the user has no choice. Vendors of field services, however, have typically priced passively, for several reasons which will be discussed in the following paragraphs.

2. THE IMPACT ON NEW SALES

- Vendors of hardware are dependent for 60% to 90% of their annual revenues on the sale of new hardware; maintenance prices have often been reduced in order to make the sale of hardware easier.

  - Hardware sales impact current sales and profits most heavily.

  - Maintenance sales and profits are a longer term process - often over a period of five to ten years after the sale.

- Top management often must find a way to balance short-term versus long-term profits.

  - As field services revenues continue to grow - now totalling 20% and more of total revenues in many companies - the profitability of field services must be considered.

- The balancing of the potential negative impact on new product sales due to higher maintenance prices designed to protect field service profits is now a recognized alternative.

- Organization of field service as a profit center is now the dominant form, with INPUT's 1979 and 1980 surveys revealing that 75% of responding field service vendors are profit centers and an additional 20% expect to convert to profit center organization within three years. This profit center organization is causing management attention to be focused on field service profits.

3. PROFIT CENTER ORGANIZATION

- Profit center organization normally increases the authority of field service management in setting pricing.

  - The major difference between profit center and cost center organization is that the former takes on responsibility for services revenue generation, as well as cost control; with revenue responsibility comes pricing authority.

  - Pricing authority includes more than merely setting prices; related issues of unbundling, warranty charges, and the like also impact revenues and profits.

- Profit center organization often raises other questions based on accounting principles. As is often the case, certain accounting conventions have a major impact on profitability in a profit center organization.

  - Examples of revenue-generating accounting principles include treatment of lease revenues relative to share of maintenance, credits for field services at industry conferences, and the like.

- Examples of cost-generating accounting principles include charges for corporate personnel services, cost of shared resources such as office space, cost of spares from a common inventory, etc.

- Given that profit center organization usually includes a target profit number, i.e., 15% profit before taxes, the accounting principles can have a great impact on pricing.

  - Recent INPUT surveys show responding vendors to have profits varying between zero and over 30% with a major variable being the handling of key revenue and cost items from an accounting standpoint.

  - Since cost-plus-profit methodology is used in much services pricing, the accounting techniques used in a profit center organization have become a significant determinant of price levels.

4. USER SELF-MAINTENANCE

- While, as stated earlier, 95% of users are captive to the vendor of the hardware or the designated third-party vendor, when it comes to maintenance, the user, in theory at least, has the option to do maintenance himself. INPUT research among users reveals the following user objections to self-maintenance:

  - The user is afraid he will break the equipment and be liable for damages.

  - The user does not want to use the time of his people to do maintenance.

  - The user does not want to invest in parts and training.

- The resistance to self-maintenance is declining.

- In a 1978 survey, 90% of respondents refused to consider self-maintenance.

- In a 1980 survey, the refusal level had dropped to 80% of respondents.

- INPUT research indicates that user resistance to self-maintenance is greatly reduced if the user perceives that the quipment was designed to be maintained by him.

  - The IBM 3101 Display Terminal System is an example of a product designed for self-maintenance, and introduced with emphasis on the self-maintenance aspect.

    . The IBM 3101 is supplied in three modules: a keyboard, a display unit, and a logic unit. The user installs the system, and is expected to run on-site diagnostics if there is a problem.

    . The preferred mode of repair if there is a problem is for the user to ship the defective module to a repair center, although on-site repair is also offered.

- Understandably, pricing for user self-maintenance involves a discount compared to on-site maintenance.

5. NEW SOURCES OF REVENUE

- The final aspect of maintenance pricing which makes it different compared to many other products, particularly commodities, is the possibility of creating new revenue streams from the same basic offering.

  - One example is "unbundling," or the breaking out of a portion of the total service and charging extra; examples are software maintenance and education.

- Another example is to create new offerings attached to the existing offering; an example is consulting services attached to CAD/CAM system maintenance.

- These unique characteristics have a mixed effect on final pricing, as shown conceptually in Exhibit III-1.

  - Vendors have an opportunity to approach the ultimate by considering all aspects.

  - This involves participation by field service in the development of total corporate strategy, particularly product design.

B. SOURCES OF NEW REVENUE IN FIELD SERVICE

- New revenue in field service comes from three sources, price increases, addition of new services, and development of service contracts among current clients.

- Price increases are the most immediate new revenue source.

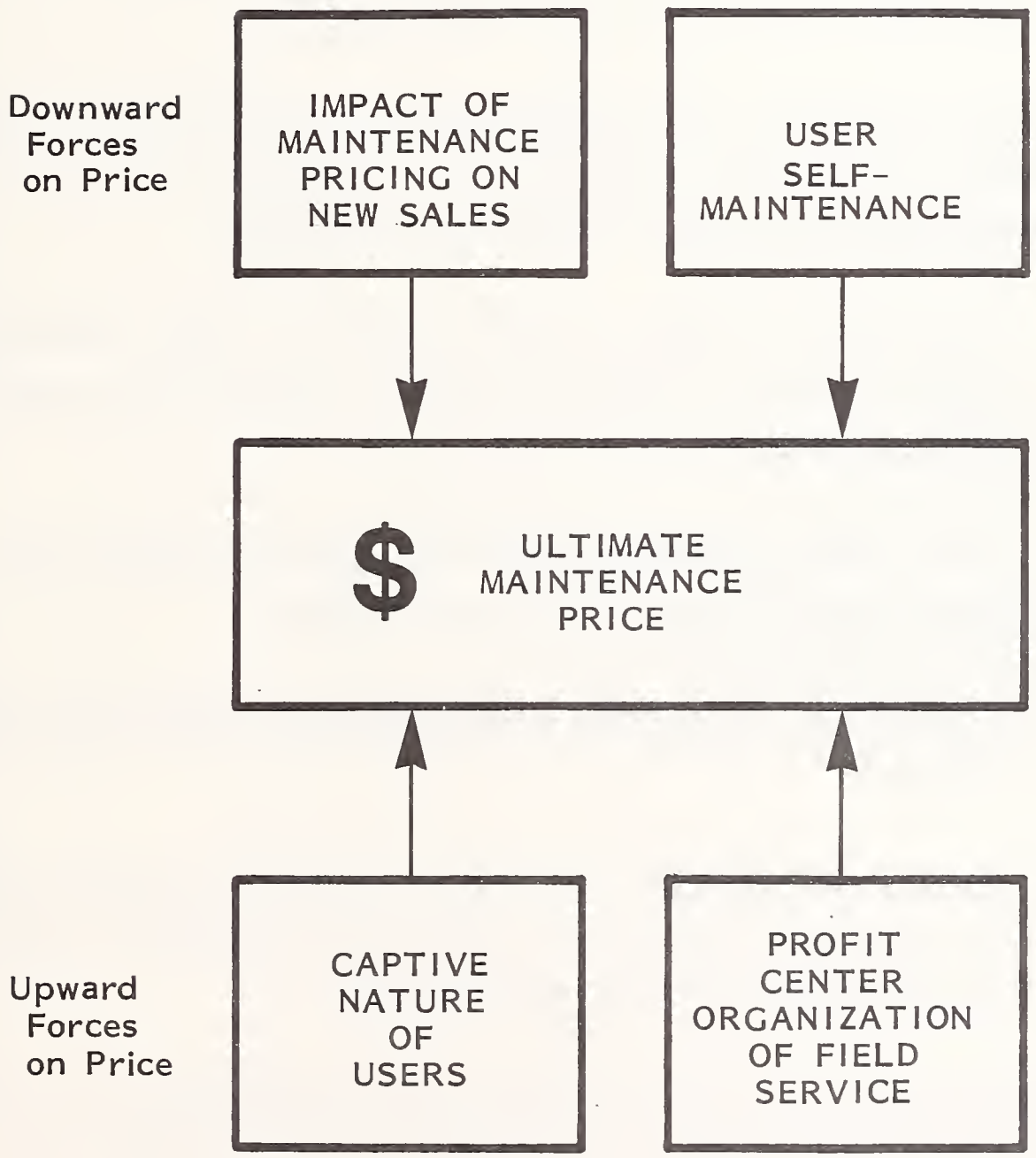
  - A successful price increase, which usually involves no direct increase in costs, contributes directly to profit as well as revenue.

  - To put the profit impact in perspective, a company doing $1 billion in total revenues, of which 20% are for maintenance, obtains a profit increase of $20,000,000 per year by implementing a 10% maintenance price increase.

  - A company with the revenue base of IBM has the potential for a profit increase twenty plus times this amount! Of course, the factors acting against increased maintenance prices discussed earlier must be

EXHIBIT III-1

IMPACT OF DISTINCTIVE PRICING ASPECTS ON FINAL MAINTENANCE PRICING



considered. However, the immediate profit impact potential of price increases makes constant review of pricing levels a key management function.

- The profit impacts of price increases versus cost reductions are shown graphically in Exhibit III-2. The impact of cost savings, for example from improved inventory control, tends to build over time, versus the immediate impact of changes in pricing levels.

- Addition of new services is a potential source of revenue for all vendors, with the opportunity dependent largely on the complexity of the vendor's product offering, and the makeup of the vendor's user population.

  - A new service which is being exploited by IBM, Hewlett-Packard, Digital Equipment Corporation (DEC), Honeywell, and others is software maintenance.

  - Other vendors are offering consulting and user training as part of their total offering; Computervision is one example.

  - Control Data Corporation (CDC) offers site design and preparation services.

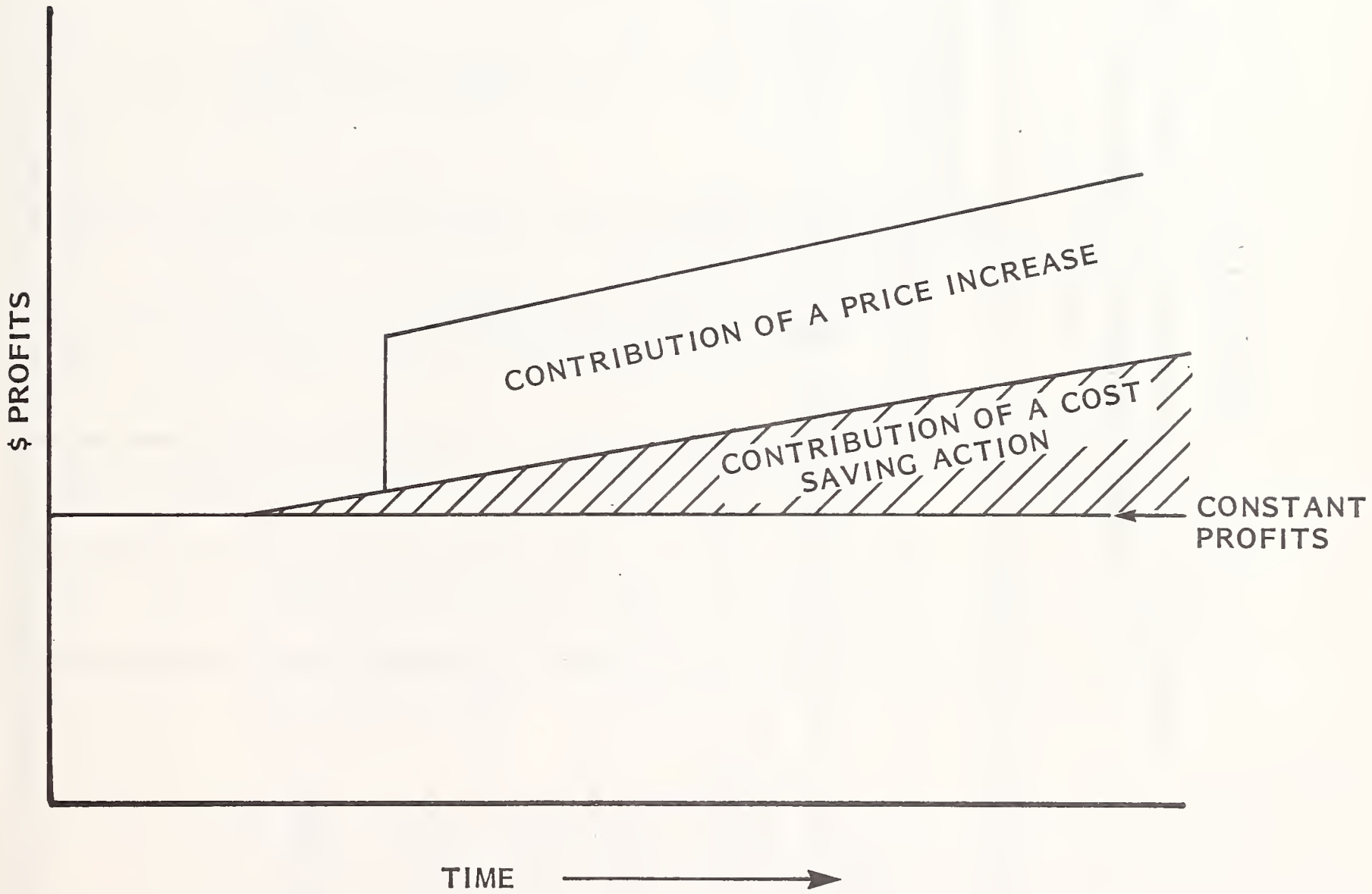
  - Vendors who have users with critical applications have the opportunity to design special offerings for those users (see INPUT's recent report, User Perceptions of Critical Maintenance).

- Development of new service contracts from the existing user base is a potential source of revenue, with the size of the potential being largely dependent on the percentage of users already under contract.

  - Exhibit III-3 presents the distribution of service revenues among the 29 respondents to the survey done for this report.

EXHIBIT III-2

IMPACT ON PROFITS OF PRICE INCREASES



NOTE: THIS CHART IS CONCEPTUAL. IT IS NOT BASED ON DATA.

EXHIBIT III-3

DISTRIBUTION OF THE SOURCE OF SERVICE REVENUES
AMONG RESPONDING COMPANIES
(percent of total revenues)

REVENUE SOURCE	ALL		COMPUTERS		PERIPHERALS/ TERMINALS		WORD PROCESSORS		OTHERS	
	1981	1985	1981	1985	1981	1985	1981	1985	1981	1985
Maintenance Contracts on Nonleased Equipment	57.0%	58.4%	65.6%	65.1%	50.4%	53.9%	51.0%	54.7%	60.0%	56.7%
Maintenance of Leased Equipment	17.8	16.8	13.1	13.1	15.1	15.0	22.0	16.0	32.0	30.0
Time and Materials Service	12.8	10.4	9.8	5.6	18.1	17.7	13.5	7.7	5.7	7.3
Site Preparation Installation	5.7	3.4	3.0	3.0	10.0	3.2	6.5	7.0	0	0.7
Software Maintenance	1.4	5.3	3.4	7.3	0.3	4.0	0.5	5.7	0	3.3
Other	2.1	2.5	0.5	0.9	2.8	3.7	2.2	1.4	1.6	1.3
Parts Sales	3.2	3.2	4.6	5.0	3.3	2.5	4.3	6.5	0.7	0.7

- Time and materials, the main indicator of contract potential because it represents maintenance being done outside of contract coverage, averages 13% of total revenues, with terminals and peripherals showing the highest contract potential with a T&M level of 18%.

- Computer vendors and word processing vendors in particular are anticipating significant conversions to contract.

- Only the "other" category of companies expects a significant decline in the relative share of contract revenues. This category is made up of CAD/CAM and test equipment vendors, and operates under some special circumstances which contribute to the expected revenue shift to time and materials.

- The most significant shift in the composition of services revenues shown in Exhibit III-3 is the growth of software maintenance between 1981 and 1985. The share of revenues from software maintenance is expected to increase by 400% in four years, admittedly over a small base.

- Of interest is that all vendor categories, even peripherals and terminals, expect to participate in software maintenance.

- IBM, undoubtedly the largest vendor of software maintenance, was not a respondent to the survey; this makes the 1985 growth to over 5% of total revenues from software maintenance for all respondents even more significant.

- The "other" category of revenue source remains steady during the 1981-1985 time period, indicating that vendors do not anticipate significant contributions from new services in the near term. Services mentioned by respondents in this category include:

- Consulting.

- Mail-in program, depot.

- Warranty.

- Third-party maintenance.

- Repair and refurbishment.

- Parts sales retain a constant share in the 1981-1985 timeframe with a decline among peripheral/terminal vendors being offset by an increase among word processing vendors.

- On balance, the percentage distribution of revenue sources remains constant, with the major source of new maintenance revenues coming from shipment of new equipment.

C. THE RANGE OF GROWTH RATES IN THE INDUSTRY

- The importance of equipment type to growth rates is shown in Exhibit III-4.

  - Word processing vendors anticipate the highest growth.

  - On average, responding computer vendors and peripheral terminal vendors anticipate growth rates in the 25-30% range.

- The distribution of responses in Exhibit III-4 is significant.

  - In the computer manufacturing, peripherals/terminals, and word processing categories, a total of 4 respondents of the 29 in the survey reported growth of 12-15%, with little change expected through 1982. This indicates that some vendors are participating in growth at little more than the rate of inflation.

EXHIBIT III-4

REVENUE GROWTH OF RESPONDING VENDORS, 1980-1985

RESPONDENT TYPE	NUMBER OF RESPONDENTS		REVENUE GROWTH (percent)		
			1980-1981	1981-1982	1982-1985
All Respondents	26	Average	31.2%	31.9%	32.6%
		Low	12.0	13.0	15.0
		High	100.0	90.0	100.0
		Median	25.5	27.0	26.0
Computer Manufacturing	9	Average	27.9	29.1	29.1
		Low	15.0	15.0	15.0
		High	80.0	80.0	80.0
		Median	21.0	25.5	25.5
Peripherals/Terminals	8	Average	25.2	25.8	25.1
		Low	12.0	15.0	15.0
		High	40.0	35.0	35.0
		Median	26.0	26.0	26.0
Word Processing	6	Average	38.8	39.3	34.8
		Low	12.0	13.0	25.0
		High	100.0	90.0	70.0
		Median	25.5	32.5	26.0
Other	3	Average	41.7	41.7	59.0
		Low	35.0	35.0	37.0
		High	50.0	50.0	100.0
		Median	40.0	40.0	40.0

"OTHERS" INCLUDE TEST EQUIPMENT AND CAD/CAM VENDORS

- Other vendors are experiencing growth rates in the 40-100% range; these are typically fed by very high new equipment shipping rates.

- Because actual revenue amounts were not provided by respondents, straight averages rather than weighted averages are shown in Exhibit III-4. The median or mid-point value among respondents is, therefore, revealing.

  - In the computer manufacturing and word processing categories, the median is lower than the average indicating a few respondents with very high growth rates.

  - In the peripherals/terminals and "others" categories the average and median values are close, indicating a more uniform distribution of growth rates.

- In its 1981 Field Service Annual Report, INPUT forecasts an average growth rate of 20% for the U.S. Field Service industry. This lower value compared to the respondent survey is based on the conclusion that the respondents are not reflective of the total industry.

  - The respondents do not include some of the very large and slower growing companies in the industry.

  - The respondents tend to be the more aggressive marketers of field service and therefore are growing at rates faster than other companies of similar size.

- It is significant that respondents expect the growth to maintain its current high level through 1985.

  - A decline in the expected rate of growth among word processing vendors is offset by an increase in the "other" category.

- Vendors evidently expect a balanced impact between the forces acting on pricing as discussed earlier, and the continued growth in new equipment shipments.

D. USER ATTITUDES REGARDING PRICING

- In several projects carried out over the past twelve months INPUT has probed the subject of user attitudes regarding pricing. Before addressing the vendor attitudes in Chapter IV, some results of user related research will be presented to provide a clearer perspective for the vendor analysis.

- Users expect maintenance charges in their budget to increase at least as rapidly as hardware and software. In a 1980 INPUT survey, 912 EDP managers anticipated the following 1980/1981 increases:

  - Hardware 5%.

  - Software 6%.

  - Maintenance 6%.

  - The difference between the above budget increases and the higher overall market growth figures is a result of new installations which are outside the budgets of the established EDP managers in the survey.

- Users typically expect a price reduction if they perform some of the maintenance task. Of 28 users surveyed by INPUT in 1980 on this question, 71% expected a price reduction if they did some of the maintenance work. However, a significant portion, 21%, did not expect a reduction; with these users other benefits, particularly higher up-time, were important.

- On the issue of price sensitivity, users in INPUT's 1981 survey were asked at what price increase level they would refuse to continue with their current vendor and consider doing their own maintenance. Results are tabulated in Exhibit III-5.

  - Only 27% indicated a willingness to consider doing their own maintenance; the remainder of the sample of 82 respondents would stay with vendor supplied maintenance even at price increases of over 100%. (Of course, at some point third-party vendors might form, giving the otherwise "captive" user a new alternative.)

  - The first significant defection to self-maintenance is at the 20% price increase level, indicating that the "threshold of pain" is in the 10-20% price increase range.

- In the 1981 survey, users were also asked to rate their receptivity to paying a premium for higher levels of service. After identifying an "ideal" level of response and repair time, users were asked what premium they would be willing to pay if they were promised those levels.

  - Only 13% were willing to pay a premium, and they were willing to pay only 18% more.

  - Survey results in a 1980 survey were similar, with the respective responses being 16% and 14%.

- Evidently users do not believe that improved service necessarily would follow from higher pricing. They correctly perceive that field service vendors continually provide the best service their resources can allow, regardless of price.

  - Vendors would be hard pressed to segregate their users into "premium" and regular classes.

EXHIBIT III-5

SIZE OF PRICE INCREASES WHICH CAUSE USERS TO CONSIDER DOING OWN MAINTENANCE

SIZE OF PRICE INCREASE (percent)	NUMBER OF RESPONDENTS WHO WOULD CONSIDER DOING OWN MAINTENANCE
10%	2
20	4
25-30	5
50	6
51-100	4
Over 100	1
Would not do own maintenance at any price	60
Total Users In Sample	82

- Service levels are often out of the control of the local service personnel anyway because of parts availability, staffing levels, and the like.

- A conclusion to be drawn from the above is that the ideal time to establish new pricing relationships is when a product is introduced.

IV PRICING ENVIRONMENT BY EQUIPMENT CATEGORY

IV PRICING ENVIRONMENT BY EQUIPMENT CATEGORY

A. INTRODUCTION

- A study of field services pricing must consider the differences between equipment categories. In this chapter four categories are treated separately: computers, peripherals/terminals, word processing, and "other."

- In a full line company, computers often form the basis of a pricing strategy.

  - The computer is the base for account control; the vendor who dominates the mainframe portion of a user's budget typically dominates the total installation.

  - The computer is the carrier of the market for software, an increasingly important segment - both for the software itself and the maintenance of software.

  - Once installed, the computer is the most difficult piece of equipment to replace, even though the user may be dissatisfied with the services provided; results of a 1981 survey completed by INPUT reinforced similar results from 1978 and 1980 surveys - less than 5% of mainframe users had replaced installed equipment due to poor maintenance, compared to 60% for peripherals and over 30% for terminals.

- Peripherals and terminals, being the most replaceable, are also the most sensitive relative to pricing.

  - Peripherals include a wide range of equipment types - disks, tapes, plotters, printers - with different degrees of electronic versus electro-mechanical content. Costs for maintenance vary, with resultant pressures on pricing.

  - Terminals, which by their nature are usually low in cost per installation and widely dispersed, have an unusually high travel cost component. Also, the level of technical competence in the field force is typically lower than for mainframe computers and most peripherals.

  - On balance peripherals and terminals are the most vulnerable, but at the same time they are the most available to the vendor seeking to replace installed equiment.

- Word processing equipment differs further in three respects.

  - First the equipment is usually sold into an administrative, rather than EDP environment.

  - Second, the equipment is not used for applications which are considered critical by the user; this tends to increase the price sensitivity on maintenance.

  - The word processing user is typically the least sophisticated technologically, of the categories covered.

- The "other" category includes test equipment and CAD/CAM. These are broken out and treated separately because their inherently complex nature carries special pricing considerations which would distort the other categories.

B. SERVICES PRICING ENVIRONMENT FOR COMPUTERS

- As a first step in the analysis, 1981 computer mainframe maintenance prices were compared to 1981 prices to determine if there had been any shift since publication of INPUT's 1980 report Marketing Field Services.

  - As shown in Exhibit IV-1, average annual maintenance prices as a percent of purchase price stayed effectively constant at just under 4%.

  - The price increases announced in the past 12 months for hardware and for maintenance for mainframes have evidently been in parallel, with the basic relationships unchanged.

  - The small changes in some of the mainframes listed are often due to changes in the equipment offering itself, making exact comparisons difficult.

- The growth of services revenues from responding computer manufacturers will lag the total industry, as shown graphically on Exhibit IV-2.

  - Within the respondent sample, large mainframe manufacturers tended to be at the lower end of the growth range, between 15% and 20%.

  - Minicomputer vendors grouped in the 25-30% annual growth range.

  - One respondent expected growth above 30%; this respondent expected 80% growth, fed largely by a high rate of new equipment sales.

- Overall, the growth in services revenues among computer manufacturers is inversely proportional to the size of the mainframe. Reasons include:

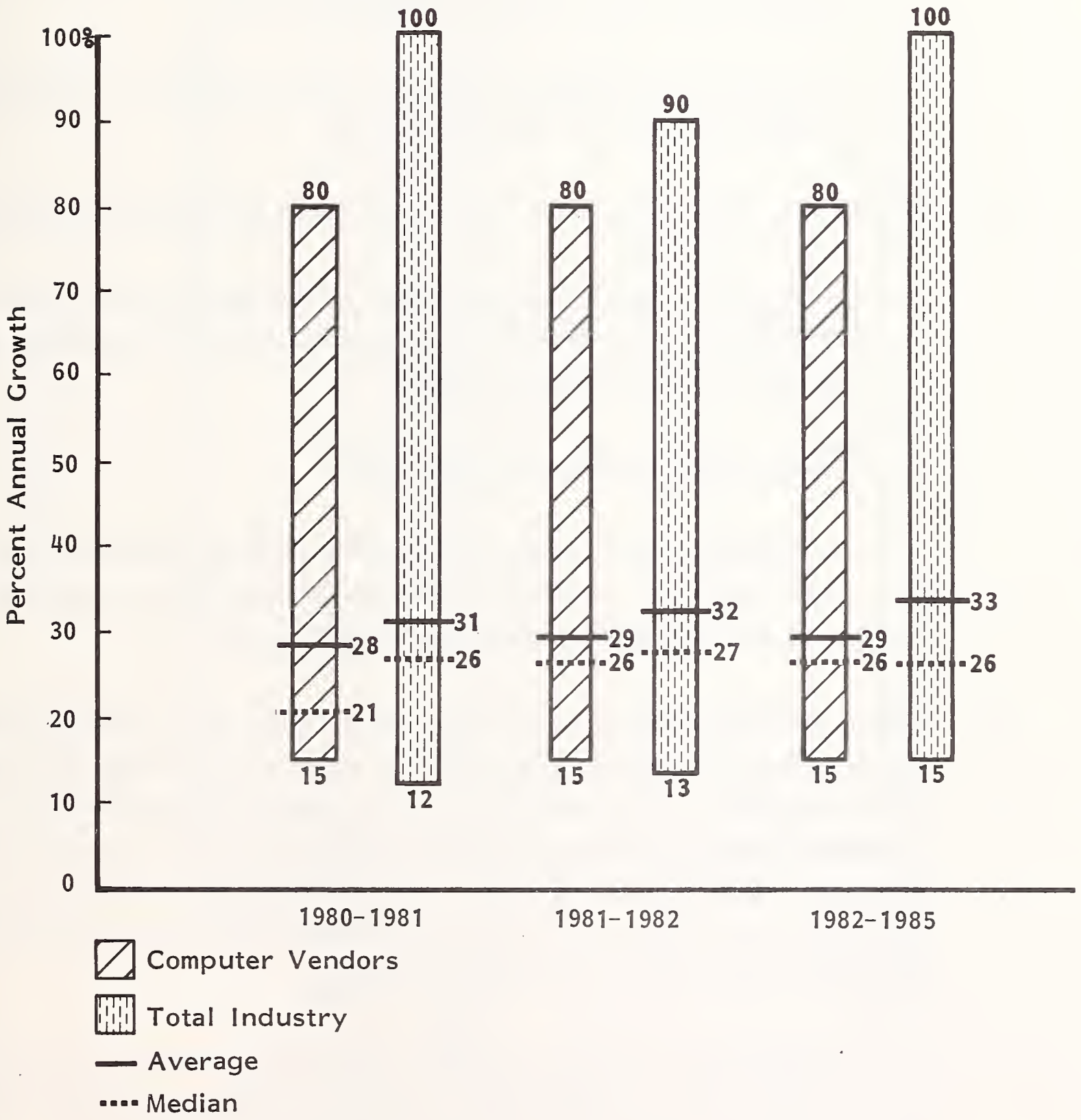
EXHIBIT IV-1

ANNUAL MAINTENANCE CHARGE AS A PERCENT OF PURCHASE PRICE, 1980-1981

LARGE MAINFRAMES		1980	1981
Amdahl	470 V/8	6.0%	5.9%
Control Data Corporation	176	3.0	3.7
Honeywell Information Systems	68/80	2.1	2.0
International Business Machines	3033 V/6	3.0	3.8
	370 168	3.0	2.8
MEDIUM MAINFRAMES			
Control Data Corporation	C720	4.0	4.1
International Business Machines	4341	2.0	2.4
	370 138	6.0	6.5
	370 148	6.0	5.9
	370 158	2.0	2.1
Univac	1100 61 CI	4.0	4.3
	1100 61 HI	3.0	3.2
Average		3.7%	3.9%

EXHIBIT IV-2

SERVICES REVENUE GROWTH OF COMPUTER VENDORS COMPARED TO THE TOTAL RESPONDENT SAMPLE



- Large mainframes often go into existing installations, replacing older equipment which was already generating (sometimes higher) maintenance revenues.

- The shipping rates of minicomputers and small business computers are higher than for most large and medium mainframes.

- The annual maintenance charge for larger computers is typically a smaller percentage of the purchase price.

- Maintenance pricing of selected large mainframes is presented in Exhibit IV-3.

  - Amdahl, with annual maintenance at 5.9% of purchase price for a 470 V/8 has by far the highest ratio. However, this rate includes 24-hours per day, 7 days per week coverage.

  - Other vendors cluster in the 2-4% range.

  - In user satisfaction surveys caried out by INPUT, Amdahl scores very high, apparently validating its strategy of charging at a high rate for service, and delivering a high level of performance.

- Pricing for medium mainframes is presented in Exhibit IV-4. The maintenance charges cluster at a slightly higher level in terms of percentage of purchase price compared to large mainframes, but the actual maintenance revenue per mainframe is less than 20% of that for large mainframes as can be seen by comparing Exhibits IV-3 and IV-4. This is a measure of the pressure on maintenance revenues as the performance of new medium-sized mainframes approaches the power of older, large mainframes.

  - Revenue erosion even within the medium range is shown by the drop in revenues when an IBM 4341 replaces an IBM 370/148; the newer mainframe generates only one-third the maintenance revenue.

EXHIBIT IV-3

MAINTENANCE PRICING OF SELECTED LARGE MAINFRAMES

VENDOR	MODEL	YEAR INTRODUCED	TYPICAL PURCHASE PRICE	ANNUAL MAINTENANCE CHARGE	ANNUAL MAINTENANCE AS A PERCENT OF PURCHASE PRICE
Amdahl	470 V/8	1979	$2,175,000	$129,000	5.9%*
Control Data Corporation	Cyber 176	1976	4,805,460	175,800	3.7
Honeywell Information Systems	68/80	1975	4,704,320	96,552	2.1
International Business Machines	3033 A24	1978	3,061,500	116,520	3.8
	370 168	1973	2,633,000	73,680	2.8
Average	-	-	$3,787,000	$118,000	3.1%

*MAINTENANCE INCLUDED 24 HOURS/DAY 7 DAYS/WEEK

EXHIBIT IV-4

MAINTENANCE PRICING OF SELECTED MEDIUM MAINFRAMES

VENDOR	MODEL	YEAR INTRODUCED	TYPICAL PURCHASE PRICE	ANNUAL MAINTENANCE CHARGE	ANNUAL MAINTENANCE AS A PERCENT OF PURCHASE PRICE
Burroughs Corporation	B1985-1	1979	$125,840	$5,160	4.1%
Control Data Corporation	Cyber 720	1979	460,950	18,912	4.1
Digital Equipment Corporation	DEC System 20 Model 2060	1979	431,000	25,884	6.0
Honeywell Information Systems	Level 66	1975	957,215	44,220	4.6
International Business Machines	IBM 4341	1979	416,400	10,164	2.4
	370/138	1976	247,900	16,020	6.5
	370/148	1977	488,750	28,860	5.9
Univac	1100/61 CI	1980	318,975	13,800	4.3
	1100/61 HI	1980	657,040	21,000	3.2

- In the total IBM 4341 installation mentioned in the previous example, however, total maintenance revenues may increase due to the greater capability of the 4341 to handle peripherals and terminals. Also, with unbundled software maintenance which accompanied the IBM 4341 announcement, the maintenance revenue potential takes on a whole new dimension.

- The higher cost relative to purchase price for small business computers and minicomputers is reflected in the higher percentages for maintenance, as shown in Exhibit IV-5.

  - The lowest percentage for maintenance applies to the largest computer on the list: 6.3% for a Prime 750.

  - The highest percentage on the list, 13.8%, applies to the BTI 5000/ES. What makes this price particularly significant is that BTI depends largely on remote diagnostics to deliver maintenance. Its success indicates that higher price levels can in fact be obtained without dependence on on-site maintenance.

- The difficulty in making price comparisons between competing computers is evident from the previous three exhibits.

  - Occasionally close offerings, for example the Wang 2200 VP and the IBM 5110 in Exhibit IV-5 are competitive in price. A further analysis would be necessary, however, to determine if they are competitive in features of hardware, coverage of maintenance, etc.

  - More significant is the wide range in prices - often varying by over 200% - between offerings in the same size range. This makes the setting of pricing through comparison with competition a most inexact exercise.

EXHIBIT IV-5

MAINTENANCE PRICING OF SELECTED SMALL BUSINESS COMPUTERS AND MINICOMPUTERS

VENDOR	MODEL	YEAR INTRODUCED	TYPICAL PURCHASE PRICE	ANNUAL MAINTENANCE CHARGE	ANNUAL MAINTENANCE AS A PERCENT OF PURCHASE PRICE
Basic Four	System 410	1978	$32,500	$3,360	10.3%
BTI Computers	5000/ES	1979	29,950	4,140	13.8
Burroughs Corporation	B801	1977	35,045	2,376	6.8
Data General Corporation	CS/40 MOD C3	1977	34,105	3,180	9.3
	CS/70 MOD C5	1980	53,050	4,380	8.3
Digital Equipment Corporation	Datasystem 355	1978	33,000	2,556	7.7
Hewlett Packard	HP 250	1978	17,000	1,080	6.4
	HP 3000 Series 30	1979	49,750	4,320	8.7
Honeywell Information Systems	Level 6 Model 23	1978	4,800	624	13.0
	Level 6 Model 57	1978	46,975	4,008	8.5
International Business Machines	IBM 5110	1978	8,475	540	6.4
	IBM System 34	1979	34,700	2,880	8.3
Microdata Corporation	Reality 8000	1979	84,975	6,960	8.2
NCR Corporation	NCR 8250	1975	29,500	3,000	10.2
Prime	Prime 750	1979	149,000	9,420	6.3
Texas Instruments	TI DS 990 MOD 2	1979	12,995	1,716	13.2
Wang Laboratories	2200 VP	1978	8,000	540	6.8

- If pricing based on competition is inexact and pricing based on cost plus profit can lead to adverse impacts such as a deterrent to new equipment sales, how does a vendor actually develop a strategy and develop pricing within that strategy? To gain insight into this question, INPUT asked responding vendors to rate a series of factors relative to overall strategy, and relative to their impact on pricing.

- Exhibit IV-6 compares 16 factors, ranging from personnel, to competition, to design, to cost, and finally to user maintenance.

  - Responding vendors were in agreement regarding the high impact of labor availability and equipment design, but were quite mixed in their rating of other factors.

  - Competition rated low as a strategy factor, and sales programs rated even lower, reflecting vendors' continued emphasis on personnel and other cost factors.

- For the most part computer manufacturers paralleled the total sample in their ratings. Most significant, the desire to increase services revenues and the desire to decrease services expenses rated lower than the total sample, reflecting the importance of taking the position of the dominant mainframe vendor in order to dominate the total vendor installation. This indicates that profit targets on mainframe maintenance often will be lower than targets on other products.

  - The absence of any high rating of sales programs among computer manufacturers further substantiates a relatively lower interest in mainframe service profits.

  - Although IBM did not participate in the vendor survey, the lower mainframe maintenance prices introduced with the IBM 4300 series are certainly consistent with survey results.

EXHIBIT IV-6

COMPUTER VENDORS' RATING OF
FACTORS AFFECTING SERVICES STRATEGIES

FACTOR	IMPACT OF FACTOR ON STRATEGIES					
	TOTAL RESPONDENT SAMPLE - NUMBER OF RESPONSES			COMPUTER MANUFACTURERS- NUMBER OF RESPONSES		
	HIGH	MEDIUM	LOW	HIGH	MEDIUM	LOW
Labor Availability, Quantity	20	3	2	8	1	0
Labor Availability, Quality	22	3	0	8	1	0
Competition	8	11	6	3	4	2
Users' Requirements	11	10	4	4	4	1
Decentralization of Equipment	5	12	7	2	5	2
Experienced and Typical User	2	12	7	1	5	2
Equipment Design	20	4	1	5	3	1
Sales Programs	5	10	10	0	4	5
Travel Costs and Time	13	11	1	3	6	0
Parts Costs	10	12	3	4	3	2
Desire to Increase Service Revenues	12	8	5	3	3	3
Desire to Decrease Service Expenses	12	8	4	3	3	3
Trend in Equipment Size	5	9	10	3	4	2
Trend in Equipment Costs	8	10	6	5	4	0
Remote Diagnostics	12	5	6	5	3	1
User Maintenance	7	7	10	3	3	3

- Cost savings due to elimination of preventive maintenance are reflected in lower maintenance prices.

- There is no evidence IBM targeted the 4300 as a high maintenance revenue generator of the mainframe level.

- The same factors were rated by respondents relative to impact on pricing. Results are graphed in Exhibit IV-7.

  - Responses from computer vendors closely paralleled the total sample.

  - Most significant is the almost universal opinion among computer vendors that equipment design, remote diagnostics, and user maintenance will have a downward pressure on maintenance prices.

  - There is little in these results to lead to the conclusion that prices of maintenance on mainframes will increase as a percent of purchase price.

  - The counter force is the upward pressure due to labor; price trends will be a result largely of how much maintenance labor is designed out of future mainframes.

  - The totals reveal that respondents view the list of factors as tending toward higher prices (43% of responses) versus lower prices (38%).

C. SERVICES PRICING ENVIRONMENT FOR PERIPHERALS AND TERMINALS

- The eight peripheral and terminal vendors who participated in the survey were relatively mature companies. This is reflected in the narrow range of growth rates, as shown in Exhibit IV-8.

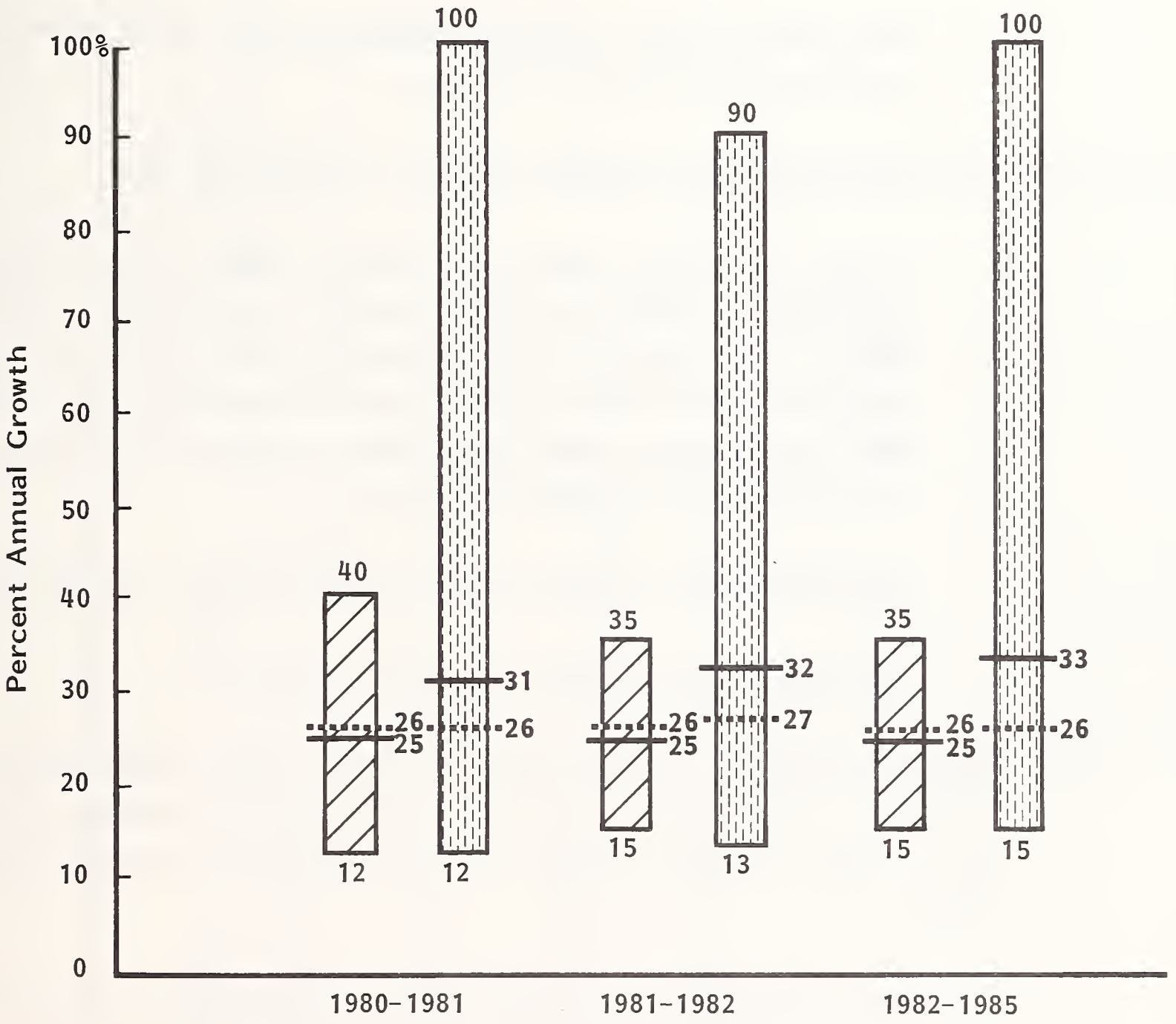
EXHIBIT IV-7

COMPUTER VENDORS' RATING OF
FACTORS AFFECTING PRICING

FACTOR	IMPACT OF FACTOR ON PRICING					
	TOTAL RESPONDENT SAMPLE - NUMBER OF RESPONSES			COMPUTER MANUFACTURERS - NUMBER OF RESPONSES		
	HIGHER	NO EFFECT	LOWER	HIGHER	NO EFFECT	LOWER
Labor Availability, Quantity	20	1	1	8	1	0
Labor Availability, Quality	22	1	0	8	1	0
Competition	2	4	15	0	2	6
Users' Requirements	16	3	3	6	1	1
Decentralization of Equipment	18	3	1	6	2	0
Experienced and Typical User	6	6	8	2	3	2
Equipment Design	1	1	20	0	0	8
Sales Programs	8	5	8	2	3	3
Travel Costs and Time	20	0	3	7	0	1
Parts Costs	20	1	2	5	1	2
Desire to Increase Service Revenues	18	1	3	6	1	0
Desire to Decrease Service Expenses	2	7	10	1	2	4
Trend in Equipment Size	7	4	10	2	3	3
Trend in Equipment Costs	6	5	8	3	3	3
Remote Diagnostics	1	1	21	0	1	8
User Maintenance	2	2	18	0	0	9
TOTAL	169	45	131	56	24	50
PERCENT	46%	14%	40%	43%	18%	38%

EXHIBIT IV-8

SERVICES REVENUE GROWTH OF PERIPHERAL AND
TERMINAL VENDORS COMPARED TO THE TOTAL RESPONDENT SAMPLE



- The respondents included four terminal vendors; two disk, tape, and/or memory vendors; one plotter vendor; and one printer vendor.

- There was no pattern of growth for the group, with the terminal vendors ranking second, fifth, sixth, and seventh.

- The closeness of the average and median growth values reflects the even distribution of individual values.

- Pricing for maintenance of peripherals clusters by equipment type.

  - Printers tend to the higher end of the price range in the 7-15% area, reflecting their higher mechanical content. An exception is the IBM 3800, a laser printer of high speed; the 3800 carries an annual maintenance price of only 2% of its purchase price. However the IBM 3800 also involves a usage charge based on amount of printing which can greatly impact the actual total cost.

  - Disk drives tend to the lower end of the price range, in the 4-6% area.

  - Typical peripherals pricing is presented in Exhibit IV-9.

- Terminal maintenance involves some of the highest prices in terms of percent of purchase price, but the lowest prices in terms of annual charges per unit; this is a direct result of the lower purchase prices per unit, as shown in Exhibit IV-10.

  - The annual maintenance charge per unit for terminals is less than the range of maintenance charges shown for peripherals even though several of the annual maintenance charges shown for terminals approach 20% of the purchase price. This stems from the low purchase price levels for terminals.

EXHIBIT IV-9

MAINTENANCE PRICING OF SELECTED VENDORS OF PERIPHERALS

VENDOR	MODEL	TYPICAL PURCHASE PRICE	ANNUAL MAINTENANCE CHARGE	ANNUAL MAINTENANCE AS PERCENT OF PURCHASE PRICE
Burroughs Corporation	Printer B 9247-15	$58,400	$5,640	9.7%
	Disk B 9373-20	95,760	3,480	3.6
Control Data Corporation	Printer 580-200	91,956	7,548	8.2
	Disk 819-11	53,500	2,580	4.8
Honeywell Information Systems	Printer PRV 1600	64,940	6,456	9.9
	Disk MSU 0390	34,500	2,160	6.3
International Business Machines	Printer 3262-BI	16.200	1,728	10.7
	Printer 1403	40,040	5,940	14.8
	Printer 3262-1	16,200	1,728	10.7
	Disk 3350 A2	40,000	2,040	5.1
	Disk 3370 A1	40,600	1,512	3.7
Univac	Printer 0770-04	86,686	5,736	6.6
	Printer 0776-00	41,400	2,628	6.3
	Disk 8418-94	19,872	1,200	6.0
	Disk 8450-97	74,600	3,000	4.0
	Disk 8470-97	38,400	1,440	3.8

EXHIBIT IV-10

MAINTENANCE PRICING OF SELECTED VENDORS OF TERMINALS

VENDOR	MODEL	TYPICAL PURCHASE PRICE	ANNUAL MAINTENANCE CHARGE	ANNUAL MAINTENANCE AS PERCENT OF PURCHASE PRICE
Burroughs Corporation	CRT TD 838	$2,957	$275	9.3%
	CRT TD 734	2,865	317	11.1
Control Data Corporation	CRT 714-30	10,108	840	8.3
	CRT 714-40	5,361	564	10.5
Honeywell Information Systems	CRT VIP 7100	1,500	276	18.4
	CRT VIP 7805	3,360	468	13.9
International Business Machines	CRT 5251 Model 12	4,050	468	11.6
	CRT 3278 Model 2A	2,680	294	11.0
	CRT 3279 Model 2C	4,355	474	10.9
Univac	CRT 3536-89	3,175	612	19.3
	CRT 3542-99	4,252	612	14.4

- The low revenue per terminal, combined with the higher cost of travel and the dispersed nature of terminal locations, is making depot maintenance a prime maintenance alternative for terminals. The IBM 3101 Display Terminal System is a recent example of a product introduced with depot maintenance as the prime maintenance delivery vehicle.

- The rating of the impact on services strategies of a range of factors is shown in Exhibit IV-11.

  - Compared to the total sample, peripheral and terminal vendors are less affected by sales programs and more affected by remote diagnostics.

  - Among terminal vendors, a high interest in user maintenance is a logical result of high travel costs; however, the respondent sample did not reflect such an interest, indicating that many vendors are late to recognize the potential in user self-maintenance in small equipment.

- With regard to the impact of these factors on pricing, peripheral and terminal vendors felt that competition would be a major factor pushing prices down, as shown in Exhibit IV-12.

  - Travel costs and parts are factors in pushing prices up.

  - Remote diagnostics are perceived as likely to push prices down; INPUT's earlier work on remote diagnostics indicates that many users do not expect price reductions with remote diagnostics and vendors should therefore rethink the impact of remote diagnostics on pricing. Reductions often are not necessary.

EXHIBIT IV-11

PERIPHERAL AND TERMINAL VENDORS' RATING OF FACTORS AFFECTING SERVICES STRATEGIES

FACTOR	IMPACT OF FACTOR ON STRATEGIES					
	TOTAL RESPONDENT SAMPLE - NUMBER OF RESPONSES			PERIPHERAL AND TERMINAL VENDORS - NUMBER OF RESPONSES		
	HIGH	MEDIUM	LOW	HIGH	MEDIUM	LOW
Labor Availability, Quantity	20	3	2	7	0	1
Labor Availability, Quality	22	3	0	7	1	0
Competition	8	11	6	2	5	2
Users' Requirements	11	10	4	2	5	1
Decentralization of Equipment	5	12	7	2	4	2
Experienced and Typical User	2	12	7	0	4	2
Equipment Design	20	4	1	7	1	0
Sales Programs	5	10	10	1	4	3
Travel Costs and Time	13	11	1	6	2	0
Parts Costs	10	12	3	3	4	1
Desire to Increase Service Revenues	12	8	5	4	3	1
Desire to Decrease Service Expenses	12	8	4	2	4	2
Trend in Equipment Size	5	9	10	1	4	3
Trend in Equipment Costs	8	10	6	1	5	2
Remote Diagnostics	12	5	6	5	1	2
User Maintenance	7	7	10	2	3	3

EXHIBIT IV-12

PERIPHERAL AND TERMINAL VENDORS' RATING OF FACTORS AFFECTING SERVICES PRICING

FACTOR	IMPACT OF FACTOR ON PRICING					
	TOTAL RESPONDENT SAMPLE - NUMBER OF RESPONSES			PERIPHERALS AND TERMINALS - NUMBER OF RESPONSES		
	HIGHER	NO EFFECT	LOWER	HIGHER	NO EFFECT	LOWER
Labor Availability, Quantity	20	1	1	5	0	1
Labor Availability, Quality	22	1	0	7	0	0
Competition	2	4	15	0	2	6
Users' Requirements	16	3	3	5	1	1
Decentralization of Equipment	18	3	1	6	1	0
Experienced and Typical User	6	6	8	2	0	4
Equipment Design	1	1	20	1	0	7
Sales Programs	8	5	8	3	2	2
Travel Costs and Time	20	0	3	7	0	1
Parts Costs	20	1	2	8	0	0
Desire to Increase Service Revenues	18	1	3	5	0	3
Desire to Decrease Service Expenses	2	7	10	1	4	2
Trend in Equipment Size	7	4	10	4	0	3
Trend in Equipment Costs	6	5	8	1	4	4
Remote Diagnostics	1	1	21	1	0	7
User Maintenance	2	2	18	1	5	5
TOTAL	169	45	131	57	19	46
PERCENT	46%	14%	40%	47%	16%	37%

D. SERVICES PRICING ENVIRONMENT FOR WORD PROCESSING

- The overall characteristic of the word processing segment is rapid growth, although not all vendors are participating in this growth to the same extent, as shown by the range of rates in Exhibit IV-13.

  - Over the period 1980-1985 the newer and more rapidly growing respondents expect some slowdown, while the lagging respondents expect to accelerate, as shown by the narrowing of the growth range in the 1982-1985 timeframe.

  - The spread between the average and the median values reflects a clustering of respondents near the lower end of the range.

  - Of the six word processing companies who responded to the survey, two were dominantly in word processing, and three were broader based; the specialists tended to have the higher growth rates.

- Annual prices for word processing maintenance, expressed as a percent of purchase price, vary widely, as shown in Exhibit IV-14.

  - Lanier, IBM, and AM Jacquard are clustered at the low end of the range betwen 6.1% and 6.7%.

  - The Lexitron products were near the top of the range at 12% to 13%.

  - The largest system, the Four-Phase OMS/IV, had by far the highest annual charge, almost twice the level of the next highest offering on the list.

  - While the product characteristics of the models on Exhibit IV-14 vary widely, thereby accounting for much of the difference in the pricing,

EXHIBIT IV-13

SERVICES REVENUE GROWTH OF WORD PROCESSING MANUFACTURERS COMPARED TO THE TOTAL REVENUE SAMPLE

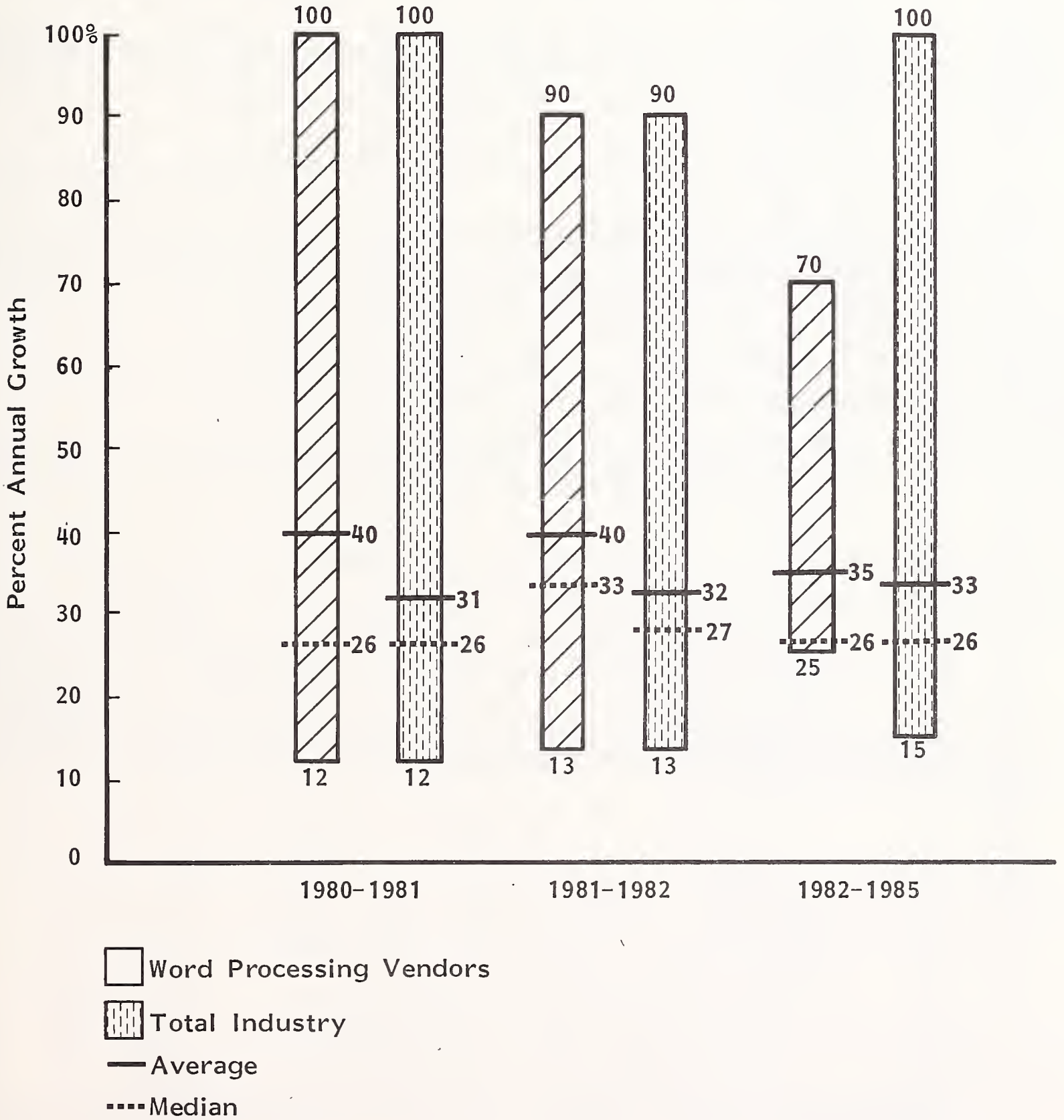


EXHIBIT IV-14

MAINTENANCE PRICING OF SELECTED VENDORS OF WORD PROCESSING SYSTEMS

VENDOR	MODEL	YEAR INTRODUCED	TYPICAL PURCHASE PRICE	ANNUAL MAINTENANCE CHARGE	ANNUAL MAINTENANCE AS A PERCENT OF PURCHASE PRICE
A.B. Dick Company	Magna SL	1979	$14,500	$1,425	9.8%
AM Jacquard Systems	Amtext 425	1976	14,500	972	6.7
Basic Four	Dataword II	1977	25,000	3,120	12.5
CPT Corporation	CPT 8000	1977	14,990	1,696	11.3
Digital Equipment Corporation	DEC WS 80 WD 80	1978	20,600	2,280	11.1
Four-Phase Systems	OMS/IV	1980	57,600	7,200	12.5
International Business Machines	IBM 5520 Model 20	1980	30,186	1,872	6.2
Lanier Business Products	No Problem LC	1977	18,400	1,128	6.1
Lexitron Corporation	913 Text Editor	1977	7,500	924	12.3
	Raytext System	1980	38,000	4,344	13.0
NBI Incorporated	System 3000	1979	17,900	1,320	7.4
VYDEC/Exxon Information Systems	VYDEC 2000	1980	9,900	780	7.9
Wang Laboratories	System 5 Model III	1978	13,900	1,008	7.3
	System 115	1980	15,400	1,584	10.3
Xerox	800 Model 126	1974	5,500	816	14.8
	860	1979	10,550	1,044	9.9

the spread of 2.5 times in the range of percentages reflects the wide variety of pricing in what is a relatively uniform market from an applications viewpoint.

- The focus of word processing vendors on their identifiable user group is reflected in the high rating given to equipment design among the factors impacting services strategies, as shown in Exhibit IV-15.

  - The low importance given to remote diagnostics relative to peripheral and terminal vendors reflects the lower level of communications capability in today's word processing equipment.

  - For the most part, word processing vendors rated the strategy factors in a manner very similar to the total sample, despite the fact that word processing equipment is targeted at the administrative, rather than the EDP manager. At this point it is not clear if this is because the markets are really very similar, or because so many field engineering managers have migrated from EDP to word processing, and have simply carried their earlier perceptions with them.

- The above statement also applies to the impact of the list of factors on services pricing. As shown in Exhibit IV-16, the word processing respondents closely parallel their compatriots in the data processing arena.

- Respondents in the "other" category included only three companies - in the CAD/CAM and instrument test areas. Their responses to the strategies and pricing questions are tabulated in Exhibit IV-17.

  - Responses closely parallel the total sample even though the product offerings are quite different from the other product categories.

- In INPUT's opinion, the similarity in responses across product categories partly reflects the similarity in prime driving forces in the field services industry. Also, however, it reflects a tendency among field service managers to

EXHIBIT IV-15

WORD PROCESSING VENDORS' RATING OF
FACTORS AFFECTING SERVICES STRATEGIES

FACTOR	IMPACT OF FACTOR ON STRATEGIES					
	TOTAL RESPONDENT SAMPLE - NUMBER OF RESPONSES			WORD PROCESSING VENDORS - NUMBER OF RESPONSES		
	HIGH	MEDIUM	LOW	HIGH	MEDIUM	LOW
Labor Availability, Quantity	20	3	2	3	2	0
Labor Availability, Quality	22	3	0	4	0	0
Competition	8	11	6	2	1	2
Users' Requirements	11	10	4	2	1	2
Decentralization of Equipment	5	12	7	1	1	2
Experienced and Typical User	2	12	7	0	3	2
Equipment Design	20	4	1	5	0	0
Sales Programs	5	10	10	3	1	1
Travel Costs and Time	13	11	1	3	1	1
Parts Costs	10	12	3	1	4	0
Desire to Increase Service Revenues	12	8	5	2	2	1
Desire to Decrease Service Expenses	12	8	4	4	1	0
Trend in Equipment Size	5	9	10	0	1	3
Trend in Equipment Costs	8	10	6	1	1	2
Remote Diagnostics	12	5	6	1	0	3
User Maintenance	7	7	10	1	0	3

EXHIBIT IV-16

WORD PROCESSING VENDORS' RATING OF
FACTORS AFFECTING PRICING

FACTOR	IMPACT OF FACTOR ON PRICING					
	TOTAL RESPONDENT SAMPLE - NUMBER OF RESPONSES			WORD PROCESSING VENDORS - NUMBER OF RESPONSES		
	HIGHER	NO EFFECT	LOWER	HIGHER	NO EFFECT	LOWER
Labor Availability, Quantity	20	1	1	4	0	0
Labor Availability, Quality	22	1	0	3	0	0
Competition	2	4	15	0	1	3
Users' Requirements	16	3	3	2	1	1
Decentralization of Equipment	18	3	1	4	0	0
Experienced and Typical User	6	6	8	0	2	1
Equipment Design	1	1	20	0	1	3
Sales Programs	8	5	8	2	0	2
Travel Costs and Time	20	0	3	2	0	2
Parts Costs	20	1	2	4	0	0
Desire to Increase Service Revenues	18	1	3	4	0	0
Desire to Decrease Service Expenses	2	7	10	0	1	2
Trend in Equipment Size	7	4	10	1	1	1
Trend in Equipment Costs	6	5	8	1	1	1
Remote Diagnostics	1	1	21	0	0	3
User Maintenance	2	2	18	0	1	2
TOTAL	169	45	131	27	9	21
PERCENT	46%	14%	40%	47%	16%	37%

EXHIBIT IV-17

OTHER VENDORS' RATING OF
FACTORS AFFECTING SERVICES STRATEGIES AND PRICING

FACTOR	IMPACT ON STRATEGIES			IMPACT ON PRICING		
	OTHER VENDORS - NUMBER OF RESPONSES			OTHER VENDORS - NUMBER OF RESPONSES		
	HIGH	MEDIUM	LOW	HIGHER	NO EFFECT	LOWER
Labor Availability, Quantity	2	0	1	3	0	0
Labor Availability, Quality	2	1	0	3	0	0
Competition	1	1	1	2	0	1
Users' Requirements	3	0	0	3	0	0
Decentralization of Equipment	0	2	1	2	0	1
Experienced and Typical User	1	0	1	1	0	1
Equipment Design	3	0	0	0	0	2
Sales Programs	1	1	1	1	0	1
Travel Costs and Time	1	2	0	3	0	0
Parts Costs	2	1	0	3	0	0
Desire to Increase Service Revenues	3	0	0	3	0	0
Desire to Decrease Service Expenses	3	0	0	0	0	2
Trend in Equipment Size	1	0	2	0	0	3
Trend in Equipment Costs	1	0	2	1	0	2
Remote Diagnostics	2	1	0	0	0	3
User Maintenance	1	1	1	1	0	2

underevaluate the unique characteristics of their product, and to miss opportunities to exploit that uniqueness. To overcome this tendency will take a willingness to get closer to the details of user requirements.

E. SERVICES PRICING ACROSS PRODUCT CATEGORIES

- Respondents were asked to describe the process by which services pricing was determined. Representative responses follow:

  - "A quarterly review of costs, standards, competitive analyses, value additions and perceived inflation for the next 6 to 12 months."

  - "First, competitive analyses. Second, what the market will bear (based on data from the sales organization), third, on customers. It's not based on cost at all."

  - "A judgment based on a review of costs, competition, and volume. For new products we use a formula which includes MTBF/MTTR/travel/labor rate/call rate, and the like."

  - "First, we cover cost and profit. Then, we add marketing, a perceived value consideration. Finally, we modify for competition if appropriate."

  - "System specifications are used to generate corporate points. Point value is multiplied by fully allocated cost per point. The dollar figure is compared to competitive rates and if extremely lopsided, adjustments could be made depending on forecasted unit population and corporate approval."

  - "A yearly review of hours spent versus cost per hour. We also consider competition. We have price decreases, no price increases."

- "We look at average repair time and failure rate."

- "Use a maintenance pricing model that considers labor cost, inventory carry cost, new parts use, overhead, reliability factors, travel costs, etc. We then use experiential curve modeling and competitive opportunities and pressures. This is then 'fit' with marketing plans. Finally, profit objectives are considered."

- "What are costs, what is competition charging, how much profit is desired, what will the market bear."

- "Review profitability, service cost trends, and future costs. Determine any improvement factors to equipment. Establish profit goals with prices generally determined accordingly."

- "Labor required, parts required, summed, and compared to competition. Aim for 10% of sales price dependent on the other factors."

- While the techniques for pricing vary, the elements in the pricing process group in four categories, as shown in Exhibit IV-18.

  - "Service cost" is the dominant element, with 50% of the total mentions. It is most dominant among minicomputer manufacturers, and least dominant among peripherals and terminals; the latter category undoubtedly most acutely feels competitive pressure, due to relative ease of peripheral and terminal replacement.

  - "Competition" ranks second among all product categories, with peripherals and terminals rating it highest, logically for the reason stated above.

  - Again with equipment reliability, peripheral/terminal vendors rate it highest, at the expense of "service cost."

EXHIBIT IV-18

RANKING OF FACTORS INFLUENCING SERVICE PRICING

COMPANY TYPE	FACTOR	NUMBER OF MENTIONS	PERCENT OF TOTAL
Computers	Service Cost	12	50%
	Competition	5	21
	Equipment Reliability	4	17
	Service Profit Objective	3	12
		24	100%
Minicomputers	Service Cost	14	67
	Competition	4	19
	Equipment Reliability	3	14
	Service Profit Objective	0	0
		21	100%
Peripherals/Terminals	Service Cost	19	42
	Competition	12	27
	Equipment Reliability	10	22
	Service Profit Objective	4	9
		45	100%
Word Processors	Service Cost	8	54
	Competition	3	20
	Equipment Reliability	2	13
	Service Profit Objective	2	13
		15	100%
Total	Service Cost	53	50
	Competition	23	22
	Equipment Reliability	20	19
	Service Profit Objective	9	9
		105	100%

- "Service profit objective" is the fourth element, receiving no mention at all from minicomputer vendors. To an extent cost and profit are related. However, the dominant mention of cost reflects the still incomplete transition of field service from a cost center to a profit center environment - regardless of the fact that 75% and more of today's field engineering organizations are profit centers based on survey results.

- Other steps in the pricing process receiving multiple mentions were:

  . Judgment about the value - five mentions.

  . What the market will bear - four mentions.

  . Percentage of equipment price - three mentions.

  . Modeling - two mentions.

- Clearly, pricing for services is an inexact process, as vendors attempt to balance a range of upward and downward pressures.

  - Factors mentioned as putting upward pressure on services pricing were:

    . Labor costs.

    . Broader service areas.

    . Broader coverages.

    . Cost of transportation.

    . Labor quality and quantity.

  - On-line testing.
  - Inflation.

- Factors mentioned as having downward pressure on service prices were:
  - Depot services.
  - Remote diagnostics.
  - Equipment design/reliability.
  - Built-in serviceability.
  - Customer involvement in service.
  - Parts depots.
  - Better diagnostics.
  - Software support in F.E.
  - Central support.
  - Use of third party.
  - Competition.

- Factors mentioned with neutral effect on service prices were:
  - Dispatching techniques.
  - Remote diagnostics.

- Better diagnostics.
- Support center.
- Better inventory control.

- The challenge of management is to balance those factors with an eye to profits and growth.

V PACKAGING AND SELLING FIELD SERVICES

V PACKAGING AND SELLING FIELD SERVICES

A. THE VALUE OF A POSITIVE MAINTENANCE IMAGE

- Users make purchase decisions based largely on their perception of the quality of the vendor's product, including maintenance. The actual quality may differ from the perceived quality, but the perceived quality is the critical element since it is the basis of the decision. A basic function of the packaging and selling of maintenance is to create a positive image so the perceived quality is at a maximum level.

- Investment in image creation is a management choice.

  - The cost of packaging and selling must be compared to the cost of actually improving field performance through better response and repair times, higher inventory levels, and more central support staff.

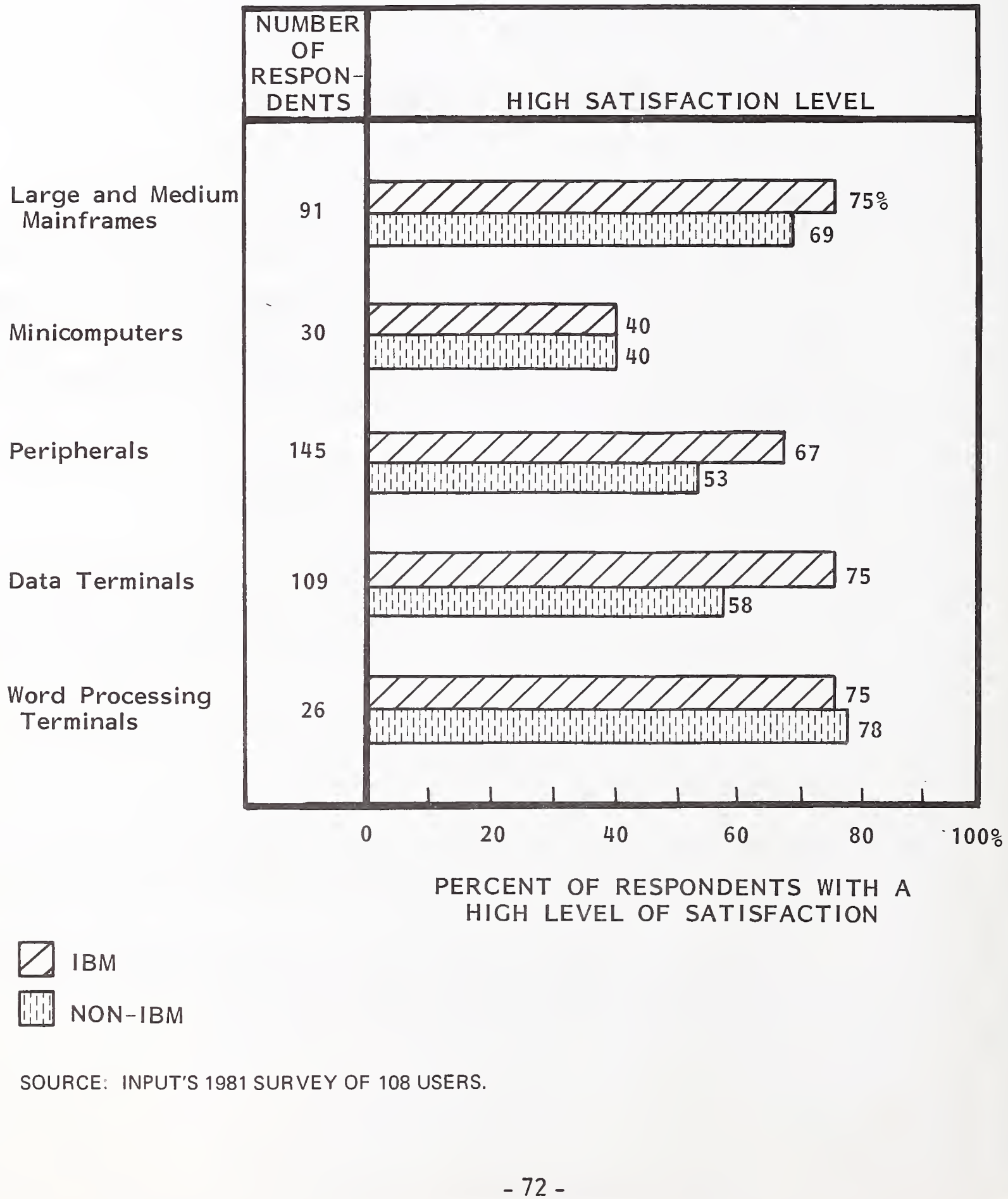
  - The alternatives involve promoting the existing service level versus improving it, or a combination of the two.

- In INPUT's 1981 user survey of 108 sites, satisfaction levels were measured for approximately 50 vendors. IBM accounted for close to half of the mentions.

  - As shown in Exhibit V-1, IBM users and non-IBM users have comparable levels of satisfaction with current maintenance.

EXHIBIT V-1

RATING SATISFACTION WITH MAINTENANCE-
IBM VERSUS NON-IBM USERS



SOURCE: INPUT'S 1981 SURVEY OF 108 USERS.

- IBM's perceived superiority among most users is well in excess of the level of superiority revealed by the survey.

- The perceived superiority is largely a result of superior marketing of its service by IBM, rather than actually creating a significantly higher user satisfaction level.

- The value of the perceived superiority or positive image is reflected in the number of times IBM was a winner in those cases where the user was dissatisfied with his current maintenance vendor.

  - In the same survey, 25 users had replaced equipment due to poor maintenance within the past two years.

  - IBM replaced another vendor eight times, replaced itself once (the user felt the new IBM equipment would be more maintainable), and was not replaced by another vendor even once.

  - This is clear evidence that, when a user is dissatisfied with maintenance, he will tend to choose the vendor with a positive image, because he believes the problem of poor maintenance will be resolved; the fact that actual maintenance performance may change very little is not known to the user since he often acts on his perception, not on his experience with the vendor chosen.

B. NEW MAINTENANCE SERVICE PROGRAMS

- A method of building a positive image is through the introduction of new, innovative programs.

  - The user gains an impression that the vendor is developing new techniques which can be to the advantage of the user.

- The new program often provides an additional alternative to the user, and INPUT research consistently shows that users are receptive to alternative maintenance options.

- The positive impact of new programs notwithstanding, Exhibit V-2 shows that the 18 vendors who responded to this subject in the survey were relatively inactive in the introduction of new programs in the 1980-1981 timeframe.

  - Depot maintenance, the new program mentioned most often, was introduced by 28% of the respondents.

  - All the other programs shown on the exhibit were mentioned by less than 20% of the respondents.

  - New programs receiving a single mention from respondents included:

    . Support centers.

    . After-hours preventive maintenance.

    . Free installation.

    . On-site service.

    . Dispatching center.

    . Guaranteed uptime.

  - Some vendors mentioned changes in pricing as the prime characteristic of new programs:

    . Parts-only maintenance agreement.

    . Fixed fee maintenance.

EXHIBIT V-2

TYPES OF NEW SERVICES PROGRAMS
INTRODUCED BY RESPONDING VENDORS,
1980-1981

TYPE OF NEW PROGRAM	NUMBER OF VENDORS INTRODUCING THIS TYPE OF PROGRAM	PERCENT OF RESPONDENTS
Depot Maintenance, Usually Involving Mail-in	5	28%
Remote Diagnostics	3	17
Metered Charges	2	11
User Self-Maintenance	2	11

NUMBER OF RESPONDENTS: 18

- The factors mentioned by respondents as influencing the creation of new services were predominantly cost control or people shortage in nature. Examples included:

  - Need for increased productivity.

  - Lack of qualified people.

  - Availability of labor.

  - Spares inventory control.

  - Equipment design.

  - Customer involvement.

- One respondent said, "Third party taking too much business," and another said an influence was "complexity and size of equipment."

- The expected effect of new programs tended to be downward, with the typical responses being "delay price increases," "hold prices," "lower rates," "hold the line on price," "reduce MTTR which helps keep pricing stable," "reduce travel charges."

- In response to a direct question regarding the willingness of users with critical applications to pay for more costly maintenance programs, slightly over half the vendors (54%) agreed.

  - Those agreeing tended to be mainframe and minicomputer vendors.

    . "We perceive that some customers would be willing to pay more for improved uptime and/or response time."

    . "With critical applications, cost is secondary to uptime."

  - "Yes, but the users want a lot more for a little more."

  - "We can't verify they would pay more. It depends on how it's sold."

  - "Yes, but probably less than 10% of the users now buy premium service."

  - "Some customers are willing to pay premiums of 2-10% for quaranteed uptime and/or response time."

- Others felt users would not pay for better maintenance even under conditions where the applications were critical.

  - "We have seen increased demand from customers for service, with resistance to increased pricing."

  - "Sales indicate the customer will not pay more, but must have uptime."

  - "If users need 100% uptime they will buy equipment to give 100% redundancy" (rather than pay more for maintenance).

  - "Not with word processors, and they don't sell computers."

- INPUT's research in its recent study, User Perceptions of Critical Maintenance, shows that users with critical applications are actually paying more for maintenance, and tend to be willing to pay more. The above responses indicate a vendor hesitancy to exploit this situation.

C. ADVERTISING FIELD SERVICES

- A basic tool for building image and promoting new products is advertising. Fourteen uses of advertising were identified by the 28 vendors surveyed in the study. Details of responses are presented in Exhibit V-3.

  - Distribution of brochures on services to a known user base is the most prevalent advertising method among respondents. This is because the only real market for most vendors is their own user base. The exception is third-party maintenance. TRW has done some advertising in publications in support of its maintenance of Hazeltine terminals, an example of a vendor with a market beyond equipment of its own manufacture.

  - A limitation on the value of advertising in publications is that only two vendors of the 28 interviewed mentioned using this alternative.

    . Most publications cover a marketplace too broad to be effective in the narrow market slices in which most field service vendors operate. Publications mentioned by those vendors using magazines included the FSM Journal, Business Week, Fortune, CAD/CAM Magazine Management Magazines, and the Wall Street Journal. The category "Trade Publications" was also mentioned.

- Advertising is a relatively minor expense for field service vendors, with only one respondent budgeting more than 1% of his total budget for advertising. Several vendors indicated they felt they should spend more.

- Of 27 respondents to the question, four did no advertising at all, primarily because they have a lease base that has no maintenance alternative. Of those who did advertise, uptime and capability were most often used as themes, as shown in Exhibit V-4.

EXHIBIT V-3

SERVICES VENDORS' USE OF ADVERTISING AND SIZE OF BUDGETS

USE OF ADVERTISING	NUMBER OF RESPONSES
Brochures Destributed to Known User Base	7
Service Pitch in Hardware Literature	4
Service Ads	2
Direct Mail with Telephone Follow-Up	1
SIZE OF ADVERTISING EXPENDITURES AS A PERCENT OF TOTAL SERVICE BUDGET	
Less Than 1%	6
1%	4
More Than 1%	1

EXHIBIT V-4

THEMES USED IN ADVERTISING BY
RESPONDING FIELD SERVICE VENDORS

THEME	NUMBER OF MENTIONS
Improved Uptime	6
Capability and Size of Service Organization	6
Faster or Priority Response	2
Show Cost of Downtime	2
Shorter Repair Time	2
Introduce New Program	1
Quality	1
Sell "Security" of Dealing with the Original Manufacturer on a Contract Basis	1
Planned Versus Unplanned Cost	1
More for the Money	1
Service Plans Tailored to the User	1
Life Cycle Cost	1
Protection of Capital Inventory	1
Total	26

TOTAL NUMBER OF RESPONDENTS: 23

- Comments from vendors regarding the use of advertising to increase sales of service included:

  - "Include commentaries in all sales literature regarding the capabilities of the service organization."

  - "Only if part of service advertising."

  - "Support should be advertised to improve system sales. The impact on support sales is indirect."

  - "Stress response time and quality of personnel."

  - "Stress quick response and quality."

  - "If you have and offer competent service it sells itself."

  - "Performance improvements through a quality service/maintenance program."

  - "As part of the support package available to the customer."

  - "Stress service as increasing systems availability to reduce total cost and lost revenue."

- The last comment is most in line with the results of INPUT's 1981 user survey. In that survey, uptime was rated highest as a maintenance issue, as shown in Exhibit V-5.

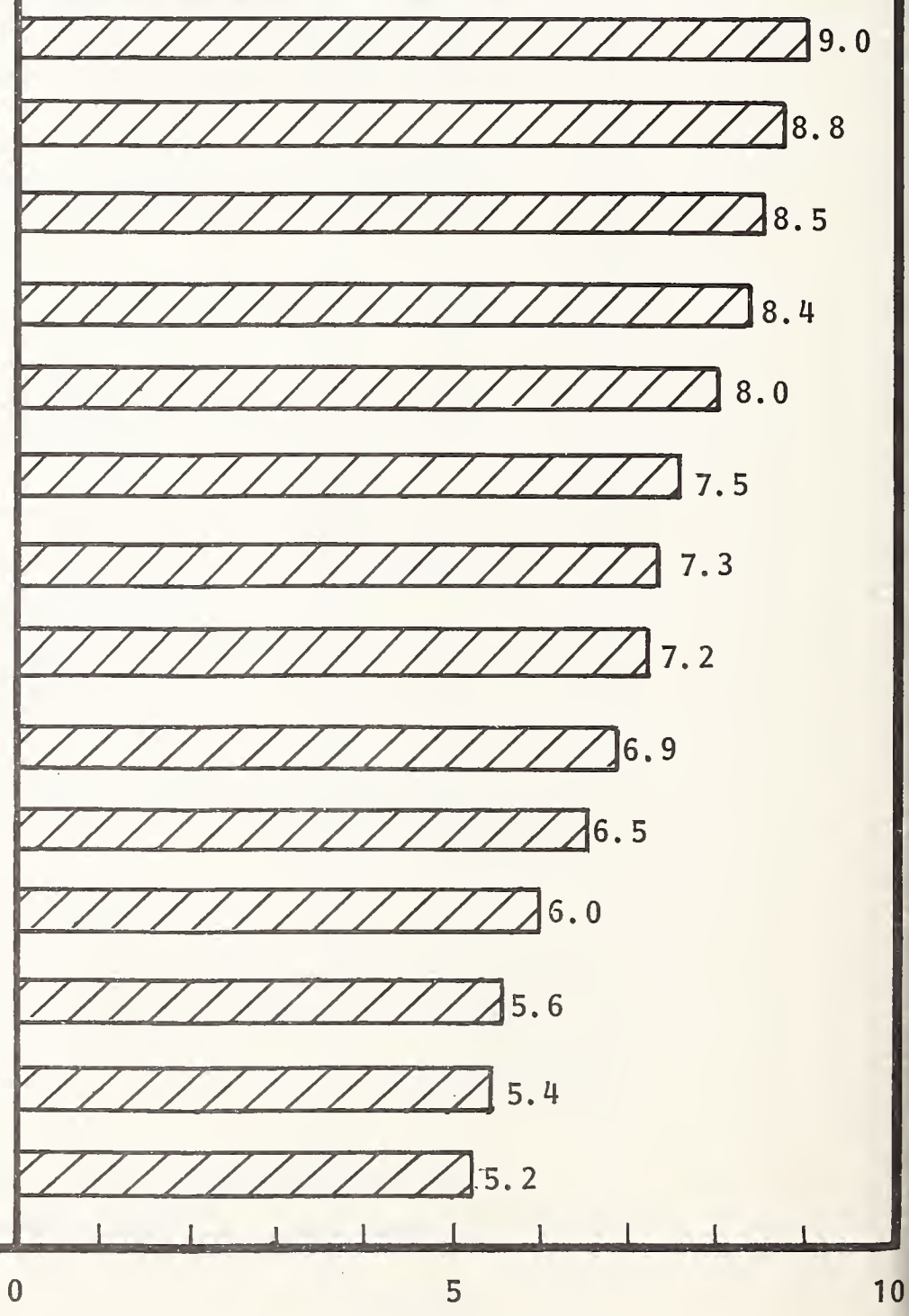
  - Price is rated sixth as an issue, emphasizing the importance of the first five issues, all of which relate to system availability.

  - Centralized FE dispatch is viewed by users as being a vendor issue and rates low in the profile.

EXHIBIT V-5

RATING BY USERS OF MAINTENANCE RELATED ISSUES

ISSUE	NUMBER OF RESPONSES	AVERAGE RATING
Uptime	124	9.0
Equipment Reliability	125	8.8
Response Time	123	8.5
Repair Time	125	8.4
Parts	114	8.0
Price of Maintenance	125	7.5
Escalation Procedures	123	7.3
Software Maintenance	122	7.2
Network Maintenance	105	6.9
Support Centers	122	6.5
On-Site FE	128	6.0
Multiple Locations	100	5.6
Remote Diagnostics	123	5.4
Centralized FE Dispatch	123	5.2



RATING: 0 = UNIMPORTANT
10 = VERY IMPORTANT

- Examples of recent field service advertising in widely distributed publications such as Business Week, Fortune and the Wall Street Journal were:

  - Digital Equipment Corporation's offer of a menu of options, giving the reader a range of options in selecting service. Hewlett-Packard had advertised a somewhat similar approach a year ago.

  - IBM's picture of an individual field engineer en route to a customer with the message that a team of specialists was represented through the support centers available to the field.

  - A recent Burrough's ad focusing on its centralized dispatch and escalation system and Burrough's pledge to be "second to no one" in field service.

- For the most part, however, survey results indicate that vendors generally have not taken full advantage of the opportunity that comes with representing 20% and more of company revenues; advertising can help by assisting in new services offerings, and by building an image which will support more aggressive pricing by emphasizing the value of the service provided.

D. SALES PROGRAMS FOR SERVICES

- Roughly half of the respondent vendors have active programs to sell service (13 of 27 respondents). Typical positive responses were:

  - "We have full-time sales people in the regions."

  - "Regional service management sells to revenue goals."

- "Field engineering staff is prompted to promote purchases of maintenance agreements whenever a customer requests service that is not under contract."

- "Yes, including sales commissions."

- "Our sales people and technical representatives sell maintenance contracts and receive a commission."

- Of the 14 respondents who do not actively sell services, typical responses were:

  - "No need to. Ninety-six percent of the base is leased equipment."

  - "No. However, we do have warranty and send maintenance information before warranty expiration."

  - "The dealers do some."

  - "We work with product development to sell services with the hardware."

  - "No. Maintenance is included in the total sales package."

  - "There is not an active program. However, 98% of all users sign up for maintenance contracts."

- Of 14 respondents who identified the sales group:

  - Four (31%) had a separate group to sell service.

  - Nine (69%) had their service personnel sell service and estimated that they spend 20% of their time in this activity.

- One (8%) used hardware personnel, and estimated that they spent 1% of their time in maintenance sales activity.

- In the 1981-1985 timeframe, 55% of 19 respondents expected an increase in field service sales activity.

  - Ten expected to have a dedicated sales group for service sales.

  - Three planned to give a commission to hardware salesmen for service sales.

  - Three planned to train service personnel to sell.

  - One respondent commented that he is in "very preliminary stages of discussing advantages and disadvantages of marketing and selling service as a product."

  - On balance the survey shows most field service management is very cautious in approaching the marketplace with its product, preferring to let the product or the hardware sales force carry the prime thrust.

- The sources of new services revenues varied widely depending on the type of vendor, as shown by survey results in Exhibit V-6.

  - Half of new revenues were split between the hardware sales group and regular service personnel.

  - For computer vendors, almost half of new sales came from the hardware sales group, with user initiated sales accounting for a third; the high activity from users reflects the high level of criticality of most mainframes compared to other elements of the system, and users' high interest in reliable maintenance levels on the mainframe part of the system.

EXHIBIT V-6

SOURCE OF NEW SERVICE REVENUE
AMONG RESPONDING VENDORS
(percent)

SOURCE OF NEW SERVICE REVENUE	TOTAL	COMPU-TERS	PER-IPHERALS/ TERMINALS	WORD PROCESSORS	OTHER
Hardware Sales Group	27.5%	45.7%	14.4%	32.0%	8.3%
Service Personnel	23.4	15.8	19.0	32.0	36.7
User Initiated	18.9	35.2	11.6	11.0	15.0
Lease Equipment	18.7	4.3	18.9	24.0	32.0
Third Party (Dealer, Distributor)	5.2	2.7	10.7	0	1.3
Dedicated Sales Group in Service	4.5	0.1	11.4	0	0

- Service personnel are most active in getting new revenue among word processing vendors, with this source accounting for 32% of the total.

- Third party (including dealers and distributors) was a significant contributor only among peripheral and terminal manufacturers. This group of vendors also reported the only significant new revenues coming from a dedicated sales group in service.

- As far as training of sales personnel is concerned, in-house training and outside seminars were used by respondent vendors. Sources of successful sales people were identified as:

  - "Skill in interpersonal relations."

  - "Successful solution (hardware and software support) sales reps."

  - "None. Some people claim to be in sales but have very little or no background."

  - "Former customer engineers, former business office people with technical experience, former salesmen."

  - "Product sales personnel with an understanding of life cycle costing and product price/performance resulting from a quality service program."

E. DISCOUNTS AND WARRANTIES

- Discounts and warranties are tools used to obtain new sales of hardware and software as well as new maintenance contracts.

  - Discounts are specific price reductions and often apply indefinitely.

- Warranties are periods of effectively "free" maintenance which have an end date (which may be extendable).

- The use of discounts is fairly widespread, as shown by the responses in Exhibit V-7.

  - Of the five types of discounts shown, between 15% and 42% of the vendors were active in each type.

  - Multiple product discounts are most prevalent, an indication of an expected cost saving by the vendor.

- Vendors were divided on the question of discounts becoming more or less common in the future.

  - Nine felt they would become more common.

  - Eleven felt they would become less common.

  - Three saw no change and four had no opinion.

  - Comments on this question included:

    . "Less. Can't discount labor."

    . "Less common. User wants quality."

    . "Increasingly common due to user assisted service."

    . "Depends on the economy."

    . "More common due to increasing complexity."

EXHIBIT V-7

DISCOUNT STRUCTURES OF RESPONDING VENDORS

TYPE OF DISCOUNT	NUMBER OF RESPONDENTS	NUMBER GIVING A DISCOUNT	PERCENT GIVING A DISCOUNT	DESCRIPTION OF THE DISCOUNT
Multiple Product (Multiple Products at the Same Location)	26	11	42%	-
Typical Range	-	-	-	5-20%
Minimum Units to Qualify	-	-	-	2-5
Maximum Discount	-	-	-	+ 50 Units
Multiple Site (Multiple Units at Sites in Close Proximity)	26	6	23	-
Typical Discount	-	-	-	20%
Units/Sites to Qualify	-	-	-	3-5 Units or Sites
Volume Discount	26	9	35	-
Negotiable Discount	9	6	67	-
3-10% Range	9	1	11	-
10-12% Range	9	1	11	-
10-15% Range	9	1	11	-
User Assisted Service	26	4	15	-
User Owned Spares	26	4	15	-
Specific Spare Kit	4	1	25	-
Negotiable	4	3	75	-

. "More common. Maintenance rates are becoming more burdensome to users and need flexibility to meet unique needs."

. "Anticipate discounts will become more common in the future for user assisted maintenance, user owned spaces, remote diagnostics, depot maintenance."

. "Less. It costs the same to fix one system no matter how many the user has."

. "Less common. We are seeing an increasing margin demand - and as our failure analysis data improve, pricing will approach cost plus margin."

. "Fewer discounts. They should be based on economies of service or profits will be eroded (unless original price is set higher to accommodate discounts)."

. "More. Competition is growing, products are becoming more production oriented, and the price of maintenance is increasing versus product cost."

- On balance, comments tend to reinforce the impression that profit center organization of field service is having an effect and most discounting will be in exchange for some cost saving aspect coming from the user such as cooperation with remote diagnostics, participating in maintenance, and the like.

- The dominant form of warranty among responding vendors is for 90 days, with no extension offered, as shown by the survey results presented in Exhibit V-8.

- There was a wider variation with service warranty (as compared to equipment warranty), with a wide range of responses.

EXHIBIT V-8

WARRANTY POLICIES AND PRACTICES

CHARACTERISTIC OF THE WARRANTY	NUMBER OF RESPONSES
Term of Warranty	
One Year	3
90 Days	21
30 Days	1
Can the Buyer Have an Extension?	
No	22
30 to 90 Days	2
Negotiable	1
Service Warranty (as Compared to Equipment Warranty)	
90 Days	8
30 Days	6
None Stated	4
Undefined	6
Amount Reimbursed to Service Organization	
Labor Cost	1
None	3
Actual Cost	4
100%	7 (as would be billed)
85%	1
50%	1
Percent of Equipment Price	3 (draw account)

- The dominant form of billing was at 100% of regular rates, the simplest method.

- A few changes in warranty are expected in the 1981-1985 timeframe. The comments were:

  - "Offer service only during the prime shift."

  - "More return to factory warranties, less on-site repair under warranty."

  - "Reduce the warranty from 90 days to 30 days on equipment."

  - "Development of a fair burdened rate, and extension to one year on some complete products."

  - "Multishift and seven-day service. More depot offerings."

F. MAINTENANCE OF SOFTWARE BY FIELD SERVICE

- Maintenance of software as well as hardware is being performed by 44% (12 of 27) of the respondents to the survey.

  - Seventy-one percent expect to be involved in software maintenance by 1985.

- The variety of questions which confront vendors as they approach the issue of software maintenance is reflected in the spread of choices made by respondents as they decided how to organize, and where to locate, software maintenance.

- Half the respondents had hardware and software in the same organization from the bottom up; the other half had a split organization, at least to the region level.

- On the issue of centralized versus noncentralized support, the respondents were also split betwen support centers, field support, or a combination of both.

- Survey results are presented in Exhibit V-9.

- In dealing with software maintenance vendors are addressing, consciously or unconsciously, two characteristics of software which make it very different from hardware.

  - First, when a software product is "fixed," that is a "bug" corrected, the correction can be included in the next release of the software, thereby fixing the bug for the entire world. Unlike hardware maintenance, there is no need to visit each site to make the repair.

  - Second, software is never finished. Some products still being sold, such as IBM's IMS Database product, had their origins in the early 1960s. Unlike the IBM 360 series of computers which were introduced in the same timeframe and have long since stopped being produced, IMS continues to be modified, enhanced, and fixed.

  - Certainly the difference between hardware and software is not total; some hardware can be fixed without visiting the site (mail a part to a user for installation) and some hardware has a very long life (some peripherals such as keypunches). However, it is essential for vendors to have a clear idea of the differences between hardware and software, because the differences dominate.

- IBM has recognized these differences in the organization of its software maintenance scheme.

EXHIBIT V-9

ORGANIZATION AND LOCATION OF
SOFTWARE MAINTENANCE AMONG RESPONDENTS

ORGANIZATION	NUMBER OF RESPONSES	PERCENT
Same Organization, Bottom To Top	9	50%
Same Organization, Region Up	3	17
Separate	6	33
LOCATION		
Support Center	5	28%
Field	4	22
Both	9	50

NUMBER OF RESPONSES: 18

- Two major support centers, in Chicago, Illinois, and Tampa, Florida, are the first line of support for users. This structure allows IBM to centralize the basic support and capitalize on the characteristic of software that one "fix" can fix the whole world. Fixes and other data are stored in a large "Retain" data base in Boulder, Colorado, with the support centers having access to this data base.

- The never-ending process of change in software is recognized in the IBM system by "change teams" which are attached to the "program support groups" throughout IBM. These "change teams" are the conduit through which information flows, via the support centers to the "program support groups" as the latter groups work on new releases, enhancements, and the like.

- Significantly, the support centers and the change teams are field engineering staffed and managed.

- On-site software support is available on a contract or T&M basis for the one-third (IBM's estimate) of the problems which are not resolved by the support centers.

- A schematic presentation of the IBM approach is shown in Exhibit V-10.

- Although a good deal of uncertainty currently exists among vendors regarding how to handle software maintenance, respondent comments regarding activity planned for implementation by 1985 are of interest.

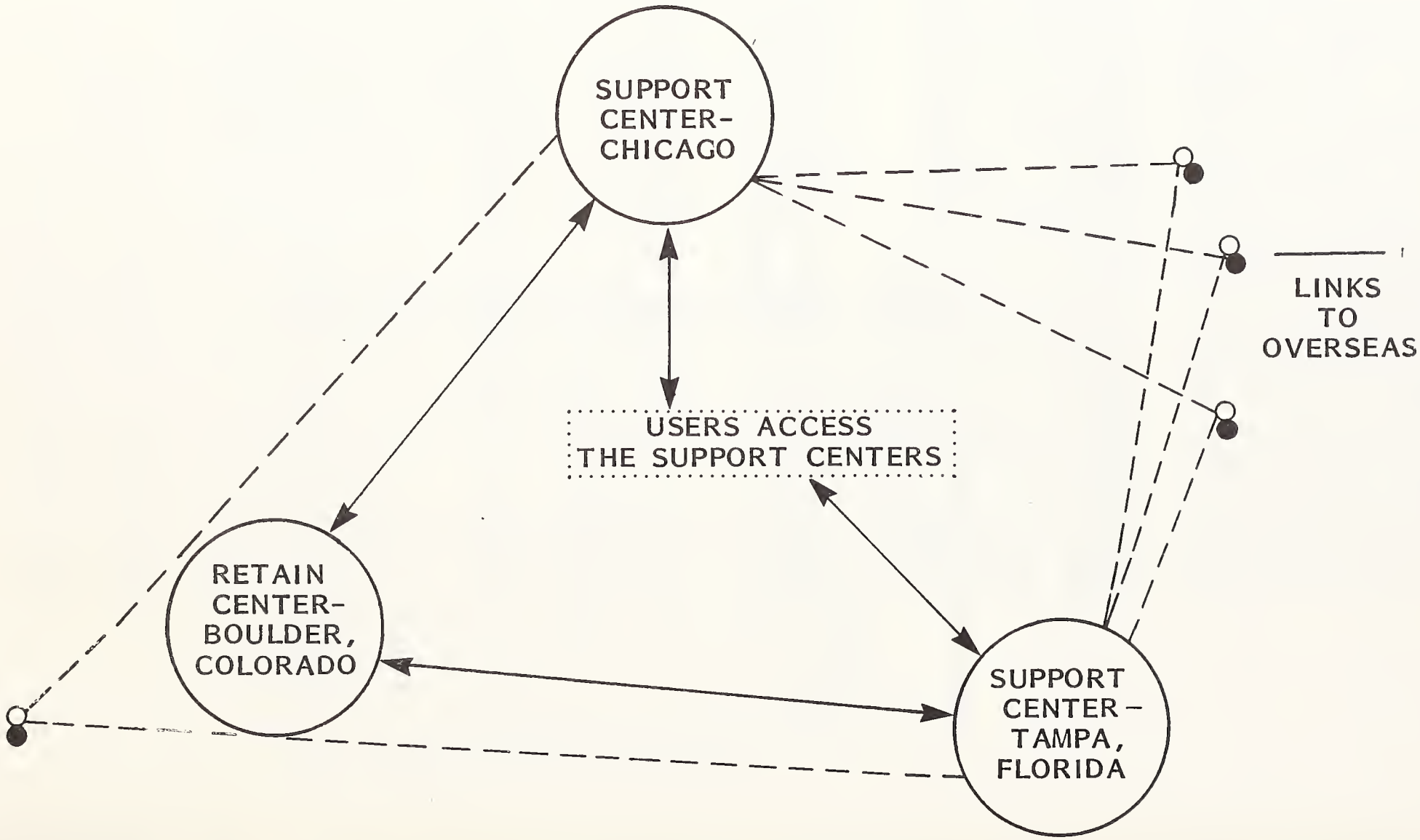
  - "Software maintenance will provide 10% of our revenues by 1985."

  - "Some increase. Undefined at this stage."

  - "Yes, in medium and large systems."

EXHIBIT V-10

IBM SYSTEM SUPPORT CENTER CONFIGURATION



- "Yes, software maintenance will become a product our organization will develop and implement."

- "Yes, it will increase, but its dimension is unknown."

- "We are testing now. We will move to overseas in 1982 and 1983. Revenue strategies are not yet determined."

- "Service intends to assume responsiblity for sustaining software by mid-1982."

- "We will move toward separate hardware and software groups in the field, but have combined support from the home office."

- "The strategic direction has been established to perform operating system maintenance in the future. Planning is now in process."

- "Around 1984 we will probably assume responsibility for all after-sale support. Cost for updates and support will be revenue."

- "The activity will expand to the extent that we expand our awareness of customer need with respect to software support."

- Software maintenance is an issue worthy of top management attention at virtually all field service organizations.

G. OEM SERVICE

- The majority of respondents to the survey are end user oriented with little or no OEM (Original Equipment Manufacturer) involvement.

- Sale of OEM equipment is usually handled by a separate sales force, and interfacing with field engineering is not as prevalent as with the end user sales force.

- Those stating that they sell OEM service qualify that sale as follows:

  . Service is provided under the same terms and conditions as end user.

  . The OEM equipment must be unmodified to be deemed serviceable.

- Vendor comments regarding OEM service included the following:

  - "We honor the warranty and will offer a maintenance agreement if the equipment is unmodified. Each case is individual."

  - "We provide our customers with our same service offering for equipment that we OEM."

  - "We will provide a maintenance contract, time and material service, or depot repair service."

  - "We provide support, training, spares assistance, and on-site repair if requested."

  - "We attempt to service most OEM equipment. Some OEM equipment is subcontracted to a third party."

  - "We will service if all of our installation requirements have been met and the customer's software applications are deemed compatible with the system and its operating programs."

- Clearly, OEM maintenance follows, rather than leads, in the formulation of policy among respondent vendors.

H. CONCLUSIONS AND COMMENTS FROM VENDORS

- At the end of the rather long interview, vendors were asked for comments on the overall subject of pricing, packaging, and selling of field services. Most declined to comment; however, a few interesting insights from vendors were obtained:

  - "Prices are going up because of the labor intensity of field services. We are looking for other ways. One alternative is more customer involvement. Maintenance used to be 12% of the price. Now its 15-20%. We will try to keep the percent steady. The key is to educate the customer. Support centers will help if the customer calls them rather than depending so heavily on on-site support."

  - "It's an antiquated industry. We must use state-of-the-art techniques and equipment."

  - "Hardware and software service will always be separate."

  - "Corporate view of field service continues to be as an adjunct to, or necessary evil of, the hardware product - not as a product that should be packaged and sold."

  - "Same as always. The equipment must be designed for serviceability. Remote diagnostics and the ability to send parts for the customer to install will help keep the price and quality on an even keel."

  - "Looks like there will be an increase in the need to do more selling and merchandising of service in the future. This will take the form of an

increased variety of services offered to the user and will include some advertising and selling of services."

- "Price is a major factor in the profit/performance quality equation."

- "New products must be designed for ease of maintenance. Diagnostics must be written to isolate a failure. Equipment must be made serviceable by a user's unskilled help."

- Obviously, vendors see the subject from a variety of points of view. This report is a tool for addressing the total subject of pricing, packaging, and selling field services.

APPENDIX A: DEFINITIONS

APPENDIX A: DEFINITIONS

- DISTRIBUTED DATA PROCESSING: the deployment of programmable intelligence to the site where the particular data processing function is performed. Computers and terminals are interconnected through a telecommunications network adapted to individual user needs.

- ENGINEERING CHANGE NOTICE: notice of improvements or corrections in a product after it has been released to production or has been installed at the user's site.

- ENGINEERING CHANGE ORDER (ECO): instructions including bill of materials and parts required to effect the engineering change.

- FIELD ENGINEER (FE): individual who responds to a user's call for service and repairs a device or system. FE is used interchangeably with customer engineer, serviceperson, maintenance person, etc.

- FIRST-LINE MANAGER (FLM): individual at the first or lowest level of management in the field organization, usually at the branch level.

- MEAN TIME TO RESPOND: the elapsed time between a user's service call and a field engineer's arrival at the user's location.

- MEAN TIME TO REPAIR: the elapsed time between a field engineer's arrival at the user's site and the repaired device's return to full operation.

- MEAN TIME BETWEEN FAILURES (MTBF): the elapsed time between reported failures on a device or system.

- REMOTE DIAGNOSTICS (RD): diagnostics run by the vendor from a remote location without the intervention of the user's operator, by an on-site field engineer tied to a central support center, or by a user tied to a central support center. These techniques can usually isolate a fault to the lowest exchangeable unit.

- SYSTEM SUPPORT CENTER (SSC): a central technical support facility staffed by highly skilled field engineers and accessed over a national "hotline" number. A system support center is available to both users and field engineers for the analysis of problems in hardware, software, or a combination of the two.

- USER SELF-MAINTENANCE (USM): some involvement by individual users in the installation, diagnosis, and repair of their own installed equipment.

APPENDIX B: DESCRIPTIONS OF VENDORS' MAINTENANCE TERMS AND CONDITIONS

APPENDIX B: DESCRIPTIONS OF VENDORS' MAINTENANCE TERMS AND CONDITIONS

- This appendix contains terms and conditions for individual vendors. An effort was made to report only the key elements that differ among the vendors' policies.

- Basically the normal services provided are for all costs of labor and parts required to provide:

  - Preventive maintenance.

  - Repair service.

  - Engineering changes and reliability improvements.

- Typical specific exclusions are:

  - Maintenance attributable to customer fault or neglect.

    . Customer attempts to repair machine.

    . Misuse of machine.

    . Failure to perform required, routine, customer preventive maintenance.

- Electrical work external to machine.
- Factory overhaul or refurbishing of machine.
- Painting or refinishing equipment.
- Installing, removing, and relocating equipment or accessories.
- Platens, supplies, etc., that are typically consumed in the operation of the machine.
- Repair of damage to machine.
- Problems caused by improper environment.

• Other provisions typically include the following:

- Removed parts become the property of the vendor.
- Preventive maintenance will be performed during normal hours of service.
- Vendor will have ready access to machine.
- Unauthorized modifications will not be made to equipment.
- Customer will pay taxes that may accrue.
- Customer will provide suitable work location and, if needed, storage for tools, parts, and test equipment.

• Most contracts provide a warranty disclaimer and limitation of remedies. Typically the statement denies responsibility for lost profits, consequential damages, and responsibility for third-party claims. Liability for damages is

normally limited to maintenance or rental charges or some multiple thereof, regardless of cause. Some contracts specifically deny warranties of merchantability and suitability for a particular purpose, and some impose a maximum dollar limit of damages. None of the contracts analyzed referred to alternate use of American Arbitration Association facilities or rules.

- Third-party contracts normally provide an exclusion for software problems or hardware problems caused by software malfunctions.

- Most of this section has been reviewed by the vendors, and is accurate as of May, 1981. Where the vendors declined to review the data, information from the 1980 INPUT report, Marketing Field Services, is included with the notation "June 1980," to reflect the older nature of the data which was not updated.

AM INTERNATIONAL

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

MAINTENANCE COVERAGE:
On-site services, Addressograph, Bruning, Multigraphics, Infortex, Varityper, Amtext, Jacquard, and Documentor.

SERVICE HOURS:
8 a.m. to 5 p.m., M-F, principal service hours.
Other hours of coverage available.

BILLING PERIOD:
Can be negotiated, but normally one year.

PERIOD OF CONTRACT:
One year.

MAINTENANCE CREDITS:
Less expensive first-year rate, for some products.

UNIQUE CHARACTERISTICS:
For some products, labor service coverage only is available. Service offerings vary by product and division.

TRAVEL CHARGES:
Rates vary by zone.

Examples of Equipment	Zones 1	2	3	4	5
4600	$172	$211	$237	$263	$302
4668	35	37	39	41	45
4670	28	31	32	34	37
4674	32	35	37	38	42

Zone 1: 0-25 miles.
Zone 2: 25-50 miles.
Zone 3: 51-100 miles.
Zone 4: 101-200 miles.
Zone 5: 201-300 miles.

All product divisions except Documentor.

T&M HOURLY RATE:
$50/hour electro mechanical products, M-F, 8 a.m. to 5 p.m.
$60/hour electronic products.

AMDAHL

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

MAINTENANCE COVERAGE:
Basic maintenance service agreement.

EQUIPMENT COVERED:
Includes all Amdahl products.

SERVICE HOURS:
24 hours/day.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
One year.

RESPONSE TIME:
Not specified.

TRAVEL CHARGES:
Not available.

T&M HOURLY RATES:
M-F prime shift: $80/per hour.
All other times: $100/per hour.

BTI COMPUTER SYSTEMS

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

MAINTENANCE COVERAGE:
For all computer systems and peripherals.

SERVICE HOURS:
24 hours/day, 7 days/week.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
Initial term 12 months, automatic renewal for 12 month periods until cancelled.

UNIQUE CHARACTERISTICS:
1. Customer personnel trained to perform PM and repair.
2. BTI provides telephone help and parts under contract.
3. On-line diagnostics.
4. Includes maintenance of factory supported software.

TIME AND MATERIALS SERVICE:
On-site service.
M-F, 8 a.m. to 6 p.m., $65/hour.
Any other time $65/hour and 50% surcharge.
Minimum billing - four hours.
Services excluded by contract billed at $55/hour.
Telephone charges for remote diagnostics $36/hour.

CODEX

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

MAINTENANCE COVERAGE:
Nonwarranty on-call (M-OC), time and material coverage.

EQUIPMENT COVERED:
Factory maintenance available on special products.

SERVICE HOURS:
8 a.m. to 5 p.m., M-F.

TRAVEL CHARGES:
$0.20 per mile.

T&M HOURLY RATES:
Prime time: 8 a.m. to 5 p.m., M-F, $42/hour.
Second shift: 5 p.m. to 12 p.m., M-F, $48/hour.
Third shift/weekends: 12 p.m. to 8 a.m., $60/hour.

LEVEL I SERVICE

MAINTENANCE COVERAGE:
Nonwarranty fixed price.
Maintenance - on-call/on-site.

EQUIPMENT COVERED:
C series modems, 206 Biplexers, LSI series modems, MX series modem, group band modems and multiplexers, 6010, 6030, 6040, 900 multiplexers, 664, 668, DNCS, MNCS, CQMS, ACQMS, 880, CDX-68, Info-guard, Digi-phone.

SERVICE HOURS:
8 a.m. to 5 p.m., M-F.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
One year.

TRAVEL CHARGES:

Equipment	Examples Zones A 50 miles	B 51-100 miles	C over 100 miles
C-Series Models	$21	$25	$34
6010	55	62	78
Digiphone	33	40	57

T&M HOURLY RATES:
Prime: $42/hour.
Second: $48/hour.
Third: $60/hour.

REMARKS:
Extended hours.
Second: 5 p.m. to 12 midnight.
Third: 12 to 8 a.m.

LEVEL 2 SERVICE

MAINTENANCE COVERAGE:
Non-warranty, fixed price.
Services based on whole unit replacement of selected products (depot service).

EQUIPMENT COVERED:
MX series modems, 5000 series modems, 8200 LSDU, 604, 664, 668, 880 multiplexers, 980 multiplexers, MSU, PSU, DSD, LSU, synch/asynch, DBAAU, MSS, node bypass, DAA.

SERVICE HOURS:
8 a.m. to 5 p.m., M-F.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
One year.

TARGET:
Replacement unit shipped within 24 hours.

LEVEL 3 SUPPORT

MAINTENANCE COVERAGE:
Special quotation coverage of technical control products and customer special products.

EQUIPMENT COVERED:
Special pricing is available.

SERVICE HOURS:
8 a.m. to 5 p.m.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
One year.

REMARKS:
Unspecified maintenance offerings on technical control products and customer special products. Prices and conditions on special quotation.

COMPUTERVISION

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

FULL SERVICE CONTRACT

MAINTENANCE COVERAGE:
Full spectrum of services, including software and productivity consulting.

EQUIPMENT COVERED:
Equipment listed in CV price list (CAD/CAM systems).

SERVICE HOURS:
Normal: 8 a.m. to 5 p.m., M-F.
Extended hours available.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
Two years.

RESPONSE TIME:
Within CV service area - 4 hour average.
Outside CV service area - 8 hour average.

1. Exchange equipment may be provided.
2. Free documentation update.
3. Once-per-year equipment relocation.
4. Annual system performance review.
5. Includes four person weeks of on-site applications support.
6. Downtime credit is provided. 95% availability of equipment is guaranteed. A percentage credit for less than 95% availability is provided.

TRAVEL CHARGES:
Beyond 100-mile radius from CV service center, there is a 5% surcharge.

T&M HOURLY RATES:

	Weekdays	Saturday	Sunday
8 a.m. to 5 p.m.	$45/hour	$54/hour	$ 70/hour
5 p.m. to 12 p.m.	54	65	84
12 p.m. to 8 a.m.	70	84	109

REMARKS:
This contract permits unlimited telephone inquiry service.

STANDARD SERVICE MAINTENANCE CONTRACT

MAINTENANCE COVERAGE:
Normal on-call/on-site maintenance service. Customers authorized to perform some service.

EQUIPMENT COVERED:
Equipment listed in CV price list.

SERVICE HOURS:
Normal: 8 a.m. to 5 p.m., M-F.
Extended hours.
Second shift: 10%.
Third shift: 20%.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
One year.

RESPONSE TIME:
Within CV service area: 8-hour average.
Outside CV service area: 24-hour average.

If service needs require temporary replacement, CV will provide replacement at no extra charge.

TRAVEL CHARGES:
Surcharge of 5% for service beyond 100-mile radius.

T&M HOURLY RATES:

	Weekdays	Saturday	Sunday
8 a.m. to 5 p.m.	$45/hour	$54/hour	$ 70/hour
5 p.m. to 12 p.m.	54	65	84
12 p.m. to 8 a.m.	70	84	109

REMARKS:
No uptime guarantee under this contract.

ON-CALL EQUIPMENT MAINTENANCE POLICY

SERVICE HOURS:
See below.

BILLING PERIOD:
Net 30.

RESPONSE TIME:
Not covered.

MAINTENANCE CREDITS:
If service needs require temporary replacement and rental units are available, they shall be billed per CV quotation.

TRAVEL CHARGES:
$0.25 per mile for automobile.
Rental car: $45 per day.

T&M HOURLY RATES:

	Weekdays	Saturday	Sunday
8 a.m. to 5 p.m.	$45/hour	$54/hour	$ 70/hour
5 p.m. to 12 p.m.	54	65	84
12 p.m. to 8 a.m.	70	84	109

REMARKS:
Plus expenses.

CONTROL DATA

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

SCHEDULE D

MAINTENANCE COVERAGE:
Normal coverage, large systems.
Covers EDP systems manufactured by CDC.

SERVICE HOURS:
7 a.m. to 6 p.m., M-F.
Nine hours per day. Several extended maintenance options.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
One year. (90-day cancellation after one year.)

RESPONSE TIME:
Two hour target.

MAINTENANCE CREDITS:
Downtime credit after 24 hours inoperative.
Refurbishment of equipment not included in maintenance contract.

TRAVEL CHARGES:
No charges for 50 miles during CPM.
For each 25 miles, zone charges increase 10%. Large systems exempt from zone charges.

PER CALL HOURLY RATES:

		4/1/81	
Rate Class	Prime Period	Other Contract	Other Noncontract
1	$92/hour	$104/hour	$104/hour
2	88	98	98
3	70	82	82

REMARKS:
Multiple systems discounts are available.

COMMA

MAINTENANCE COVERAGE:
On-call, full-coverage contract for third-party maintenance.

EQUIPMENT COVERED:
Primarily IBM 360-370 and Univac equipment.

SERVICE HOURS:
Nine hours (7 a.m. to 6 p.m.), M-F.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
Thirty days' cancellation.

RESPONSE TIME:
Two hours target.

MAINTENANCE CREDITS:
Credit for 24 hours downtime.
Has right to subcontract for service.

UNIQUE CHARACTERISTICS:
Strongly stated liability limits:

"Disclaimer of warranties and limitation of remedies.

No warranties expressed or implied including merchantability or fitness for a particular purpose.
No liability for damages caused by delay.
Remedies limited to re-performance or a refund equal to manufacturer's charge.
No liability for consequential damages."

TRAVEL CHARGES:
Same as Schedule D and Schedule J.

PER CALL HOURLY RATES:
Same as Schedule D and Schedule J.

SCHEDULE J

MAINTENANCE COVERAGE:
Plug compatible products attached to non-CDC systems; e.g., disk drives, tape drives, etc.

SERVICE HOURS:
Nine hours (7 a.m. to 6 p.m.), M-F.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
One year (90 days' cancellation after one year).

RESPONSE TIME:
Two hours target.

MAINTENANCE CREDITS:
No downtime credit.

TRAVEL CHARGES:
Fifty miles free during CPM. For each additional 25 miles, zone charges increase by 10%.

PER CALL HOURLY RATES:
Same as Schedule D.

SCHEDULE E

MAINTENANCE COVERAGE:
Offered to customers desiring to provide labor. Contract defines relationship with CDC.

EQUIPMENT COVERAGE:
Not specified.

BILLING PERIOD:
Monthly.

Includes: Parts, use of tools.
Maintenance software.
Maintenance documentation.
Field engineering change orders.

Exlcudes: Special maintenance aids used under Schedules D and J.
On-line diagnostics.

TRAVEL CHARGES:
CDC will respond to requests for technical support subject to availability of personnel. Labor and travel will be billed at "per-call" rates.

REMARKS:
Charges are normal - Basic Monthly Maintenance Charge less 30%.
Customer is responsible for training personnel.

TECHNICAL ASSISTANCE

MAINTENANCE COVERAGE:
Engineering services may be available to provide technical assistance on CDC equipment or interface.

This service is not available for purposes of providing normal maintenance and is usually intended as special assistance where customer is covered under a Schedule E (no labor) contract.

DIGITAL EQUIPMENT

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

BASIC SERVICE AGREEMENT

MAINTENANCE COVERAGE:
On-call remedial maintenance.

EQUIPMENT COVERED:
Covers all DEC equipment except terminals.

SERVICE HOURS:
8 a.m. to 5 p.m., M-F.
Extended: 12-16-24 hours and Saturday and Sunday.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
Annual 90 days' notice.

RESPONSE TIME:
Telephone call will initiate 15-minute "diagnostic procedures."

EXCLUSIONS:
Normal wear and tear.
At annual renewal date, Digital may require reconditioning at product repair centers.

TERMINALS SERVICE AGREEMENT

MAINTENANCE COVERAGE:
On-site service.

EQUIPMENT COVERED:
"Digital Supplied Terminal Products."

SERVICE HOURS:
8 a.m. to 5 p.m.

BILLING PERIOD:
Monthly/annually.

PERIOD OF CONTRACT:
One year with 90 days' notice thereafter.

EXCLUSIONS:
Normal wear and tear.

TRAVEL CHARGES:
Over 25 miles, zonal charge will be added.

PRODUCT REPAIR CENTER

MAINTENANCE COVERAGE:
Service designed for high-volume users.

EQUIPMENT COVERED:
Most CPUs and options.

SERVICE HOURS:
N/A.

BILLING PERIOD:
Quarterly.

PERIOD OF CONTRACT:
Annual.

RESPONSE TIME:
Target: turnaround seven days.
Equipment must be returned with approved interface for fault diagnosis.

TRAVEL CHARGES:
F.O.B. repair center.

DEC SERVICE AGREEMENT

MAINTENANCE COVERAGE:
"The form of on-site service that meets the needs of the majority of our customers."

EQUIPMENT COVERED:
Covers all DEC equipment except terminals.

SERVICE HOURS:
8 a.m. to 5 p.m., M-F.
12-16-24 hours and Saturday and Sunday.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
One year, 90 days' notice.

RESPONSE TIME:
Within primary time.
Guarantees: 4 hours if within "window."

EXCLUSIONS:
This agreement is not available to customers located beyond 50 miles of a field service branch office.

OEM BASIC SERVICE AGREEMENT

MAINTENANCE COVERAGE:
Using "Digital Diagnosis Center" (DDC).

SERVICE HOURS:
8 a.m. to 5 p.m., M-F.
12-16-24 hours and Saturday and Sunday.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
180 days.

RESPONSE TIME:
Target: 15 minutes telephone-initiated diagnostic procedures if eligibile for DDC.

EXCLUSIONS:
Normal wear and tear not covered.

REMARKS:
Eligibility for DDC service is contingent upon a minimum term of one year of maintenance.

OEM DEC SERVICE RIDER

MAINTENANCE COVERAGE:
Provides unscheduled or call services to OEM's customers.

EQUIPMENT COVERED:
Covers all OEM equipment other than terminals.

SERVICE HOURS:
8 a.m. to 8 p.m., M-F.
Extended service available.

RESPONSE TIME:
Within primary time.
Guarantees: 4 hours.

EXCLUSIONS:
Equipment located within 50 miles of designated "Digital" offices. DEC service is not otherwise available.

TRAVEL CHARGES:
None.

REMARKS:
There are requirements for the monitor and control of temperature and humidity which must be met to be eligible for this level of service.

MODULE MAILER PROGRAM

MAINTENANCE COVERAGE:
The module mailer program is designed for qualified volume customers who can successfully troubleshoot hardware failures down to module level.

PERIOD OF CONTRACT:
One year.

RESPONSE TIME:
Target: one week.

MAINTENANCE CREDITS:
Requires $2,000 minimum prepayment. Unused credits are returned or applied to subsequent agreements.

HEWLETT-PACKARD

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

STANDARD SYSTEM MAINTENANCE AGREEMENT

MAINTENANCE COVERAGE:
For all computer systems and some selected products.

SERVICE HOURS:
8 a.m. to 9 p.m., M-F.

BILLING PERIOD:
Monthly, quarterly, annually.

PERIOD OF CONTRACT:
Open-ended.
One year minimum.
3-11 month option for an added charge.

RESPONSE TIME:

Target:	4 hours, Zones 1, 2, and 3.
	8 hours, Zone 4, 5.
	12 hours, Zone 6.

UNIQUE CHARACTERISTICS:
HP 300 or 3000 must also be covered by HP software support service.
All elements of systems must have the same coverage unless eligible for the On-Site Product Maintenance Agrement.
Interfaces and accessories such as dynamic mapping and fast FORTRAN can be included with the system.

TRAVEL CHARGES:
Zone 1, 2, 3 (0-100 miles) - MMC.
Zone 4, 5 (101-200 miles) + 25% MMC.
Zone 6 (201-300 miles) + 50% MMC.

EXTENDED COVERAGE RATES:

Period of Coverage	Extra Hours' Coverage 5 days	6 days	7 days
8 a.m. to 9 p.m.	MMC	+10%	+20%
8 a.m. to 12 midnight	+10%	+20	+30
8 a.m. to 8 a.m.	+20	+30	+40

BASIC SYSTEM MAINTENANCE AGREEMENT

MAINTENANCE COVERAGE:
Different from Standard Agreement in hours, response time, and price.

EQUIPMENT COVERED:
For all computer systems and some selected products.

SERVICE HOURS:
8 a.m. to 5 p.m., M-F.

BILLING PERIOD:
Monthly, quarterly, annually.

PERIOD OF CONTRACT:
Open-ended.
One year minimum.
3-11 month optional for an added charge.

RESPONSE TIME:
See below under travel charges.

TRAVEL CHARGES:

Zone	Miles	MMC	Response
1, 2, 3	0-100	--	Next day
4, 5	101-200	+25%	2 days
6	201-300	+50%	3 days

ON-SITE PRODUCT MAINTENANCE AGREEMENT

EQUIPMENT COVERED:
HP terminals, desktop computers, and peripherals.

SERVICE HOURS:
8 a.m. to 5 p.m., M-F.

BILLING PERIOD:
Monthly, quarterly, annually.

PERIOD OF CONTRACT:
Open-ended.
One year minimum.
3-11 month optional for an added charge.

TRAVEL CHARGES:

Zone	Miles	Charge	Response
1, 2, 3	0-100	MMC	Next day
4, 5	101-200	+25%	2 days
6	201-300	+50%	3 days

REMARKS:
Lowest cost on-site agreement.

FIELD REPAIR CENTER MAINTENANCE AGREEMENT

MAINTENANCE COVERAGE:
Repair center, customer delivery.

EQUIPMENT COVERED:
Selected products only (e.g., terminals printers, plotters, desktop computers, and associated peripherals).

SERVICE HOURS:
8 a.m. to 5 p.m., M-F.

BILLING PERIOD:
Monthly, quarterly, annually.

PERIOD OF CONTRACT:
Open-ended.
One year minimum.
3-11 month optional for an added charge.

RESPONSE TIME:
In-house turnaround time: 3 days target.
Return shipping costs covered by maintenance agreement.
Shipping container not provided.
In-bound shipping is at customer's expense.

TIME AND MATERIAL

MAINTENANCE COVERAGE:
Per-call service.

SERVICE HOURS:
8 a.m. to 5 p.m., M-F.

PERIOD OF CONTRACT:
N/A.

RESPONSE TIME:
Three days.

MAINTENANCE CREDITS:
N/A.

TRAVEL CHARGES:

Zone	Miles	Charge
1	0-25	$ 85
2	26-50	150
3	50-100	215
4	100-150	360

T&M HOURLY RATES:
$95/hour.

REMARKS:
Time and material service is provided with charges for travel, on-site labor and parts. For selected products, labor and parts are combined in a standard repair charge (STREP). Products with STREP may be repaired in the field or at a repair center.

GUARANTEED UPTIME SERVICE AGREEMENT

MAINTENANCE COVERAGE:
HP 3000 Series 44.

SERVICE HOURS:
24 hours/day, 7 days/week.

BILLING PERIOD:
Monthly, quarterly, annually.

PERIOD OF CONTRACT:
Open-ended.
One year minimum.

PERFORMANCE MEASUREMENT:
99% system uptime moneyback guarantee, Zones 1, 2, and 3.

UNIQUE CHARACTERISTICS:

1. HP-supplied modem for remote access of resident diagnostics.
2. Common phone number for hardware and software support.
3. A Monthly Activity Report detailing service history is provided.
4. Coverage of the critical system component includes system processor, all main memory, and all system domain disk drives (limited to two).

Other elements of the system may be covered under other maintenance agreements as they apply.

HONEYWELL INFORMATION SERVICES

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

BASIC AGREEMENT FOR LARGER SYSTEMS

MAINTENANCE COVERAGE:
On-call, on-site coverage.

EQUIPMENT COVERED:
Product classes 3, 4, 5, 6, 8, and 12.
Series 200/2000, level 64 CS and peripherals, G100, 200, 600, 6000.
DN 30, 305, 355, level 66, level 68, Xerox manufactured by HIS.

SERVICE HOURS:
8 a.m. to 6 p.m., M-F.
Extended coverage hours:
- Up to 16 hours: 25% + MMC.
- Over 16 hours: 35% + MMC.
- Saturday coverage: +7%.
- Sunday coverage: +8%.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
One year, then 90 days' cancel.

TRAVEL CHARGES:
More than 120 miles subject to surcharge.

BASIC AGREEMENT FOR SMALLER SYSTEMS

BASIC MAINTENANCE AGREEMENT:
On-call, on-site coverage.

EQUIPMENT COVERED:
Product class 9, 11, and 11A.
Level 6, System 700, terminals, INCOTERM terminals.

SERVICE HOURS:
8 a.m. to 6 p.m., M-F.

PERIOD OF CONTRACT:
One year.

TRAVEL CHARGES:
More than 50 miles subject to surcharge.

T&M HOURLY RATES:
Minimum time charge is two hours, including travel time.

LEVEL 62 COMPUTER SYSTEMS AND PERIPHERALS

MAINTENANCE COVERAGE:
On-call, on-site coverage.

EQUIPMENT COVERED:
Level 62 - computer systems and peripherals.

SERVICE HOURS:
8 a.m. to 12 p.m., M-F.
Extended hours available:
Saturdays: 10% + MMC.
Sundays: 12% + MMC.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
One year, 90 days' cancel.

TRAVEL CHARGE:
More than 120 miles subject to surcharge.

BASIC AGREEMENT FOR OLD SYSTEMS

MAINTENANCE COVERAGE:
On-call, on-site.
(Product class 1, 10, and 12A.)

EQUIPMENT COVERED:
Level 61 (including peripherals).
Series 16, Series 1640 (computer systems and peripherals, etc.).
Xerox manufactured units.

REMARKS:
Subject to renewal only.

IBM

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

MAINTENANCE COVERAGE:
Maintenance agreement for mainframe and other equipment specified on a maintenance agreement machine list.

SERVICE HOURS:
7 a.m. to 6 p.m. (any consecutive nine hours), M-F.
Optional periods of maintenance are available at additional monthly charges expressed as percentages of the monthly maintenance charge. The charges vary from 4-46% depending on the machine group and hours of coverage.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
One year's notice from IBM or 30 days' notice from customer.

TRAVEL CHARGES:
$0.18 per mile for DPD and GSD.
$0.23 per mile for OPD.

T&M HOURLY RATES:

Division	Prime	Overtime
Data Processing	$91	$105
General Systems	84	97
Office Products	64	74

LOCAL PROGRAM SUPPORT

MAINTENANCE COVERAGE:
Local support on software problems that are unresolved after the customer has taken the actions prescribed by the IBM support center.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
Termination on one month's notice by IBM or customer.

ITT COURIER

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

MAINTENANCE COVERAGE:
On-site, on-call.

EQUIPMENT COVERED:
All equipment sold by ITT Courier.

SERVICE HOURS:
8 a.m. to 5 p.m., M-F.

	Extended Coverage - Percent of MMC		
	8 hours	16 hours	24 hours
5 day	100%	120%	150%
6 day	120	150	200
7 day	150	200	250

Extended hours have minimum billing amount. Range is $75-775.

T&M HOURLY RATES:
8 a.m. to 5 p.m., M-F, $53/hour.
5 p.m. to 8 a.m., M-F, $65/hour.
Saturday, Sunday, and holidays, $75/hour.

PRIME COMPUTER

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

MAINTENANCE COVERAGE:
Contract and T&M.

T&M MATERIAL HOURLY RATES:

	With a Maintenance Service Agreement	Without a Maintenance Service Agreement
8 a.m. to 6 p.m., M-F	$45/hour	$60/hour
All other hours	60/hour	70/hour
Minimum charge	2 hours	4 hours
	Zone Charges	Surcharge
	1-100 miles	no charge
	100-150 miles	10%
	150-200 miles	15%
	200+ miles	20%

RECOGNITION EQUIPMENT COMPANY

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

MAINTENANCE COVERAGE:
On-call, on-site service.

EQUIPMENT COVERED:
All equipment other than "OCR Wand readers."

SERVICE HOURS:
7 a.m. to 6 p.m., M-F.
Extended hours:

4 hours	25% + MMC
8 hours	40% + MMC
12 hours	60% + MMC
16 hours	75% + MMC
Saturdays	20% of MMC

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
One year purchased.
Five years leased.

UNIQUE:
90% effectiveness supplement provides 2% credit for each 1% downtime below 90% availability.

RECOGNITION PRODUCTS, INC.

(Subsidiary of Recognition Equipment, Inc.)

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

MAINTENANCE COVERAGE:
Repair center maintenance of "wand" readers.

EQUIPMENT COVERED:
OCR Wand readers.

SERVICE HOURS:
N/A.

BILLING PERIOD:
Annual.

PERIOD OF CONTRACT:
One year.

EXCLUSIONS:
Recognition shall be reimbursed for returned items found to be "operative on receipt."
Responsibility for shipping charges are not specified in the module repair program.

REMARKS:
Recognition agrees to continue the repair program for five years.

SORBUS

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

BASIC/FOUR MAINTENANCE

MAINTENANCE COVERAGE:
Basic/Four Computer Services on-site/on-call remedial and preventive maintenance.

SERVICE HOURS:
8 a.m. to 6 p.m.
9, 12, 16, 20, and 24 hours, Saturdays and Sundays available.
PM outside these hours billed at hourly rates.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
One year.

UNIQUE CHARACTERISTICS:
Failures caused by the following are not covered:
Unapproved attachments.
Environmental/sites problems.

TRAVEL CHARGES:
Travel outside of service perimeter calculated for each customer - rates included in contract.

DIABLO MAINTENANCE

MAINTENANCE COVERAGE:
Diablo Communications terminals on-site coverage, on-call remedial maintenance.

EQUIPMENT COVERED:
Terminals.

SERVICE HOURS:
8 a.m. to 6 p.m., M-F.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
One year, cancellable.

TRAVEL CHARGES:
Individually calculated for customers.
Travel charges included in contract. Service perimeter varies by service location.

TIME AND MATERIALS

MAINTENANCE COVERAGE:
Time and materials maintenance service agreement.

EQUIPMENT COVERED:
Not specified.

SERVICE HOURS:
Not specified.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
One year.

T&M HOURLY RATES:
Hourly rates attached as "addendum." Rates subject to change upon three months' notice.

LABOR-ONLY COVERAGE

MAINTENANCE COVERAGE:
Labor-only maintenance service agreement, on-call maintenance.

EQUIPMENT COVERED:
Not specified.

SERVICE HOURS:
Not specified.

BILLING PERIOD:
Semimonthly actuals.

T&M HOURLY RATES:
The labor-only contract specifies hourly labor rates rather than regular monthly charges.

STORAGE TECHNOLOGY CORPORATION

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

MAINTENANCE COVERAGE:
On-site, on-call.
Any "scheduled" equipment covered.

SERVICE HOURS:
Hours of service availability not included in contract.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
One year.

RESPONSE TIME:
Not specified.

TRAVEL CHARGES:
Over 25 miles subject to surcharge.

T&M HOURLY RATES:
Not available.

TRW

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

MAINTENANCE COVERAGE:
On-site, on-call service.

EQUIPMENT COVERED:
TRW products, Singer products, Pitney-Bowes, Alpex, Wiltek, Hazeltine, Docutel, ADDS, AMF, Dataproducts, and other selected products.

SERVICE HOURS:
8:30 a.m. to 5 p.m., M-F (excluding holidays).
Extended coverage to 24 hours/7 days available.

BILLING PERIOD:
Monthly, quarterly, annually.

PERIOD OF CONTRACT:
One year basic agreement.

RESPONSE TIME:
Not specified.

TRAVEL CHARGES:

Zone	Miles	Charges
1	0-25	0
2	26-50	18.5% + MMC
3	51-75	37.0% + MMC
4	76-100	55.5% + MMC

Over 100 miles - negotiated separately.

TIME AND MATERIAL:
$0.31 per mile for round-trip distance.

HOURLY RATES:

	Office Products	DP Equipment	Systems
T&M 8:30 a.m. to 5 p.m., M-F	$42	$58	$ 64
M/A customer 7:00/8:30 a.m. - 5 p.m. to 12 midnight 8:30 a.m. to 5 p.m., Saturday			
*Overtime Hours T&M 7:00/8:30 a.m. - 5 p.m. to 12 midnight 8:30 a.m. to 5 p.m., Saturday	$58	$80	$ 89
M/A customer All other overtime hours including Sundays and holidays.			
*T&M All other overtime hours, including Sundays and holidays.	$74	$102	$112

* Overtime hours will be rendered only when customer service representatives are available for overtime duty. Overtime hours - two hours minimum charge.

TANDEM

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

MAINFRAME COVERAGE

MAINTENANCE COVERAGE:
Maintenance agreement for mainframes (terminals subject to special condition).

SPECIAL CONDITIONS:
Remote exchange available for T16/6520, T16/6524.
Quantity discount available for numbers of terminals on-site.

SERVICE HOURS:
8 a.m. to 5 p.m.

BILLING PERIOD:
Monthly, 6% credit for annual.

PERIOD OF CONTRACT:
One year. Automatic renewal if not specifically limited to one year.

RESPONSE TIME:
Guaranteed 4-hour response within 50 miles of service office. Customer can purchase 2-hour response in 50-mile zone and 4-hour response outside 50-mile zone.

UNIQUE CHARACTERISTICS:
1. Customer can buy resident service.
2. Regular documentation update.
3. Tandem agrees to support equipment for five years.
4. Tandem will assist in relocation of equipment.
5. Software covered in a related document, "Appendix C."

TRAVEL CHARGES:
18½¢ per mile (being reviewed) to and from customer site. On overnight stays, a per diem of $60 applies.

T&M HOURLY RATES:

	Regular	Overtime
On-call	$ 75/hour	$ 90/hour
Minimum per call	300	360
Depot repair	50/hour	65/hour
Minimum per repair	200	260

For extended coverage, add 15% of basic monthly charge per 8-hour shift.

TERMINAL COVERAGE

MAINTENANCE COVERAGE:
Remote terminals, or when large numbers of terminals are involved.

UNIQUE CHARACTERISTICS:
1. Tandem will use "best efforts" to respond.
2. Charges are in addition to basic monthly maintenance as follows:

Miles from Service Office	Additional Charges for Terminals Remote from System Under Contract
0-50 miles	No charge
51-100	$10/terminal/month
101-200	$35/terminal/month
201-300	$50/terminal/month
Over 300	Actual travel expenses plus hourly rates for time

3. For Tandem products (T16/6520 and T16/6524) depot maintenance is offered.

Charges Are	BMMC
T16/6520	$10
T16/6524	$12

a. Tandem provides one shipping container on-site for every ten terminals under contract.
b. Terminals are repaired and returned within 10 days of receipt.

SOFTWARE COVERAGE

MAINTENANCE COVERAGE:
System operating software products.

EQUIPMENT COVERED:
All software.

UNIQUE TERMS:
After a problem is reported, Tandem will evaluate it and perform one of the following actions:

a. Provide a patch, update, or revision.
b. Provide a temporary bypass.
c. Provide a statement that the problem could not be verified and more data is necessary.
d. Provide a statement that the problem is not of sufficient magnitude to warrant immediate correction, whereupon it will be corrected in a later revision.
e. Provide a statement that the problem will not be corrected.

Maintenance will be performed during the specified periods of coverage.

TEXAS INSTRUMENTS

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

MAINTENANCE COVERAGE:
Uses "800" central dispatch. Board replacement/assembly replacement.

EQUIPMENT COVERED:
Small business systems, terminals, minicomputer systems.

GRADED SERVICE RESPONSE:
Priority - Response within four service availability hours (contracted hours).
Standard - Response within nine service availability hours.
On-Call - Response within nine hours to three days.

SERVICE HOURS:
8 a.m. to 5 p.m., M-F. Regular hours.
8 a.m. to 12 noon, M-F. Extended coverage.
8 a.m. to 5 p.m., Saturday. Extended coverage.
24 hours/day, 7 days/week. Full coverage.

BILLING PERIOD:
Monthly/annually.

PERIOD OF CONTRACT:
One year. After one year may be cancelled with 30 days' written notice.

EXCLUSIONS:
Work on equipment not covered by contract or not supplied by TI.

TRAVEL CHARGES:

Maintenance Agreement
Within 100 miles of TI service office, no charge.
Over 100 miles, $20/month for data terminals. For computer products contact TI-DSG field sales or service representative.

On-Call Service
$0.30 per mile both ways.

T&M HOURLY RATES:
Standard field rate - $72.
Overtime field rate - $87.
Travel charges $0.30 per mile.
Special rates for Hawaii.

TYMSHARE

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

MAINTENANCE COVERAGE:
On-site, on-call service.

EQUIPMENT COVERED:
Third-party maintenance, especially PDP 10/11 systems, multivendor peripherals, Ampex, CDC, Memorex, STC, and XDS equipment.

SERVICE HOURS:
8 a.m. to 5 p.m., M-F.
Extended service hours available.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
One or two years.

RESPONSE TIME:
Negotiable.

MAINTENANCE CREDITS:
Normal terms.

T&M HOURLY RATES:
$60/hour, M-F.
$65/hour, Saturday, Sunday, and holidays.

WESTERN UNION

DESCRIPTION OF MAINTENANCE TERMS AND CONDITIONS

MAINTENANCE COVERAGE:
"Flat rate maintenance contracts." On-call/on-site maintenance.

EQUIPMENT COVERED:
Siemens T100 ASR/USR/Ro, 28 Series, 32 Series, 33 Series, 35 Series, 43 KSR, 34 BSE, 300 Series, 1200 Series, 1232 RO, 1232 KSR, Video 100, Video 200, WVDSC.

SERVICE HOURS:
Not available.

BILLING PERIOD:
Monthly.

PERIOD OF CONTRACT:
Not available.

TRAVEL CHARGES:
Western Union provides for two-zone pricing.

	Zone 1	Zone 2
28 ASR	$56.00	$86.50
32 ASR	41.00	67.00
35 ASR	49.75	78.00
Video 100 (ADM 3 & 3A)	17.00	25.00
Milgo Modems (3 models)	9.50	13.23

T&M HOURLY RATES:

Normal hours	$57/hour
Overtime hours	72/hour
Holiday hours	88/hour

REMARKS:
A total of 35 products are maintained at monthly contract rates. Five products are maintained at T&M rates only.

APPENDIX C: RELATED INPUT STUDIES

APPENDIX C: RELATED INPUT STUDIES

- 1981 Field Service Annual Report.
- Marketing Field Services (1980).
- User Perceptions of Critical Maintenance (1981).

APPENDIX D: QUESTIONNAIRE

PRICING, PACKAGING AND SELLING FIELD SERVICES
VENDOR QUESTIONNAIRE

INPUT is studying the field services currently being offered by major vendors with particular emphasis on how service is priced, packaged and sold. The questions deal primarily with public information and your attitude relative to current offerings.

1. What is your percentage service revenue growth objective?

   1980 to 1981 _____%

   1981 to 1982 _____%

   1982 to 1985 _____%

2. Distribution of service revenue:

	1981	1985
Maintenance agreement, non leased	_____%	_____%
Maintenance of lease equipment	_____	_____
Time and materials service	_____	_____
Site preparation/installation	_____	_____
Software maintenance	_____	_____
Other _____	_____	_____
Parts and supplies, not included above	_____	_____
	100 %	100 %

3. Factors influencing service pricing. Please list most important factor first for each category.

Computers	Minis
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____

Peripherals	Terminals
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____

Word Processors	Software
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____

4. Briefly describe the process by which you determine service pricing.

_____

_____

_____

_____

5. In presentations and service related advertising, how is the value of service presented to the user?

_____

_____

_____

Do you believe the message referred to above has been understood and accepted by the users?

Understood _____yes _____no

Accepted _____yes _____no

Please explain: _____

_____

_____

6. Do you give discounts from established rates in the following cases? (Please indicate discount rate)

Multiple product discount	_____	to _____	units:	_____%
	_____	to _____	units:	_____%
	_____	to _____	units:	_____%
Multiple site discount	_____	to _____	units:	_____%
	_____	to _____	units:	_____%
User assisted service discount	_____%			
User-owned spares discount	_____%			
Other_____	_____%			

Do you expect discounts on service rates to be more or less common in the future? Please explain:

_____

_____

_____

7. Please describe the key elements and user acceptance of new service programs implemented in 1980-1981.

8. Recent INPUT research indicates users with critical applications are willing to subscribe to more costly service programs to improve system uptime or response time. What is your perception of user's desires in terms of new, more costly programs?

9. What factors within the direct control of the service organization will influence the creation of new service programs and how will service pricing be affected?

Factors influencing new program	Potential effect on service pricing

10. Please rate each of the factors below as having a high (H), medium (M) or low (L) effect on requiring alternate service strategies to be implemented and estimate the effect on service pricing, indicating increased prices (↑) and decreased prices (↓).

	Influence	Pricing Effect
Labor availability, quantity	_____	_____
Labor availability, quality	_____	_____
Competition	_____	_____
Users' requirements	_____	_____
Decentralization of equipment	_____	_____
Experienced & typical user	_____	_____
Equipment design	_____	_____
Sales Programs	_____	_____
Travel Costs	_____	_____
Parts Costs	_____	_____
Desire to increase service revenue	_____	_____
Desire to decrease service expense	_____	_____
Trend in equipment size	_____	_____
Trend in equipment cost	_____	_____
Remote diagnostics	_____	_____
User Maintenance	_____	_____

Comments: _____

_____

_____

11. Please briefly outline your opinion on how service will be packaged and priced in the future, i.e. 1985. Please put in terms of difference from 1981 practices.

_____

_____

_____

12. Do you have an active program to sell field services? Please explain briefly.

_____

_____

_____

Who is responsible for selling field services?

_____

_____

What percent of the typical responsible person's time is spent selling services?

_____%

What approximate expenditure in dollars is made each year to sell field services?

$_____

What amount of revenue results from the above expenditure?

$_____

Comments: _____

_____

_____

13. Assign a percentage to the following to indicate the share of new service business attributed to each:

User initiated	_____%
Warranty extension	_____
Maintenance Revenue from lease equipment	_____
Service related advertising	_____
Dedicated service sales group	_____
Service sales by hardware/software sales group	_____
Sales by service personnel	_____
Third party (distribution, dealer)	_____
Failure by competing maintenance vendor	_____
Other _____	_____
	100%

14. What are the primary sources for successful service sales personnel?

1. _____

2. _____

3. _____

4. _____

15. How are service sales personnel trained?

In technical material? _____

_____

In sales related material? _____

_____

16. Do you plan to change the way service is sold in the future 1981-1985? How? _____

_____

_____

_____

17. How should service be advertised to increase sales?

_____

_____

How much of the service budget should be spent in advertising?

_____%

How much do you spend? _____%

What media do you use, and what media are you considering?

_____

_____

18. Does your hardware service group presently perform any software maintenance? If yes, please explain software type, amount of time spent and percentage of total service revenue generated from software maintenance.

Do you plan to expand this activity in the near future, 1981-1985? In what way? How will the revenue share from software change?

19. If software maintenance is or will be a regular responsibility of the hardware maintenance group how will software support personnel report in the service organization ?

Will software support personnel be in the field or in support centers? Explain:

20. What is your basic equipment warranty policy for the following:

Computers _____

Minis _____

Peripherals _____

Terminals _____

Word Processors _____

21. What warranty extension's are available for:

Computers _____

Minis _____

Peripherals _____

Terminals _____

Word Processors _____

22. Please briefly describe service warranty (as compared to equipment warranty):

_____

_____

_____

How has basic equipment warranty changed in the past year?

_____

_____

_____

23. If the service organization performs warranty service; at what percent of the normal rate is the service organization paid by another internal organization?

_____%

Describe the procedure. _____

_____

_____

24. What changes in service or equipment warranty are anticipated in the near future? In 1981-1985?

_____

_____

_____

25. If your company also sells OEM what are your information requirements regarding the performance of OEM equipment in the field?

Are they being met?

How?

26. What is your companies' service posture on OEM equipment?

27. In conclusion do you have any final comments on the overall subject of pricing, packaging and selling of field services?

THANK YOU