NOVEMBER 1991

USER SATISFACTION LARGE SYSTEMS

1991

INPUT®

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Published by
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1280 Villa Street
Mountain View, CA 94041-1194
U.S.A.

Customer Service Programme—Europe

User Satisfaction Large Systems, 1991

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

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I 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

COUNTRY	SYSTEM RANGE			TOTAL
	LARGE	MEDIUM	SMALL	
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

VENDOR	SYSTEM RANGE			TOTAL
	LARGE	MEDIUM	SMALL	
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.

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
- Engineer 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:

- IBM
- 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
European 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
European Average (Large Systems)		0.4

Sample Sizes: 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

Exhibit IV-4

Western Europe 1991
System Performance Data
Large Systems

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

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

Sample Size: 225
Standard Error:
Failure Rate: 0.2
Systems Availability: 0.15

Exhibit IV-5

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

RESPONSE TIME (HOURS)			
SERVICE ASPECT	ACCEPTABLE TIME	EXPERIENCED TIME	DIFFERENCE
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

Exhibit IV-6

Western Europe 1991
Service Provider Data
Large Systems

PERCENT HARDWARE SERVICE PROVIDED BY				
EQUIPMENT MANUFACTURER	DEALER/ DISTRIBUTOR	INDEPENDENT MAINTAINER	IN-HOUSE RESOURCES	OTHER
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: 225
Standard Error: 0.1

Note: Multiple Responses Allowed

Exhibit IV-7

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

SYSTEMS SOFTWARE SUPPORT		
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 INPUT's 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.

Exhibit V-1

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/DONT KNOW	2
TOTAL SAMPLE	27

Exhibit V-2

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

Exhibit V-4

France 1991
System Performance Data
Large Systems

SYSTEM FAILURE RATES				
	CAUSE OF FAILURE (PERCENT)			
FAILURES PER ANNUM	HARDWARE	SYSTEMS	APPLICATIONS	OTHER
2.9	67	14	7	12

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

Sample Size: 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	1.8	1.7	(0.1)
SYSTEMS SOFTWARE SUPPORT	2.7	3.8	1.1

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

Sample Size: 27
Standard Error: 1.5

Exhibit V-6

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: 27
Standard Error: 0.3

Note: Multiple Responses Allowed

Exhibit V-7

France 1991
Users Views on Current Service Performance
Large Systems

HARDWARE SERVICE		
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
9.6	9.2	0.4

SYSTEMS SOFTWARE SUPPORT		
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
9.1	8.4	0.7

Sample Size: 27
Standard Error: 0.4

Exhibit V-8

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/DONT 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

Exhibit V-11

Germany 1991
System Performance Data
Large Systems

SYSTEM FAILURE RATES				
	CAUSE OF FAILURE (PERCENT)			
FAILURES PER ANNUM	HARDWARE	SYSTEMS	APPLICATIONS	OTHER
1.4	63	7	7	23

SATISFACTION WITH SYSTEMS AVAILABILITY		
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
10.0	9.4	0.6

Sample Size: 30
Standard Error:
FAILURE RATE: 0.5
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

Exhibit V-13

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 MANUFACTURER	SOFTWARE HOUSE	SOFTWARE PRODUCT VENDOR	VAR	IN-HOUSE RESOURCES	OTHER
60	40	3	3	13	0

Sample Size: 30
Standard Error: 0.3

Note: Multiple Responses Allowed

Exhibit V-14

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

Exhibit V-15

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

Exhibit V-18

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

SATISFACTION WITH SYSTEMS AVAILABILITY		
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
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 ASPECT	ACCEPTABLE TIME	EXPERIENCED TIME	DIFFERENCE
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

Exhibit V-20

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: 33
Standard Error: 0.3

Note: Multiple Responses Allowed

Exhibit V-21

Italy 1991
Users Views on Current Service Performance
Large Systems

HARDWARE SERVICE		
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
8.7	8.2	0.5

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

Sample Size: 33
Standard Error: 0.4

Exhibit V-22

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/DON'T 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

Exhibit V-25

United Kingdom 1991
System Performance Data
Large Systems

SYSTEM FAILURE RATES				
	CAUSE OF FAILURE (PERCENT)			
FAILURES PER ANNUM	HARDWARE	SYSTEMS	APPLICATIONS	OTHER
2.5	78	5	3	14

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 ASPECT	ACCEPTABLE TIME	EXPERIENCED TIME	DIFFERENCE
HARDWARE SERVICE	3.8	2.1	(1.7)
SYSTEMS SOFTWARE SUPPORT	4.3	3.0	(1.3)

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

Sample Size: 78
Standard Error: 0.9

Exhibit V-27

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

Exhibit V-28

United Kingdom 1991
Users Views on Current Service Performance
Large Systems

HARDWARE SERVICE		
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
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

Exhibit VI-1

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

Exhibit VI-4

Amdahl 1991
System Performance Data
Large Systems

SYSTEM FAILURE RATES				
FAILURES PER ANNUM	CAUSE OF FAILURE (PERCENT)			
	HARDWARE	SYSTEMS	APPLICATIONS	OTHER
1.6	76	6	1	17

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

Sample Size: 111
Standard Error:
Failure Rate: 0.25
Systems Availability: 0.2

Exhibit VI-5

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

Exhibit VI-6

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: 111
Standard Error: 0.15

Note: Multiple Responses Allowed

Exhibit VI-7

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

Exhibit VI-8

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

Exhibit VI-11

IBM 1991
System Performance Data
Large Systems

SYSTEM FAILURE RATES				
FAILURES PER ANNUM	CAUSE OF FAILURE (PERCENT)			
	HARDWARE	SYSTEMS	APPLICATIONS	OTHER
1.8	53	11	16	20

SATISFACTION WITH SYSTEMS AVAILABILITY		
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
9.3	8.7	0.6

Sample Size: 39
Standard Error:
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

Exhibit VI-13

IBM 1991
Service Provider Data
Large Systems

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

PERCENT SYSTEMS SOFTWARE SUPPORT PROVIDED BY					
EQUIPMENT MANUFACTURER	SOFTWARE HOUSE	SOFTWARE PRODUCT VENDOR	VAR	IN-HOUSE RESOURCES	OTHER
87	8	5	0	15	0

Sample Size: 39
Standard Error: 0.25

Note: Multiple Responses Allowed

Exhibit VI-14

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

Exhibit VI-15

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/DONT 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

Exhibit VI-18

ICL 1991
System Performance Data
Large Systems

SYSTEM FAILURE RATES				
FAILURES PER ANNUM	CAUSE OF FAILURE (PERCENT)			
	HARDWARE	SYSTEMS	APPLICATIONS	OTHER
3.8	89	7	3	1

SATISFACTION WITH SYSTEMS AVAILABILITY		
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
9.5	8.5	1.0

Sample Size: 22
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

Exhibit VI-20

ICL 1991
Service Provider Data
Large Systems

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

PERCENT SYSTEMS SOFTWARE SUPPORT PROVIDED BY					
EQUIPMENT MANUFACTURER	SOFTWARE HOUSE	SOFTWARE PRODUCT VENDOR	VAR	IN-HOUSE RESOURCES	OTHER
91	5	0	0	23	0

Sample Size: 22
Standard Error: 0.35

Note: Multiple Responses Allowed

Exhibit VI-21

ICL 1991
Users Views on Current Service Performance
Large Systems

HARDWARE SERVICE		
IMPORTANCE RATING	SATISFACTION RATING	SATISFACTION INDEX
9.5	8.2	1.3

SYSTEMS SOFTWARE SUPPORT		
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

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

   - Make ☐
   - Model ☐ (CRITICAL INFORMATION)
   - Units ☐

2. Are you the person who is knowledgeable on the servicing of this system?

   - ☐ Yes ☐ No

   (If not then obtain the name of the correct person and start again.)

   Name of person responsible _____

3. Do you have another system? What is the make and model number of that system and how many do you have?

   - Make ☐
   - Model ☐ (CRITICAL INFORMATION)
   - Units ☐

All of the following questions that I am going to ask you are related to your _____ system. (Write in system type.)

(To confirm, read out the make and model number.)

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.)

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.

5. 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	

6a) Would you please tell me who services your computer system hardware? (Remind the user _____ System)

(Please circle appropriate vendor type; multiple answers are allowed.)

- Manufacturer 1
- Dealer/distributor 1
- Third party maintenance company 1
- Own company 1
- Other 1

(If the respondent answered **YES** to third-party maintenance, ask the following question. If not, go to question 7.)

b) 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?

(Please circle appropriate answer; multiple answers allowed.)

- Lower cost 1
- Local service 1
- Single-source service 1
- TPM service higher quality 1
- More flexible contract 1
- Other/Don't know 9

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 1
- Manufacturer has an advantage 1
- TPM cannot support software 1
- Tied to manufacturer with contract 1
- Fear of system supplier response 1
- Considered and rejected TPM 1
- TPM financial weakness 1
- 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% - 10% 1
- 11% - 20% 1
- 21% - 30% 1
- 31% - 40% 1
- 41% - 50% 1
- 50% + 1
- Unwilling at any price 1
- Don't know/other 9

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 >
- Availability of spare parts >
- Routine visits >
- Hardware and software changes >

INTERVIEWER PROMPTS

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 1
- Don't know 9
- 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 1
- One of your hardware manufacturers 1
- 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.

10. 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 system failures are due to:

Hardware [ ] %

Systems software [ ] %

Applications software [ ] %

Other (ie, power failure) [ ] %

(Please check that percentages add up to 100.)

13. What is your rating for the importance of **SYSTEMS AVAILABILITY** (scale 0-10), and what is your level of satisfaction?

    - Importance rating ☐
    - Satisfaction rating ☐

14. 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 8 hours = 1 working day), what response time (in hours) do you find acceptable and what did you actually experience as an average over the last twelve months?

    - Acceptable ☐ Hours
    - Experienced ☐ Hours

15. If **HARDWARE REPAIR TIME** is defined as the time taken to get the system fully operational from the time the engineer arrives on site, then what time do you find acceptable (in working hours) and what time did you experience in the last twelve months?

    (Note: 8 hours = 1 working day/shift)

    - Acceptable ☐ Hours
    - Experienced ☐ Hours

16. I would now like go through a list of five aspects of hardware maintenance and ask you to give both an **IMPORTANCE** and a **SATISFACTION** rating for each (scale 0-10, 0 = Low, 10 = High).

	Importance	Satisfaction
• Spares availability		
• Engineer skills		
• Problem escalation		
• Documentation		
• Remote diagnostics		

17. How important is it that your system supplier provides a hardware **CONSULTANCY/PLANNING** service to support your operations and how satisfied are you with the service provided? (Scale 0-10, 0 = Low, 10 = High).

- Importance
- Satisfaction

18. If possible, I would like you to provide some information on **HARDWARE MAINTENANCE PRICING.**

a) What percentage price **INCREASE** or **DECREASE** did you pay for hardware maintenance in the year 1990?

- Increase %
- Decrease %
- No change 1 (circle)

b) What do you expect the **PRICE CHANGES FOR HARDWARE MAINTENANCE** to be in the future, in percentage terms per annum?

- Increase [ ] %
- Decrease [ ] %
- No change 1 (circle)

c) How important do you rate **HARDWARE MAINTENANCE PRICING** and how satisfied are you with the price you currently pay? (scale 0 - 10, 0 = Low, 10 = High)

- Importance rating [ ]
- Satisfaction rating [ ]

19. Which type of **HARDWARE MAINTENANCE CONTRACT** do you currently have on the main part of your system?

(Please circle appropriate 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 your **SYSTEMS SOFTWARE?**

(Please 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

21. What is your rating for the **IMPORTANCE** of systems software support to your business and what is your satisfaction with your vendors systems support activities?
(Scale 0-10)

- Importance rating [ ]
- Satisfaction Rating [ ]

22. What percentage of systems software problems are **SOLVED BY TELEPHONE**, and how long does this take in elapsed time from the time it is alerted to the service engineer?

- Solved by phone [ ] %
- Elapsed time [ ] Hours

23. For those problems **NOT** possible to solve over the telephone, what **RESPONSE TIME** would you find acceptable, and what time (on average and in working hours) have you experienced over the last twelve months? (Take RESPONSE TIME to mean from the time the problem is reported to the arrival of the engineer on site.)

- Acceptable ☐ Hours
- Experienced ☐ Hours

24. If **FIX TIME** is defined as the time taken to get the system fully operational from the arrival of the engineer on site, then what time (in working hours) do you find acceptable, and what did you experience over the last twelve months?

- Acceptable ☐ Hours
- Experienced ☐ Hours

25. I would now like to go through a list of five aspects of **SYSTEMS SOFTWARE SUPPORT** and ask you to give an **IMPORTANCE** and a **SATISFACTION** rating for each. (Scale 0 - 10, 10=High)

	Importance	Satisfaction
• Engineer Skills	☐	☐
• Documentation	☐	☐
• Software Installations	☐	☐
• Provision of Updates	☐	☐
• Remote diagnostics	☐	☐

26. How important is it that your system supplier provides a systems software **CONSULTANCY/PLANNING** service to support your operations and how satisfied are you with the service provided? (Scale 0 - 10)

- Importance [ ]
- Satisfaction [ ]

27. If possible I would like you to provide some information on **SYSTEMS SOFTWARE SUPPORT PRICING.**

a) What **PERCENTAGE PRICE INCREASE** or decrease did you pay for systems software support in the year 1990?

- Increase [ ] %
- Decrease [ ] %
- No change 1 (circle)

b) What do you expect the **PRICE CHANGES FOR SYSTEMS SOFTWARE SUPPORT** to be in the future, in percentage terms per annum?

- Increase [ ] %
- Decrease [ ] %
- No change 1 (circle)

c) How important do you rate **SYSTEMS SOFTWARE SUPPORT PRICING** and how satisfied are you with the price you currently pay? (Scale 0 - 10, 10=High)

- Importance Rating [ ]
- Satisfaction Rating [ ]

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
- None 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.)

	Currently Contracted	Require	LOI
• Configuration Planning	1	1	
• Capacity Planning	1	1	
• Environmental Planning	1	1	
• Cabling	1	1	
• Software Evaluation	1	1	
• Consultancy	1	1	
• Network Planning	1	1	
• Network Management	1	1	
• Disaster Recovery	1	1	
• Facilities Management	1	1	
• Problems Management	1	1	
• Applications Software Support	1	1	

F Networks

30. a) Does your company currently have a network installed. (Please circle appropriate 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 1
  No 1
- Time Frame: 1 year 1
  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 of colleague: _____

Telephone No: _____

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

LAN (Local area network) 1

WAN (Wide area network) 1

Propriety (ie IBM, DEC) 1

Standard open network 1

b) 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	1

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 **SATISFACTION** 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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