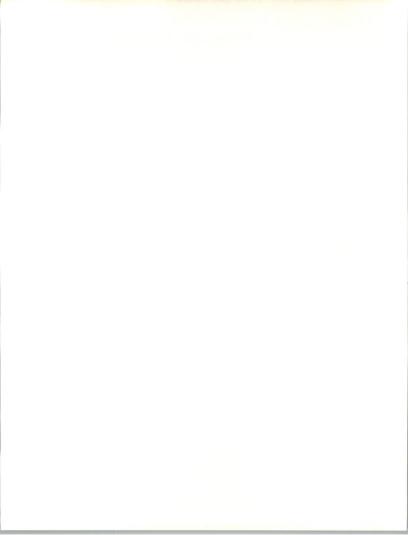
USER SATISFACTION LARGE SYSTEMS

1991





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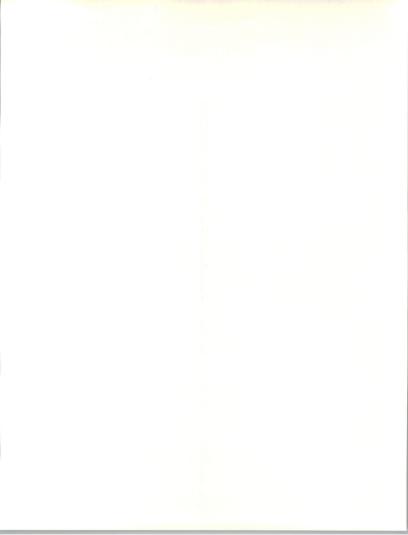
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Customer Service Programme-Europe

User Satisfaction Large Systems, 1991

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CEUS1 • 1991



Abstract

This study presents data relating user perceptions of vendor service performance and user satisfaction with the servicing of large computer systems.

The data presented in this study has been collected by INPUT between April and September 1991 in a survey of computer users in nine European countries.

The study contains an analysis of the key findings that emmerge from the results of the 1991 large systems user survey.

Analysis related to specific country markets is as follows:

- · France
- · Germany
- · Italy
- United Kingdom

Analysis related to the service performance of specific vendors is as follows:

- Amdahl
- IBM
- · ICL



V Country Market Service Performance Data - Large Systems

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A INPUT 1991 Computer User Survey Questionnaire



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Introduction

A Objectives and Scope

This INPUT 1991 study on user requirements for customer service in Western Europe presents the large systems computer user's view of many aspects of computer system service and support.

The report is intended to enable service vendors to assess the service performance levels achieved by their organisations in 1991. Data, which relates to user perception of major vendor service performance, is presented in simple tabulated form with a summary of the key findings that emmerge. Trends relating to service performance can be assessed by comparing the data contained in this report with previous INPUT User Satisfaction Reports.

The report also contains tabulated data relating to Western Europe overall and four individual European country markets to enable vendors to compare their performance with overall mean values of Western European vendor performance and assess the characteristics of individual country markets.

B Methodology

The data presented in this report was compiled from interviews with 225 large systems computer users throughout Western Europe. Users were chosen at random and interviewed by telephone in their native language when necessary. The basis of user interviews was a questionnaire relating to over 100 aspects of service and support, compiled from discussions with major service vendors. A copy of the user questionnaire is included as Appendix A.

Details of the user sample analysed in this report are given in Exhibits I-1 and I-2.



Exhibit I-1

1991 User Interview Programme
User Sample by Country

	SYSTEM RANGE			
COUNTRY	LARGE	MEDIUM	SMALL	TOTAL
BELGIUM	7	15	4	26
FRANCE	27	52	16	95
GERMANY	30	42	12	84
ITALY	33	35	19	87
SPAIN	13	38	12	63
SWITZERLAND	9	19	8	36
NETHERLANDS	13	20	10	43
NORWAY	7	13	4	24
SWEDEN	5	20	14	39
UK	78	123	55	256
OTHER EUROPEAN COUNTRIES	3	-	-	3
TOTAL	225	377	154	756



Exhibit I-2
1991 User Interview Programme
User Sample by Vendor

	SYSTEM RANGE			
VENDOR	LARGE	MEDIUM	SMALL	TOTAL
AMDAHL	111	-	-	111
BULL	12	27	27	66
DIGITAL	18	30	34	82
HEWLETT-PACKARD	-	50	12	62
IBM	39	77	15	131
ICL	22	49	20	91
NCR	8	29	1	38
STRATUS	-	53	-	53
UNISYS	11	55	31	97
OTHER VENDORS	4	7	14	25
TOTAL	225	377	154	756



C Report Structure

The remaining chapters of this study are structured as follows:

- Chapter II explains the basis of the statistics, the correct method of interpretation and ways of doing simple comparisons.
- Chapter III is an Expenditure Overview which highlights the key findings of the survey.
- Chapter IV contains tabulated data relating to large systems user perception of vendor service performance in Western Europe overall.
- Chapter V contains tabulated data relating to large systems user perception of vendor service performance in four Western European country markets.
- Chapter VI contains tabulated data relating to large systems user perception of major equipment vendors service performance.
- · Appendix A contains the questionnaire used for user interviews.



II Interpretation of the Data

A Definitions

- · Hardware: any computer system or peripheral system.
- · Software: operating systems software, NOT applications.
- Large system: a system that is considered by the vendor part of that vendor's large system product range - for example IBM 309X and 308X, Bull DPS 8, or Digital VAX 8XXX.
- Medium system: a system that is considered by the vendor part of that vendor's medium system product range - for example IBM 43XX and AS/400, Bull DPS 7, or Digital VAX 6XXX.
- Small system: a system that is considered by the vendor part of that vendor's small system product range - for example IBM S/34 and S/36, Bull DPS6, or Digital Microvax.
- Documentation: user documentation, provided by the product vendor, which relates to operation and use of the computer system hardware or systems software.
- Standard Error: (of the mean) is the standard deviation (SD) of the sample divided by the square root of the sample size.

B Statistics

Mean values are used throughout the tabulated data presented in this report. These mean values refer to either the mean value of user sample ratings for specific aspects of service performance, or to the overall mean value for a range of service performance factors. In either case the mean value calculation is weighted according to the number of user responses recorded.

The standard error for each set of tabulated data has been estimated and is included in each exhibit within the report. In 1991 INPUT's user interview programme included interviews with users of large, medium and small systems - a total 756 interviews. Calculation of standard error presented in this report is based on the estimated standard deviation that relates to this total sample.

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For example, the standard deviation of user satisfaction with hardware service is estimated to be 2.2 for the total sample of 756 interviews. Therefore, the related standard error would be 2.2 divided by the square root of the sample size (2.2 divided by the square root of 756), giving a standard error 0.08. For smaller sample sizes, for example, the overall results obtained from interviews with 225 large systems users, the standard error would increase to 0.15 as a consequence of reduced sample size.

In analysing the data presented in this report, INPUT has carefully scanned all the answers given during the interviews; when these answers were considered to be a gross departure from the norm, the data has been discounted. The objective of this exercise was to eliminate the worst effects of skew on distributions due to gross distortions.

Statistically, small sample sizes create difficulties due to the fact that they may not be totally representative of the population they represent. INPUT has chosen a minimum sample size of 20 to represent reasonably valid statistical result.

C Ratings and Satifaction Index

In this report, ratings for importance and satisfaction are on a scale of 0 to 10 where:

- Importance
 - 0 = of no importance whatsoever
 - 5 = of average importance
 - 10= extremely important
- Satisfaction
 - 0 = total and absolute dissatisfaction
 - 5 = average satisfaction
 - 10 = total satisfaction

The satisfaction index throughout this report is based on the difference between the importance and satisfaction ratings for specific aspects of service. The questions concerning importance and satisfaction were asked at the same time and the answers therefore reflect the respondent's value judgement at that time.

- Ratings of 10 and 10, or 6 and 6, etc., give a difference value of zero, indicating that the importance needs are fully satisfied.
- Ratings of importance 8 and satisfaction 9 would indicate overfulfilment of the importance needs, and would give a satisfaction index of -1. In INPUT's analysis an overfulfilment of -1 is represented as (1).



- Ratings of importance of 6 and satisfaction 5 indicate underfulfilment of the importance needs and would give a satisfaction index of 1, the degree of fulfilment being related to the magnitude of this difference.
- · Satisfaction index can thus be interpreted as follows:
 - (1) = overfulfilled or oversatisfied
 - 0 = completely satisfied
 - 1 = concerns and worries
 - 2 = real dissatisfaction
 - 3 = pain level.







III Executive Overview

A Vendor Large Systems Service Performance Gains User Approval

In general terms large systems computer users in Western Europe indicate that they are relatively well satisfied with vendor service performance in key areas of service needs.

Excluding specific aspects of service where marginal dissatisfaction is indicated large systems users in France and Italy are well satisfied with vendor service performance. Large systems users in the United Kingdom indicate an overall level oversatisfaction.

Only in the German market is there an indication of relatively significant large systems user dissatisfaction.

INPUT considers that the impact of economic recession in Western Europe has influenced user priorities in judging vendor service performance. It is reasoned that these effects are causing users to focus more on their own businesses and less on the detailed nature of vendor computer systems service performance.

Exhibit III-1 highlights the key findings that emerge from analysis of user satisfaction results relating to the servicing of large systems.

Exhibit III-1

Key Findings

- Overall, large systems user satisfaction with vendor service performance is achieved
- · User priorities for service and attitudes towards service may be changing
- German users remain dissatisfied with vendor service performance

B Changing User Priorities

INPUT contends that relatively dramatic improvements in specific areas of user satisfaction are more likely due, at least in part, to the effects of economic recession in Western Europe. This belief is based on the fact that economic recession and the resulting increase in competitive pressure causes the following reactions:



- Users tend to focus on their core business activities, less on specific aspects of the such as computer systems.
- Users tend to focus on the more critical aspects of computer system performance and operations, with less attention being given to the mechanics of service.

Evidence which supports the dramatic change in user satisfaction that has occurred in specific areas of service are generally related to those aspects of service that are more concerned with the mechanics of service than with the qualitative aspects. Examples of this change include:

- After many years of expressing concern about user system software support
 documentation users now express the opinion that needs for documentation are
 oversatisfied. User satisfaction with systems software support documentation has
 improved from the concern level in 1990 (satisfaction index 1.4) to the level where
 user needs are marginally oversatisfied, satisfaction index (0.2) in 1991.
- User satisfaction with problem escalation procedures has improved. In 1990 user satisfaction with this aspect of service indicated undersatisfaction of user needs, satisfaction index 0.6. User satisfaction with this aspect of service has improved to the level where user needs are now marginally oversatisfied, satisfaction index (0.3), in 1991.

By comparison user satisfaction with the more qualitative aspects of service have not changed by any significant degree. For example user satisfaction with systems software support engineer skills remain unchanged and still rated at the concern level, satisfaction index 1.0.

Service vendors are continually striving to improve service quality and hence user satisfaction with service. It may well be that recessionary effects have created a fertile environment in which user assessment of service quality more closely matches the key quality focus of vendors.

C User Satisfaction in Western Europe

User satisfaction is assessed by INPUT using a satisfaction index. Satisfaction index is calculated as the difference between importance ratings and satisfaction ratings, with both ratings being given by users on a scale of 0 to 10. Interpretation of the satisfaction index is as follows:

- (1) or higher = Over satisfied
- 0 = Fully satisfied
- 1 = Concerns and worries
- 2 = Real dissatisfaction
- 3 = Pain level.



At the overall Western European level large systems user satisfaction with vendor service, in 1991, is summarised by the following discussion of the results obtained.

1. Hardware Service

Results of the large systems user satisfaction survey indicate that users are fully satisfied with vendor hardware service, supported by an overall satisfaction index of 0.0. Within the overall framework of hardware service, five specific aspects were surveyed, no single aspect indicating any signs of user concerns or worries. Two aspects, problem escalation and documentation, were oversatisfied. The five specific aspects of hardware service included in the 1991 survey were:

- · Spares Availability
- Éngineer Skills
- · Problem Escalation
- Documentation
- · Remote diagnostics.

Exhibit III-2 provides a summary of user satisfaction with hardware service in Western Europe.

2. Systems Software Support

User requirements for vendor support of systems software indicate that a good level of user satisfaction is being achieved, supported by an overall satisfaction index of 0.4. Within the framework of systems software support five specific aspects were surveyed and only engineer skills suggested an indication of marginal user concern and worries, supported by a satisfaction index of 1.0. All other aspects of systems software support were well satisfied with the aspect of documentation indicating a slight degree of oversatisfaction, supported by a satisfaction index of (0.2). The five aspects of systems software support surveyed in 1991 were;

- · Engineer skills
- Documentation
- Software Installation
- Provision of updates
- · Remote Diagnostics

Exhibit III-3 provides a summary of user satisfaction with systems software support in Western Europe.



Exhibit III-2 User Satisfaction with Hardware Service In Western Europe, 1991 Large Systems

SERVICE ASPECT	SATISFACTION INDEX
Spares Availability	0.5
Engineer Skills	0.5
Problem Escalation	(0.3)
Documentation	(0.7)
Remote Diagnostics	0.6
Overall Level of User Satisfaction	0.0

Sample size: 225

Exhibit III-3

User Satisfaction with Systems Software Support In Western Europe, 1991

Large Systems

SERVICE ASPECT	SATISFACTION INDEX	
Engineer Skills	1.0	
Documentation	(0.2)	
Software Installation	0.4	
Provision of Updates	0.5	
Remote Diagnostics	0.4	
Overall Level of User Satisfaction	0.4	



D Country Market User Satisfaction

1. Hardware Service

Exhibit III-4 provides a summary of user satisfaction with hardware service in four major European Country markets. This exhibit indicates that in all four country markets an acceptable overall level of user satisfaction has been achieved and that in the UK market users indicate a relatively high degree of oversatisfaction.

Within the framework of the five specific aspects of hardware service surveyed, individual country markets can be summarised as follows:

· France:

- Engineer skills and problem escalation indicate a marginal degree of user concerns and worries, supported by satisfaction indices of 1.1 and 1.0 respectively
- Documentation indicates a relatively high degree of oversatisfaction of user needs supported by a satisfaction index of (0.6)
- All other specific aspects of hardware service indicate that acceptable levels of user satisfaction are being achieved.

Exhibit III-4 Country Market User Satisfaction with Hardware Service, 1991 Large Systems

COUNTRY MARKET	SATISFACTION INDEX	
France	0.6	
Germany	0.8	
Italy	0.3	
United Kingdom	(0.6)	

Sample Sizes: France - 27 Germany - 30 Italy - 33 UK - 78



- Germany; Although overall user satisfaction with hardware service needs is being achieved three specific aspects of hardware service are subject to a relatively high level of user concerns and worries;
 - Spares availability, supported by a satisfaction index of 1.6
 - Engineer skills, supported by a satisfaction index of 1.3
 - Problem escalation, supported by a satisfaction index of 1.9.
- Italy; all five aspects of hardware service surveyed indicate that acceptable levels of user satisfaction are being achieved with documentation indicating a marginal degree of oversatisfaction of user needs.
- United Kingdom; All five aspects of hardware service surveyed indicate that good levels of user satisfaction are being achieved supported in all cases by a satisfaction index of better than 0.3. Problem escalation and documentation indicate that user needs in these aspects of hardware service are being significantly oversatisfied supported by satisfaction indices of (1.2) and (1.3) respectively.

2. Systems Software Support

Exhibit III-5 provides a summary of user satisfaction with systems software support in four major European Country markets. With the exception of users in Germany this exhibit indicates that an acceptable level of user satisfaction has been achieved, with users in the UK indicating a marginal degree of oversatisfaction.

Exhibit III-5

Country Market User Satisfaction with Systems Software Support, 1991

Large Systems

COUNTRY MARKET	SATISFACTION INDEX
France	0.4
Germany	1.4
Italy	0.7
United Kingdom	(0.2)

Sample Sizes: France - 27 Germany - 30

Italy - 33 UK - 78



Within the framework of the five specific aspects of systems software support surveyed, individual country markets can be summarised as follows:

· France

- Engineer skills indicates a marginal degree of user concerns and worries with this aspect of systems software support, satisfaction index is 1.1
- All other aspects of software support surveyed indicate that acceptable levels of user satisfaction are being achieved with software installation and remote diagnostics indicating a marginal degree of oversatisfaction, supported by satisfaction indices of (0.2) and (0.4) respectively.
- Germany; all five aspects of systems software support surveyed indicate varying degrees of user dissatisfaction. This level of user dissatisfaction in the German market is highlighted by an overall satisfaction index of 1.4 suggesting user concerns and worries. In brief;
 - User satisfaction with engineer skills indicates real dissatisfaction, supported by a satisfaction index of 2.2.
 - Software installation and provision of updates indicates a relatively significant level of user concerns and worries, supported by satisfaction indices of 1.7 and 1.6 respectively.
- Italy; although an acceptable overall level of user satisfaction with systems software support is being achieved, three specific aspects of systems software support indicate a marginal degree of user concerns and worries;
 - Engineer skills, satisfaction index 1.0
 - Documentation, satisfaction index 1.0
 - Remote diagnostics, satisfaction index 1.1.
- United Kingdom; all five individual aspects of software support surveyed indicate
 that relatively high degrees of user satisfaction are being achieved, supported by
 satisfaction indices of better than 0.4. User satisfaction with documentation indicates
 a relatively high degree of oversatisfaction supported by a satisfaction index of (1.4).



E The German Market

User satisfaction with vendor service, in the large systems sector, in Germany compares poorly with that in other country markets analysed in this study.

In order to gain a better understanding of this characteristic of user satisfaction in Germany, the views of twelve senior customer services representatives were sought at a closed meeting during September 1991. These representatives represented a good cross section of equipment vendors including:

- IRM
- · Siemens Nixdorf
- · ICL
- Debis
- · Hewlett-Packard
- NCR
- · Prime.

The conclusion reached at this meeting can be summarised as follows:

- German users are very demanding of service. An example of this characteristic is
 that user expectation for vendor systems software support response time in Germany
 is about 2.0 hours compared with the overall European average of about 4.0 hours
 A second example is provided by the user importance rating for systems availability
 of 10.0, on a scale of 0 to 10, compared with the overall European average of 9.5.
- Service is considered expensive in Germany and users feel that value relative to the
 price paid is not being achieved. Further, that German users expect premium quality
 service but are not prepared to pay extra for that premium quality. This factor is
 supported by analysis of user satisfaction with service price in Germany which in 1990
 indicated a satisfaction index of 3.0, the pain level.

Therefore, INPUT, concludes that the key issue relating to user satisfaction in Germany is the perceived value received in return for service prices, rather than simply user satisfaction.

F Vendor Performance Achievements

Exhibits III-6 and III-7 provide a ranking of the user satisfaction achievements of Amdahl, IBM and ICL in 1991, these being the three large systems vendors for whom an acceptable statistical sample size was achieved. These two exhibits also provide a comparison between the achievements of these three vendors relative to the overall sample of 225 large systems users surveyed throughout Western Europe in 1991.

All three vendors whose user samples have been analysed achieved acceptable levels of user satisfaction.



The performance level achieved by Amdahl indicates a significant margin of achievement, compared with the other two vendors and with the overall large systems user sample.

Further, all individual aspects of service performance in the Amdahl results indicate that user satisfaction is being achieved.

Marginal degrees of user concern are indicated by the user samples of the other two large systems vendors, as follows:

- · IBM; software support engineer skills, supported by a satisfaction index of 1.3
- ICL; marginal degrees of user concern are indicated in the following aspects of service
 - Hardware service spares availability, supported by a satisfaction index of 1.2
 - Systems software support engineer skills and documentation, supported by a satisfaction index of 1.1 for both aspects of service.

Exhibit III-6 Vendor Ranking - Hardware Service, 1991 Large Systems

VENDOR		OVERALL SATISFACTION INDEX
1	Amdahl	(0.5)
2	IBM	0.3
3	ICL	0.6
Europ	ean Average (Large Systems)	0.0

Sample Sizes: Amdahl - 111 IBM - 39 ICL - 22 Europe - 225



Exhibit III-7 Vendor Ranking - Systems Software Support, 1991 Large Systems

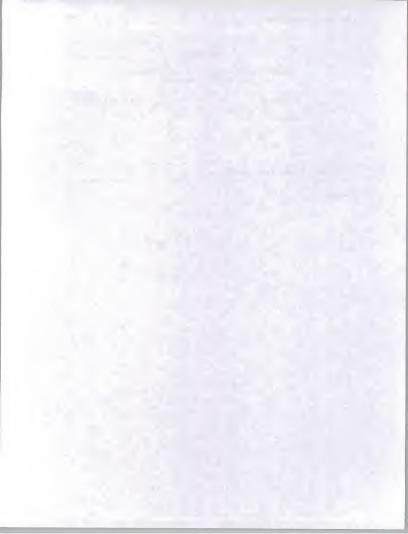
VENDOR		OVERALL SATISFACTION INDEX
1	Amdahl	0.0
2	IBM	0.7
3	ICL	0.7
Europe	ean Average (Large Systems)	0.4

Sample Sizes: Amdahl

Amdahl - 111 IBM - 39

ICL - 22

Europe - 225



IV User Satisfaction in Western Europe - Large Systems

A Introduction

This section of the study contains analysis of INPUT's 1991 large systems user survey sample of 225 users in Western Europe overall.

Analysis is presented in the form of tabulated data by Exhibits IV-1 to IV-7:

- · Exhibit IV-1 provides a breakdown of the user sample by industry sector.
- Exhibit IV-2 provides details of user satisfaction with vendor service on five specific aspects of hardware service:
 - Spares availability
 - Engineer skills
 - Problem Escalation
 - Documentation
 - Remote diagnostics.
- Exhibit IV-3 provides details of user satisfaction with vendor service on five specific aspects of systems software support:
 - Engineer skills
 - Documentation
 - Software Installation
 - Provision of updates
 - Remote diagnostics.
- · Exhibit IV-4 presents data relating to user perception of system performance:
 - Incidence of major failures
 - Cause of failure
 - Satisfaction with systems availability.
- Exhibit IV-5 presents data relating to user perception of vendor response time performance and vendor performance in remedial activities to resolve problems and failures.
- Exhibit IV-6 presents data identifying which type of vendor is providing service to the user sample.
- Exhibit IV-7 provides analysis of data relating to questions 10 (hardware service) and question 21 (systems software support) on the user questionnaire. The user satisfaction data presented in this exhibit is considered by INPUT to be a measure of the vendors service quality image. A copy of the user questionnaire is included in Appendix A.



Each individual exhibit contains an estimate for the standard error of the sample analysed.

Exhibit IV-1

Western Europe 1991 Sample Distribution by Industry Sector Large Systems

INDUSTRY SECTOR	NUMBER OF RESPONDENTS	
MANUFACTURING	66	
DISTRIBUTION	9	
TRANSPORTATION	11	
UTILITIES	0	
BANKING & FINANCE	40	
INSURANCE	10	
GOVERNMENT	21	
SERVICES	51	
OTHER/DON'T KNOW	17	
TOTAL SAMPLE	225	



Exhibit IV-2

Western Europe 1991 User Satisfaction with Hardware Service Large Systems

SERVICE ASPECT	IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
Spares Availability	9.0	8.5	0.5
Engineer Skills	9.3	8.8	0.5
Problem Escalation	7.5	7.8	(0.3)
Documentation	7.1	7.8	(0.7)
Remote Diagnostics	8.1	7.7	0.6
AVERAGE	8.2	8.2	0.0

Sample Size: 225 Standard Error: 0.15

Exhibit IV-3

Western Europe 1991 User Satisfaction with Systems Software Support Large Systems

SERVICE ASPECT	IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
Engineer Skills	9.2	8.2	1.0
Documentation	7.4	7.6	(0.2)
Software Installation	8.6	8.2	0.4
Provision of Updates	8.6	8.1	0.5
Remote Diagnostics	7.1	6.7	0.4
AVERAGE	8.3	7.9	0.4

Sample Size: 225 Standard Error: 0.15



Western Europe 1991 System Performance Data Large Systems

	SYSTEM FAI	LURE RATE	S	
	CAUSE OF FAILURE (PERCENT)			
FAILURES PER ANNUM HARDWARE SYSTEMS APPLICATIONS OTHER SOFTWARE SOFTWARE				
2.2	73	6	5	16

SATISFACTION WITH SYSTEMS AVAILABILITY		
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
9.5	9.0	0.5

Sample Size: Standard Error: 225

Failure Rate: 0.2 Systems Availability: 0.15

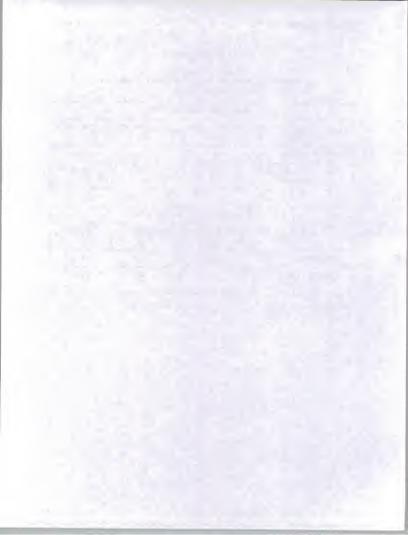


Western Europe 1991 Service Response and Repair/Fix Time Performance Large Systems

RESPONSE TIME (HOURS)				
SERVICE ACCEPTABLE EXPERIENCED DIFFERENCE TIME TIME				
HARDWARE SERVICE	2.9	2.2	(0.7)	
SYSTEMS SOFTWARE SUPPORT	3.9	4.2	0.3	

REPAIR/FIX TIME (HOURS)			
SERVICE ASPECT	ACCEPTABLE TIME	EXPERIENCED TIME	DIFFERENCE
HARDWARE SERVICE	4.8	3.3	(1.5)
SYSTEMS SOFTWARE SUPPORT	5.9	4.5	(1.4)

Sample Size: 225 Standard Error: 0.5



Western Europe 1991 Service Provider Data Large Systems

PERCENT HARDWARE SERVICE PROVIDED BY				
EQUIPMENT MANUFACTURER	EQUIPMENT DEALER/ INDEPENDENT IN-HOUSE MANUFACTURER DISTRIBUTOR MAINTAINER RESOURCES			
95	1	8	4	1

PERCENT SYSTEMS SOFTWARE SUPPORT PROVIDED BY					
EQUIPMENT MANUFACTURER	SOFTWARE HOUSE	SOFTWARE PRODUCT VENDOR	VAR	IN-HOUSE RESOURCES	OTHER
77	11	11	1	41	1

Sample Size: Standard Error: 225 0.1

Note: Multiple Responses Allowed



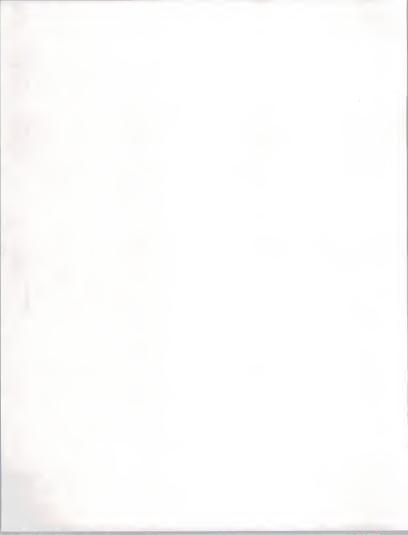
Western Europe 1991 Users Views on Current Service Performance Large Systems

HARDWARE SERVICE			
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX	
9.5	8.7	0.8	

SYS	STEMS SOFTWARE SUPPO	ORT
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
9.3	8.2	1.1

Sample Size: 225 Standard Error: 0.15







V Country Market Service Performance Data - Large Systems

A Introduction

This section of the study contains analysis of INPUTs 1991 large systems user survey sample segmented by Western European country market.

Analysis presented is in the form of tabulated data and refers to the user sample in the following country markets:

- · Data relating to the French market is provided by Exhibits V-1 to V-7.
- · Data relating to the German market is provided by Exhibits V-8 to V-14.
- · Data relating to the Italian market is provided by Exhibits V-15 to V-21.
- Data relating to the market in the United Kingdom is provided by Exhibits V-22 to V-28

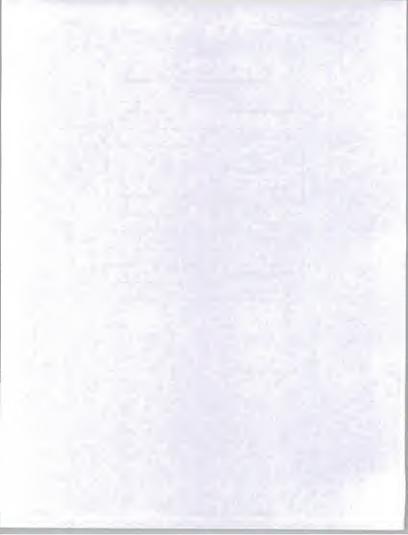
Data analysed in this chapter of the study is restricted to those country markets in which the user sample size is considered to be statistically valid by INPUT (ie., the user sample is larger than 20).

Each individual exhibit contains an estimate for the standard error of the sample analysed.



France 1991 Sample Distribution by Industry Sector Large Systems

INDUSTRY SECTOR	NUMBER OF RESPONDENTS	
MANUFACTURING	8	
DISTRIBUTION	1	
TRANSPORTATION	2	
UTILITIES	0	
BANKING & FINANCE	3	
INSURANCE	2	
GOVERNMENT	2	
SERVICES	7	
OTHER/DON'T KNOW	2	
TOTAL SAMPLE	27	



France 1991 User Satisfaction with Hardware Service Large Systems

SERVICE ASPECT	IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
Spares Availability	9.6	8.8	0.8
Engineer Skills	9.7	8.6	1.1
Problem Escalation	9.4	8.4	1.0
Documentation	7.6	8.2	(0.6)
Remote Diagnostics	9.0	8.6	0.4
AVERAGE	9.1	8.5	0.6

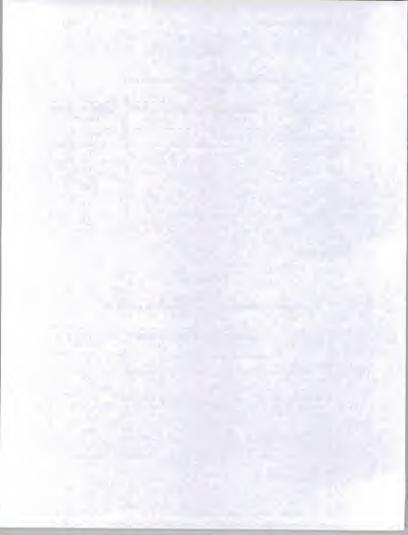
Sample Size: 27 Standard Error: 0.4

Exhibit V-3

France 1991 User Satisfaction with Systems Software Support Large Systems

SERVICE ASPECT	IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
Engineer Skills	9.6	8.5	1.1
Documentation	8.8	7.9	0.9
Software Installation	8.1	8.3	(0.2)
Provision of Updates	8.1	8.1	0.0
Remote Diagnostics	7.8	8.2	(0.4)
AVERAGE	8.6	8.2	0.4

Sample Size: 27 Standard Error: 0.4



France 1991 System Performance Data Large Systems

	SYSTEM FAILURE RATES						
	C	AUSE OF FA	ILURE (PERCE	NT)			
FAILURES PER ANNUM	HARDWARE	SYSTEMS	APPLICATIONS	OTHER			
2.9	67	14	7	12			

SATISFACT	SATISFACTION WITH SYSTEMS AVAILABILITY				
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX			
9.8	9.3	0.5			

Sample Size: Standard Error: 27

Standard Error: Failure Rate: 0.5

Systems Availability: 0.4



Exhibit V-5

France 1991 Service Response and Repair/Fix Time Performance Large Systems

RESPONSE TIME (HOURS)				
SERVICE ASPECT	ACCEPTABLE TIME	EXPERIENCED TIME	DIFFERENCE	
HARDWARE SERVICE SYSTEMS SOFTWARE SUPPORT	1.8 2.7	1.7 3.8	(0.1) 1.1	

REPAIR/FIX TIME (HOURS)				
SERVICE ACCEPTABLE EXPERIENCED DIFFERI				
HARDWARE SERVICE	2.9	3.0	0.1	
SYSTEMS SOFTWARE SUPPORT	4.1	4.2	0.1	

Sample Size: 27 Standard Error: 1.5



France 1991 Service Provider Data Large Systems

PERCENT HARDWARE SERVICE PROVIDED BY				
EQUIPMENT MANUFACTURER	DEALER/ DISTRIBUTOR	INDEPENDENT MAINTAINER	IN-HOUSE RESOURCES	OTHER
100	0	0	4	0

PERCENT SYSTEMS SOFTWARE SUPPORT PROVIDED BY					
EQUIPMENT MANUFACTURER	SOFTWARE HOUSE	SOFTWARE PRODUCT VENDOR	VAR	IN-HOUSE RESOURCES	OTHER
93	0	4	0	74	0

Sample Size: Standard Error:

27 0.3

Note: Multiple Responses Allowed



France 1991 Users Views on Current Service Performance Large Systems

	HARDWARE SERVICE	
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
9.6	9.2	0.4

SYST	TEMS SOFTWARE SUPPO	ORT
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
9.1	8.4	0.7

Sample Size: 27 Standard Error: 0.4



Germany 1991 Sample Distribution by Industry Sector Large Systems

INDUSTRY SECTOR	NUMBER OF RESPONDENTS
MANUFACTURING	10
DISTRIBUTION	1
TRANSPORTATION	0
UTILITIES	0
BANKING & FINANCE	1
INSURANCE	0
GOVERNMENT	1
SERVICES	16
OTHER/DON'T KNOW	1
TOTAL SAMPLE	30



Exhibit V-9

Germany 1991 User Satisfaction with Hardware Services Large Systems

SERVICE ASPECT	IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
Spares Availability	9.9	8.3	1.6
Engineer Skills	9.9	8.6	1.3
Problem Escalation	5.0	3.1	1.9
Documentation	7.8	7.4	0.4
Remote Diagnostics	6.8	6.4	0.4
AVERAGE	8.1	7.3	0.8

Sample Size: 30 Standard Error: 0.4

Exhibit V-10

Germany 1991 User Satisfaction with Systems Software Support Large Systems

SERVICE ASPECT	IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
Engineer Skills	9.6	7.4	2.2
Documentation	7.3	6.3	1.0
Software Installation	8.5	6.8	1.7
Provision of Updates	8.3	6.7	1.6
Remote Diagnostics	5.7	4.7	1.0
AVERAGE	7.9	6.5	1.4

Sample Size: 30 Standard Error: 0.4



Germany 1991 System Performance Data Large Systems

	SYSTEM FAILURE RATES					
	C.	AUSE OF FA	ILURE (PERCE	NT)		
FAILURES PER ANNUM	HARDWARE	SYSTEMS	APPLICATIONS	OTHER		
1.4	63	7	7	23		

SATISFACT	SATISFACTION WITH SYSTEMS AVAILABILITY				
IMPORTANCE RATING					
10.0	9.4	0.6			

Sample Size:

Standard Error:

30 FAILURE RATE: SYSTEMS AVAILABILITY: 0.4



Exhibit V-12

Germany 1991 Service Response and Repair/Fix Time Performance Large Systems

RESPONSE TIME (HOURS)				
SERVICE ASPECT	ACCEPTABLE TIME	EXPERIENCED TIME	DIFFERENCE	
HARDWARE SERVICE	1.7	2.0	0.3	
SYSTEMS SOFTWARE SUPPORT	2.1	4.3	2.2	

REPAIR/FIX TIME (HOURS)				
SERVICE ASPECT	ACCEPTABLE TIME	EXPERIENCED TIME	DIFFERENCE	
HARDWARE SERVICE	3.6	4.0	0.4	
SYSTEMS SOFTWARE SUPPORT	4.0	6.9	2.9	

Sample Size: 30 Standard Error: 1.5



Germany 1991 Service Provider Data Large Systems

PERCENT HARDWARE SERVICE PROVIDED BY				
EQUIPMENT MANUFACTURER	DEALER/ DISTRIBUTOR	INDEPENDENT MAINTAINER	IN-HOUSE RESOURCES	OTHER
100	0	0	0	0

PERCENT SYSTEMS SOFTWARE SUPPORT PROVIDED BY					
EQUIPMENT SOFTWARE HOUSE PRODUCT VAR RESOURCES OTHER					
60 40 3 3 13 0					

Sample Size:

30 Standard Error: 0.3

Note: Multiple Responses Allowed



Germany 1991 Users Views on Current Service Performance Large Systems

HARDWARE SERVICE		
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
9.9	8.1	1.8

SYSTEMS SOFTWARE SUPPORT		
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
9.6	7.1	2.5

Sample Size: 30 Standard Error: 0.4



Italy 1991 Sample Distribution by Industry Sector Large Systems

INDUSTRY SECTOR	NUMBER OF RESPONDENTS
MANUFACTURING	13
DISTRIBUTION	0
TRANSPORTATION	0
UTILITIES	0
BANKING & FINANCE	13
INSURANCE	0
GOVERNMENT	1
SERVICES	5
OTHER/DONT KNOW	1
TOTAL SAMPLE	33



Exhibit V-16

Italy 1991 User Satisfaction with Hardware Services Large Systems

SERVICE ASPECT	IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
Spares Availability	8.6	7.9	0.7
Engineer Skills	8.5	8.2	0.3
Problem Escalation	8.5	7.8	0.7
Documentation	7.1	7.4	(0.3)
Remote Diagnostics	8.1	7.3	0.8
AVERAGE	8.2	7.8	0.3

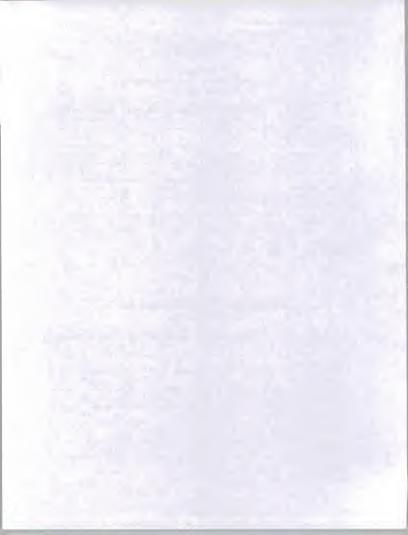
Sample Size: 33 Standard Error: 0.4

Exhibit V-17

Italy 1991 User Satisfaction with Systems Software Support Large Systems

SERVICE ASPECT	IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
Engineer Skills	8.7	7.7	1.0
Documentation	8.6	7.6	1.0
Software Installation	8.3	8.0	0.3
Provision of Updates	8.4	7.9	0.5
Remote Diagnostics	8.1	7.0	1.1
AVERAGE	8.4	7.7	0.7

Sample Size: 33 Standard Error: 0.4



Italy 1991 System Performance Data Large Systems

	SYSTEM FAILURE RATES				
	CAUSE OF FAILURE (PERCENT)				
FAILURES PER ANNUM	HARDWARE	SYSTEMS	APPLICATIONS	OTHER	
1.6	81	13	1	5	

SATISFAC	SATISFACTION WITH SYSTEMS AVAILABILITY			
IMPORTANCE RATING				
9.1	8.3	0.8		

Sample Size: 33

Standard Error:

Failure Rate: 0.5 Systems Availability: 0.4

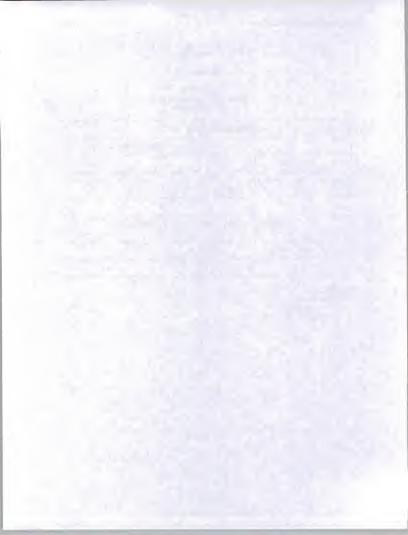


Exhibit V-19

Italy 1991 Service Response and Repair/Fix Time Performance Large Systems

	RESPONSE TIME	(HOURS)		
SERVICE ACCEPTABLE EXPERIENCED DIFFERENCE TIME TIME				
HARDWARE SERVICE	2.8	3.0	0.2	
SYSTEMS SOFTWARE SUPPORT	5.8	8.8	3.0	

REPAIR/FIX TIME (HOURS)				
SERVICE ASPECT	ACCEPTABLE TIME	EXPERIENCED TIME	DIFFERENCE	
HARDWARE SERVICE	3.4	4.5	1.1	
SYSTEMS SOFTWARE SUPPORT	5.3	6.9	1.6	

Sample Size: 33 Standard Error: 1.4



Italy 1991 Service Provider Data Large Systems

PERCENT HARDWARE SERVICE PROVIDED BY				
EQUIPMENT MANUFACTURER	DEALER/ DISTRIBUTOR	INDEPENDENT MAINTAINER	IN-HOUSE RESOURCES	OTHER
97	0	6	3	0

PERCENT SYSTEMS SOFTWARE SUPPORT PROVIDED BY					
EQUIPMENT MANUFACTURER	SOFTWARE HOUSE	SOFTWARE PRODUCT VENDOR	VAR	IN-HOUSE RESOURCES	OTHER
76	6	33	0	6	0

Sample Size: Standard Error:

33 0.3

Note: Multiple Responses Allowed



Italy 1991 Users Views on Current Service Performance Large Systems

	HARDWARE SERVICE	
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
8.7	8.2	0.5

SYS	SYSTEMS SOFTWARE SUPPORT			
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX		
8.7	7.7	1.0		

Sample Size: 33 Standard Error: 0.4



United Kingdom 1991 Sample Distribution by Industry Sector Large Systems

INDUSTRY SECTOR	NUMBER OF RESPONDENTS	
MANUFACTURING	25	
DISTRIBUTION	3	
TRANSPORTATION	4	
UTILITIES	0	
BANKING & FINANCE	12	
INSURANCE	3	
GOVERNMENT	15	
SERVICES	6	
OTHER/DONT KNOW	10	
TOTAL SAMPLE	78	



Exhibit V-23

United Kingdom 1991 User Satisfaction with Hardware Services Large Systems

SERVICE ASPECT	IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
Spares Availability	8.5	8.6	(0.1)
Engineer Skills	9.0	9.1	(0.1)
Problem Escalation	6.6	8.0	(1.4)
Documentation	6.7	8.0	(1.3)
Remote Diagnostics	8.9	8.6	0.3
AVERAGE	7.9	8.5	(0.6)

Sample Size: 78 Standard Error: 0.25

Exhibit V-24

United Kingdom 1991 User Satisfaction with Systems Software Support Large Systems

SERVICE ASPECT	IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
Engineer Skills	8.9	8.6	0.3
Documentation	6.3	7.7	(1.4)
Software Installation	9.0	8.7	0.3
Provision of Updates	9.0	8.8	0.2
Remote Diagnostics	7.7	7.3	0.4
AVERAGE	8.2	8.4	(0.2)

Sample Size: 78 Standard Error: 0.25



United Kingdom 1991 System Performance Data Large Systems

SYSTEM FAILURE RATES					
	C.	AUSE OF FA	AILURE (PERCEI	NT)	
FAILURES PER ANNUM	HARDWARE	SYSTEMS	APPLICATIONS	OTHER	
2.5	78	5	3	14	

SATISFAC	SATISFACTION WITH SYSTEMS AVAILABILITY				
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX			
9.5	8.9	0.6			

Sample Size: 78

Standard Error:

Failure Rate: 0.3 Systems Availability: 0.25

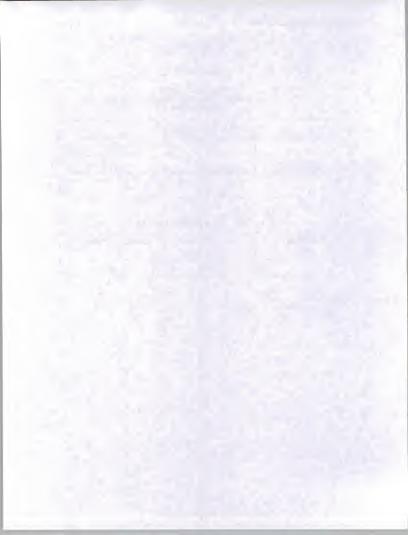


Exhibit V-26

United Kingdom 1991 Service Response and Repair/Fix Time Performance Large Systems

RESPONSE TIME (HOURS)				
SERVICE ACCEPTABLE EXPERIENCED DIFFEI TIME				
HARDWARE SERVICE	3.8	2.1	(1.7)	
SYSTEMS SOFTWARE SUPPORT	4.3	3.0	(1.3)	

	REPAIR/FIX TIME (HOURS)				
SERVICE ACCEPTABLE EXPERIENCED DIFFERE TIME					
HARDWARE SERVICE	6.7	2.9	(3.8)		
SYSTEMS SOFTWARE SUPPORT	7.8	3.5	(4.3)		

Sample Size: 78 Standard Error: 0.9



United Kingdom 1991 Service Provider Data Large Systems

PERCENT HARDWARE SERVICE PROVIDED BY				
EQUIPMENT MANUFACTURER	DEALER/ DISTRIBUTOR	INDEPENDENT MAINTAINER	IN-HOUSE RESOURCES	OTHER
91	0	18	5	1

PERCENT SYSTEMS SOFTWARE SUPPORT PROVIDED BY					
EQUIPMENT MANUFACTURER	SOFTWARE HOUSE	SOFTWARE PRODUCT VENDOR	VAR	IN-HOUSE RESOURCES	OTHER
81	3	12	0	53	3

Sample Size:

78 Standard Error: 0.2

Note: Multiple Responses Allowed



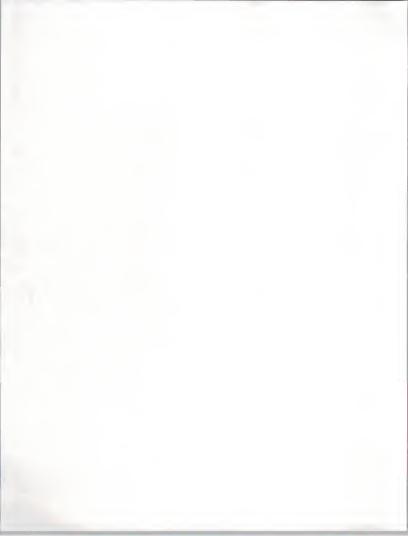
United Kingdom 1991 Users Views on Current Service Performance Large Systems

	HARDWARE SERVICE				
IMPORTANCE RATING					
9.6	8.8	0.8			

SYSTEMS SOFTWARE SUPPORT				
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX		
9.5	8.6	0.9		

Sample Size: 78 Standard Error: 0.25







VI Vendor Service Performance Data - Large Systems

A Introduction

Data presented in this section of the study provides a measure of the service performance of key large systems vendors. Data analysed forms part of INPUT's 1991 user interview sample of 225 large systems users.

Analysis is presented in the form of tabulated data and refers to the large systems user base of the following vendors:

- Data relating to the responses of the Amdahl user base is presented by Exhibits VI-1 to VI-7.
- Data relating to the responses of the IBM user base is presented by Exhibits VI-8 to VI-14.
- Data relating to the responses of the ICL user base is presented by Exhibits VI-15 to VI-21.

Data analysed in this chapter of the study is restricted to those vendor user samples that are considered by INPUT to provide a statistically valid sample size (ie the user sample is larger than 20).

Each individual exhibit contains an estimate for the standard error of the sample analysed.

Samples on which analysis of user responses is based relates primarily to the service provided by vendors on the following models of computer system.

- Amdahl: models 589X and 599X
- IBM: models 309X and 308X
- · ICL; models S39-40 and above, ME 29 66 and above



Amdahl 1991 Sample Distribution by Industry Sector Large Systems

INDUSTRY SECTOR	NUMBER OF RESPONDENTS	
MANUFACTURING	26	
DISTRIBUTION	3	
TRANSPORTATION	8	
UTILITIES	0	
BANKING & FINANCE	19	
INSURANCE	6	
GOVERNMENT	6	
SERVICES	34	
OTHER/DON'T KNOW	9	
TOTAL SAMPLE	111	



Exhibit VI-2

Amdahl 1991 User Satisfaction with Hardware Services Large Systems

SERVICE ASPECT	IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
Spares Availability	9.2	8.8	0.4
Engineer Skills	9.4	9.2	0.2
Problem Escalation	7.7	8.6	(0.9)
Documentation	6.7	8.2	(1.5)
Remote Diagnostics	8.4	8.6	(0.2)
AVERAGE	8.3	8.7	(0.5)

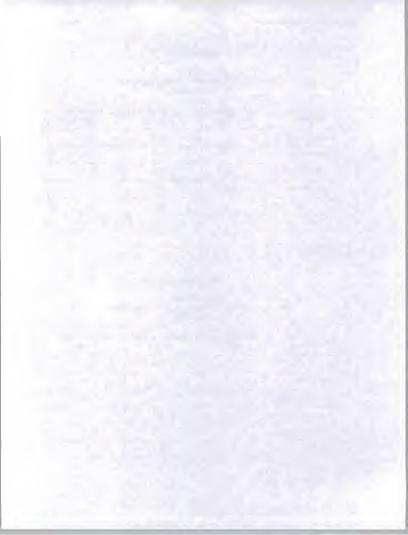
Sample Size: 111 Standard Error: 0.2

Exhibit VI-3

Amdahl 1991 User Satisfaction with Systems Software Support Large Systems

SERVICE ASPECT	IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
Engineer Skills	9.2	8.4	0.8
Documentation	6.9	7.9	(1.0)
Software Installation	8.9	8.4	0.5
Provision of Updates	8.8	8.7	0.1
Remote Diagnostics	7.1	7.2	(0.1)
AVERAGE	8.3	8.3	0.0

Sample Size: 111 Standard Error: 0.2



Amdahl 1991 System Performance Data Large Systems

	SYSTEM FAILURE RATES					
FAILURES PER ANNUM						
	HARDWARE	SYSTEMS	APPLICATIONS	OTHER		
1.6	76	6	1	17		

SATISFACT	SATISFACTION WITH SYSTEMS AVAILABILITY			
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX		
9.8	9.3	0.5		

Sample Size: Standard Error: 111

Failure Rate: 0.25 Systems Availability: 0.2



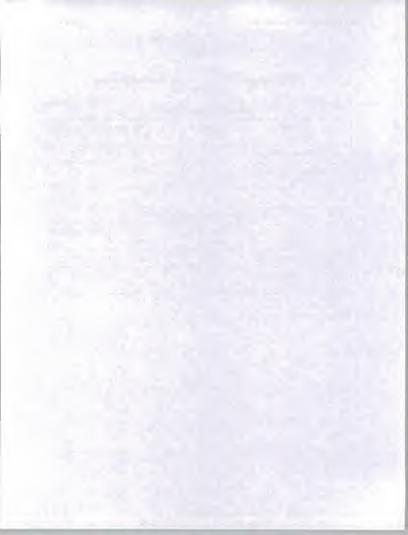
Amdahl 1991 Service Response and Repair/Fix Time Performance Large Systems

RESPONSE TIME (HOURS)			
SERVICE ASPECT	ACCEPTABLE TIME	EXPERIENCED TIME	DIFFERENCE
HARDWARE SERVICE	2.9	1.9	(1.0)
SYSTEMS SOFTWARE SUPPORT	3.5	3.9	0.4

REPAIR/FIX TIME (HOURS)				
SERVICE ASPECT	ACCEPTABLE TIME	EXPERIENCED TIME	DIFFERENCE	
HARDWARE SERVICE	5.3	2.7	(2.6)	
SYSTEMS SOFTWARE SUPPORT	6.4	4.1	(2.3)	

Sample Size: 111 Standard Error: 0.75

CE-US1



Amdahl 1991 Service Provider Data Large Systems

PERCENT HARDWARE SERVICE PROVIDED BY				
EQUIPMENT MANUFACTURER	DEALER/ DISTRIBUTOR	INDEPENDENT MAINTAINER	IN-HOUSE RESOURCES	OTHER
93	0	10	5	1

PERCENT SYSTEMS SOFTWARE SUPPORT PROVIDED BY					
EQUIPMENT MANUFACTURER	SOFTWARE HOUSE	SOFTWARE PRODUCT VENDOR	VAR	IN-HOUSE RESOURCES	OTHER
66	14	19	1	60	1

Sample Size: Standard Error:

111 0.15

Note: Multiple Responses Allowed



Amdahl 1991 Users Views on Current Service Performance Large Systems

	HARDWARE SERVICE			
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX		
9.6	9.1	0.5		

SYSTEMS SOFTWARE SUPPORT		
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
9.4	8.4	1.0

Sample Size: 111 Standard Error: 0.2



IBM 1991 Sample Distribution by Industry Sector Large Systems

INDUSTRY SECTOR	NUMBER OF RESPONDENTS
MANUFACTURING	14
DISTRIBUTION	3
TRANSPORTATION	0
UTILITIES	0
BANKING & FINANCE	11
INSURANCE	1
GOVERNMENT	3
SERVICES	6
OTHER/DON'T KNOW	1
TOTAL SAMPLE	39



Exhibit VI-9

IBM 1991 User Satisfaction with Hardware Services Large Systems

SERVICE ASPECT	IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
Spares Availability	9.0	8.5	0.5
Engineer Skills	9.0	8.6	0.4
Problem Escalation	7.7	7.7	0.0
Documentation	7.7	7.5	0.2
Remote Diagnostics	8.4	7.8	0.6
AVERAGE	8.4	8.1	0.3

Sample Size: 39 Standard Error: 0.35

Exhibit VI-10

IBM 1991 User Satisfaction with Systems Software Support Large Systems

SERVICE ASPECT	IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
Engineer Skills	9.1	7.8	1.3
Documentation	8.0	7.7	0.3
Software Installation	8.1	7.5	0.6
Provision of Updates	8.5	7.6	0.9
Remote Diagnostics	7.7	7.2	0.5
AVERAGE	8.3	7.6	0.7

Sample Size: 39 Standard Error: 0.35



IBM 1991 System Performance Data Large Systems

	SYSTEM FAILURE RATES				
FAILURES PER ANNUM				ENT)	
	HARDWARE	SYSTEMS	APPLICATIONS	OTHER	
1.8	53	11	16	20	

SATISFACT	SATISFACTION WITH SYSTEMS AVAILABILITY			
IMPORTANCE RATING				
9.3	8.7	0.6		

Sample Size: 39

Standard Error: Failure Rate:

Failure Rate: 0.4 Systems Availability: 0.35



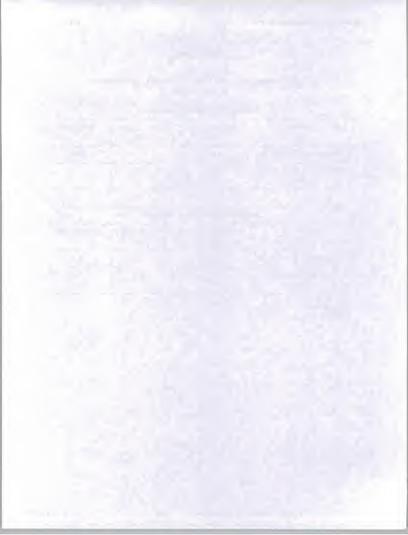
Exhibit VI-12

IBM 1991 Service Response and Repair/Fix Time Performance Large Systems

	RESPONSE TIME (HOURS)				
SERVICE ASPECT	ACCEPTABLE TIME	EXPERIENCED TIME	DIFFERENCE		
HARDWARE SERVICE	2.6	2.1	(0.5)		
SYSTEMS SOFTWARE SUPPORT	3.7	4.3	0.6		

REPAIR/FIX TIME (HOURS)				
SERVICE ASPECT	ACCEPTABLE TIME	EXPERIENCED TIME	DIFFERENCE	
HARDWARE SERVICE	3.8	3.9	0.1	
SYSTEMS SOFTWARE SUPPORT	4.5	5.1	0.6	

Sample Size: 39 Standard Error: 1.3



IBM 1991 Service Provider Data Large Systems

	PERCENT HAR	OWARE SERVICE	PROVIDED BY	
EQUIPMENT MANUFACTURER	DEALER/ DISTRIBUTOR	INDEPENDENT MAINTAINER	IN-HOUSE RESOURCES	OTHER
95	3	5	3	0

PERC	ENT SYSTEM	IS SOFTWAR	E SUPPOR	T PROVIDED B	Υ
EQUIPMENT MANUFACTURER	SOFTWARE HOUSE	SOFTWARE PRODUCT VENDOR	VAR	IN-HOUSE RESOURCES	OTHER
87	8	5	0	15	0

Sample Size: Standard Error:

39 0.25

Note: Multiple Responses Allowed



IBM 1991 Users Views on Current Service Performance Large Systems

HARDWARE SERVICE		
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
9.3	8.2	1.1

SYSTEMS SOFTWARE SUPPORT		
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
9.1	7.7	1.4

Sample Size: 39 Standard Error: 0.35



ICL 1991 Sample Distribution by Industry Sector Large Systems

INDUSTRY SECTOR	NUMBER OF RESPONDENTS
MANUFACTURING	5
DISTRIBUTION	1
TRANSPORTATION	0
UTILITIES	0
BANKING & FINANCE	2
INSURANCE	1
GOVERNMENT	9
SERVICES	0
OTHER/DON'T KNOW	4
TOTAL SAMPLE	22



Exhibit VI-16

ICL 1991 User Satisfaction with Hardware Services Large Systems

SERVICE ASPECT	IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
Spares Availability	8.6	7.4	1.2
Engineer Skills	9.1	8.2	0.9
Problem Escalation	7.4	6.8	0.6
Documentation	7.3	7.3	0.0
Remote Diagnostics	8.8	8.1	0.7
AVERAGE	8.2	7.6	0.6

Sample Size: 22 Standard Error: 0.5

Exhibit VI-17

ICL 1991 User Satisfaction with Systems Software Support Large Systems

SERVICE ASPECT	IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
Engineer Skills	9.1	8.0	1.1
Documentation	8.0	6.9	1.1
Software Installation	8.6	8.2	0.4
Provision of Updates	8.5	8.2	0.3
Remote Diagnostics	7.4	6.8	0.6
AVERAGE	8.4	7.7	0.7

Sample Size: 22 Standard Error: 0.5



ICL 1991 System Performance Data Large Systems

	SYSTEM FAI	LURE RATE	S	
FAILURES PER ANNUM CAUSE OF FAILURE (PERCENT)				
	HARDWARE	SYSTEMS	APPLICATIONS	OTHER
3.8	89	7	3	1

SATISFAC	TION WITH SYSTEMS A	/AILABILITY
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
9.5	8.5	1.0

Sample Size: Standard Error:

Failure Rate: 0.6 Systems Availability: 0.5

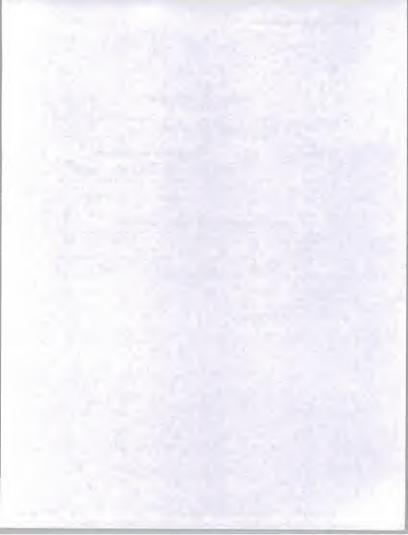


Exhibit VI-19

ICL 1991 Service Response and Repair/Fix Time Performance Large Systems

RESPONSE TIME (HOURS)				
SERVICE ASPECT	ACCEPTABLE TIME	EXPERIENCED TIME	DIFFERENCE	
HARDWARE SERVICE	3.6	2.5	(1.1)	
SYSTEMS SOFTWARE SUPPORT	3.9	2.9	(1.0)	

	REPAIR/FIX TIME	(HOURS)	
SERVICE ASPECT	ACCEPTABLE TIME	EXPERIENCED TIME	DIFFERENCE
HARDWARE SERVICE	5.0	3.3	(1.7)
SYSTEMS SOFTWARE SUPPORT	6.0	3.4	(2.6)

Sample Size: 22 Standard Error: 1.7



ICL 1991 Service Provider Data Large Systems

	PERCENT HAR	DWARE SERVICE	PROVIDED BY	
EQUIPMENT MANUFACTURER	DEALER/ DISTRIBUTOR	INDEPENDENT MAINTAINER	IN-HOUSE RESOURCES	OTHER
100	0	0	5	0

PERC	ENT SYSTEM	IS SOFTWAF	RE SUPPORT	PROVIDED E	ЗҮ
EQUIPMENT MANUFACTURER	SOFTWARE HOUSE	SOFTWARE PRODUCT VENDOR	VAR	IN-HOUSE RESOURCES	OTHER
91	5	0	0	23	0

Sample Size: Standard Error:

22 0.35

Note: Multiple Responses Allowed

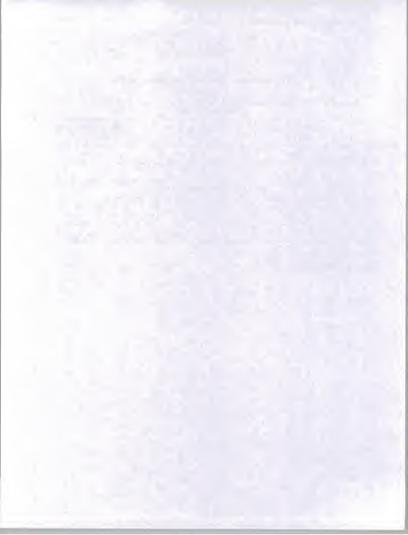


ICL 1991 Users Views on Current Service Performance Large Systems

	HARDWARE SERVICE	
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
9.5	8.2	1.3

SYS	TEMS SOFTWARE SUPPO	ORT
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
9.3	9.6	0.7

Sample Size: 22 Standard Error: 0.5







Appendix A

INPUT 1991 Computer User Survey Questionnaire

A	General	

A	General	
1.	. What is the make and model number of the your site and how many do you have?	e main computer on
	• Make	
	• Model (CRI	TICAL INFORMATION)
	· Units	
2.	. Are you the person who is knowledgeable this system? Yes No	e on the servicing of
	(If not then obtain the name of the conagain.) Name of person responsible	rrect person and start
3.	. Do you have another system? What is the number of that system and how many do y	
	• Make	
	· Model (CRI	TICAL INFORMATION)
	· Units	
All rel	ll of the following questions that I am go elated to your system. (Writ	oing to ask you are te in system type.)
(To	To confirm, read out the make and model nu	umber.)



4. 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?

(Read out the list - to allow for best choice. Then circle appropriate answer.) $% \frac{1}{2} \left(\frac{1}{2} - \frac{1}{2} \right) \left(\frac{1}{2} - \frac{1}{2} - \frac{1}{2} \right) \left(\frac{1}{2} - \frac{1}{2} - \frac{1}{2} - \frac{1}{2} \right) \left(\frac{1}{2} - \frac{1$

Business sector

•	Manufacturing	1
	Distribution	1
•	Transportation	1
•	Utilities	1
•	Banking and Finance	1
•	Insurance	1
•	Government (including education)	1
	Services	1
	Other/Don't Know	1



B Service Vendor Selection

I would like to ask you some questions relating to the vendor that services your computer system.

 Could you please rate the importance of the following criteria in selecting your service vendor, on a scale of 0 to 10 (0 = low, 10 = high).

	Criteria	Rating
a)	Price	
b)	Quality of service	
c)	Guaranteed system availability level	
d)	Guaranteed availability of spare parts	
e)	Technical expertise	
f)	Fast response time	
g)	Availability of software support	
h)	Ability to provide other services	
i)	Contract flexibility	
j)	Ability to service other products	
k)	Vendor reputation	



	hardware? (Remind the user	System)	
	(Please circle appropriate vendor typ allowed.)	e; multiple answers are	
	• Manufacturer	1	
	· Dealer/distributor	1	
	Third party maintenance company	1	
	· Own company	1	
	· Other	1	
b)	ask the following question. If not, go to question 7.) I notice that your system, or part of it, is serviced by a third-party maintenance company. Could you tell me the reason why you use third-party maintenance?		
b)	third-party maintenance company. Cou	ld you tell me the	
b)	third-party maintenance company. Coureason why you use third-party mainte (Please circle appropriate answer; mu	ald you tell me the enance?	
b)	third-party maintenance company. Coureason why you use third-party maintenance	ald you tell me the enance?	
b)	third-party maintenance company. Coureason why you use third-party mainte (Please circle appropriate answer; mu	ald you tell me the enance?	
b)	third-party maintenance company. Coureason why you use third-party maintenance (Please circle appropriate answer; mu allowed.)	old you tell me the enance?	
b)	third-party maintenance company. Coureason why you use third-party maintenance (Please circle appropriate answer; mu allowed.) Lower cost	ald you tell me the enance?	
b)	third-party maintenance company. Coureason why you use third-party mainte (Please circle appropriate answer; mu allowed.) Lower cost Local service	ald you tell me the enance? altiple answers 1	
b)	third-party maintenance company. Coureason why you use third-party mainte (Please circle appropriate answer; mu allowed.) Lower cost Local service Single-source service	ald you tell me the chance? altiple answers 1 1	



7a) I notice that you DO NOT use a third party maintenance company; is there a reason for this?

(Please circle appropriate answer; multiple answers allowed.)

- Satisfied with manufacturer
- Manufacturer has an advantage 1
- TPM cannot support software
- · Tied to manufacturer with contract 1
- · Fear of system supplier response 1
- · Considered and rejected TPM 1
 - TPM financial weakness
- Unaware of TPM 1
 - Other/Don't know 9
- b) Assuming you were approached by a TPM company, at what level of price reduction would you consider using a TPM vendor to service your computer hardware?

(Please circle appropriate answer. Only ONE answer allowed.)

1

- 1% 10%
- 11% 20%
- · 21% 30% 1
- 31% 40%
- 41% 50%
 - 50% +
- Unwilling at any price
- Don't know/other



8.	How important is it that your service vendor COMMUNICATES with you regularly and effectively to advise you of, for example:			
	 The status of your system 	>		
	 Possible problems 	>		
	· Repair plans	> INTERVIEWER		
	 Availability of spare parts 	> PROMPTS		
	• Routine visits	>		
	Hardware and software changes	>		
	Could you please provide an IMPORTANCE and SATISFACTION rating on a scale of 0 to 10, where 0 is of no importance or indicates total dissatisfaction, and 10 is at top importance or indicates that you are fully satisfied.			
	• Importance			
	• Satisfaction			
9a)	Would you prefer all hardware maintenance and systems software support to be provided by one service vendor at each site? If yes, what would your interest level be on a scale of 0 to 10 (0 = Low, 10 = High)			
	(Circle answer)			
	• Yes 1			
	· No			
	• Don't know			
	· Level of interest			
	(If the respondent answered YES,	ask:)		



b) Who would you prefer that vendor to be?

(Please circle appropriate answer; multiple answers allowed.)

- The manufacturer of your main hardware 1
- Dealer/distributor/VAR 1
- TPM company
- One of your hardware manufacturers
- Don't know/other 9

Note: VAR is a Value Added Reseller.



C. Hardware Maintenance

I would now like to ask you some questions about the HARDWARE MAINTENANCE of your computer system. (Reaffirm the system type

Some of the questions are scaled with ratings from 0 to 10. Zero (0) represents zero importance or satisfaction, 5 is average, and 10 represents top importance or full satisfaction.

- What is you rating for the importance of hardware maintenance to your business and how satisfied are you with your service vendor's performance.
 - Importance rating
 - Satisfaction rating
- 11. If we define SYSTEMS AVAILABILITY as the percentage of your normal working hours that the system is operational (disregarding non-critical peripheral breaks), what percentage has that been for your system over the last twelve months?
 - · Percentage



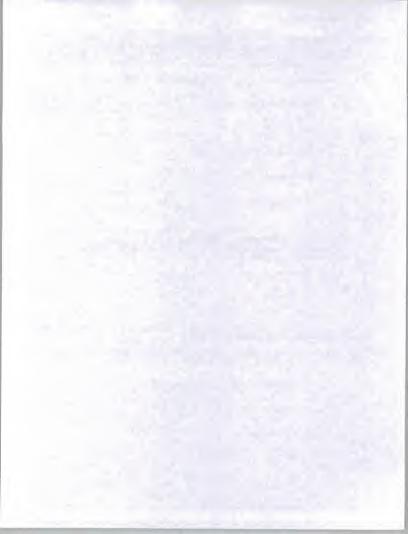
12.	How many times each year does your system fail completely for a period of greater than one hour?		
	· Failures per year		
	And what percentage of these	e system failures are due to:	
	Hardware	*	
	Systems software	8	
	Applications software	*	
	Other (ie, power failure)	*	
	(Please check that percentage	ges add up to 100.)	



13.	What is your rating for the AVAILABILITY (scale 0-10), a satisfaction?	importance of SYSTEMS and what is your level of
	• Importance rating	
	Satisfaction rating	
14.	reporting a fault and the assite (in working hours, that day), what response time (in	TIME as the time it takes between rrival of the service engineer on t is to say 8 hours = 1 working n hours) do you find acceptable xperience as an average over the
	• Acceptable	Hours
	• Experienced	Hours
15.	the system fully operationa arrives on site, then what working hours) and what tim twelve months?	defined as the time taken to get l from the time the engineer time do you find acceptable (in e did you experience in the last
	(Note: 8 hours = 1 working	day/shift)
	• Acceptable	Hours
	• Experienced	Hours



	hardware maintenance and and a SATISFACTION ratin High).	ask you to gi g for each (sc	ve both an IMPORTANCE ale 0-10, $0 = Low$, 10
	nigii).	Importance	Satisfaction
	Spares availability		
	• Engineer skills		
	• Problem escalation		
	• Documentation		
	Remote diagnostics		
17.	How important is it that hardware CONSULTANCY/FLA operations and how satis provided? (Scale 0-10, • Importance	NNING service fied are you w	to support your with the service
	• Satisfaction		
18.	If possible, I would lik		de some information o
	 a) What percentage price for hardware mainter 	ce INCREASE or nance in the ye	DECREASE did you pay ear 1990?
	· Increase	8	
	• Decrease	8	
	No change	l (circ)	Le)



	b)	What do you expect the MAINTENANCE to be in tannum?	e PRICE CHANGES FOR HARDWARE the future, in percentage terms per
		• Increase	*
		• Decrease	*
		No change	1 (circle)
	c)	How important do you mand how satisfied are pay? (scale 0 - 10, 0	rate HARDWARE MAINTENANCE PRICING you with the price you currently 0 = Low, 10 = High)
		• Importance rating	
		Satisfaction ration	ng
•	Whi hav	ich type of HARDWARE MA: ve on the main part of y	INTENANCE CONTRACT do you currently your system?
	(Pl	lease circle appropriate	e answer; only ONE answer allowed.)
	•	Warranty	1
	•	Three-year	1
	•	One-year	1
		Time and materials	1
		None	1



D Systems Software Support

I would like to ask you some questions relating to the service you get from your software support vendor.

These questions relate to SYSTEMS SOFTWARE - Not Applications.

As before, some of the questions are scaled with ratings from 0 to 10. Zero (0) represents zero importance or satisfaction, 5 is average and 10 is top importance or full satisfaction.

20.	Who	supports	vour	SYSTEMS	SOFTWARE?

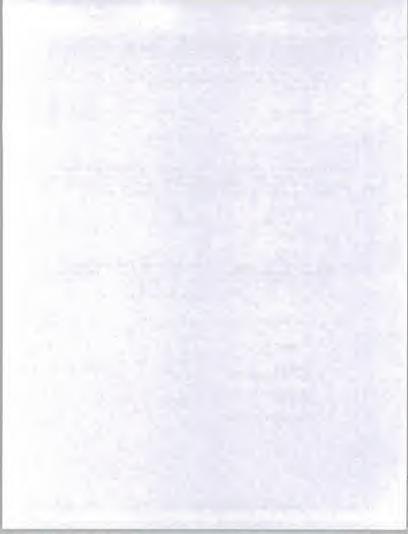
(P)	lease circle appropriate answer	; multiple answers allowed.
•	Hardware Manufacturer	1
	Software House	1
	Software Product vendor	1
	Value-added Reseller (VAR)	1
	In-house	1
	Don't know/other	9
	cale 0-10) Importance rating	
		vities?
	Satisfaction Rating	
TE	at percentage of systems softwa LEPHONE, and how long does this e time it is alerted to the ser	take in elapsed time from
٠	Solved by phone	*
•	Elapsed time	Hours

21.

22.



23.	wha (on the tim	those problems NOT t RESPONSE TIME wou average and in wor last twelve months e the problem is re site.)	ld you fir king hours ? (Take F	nd acceptable, s) have you ex RESPONSE TIME	and what time perienced over to mean from the
		Acceptable		Hours	
	•	Experienced		Hours	
24.	ful	FIX TIME is defined ly operational from n what time (in wor t did you experienc	the arriv	val of the eng	ineer on site,
	٠	Acceptable		Hours	
	•	Experienced		Hours	
25.	SYS	ould now like to go TEMS SOFTWARE SUPPO A SATISFACTION rat	RT and asl	you to give	an IMPORTANCE
			Importar	nce Satisfact	ion
	٠	Engineer Skills			
	•	Documentation]
	•	Software Installations]
	•	Provision of Updates			
		Remote diagnostics			



26.	sys	tems rati	software COL	NSULTANCY/P satisfied a	system supplice LANNING service re you with the	ce to support you	uı
		Imp	ortance				
		Sat	isfaction				
27.			ible I would SOFTWARE SU			e information on	
	a)	Wha for	t PERCENTAGE systems sof	PRICE INCR	EASE or decrea	ase did you pay r 1990?	
			Increase		*		
		•	Decrease		*		
			No change		l (circle)		
	b)	SUP	t do you exp PORT to be is um?	ect the PRI n the futur	ce changes For	R SYSTEMS SOFTWA age terms per	R
			Increase		8		
			Decrease		8		
			No change		1 (circle)		
	c)	PRI	CING and how	satisfied	systems software you with 10, 10=High)	ARE SUPPORT the price you	
		•	Importance	Rating			
			Satisfactio	n Rating			



None

28. Which type of SYSTEMS SOFTWARE SUPPORT CONTRACT do you currently have?

(Please circle appropriate answer. Only ONE answer allowed.)

•	Support included in software license fee	1	
•	Three-year contract	1	
•	One-year contract	1	
	Ad hoc	1	



E Other Services

29. I am particularly interested in obtaining 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 computer systems.

Could you say which of the following services your service vendor is CURRENTLY CONTRACTED to supply and which you would like your service vendor to provide? Also, could you give a level of interest rating against each in the range 0 to 10 where 0 = no interest, 5 = average interest and 10 = must have.

(Please circle appropriate answer and give LOI rating.)

		Contracted	Require	LO1
•	Configuration Planni	ng 1	1	
	Capacity Planning	1	1	
•	Environmental Planni	ng l	1	
	Cabling	1	1	
	Software Evaluation	1	1	
	Consultancy	1	1	
	Network Planning	1	1	
	Network Management	1	1	
	Disaster Recovery	1	1	
•	Facilities Managemen	t 1	1	
•	Problems Management	1	1	
	Applications Softwar	e l	1	



F	Netwo	
н	Nerwo	THE S

30.	a)	Does your	company	currently	have	a	net	work	
		installed.	(Pleas	e circle	approp	ori	late	answers	;) .

Yes 1

No 1

b) If you do not currently have a network installed do you intent to install one in the future, and in what time frame will this most likely take place (please circle appropriate answers).

· Intent: Yes

No

· Time Frame: 1 year

2 years 1

3 years 1

4 years 1

5 years 1

If the respondent answered YES to question 30 a) proceed, if not thank them for their time and conclude the interview.

The following section of the questionnaire applies to CURRENT USERS OF NETWORKS ONLY. Are you the correct person to answer these questions or should we approach one of your colleges?

Name	οf	colleague:		
		-		

Telephone No:

 a) Which type of network do you have installed? (Please circle appropriate answers multiple answers are allowed).

LAN (Local area network)

WAN (Wide area network) 1

Propriety (ie IBM, DEC) 1

Standard open network 1



 how many TERMINALS are connected to your network and how many USERS do you have. (Please circle appropriate answer.)

	No of Terminals		No of Users
	1-10	1	1
	11-100	1	1
•	101-500	1	1
	501-1,000	1	1
	1,000+	1	1

c) Which type of OPERATING SYSTEMS SOFTWARE does your network use? (Please circle appropriate answers, multiple answers are allowed.)

Novell	1	
3 Com	1	
Propriety (IBM, DEC etc)	1	
Other/don't know		

- 32. WHO SERVICES the various parts of your network? (Please circle appropriate answers.)
 - a) Network Equipment (multiple answers allowed)

Service Vendor	File Server Equipment	Terminals	Communications Equipment
Hardware Manufacture	1	1	1
TPM	1	1	1
Dealer/ Distributor	1	1	1
Own Company	1	1	1
Other/ Don't Know	1	1	1



b) Network Software (multiple answers allowed)

Service Vendors	Operating Systems Software	Applications Software
Hardware Manufacturer	1	1
Software Product Vendor	1	1
Value-Added Reseller (VAR)	1	1
Own Company	1	1
Other/Don't Know	1	1

c)	Who	MANAGES	your	network	operations?

- Own Company
 1
- Hardware Manufacturer 1
- · Independent Service Vendor 1
- · Other/don't know 1
- 33. I would now like to go through a list of five aspects of network service or performance and ask you to give both an IMPORTANCE and SATISPACTION rating for each on a scale of 0-10 (10 = High).

Importance Satisfaction

- Network Equipment
 Maintenance
- Network Operating
 Systems Software
 Support
- Network Applications
 Installations
 - Network Up-time
 - Network User Response Time



34.	What sort of APPLICATION is your network used	for and what
	is the extent of the network? (Please circle	appropriate
	answers, multiple answers allowed.)	

 Electronic Mailing/Messaging 	1
· Financial Transactions	1
• Video Text	1
· Voice Communications	1
· On Line Transaction Processing (OLTP)	1
• File Transfer	1
· Access to Managed Network Services (MNS)	1
· Inter Company Level	1
· Pan European Level	1
• Global Level	1
• Other	1

These last questions complete the questionnaire. I would like to thank you on behalf of INPUT for helping us to complete this survey. To express our appreciation for your time, we will be sending you a "thank you" package.

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