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Abstract

This report identifies the major user and vendor issues related to service pricing. Vendor opinions on competition, competitive and pricing strategies, price bundling and warranties are discussed.

The report contains analyses illustrating the relationship between user satisfaction with service price and the vendor's service quality image.

The analyses indicate user perceptions of service price trends, and the relationship between equipment service and software support cost as a percentage of product cost.

This report contains 164 pages including 111 exhibits.

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Introduction

Introduction

Pricing Issues and Trends in Western European Customer Services is published by INPUT as part of the 1989 Customer Service Programme Europe.

A Objectives

The objectives of this report are to:

- Identify major pricing issues from the perspective of both the vendor and the user.
- Quantify the reasons why users are dissatisfied with service prices.
- Provide an overview of vendor views on:
  - Competition
  - Pricing strategies
  - Single-source service
  - Price bundling
  - Warranty trends
- Present data relating to user perception of service price trends.

B Scope

The scope of this report covers the whole of Western Europe. Data used for analysis was collected from users of fourteen equipment vendors' computer systems in ten countries throughout Western Europe.

- Belgium
- France
- Germany
- Italy
- The Netherlands
- Norway
- Spain
- Sweden
- Switzerland
- The United Kingdom

C
Methodology

The data presented in this report was compiled from the following sources:

- INPUT's 1989 survey of computer users throughout Western Europe; 1,200 interviews were completed at the time of this analysis. The sample and basis of the questionnaire was similar to that used in 1988. A copy of the user questionnaire is included in Appendix D.
- INPUT's 1988 survey of 1,711 computer users throughout Western Europe. The users were chosen at random and were interviewed by telephone in their native language. The user sample was comprised of users of fourteen vendors' computer systems. The basis of the interview was a questionnaire relating to over 150 aspects of service, compiled in discussion with major vendors.
- Interviews with 16 service managers of major computer vendors throughout Western Europe, including representatives at both the European headquarters and country levels. The vendor questionnaire is included in Appendix C.
- Details of the user samples are provided in Exhibits I-1 to I-3.

EXHIBIT I-1

User Sample Distribution by System Size

System Size	Sample Size	
	1988	1989
Large Systems	480	479
Medium Systems	867	535
Small Systems	364	186
Total	1,711	1,200

EXHIBIT I-2

User Sample Distribution by Major Country Market and Major Vendor

Major Country Markets

Country	Sample Size	
	1988	1989
France	295	164
West Germany	206	221
Italy	152	111
United Kingdom	491	385
Other Countries	567	319
Total	1,711	1,200

Major Vendors

Country	Sample Size	
	1988	1989
Bull	146	128
Digital	217	124
IBM	237	254
Unisys	179	102
Other Vendors	932	592
Total	1,711	1,200

EXHIBIT I-3

1988 User Sample Distribution by Vendor and System Size

Vendor	System Size			
	Large	Medium	Small	Total
Amdahl	79	-	-	79
Bull	29	69	48	146
Concurrent	23	48	9	80
Digital	81	83	53	217
Hewlett-Packard	-	109	-	109
IBM	43	148	46	237
ICL	82	80	41	203
ITL	-	33	-	33
NCR	8	66	14	88
Nixdorf	-	72	1	-
Olivetti	14	20	2	36
Siemens	9	8	14	31
Unisys	70	60	49	179
Wang	42	71	87	200
Total	480	867	364	1,711

D

Definitions and Interpretation of the Data

In this report, research data is segmented by system size. System sizes are defined as follows:

- Large System: a system that is considered by the vendor to form part of that vendor's large system product range, i.e., IBM 308X, 309X, Bull DPS 8, Digital VAX 8XXX.
- Medium System: a system that is considered by the vendor to form part of that vendor's medium system product range, i.e., IBM 43XX and S38, Bull DPS 7, Digital VAX 6XXX.
- Small System: a system that is considered by the vendor to form part of that vendor's small system product range, i.e., IBM S34, S36, Bull DPS 6, Digital Microvax.

- Importance ratings are on a scale of 0 to 10 and are defined as follows:

  0 = of no importance whatsoever

  5 = of average importance

  10 = extremely important

- User satisfaction ratings are defined as follows:

  0 = totally and absolutely dissatisfied

  5 = average satisfaction

  10 = totally satisfied

- The performance of various vendors' customer service can be compared using a Satisfaction Index, which is derived from the difference between importance and satisfaction ratings. The Satisfaction Index (ΔSI) is defined as follows:

  (1) = overfulfilled or oversatisfied

  0 = completely satisfied

  1 = concerns and worries

  2 = real dissatisfaction

  3 = pain level

Standard error is used in this report to indicate the degree of uncertainty between the sample mean and the total population mean. It is calculated by dividing the standard deviation (SD) of the sample by the square root of the sample size.

The relationship between user satisfaction with service price and vendor quality "image" has been tested using correlation analysis. The product moment of correlation coefficient has been established from the covariance of the variables divided by the square root of the product of individual variable variances. A correlation coefficient of "+1" or "-1" indicates perfect correlation and "0" denotes total disassociation (or no correlation); therefore, the degree of association can be estimated.

E

Report Structure

The remaining chapters of this report are presented as follows:

- Chapter II is the Executive Overview, which presents data in a condensed form to highlight the major points of the report.
- Chapter III presents analysis of data relating to vendor pricing issues and strategies.
- Chapter IV provides the vendors' perspective of competition and service needs.
- Chapter V presents analysis of data relating to user pricing issues.
- Chapter VI provides analysis of data related to user perception of pricing trends.
- Appendix A contains 1988 user price trend data.
- Appendix B contains 1989 user price trend data.
- Appendix C contains the vendor questionnaire.
- Appendix D contains the user questionnaire used in 1988 and 1989.

Executive Overview

Executive Overview

This executive overview highlights the major findings that result from issues and trends. These major findings are listed in Exhibit II-1.

EXHIBIT II-1

Pricing Issues and Trends

Major Findings

- User satisfaction with price depends on vendor quality image
- Software support pricing conflict
- Five warnings to alert vendors of decline in user satisfaction
- Vendors feeling competitive pressure on hardware service
- Vendor strategies encompass quality, flexibility and value
- User/vendor differences over pricing issues

A

Price Satisfaction—Quality Image Relationship

Analysis of data has revealed that user satisfaction with service price is related to and dependent on a vendor's service quality image. Vendors who retain a good service quality image tend to achieve higher levels of user satisfaction with service price. The converse is also true—a poor quality image is likely to cause user dissatisfaction with service price.

Measurement of a vendor's quality image is provided by a satisfaction index developed from a "reflex" response. During interviews, users are requested to rate the importance and satisfaction with a vendor's overall service performance. Answers to this question tend to produce an immediate or "reflex" response. More-detailed questions isolate specific aspects of service and tend to produce a weighed or more considered response from the user. Differences between importance and satisfaction ratings produce a satisfaction index (Δ SI) and it is the satisfaction index related to the reflex response that provides a measure of the vendor's service quality image. When the satisfaction index reaches a value of 1.0 or higher, this suggests increasing degrees of concern or dissatisfaction among users.

Development of a vendor's quality image resulted from analysis of the relationship between reflex response and user-perceived measurable service performance. Details of this analysis are contained in a report entitled *Quality Issues—Western European Customer Services*, published by INPUT in June 1989.

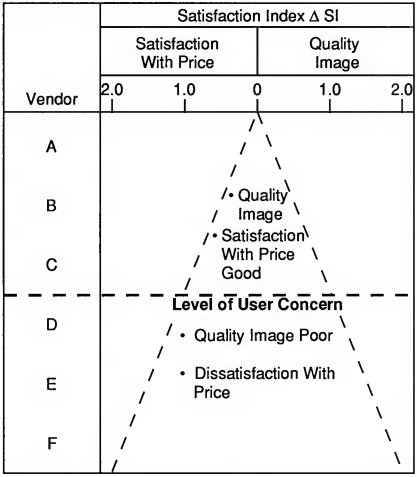
Exhibit II-2 illustrates the relationship between quality image and satisfaction with price. The triangle bounded by dotted lines defines the ideal relationship, where the two factors are perfectly related. In statistical terms, the correlation factor for this ideal relationship would be 1.0. In practical terms, analysis of user data gave correlation factors of 0.7 for hardware service and 0.8 for software support.

The horizontal dotted line bisects the triangle at the point where quality image and satisfaction with price are equivalent to a satisfaction index of 1.0, the level at which user concerns and worries start to show. In the ideal example given in Exhibit II-2, vendors A, B, and C are indicated as retaining a good service quality image and hence users are relatively satisfied with service price. Vendors D, E, and F have a poor quality image (Δ SI greater than 1.0) and hence users are dissatisfied with service price.

Analysis of user data is contained in Chapter V of this report, and the relationship discussed is presented in Exhibits V-1 and V-2.

EXHIBIT II-2

Price Satisfaction Quality Image Relationship



Completion of this analysis has demonstrated two factors:

- User perception of a vendor's service quality image is related to measurable service performance.
- User satisfaction with service price is dependent on user perception of the quality of service provided.

During interviews with vendors, the term "value for money" was mentioned on numerous occasions. One interpretation of the analysis discussed here is that user satisfaction with service price is an indication of the perceived value for money provided by the quality of service delivered.

B

Software Pricing Conflict

There is a potential conflict arising about the pricing of software support. Although this conflict was only referred to in discussions with two vendors, additional supporting data suggests that it could signal a major issue and also a potential opportunity for vendors. The matter in contention results from two conflicting viewpoints which are summarised in Exhibit II-3.

EXHIBIT II-3

Software Pricing Conflict

- Users believe that software support should be included in price or license fee.
- Vendors consider that users need to recognise that software support should be paid for.

- Users have a belief that once software has been purchased or licensed, support of that software should be inclusive in the fee paid.
- Vendors consider that there is a need among users for recognition that support of software should paid for.

Although when taken at face value the two issues are in direct conflict, the real question is a matter of degree. From each perspective both viewpoints are plausible. Users would argue that correction of software faults is the responsibility of the vendor, however many software faults (or "glitches") arise from the interface between operating systems software, and applications. An opportunity exists for vendors to include a basic level of support with the software fee, and at the same time provide a chargeable additional service related to performance enhancements and rationalisation of non-critical problems.

A phrase that can be used to define this approach is, "bundle the support but unbundle the functionality."

Further support of this conflict is provided by views on bundled pricing. Vendors and users are almost equally divided in opinion as to whether bundled or individual pricing is the correct approach. This division

suggests that both communities are unsure or confused. An opportunity could exist here for vendors to take the lead and provide market direction, by the restructuring of software support to answer both sides of the issue. For example, bundled support of a limited nature supplemented by chargeable added-value services such as updates, performance enhancement, and consultancy, could provide both an equitable solution and clear direction in terms of pricing policies and support strategies.

One further enhancement could be the clear formulation of software warranty policies. Software warranty is an extremely difficult and complex area, due to the impracticality of the vendor being able to test and prove software to cover every possible eventuality.

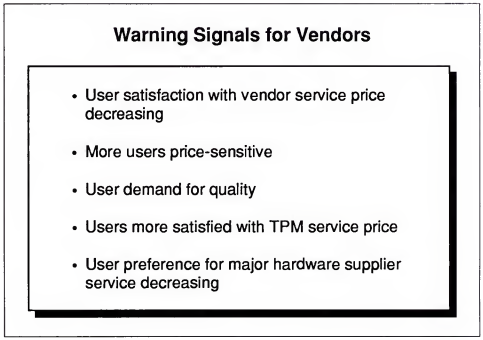
C

Warning Signals for Vendors

INPUT has identified five trends that could be potential danger signals for hardware vendors. These trends, which emerge from the results of user research data and relate to changes that have occurred between 1988 and 1989, are listed in Exhibit II-4.

- User satisfaction with service price, especially with hardware service, decreased between 1988 and 1989. For example, the satisfaction index related to large systems hardware service declined from 1.2 in 1988 to 1.6 in 1989, and changes in the medium and small systems sectors are similar. Trends in satisfaction with software support pricing are less significant, but show slight decline in all three system size sectors. Reference to Exhibit V-4 will provide more detailed information.

EXHIBIT II-4



- During interviews, users are invited to rate the value of service, and based on these ratings INPUT has categorised the price/performance ratio. Users who rate service as being "good value" or "expensive, but worth it" are categorised as considering service to have a high price/performance ratio. Users who rate service as "expensive but not worth it" or "too expensive" are categorised as considering service to have a low price/performance ratio. Additionally, this latter group of users is considered by INPUT to form the more price-sensitive portion of the market. Between 1988 and 1989, the price-sensitive portion of users has increased in some sectors of the market. For example, the large and small systems sectors of the hardware service market is indicating an increase in price sensitivity from around 18% to 27% between 1988 and 1989. In the software support sector, the changes are much less significant (except for small systems, where the price-sensitive portion has increased from 19% to 24% over the same period), but the trend suggests a marginal increase.

- User preference for quality of service is indicated by users rating the quality aspects of service as being more important than price, a situation which was apparent in both 1988 and 1989. Importance ratings given by users to several aspects of service quality, from systems availability to software response times, averaged 9.0 in 1988 and 8.8 in 1989. Compared with these ratings, the price of service was rated at 8.2 in 1988, lowering to 7.9 for hardware service and 7.5 for software support in 1989. This data suggests that quality is the primary consideration and that price is secondary. Further, user dissatisfaction with price relates more to quality or value for money than to actual price. Decreasing importance of service price between 1988 and 1989 indicates increased user need for quality, especially in the area of software support.

- User satisfaction with TPM company service price relates to hardware service, as this is the primary service sector in which TPM companies operate. In 1988, user satisfaction with hardware service price, comparing equipment vendors with TPM companies, was relatively similar. However, in 1989, the difference in user satisfaction with price between these two types of vendor has widened. User satisfaction with TPM service price has remained similar to that for 1988, while user satisfaction with equipment vendor hardware price has decreased from 1.1 to 1.5. This rating compares with 0.9 for TPM companies in 1989. The significance of this trend is that equipment vendor service pricing remains a subject of user concern and worry (Δ SI greater than 1.0), whereas the ratings for TPM company service pricing suggest a reasonable level of user satisfaction (Δ SI less than 1.0).

- The proportion of users indicating a preference for single-source service has increased from around 68% in 1988 to 78% in 1989. However, during this same period, the proportion of users who would prefer

that service be provided by their main hardware supplier has decreased, except in the medium-sized systems sector. An example is provided by the small systems sector, where preference for the main hardware supplier has declined from 88% to 72%. Although a smaller change is indicated in the large systems sector, from 88% to 84%, this could prove more significant, as preference has increased for "one of the hardware suppliers," suggesting a more open approach developing in an area which is traditionally the major hardware suppliers' province.

D

Key Pricing Issues

The major issues that emerged from discussions with vendors and user data are listed in Exhibit II-5.

EXHIBIT II-5

Key Pricing Issues

The Vendors

- Competition from TPM
- Impact of increased product reliability
- Need for new initiatives
- Service packaging

The Users

- Satisfacton with price
- Quality more important than price
- Single-source service

These issues are related more to hardware service than to software support; data indicates that user satisfaction with price is less an issue for software support, and twelve vendors out of sixteen interviewed claimed that there was no real competition for software support. User priorities are to obtain quality service, a factor supported by price being rated lower in importance than those aspects of service that relate to quality. Also, comparisons of user data suggest a relatively high degree of correlation

(0.7 to 0.8) between satisfaction with service price and the vendor's service quality image.

Competition was the major issue raised by vendors when discussing hardware service, and the major source of competition identified was that from TPM companies. The size and credibility of TPM companies is growing. Granada Computer Services leads this trend, and is now the market leader in Western Europe by a large margin, being more than three times larger than any other TPM company. Granada evolved from a highly-focussed policy of acquisition, and is now being followed by Thomainfor and Concept, both French companies which have recently made major acquisitions. INPUT research into the TPM market indicates that market growth is three times higher than overall growth in the hardware service sector, suggesting that hardware vendors are losing market share to TPM companies. The result of TPM activity has been to restrain hardware service prices. A recent report, *Quality Issues in Western European Customer Services*, published by INPUT in June 1989, discovered that a majority of vendors considered that service quality was being constrained by price, or could be, if pricing pressures increased.

Increased product reliability is a feature claimed by vendors to be creating a perception among users that products need less service, or that service can be provided at lower prices. One example of the extreme impact of this perception was provided by four vendors who commented that reliability of personal computers had reached such a high level that 60% to 80% of sales did not result in a formal service contract.

User preference for single-source service is increasing, with 78% of users indicating this preference in 1989 compared with around 68% in 1988. INPUT considers that the driving force behind this trend is users concentrating on the business benefits of computer systems and not on computer technology and methods. Therefore, preference for single-source service indicates a willingness to be relieved of as much unnecessary involvement in computer system housekeeping as possible. A single point of contact for service and problem resolution is the likely user objective in this outsourcing scenario.

The need for new initiatives was highlighted by vendors as the most significant software support issue. This issue also provides an opportunity for vendors to use marketing and promotional techniques—for example, developing remote support techniques and problem databases into pro-active service aids providing readymade solutions on demand. By renaming these services "software enhancement services" and promoting the value-added advantages, vendors could generate new services and thus add further elements of customer care. A second opportunity exists in integrating operating systems and applications support. However, vendors were equally divided on the feasibility of this approach.

Vendors consider that software and hardware boundaries are blurring, indicating a need to repackage service into a combined hardware and software offering. Five vendors suggested that this form of repackaging be taken into account when formulating new contracts, doing so would give the vendor a service advantage over those who continue to treat these aspects separately. System-level contracts could be a future trend.

E

Key Vendor Strategies

Exhibit II-6 identifies the key strategies being adopted by vendors to address both competitive and pricing issues. These strategies suggest that vendors are positioning themselves to address the needs and concerns of users, and that they recognise the need to provide service which satisfies user requirements.

EXHIBIT II-6

Vendor competitive strategies encompass a variety of related approaches, which can be summarised under three major headings—quality, flexibility, and range of services offered.

- Quality of service is a key user need which was recognised by vendors. Vendors rated the importance of quality at 8.9, a rating which closely matches that given by users. Vendor ratings for the importance of price

were lower than those expressed by users—6.4 compared with around 7.8 in 1989. One factor of significance is the decisive nature of ratings that identify the higher importance of quality over price.

- Identification of flexibility as a key strategy was in recognition that user needs and requirements vary considerably. Service contracts are becoming more flexible, offering a number of levels of service that can be provided with differentiation in terms of response times and hours of coverage. Two specific examples of flexibility and user choice are provided by the Unisys "A La Carte" and Hewlett-Packard's recently introduced "Enhanced Software Services."

- Providing a wider range of services is also an increasing trend, as vendors search for methods of enhancing service revenues following the stagnation of traditional maintenance revenues. Vendors see this extension as a key strategy in reducing the potential penetration of competitors. Unless a vendor offers the range of services required by users, the user has no option but to consider other, and often competitive, sources. Once a competitor has achieved access to a site, this can provide leverage to increase penetration in other areas. Also, where a number of vendors are providing service, the user has the opportunity to compare performance. Future vendor pricing strategies should be based on flexibility, value for money, and retaining a competitive edge.

The pricing strategy most commonly mentioned by vendors was to be flexible, not only in terms of service offerings, but also in matching user needs by balancing service quality with price. Thirteen vendors mentioned this aspect of pricing strategy. Among the options available to vendors, the following are examples:

- Provision of flexibility by tailoring the service offering to match system activity levels, with emphasis on the need to allow for periodic peak activity and lower levels at other times

- Allow for differing levels of service to be available, based on the critical importance of various system components. A high level of service could be provided for critical components such as the CPU, with a lower level for non-critical peripherals.

Pricing based on value was a strategy mentioned by eight vendors, whereby the user would have the option to choose the quality of service required. In situations where a higher quality of service is required, these can attract higher prices. The perceived value of service is the key factor; if service has a high perceived value, the user is more likely to accept higher prices, whereas if service has a low perceived value, the user would be less willing to pay more than a basic price. User research confirms a requirement for value for money by demonstrating that satisfaction with price is related to the vendor's service quality image.

Competitive pricing strategies suggest vendor recognition of the following:

- Vendors should study costs and competitive activities, and use this information to construct a pricing policy that allows demonstration of a competitive position.
- Pricing strategies should be structured to resist competitive pressure from other vendors.
- Strategies should be sufficiently flexible to allow fast reaction to competitive pressures.

Cost of ownership is thought by vendors to be an increasingly important consideration among users when they are making purchasing decisions. Therefore, the vendor should balance product and service pricing strategies, and consider the same parameters as users do when developing these, in order to maintain a competitive position.

F

Recommendations for Management

Exhibit II-7 lists four strategies for service management recommended by INPUT. These recommendations are based on the results of user research and, although a degree of vendor recognition already exists, are underlined by INPUT as potential keys to a successful future for service organisations.

EXHIBIT II-7

Recommended Management Strategies

- Quality service
- Single-source service
- Clear policy on individual/bundled pricing
- Greater consistency in extent of price increases

Quality service is a paramount user requirement, highlighted by:

- Vendor quality image
- User satisfaction with service price
- Users' importance ratings on quality aspects of service
- The increasing proportion of users who are becoming price-sensitive

Quality infers not only quality per se, but also value for money. INPUT considers that a vendor is more likely to lose business as a result of poor quality than overpricing. Vendors should pay special attention to quality, value for money, and cost of ownership.

Users indicate a strong preference for single-source service, as emphasis shifts from running computer operations, to computers becoming business tools. Based on 1989 user research, 78% of users prefer single-source service. Vendors are recommended, and are well positioned, to structure single-source service offerings that satisfy the majority of user requirements. In doing so, they will reduce potential competitive penetration of sites.

An opportunity exists for vendors to play a leading role in resolving the issue of individual versus bundled software support pricing. Both vendor and user communities are evenly divided over this issue, although a number of vendors are confused about or unsure of user requirements. Bundling a basic level of support with licence fees and offering enhanced options at extra cost would likely satisfy user needs, and would provide vendors with an opportunity for incremental revenue from high-profile activities in increased customer care.

Vendors' selective pricing activities are limiting service revenue growth from the current installed base of equipment. Selective pricing means that not all users receive a regular annual service price increase. For example, around 50% of users claim to receive regular price increases, but the balance claims no change in service prices. In simple terms, if 50% of users receive a 10% price increase, these users may feel that price increases are excessive, and the overall impact on vendor revenues is equivalent to a 5% increase for all users. A compromise situation would be for all users to receive (for example) a 7% increase, which would likely be a less emotive issue for users, and would result in an improved revenue return to vendors. Vendors are recommended to reevaluate price increase activities, to optimise results and at the same time improve user satisfaction with price.

Vendor Pricing Issues and Stratregies

III

Vendor Pricing Issues and Strategies

A

Pricing Issues

Vendors were asked by INPUT to give their opinions of the major issues confronting vendors relating to the pricing of service. A summary of these vendor opinions is listed in Exhibit III-1 and III-2.

EXHIBIT III-1

Vendor Pricing Issues
Hardware Service

Issue	Number of Mentions
• Competition and competitive environment	11
• Increased reliability of hardware	7
• Extended warranty and 3-year contracts	3
• Stability of prices	3
• Cost of ownership	2
• Cost of spare parts	2
• LargeTPM companies	1
• Increasing labour cost	1

Sample Size: 16
Multiple responses allowed

EXHIBIT III-2

Vendor Pricing Issues
Software Support

Issue	Number of Mentions
• Need for fresh initiatives	7
• Opportunity for "packaging" services	5
• Competition and competitive environment	5
• No real issues or competition	4
• Increasing user expectation of service will tend to increase prices	3
• User belief that support should be included in license fee	1

Sample Size: 16
Multiple responses allowed

1. Hardware Service

a. Competition and the Competitive Environment

The most commonly mentioned issue related to pricing issues in hardware service was competition and the competitive environment.

A number of factors influence the competitive environment that currently exists in the area of traditional hardware service or maintenance. In the main, these center around increased awareness of users. This increased awareness stems from a variety of factors, such as the competition resulting from open tendering of contracts, which gives increased visibility to third-party maintenance companies and multivendor service offerings. Of particular note in this area are the approaches adopted by some government departments in the U.K., where maintenance contracts are offered for open tender as a matter of course. Two vendors commented that many users are now aware that maintenance contracts are negotiable and also that they are no longer tied to the supplier or manufacturer of the hardware. Having supplied the hardware system, the vendor can no

longer assume that a maintenance contract is an automatic source of additional revenue.

Competition from other vendors through multivendor service offerings, predominantly TPM companies that are now gaining in credibility as an alternative to manufacturer maintenance, was mentioned by seven vendors as having a major influence on the competitive environment. One vendor added that manufacturers are now required to provide value for money in terms of the balance between the quality and price relationship of service.

Another vendor offered the opinion that due to the pressures in the current competitive environment, prices have bottomed out at the lowest level that will support a reasonable level of service delivery. Further comments from vendors concerned the need to differentiate service offerings to boost product sales. This specific comment suggest that product sales and service may no longer be considered separately; a mix of product/service as a package could be a decisive element in successfully gaining a sales contract.

One example of a "total solution" is provided by Unisys, which has recently structured a new form of contract. This contract provides a mix of product and service offerings at the time of initial sales negotiations. The customer needs to sign only one itemized contract to purchase the product(s) and whatever services and support items are required. One signature and one piece of paper—even tiered service offerings are covered in the choices presented by the contract.

That TPM companies are becoming more effective in terms of competitive capability is demonstrated by INPUT's research into the TPM market, published in a report entitled *Independent Maintenance in Western Europe, 1989—1994*. Growth rates for the TPM market in Western Europe as forecast in this report indicate that the TPM market growth over the five-year forecast period is approximately three times higher than that forecast for the overall hardware maintenance market (TPM companies predominantly provide hardware maintenance). This differential in growth factors underlines not only the success that TPM companies are enjoying, but also suggests the competitive pressures that exist between equipment vendors and TPM companies.

b. Increased Reliability of Hardware

Increased reliability of computer and related hardware has become a notable achievement of the hardware manufacturers over the last five to ten years. This achievement has resulted from improved technology processes, hardware packaging and microminiaturisation; from user demand for higher reliability because of the increasing criticality of computer systems to the users business; and from competitive pressures

in the market between vendors aiming to increase penetration and secure contracts.

However, this increased reliability has proved to be a double-edged sword and was identified by seven vendors as a major issue influencing the pricing of hardware maintenance. The pressure created by increased reliability results from a perception among users that service now costs less and is required less often. One result of this perception is that users are expecting to pay less for service, or even consider that equipment is sufficiently reliable not to require a service contract. During discussions with vendors, four commented that the reliability of personal computers had reached such a high level that a very high percentage of sales (60% to 80%) did not involve a formal service contract.

In the larger systems sector of the market, computer systems are considerably more complex and user resistance to service contracts is generally not significant. However, due to improved reliability and the implementation of service aids such as remote diagnostics, auto call-back and built-in resilience, users still expect to pay less for service. Further, as manufacturers promote more advanced products with claims for improved reliability, the pressure on service prices increases. The IBM AS/400 is an example; a recent survey in the U.K. highlighted the success of this product in reducing running costs and cost of ownership due to reductions in service requirements over previous IBM products.

c. Extended Warranty and Three-Year Contracts

This aspect of service was identified by three vendors as a major issue, and other vendors also referred to this aspect as an area of both difficulty and confusion. One question raised by these vendors was, "What is the difference between extended warranty and long-term contracts?" Whichever term is used, the user usually pays a price and the end result is little different. What does differ is the method of promotion and the method of payment.

If the user is provided with a genuine warranty (that is, the provision of guaranteed free service exclusive of any price increases for the hardware), the effect is to remove a portion of service revenues equivalent to the warranty period. An example is provided by a vendor who extends the warranty period from 90 days to 12 months without increasing product prices, as was announced recently by Unisys for products in the U.K.

The effect of genuinely extended warranty is to produce the same result as overall price reductions, in that service revenue is reduced whilst the same level of service is being provided.

Some vendors provide what is termed extended warranty, for which the customer pays a price, either in addition to the product price or as a

separate charge. Whatever term is used to describe this tactic, the result is a long-term chargeable service contract. An approach of this type has both advantages and disadvantages depending on how payment is structured.

- If payment is a one-time event, the vendor has the advantage of prepayment and a long-term contract with the user, up to three years in some cases. The disadvantage is that the vendor needs to service the user during its term by providing resources to honor the contract. In the case of contracts longer than one year, the vendor is not receiving funding for the cost of those resources in the second and subsequent years.

- If payment is made at periodic intervals, the vendor has the advantage of a long-term contract and regular income to more evenly fund the resources required for servicing.

The result of either extended warranty or a long-term contract is to create pressure on service pricing. While achieving a balance between speculation on inflation rates, currency exchange rates, and other economic factors, the vendor must also structure pricing and warranties to be attractive to customers.

One factor that emerged during discussions with two vendors was that if demand for a vendor's products is healthy, there is little pressure from users to extend warranties. The opposite of this is a suggestion that vendors selling in competitive markets feel more pressure from users to extend warranties so as to improve the competitiveness and attractiveness of products.

d. Stability of Prices

Stability of prices was highlighted by three vendors as a major issue in hardware service pricing. The issue at stake here mainly concerns vendors' discounting policies and the impact they have in terms of destabilising the market and unsettling users. Vendors believe that some communication exists between users, in exchanging information about discounts received. An exchange of information that varies in accuracy can have further unsettling influence on prices, and can exert pressure on vendors for compliance.

Further destabilising effects can be due to reducing product prices, and fluctuations in product prices. As product prices fall, the cost of maintenance can become disproportionate, causing pressure on vendors to reduce maintenance prices accordingly.

A related comment from one vendor was that the announcement by IBM of the Corporate Service Amendment (CSA), although not implemented

in Europe, had produced a "spin-off" effect, in that IBM user expectations were raised in anticipation of a similar reaction. However, a second vendor commented that announcement of recent IBM price increases in the U.S. may help to improve price stability in Europe.

Users are considered by vendors to be more demanding of service, while, at the same time, resisting price increases that may result from increased demands. User requirements for the level of services provided are increasing.

e. Cost of Ownership

An issue raised by two vendors was that users are tending to look more towards cost of ownership as a measure of judging the cost-effectiveness of computer hardware. Previously, users would compare either competitive product or service costs, or both. Users are looking at cost of ownership over periods of three to five years as part of the decision-making process involved in the purchase of a computer system.

The effect this has is to motivate the vendor to analyse all aspects of a sale to ensure a competitive position. In turn, this can cause conflict within the vendor's organisation. Product costs and service costs need to be carefully balanced in order to not only provide a competitive solution to the user, but also to ensure reasonable margins. One vendor expressed an opinion that the provision of added-value services is an opportunity, which allows the vendor to create a method of differentiating products from those of the competition, and at the same time possibly enhancing the user's perception of cost of ownership.

The vendor who raised this issue claims that reductions in cost of ownership are being forced by pressure from users, but also that the discount policies and tactics adopted by some vendors is providing stimulation.

f. Cost of Spare Parts

Two vendors claimed that the price of spare parts is high and tending to increase with time. The major reason for this is the trend towards modularity and large-scale integration of complex system components. A field replaceable unit (FRU) now tends to be a major sub-assembly, where previously exchange of lower-level parts would have been possible. A number of factors are contributing to the current and rising cost of spare parts resulting from the previously mentioned changes in sparing policies.

- User need for a fast response to hardware failure requires ease of access to spare parts, hence increasing inventory levels and the cost of funding these.

- The high level of exchange subassemblies is increasing the cost of individual spareable items.

- Many manufacturers import spare parts from the manufacturing base, which is often located outside the EEC. In this case, parts costs are subject to currency exchange rate fluctuations, and although these can be beneficial as well as detrimental, the vendor has to make allowance for adverse fluctuations when pricing spares.

g. Large TPM Companies

The vendor who raised this as a major issue was influenced specifically by the creation of Granada Computer Services, now the leading TPM company in Europe by a relatively substantial margin. Comments made about this issue are as follows:

- The creation of large TPM companies provides an independent alternative to manufacturers' service that also has a high degree of stability and credibility not found with smaller companies. A large TPM vendor can achieve credibility that approaches that of the manufacturers.

- In the case of Granada, the creation of the company through a policy of acquiring existing market leaders removes competitive elements from the market. Previously, these companies would have been competing against each other.

- Does the existence of large independent companies reduce their attractiveness in terms of "local friendly service?"

h. Increasing Labour Costs

One vendor raised the issue of rising labour costs. The cost of providing labour for servicing customer sites is increasing, due to inflation and general increases in the expected standard of living. At the same time, service prices are falling due to user pressure and the influence of declining product costs, which is causing reduced margins.

INPUT considers that balancing quality/price relationships may also be influencing this issue. Previous research, published in a report (June 1989) entitled *Quality Issues in Western European Customer Services*, provided data suggesting that over 50% of the vendors interviewed considered that price was a constraint on the quality level of service provided, or could be if there was any further pressure on service pricing.

2. Software Support

a. Need for Fresh Initiatives

The need for fresh initiatives in the area of software support was the most commonly mentioned major issue, and was attributed to seven of the vendors interviewed. Vendor comments related to this issue can be summarised as follows:

- Redefinition of service through the implementation and application of remote support techniques. The application of problem databases and artificial intelligence can enhance the level and quality of support provided to customers. Full use of these systems can ensure that problem resolution is turned into an almost pro-active routine as ready-made solutions to known problems can be provided on demand.

- A need to provide "value for money" software support. Again, the use of remote techniques can be used to the vendor's advantage, perhaps by renaming a problem data-base to become a software enhancement service, and promoting the added-value aspects of this type of service. One vendor commented that managing users' software is a real opportunity; pro-active installation of software upgrades and known problem patches can add value to the service provided, and may assist in the prevention of future incidents.

- The interface between operating systems and applications software can be the cause of incompatibility problems. Two vendors recognised this as an area of opportunity in terms of problem-solving. One vendor commented that support of applications software is an expanding market, not so much in terms of traditional software support, but through the provision of consultancy services and expertise. Vendors with the capability to develop user software management could well capitalise on the provision of expertise and consultancy as an added-value service. The newly-announced "Enhanced Software Support Services" from Hewlett-Packard contain many elements of this type of service in the top level TeamLine service offering.

- The opportunity to provide additional software support was highlighted by four vendors as the way forward through the development of new initiatives.

b. Opportunity for "Packaging" Services

The major issue relating to the "packaging" of services is that hardware and software boundaries are blurring. All five vendors that raised this as a major issue considered that the need to package hardware service and software support should be taken into account when formulating service

contracts, and that this approach should be used to provide flexibility of service offerings.

Two vendors claimed that contracts which combine hardware service and software support give the vendor a service advantage over competitors that still consider these items separately. At the Smecon conference in early 1989, one of the speakers stressed that it was not users who separated hardware service and software support, but vendors. The speaker further stressed that users require service—not hardware service for the hardware and software support for the software—just service.

c. Competition and the Competitive Environment

One conclusion that INPUT has arrived at is that competition is much less of an issue relative to software support than to hardware service. The issue was highlighted by five vendors, compared to eleven that mentioned the competitive environment as a major issue in hardware service pricing.

Of the vendors concerned with the competitive environment, three identified that concern as being due to third parties starting to offer both hardware service and software support. These vendors commented that this trend was directed towards the so-called "standard" systems market, such as UNIX-based systems. However, some vendors still believe that TPM companies cannot support software.

One vendor felt that there was a need to maintain or even improve the competitiveness of software support, and at the same time to maintain revenues and profit levels. This comment suggests that some vendors may be feeling pressure from users on software support pricing. One further comment from a vendor suggested that competitive pressures are more apparent at the lower end of the market.

d. No Real Issues or Competition

Comments about the existence of issues or competition in software support display a difference of opinion between vendors. Five vendors highlighted the competitive environment as a major issue, whereas four vendors claimed that there were no real software support pricing issues or competitive pressures.

The situation was concisely summed up by one vendor who remarked that there was talk of pressure on pricing, but felt that there was no real pressure on software support pricing. This indicates a degree of confusion and nervousness on the part of vendors as to what the real issues are. INPUT user research suggests that the real issues may concern quality of service rather than pricing.

e. Increasing User Expectation of Service Will Tend to Increase Prices

One major issue is the fact that vendors see an increase in user requirements, and that users expect software to work. There are two main parts to this issue:

- The problem is not that software does not work, but that users consider the level of flaws or "bugs" in software unreasonably high.
- Skill levels are highlighted by user research as the most important item of concern regarding software support.

One vendor contended that a shortage of specialists and affordable skilled engineers is a major issue. The vendor was offering an opinion that in order to satisfy the needs for specialist skills, software support prices will need to increase to cover additional costs.

One important aspect is demonstrating to users that the skill levels required to provide the necessary degree of support do exist. There is a question of engineer visibility in this situation—the higher the level of expertise, the more remote the specialist is from the customer. Specialists are accessible but not necessarily "visible" to the customer.

As user expectations of service increase, the demand and need for increased skill levels will also increase. However, this need is biased towards enhanced services rather than the more traditional areas of operating systems software support.

f. User Belief that Support Should Be Included in the Licence Fee

The issue that support should be included in license fees was raised by one vendor. However, discussions with that particular vendor, in addition to a related aspect mentioned by a second vendor, suggest that this particular aspect of software support pricing could well prove to be one of the key issues. The issue, in fact, comprises two conflicting views:

- The main issue mentioned here concerns user belief that once software has been purchased or licenced, that support of that software should be inclusive in the fee paid.
- A secondary issue is that vendors want the user community to recognize that support of software should be paid for by users.

On the face of it, these two issues are in direct conflict with each other. The question is a matter of degree; from the user's point of view it is possible to argue that software faults are the responsibility of the vendor and should be corrected free of charge, or at least without any additional

payment. However, from the vendor's point of view, many software faults are the result of the interface between the system software and the applications. Also, changes or new releases of applications software may reveal faults that were not previously apparent in the operating system.

The situation is further complicated by the fact that many new releases of systems software are implemented to enhance performance. It is quite common for vendors to include new or known "bug fixes" in new releases as a convenient opportunity to implement these, even though the problems caused to users may be minor or affect only a small proportion of users.

One solution that is simple to implement from a logistical point of view is for vendors to allow for support in the pricing structure. Many vendors take this approach, for example IBM and ICL. However, this does tend to increase the costs to the user and may also slightly diminish the vendor's willingness to respond to less-than-critical problems—support does not result in increased revenue. Also, some users are opposed to "bundled" pricing policies, preferring to see itemised costs.

INPUT's recommendation is that vendors consider the following courses of action:

- Examine and review software warranties and consider structuring a warranty policy that provides a degree of support. Support could be provided either for a fixed-time period, (i.e., twelve months) or for the duration of the licence period. This type of approach could be structured to provide a basic level of support.

- Offer the user a choice of additional support that is funded by either periodic payments or a one-time charge included in the payment fee. Some vendors, such as Hewlett-Packard and Unisys, already have a tiered support structure that provides a range of choices. Using both techniques, the user would be free to choose the method of payment and the level of support required.

There is a case for providing a basic level of support for resolution of critical problems at no charge to the user. There is also a case for support beyond the basic level to be chargeable, because the support of software is a costly activity and requires highly-skilled staff.

B

Vendor Pricing Strategies

During the course of interviews, vendors were asked what they considered to be appropriate pricing strategies, taking into account:

- Competition
- Customer needs
- EEC harmonisation
- Changing market environment

A consensus of vendor opinions is listed in Exhibit III-3.

EXHIBIT III-3

Vendor Pricing Strategies

Strategy	Number of Mentions
• Provide flexible service offerings and match customer needs by balancing price and quality	13
• Provide value for money	8
• Be competitive	6
• Consider cost of ownership	4
• Adopt pan-European pricing policies	3
• Assure quality	2
• Match service strategy to product strategy	1

Sample Size: 16
Multiple responses allowed

The most frequently-mentioned strategy was that of providing flexible service offerings and matching user need by balancing service quality with price. This strategy was mentioned by thirteen vendors.

Flexibility of service offerings has two aspects. The first is concerned with tailoring service delivery to match user needs in terms of response times, hours of coverage, out-of-hours provisions and special consideration of user needs for extra cover during periods of peak activity.

The second aspect of flexibility concerns providing the user with a choice of available levels of service. This aspect could also incorporate items previously mentioned, but is specifically concerned with providing a choice ranging from a basic as-required type of service, to on-site personnel and spare parts. By being provided a choice, the user can select

from the various levels offered that which is most appropriate to system needs. A further option is to offer higher levels of service for critical parts of the system, such as the CPU, and lower levels for less critical items such as peripherals. In effect a mix-and-match approach provides the vendor the added opportunity of pricing for value.

Pricing for value and allowing the user to choose between various levels of service effectively balances quality with price. A higher level of service, inferring increased quality, can command a price consistent with the quality of service rendered. However, quality has a second connotation in that the vendor must deliver service consistent with user expectations; otherwise the perceived value of service can diminish.

Value for money was a strategy mentioned by eight vendors. This strategy is closely related to flexibility and quality, in that these aspects could be perceived by users as components of value for money service. One vendor commented that perceived value for money increases with increased sophistication and awareness of users. The inference was that the more "educated" the user, the more appreciative the user is of the value of service. Conversely, a less "educated" user is less well equipped to appreciate not only the value of service, but also the need for it, until serious problems arise.

One vendor suggested that service should be priced based on value, suggesting that high levels of service reflect a higher user perception of value and hence can attract higher prices. The converse is also true, in that if service has a low perceived value, the user would be less willing to pay more than a basic price. This aspect of pricing strategies was supported by a second vendor, who suggested the use of a base pricing policy supplemented by price increases related to both enhanced value and use of service.

INPUT user research tends to confirm a user requirement for value for money. This research has established a relationship between user satisfaction with service price, and user-perceived vendor service quality image. The research also provides a measure of how users judge value for money.

Competitive pricing was the third most commonly-mentioned pricing strategy, and a number of competitive aspects were referred to by vendors in relation to this:

- The vendor should study costs, competitors' activities and positions, and user requirements. From this information, the vendor can then construct a pricing policy that demonstrates a competitive position.

- Pricing strategies should be structured at a level that is sufficiently attractive to retain customers in the event of competitive pressure from other vendors.

- Pricing policies should be sufficiently flexible to allow the vendor to react quickly when faced with competitive situations.

Cost of ownership was mentioned as a pricing strategy by four vendors, and a closely-related subject, that of matching service pricing strategy with product pricing strategy, was mentioned by an additional vendor. From discussions with vendors it is becoming apparent that an increasing number of users are basing purchasing decisions on total cost of ownership over three-to-five-year product life cycles. This aspect is more prominent on medium- and large-sized systems. In consideration of this trend, the need would seem to exist for vendors to consider the same parameters as users when developing pricing strategies. The trend of reducing hardware prices can expose disproportionate service prices unless vendors can find a suitable formula to rebalance the relationship between the two.

User research suggests that users perceive service costs as a percentage of product cost, whether these be hardware or software. As a guide, about 10% of product cost is what users perceive service costs should be. Therefore, as product prices fall, specifically hardware, users expect service prices to fall by a similar degree. An alternative is for vendors to find a method of changing users' perception of service cost as a percentage of product costs. One approach is to bundle service costs. The other is to completely divorce service and product costs, so that service becomes a standalone item. Separation can be aided by the added-value and service portfolio approach, which offers a full range of service items in addition to the more traditional offerings such as hardware maintenance.

The impact of the harmonisation of Europe into a single market by demolishing trade barriers, scheduled for completion by the end of 1992, was highlighted by three vendors as impacting pricing strategies. This impact was related to product pricing as well as service pricing, and results in the need to develop common pan-European pricing policies. The vendors commented that this need is influenced by the risk of non-compliance to pricing policies. Continued differences in pricing would likely lead to customers purchasing both products, and perhaps service, in countries offering more attractive pricing. With regard to service, this could lead to contracts being made in countries that have more attractive product pricing needing to be serviced by the host country organisations. Also, in areas close to country boundaries, procurement of service across borders would not be difficult logistically.

C

Future Pricing Factors

Vendors were also asked to identify one single factor that would have a significant impact on service pricing over, for example, the next five years.

Vendor comments indicating a consensus of opinions are listed in Exhibit III-4.

EXHIBIT III-4

Future Pricing Factors

Factor	Number of Mentions
• User-perceived product quality and reliability	6
• Improved efficiency and delivery methods	3
• Total solution service	2
• Competition	2
• Vendor marketing strategies	2
• Formal quality standards and warranty trends	1

Sample Size: 16

These comments can be summarised as follows:

- The majority of vendors considered that user-perceived product quality and reliability would have a major impact. Vendors commented that particularly in the small systems and workstation/PC sector, products are becoming so reliable that users are beginning to have doubts concerning the need for service or service contacts. Some vendors offered an opinion that some 60% to 80% of PC sales did not result in a service contract, and that users were taking the view that as the product was unlikely to fail, the risk was justified. In the rare event that failure did occur, the provision of "ad hoc" service on a time-and-materials basis

was a more economic solution than a service contract. Shorter product life cycles were also influencing user attitudes.

- Increased use of remote diagnostics and improvements in remote technology were considered to be major influences on future pricing. Use of remote techniques is beginning to be applicable to smaller systems, the IBM AS/400 provides an example of this migratory effect from large systems. A recent survey in the U.K. highlighted the reduced servicing costs and cost of ownership that is being achieved by the AS/400. Remote service techniques are providing different methods of delivering service, methods that are more appropriate to software support. A number of vendors, Digital and ICL for example, claim to resolve 100% of software-related problems remotely, without the need for site visits.

- Provision of total solution service is considered to be a factor that will have a major impact on service pricing. Many vendors, Unisys and Hewlett-Packard for example, have structured the portfolio approach to providing total solution service. Digital, through the medium of Enterprise Services, has gone further in structuring not just total solution service, but total solution including products, service, and consultancy. Traditional hardware maintenance revenues are in decline relative to growth of installed base, and this, coupled with a decline in user need for traditional services, is stimulating vendors to structure offerings that include additional services, ranging from environmental services to consultancy and problem management.

- Marketing of service is considered by vendors to be an opportunity and also appears to be an increasing trend. It has only become apparent in recent years, resulting from pricing pressure and declining traditional service revenues, that service needs to be marketed. Previously, a service contract was considered an automatic by-product of product sales. Vendor marketing strategies are tending to be focussed on the total service solution approach.

- Multivendor service offerings, and the growth of large TPM companies such as Granada, are considered by vendors to be increasing the level of competition, particularly in the area of hardware maintenance, which is the primary activity of the TPM companies. Also, more vendors are competing for a diminishing market, in terms of traditional service requirements, causing pressure on the competitiveness of pricing.

- Increased warranties have the effect of reducing market size by removing an increment of revenue equivalent to the warranty period. Until recently, warranty periods were commonly 90 days; currently 12-month warranties are becoming common. A consensus of vendor opinion suggests that 12-month warranties will become the norm, with

a possibility of 3 years on low-end systems. This will cause pressure on pricing as well as reducing hardware maintenance revenues.

- Vendors in the U.K. claim that certification against formal service quality standards will provide a service advantage in terms of demonstrable quality of service. Proven quality of service can command a higher price. Harmonisation of standards as part of the 1992 European initiative is likely to result in migration of the formal quality approach to other European countries, setting new standards of service differentiation.

D

System-Level Warranty

Vendor opinions concerning the likelihood of hardware and software warranties merging to become a system-level warranty were solicited during interviews. Results of these discussions were not conclusive, in that no overall consensus of opinion emerged. INPUT's findings related to this subject are presented in Exhibit III-5, along with a listing of vendor comments.

EXHIBIT III-5

System Warranty Evolution

- Vendors evenly divided on system warranty projections
- Vendor remarks
  - Long-term trend
  - A user requirement
  - Could be forced by market environment
  - Will only apply in special cases

Vendor opinion as to whether or not the two warranties will merge was evenly divided. Eight vendors expressed an opinion that a system-level warranty would evolve, including two vendors who considered the evolution to be a long-term possibility. An equal number of vendors considered that a merging of warranties was not likely to occur. Vendor comments on system-level warranties are as follows:

- One vendor recognised that system-level warranties are a user need and requirement. The vendor's opinion was based on the fact that when users purchase a system, the requirement was for warranty, not hardware warranty and software warranty, and reflects a market trend in the providing of solutions to business needs. Users do not separate hardware and software—it is vendors who make this distinction.

- Discussion with one vendor revealed that it was not company policy to provide a software warranty per se. Users were provided with a period of free error correction as an alternative.

- Two vendors observed that users had a preference for combined system-level warranty, and that activities to merge hardware and software warranties would most likely be driven by customer needs, suggesting that the market environment could force vendors to change policy in this area.

- One vendor considered that, although users would prefer a system-level warranty, the industry would resist any movement in this direction. The vendor suggested that user pressure would prevail over industry resistance.

- Discussion with one vendor active in the workstation/UNIX sector of the market revealed that the company already provided a system-level warranty that included full contractual support of software.

- Competitive pressures may force hardware and software warranties to merge, but this was considered an outside chance by one vendor.

- Some vendors considered that merging of warranties would be dependent on specific contracts.

- Within plug-compatible or standard software markets, for example IBM/UNIX, the real opportunity remained the initiative of the primary vendors. However, one vendor offered an opinion that there was no real pressure in the UNIX market to merge warranties.

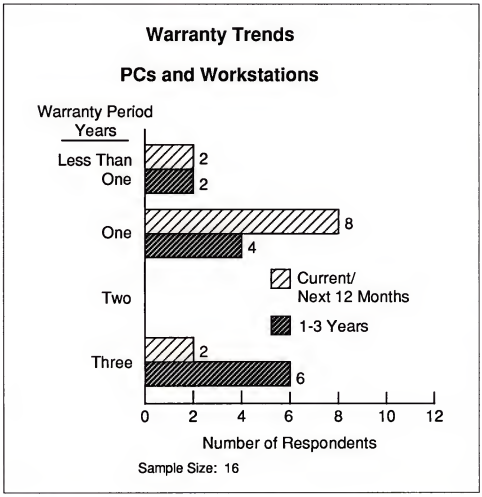
One of the major inhibitors to merging hardware and software warranties appeared to be the difficulty in structuring the form of the software warranty. In other words, the mechanics of formulating a package that was both viable and acceptable to the vendor and the user are problematic. Interaction between applications and operating system may be an inhibiting factor, or could influence vendors to structure only the most basic type of software warranty.

E

Warranty Trends

Vendor opinions relating to the likely trend in hardware warranties are illustrated in Exhibits III-6 to III-9. Data in these exhibits is segmented by system size.

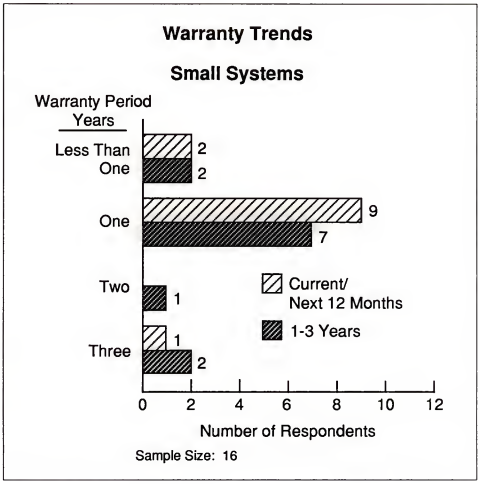
EXHIBIT III-6



A significant majority of the vendors interviewed considered that warranty periods would stabilise at twelve months. The larger the system size, the more confident vendors were in their predictions; for example, all vendors interviewed considered that large systems' warranties would not extend beyond twelve months. One vendor suggested that all hardware warranties would remain at 90 days.

In the small- and medium-range systems, vendors are slightly less in agreement regarding the evolution of hardware warranties. A minority of vendors expressed the opinion that warranties would extend to three years on small systems and two years on medium-range systems. In the PC and

EXHIBIT III-7

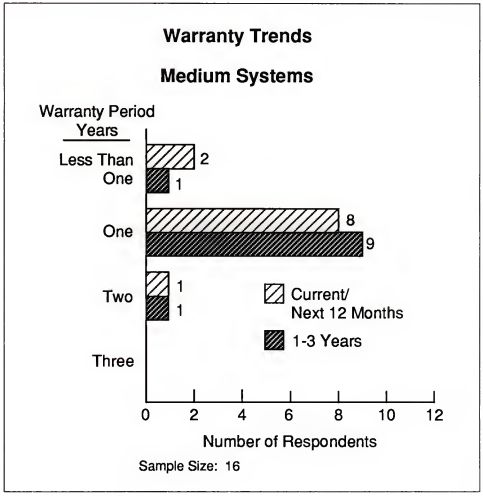


workstation sectors of the market, vendor opinion changed, in that a significant number of vendors (six) considered that the longer-term trend would be for three-year warranties.

Discussions with two vendors revealed that pressure on warranty extension may be related to the competitive environment in which the products are sold. Both vendors claimed that there appeared to be little pressure from users to extend warranties beyond 90 days; therefore, in high-demand situations, user pressures could be directed elsewhere. User pressure on warranty may also be influenced by product quality and reliability. If hardware retains a good reputation for reliability, users are more likely to feel comfortable with shorter warranty periods.

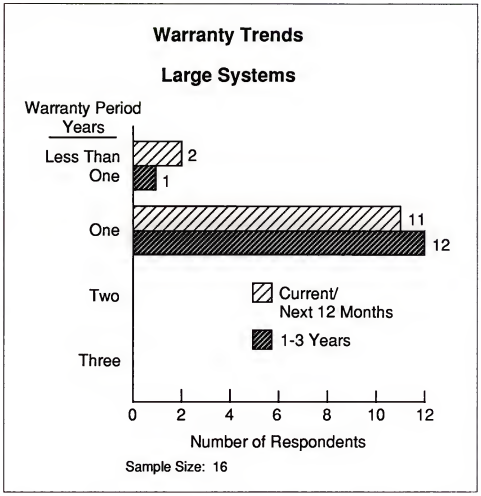
One factor that was mentioned by a number of vendors was the blurring of boundaries between warranty and extended service contracts. The inference was that when the user pays a premium to extend a warranty from, say, one year to three years, this does not constitute a true warranty, but more an extended service contract. Vendors were concerned

EXHIBIT III-8



that the term warranty was becoming confused, that the boundaries between warranty and long-term service contract were becoming significantly blurred, and that many extended warranties being offered were more insurance than warranty.

EXHIBIT III-9



Competition and Service Needs—The Vendor's View

IV

Competition and Service Needs—The Vendor's View

This chapter discusses the views and opinions of vendors on four key pricing issues:

- Sources of competition and competitive strategies
- The most important aspects or components of service
- Single-source service, the structure of single-source service offerings, and preferred delivery modes
- Bundled pricing

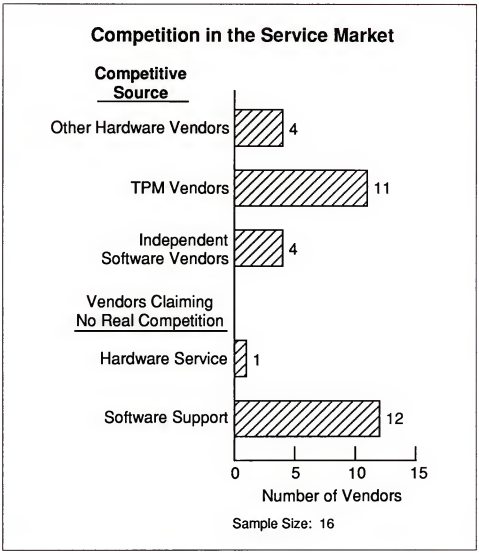
A Competition

1. Sources of Competition

Vendors' views on the prime sources of competition are illustrated in Exhibit IV-1. The most commonly quoted source of competition was from third-party maintenance companies (TPMs), eleven out of sixteen vendors claiming this as the major source.

One vendor commented that older equipment is a prime target for TPM companies. This may reflect on vendor resources being directed more towards new products, particularly as part of the promotional and support strategies during new product introduction phases. It is during this phase of the product life cycle that vendors may feel the need to provide product differentiation by leveraging service and support resources and capabilities. New products also tend to require a higher level of support during the early phase of introduction. In addition, there is not only more incentive to direct resources to new products, but also a strategic necessity to ensure successful introduction. It is also dangerous for vendors to neglect older products—if the user senses lack of motivation or any reluctance on the part of the vendor, the user may be stimulated to seek

EXHIBIT IV-1



alternative sources of service. Once a TPM company gains access to a user site, the prospect of increased future competition then exists.

It may also be the case that TPM companies find it easier to provide service for older and more mature products, than for those that are newer and hence more of an unknown quantity. Nevertheless, the danger to the vendor of TPM access to the site, and its possible consequences, does not diminish.

Competition from TPM companies is growing, particularly in some of the less developed country markets. For example, INPUT research into TPM activity in Italy and Spain indicates that TPM growth is higher in these markets. More significantly, the growth of the TPM market overall in Western Europe is forecast by INPUT to be growing at a compound

annual growth rate (CAGR) of close to 15%. As TPM companies provide mainly hardware maintenance, this growth is three times higher than the growth of the hardware maintenance sector of the overall customer services market, forecast at 5% (CAGR). Based on these two growth factors, TPM companies are increasing market share, supporting the claim by vendors that TPM is the primary source of competition.

Some vendors take a more open attitude to TPM companies, looking on them as more of a benefit than a source of competition. A recent example of this more open attitude was provided by Sun Microsystems in the U.S., which has recently announced a partnership strategy for TPM companies. This strategy is claimed to reflect the company's preference not to build a large worldwide service organisation, hence partnership agreements with TPM companies.

Multivendor or single-source service is identified as a user need and preference. INPUT's 1989 user research programme indicates that almost 80% of users prefer single-source service. Support of an increasing trend is provided by the increase in users stating this preference from around 67% in 1988. During discussions with vendors, four named other equipment vendors as the primary source of competition. One vendor claimed that Olivetti, although an equipment vendor, is also viewed as a TPM vendor. This view is consistent with the tactics of Olivetti. Most vendors recognise user need for multivendor service, but the strategies are to limit this offering to user sites that contain their equipment. Olivetti has taken a more open stance and has not implemented this restriction in some markets, particularly the U.K.

Four vendors mentioned competition from independent software vendors. The major source of this competition was independent software houses. The competition is mainly due to business activities involving systems integration or turnkey solutions. These vendors are ideally positioned to provide not only systems software support, but also support of their own applications. This type of overall software support packaging may be attractive to some users.

More significantly, twelve of the vendors interviewed stated that there was little or no competition in terms of software support.

One vendor claimed that little or no competition existed in hardware maintenance, and that this was due mainly to the level and quality of service provided, and perceived by users. In INPUT's opinion this comment could be significant. User research has suggested that quality of service is more important than price. In cases where the vendor provides a high quality of service, a relatively high degree of immunity from competitive pressures will be likely to result. Value for money is the limiting factor. Provided prices are not excessive, quality will prevail.

2. Vendor Competitive Strategies

During the course of interviews, vendors were asked their opinions of the best strategy to address competition from other service vendors, and whether this was quality, price, or some other strategy. The opinions expressed by vendors are listed in Exhibit IV-2 and can be summarised as follows:

EXHIBIT IV-2

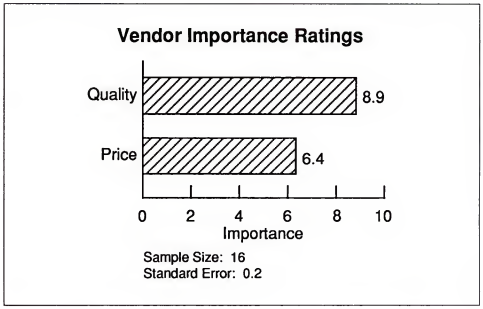
Competitive Strategies

Strategy	Number of Mentions
• Quality	14
• Breadth of service	4
• Tailored to type of customer	3
• Flexibility	2
• Formal quality standards	1
• Price, in selling situations	1
• Product differentiation or uniqueness	1

Sample Size: 16
Multiple responses allowed

- A significant majority of the vendors identified quality of service as a key strategy. Further, all vendors were invited to rate the relative importance of quality and price. The results are illustrated by Exhibit IV-3. All vendors considered that quality was more important than price, and the margin between the ratings was relatively decisive, as indicated by a standard error of 0.2 between average importance ratings of 8.9 for quality and 6.4 for price. The result of this vendor poll is supported by data from user research; users rate the importance of quality around 9.0 and price 7.7. These two ratings suggest a relatively high degree of agreement between vendors and users, and a recognition by vendors of a user requirement for quality service.

EXHIBIT IV-3



- The breadth or range of services was mentioned by four vendors as a key competitive strategy in recognition that the wider the range of services offered, the less potential for competitive penetration. Where more than one service vendor is providing service on a specific site or installation, the user can compare the performance of the vendors, and may be influenced to extend the contracts of those who perform better. Vendors offering a wide range of services have the opportunity to restrict or eliminate visible sources of competition.

- Three vendors mentioned tailoring the service offered to meet customer needs, and two vendors identified flexibility as a key strategy. These strategies are related. It is important, in INPUT's opinion, that the service provided be consistent with customer needs and for the customer's convenience. The needs and requirements of users can vary considerably. One example quoted recently was a user who required a generally low level of service for about 90% of the time, but during peak periods of system activity required coverage 24 hours per day, with fast response time during that period. Vendors should structure service offerings to match user requirements. Failure to do so increases potential competitive pressures. Flexibility of offering includes price/quality relationships, and as one vendor commented, "If a user is prepared to accept a lower quality of service in return for reduced prices, then the vendor should respond." However, the vendor also reasoned that a clear understanding with the user is necessary in situations of this type; otherwise the user may criticise quality unfairly.

3. The Most Important Aspects of Service

Vendors were asked a specific and focused question on what, in their opinion, was the most important aspect of service—price or quality? This question was asked prior to vendors being asked to rate the relative importance of price and quality. Exhibit IV-4 summarises vendor responses to this question.

EXHIBIT IV-4

Most Important Aspects of Service

Aspect	Number of Mentions
• Quality	15
• Right quality level at competitive prices	2
• Quality, when the system fails but pricing when negotiating contracts	1
• Value	1

Sample Size: 16
Multiple responses allowed

Answers to this question confirmed that vendors were generally in agreement that quality was more important than price, and as previously mentioned, that they recognised user needs and requirements. User research indicates that quality is rated highly by users, and that price is rated in eighth or ninth place, behind a mix of service items that relate to quality, such as systems availability, response times, and repair/fix times.

Two vendors, however, provided further qualification in terms of the needs of specific customers, and in doing so highlighted the need for vendor flexibility in complying with user requirements. The qualifying comment made by these two vendors related to providing the right quality of service at competitive prices. There are two aspects to this comment:

- Where a user's needs are dictated by, or influenced by, a degree of price sensitivity, the vendor should structure the level of service accordingly.

- Some users require, or can be satisfied, by providing a reduced quality of service. The user's system application may not be considered as critical as others. In this case the vendor should negotiate a reduced level or quality of service in agreement with the user, and ensure that the user is fully aware of the implications, at a price that the user finds appropriate. The key issue here is total user awareness; otherwise dissatisfaction could result.

One vendor commented, rather cynically but also with an element of realism, that quality of service is of prime importance when the system fails or when critical service performance is required. However, during the time when contracts are being negotiated or are due for renewal, price becomes the most important element. INPUT feels that situations of this type, although requiring careful and diplomatic handling, are a marketing opportunity for creating user awareness of the value of quality service. There is also a danger that the vendor may be pressured to reduce prices at the expense of the quality of service, with the attendant risk of eventual user dissatisfaction.

Value was highlighted by one vendor as an important aspect of service. Value for money in one perspective can be considered quality/price relationship. User research has indicated that there is a relatively strong relationship between a vendor's service quality image and user satisfaction with price. If the vendor's quality image is good, user satisfaction with price tends to be free from concerns and worries. The converse is also true—a poor quality image tends to relate to dissatisfaction with price.

B

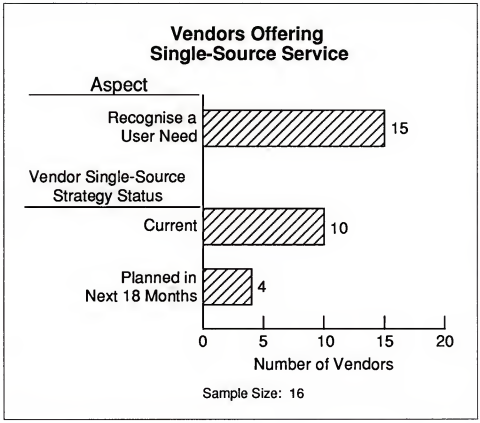
Single-Source Service

Data related to vendor single-source, or multivendor, service activities is illustrated in Exhibits IV-5 to IV-7.

1. Single-Source Development Status

Exhibit IV-5 indicates the current status of single-source or multivendor service relative to the sample of vendors interviewed. A significant majority, fifteen out of sixteen vendors, claimed to recognise a user requirement for single-source service. One vendor claimed that there was no general need among users, although this was available to specific customers on request. The comment referred to the service market in Italy, and although the vendor was intending to extend this offering, it was not a major company strategy.

EXHIBIT IV-5



Vendor comments on the status of single-source service are as follows:

- Single-source service may not yet be generally available, specific users may request it.
- All vendors who currently offer single-source, or plan to, intended to limit this offering to sites on which their equipment formed part of the installation. It was not intended to be an entry strategy into the TPM market.
- The development and expansion of single-source will be in response to user demands and requirements. The major objective is to satisfy customer needs.
- A European headquarters representative of one vendor claimed that the driving force for single-source requirements was originating within the United Kingdom.
- Some vendors not planning a defined strategy will provide single-source if requested by users. One vendor commented that decisions have now arrived at "the crossroads," in that vendors may need to

make conscious decisions whether or not to respond to user needs or demands.

- Vendors currently offering single-source are tending to offer a restricted range of services at present.

2. Structure of Single-Source Offerings

During interviews vendors were asked to give an opinion relating to the individual elements they felt *should* be included in a single-source or maintenance service offering.

A profile of vendor responses to the inclusion of a number of service elements is presented in Exhibit IV-6. The data included in this exhibit illustrates a relatively high level of agreement between vendors on some items, for example computer and communication system hardware, professional services, education, and training.

There are a number of areas where vendor opinions are divided, almost evenly between those who would include the service and those who would not. These items fall within three relatively well-defined categories:

- Telecommunications: this includes communication lines and PABX equipment. Seven vendors indicated a willingness to include communication lines, but four would only contemplate providing this as a managed service, meaning that they would only accept responsibility for ensuring that problems were resolved, as opposed to correcting problems themselves. Five vendors thought PABX equipment should be included, though one vendor would undertake it only as a managed service.

- Office equipment: this includes copiers and facsimile (fax) machines. Around 50% of the vendors interviewed indicated that office equipment should be included as an element of single-source service. A proportion, however, would contemplate undertaking office equipment only as a managed service.

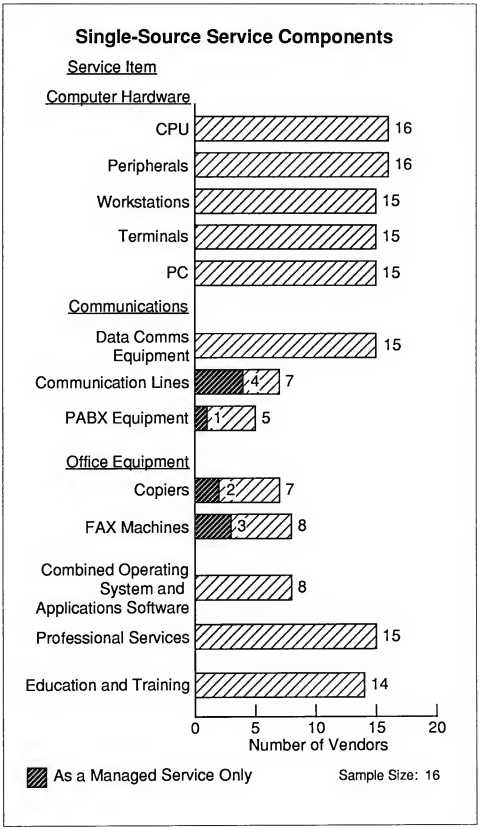
- Combined operating systems and applications software: eight vendors out of sixteen indicated that this aspect of service should be included in a single-source offering. There were a number of qualifications expressed regarding this aspect of service, however:

  - Would support only our own applications

  - We are already involved and see it as important for the future

  - An opportunity in the open systems solution market

EXHIBIT IV-6



- A lot of user pressure, but to support both types of software a vendor needs the agreement and cooperation of the application supplier

- It can be very difficult to support custom software

- Requires very specific planning

- Would undertake this activity only in a technical environment

- Could provide only first line support

- Partnerships and cooperative agreements are the solution for hardware manufacturers

3. Vendor Single-Source Delivery Preferences

Exhibit IV-7 provides data relating to the method by which vendors would deliver single-source or multivendor service. The most commonly preferred mode of formulating and delivering single-source service would be to use a combination of the vendor's own resources, supported by subcontract to either other equipment vendors or TPM companies. Only two vendors would consider providing this level of service using solely their own resources.

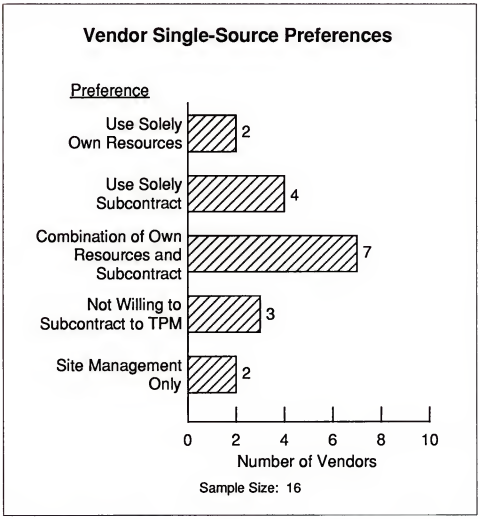
The difference between use of solely subcontract resources and a site management service only is as follows:

- Where subcontract resources are used solely, the vendor providing the single-source service remains the prime contractor and holds the service contract. User invoicing and pricing negotiations are between the user and the prime contractor. Subcontract negotiations and charges take place between the prime contractor and the subcontracted vendor.

- Site management is where the vendor accepts responsibility only to ensure that problems are resolved. This gives the advantage of a single point of contact for the user. In actuality, the service vendor is substituting for the user in managing the service provided to the site by a number of different service vendors.

Three vendors stated that they would not contemplate subcontracting to TPM companies. The reasoning for this position is unwillingness to expose the capability of TPM companies to the users, due to the potential for increased competitive pressure and the risk of competitive bids, once access to the user's site has been achieved.

EXHIBIT IV-7



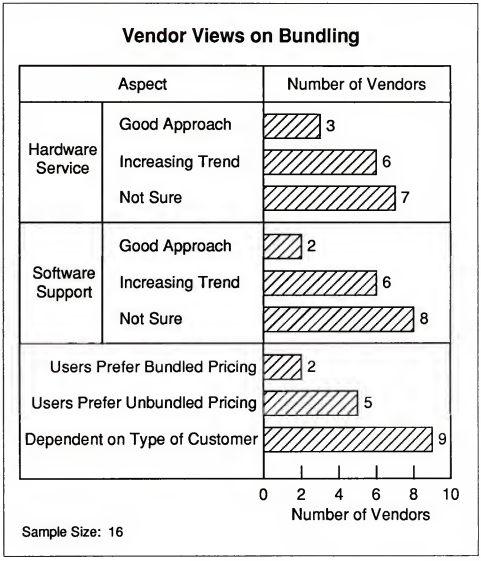
C

Bundled Pricing

Vendor opinions and views on "bundled" pricing are illustrated in Exhibit IV-8. The most striking characteristic indicated by this data is the high degree of uncertainty expressed by the vendors represented in the sample interviewed. Almost half the vendors were unsure about the trends in bundled pricing or whether there was a user requirement for this approach. This characteristic mirrors the views of the user community. Data indicates that users are similarly almost equally divided in their preferences for bundled or individual pricing.

Whilst around 50% of vendors interviewed were unsure, almost 40% (six out of sixteen) offered an opinion that it was an increasing trend, even though some vendors admitted that they were not sure why this was so.

EXHIBIT IV-8



The likely key to understanding bundled pricing and user needs was provided by some vendors (9) suggesting that user requirements were specific to the type of customer. Examples of this are:

- Users who are sensitive to capital investment or overall expenditures such as cost of ownership, for example government departments, prefer individual pricing. These customers also prefer to see and understand itemised costs, and most likely would possess a budgeting structure where funding for specific costs is from different budgets or departments.

- Users who are sensitive to budget limitations being imposed in successive years, or to regular expenditures, tend to prefer bundled pricing. One example quoted was educational establishments, which have a

preference for undertaking expenditures when funds are available, therefore reducing the worries of funding from unknown future budget allocations.

- A third distinction relates to users who, due to their financial organisation, prefer individual pricing in order to fund the system running costs from separate budgets, due purely to cost-allocation methods.

The most common item of bundled pricing is the inclusion of software support costs with the software licence fee. Most vendors interviewed would respond to user requests for bundled pricing, in some cases perhaps going as far as including a five-year maintenance contract bundled with the hardware price.

Vendor comments relating to bundled pricing are as follows:

- One vendor commented that although currently most software support costs are bundled with the software licence, there was a company strategy to progressively move towards individual pricing.

- It was suggested by one vendor that users who buy "solutions" and small business users prefer bundled prices, as opposed to large MIS sites which prefer individual pricing.

- One vendor suggested that bundled pricing could be considered an example of unfair competition by EEC authorities. The policy of the EEC is to allow fair competition, hence individual pricing.

- One interesting comment made by two vendors was that bundling can be used to confuse a user's budget. This is achieved by bundling hidden costs and by providing additional manpower.

- Bundling as a method of keeping predators at bay was remarked upon by two vendors.

- One vendor suggested that users do not have sufficient perception to form a preference for bundled pricing.

- The option to bundle is an increasing trend, but can cause cost of ownership problems.

User Pricing Issues

User Pricing Issues

This section of the report deals with analysis of data that reflects user perception of price-related issues. The data presented and analysed includes the following topics:

- Relationship between the vendor's service quality image and user satisfaction with price
- Importance of service price relative to other aspects of service
- User satisfaction with service price, comparing system size sectors and vendor service with TPM
- User-perceived price/performance ratio of service
- Preferences for bundled or individual pricing and single-source service
- Trends and changes in user issues between 1988 and 1989

A
Price Relativity and User Satisfaction

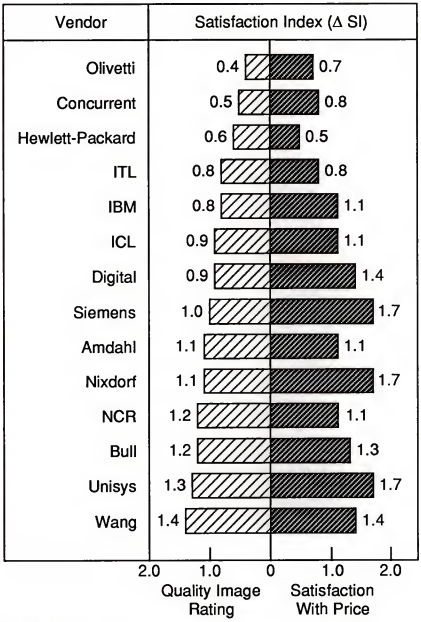
1. Price/Quality Relationship

Analysis of data has revealed that user satisfaction with service price is related to a vendor's quality image. Vendors who retain a good service quality image tend to achieve higher levels of user satisfaction with service price. The extent of this relationship can be observed from the data presented in Exhibits V-1 and V-2.

The development of a vendor's service quality image resulted from analysis of the relationship between the term "reflex response" and user-perceived measurable service performance. A hypothesis that relates these two factors was demonstrated in an INPUT report entitled, *Quality Issues Western European Customer Services*, published in June 1989.

EXHIBIT V-1

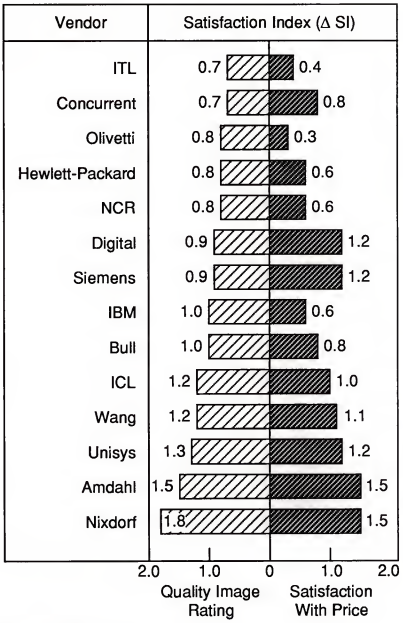
Price-Quality Relationship
Hardware Service



Sample Size: 1,711
Standard Error: 0.07
Correlation Factor: 0.7
Source of Data: INPUT 1988 User Survey

EXHIBIT V-2

Price-Quality Relationship
Software Support



Sample Size: 1,711
Standard Error: 0.08
Correlation Factor: 0.8
Source of Data: INPUT 1988 User Survey

"Reflex response" results from a question asked during the user survey, that requires users to provide importance and satisfaction ratings for a vendor's overall service performance. Answers to this question tend to provide more of a "reflex" or reactive response than those related to more specific questions, which tend to cause the user to deliberate more, resulting in a "considered" response. Differences between importance and satisfaction ratings provide a satisfaction index (Δ SI); and it is this satisfaction index related to the reflex response question that is a measure of the vendor's service quality image. Where the index falls between zero and 0.9 (or is negative, importance < satisfaction), this indicates that the vendor retains a good service quality image. When the index reaches a level of 1.0 or greater this suggests increasing levels of concern and worry among users. A rating of 2.0 indicates real dissatisfaction, and 3.0 the "pain" level.

Analysis of the relationship between reflex response ratings and user-perceived measurable service performance indicated that reflex response ratings provided a measure of the vendor's quality image.

Further analysis has demonstrated that there is also a relationship between vendor service quality image (reflex response rating) and user satisfaction with service price. As a vendor's quality image degrades, user satisfaction with service price decreases.

The data contained in Exhibits V-3 and V-4 indicates a visual relationship. The degree of relationship was confirmed using statistical methods to calculate the product moment of correlation. Correlation figures obtained were 0.7 for hardware service and 0.8 for software support, thus confirming a relatively high degree of correlation and supporting the relationship between the two factors.

Completion of this analysis demonstrated two factors:

- A user's perception of the vendor's service quality image is related to measurable service performance as perceived by the user.

- User satisfaction with service price is dependent to a relatively high degree on the user's perception of the quality of service provided.

During interviews with vendors, the concept of "value for money" service was mentioned on numerous occasions in the context of vendor pricing strategies, competitive strategies and the most important aspects of service. Comments made by vendors signalled a recognition of user needs for providing both quality service and value in service. Analysis of user data has confirmed that satisfaction with service price is dependent on the quality or value of service received.

2. Importance of Service Price

The importance ratings that users place on service price relative to other aspects of service are listed in Exhibit V-3. Also presented in this exhibit is comparative 1988 data to allow observation of trends and changes.

EXHIBIT V-3

Importance of Service Price

Item	Importance Rating 1988	1989
Systems Availability	9.4	9.3
Hardware Maintenance	9.2	9.0
Software Support	9.0	9.0
Hardware Response Time	9.0	8.7
Hardware Repair Time	9.0	8.7
Software Fix Time	8.6	8.6
Software Response Time	8.6	8.4
Hardware Maintenance Price	8.2	7.9
Software Support Price	8.1	7.5

Note: Numbers have been rounded

Sample Size: 1988 - 1,711
1989 - 1,200
Standard Error: 0.07
Source of Data: INPUT 1988 and 1989 User Surveys

- The first trend observed is that the order of importance ratings between 1988 and 1989 has not changed.
- Importance ratings in 1989 have reduced slightly, but this is considered to be of marginal significance, except for ratings related to price.
- Service price importance ratings lie in eighth and ninth places, relative to aspects of service that are related to quality, suggesting that users place more importance on quality and provision of service than price.

- The importance of systems availability puts it in the leading position and highlights the user's view of the critical importance of this factor in systems operation.

- Importance of service price indicates that the margin between the importance of quality and systems operations compared with price has increased between 1988 and 1989. Software support price shows a significant reduction in importance, from 8.1 in 1988 to 7.5 in 1989.

The order of importance ratings given by users places the importance of price in perspective, suggesting to vendors that quality, value for money, and criticality of systems operations are more significant. These ratings emphasize the need for vendor pricing strategies, if user needs and demands are to be satisfied, to be structured around value and quality.

3. User Satisfaction with Price

Exhibit V-4 presents data listing user satisfaction with price for 1988 and 1989, allowing comparisons to be made.

This data indicates that user satisfaction with vendor hardware service price has decreased between 1988 and 1989. Reduction in satisfaction is applicable across all systems ranges and is relatively significant. For example, the satisfaction index relating to small systems hardware service has degraded from 1.1 in 1988 to 1.6 in 1989.

Satisfaction with vendor software support prices indicates a similar trend; the small systems software support pricing reduction in user satisfaction is the most significant, degrading from 0.7 in 1988 to 1.1 in 1989. More significantly, user satisfaction with pricing in this sector has become subject to concerns and worries, whereas previously this was not the case. Other changes relating to satisfaction with software support pricing are of only marginal significance in that they follow the general trend.

Overall user satisfaction ratings of vendor service prices suggest that users are dissatisfied to the point of expressing concerns and worries.

User satisfaction with TPM vendor service pricing has remained relatively consistent between 1988 and 1989, and suggests that users are more satisfied with TPM vendor than with equipment vendor service pricing. What is more significant is the fact that TPM vendors provide predominantly hardware maintenance service, and comparison with vendor hardware service price satisfaction indicates some relatively significant differences. Also, ratings of TPM vendor pricing suggests users are generally satisfied.

EXHIBIT V-4

Satisfaction with Service Price

Service Sector		Satisfaction Index (Δ SI) 1988	1989
Hardware Service	Large Systems	1.2	1.6
	Medium Systems	1.1	1.5
	Small Systems	1.1	1.6
Software Support	Large Systems	1.2	1.3
	Medium Systems	0.9	1.0
	Small Systems	0.7	1.1
TPM Vendor Ratings		1.0	0.9

Note: Numbers have been rounded
Standard Error: 0.07 (1988), 0.08 (1989)

Sample Sizes:	1988	1989
Total	1,711	1,200
TPM (Inc)	63	51

TPM vendor sample includes only users that have CPU and peripherals serviced by a TPM.
Source of Data: INPUT 1988 and 1989 User Surveys

B

Price/Performance Ratio

During the course of INPUT's user survey, users were asked to rate the price of service according to the following criteria:

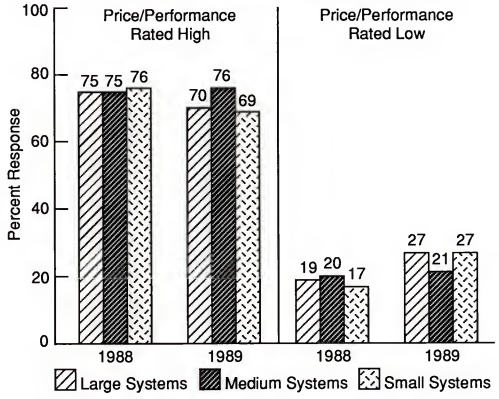
- Good value
- Expensive, but worth it
- Expensive, but not worth it
- Too expensive
- Don't know/other

INPUT considers that users employing the first two criteria rate service as having a good price/performance ratio, and those using the second two criteria rate service with a poor price/performance ratio. Further, INPUT suggests that the latter two categories are a measure of the proportion of users that are considered price-sensitive.

Exhibits V-5 and V-6 present the data collected from users related to hardware service and software support, and categorised into either good price/performance or poor price/performance ratings. These exhibits also contain 1988 data to allow comparisons and observation of trends.

EXHIBIT V-5

User Views on Price/Performance of Hardware Service

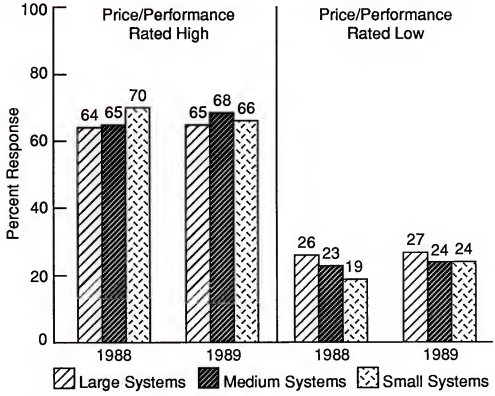


Note: Numbers have been rounded

Sample Size: 1988 - 1,711
1989 - 1,200
Standard Error: 0.3
Don't Know/No Opinion percent not shown
Source of Data: INPUT 1988 and 1989 User Surveys

EXHIBIT V-6

User Views on Price/Performance of Software Support



Note: Numbers have been rounded

Sample Size: 1988 - 1,711
1989 - 1,200
Standard Error: 0.4
Don't Know/No Opinion percent not shown
Source of Data: INPUT 1988 and 1989 User Surveys

Reference to this data suggests:

- Around 70% of users consider that service has a good price/performance ratio.
- The proportion of users rating service with good price/performance ratio overall remained relatively stable between 1988 and 1989, the most significant changes being:

- In both the large and small systems sectors, the number of users rating hardware service as having a good price/performance ratio has reduced by approximately 6%.

- The price/performance ratio of software support indicates that user ratings are reduced by a small margin in the small systems sector.

- The price-sensitive portion of users, those rating price/performance as low, is increasing, a trend that is more significantly related to hardware service in the large and small systems sectors.

These trends in growth of the price-sensitive portion of users signal a message of caution to equipment vendors, and the trend is relatively significant in the large and small systems ranges of the hardware service sector. Significance is rated higher by INPUT due to the TPM vendors being predominantly active in this sector and likely to benefit from increases in user price sensitivity.

Major TPM vendors are becoming larger and more credible as an alternative to equipment vendor service, as evidenced by the emergence of Granada Computer Services.

These factors, when added to the claim by equipment vendors that TPM vendors are the most likely source of competition, provide the basis for a set of danger signals suggesting that hardware manufacturers could lose market share.

C

User Preferences for Single-Source Service

User preferences for single-source service are listed in Exhibit V-7, and 1988 data is indicated, allowing comparisons to be made and trends assessed.

There are three major trends indicated by this data:

- The percentage of users stating a preference for single-source service has increased from 1988 to 1989, most significantly in the small systems range, where the increase is from 65% in 1988 to 78% in 1989.

- Preference for the main equipment vendor to be the source of service decreased in the large and small systems ranges, and may be influenced by the price/performance ratings discussed in the previous section of this chapter.

- Preference for the single-source vendor to be one of the hardware suppliers has increased, the most significant increase being indicated in the large and small system ranges.

EXHIBIT V-7

User Preferences for Single-Source Service

		Percent					
		Large Systems		Medium Systems		Small Systems	
		1988	1989	1988	1989	1988	1989
Users With Preference for Single-Source Service		70	78	67	78	65	78
Who That Vendor Should Be	Main Hardware Supplier	88	84	88	88	88	72
	One of the Hardware Suppliers	5	10	4	6	5	11
	TPM	4	4	4	4	4	9
	Other	3	2	4	2	3	8

Note: Numbers have been rounded

Sample Size: 1988 - 1,711
1989 - 1,200
Standard Error: 0.4
Don't Know/No Opinion percent not shown
Source of Data: INPUT 1988 and 1989 User Surveys

- Preference for TPM vendors is indicated as being relatively consistent in the large and medium systems ranges, but does suggest a moderate increase in the small systems range.

However, overall the preferences stated by users for single-source service are favourable to equipment vendors. Preference for single-source service is increasing, and a majority of users favour their main hardware supplier as the preferred source.

Previous data discussed in Chapter IV indicates that most vendors recognise this aspect of service as a user need, and that a significant majority

of vendors either currently have or are planning single-source service offerings.

D

User Pricing Preferences

Surveys of computer users carried out by INPUT in 1988 and 1989 invited users, during the interview, to state a preference for either individual service pricing or bundled pricing.

The results of user responses are illustrated in Exhibit V-8. In overall terms, these results are similar to those obtained from interviews with vendors as contained in Chapter IV, Exhibit IV-8. Users are similarly equally divided between preferring individual and bundled pricing; there is little real consensus of preference.

- Regarding hardware service, users show slight preferences as follows:
  - In the large system range there is a slight preference towards bundled pricing.
  - Medium systems users indicate a slight preference for individual pricing.
- In the software support sector, user preferences are more definite and can be summarised as follows:
  - Large system users indicate a slight preference towards individual pricing.
  - In the medium systems range, the tendency towards individual pricing is somewhat stronger, 52% of users preferring individual pricing compared to 42% bundled pricing.
  - Small systems users indicate a definite preference for individual pricing, with 54% of users claiming to prefer this approach, whereas 36% claim a preference for bundled pricing.

One common factor revealed by the results is that, except in the area of small systems software support, the percentage of users in the "don't know or no opinion" category has reduced. This factor suggests that there could be increasing awareness in the user community of the potential for choice. Other trends observed between 1988 and 1989 are less conclusive.

Lack of clear preferences among users could provide an opportunity for vendors to take the initiative and influence the market, provided they can develop a clear sense of direction. However, based on vendor data, the vendor community at present seems to be as unsure as the users. This situation could be due to lack of a definite indication of user needs.

EXHIBIT V-8

User Preferences for Bundled Pricing

User Preference		Percent					
		Large Systems		Medium Systems		Small Systems	
		1988	1989	1988	1989	1988	1989
Hardware Service	Individual Prices	45	44	44	49	45	46
	Bundled Prices	45	50	47	45	44	48
	Don't Know	10	6	9	6	11	6
Software Support	Individual Prices	49	49	50	52	49	54
	Bundled Prices	39	44	39	42	41	36
	Don't Know	12	7	11	6	10	10

Note: Numbers have been rounded

Sample Size: 1988 - 1,711
1989 - 1,200
Standard Error: 0.4
Source of Data: INPUT 1988 and 1989 User Surveys

User Price Trend Perceptions

User Price Trend Perceptions

The objective of this chapter is to present data related to user perception of service price increases and their anticipation of future trends. Data is presented so that discussion may be limited to an explanation of the form and method of presentation, with a minimum of comments necessary.

Data is presented in five sections:

- Section A provides data relating to Western Europe overall key trends, and includes:
  - Actual price increases reported by users for 1987 and 1988 for hardware service and software support
  - User-perceived future price increases anticipated in 1988 and 1989 for hardware service and software support
  - User perception of hardware service and software support as a percentage of hardware or software cost in 1988 and 1989
- Section B provides data relating to key trends in the major country markets of France, West Germany, Italy, and the United Kingdom, including:
  - Actual price increases reported by users for 1987 and 1988 for hardware service and software support
  - User-perceived future price increases anticipated in 1988 and 1989 for hardware service and software support
- Section C provides data on key trends reported by users of equipment supplied by four major vendors: Bull, Digital, IBM, and Unisys. This includes:

- Actual price increases reported by users for 1987 and 1988 for hardware service and software support

- User-perceived future price increases anticipated in 1988 and 1989 for hardware service and software support

- Section D provides data relating to user perception of hardware service and software support costs, expressed as a percentage of hardware and software costs in 1988. Data on fourteen vendors is included in this section

- Section E provides data relating to actual price increases reported by users for 1987 for hardware service and software support. Data for 1987 is the most recent full set of data available, and includes users of fourteen vendors' equipment

Appendixes A and B contain full data relating to 1988 and 1989 user perceptions of price trends. This data relates to price increase, "no change," and price reductions, along with specific individual sample sizes.

A

Western Europe Overall Key Trends, 1987 to 1989

Exhibits VI-1 and VI-2 provide comparative user-perceived price increase data. Hardware service price increases are illustrated in Exhibit VI-1 and software support in Exhibit VI-2.

Data presented in these exhibits is as follows:

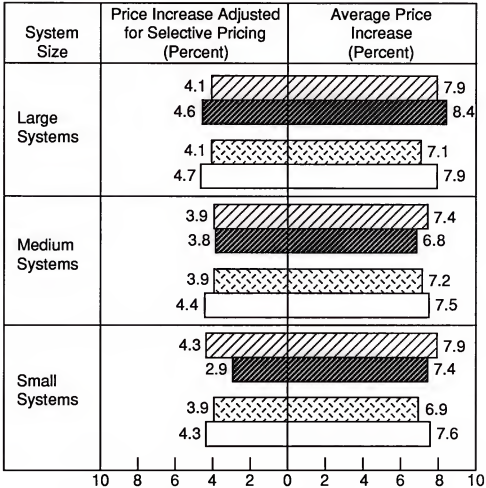
- A comparison of user-reported actual price increases received in 1987 and 1988

- A comparison of user-perceived price increases anticipated in 1988 and 1989

- A comparison of price increases adjusted for selective pricing. Selective pricing results from only a proportion of users claiming to have received a price increase. The figure adjusted for selective pricing is calculated by multiplying the actual average price increase by the percentage of users receiving this. For example, 50% of users reporting a price increase of 10% would result in a figure of 5% when corrected for selective pricing, which is the equivalent vendor revenue growth from the current installed base if all users had received this reduced price increase. This definition of selective pricing is used throughout this chapter.

EXHIBIT VI-1

Western Europe Overall
Key Trends, 1987-1989
Hardware Service Price Increases

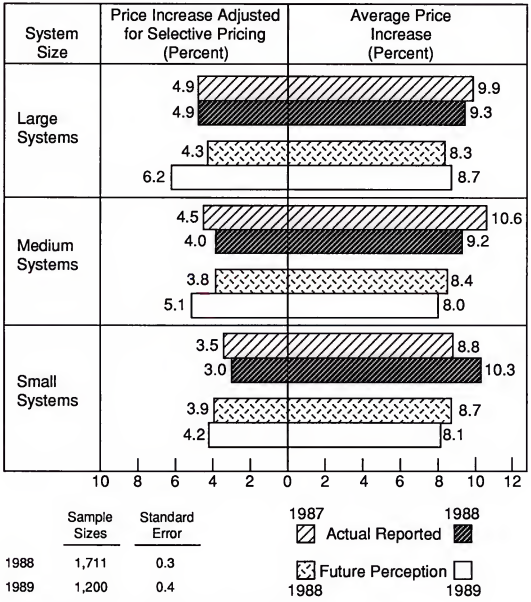


	Sample Sizes	Standard Error
1988	1,711	0.2
1989	1,200	0.3

Source of Data: INPUT 1988 and 1989 User Research Programmes

EXHIBIT VI-2

Western Europe Overall
Key Trends, 1987-1989
Software Support Price Increases



	Sample Sizes	Standard Error
1988	1,711	0.3
1989	1,200	0.4

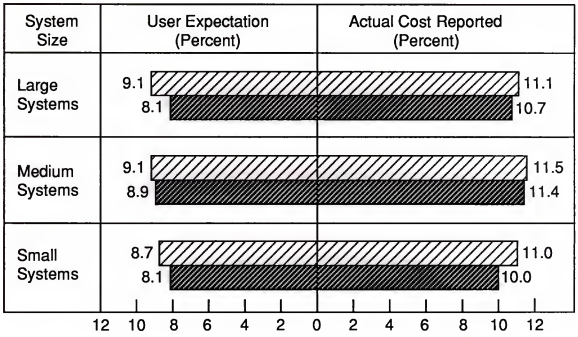
Source of Data: INPUT 1988 and 1989 User Research Programmes

Exhibits VI-3 and VI-4 provide data relating to user perception of the cost of service as a percentage of either hardware cost (Exhibit VI-3) or software cost (Exhibit VI-4). These exhibits contain:

- Actual cost reported, compared with user expectation of what that cost should be
- Comparisons between data collected in 1988 and 1989

EXHIBIT VI-3

Western Europe Overall
Key Trends—Hardware Service as a Percentage of Hardware Cost



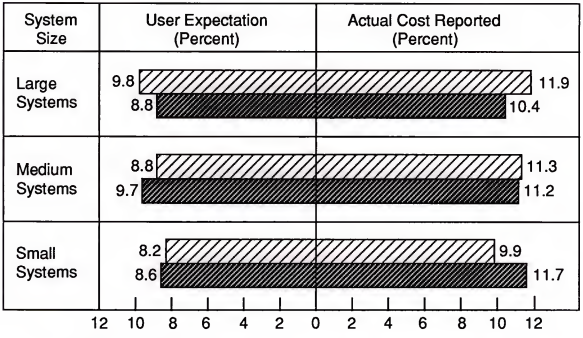
	Sample Sizes	Standard Error
1988	1,711	0.2
1989	1,200	0.3

1988
1989

Source of Data: INPUT 1988 and 1989 User Research Programmes

EXHIBIT VI-4

Western Europe Overall
Key Trends—Software Support as a Percentage of Software Cost



	Sample Sizes	Standard Error
1988	1,711	0.3
1989	1,200	0.4

1988
1989

Source of Data: INPUT 1988 and 1989 User Research Programmes

B

Major Country Markets Key Trends, 1987 to 1989

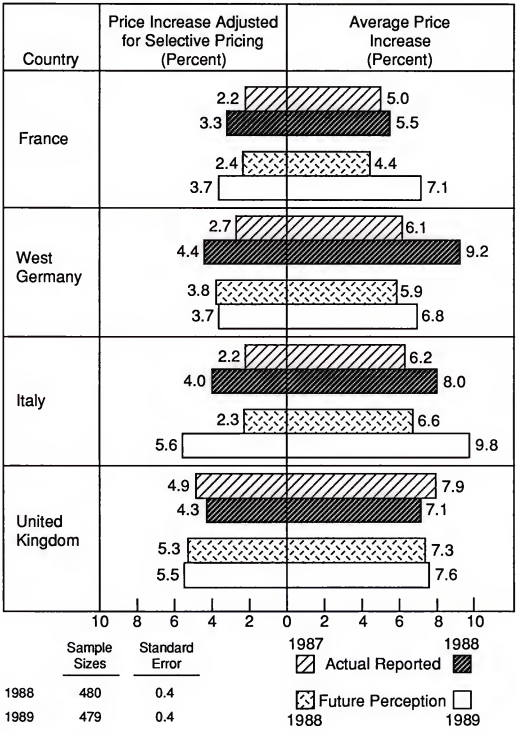
Exhibits VI-5 to VI-10 provide comparative user-perceived price increase data relating to the major country markets of France, West Germany, Italy, and the United Kingdom. Hardware service price increases are illustrated in Exhibits VI-5 to VI-7 and those for software support in Exhibits VI-8 to VI-10.

Data presented in these exhibits is as follows:

- A comparison of user-reported actual price increases received in 1987 and 1988. Data is presented by system size.
- A comparison of user-perceived future price increases anticipated in 1988 and 1989. Data is segmented by system size.
- A comparison of price increases adjusted for selective pricing

EXHIBIT VI-5

Major Economies' Key Trends, 1987-1989
Hardware Service Price Increases, Large Systems

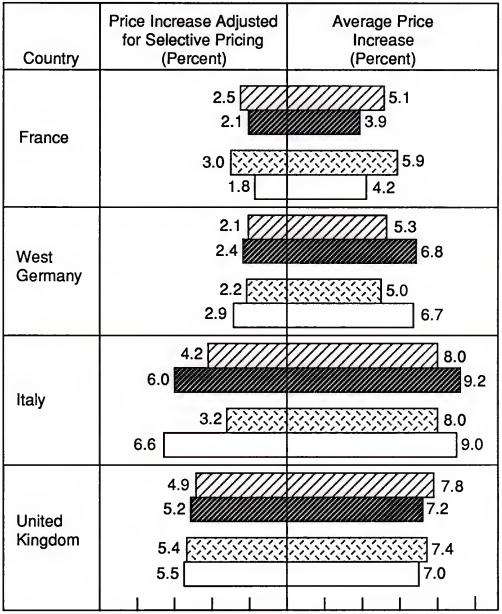


	Sample Sizes	Standard Error
1988	480	0.4
1989	479	0.4

Source of Data: INPUT 1988 and 1989 User Research Programmes

EXHIBIT VI-6

Major Economies' Key Trends, 1987-1989
Hardware Service Price Increases, Medium Systems

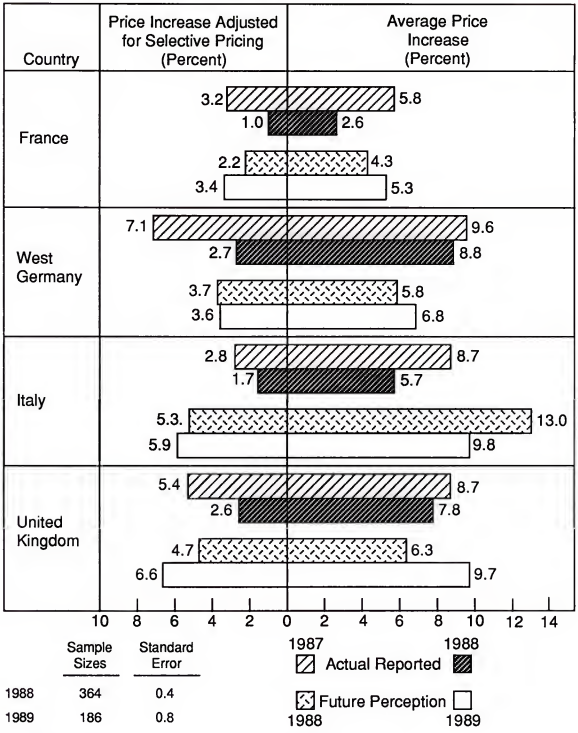


	Sample Sizes	Standard Error
1988	867	0.3
1989	535	0.5

Source of Data: INPUT 1988 and 1989 User Research Programmes

EXHIBIT VI-7

Major Economies' Key Trends, 1987-1989
Hardware Service Price Increases, Small Systems

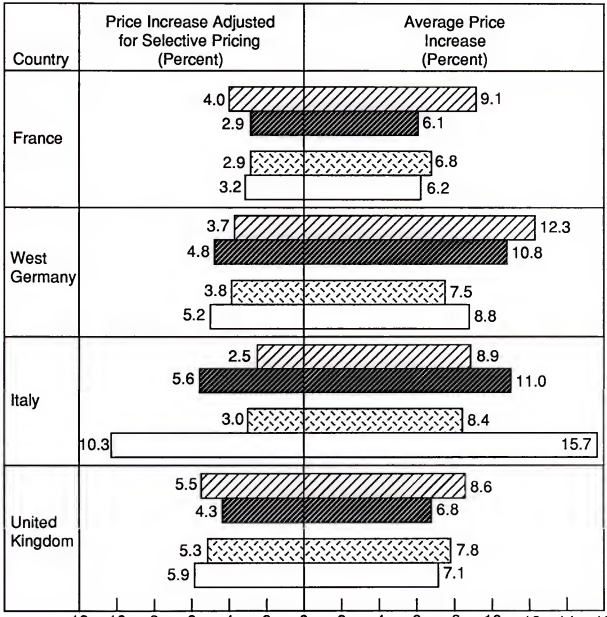


	Sample Sizes	Standard Error
1988	364	0.4
1989	186	0.8

Source of Data: INPUT 1988 and 1989 User Research Programmes

EXHIBIT VI-8

Major Economies' Key Trends, 1987-1989
Software Support Price Increases, Large Systems

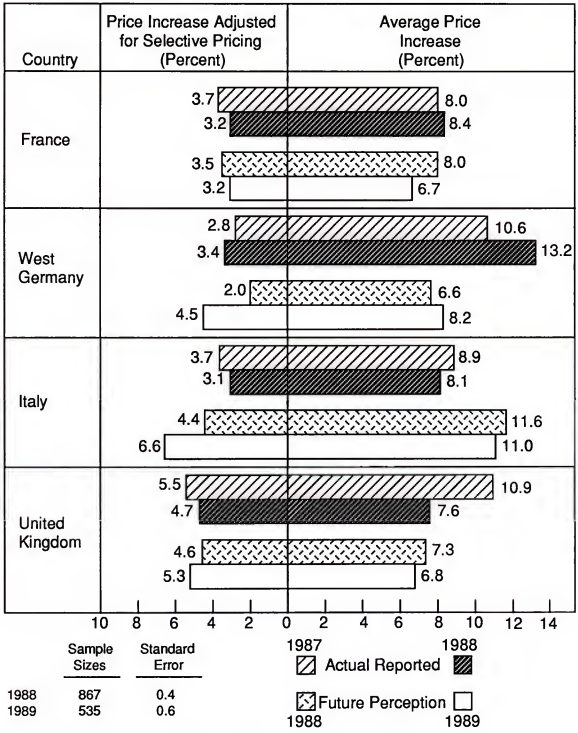


	Sample Sizes	Standard Error
1988	480	0.6
1989	479	0.6

Source of Data: INPUT 1988 and 1989 User Research Programmes

EXHIBIT VI-9

Major Economies' Key Trends, 1987-1989
Software Support Price Increases, Medium Systems

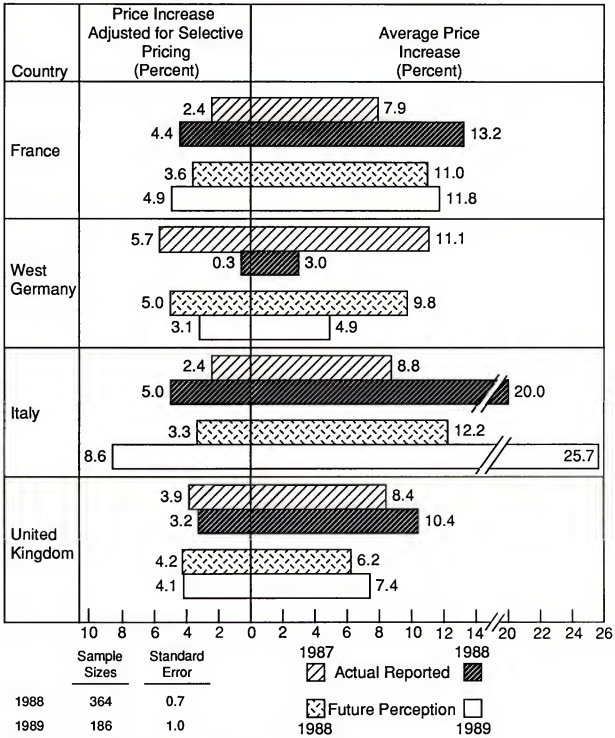


	Sample Sizes	Standard Error
1988	867	0.4
1989	535	0.6

Source of Data: INPUT 1988 and 1989 User Research Programmes

EXHIBIT VI-10

Major Economies' Key Trends, 1987-1989
Software Support Price Increases, Small Systems



	Sample Sizes	Standard Error
1988	364	0.7
1989	186	1.0

Source of Data: INPUT 1988 and 1989 User Research Programmes

C

Major Vendors' Key Trends, 1987 to 1989

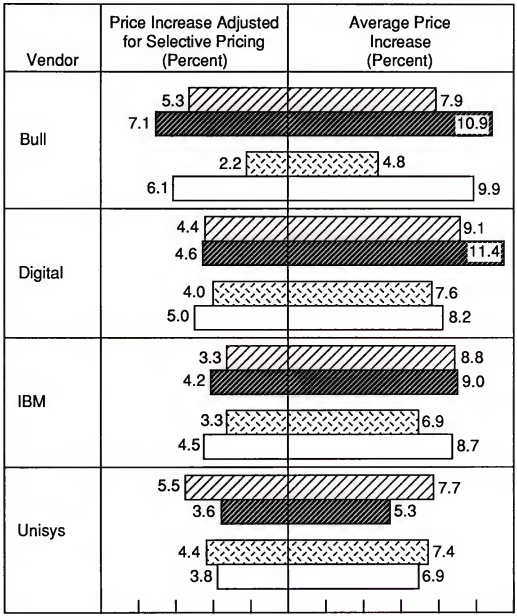
Exhibits VI-11 to VI-16 provide comparative user-perceived price increase data reported by users of four major vendors' equipment: Bull, Digital, IBM, and Unisys. Hardware service price increases are illustrated in Exhibits VI-11 to VI-13 and those for software support in Exhibits VI-14 to VI-16.

Data presented in these exhibits is as follows:

- A comparison of user-reported actual price increases received in 1987 and 1988. Data is segmented by system size.
- A comparison of user-perceived future price increases in 1988 and 1989. Data is segmented by system size.
- A comparison of price increases adjusted for selective pricing

EXHIBIT VI-11

Major Vendors' Key Trends, 1987-1989
Hardware Service Price Increases, Large Systems

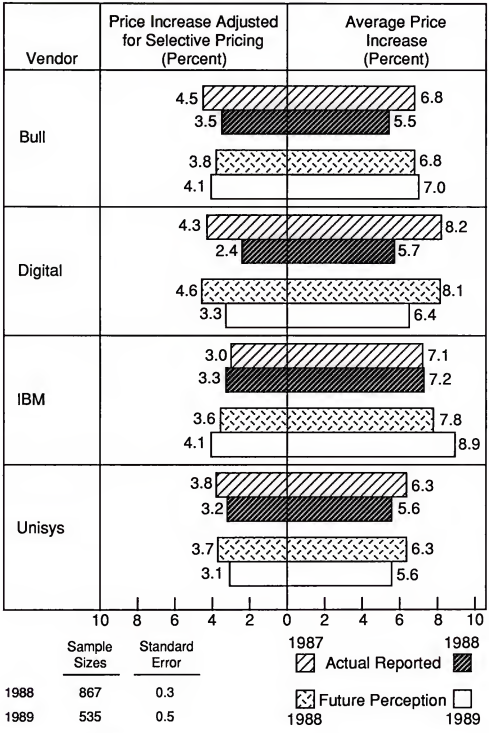


	Sample Sizes	Standard Error
1988	480	0.4
1989	479	0.4

Source of Data: INPUT 1988 and 1989 User Research Programmes

EXHIBIT VI-12

Major Vendors' Key Trends, 1987-1989
Hardware Service Price Increases, Medium Systems

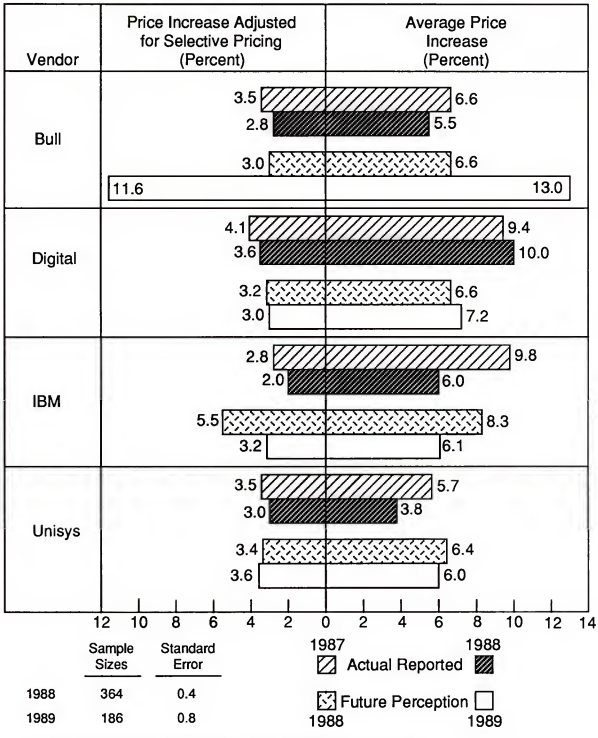


	Sample Sizes	Standard Error
1988	867	0.3
1989	535	0.5

Source of Data: INPUT 1988 and 1989 User Research Programmes

EXHIBIT VI-13

Major Vendors' Key Trends, 1987-1989
Hardware Service Price Increases, Small Systems

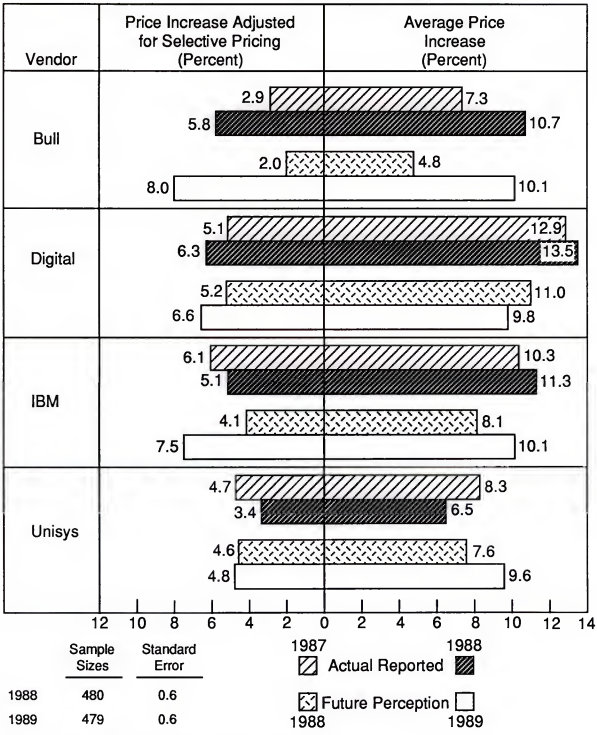


	Sample Sizes	Standard Error
1988	364	0.4
1989	186	0.8

Source of Data: INPUT 1988 and 1989 User Research Programmes

EXHIBIT VI-14

Major Vendors' Key Trends, 1987-1989
Software Support Price Increases, Large Systems

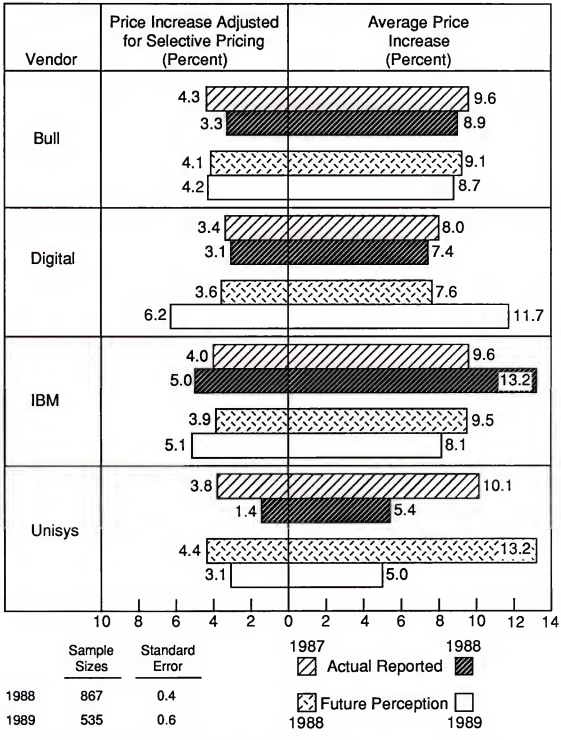


	Sample Sizes	Standard Error
1988	480	0.6
1989	479	0.6

Source of Data: INPUT 1988 and 1989 User Research Programmes

EXHIBIT VI-15

Major Vendors' Key Trends, 1987-1989
Software Support Price Increases, Medium Systems

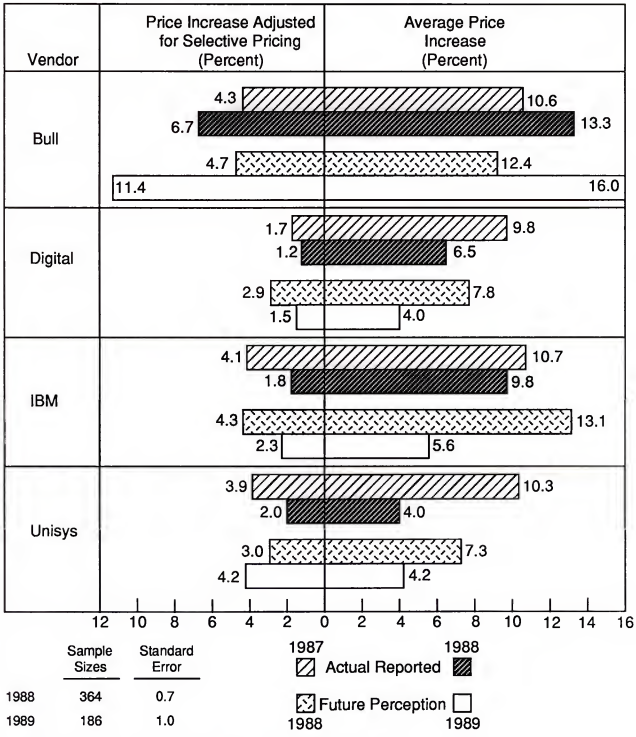


	Sample Sizes	Standard Error
1988	867	0.4
1989	535	0.6

Source of Data: INPUT 1988 and 1989 User Research Programmes

EXHIBIT VI-16

Major Vendors' Key Trends, 1987-1989
Software Support Price Increases, Small Systems



	Sample Sizes	Standard Error
1988	364	0.7
1989	186	1.0

Source of Data: INPUT 1988 and 1989 User Research Programmes

D

Service Cost as a Percentage of System Cost

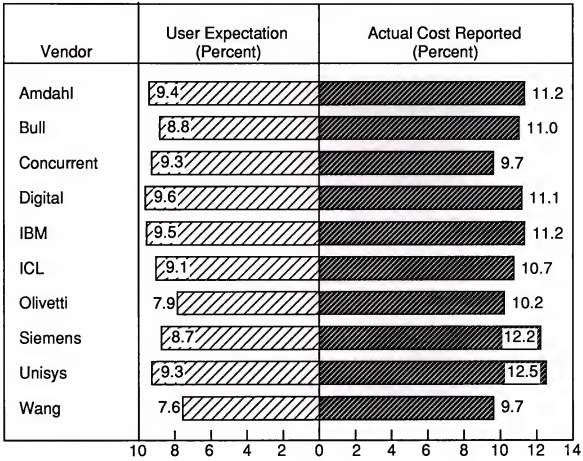
Exhibits VI-17 to VI-22 provide data relating to user perception of the cost of hardware service and software support, expressed as a percentage of hardware and software costs. The percentage cost of hardware service is illustrated in Exhibits VI-17 to VI-19 and software support cost are shown in Exhibits VI-20 to VI-22. Contained within these exhibits is:

- Actual cost reported, compared with user expectation of what that cost should be
- Data related to users of fourteen vendors' equipment

EXHIBIT VI-17

Hardware Service

Cost as a Percentage of Hardware Cost
Large Systems

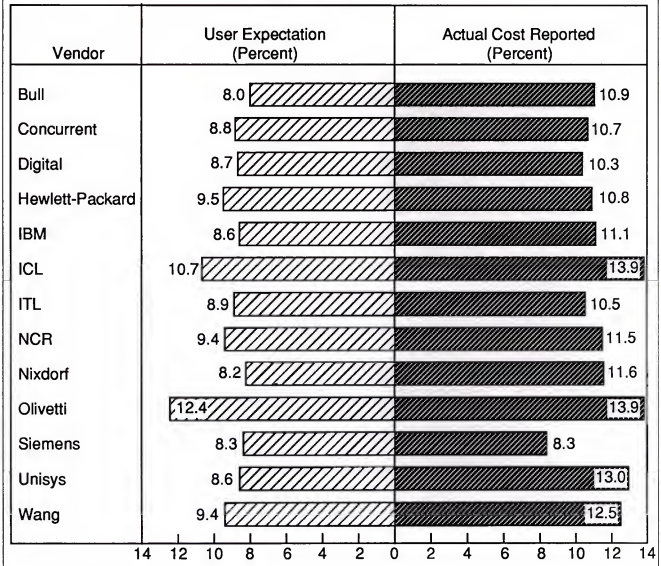


Sample Size: 480
Standard Error: 0.4
Source of Data: INPUT 1988 User Research Programme

EXHIBIT VI-18

Hardware Service

Cost as a Percentage of Hardware Cost
Medium Systems

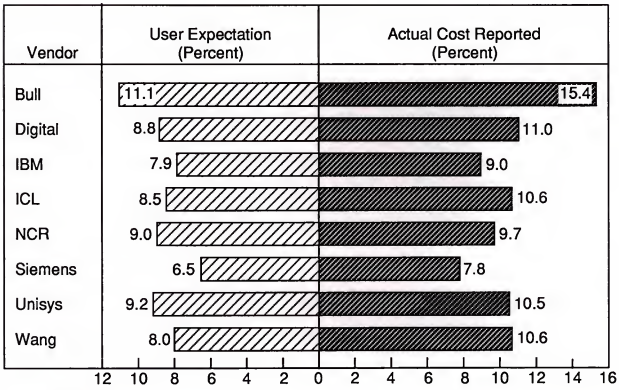


Sample Size: 867
Standard Error: 0.3
Source of Data: INPUT 1988 User Research Programme

EXHIBIT VI-19

Hardware Service

Cost as a Percentage of Hardware Cost
Small Systems



Sample Size: 364

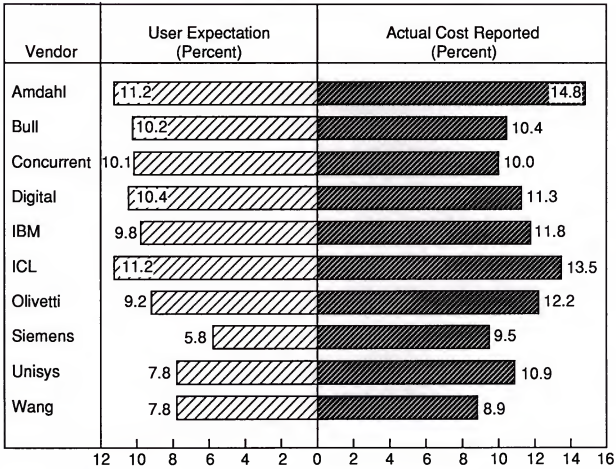
Standard Error: 0.4

Source of Data: INPUT 1988 User Research Programme

EXHIBIT VI-20

Software Support

Cost as a Percentage of Software Cost
Large Systems

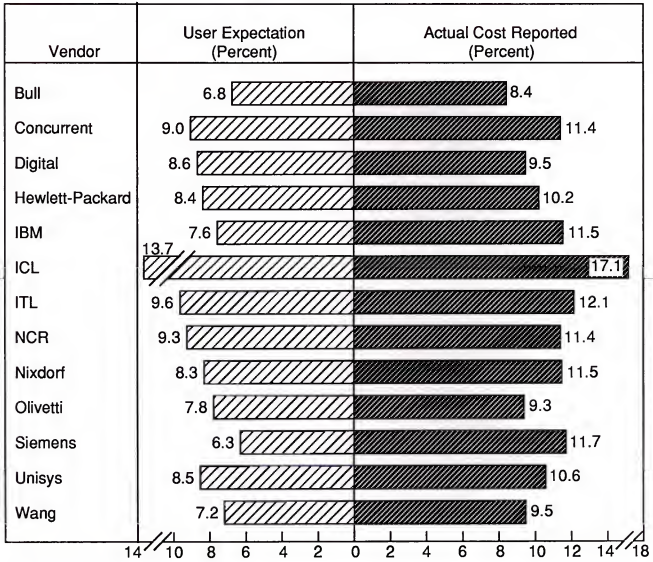


Sample Size: 480
Standard Error: 0.6
Source of Data: INPUT 1988 User Research Programme

EXHIBIT VI-21

Software Support

Cost as a Percentage of Hardware Cost
Medium Systems

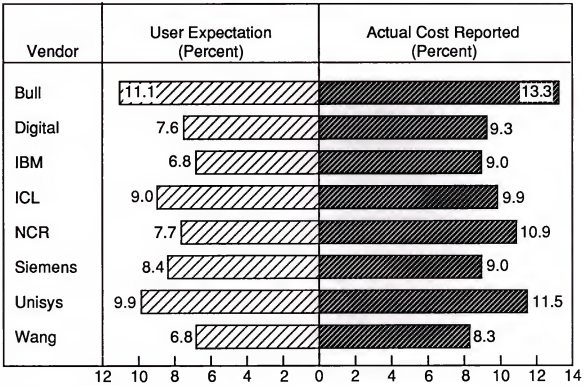


Sample Size: 867
Standard Error: 0.4
Source of Data: INPUT 1988 User Research Programme

EXHIBIT VI-22

Software Support

Cost as a Percentage of Software Cost
Small Systems



Sample Size: 364
Standard Error: 0.7
Source of Data: INPUT 1988 User Research Programme

E

1987 Vendor Price Increase Comparisons

Exhibits VI-23 to VI-28 provide comparative user-perceived price increase data for 1987, which is the most recent set of full data that includes fourteen vendors whose users were questioned. Hardware service price increases are illustrated in Exhibits VI-23 to VI-25, and those for software support in Exhibits VI-26 to VI-28.

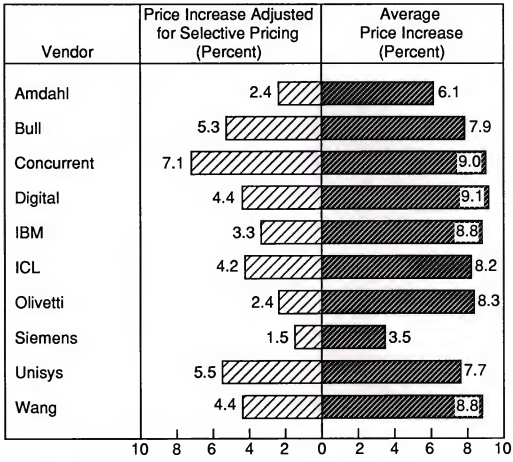
Data presented in these exhibits is as follows:

- A comparison of user-reported actual price increases received in 1987. Data is presented segmented by system size, and is reported by users of fourteen vendors' equipment.
- A comparison of price increases adjusted for selective pricing

EXHIBIT VI-23

1987 Vendor Price Increase Comparisons
Large Systems

Hardware Service



Sample Size: 480

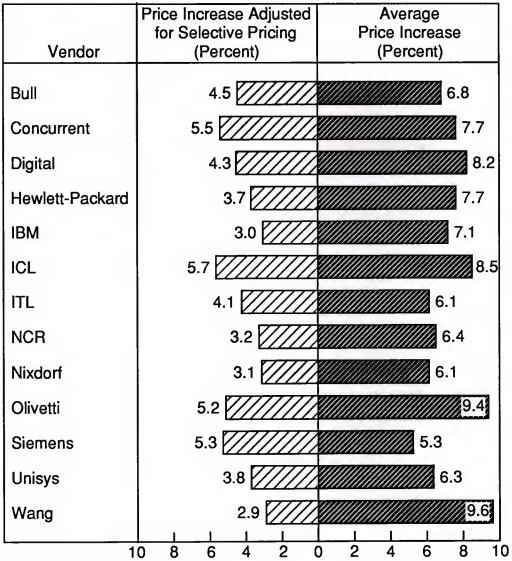
Standard Error: 0.4

Source of Data: INPUT 1988 User Research Programme

EXHIBIT VI-24

1987 Vendor Price Increase Comparisons
Medium Systems

Hardware Service

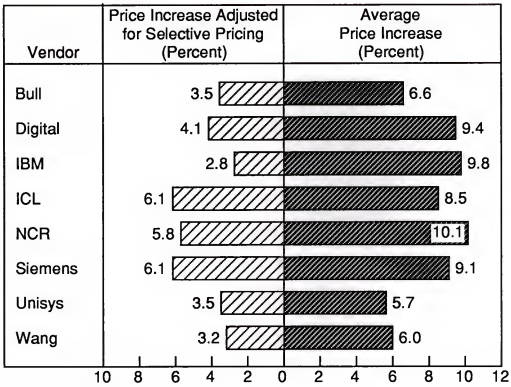


Sample Size: 867
Standard Error: 0.3
Source of Data: INPUT 1988 User Research Programme

EXHIBIT VI-25

1987 Vendor Price Increase Comparisons
Small Systems

Hardware Service



Sample Size: 364

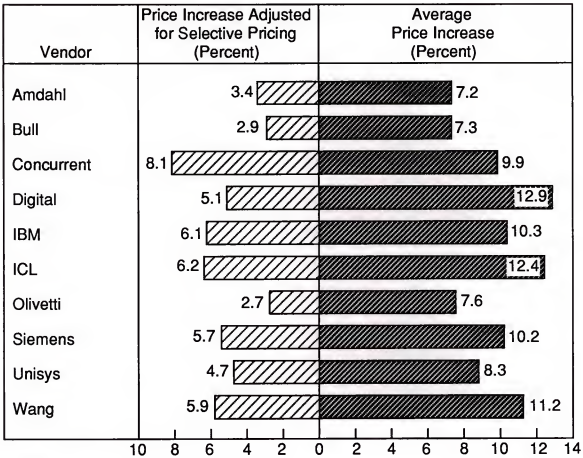
Standard Error: 0.4

Source of Data: INPUT 1988 User Research Programme

EXHIBIT VI-26

1987 Vendor Price Increase Comparisons
Large Systems

Software Support

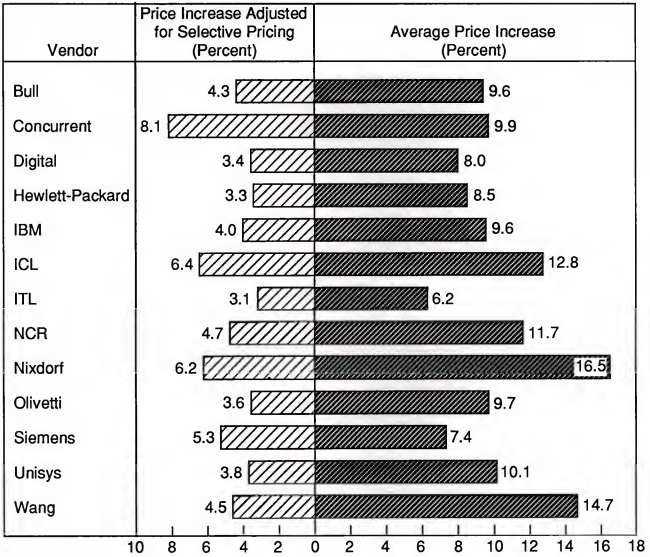


Sample Size: 480
Standard Error: 0.6
Source of Data: INPUT 1988 User Research Programme

EXHIBIT VI-27

1987 Vendor Price Increase Comparisons
Medium Systems

Software Support

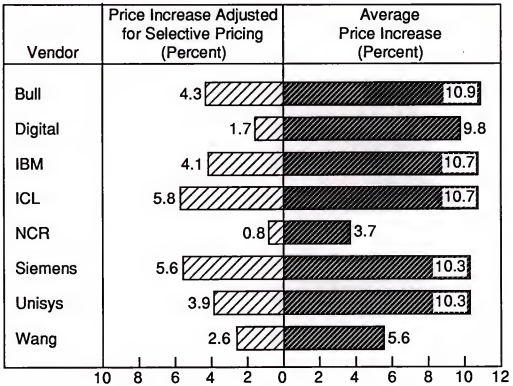


Sample Size: 867
Standard Error: 0.4
Source of Data: INPUT 1988 User Research Programme

EXHIBIT VI-28

1987 Vendor Price Increase Comparisons
Small Systems

Software Support



Sample Size: 364

Standard Error: 0.7

Source of Data: INPUT 1988 User Research Programme

Appendix: 1988 User Price Trend Data

A 1988 User Price Trend Data

EXHIBIT A-1

Europe Overall
User-Perceived Service Price Changes,
Actual (1987) and Future

		Large Systems		Medium Systems		Small Systems	
		1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	7.9	7.1	7.4	7.2	7.9	6.9
	Sample ( )	(233)	(265)	(421)	(443)	(176)	(184)
	No Change						
	Sample ( )	(166)	(131)	(286)	(264)	(110)	(102)
	Average Price Decrease	13.0	14.9	18.7	17.0	23.0	17.5
	Sample ( )	(47)	(63)	(86)	(105)	(40)	(39)
Software Support	Average Price Increase	9.9	8.3	10.6	8.4	8.8	8.7
	Sample ( )	(218)	(251)	(328)	(393)	(121)	(161)
	No Change						
	Sample ( )	(204)	(199)	(402)	(431)	(170)	(180)
	Average Price Decrease	10.3	15.4	27.9	18.6	32.3	20.2
	Sample ( )	(18)	(30)	(36)	(42)	(15)	(23)

Sample Size: 1,711

Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-2

Europe Overall
Service as a Percentage of System Cost

		Large Systems (Percent)	Medium Systems (Percent)	Small Systems (Percent)
Hardware Service	Expectation	9.1	9.1	8.7
	Sample ( )	(446)	(803)	(321)
	Actual	11.1	11.5	11.0
	Sample ( )	(423)	(758)	(315)
Software Support	Expectation	9.8	8.8	8.2
	Sample ( )	(429)	(759)	(309)
	Actual	11.9	11.3	9.9
	Sample ( )	(402)	(697)	(294)

Sample Size: 1,711

Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-3

France
User-Perceived Service Price Changes, Actual (1987) and Future

		Large Systems		Medium Systems		Small Systems	
		1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	5.0	4.4	5.1	5.9	5.8	4.3
	Sample ( )	(34)	(43)	(63)	(68)	(34)	(30)
	No Change Sample ( )	(36)	(25)	(41)	(46)	(19)	(21)
	Average Price Decrease	12.5	19.1	25.1	23.5	23.3	27.6
	Sample ( )	(6)	(11)	(23)	(19)	(9)	(8)
Software Support	Average Price Increase	9.1	6.8	8.0	8.0	7.9	11.0
	Sample ( )	(33)	(34)	(53)	(61)	(17)	(23)
	No Change Sample ( )	(41)	(43)	(65)	(71)	(35)	(39)
	Average Price Decrease	3.0	20.8	23.8	38.3	23.6	23.7
	Sample ( )	(1)	(6)	(8)	(9)	(6)	(9)

Sample Size: 295

Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-4

West Germany
User-Perceived Service Price Changes, Actual (1987) and Future

		Large Systems		Medium Systems		Small Systems	
		1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	6.1	5.9	5.3	5.0	9.6	5.8
	Sample ( )	(18)	(26)	(46)	(52)	(25)	(21)
	No Change Sample ( )	(18)	(10)	(55)	(48)	(9)	(8)
	Average Price Decrease	12.8	6.5	18.9	14.2	-	16.3
	Sample ( )	(5)	(4)	(17)	(17)	(4)	(4)
Software Support	Average Price Increase	12.3	7.5	10.6	6.6	11.1	9.8
	Sample ( )	(12)	(23)	(28)	(37)	(15)	(20)
	No Change Sample ( )	(26)	(21)	(78)	(79)	(12)	(18)
	Average Price Decrease	7.5	5.0	10.0	9.8	11.0	10.0
	Sample ( )	(2)	(1)	(2)	(6)	(2)	(4)

Sample Size: 206

Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-5

Italy
User-Perceived Service Price Changes, Actual (1987) and Future

		Large Systems		Medium Systems		Small Systems	
		1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	6.2	6.6	8.0	8.0	8.7	13.0
	Sample ( )	(20)	(20)	(37)	(28)	(7)	(9)
	No Change Sample ( )	(31)	(33)	(30)	(37)	(13)	(13)
	Average Price Decrease	9.5	13.0	10.0	6.7	40.0	-
	Sample ( )	(5)	(5)	(4)	(6)	(2)	(0)
Software Support	Average Price Increase	8.9	8.4	8.9	11.6	8.8	12.2
	Sample ( )	(16)	(20)	(29)	(27)	(6)	(6)
	No Change Sample ( )	(38)	(36)	(39)	(42)	(16)	(16)
	Average Price Decrease	9.5	8.3	5.0	14.0	-	-
	Sample ( )	(4)	(3)	(1)	(2)	(3)	(0)

Sample Size: 152

Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-6

United Kingdom
User-Perceived Service Price Changes, Actual (1987) and Future

		Large Systems		Medium Systems		Small Systems	
		1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	7.9	7.3	7.8	7.4	8.7	6.3
	Sample ( )	(89)	(106)	(148)	(173)	(60)	(71)
	No Change	(38)	(24)	(68)	(52)	(32)	(20)
	Sample ( )						
	Average Price Decrease	17.1	16.6	19.6	11.8	37.5	8.0
	Sample ( )	(17)	(16)	(15)	(12)	(4)	(5)
Software Support	Average Price Increase	8.6	7.8	10.9	7.3	8.4	6.2
	Sample ( )	(90)	(100)	(117)	(153)	(43)	(67)
	No Change	(46)	(38)	(105)	(88)	(48)	(28)
	Sample ( )						
	Average Price Decrease	10.0	13.4	20.8	10.5	27.5	18.8
	Sample ( )	(9)	(9)	(9)	(4)	(2)	(4)

Sample Size: 491

Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-7

Amdahl
User-Perceived Service Price Changes, Actual (1987) and Future

		Large Systems		Medium Systems		Small Systems	
		1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	6.1	6.5	N/A	N/A	N/A	N/A
	Sample ( )	(30)	(46)	-	-	-	-
	No Change	(43)	(26)	-	-	-	-
	Sample ( )						
	Average Price Decrease	23.0	16.3	-	-	-	-
	Sample ( )	(4)	(6)	-	-	-	-
Software Support	Average Price Increase	7.2	8.0	N/A	N/A	N/A	N/A
	Sample ( )	(36)	(43)	-	-	-	-
	No Change	(38)	(30)	-	-	-	-
	Sample ( )						
	Average Price Decrease	11.0	9.3	-	-	-	-
	Sample ( )	(3)	(6)	-	-	-	-

Sample Size: 79

Source of Data: INPUT 1988 User Research Programme

N/A = Not Applicable

EXHIBIT A-8

Amdahl
Service as a Percentage of System Cost

		Large Systems (Percent)	Medium Systems (Percent)	Small Systems (Percent)
Hardware Service	Expectation	9.4	N/A	N/A
	Sample ( )	(77)	-	-
	Actual	11.2	-	-
	Sample ( )	(73)	-	-
Software Support	Expectation	11.2	N/A	N/A
	Sample ( )	(72)	-	-
	Actual	14.8	-	-
	Sample ( )	(73)	-	-

Sample Size: 79

Source of Data: INPUT 1988 User Research Programme

N/A = Not Applicable

EXHIBIT A-9

Bull
User-Perceived Service Price Changes, Actual (1987) and Future

		Large Systems		Medium Systems		Small Systems	
		1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	7.9	4.8	6.8	6.8	6.6	6.6
	Sample ( )	(18)	(12)	(36)	(36)	(25)	(20)
	No Change	(6)	(6)	(14)	(17)	(16)	(20)
	Sample ( )						
	Average Price Decrease	11.7	14.1	22.8	21.8	25.7	17.0
	Sample ( )	(3)	(8)	(9)	(11)	(6)	(5)
Software Support	Average Price Increase	7.3	4.8	9.6	9.1	10.9	12.4
	Sample ( )	(10)	(12)	(24)	(31)	(16)	(18)
	No Change	(15)	(16)	(28)	(32)	(24)	(28)
	Sample ( )						
	Average Price Decrease	0	5	10	27.5	50	6.5
	Sample ( )	(0)	(1)	(2)	(6)	(1)	(2)

Sample Size: 146

Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-10

Bull
Service as a Percentage of System Cost

		Large Systems (Percent)	Medium Systems (Percent)	Small Systems (Percent)
Hardware Service	Expectation	8.8	8.0	11.1
	Sample ( )	(24)	(60)	(42)
	Actual	11	10.9	15.4
	Sample ( )	(22)	(58)	(44)
Software Support	Expectation	10.2	6.8	11.1
	Sample ( )	(24)	(56)	(38)
	Actual	10.4	8.4	13.3
	Sample ( )	(21)	(46)	(39)

Sample Size: 146

Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-11

Concurrent User-Perceived Service Price Changes, Actual (1987) and Future

		Large Systems		Medium Systems		Small Systems	
		1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	9.0	6.1	7.7	7.1	18.3	6.7
	Sample ( )	(15)	(15)	(33)	(36)	(6)	(6)
	No Change	(4)	(7)	(12)	(9)	(2)	(2)
	Sample ( )						
	Average Price Decrease	0	20	10.0	12.5	0	0
	Sample ( )	(0)	(1)	(1)	(2)	(0)	(0)
Software Support	Average Price Increase	9.9	8.2	9.5	6.8	8.0	5.9
	Sample ( )	(18)	(14)	(30)	(36)	(4)	(7)
	No Change	(4)	(7)	(16)	(12)	(4)	(2)
	Sample ( )						
	Average Price Decrease	0	7.5	20.1	0	0	0
	Sample ( )	(0)	(0)	(1)	(0)	(0)	(0)

Sample Size: 80

Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-12

Concurrent Service as a Percentage of System Cost

		Large Systems (Percent)	Medium Systems (Percent)	Small Systems (Percent)
Hardware Service	Expectation	9.3	8.8	7.5
	Sample ( )	(23)	(48)	(8)
	Actual	9.7	10.7	9.6
	Sample ( )	(22)	(44)	(8)
Software Support	Expectation	10.1	9.0	6.1
	Sample ( )	(22)	(47)	(8)
	Actual	10.0	11.4	7.4
	Sample ( )	(20)	(44)	(8)

Sample Size: 80

Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-13

Digital
User-Perceived Service Price Changes, Actual (1987) and Future

		Large Systems		Medium Systems		Small Systems	
		1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	9.1	7.6	8.2	8.1	9.4	6.6
	Sample ( )	(34)	(39)	(37)	(42)	(21)	(23)
	No Change	(25)	(23)	(29)	(20)	(16)	(16)
	Sample ( )						
	Average Price Decrease	10.4	14.9	11.6	13.6	16.6	22.3
	Sample ( )	(11)	(13)	(5)	(12)	(11)	(9)
Software Support	Average Price Increase	12.9	11.0	8.0	7.6	9.8	7.8
	Sample ( )	(26)	(38)	(31)	(39)	(8)	(20)
	No Change	(35)	(39)	(38)	(37)	(31)	(25)
	Sample ( )						
	Average Price Decrease	11	30	5	13.9	32.2	16.6
	Sample ( )	(5)	(4)	(1)	(7)	(6)	(8)

Sample Size: 217

Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-14

Digital
Service as a Percentage of System Cost

		Large Systems (Percent)	Medium Systems (Percent)	Small Systems (Percent)
Hardware Service	Expectation	9.6	8.7	8.8
	Sample ( )	(75)	(81)	(47)
	Actual	11.1	10.3	11
	Sample ( )	(71)	(76)	(46)
Software Support	Expectation	10.4	8.6	7.6
	Sample ( )	(74)	(72)	(46)
	Actual	11.3	9.5	9.3
	Sample ( )	(69)	(65)	(44)

Sample Size: 217
Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-15

Hewlett-Packard
User-Perceived Service Price Changes, Actual (1987) and Future

		Large Systems		Medium Systems		Small Systems	
		1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	N/A	N/A	7.7	6.9	N/A	N/A
	Sample ( )	-	-	(48)	(45)	-	-
	No Change	-	-	(44)	(38)	-	-
	Sample ( )						
	Average Price Decrease	-	-	16.4	23.8	-	-
	Sample ( )	-	-	(7)	(20)	-	-
Software Support	Average Price Increase	N/A	N/A	8.5	6.6	N/A	N/A
	Sample ( )	-	-	(38)	(44)	-	-
	No Change	-	-	(54)	(58)	-	-
	Sample ( )						
	Average Price Decrease	-	-	45	24	-	-
	Sample ( )	-	-	(5)	(7)	-	-

Sample Size: 109

Source of Data: INPUT 1988 User Research Programme

N/A = Not Applicable

EXHIBIT A-16

Hewlett-Packard
Service as a Percentage of System Cost

		Large Systems (Percent)	Medium Systems (Percent)	Small Systems (Percent)
Hardware Service	Expectation	N/A	9.5	N/A
	Sample ( )	-	(103)	-
	Actual	-	10.8	-
	Sample ( )	-	(96)	-
Software Support	Expectation	N/A	8.4	N/A
	Sample ( )	-	(93)	-
	Actual	-	10.2	-
	Sample ( )	-	(88)	-

Sample Size: 109

Source of Data: INPUT 1988 User Research Programme

N/A = Not Applicable

EXHIBIT A-17

IBM
User-Perceived Service Price Changes, Actual (1987) and Future

		Large Systems		Medium Systems		Small Systems	
		1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	8.8	6.9	7.1	7.8	9.8	8.3
	Sample ( )	(14)	(18)	(56)	(61)	(10)	(21)
	No Change	(17)	(13)	(50)	(39)	(11)	(7)
	Sample ( )						
	Average Price Decrease	18.3	11.6	15.6	14.4	23.9	13.8
	Sample ( )	(6)	(7)	(25)	(31)	(14)	(4)
Software Support	Average Price Increase	10.3	8.1	9.6	9.5	10.7	13.1
	Sample ( )	(23)	(22)	(52)	(61)	(11)	(15)
	No Change	(12)	(17)	(63)	(77)	(16)	(30)
	Sample ( )						
	Average Price Decrease	13.8	10.3	47	19.9	26	5
	Sample ( )	(4)	(4)	(9)	(10)	(2	(1)

Sample Size: 237

Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-18

IBM
Service as a Percentage of System Cost

		Large Systems (Percent)	Medium Systems (Percent)	Small Systems (Percent)
Hardware Service	Expectation	9.5	8.6	7.9
	Sample ( )	(38)	(128)	(36)
	Actual	11.2	11.1	9.0
	Sample ( )	(36)	(124)	(34)
Software Support	Expectation	9.8	7.6	6.8
	Sample ( )	(37)	(125)	(32)
	Actual	11.8	11.5	9.0
	Sample ( )	(33)	(114)	(29)

Sample Size: 237
Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-19

ICL
User-Perceived Service Price Changes, Actual (1987) and Future

		Large Systems		Medium Systems		Small Systems	
		1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	8.2	8.1	8.5	7.3	8.5	5.4
	Sample ( )	(39)	(53)	(52)	(61)	(28)	(25)
	No Change	(29)	(16)	(20)	(11)	(10)	(10)
	Sample ( )						
	Average Price Decrease	14.9	19.0	32	9.1	40	17.5
	Sample ( )	(8)	(11)	(5)	(8)	(1)	(4)
Software Support	Average Price Increase	12.4	8.8	12.8	9.0	10.7	9.2
	Sample ( )	(39)	(47)	(38)	(50)	(21)	(24)
	No Change	(38)	(29)	(31)	(26)	(16)	(14)
	Sample ( )						
	Average Price Decrease	5	26.7	22.4	10.7	4.5	34.3
	Sample ( )	(1)	(6)	(7)	(3)	(8)	(3)

Sample Size: 203

Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-20

ICL
Service as a Percentage of System Cost

		Large Systems (Percent)	Medium Systems (Percent)	Small Systems (Percent)
Hardware Service	Expectation	9.1	10.7	8.5
	Sample ( )	(79)	(78)	(37)
	Actual	10.7	13.9	10.6
	Sample ( )	(76)	(73)	(36)
Software Support	Expectation	11.2	13.7	9.0
	Sample ( )	(74)	(78)	(39)
	Actual	13.5	17.1	9.9
	Sample ( )	(67)	(75)	(36)

Sample Size: 203

Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-21

ITL
User-Perceived Service Price Changes, Actual (1987) and Future

		Large Systems		Medium Systems		Small Systems	
		1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	N/A	N/A	6.1	6.5	N/A	N/A
	Sample ( )	-	-	(22)	(22)	-	-
	No Change Sample ( )	-	-	(10)	(11)	-	-
	Average Price Decrease	-	-	15.0	0	-	-
	Sample ( )	-	-	(1)	(0)	-	-
Software Support	Average Price Increase	N/A	N/A	6.2	6.2	N/A	N/A
	Sample ( )	-	-	(16)	(20)	-	-
	No Change Sample ( )	-	-	(14)	(13)	-	-
	Average Price Decrease	-	-	12.5	0	-	-
	Sample ( )	-	-	(2)	(0)	-	-

Sample Size: 33

Source of Data: INPUT 1988 User Research Programme

N/A = Not Applicable

EXHIBIT A-22

ITL
Service as a Percentage of System Cost

		Large Systems (Percent)	Medium Systems (Percent)	Small Systems (Percent)
Hardware Service	Expectation	N/A	8.9	N/A
	Sample ( )	-	(31)	-
	Actual	-	10.5	-
	Sample ( )	-	(29)	-
Software Support	Expectation	N/A	9.6	N/A
	Sample ( )	-	(32)	-
	Actual	-	12.1	-
	Sample ( )	-	(28)	-

Sample Size: 33

Source of Data: INPUT 1988 User Research Programme

N/A = Not Applicable

EXHIBIT A-23

NCR
User-Perceived Service Price Changes, Actual (1987) and Future

		Large Systems		Medium Systems		Small Systems	
		1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	5.8	6.6	6.4	6.7	10.1	8
	Sample ( )	(5)	(5)	(31)	(32)	(8)	(5)
	No Change Sample ( )	(2)	(2)	(23)	(26)	(6)	(9)
	Average Price Decrease	5	10	14	29.7	0	0
	Sample ( )	(1)	(1)	(8)	(6)	(0)	(0)
Software Support	Average Price Increase	0	9	11.7	6.5	3.7	10
	Sample ( )	(0)	(1)	(24)	(24)	(3)	(2)
	No Change Sample ( )	(7)	(6)	(34)	(38)	(10)	(11)
	Average Price Decrease	5	10	5	18.8	10	10
	Sample ( )	(1)	(1)	(2)	(4)	(1)	(1)

Sample Size: 88

Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-24

NCR
Service as a Percentage of System Cost

		Large Systems (Percent)	Medium Systems (Percent)	Small Systems (Percent)
Hardware Service	Expectation	7.9	9.4	9
	Sample ( )	(7)	(63)	(13)
	Actual	11	11.5	9.7
	Sample ( )	(7)	(59)	(12)
Software Support	Expectation	7	9.3	7.7
	Sample ( )	(6)	(61)	(12)
	Actual	8	11.4	10.9
	Sample ( )	(6)	(57)	(12)

Sample Size: 88
Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-25

Nixdorf
User-Perceived Service Price Changes, Actual (1987) and Future

		Large Systems		Medium Systems		Small Systems	
		1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	N/A	N/A	6.1	6.2	2.0	2.0
	Sample ( )	-	-	(35)	(37)	(1)	(1)
	No Change	-	-	(22)	(28)	(0)	(0)
	Sample ( )						
	Average Price Decrease	-	-	24.2	4	0	0
	Sample ( )	-	-	(12)	(2)	(0)	(0)
Software Support	Average Price Increase	N/A	N/A	16.5	8.2	0	0
	Sample ( )	-	-	(25)	(33)	(0)	(0)
	No Change	-	-	(37)	(38)	(0)	(1)
	Sample ( )						
	Average Price Decrease	-	-	19	10	0	0
	Sample ( )	-	-	(5)	(1)	(0)	(0)

Sample Size: 73

Source of Data: INPUT 1988 User Research Programme

N/A = Not Applicable

EXHIBIT A-26

Nixdorf
Service as a Percentage of System Cost

		Large Systems (Percent)	Medium Systems (Percent)	Small Systems (Percent)
Hardware Service	Expectation	N/A	8.2	0
	Sample ( )	-	(63)	(1)
	Actual	-	11.6	0
	Sample ( )	-	(53)	(0)
Software Support	Expectation	N/A	8.3	0
	Sample ( )	-	(62)	(0)
	Actual	-	11.5	0
	Sample ( )	-	(51)	(0)

Sample Size: 73
Source of Data: INPUT 1988 User Research Programme
N/A = Not Applicable

EXHIBIT A-27

Olivetti
User-Perceived Service Price Changes, Actual (1987) and Future

		Large Systems		Medium Systems		Small Systems	
		1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	8.3	9.2	9.4	7.8	15	15
	Sample ( )	(4)	(5)	(10)	(9)	(1)	(1)
	No Change Sample ( )	(9)	(9)	(5)	(7)	(0)	(0)
	Average Price Decrease	10	0	15.7	22.5	10	5
	Sample ( )	(1)	(0)	(3)	(2)	(1)	(0)
Software Support	Average Price Increase	7.6	8.3	9.7	10.3	3	1
	Sample ( )	(5)	(6)	(6)	(6)	(2)	(1)
	No Change Sample ( )	(9)	(8)	(10)	(13)	(0)	(1)
	Average Price Decrease	0	0	0	20	0	0
	Sample ( )	(0)	(0)	(0)	(1)	(0)	(0)

Sample Size: 36

Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-28

Olivetti
Service as a Percentage of System Cost

		Large Systems (Percent)	Medium Systems (Percent)	Small Systems (Percent)
Hardware Service	Expectation	7.9	12.4	13.5
	Sample ( )	(13)	(18)	(2)
	Actual	10.2	13.9	16
	Sample ( )	(12)	(18)	(2)
Software Support	Expectation	9.2	7.8	9
	Sample ( )	(13)	(17)	(2)
	Actual	12.2	9.3	9
	Sample ( )	(12)	(16)	(2)

Sample Size: 36
Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-29

Siemens
User-Perceived Service Price Changes, Actual (1987) and Future

		Large Systems		Medium Systems		Small Systems	
		1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	3.5	3.5	5.3	4.4	9.1	6.1
	Sample ( )	(4)	(4)	(8)	(8)	(8)	(7)
	No Change	(3)	(3)	(0)	(0)	(4)	(3)
	Sample ( )						
	Average Price Decrease	11.0	10	0	0	0	10.0
	Sample ( )	(2)	(1)	(0)	(0)	(0)	(1)
Software Support	Average Price Increase	10.2	6.7	7.4	10.4	10.3	8.1
	Sample ( )	(5)	(6)	(5)	(5)	(6)	(7)
	No Change	(4)	(3)	(2)	(3)	(4)	(6)
	Sample ( )						
	Average Price Decrease	0	0	0	0	20.0	10.0
	Sample ( )	(0)	(0)	0	(0)	(0)	(1)

Sample Size: 31

Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-30

Siemens
Service as a Percentage of System Cost

		Large Systems (Percent)	Medium Systems (Percent)	Small Systems (Percent)
Hardware Service	Expectation	8.7	8.3	6.5
	Sample ( )	(6)	(7)	(8)
	Actual	12.2	8.3	7.8
	Sample ( )	(5)	(7)	(8)
Software Support	Expectation	5.8	6.3	9.0
	Sample ( )	(4)	(4)	(8)
	Actual	9.5	11.7	8.4
	Sample ( )	(4)	(3)	(7)

Sample Size: 31
Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-31

Unisys
User-Perceived Service Price Changes, Actual (1987) and Future

		Large Systems		Medium Systems		Small Systems	
		1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	7.7	7.4	6.3	6.3	5.7	6.4
	Sample ( )	(46)	(49)	(34)	(34)	(28)	(25)
	No Change	(16)	(11)	(19)	(19)	(14)	(15)
	Sample ( )						
	Average Price Decrease	5.7	14.8	16.3	14	33.8	21.1
	Sample ( )	(3)	(8)	(4)	(5)	(4)	(7)
Software Support	Average Price Increase	8.3	7.6	10.1	13.2	10.3	7.3
	Sample ( )	(36)	(42)	(19)	(20)	(17)	(20)
	No Change	(26)	(25)	(31)	(39)	(26)	(28)
	Sample ( )						
	Average Price Decrease	7.5	8.3	5	5	75	50
	Sample ( )	(2)	(3)	(1)	(1)	(2)	(1)

Sample Size: 179

Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-32

Unisys
Service as a Percentage of System Cost

		Large Systems (Percent)	Medium Systems (Percent)	Small Systems (Percent)
Hardware Service	Expectation	9.3	8.6	9.2
	Sample ( )	(65)	(58)	(45)
	Actual	12.5	13	10.5
	Sample ( )	(60)	(53)	(44)
Software Support	Expectation	7.8	8.5	9.9
	Sample ( )	(64)	(51)	(45)
	Actual	10.9	10.6	11.5
	Sample ( )	(58)	(48)	(40)

Sample Size: 179
Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-33

Wang
User-Perceived Service Price Changes, Actual (1987) and Future

		Large Systems		Medium Systems		Small Systems	
		1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)	1987 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	8.8	7.2	9.6	10.0	6.0	7.6
	Sample ( )	(20)	(20)	(19)	(19)	(40)	(50)
	No Change	(12)	(14)	(38)	(40)	(31)	(20)
	Sample ( )						
	Average Price Decrease	10.8	12.6	24.2	10.8	20.7	13.8
	Sample ( )	(8)	(7)	(6)	(6)	(3)	(8)
Software Support	Average Price Increase	11.2	7.5	14.7	8.6	5.6	7.3
	Sample ( )	(20)	(21)	(20)	(23)	(33)	(47)
	No Change	(16)	(18)	(44)	(46)	(39)	(34)
	Sample ( )						
	Average Price Decrease	9.0	10.0	20.0	4.0	0	23.3
	Sample ( )	(2)	(3)	(1)	(2)	(0)	(8)

Sample Size: 200

Source of Data: INPUT 1988 User Research Programme

EXHIBIT A-34

Wang
Service as a Percentage of System Cost

		Large Systems (Percent)	Medium Systems (Percent)	Small Systems (Percent)
Hardware Service	Expectation	7.6	9.4	8.0
	Sample ( )	(39)	(65)	(82)
	Actual	9.7	12.5	10.6
	Sample ( )	(39)	(68)	(81)
Software Support	Expectation	7.8	7.2	6.8
	Sample ( )	(39)	(61)	(79)
	Actual	8.9	9.5	8.3
	Sample ( )	(39)	(62)	(77)

Sample Size: 200
Source of Data: INPUT 1988 User Research Programme

B

Appendix: 1989 User Price Trend Data

B 1989 User Price Trend Data

EXHIBIT B-1

Europe Overall
User-Perceived Service Price Changes,
Actual (1988) and Future

		Large Systems		Medium Systems		Small Systems	
		1988 Actual (Percent)	Future (Percent)	1988 Actual (Percent)	Future (Percent)	1988 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	8.4	7.9	6.8	7.5	7.4	7.6
	Sample ( )	(216)	(235)	(239)	(253)	(54)	(80)
	No Change	(101)	(61)	(124)	(84)	(63)	(33)
	Sample ( )						
	Average Price Decrease	17.0	14.2	25.8	17.9	27.1	18.9
	Sample ( )	(76)	(100)	(66)	(98)	(21)	(27)
Software Support	Average Price Increase	9.3	8.7	9.2	8.0	10.3	8.1
	Sample ( )	(201)	(273)	(171)	(263)	(36)	(63)
	No Change	(151)	(89)	(197)	(108)	(79)	(44)
	Sample ( )						
	Average Price Decrease	23.6	14.3	29.6	17.6	20.7	16.8
	Sample ( )	(31)	(24)	(24)	(40)	(7)	(14)

Sample Size: 1,200

Source of Data: INPUT 1989 User Research Programme

EXHIBIT B-2

Europe Overall
Service as a Percentage of System Cost

		Large Systems (Percent)	Medium Systems (Percent)	Small Systems (Percent)
Hardware Service	Expectation	8.1	8.9	8.1
	Sample ( )	(374)	(422)	(124)
	Actual	10.7	11.4	10.0
	Sample ( )	(315)	(365)	(98)
Software Support	Expectation	8.8	9.7	8.6
	Sample ( )	(345)	(357)	(105)
	Actual	10.4	11.2	11.7
	Sample ( )	(282)	(274)	(80)

Sample Size: 1,200

Source of Data: INPUT 1989 User Research Programme

EXHIBIT B-3

France
User-Perceived Service Price Changes, Actual (1988) and Future

		Large Systems		Medium Systems		Small Systems	
		1988 Actual (Percent)	Future (Percent)	1988 Actual (Percent)	Future (Percent)	1988 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	5.5	7.1	3.9	4.2	2.6	5.3
	Sample ( )	(17)	(16)	(32)	(26)	(13)	(19)
	No Change Sample ( )	(7)	(9)	(16)	(20)	(14)	(6)
	Average Price Decrease	16.5	11.8	24.9	14.2	28.1	22.0
	Sample ( )	(1)	(6)	(13)	(14)	(7)	(5)
Software Support	Average Price Increase	6.1	6.2	8.4	6.7	13.2	11.8
	Sample ( )	(13)	(14)	(18)	(27)	(9)	(10)
	No Change Sample ( )	(11)	(9)	(27)	(24)	(18)	(10)
	Average Price Decrease	11.7	18.8	33.3	19.6	30.0	8.8
	Sample ( )	(3)	(4)	(3)	(5)	(1)	(4)

Sample Size: 164

Source of Data: INPUT 1989 User Research Programme

EXHIBIT B-4

France
Service as a Percentage of System Cost

		Large Systems (Percent)	Medium Systems (Percent)	Small Systems (Percent)
Hardware Service	Expectation	8.2	9.0	7.3
	Sample ( )	(22)	(56)	(29)
	Actual	9.6	9.3	9.9
	Sample ( )	(21)	(50)	(21)
Software Support	Expectation	8.8	9.9	7.8
	Sample ( )	(24)	(48)	(21)
	Actual	9.4	9.6	8.5
	Sample ( )	(18)	(36)	(15)

Sample Size: 164

Source of Data: INPUT 1989 User Research Programme

EXHIBIT B-5

West Germany
User-Perceived Service Price Changes, Actual (1988) and Future

		Large Systems		Medium Systems		Small Systems	
		1988 Actual (Percent)	Future (Percent)	1988 Actual (Percent)	Future (Percent)	1988 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	9.2	6.8	6.8	6.7	8.8	6.8
	Sample ( )	(53)	(60)	(24)	(31)	(4)	(8)
	No Change Sample ( )	(36)	(17)	(33)	(20)	(6)	(3)
	Average Price Decrease	18.6	16.1	28.9	16.0	30.0	10.3
	Sample ( )	(21)	(32)	(12)	(21)	(3)	(4)
Software Support	Average Price Increase	10.8	8.8	13.2	8.2	3.0	4.9
	Sample ( )	(46)	(63)	(17)	(37)	(1)	(7)
	No Change Sample ( )	(52)	(36)	(45)	(24)	(8)	(4)
	Average Price Decrease	25.0	21.1	33.8	14.4	25.0	-
	Sample ( )	(6)	(6)	(4)	(7)	(4)	(0)

Sample Size: 221

Source of Data: INPUT 1989 User Research Programme

EXHIBIT B-6

West Germany
Service as a Percentage of System Cost

		Large Systems (Percent)	Medium Systems (Percent)	Small Systems (Percent)
Hardware Service	Expectation	7.6	7.5	5.1
	Sample ( )	(99)	(66)	(9)
	Actual	10.2	8.5	6.7
	Sample ( )	(74)	(54)	(7)
Software Support	Expectation	9.5	10.0	4.7
	Sample ( )	(100)	(58)	(6)
	Actual	10.9	9.9	11.0
	Sample ( )	(79)	(44)	(7)

Sample Size: 221

Source of Data: INPUT 1989 User Research Programme

EXHIBIT B-7

Italy
User-Perceived Service Price Changes, Actual (1988) and Future

		Large Systems		Medium Systems		Small Systems	
		1988 Actual (Percent)	Future (Percent)	1988 Actual (Percent)	Future (Percent)	1988 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	8.0	9.8	9.2	9.0	5.7	9.8
	Sample ( )	(20)	(21)	(26)	(27)	(3)	(6)
	No Change	(11)	(10)	(10)	(6)	(5)	(1)
	Sample ( )						
	Average Price Decrease	14.6	15.5	14.5	18.8	35.0	26.7
	Sample ( )	(9)	(6)	(4)	(4)	(2)	(3)
Software Support	Average Price Increase	11.0	15.7	8.1	11.0	20.0	25.7
	Sample ( )	(21)	(25)	(15)	(21)	(2)	(3)
	No Change	(16)	(11)	(22)	(11)	(8)	(5)
	Sample ( )						
	Average Price Decrease	32.5	8.0	40.0	35.0	-	50.0
	Sample ( )	(2)	(2)	(2)	(3)	(2)	(1)

Sample Size: 111

Source of Data: INPUT 1989 User Research Programme

EXHIBIT B-8

Italy
Service as a Percentage of System Cost

		Large Systems (Percent)	Medium Systems (Percent)	Small Systems (Percent)
Hardware Service	Expectation	8.6	8.1	6.7
	Sample ( )	(44)	(42)	(9)
	Actual	10.9	9.2	6.7
	Sample ( )	(42)	(34)	(7)
Software Support	Expectation	10.1	9.1	15.1
	Sample ( )	(35)	(36)	(8)
	Actual	14.1	7.6	28.6
	Sample ( )	(28)	(27)	(5)

Sample Size: 111

Source of Data: INPUT 1989 User Research Programme

EXHIBIT B-9

United Kingdom
User-Perceived Service Price Changes, Actual (1988) and Future

		Large Systems		Medium Systems		Small Systems	
		1988 Actual (Percent)	Future (Percent)	1988 Actual (Percent)	Future (Percent)	1988 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	7.1	7.6	7.2	7.0	7.8	9.7
	Sample ( )	(72)	(90)	(99)	(111)	(12)	(27)
	No Change	(31)	(10)	(26)	(10)	(20)	(7)
	Sample ( )						
	Average Price Decrease	11.1	14.1	24.2	11.8	26.0	20.0
	Sample ( )	(17)	(25)	(11)	(21)	(4)	(6)
Software Support	Average Price Increase	6.8	7.1	7.6	6.8	10.4	7.4
	Sample ( )	(76)	(106)	(81)	(111)	(11)	(21)
	No Change	(34)	(16)	(45)	(21)	(23)	(13)
	Sample ( )						
	Average Price Decrease	19.7	6.6	15.8	22.1	17.5	8.3
	Sample ( )	(10)	(5)	(5)	(10)	(2)	(4)

Sample Size: 385

Source of Data: INPUT 1989 User Research Programme

EXHIBIT B-10

United Kingdom
Service as a Percentage of System Cost

		Large Systems (Percent)	Medium Systems (Percent)	Small Systems (Percent)
Hardware Service	Expectation	8.5	8.6	9.3
	Sample ( )	(126)	(142)	(38)
	Actual	10.6	12.7	12.1
	Sample ( )	(106)	(124)	(28)
Software Support	Expectation	7.6	7.7	7.3
	Sample ( )	(113)	(124)	(34)
	Actual	9.1	10.1	10.7
	Sample ( )	(91)	(96)	(24)

Sample Size: 385

Source of Data: INPUT 1989 User Research Programme

EXHIBIT B-11

Bull
User-Perceived Service Price Changes, Actual (1988) and Future

		Large Systems		Medium Systems		Small Systems	
		1988 Actual (Percent)	Future (Percent)	1988 Actual (Percent)	Future (Percent)	1988 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	10.3	9.9	5.5	7.0	5.5	13.0
	Sample ( )	(36)	(34)	(29)	(25)	(4)	(8)
	No Change	(10)	(4)	(11)	(12)	(4)	(0)
	Sample ( )						
	Average Price Decrease	21.0	11.7	39.2	16.3	-	10.0
	Sample ( )	(9)	(17)	(6)	(6)	(0)	(1)
Software Support	Average Price Increase	10.7	10.1	8.9	8.7	13.3	16.0
	Sample ( )	(31)	(45)	(15)	(21)	(4)	(5)
	No Change	(24)	(10)	(20)	(16)	(4)	(2)
	Sample ( )						
	Average Price Decrease	6.0	28.0	32.8	22.5	-	-
	Sample ( )	(2)	(2)	(6)	(6)	(2)	(0)

Sample Size: 128

Source of Data: INPUT 1989 User Research Programme

EXHIBIT B-12

Digital
User-Perceived Service Price Changes, Actual (1988) and Future

		Large Systems		Medium Systems		Small Systems	
		1988 Actual (Percent)	Future (Percent)	1988 Actual (Percent)	Future (Percent)	1988 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	11.4	8.2	5.7	6.4	10.0	7.2
	Sample ( )	(17)	(26)	(18)	(23)	(5)	(5)
	No Change	(17)	(8)	(20)	(8)	(5)	(3)
	Sample ( )						
	Average Price Decrease	11.1	13.0	13.0	26.9	23.0	12.0
	Sample ( )	(8)	(9)	(4)	(14)	(4)	(4)
Software Support	Average Price Increase	13.5	9.8	7.4	11.7	6.5	4.0
	Sample ( )	(19)	(29)	(14)	(20)	(2)	(4)
	No Change	(17)	(9)	(18)	(14)	(9)	(5)
	Sample ( )						
	Average Price Decrease	21.0	12.6	30.0	22.5	-	10.0
	Sample ( )	(5)	(5)	(4)	(8)	(0)	(0)

Sample Size: 124

Source of Data: INPUT 1989 User Research Programme

EXHIBIT B-13

IBM
User-Perceived Service Price Changes, Actual (1988) and Future

		Large Systems		Medium Systems		Small Systems	
		1988 Actual (Percent)	Future (Percent)	1988 Actual (Percent)	Future (Percent)	1988 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	9.0	8.7	7.2	8.9	6.0	6.1
	Sample ( )	(38)	(42)	(41)	(42)	(10)	(16)
	No Change	(17)	(12)	(24)	(21)	(15)	(12)
	Sample ( )						
	Average Price Decrease	19.3	12.9	31.9	19.3	16.2	26.7
	Sample ( )	(28)	(27)	(25)	(28)	(5)	(3)
Software Support	Average Price Increase	11.3	10.1	13.2	8.1	9.8	5.6
	Sample ( )	(35)	(56)	(30)	(49)	(4)	(10)
	No Change	(33)	(15)	(41)	(22)	(17)	(11)
	Sample ( )						
	Average Price Decrease	37.0	13.3	36.0	18.7	25.0	20.7
	Sample ( )	(9)	(4)	(8)	(7)	(1)	(3)

Sample Size: 254

Source of Data: INPUT 1989 User Research Programme

EXHIBIT B-14

Unisys
User-Perceived Service Price Changes, Actual (1988) and Future

		Large Systems		Medium Systems		Small Systems	
		1988 Actual (Percent)	Future (Percent)	1988 Actual (Percent)	Future (Percent)	1988 Actual (Percent)	Future (Percent)
Hardware Service	Average Price Increase	5.3	6.9	5.6	5.6	3.8	6.0
	Sample ( )	(33)	(27)	(19)	(17)	(4)	(3)
	No Change	(8)	(11)	(13)	(7)	(0)	(2)
	Sample ( )						
	Average Price Decrease	13.0	19.4	40.0	14.7	25.0	-
	Sample ( )	(7)	(11)	(1)	(7)	(1)	(0)
Software Support	Average Price Increase	6.5	9.6	5.4	5.0	4.0	4.2
	Sample ( )	(25)	(23)	(8)	(20)	(2)	(5)
	No Change	(19)	(19)	(21)	(9)	(2)	(0)
	Sample ( )						
	Average Price Decrease	18.8	11.3	27.0	8.3	-	-
	Sample ( )	(4)	(4)	(2)	(3)	(0)	(0)

Sample Size: 102

Source of Data: INPUT 1989 User Research Programme

Appendix: Vendor Questionnaire

Appendix: Vendor Questionnaire

1. What do you consider to be the major issues influencing or affecting hardware service pricing?

   (a) _____

   (b) _____

   (c) _____

2. What do you consider to be the major issues influencing or affecting software support pricing?

   (a) _____

   (b) _____

   (c) _____

3. Do you bundle service pricing for

   (a) Hardware maintenance Yes/No

   What is this bundled with? _____

   (b) Software support Yes/No

   What is this bundled with? _____

4. What are your views on bundling?

A good approach	HW	Yes/No
	SW	Yes/No
An increasing trend	HW	Yes/No
	SW	Yes/No
A decreasing trend	HW	Yes/No
	SW	Yes/No

Do you believe users prefer bundled pricing? Yes/No

5. How do you see the trend in service pricing developing in the future?

   A relative increase in prices HW Yes/No
   SW Yes/No

   A relative decrease in prices HW Yes/No
   SW Yes/No

6. (a) Do you believe service will remain profitable at an acceptable level over the next five years?

   HW Yes/No
   SW Yes/No

   (b) If "No," what is likely to be the result of this?

   _____

7. In your opinion, what is the best strategy to address service competition from other vendors?

   (a) Quality _____

   (b) Price _____

   (c) Other _____

8. Where do you see major service competition coming from?

   (a) Other hardware manufacturers _____

   (b) TPM companies HW _____

   SW _____

   (c) Independent SW houses _____

9. (a) Do you have a packaged service product? Yes/No

   (b) How many levels of service are included in this package?

   HW _____

   SW _____

   (c) Do you include any other items in the package?

   Professional service Yes/No

   Education and training Yes/No

10. (a) Do you feel that there is a demand from users for single-source service?

Yes/No

(b) Does your company have a single-source service strategy?

Yes/No

(c) Is this available now, or is it a future offering?

Now _____

Future _____ in ____ months/years

(d) What is your implementation approach/plan?

(i) Undertake all services using own resources _____

(ii) Subcontract to other hardware manufacturers _____

(iii) Subcontract to TPM/SW house _____

(iv) A site management service _____

11. Which elements do you consider a single-source service offering should include?

CPU _____

Peripherals _____

Data Communications _____

Communication lines _____

PABX equipment _____

Copiers _____

Fax machines _____

PCs _____

Terminals _____

Workstations _____

Operating system and application software _____

Professional services _____

Education and training _____

12. What do you consider to be appropriate pricing strategies, taking into account:

    Competition
    EEC harmonisation
    Customer needs
    Changing market environment?

    (a) _____

    (b) _____

    (c) _____

13. (a) What is your opinion on future warranty trends?

	Years					
	<1	1	2	3	4	5
PC/workstations						
Small systems						
Medium systems						
Large systems						

    (b) Do you consider that hardware and software warranty will merge to become system warranty?

    Yes/No

14. Which do you consider to be the most important aspect of service?

    (a) Quality _____

    (b) Price _____

    What do you consider the relative importance of each to be on a scale of 0 to 10 (10 = most important)?

    (a) Quality _____

    (b) Price _____

15. Is there one single factor that you believe will have a significant impact on service pricing in, say, the next five years?

    _____

    _____

Appendix: User Questionnaire

Appendix: User Questionnaire

1. What is the make and model number of the main computer on your site, and how many do you have?

   Make _____
   Model _____
   Units _____

2. Do you have a second system? What is the make and model number of that, and how many do you have?

   Make _____
   Model _____
   Units _____

   All the following questions that I am going to ask are related to the main system. (Read out make and model number of #1 above).

3. So that we can ensure that we get a proper cross-section of industry and commerce, can you tell me what is the main business sector of your company?

Manufacturing	1
Finance	2
Distribution	3
Public sector	4
Government	5
Services	6

Other (Write in) _____

Business Sector

4. What is the principal use to which you put the computer?

Administration	1
Product design	2
Software development	3
Real time	4
Industrial automation	5
Other (Write in) _____	

Business Use

5. How many of each of the following units do you have attached to your main system?

Local VDUs/PCs/workstations	_____
Remote VDUs/PCs/workstations	_____
Printers	_____
Disc drives	_____

System Size

We classify system size according to the total installed (sales) value of the CPU and all the attached local and remote peripherals, into:

U.S. Dollars:
Large: $500K or more Medium: $75K to $499K Small: less than $75K

6. In which range is your system?

Large	1
Medium	2
Small	3

7. Who services the CPU? (Read out)

Manufacturer	1
Dealer	1
Third-party maintenance	1
Own company	1
Other (Write in) _____	

8. Who services the peripherals? (Read out)

Manufacturer	1
Dealer	1
Third-party maintenance	1
Own company	1
Other (Write in) _____	

9. What type of maintenance contract do you have?

Full contract	1
Warranty	1
Time-and-material	1
Other (Write in) _____	

10. If you have had a warranty on your CPU in the last two years, how long was it in months?

_____ months

(If respondent answered "yes" to third-party maintenance #7 and #8, then ask the following questions, otherwise go on to #13.)

Third-party Maintenance

The following questions apply to your CPU model _____ and your peripherals.

11. Why do you use TPM?

	CPU	Peripheral	CPU and Peripheral
Lower cost	1	2	3
Local service	1	2	3
One source	1	2	3
TPM does a better job than manufacturer	1	2	3
TPM offers more flexible contract	1	2	3
Other (Write in) _____	1	2	3

(If the respondent quotes cost as a reason under #11, ask #12)

12. What percentage saving did you make from your original contract by going to a TPM?
_____ %

Go to #14.

13. Is there any reason why you do not use a TPM?

	CPU	Peripheral
Satisfied with the maker	1	1
Manufacturer has an advantage	1	1
TPM can't support operating software	1	1
Tied to maker with contract	1	1
Fear of vendor response	1	1
Considered and rejected TPM	1	1
TPM financial weakness	1	1
Unaware of TPMs	1	1
Other (Write in)	1	1

_____

14. Would you prefer all hardware and software maintenance and support to be provided by one vendor at each site?

Yes	1
No	2

15. Would you prefer that vendor to be:

The manufacturer of your main hardware	1
A value-added reseller	2
A TPM	3
One of your hardware suppliers	4

Hardware Service

As you are the manager of the computer hardware at your company, I would like to ask you some questions concerning the service you get from your maintenance vendor, and the degree of satisfaction you have with the service.

All the questions with ratings are scaled from 0 to 10, where 0 represents zero importance or satisfaction, 5 is average and 10 represents top importance or fully satisfied.

16. What is your rating of the importance of hardware maintenance to your business? And what is your satisfaction with it?

Importance rating	_____
Satisfaction rating	_____

17. If we define systems availability as the percent of your normal working hours that the system is operational (disregard non-critical peripheral breaks), what percentage has that been for your system over the last twelve months? How many hours per day do you need the system?

Percentage	_____%
Hours per day	_____

18. How many times each year does your system fail completely for periods over one hour?

    Times per year _____

19. What are the percentages of the breaks that are hardware-originated and software- originated?

    Hardware _____%
    Software _____%

20. What is your rating for the importance of systems availability? What is your satisfaction with it?

    Importance rating _____
    Satisfaction rating _____

21. Defining hardware response time as the time it takes between reporting a fault and the arrival of the service engineer on-site (in working hours, that is to say that 8 hours = 1 day), what response time do you find acceptable and what did you actually experience as an average over the preceding 12 months?

    Acceptable _____
    Experienced _____

22. How important is the "acceptable" response time to you on the 0 to 10 rating?

    Response rating _____

23. If repair time is defined as the time taken to get the system fully operable from engineer arrival on-site, then what time (in working hours) do you find acceptable, and what did you experience in the preceding 12 months? [Note: 8 hours = 1 working day.]

    Acceptable _____
    Experienced _____

24. How important is repair time to you on a 0 to 10 rating?

    Repair importance rating _____

25. I would now like to go through a short list of hardware service aspects for your main system (reconfirm main system) and ask you to give an importance and satisfaction rating for each.

	Importance	Satisfaction
Spares availability	_____	_____
Engineer skill	_____	_____
Problem escalation	_____	_____
Call handling	_____	_____
Backup support	_____	_____
Training on hardware	_____	_____
Telephone support	_____	_____
Service administration	_____	_____
Documentation	_____	_____
Consultancy/planning	_____	_____
Remote diagnostics	_____	_____
Out of hours service	_____	_____

Hardware Service Pricing

26. What percentage increase or decrease did you pay for your hardware maintenance in 1987?

Increase	_____%
Decrease	_____%
No change	_____%

27. What do you expect the price changes for hardware maintenance will be in the future in percentage terms per annum?

Increase	_____%
Decrease	_____%
No change	_____%

28. Expressing the maintenance charges as a percentage of the overall system hardware cost, what approximate percent do you feel you ought to be paying, and what do you actually pay?

Expect	_____%
Actual	_____%

29. How important do you rate hardware maintenance pricing, and how satisfied are you with the current levels?

Importance rating	_____
Satisfaction rating	_____

30. Would you prefer hardware maintenance offerings to be bundled or would you prefer individual prices?

Individual prices	1
Bundled	2
Don't know	3

31. Which of the following statements reflect your views on hardware maintenance?

Good value	1
Expensive but worth it	1
Expensive but not worth it	1
Too expensive	1
Don't know	1
Other	1

Systems Software Operating Systems Support

I would like to ask you some questions concerning the services you get from your software support vendor and the degree of satisfaction you have with the service.

Please note that these questions do not relate to application software.

All the questions with ratings are scaled from 0 to 10, where 0 represents zero importance or satisfaction, 5 is average, and 10 represents top importance or fully satisfied.

32. Who supports the system software on your main system?

Hardware manufacturer	1
Software house	1
Software product vendor	1
In-house	1
Value-added reseller	1
None of the above	1

33. What is your rating for the importance of operating system software service to your business, and what is your satisfaction with it?

Importance rating	_____
Satisfaction rating	_____

34. What percentage of systems software problems are solved by telephone, and how long (on average) does this take in elapsed time?

Solved by phone	_____%
Elapsed time	_____hours

35. For those problems not possible to solve over the phone, what response time would you find acceptable and what time (on average and in working hours) have you experienced over the last 12 months (take response time to mean from time of call to the arrival on site of the engineer).

Acceptable	_____
Experienced	_____

36. How important is your "acceptable" response time to you on the 0 to 10 rating?

Importance rating	_____

37. If fix time is defined as the time taken to get the system fully operable from engineer arrival on site, then what time (in working hours) do you find acceptable, and what did you experience in the preceding 12 months?

Acceptable	_____
Experienced	_____

38. How important is fix time to you in a 0 to 10 rating?

Importance rating	_____

39. I would now like to go through a short list of operating systems software aspects and ask you to give an importance and a satisfaction rating for each.

	Importance	Satisfaction
Engineer skill	_____	_____
Telephone fix speed	_____	_____
Telephone access	_____	_____
Documentation	_____	_____
Software updates	_____	_____
Software installation	_____	_____
Software training	_____	_____
Hotline	_____	_____
Capacity tuning	_____	_____
On-site support	_____	_____
Consultancy/planning	_____	_____
Remote diagnostics	_____	_____
Software problem database	_____	_____

Operating Software Support Pricing

40. What percentage increase or decrease did you pay for your software support in 198X?

Increase	_____%
Decrease	_____%
No change	_____%

41. What do you expect the price changes for software support will be in the future in __percentage terms per annum?

Increase	_____%
Decrease	_____%
No change	_____%

42. Expressing the software support charges as a percentage of the overall system software cost, what approximate percentage do you feel you should be paying, and what do you actually pay?

Expect	_____%
Actual	_____%

43. How important do you rate operating software support pricing, and how satisfied are you with the current levels?

Importance rating	_____
Satisfaction rating	_____

44. Would you prefer software support offerings to be bundled or would you prefer individual prices?

Individual prices	1
Bundled	2
Don't know	3

45. Which, if any, of the following statements reflect your views on software support pricing?

Good value	1
Expensive but worth it	1
Expensive but not worth it	1
Too expensive	1
No opinion	1
Other (Write in)	_____

Other Services (Both Hardware and Software)

I am particularly interested in your views on other services, or modified current service offerings that your service suppliers could provide, that would help to improve the running of your systems.

46. Please say which of the following services you have and which you would like if the price were right, giving a level of interest (LOI) rating against each, in the range 0 to 10, where 0 = no interest and 10 = must have:

	Have	Do Not Have	LOI
Configuration planning	1	2	_____
Capacity planning	1	2	_____
Environmental planning	1	2	_____
Cabling	1	2	_____
Software evaluation	1	2	_____
Training	1	2	_____
Consultancy	1	2	_____
Network planning	1	2	_____
Network management	1	2	_____
Disaster recovery	1	2	_____
Media services (supplies)	1	2	_____
Facilities management	1	2	_____
Problems management	1	2	_____