INPUT

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INPUT®
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CUSTOMER SERVICES IN EUROPE

1987 ANNUAL REPORT

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Customer Services in Europe—
1987 Annual Report

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Abstract

This report presents and summarizes data collected for the INPUT annual survey of the customer service market in the computer industry throughout Europe, but specifically:

- Belgium
- Denmark
- France
- Germany
- Holland
- Italy
- Norway
- Sweden
- U.K.

The report is presented in such a way that Service and Marketing directors and managers can assess their company performance against that of their competitors on key aspects of service and support, and also compare various performance factors in the individual countries.

The report can also be used to prepare company responses to surveyed customer views and opinions in order to maintain and enhance market share.

In addition, information about the trends in defined aspects of service are presented in order to allow internal comparative performance evaluations to take place.

The report consists of 363 pages which contain 348 exhibits in addition to the text.

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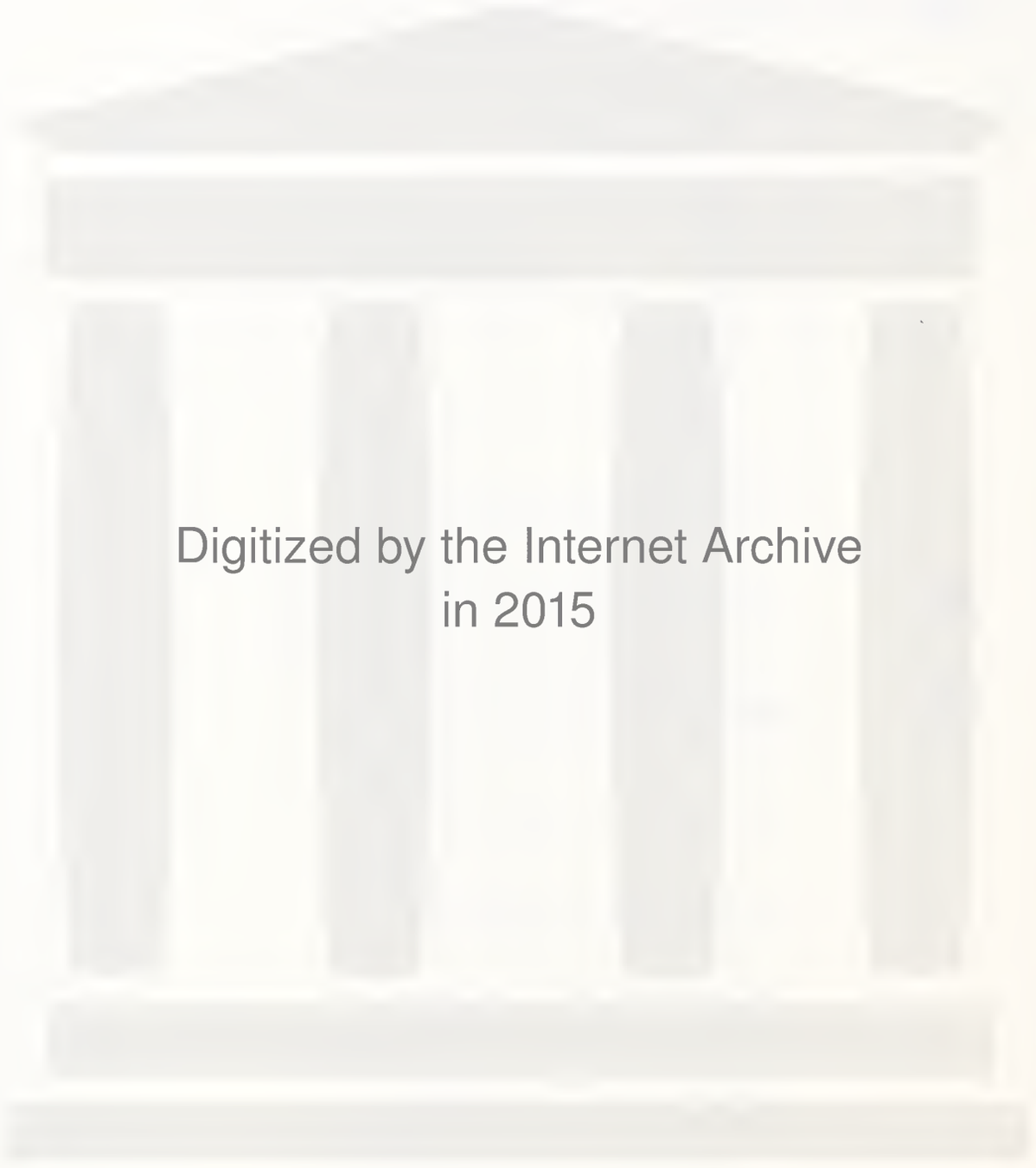

Exhibits

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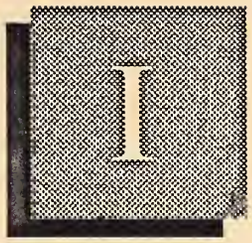


Introduction

Introduction

A

Objectives

The INPUT 1987 annual report on the customer maintenance and service market in Europe seeks to present customers' views on many of the important aspects of computer system support.

These views are derived from a sample of 1321 customer establishments spread across all the major hardware suppliers, with significant cell sizes in the major European countries.

The analysis in this report is presented in order for service directors and managers to have a reference point against which to gauge current performance and future needs and possibilities.

B

Methodology

For this report, 1321 customers were chosen at random throughout Europe and interviewed, by telephone, in their mother tongue. The basis of the interview was a questionnaire of some 150 aspects of support and maintenance, compiled in discussion with major service vendors. The questionnaire is included as Appendix G.

Interviews were conducted with either the data processing or operations manager - or the relevant director of the establishment.

In order to take full advantage of some aspects of the data, the analysis has been concentrated primarily on companies and secondarily on countries. An analysis based on industry or business sector appears in a previous report (taken from a subset of 1294 of the 1321 respondents) *Customer Service User Requirements - 1987.*

A guide to the interpretation of the statistics is given in the next chapter and it is essential, in order to make the maximum use of the data in this report, to read this section first.

C

Report Structure

The chapters of this report comprise the following information:

Chapter II
explains the basis of the statistics and a correct method of interpretation together with ways of doing simple comparisons.

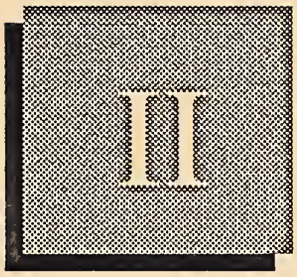
Chapter III
presents the data in a condensed format in order to give a quick overview of trends in the customer population as a whole.

Chapter IV
gives the market sizing data extracted from company reports, trade literature, and other INPUT research.

Chapter V
details the hardware and software importance and satisfaction ratings for the main aspects of service, by individual country.

Chapter VI
covers each company's performance in service and support aspects, broken down by large, medium, and small systems.

Chapter VII
gives a brief summary of what, in the view of INPUT, comprises the main findings of the analysis.



Interpretation of the Data

Interpretation of the Data

A

Definitions

- **Hardware:** any computer system or peripheral system.
- **Software:** operating systems software, NOT applications.
- **Large System:** a system comprising HARDWARE to the value of more than $500k.
- **Medium System:** a system comprising HARDWARE to a value between $75k and $500k.
- **Small System:** a system comprising HARDWARE up to a value of $75k.
- **Population:** the full sample of 1321.
- **Population Mean:** the average of all the values against a specific question.
- **Standard Error:** (of the mean) is the standard deviation (SD) of the sample divided by the square root of the sample size, e.g., root 1321 = 36.4. Due to the large sample size Bessels correction has not been used, but this would be advisable for cell sizes below 28.

B

Population Means and Standard Error

Throughout this report the mean value of the whole 1321 sample population is presented against the mean values of the lesser samples for each country and company, in order that a quick impression can be gained of general deviations from the European norm.

In the tables of importance and satisfaction against the different service aspects, the right hand column is always the mean of the total sample population across large, medium, and small installations, whereas the

figures at the bottom of each table are the individual population means (averages) of the large, medium, and small installations separately.

In addition, the standard error for the total sample is given separately in order for a more exacting test of significance (of deviations from the norm or average) to be applied. See Exhibits A-4 and A-5.

In general, the collection of values from a large sample follow a normal distribution, and readers of this report can accept that a deviation of their own means of company data, of more than four times the standard error from the sample population mean, is very unlikely, hence the deviation would indicate a significant difference. To be more exact, in statistical terms, the probability of the mean for the total of all customers in Europe being more than three times the standard error of the mean for the sample (1321) away from that sample mean, is of the order of 0.3%.

However, in certain instances there is skew towards the ten value, mostly in the Importance Ratings, but separate analysis may be necessary for specific cases. In some of the data, for instance that relating to response and repair times, there are a number of respondents who, obviously dissatisfied, have put in very long times which are not representative of the of the general performance levels. This leads to distribution skew and needs to be taken into account when interpreting means and standard deviations.

The standard guide to skew is where the modal minus the mean values are greater than three times the mean minus the median values. This can be more quickly detected in the INPUT data where the standard deviation encompasses zero, i.e, the SD must be displaced from the mean ABOVE zero.

The evaluation of skew distributions for individual companies is not within the remit of the INPUT annual survey, but that data may be analysed as an additional service if so required.

C

Ratings and Satisfaction Index

Except where otherwise stated, 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 = totally and absolutely dissatisfied
  - 5 = average satisfaction
  - 10 = totally satisfied

In general, importance ratings below 7 are NOT significant as an interest level for a new service, and ratings of 5 and below should be treated as marginal UNLESS the number of respondents (for 5 as against 7) justified a different conclusion based on further analysis.

The satisfaction index throughout this report is based on the difference between the importance and satisfaction ratings for specific aspects of service. The questions for importance and satisfaction were asked at the same time and the answers given thus reflect the respondents' value judgement at that time, hence:

- figures of 10 and 10 or 6 and 6 respectively, etc., give a difference of zero, indicating that the importance needs are completely satisfied.

- figures of importance 8 and satisfaction 9 would indicate overfulfillment of the importance needs, and give a satisfaction index of -1 or, in the INPUT text, (1).

- figures of importance 6 and satisfaction 5 indicate underfulfillment of the needs, but perhaps only customer concern rather than real dissatisfaction.

- the 'top' part of the satisfaction index scale would look like:

(1)	overfulfilled
0	completely satisfied
1	concerns and worries
2	real dissatisfaction
3	pain level

D

Scattergrams

The scattergrams shown as exhibits III-1 & III-2 have the service aspects ranked in order of importance. These rankings have been kept throughout the report so that individual company and country versions can be readily compared with those of the means for the sample population. As each scattergram is printed to the same scale, it is possible to take a transparency of the separate results and superimpose them to get a comparison with the mean, or with a competitor.

It is the contention of INPUT that perceived importance declines with increased performance satisfaction, i.e, as the customer becomes more satisfied with any particular service aspect then others rise in the importance rankings to take its place. This is borne out with the gradual top to bottom, right to left shift in the scattergram plots, of both importance and satisfaction for service components.

Executive Overview of Europe

Executive Overview for Europe

A

Importance of Hardware Services

Exhibit III-1 shows the various aspects of hardware service ranked in order of importance according to their ratings. The plot of satisfaction ratings shows the differences between importance and satisfaction for each of those aspects.

There is a general downwards trend in satisfaction in line with importance ratings with only two areas of divergence, 'Escalation Procedures' and 'Documentation.'

Documentation obviously rouses strong emotions at whatever level of importance it is rated, and the perceived needs are consistently underrequited. It is the intention of INPUT to research the reasons for this pervading lack of satisfaction with the vendor documentation at a later time.

In general, the worst satisfaction index is just below the customer concern level and, apart from Documentation, quickly reaches marginal levels. However, individual companies in specific countries depart from this mean quite drastically and will need to take action to resolve the problems so identified.

EXHIBIT III-1

IMPORTANCE OF HARDWARE SERVICES
EUROPEAN AVERAGES

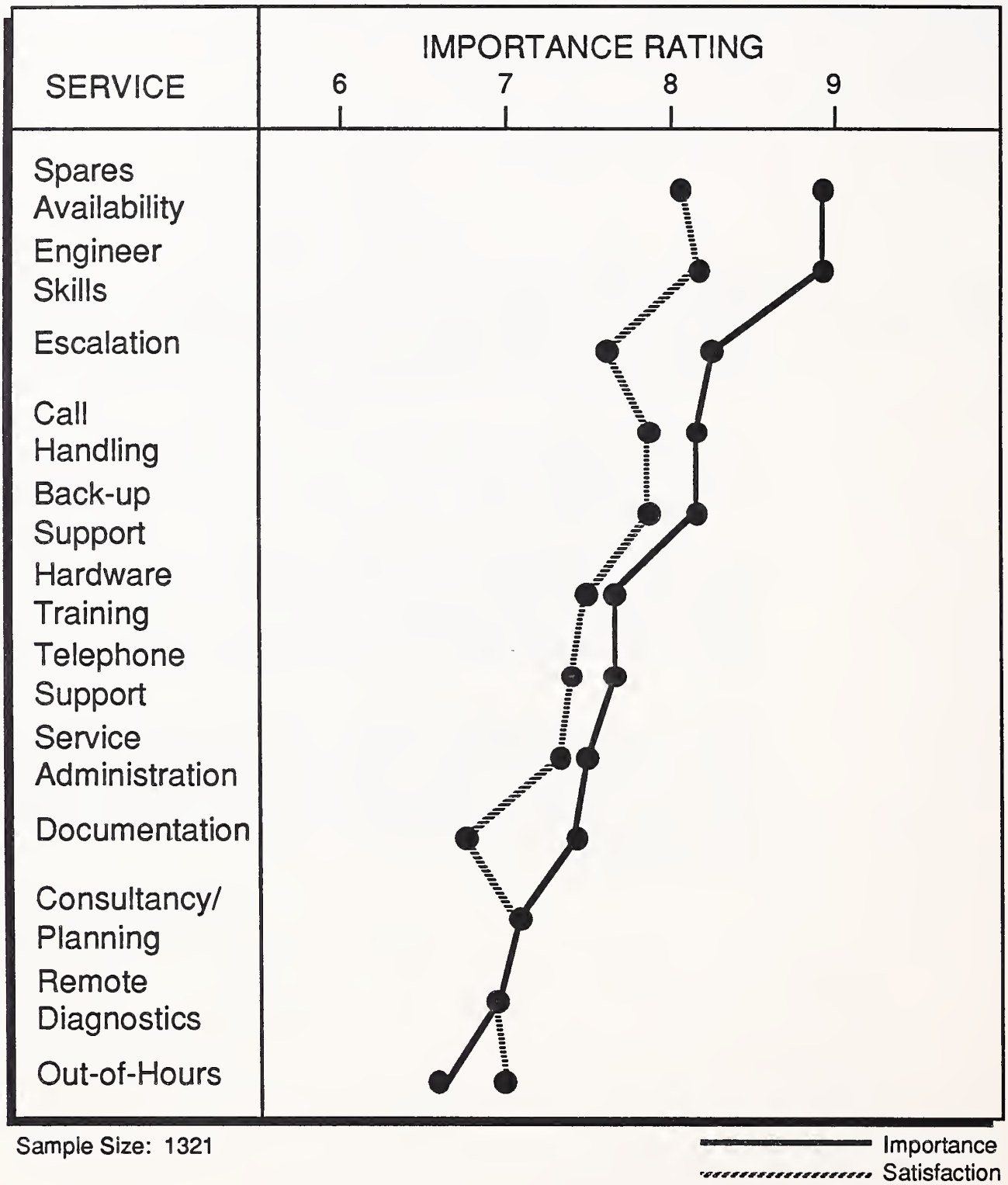
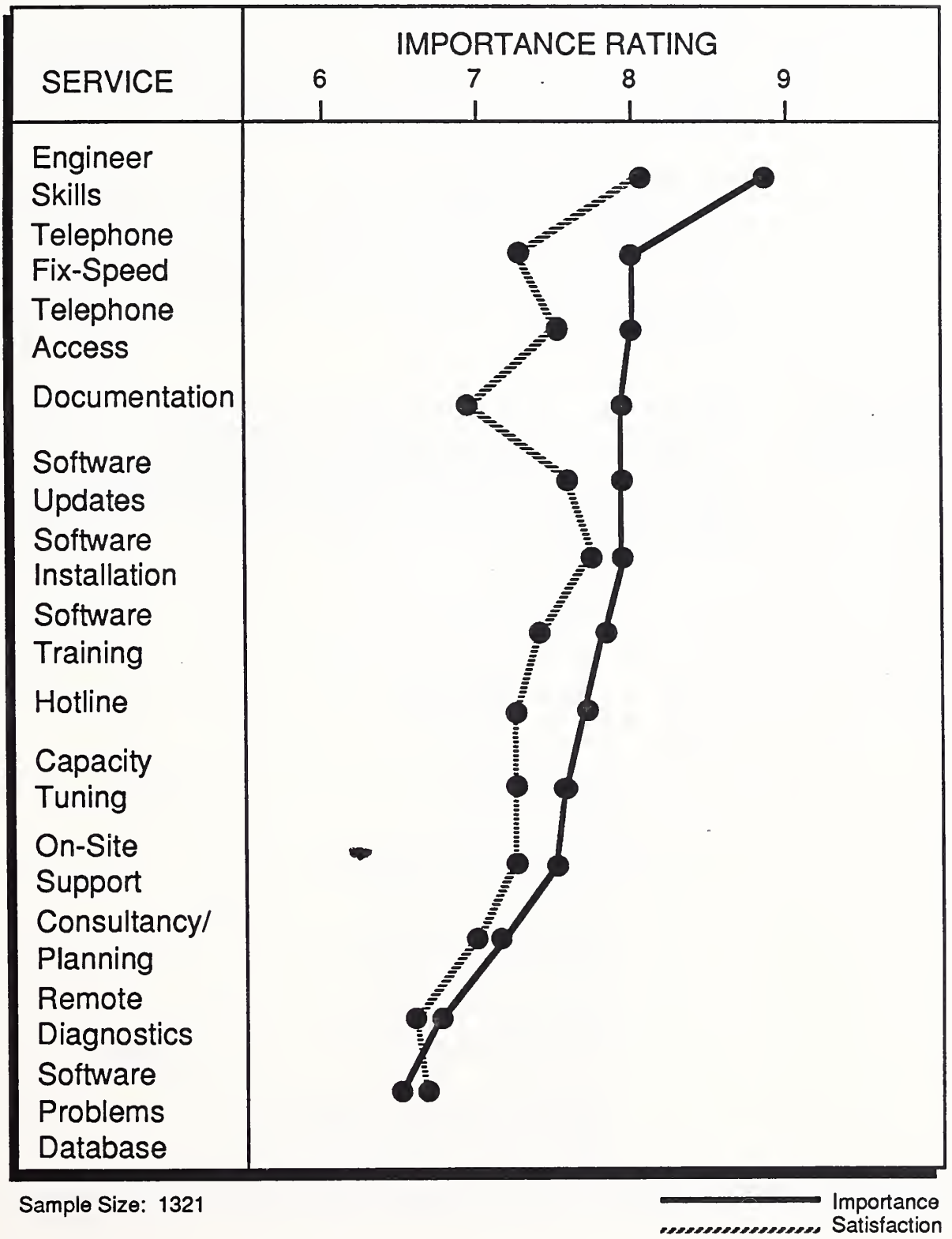


EXHIBIT III-2

IMPORTANCE OF SOFTWARE SERVICES
EUROPEAN AVERAGES



B

Importance of Software Services

As with the plot for hardware services, that for software services, see Exhibit III-2, shows up two or three aspects that appear to be under-satisfied. Engineer skills is the most important of these and indicates the need for more attention being paid to this aspect.

Again, Documentation comes out as a 'rogue' element, but whether this is due to poor writing, lack of training, lack of customer reading skills, or some other factor, needs further investigation.

It is rather interesting that Remote Diagnostics and Problem Databases come so low in the importance ratings, but the level of satisfaction, being good, would probably indicate this result. Whatever the reason, service vendors are heading down this particular path and are likely to attach more importance to it than the customer, as it helps to increase fix speed and decrease costs.

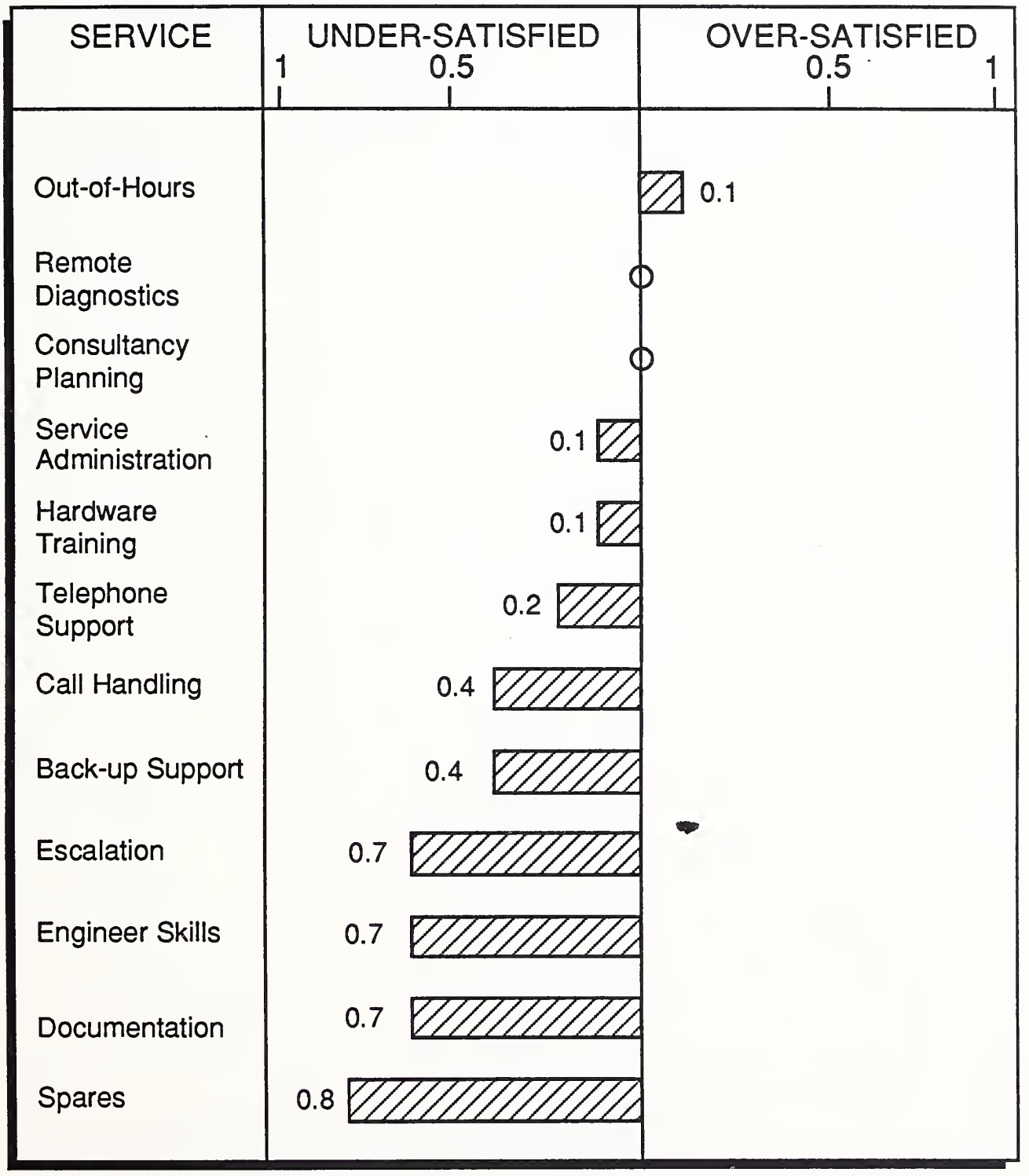
C

Satisfaction with Hardware Services

The degree of satisfaction with hardware services is shown in Exhibit III-3. About one-third of the surveyed services achieve satisfactory ratings, and about one-third approach the customer concern level. These items are the ones which will need most attention if overall customer satisfaction is to be increased.

EXHIBIT III-3

SATISFACTION WITH HARDWARE SERVICES
EUROPEAN AVERAGES



Sample Size: 1321

D

Satisfaction with Software Services

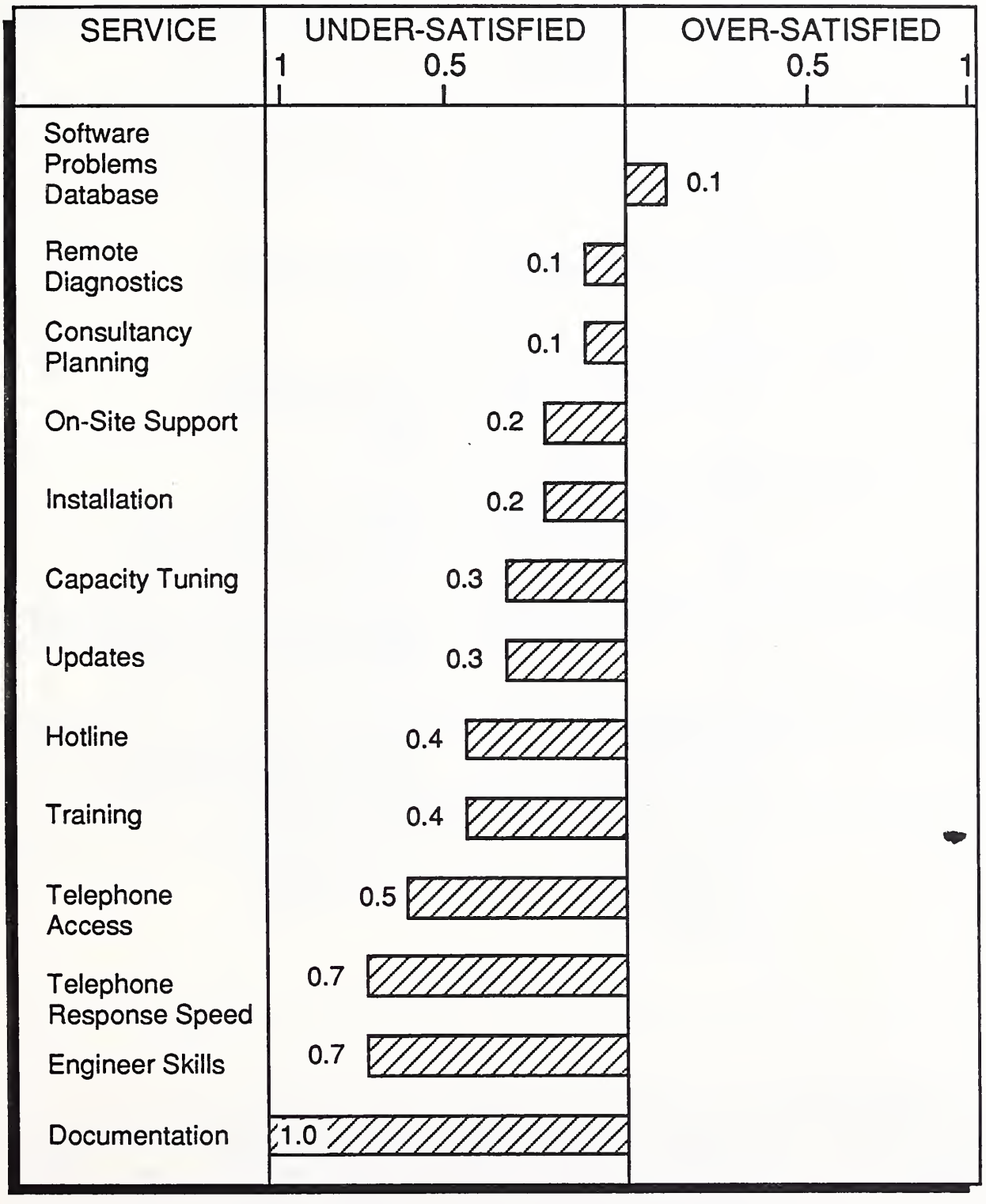
Only one of the 13 software service aspects surveyed was fully satisfied in the European market as a whole, but only three aspects approached the customer concern level. See Exhibit III-4.

Two of these, Engineer Skills and Documentation, are in the same position on the hardware satisfaction list, and need to be examined in order to decide what ought to be done to remedy the situation.

Again it is the least important (in the customers' eyes) aspects which are more fully satisfied, and the more important aspects that are not.

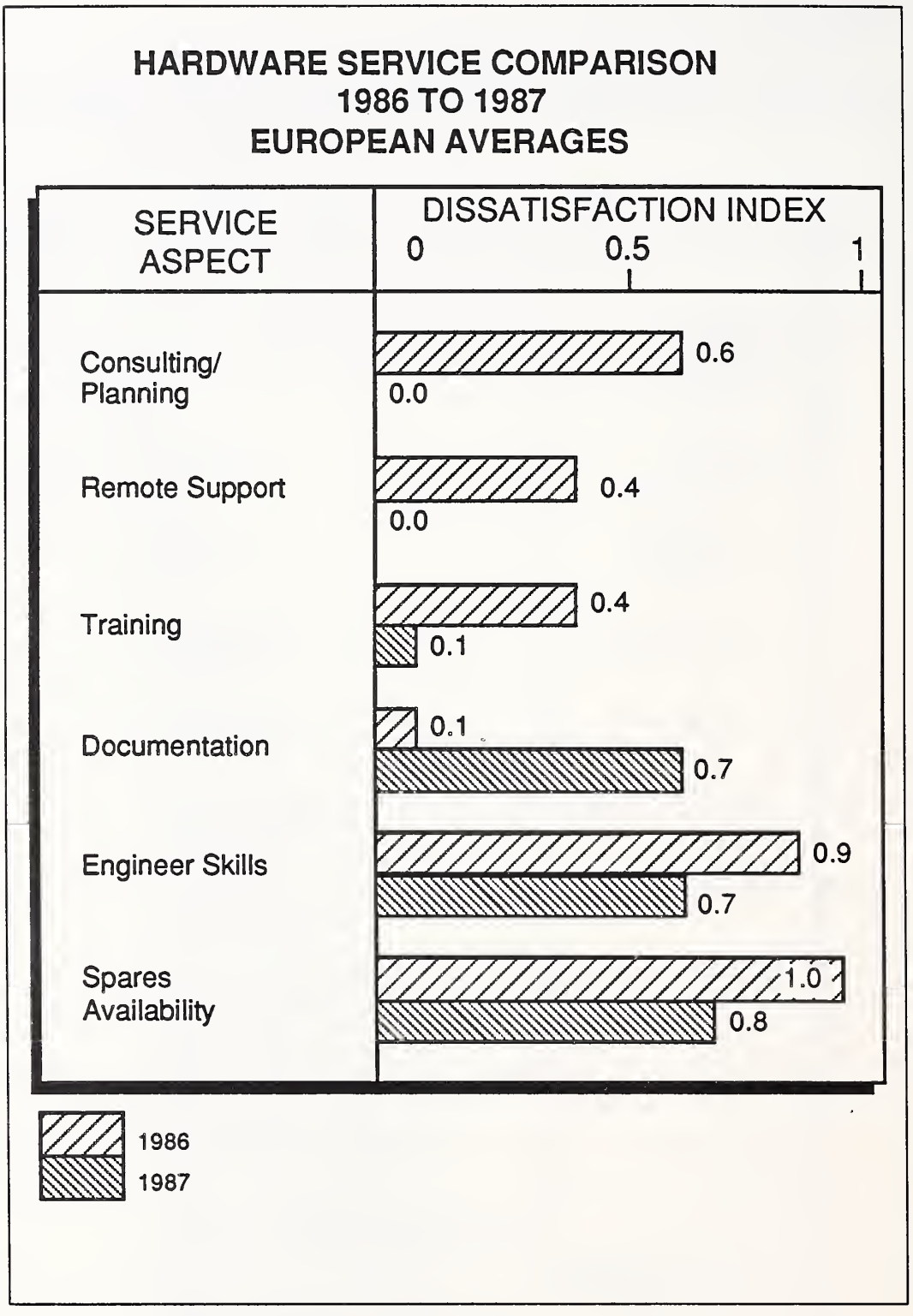
EXHIBIT III-4

SATISFACTION WITH SOFTWARE SERVICES
EUROPEAN AVERAGES



Sample Size: 1321

EXHIBIT III-5

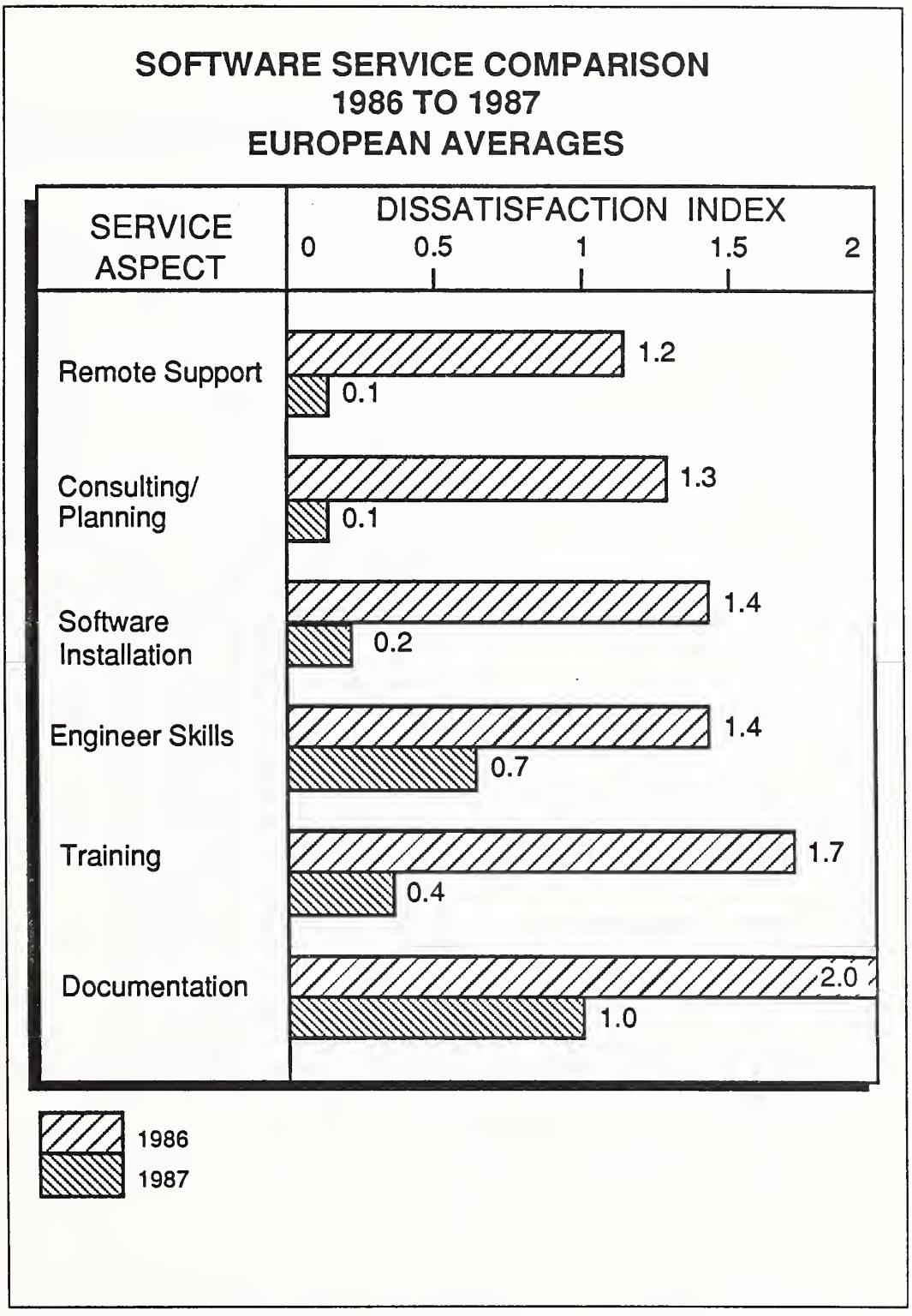


E

Hardware Service Comparisons, 1986 to 1987

Among the six service aspects compared (see Exhibit III-5), there appear major improvements in three, with only one aspect, 'Documentation', showing a serious decline in satisfaction (six times worse). The three aspects of customer service showing most improvement were, 'Consulting/Planning,' 'Remote Support' and 'Training.'

EXHIBIT III-6

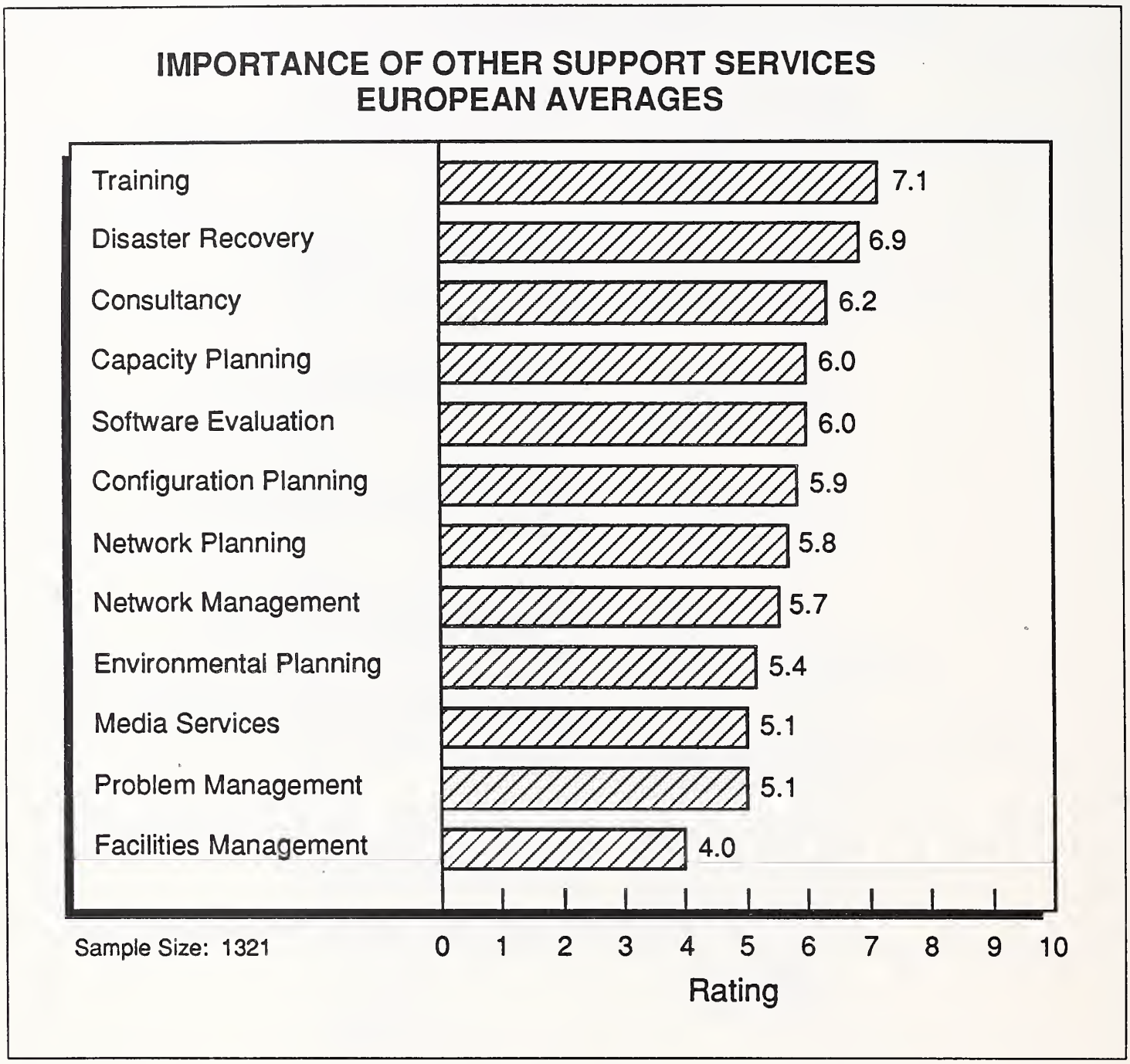


F

Software Service Comparisons, 1986 to 1987

The comparison of software service aspects, see Exhibit III-6, shows an even more dramatic improvement in the levels of satisfaction than with hardware service. Improvement was indicated in each one of the six aspects measured. All of these have reduced the level of dissatisfaction below the concern level, with the exception of Documentation.

EXHIBIT III-7

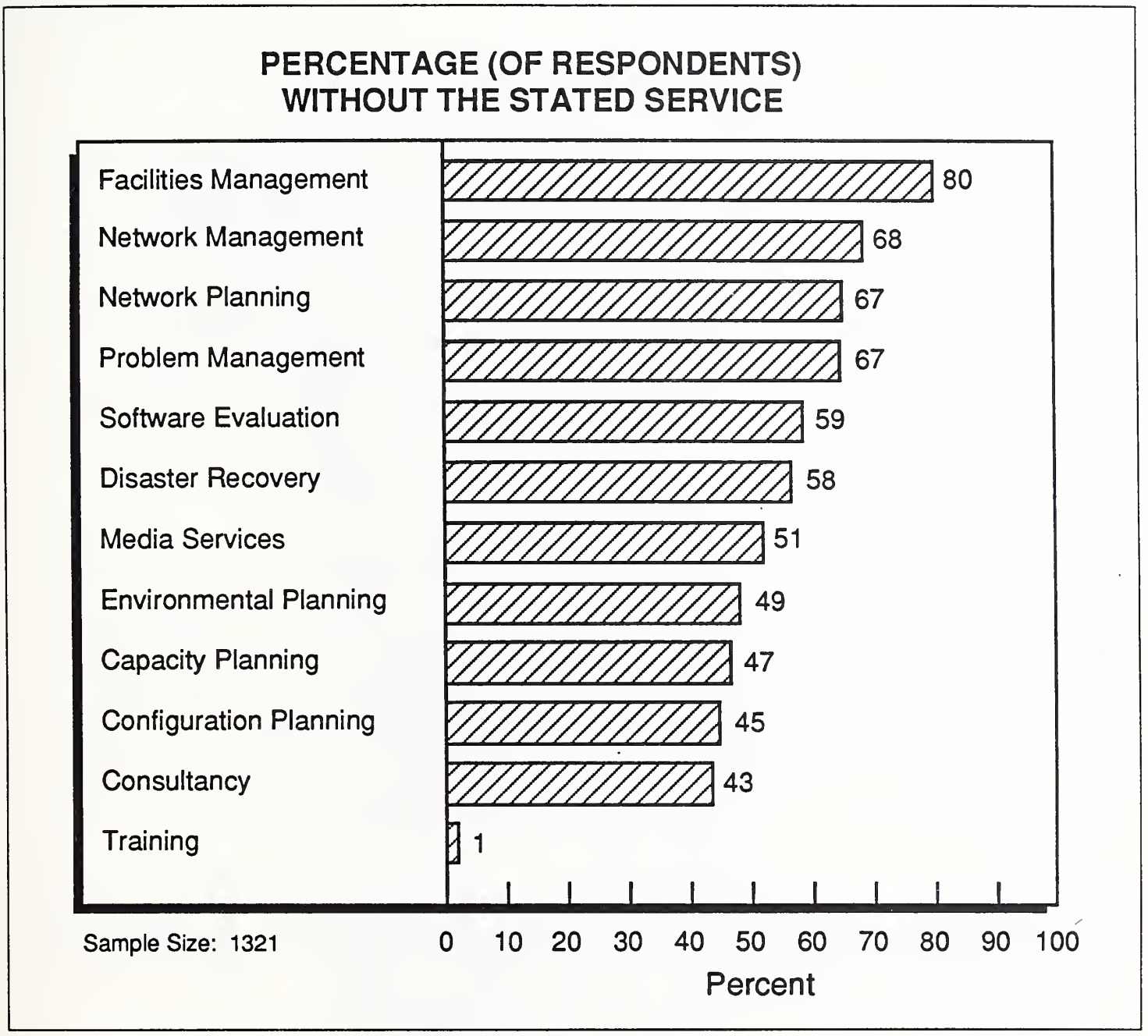


G

Importance of Other Support Services

A combination of the other hardware and software services with the highest importance ratings are listed in Exhibit III-7. In most cases the level of importance attached to these services by the customer would not justify the setting up of a new facility. This aspect is explored in some detail in the following sections.

EXHIBIT III-8



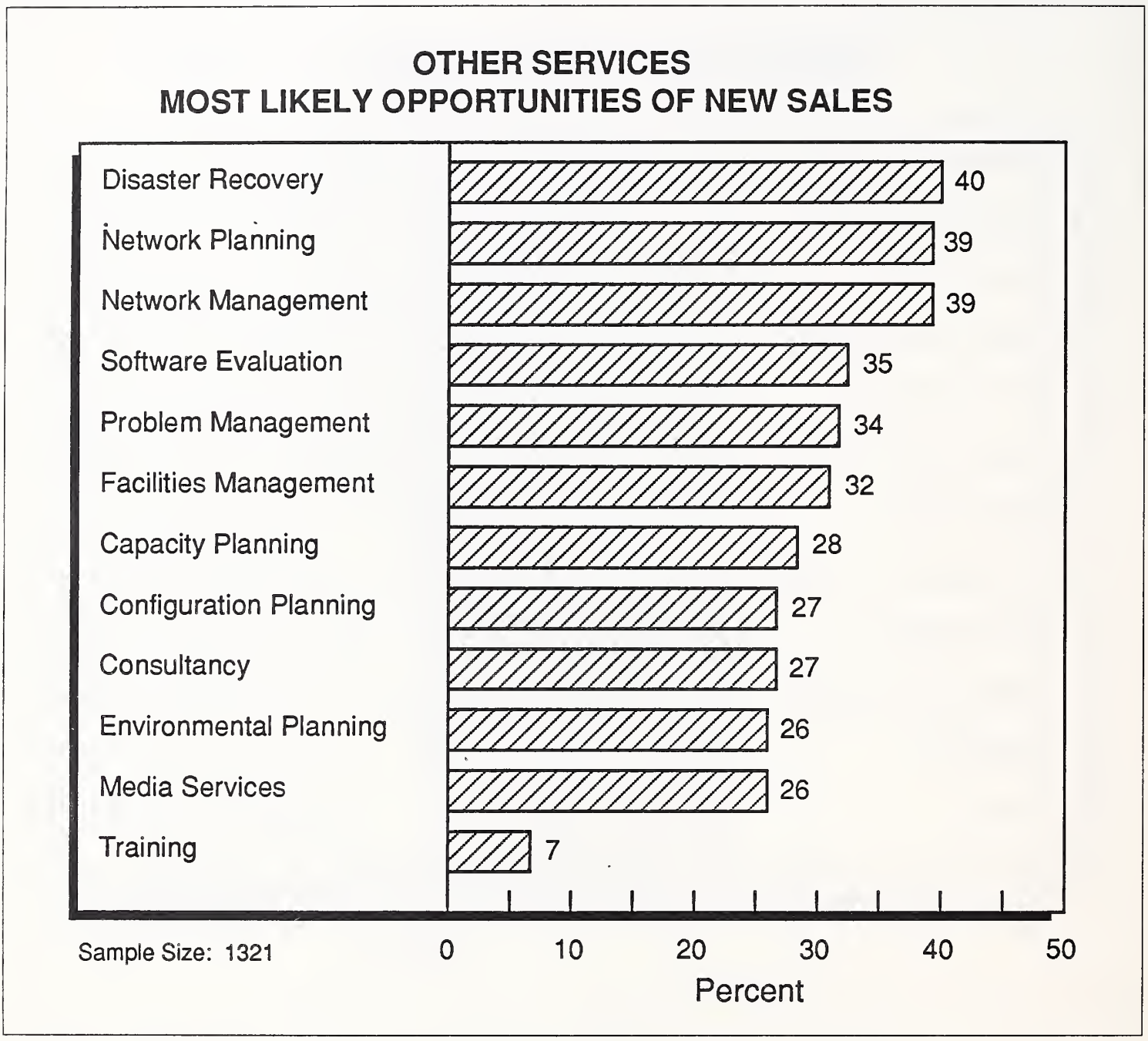
H

Customers without Stated Services

Exhibit III-7 rated importance levels both for customers with and without the service in question. In Exhibit III-8 the various services are listed in accordance with the percentage of customers without the service. Interestingly, this tends to give converse results to those shown in the previous exhibit.

It is the view of INPUT that the biggest percentage of customers without represents the biggest opportunity—the converse argument would be that 'if they don't have it then they don't want it'.

EXHIBIT III-9



I

Other Services—Most Likely Opportunities

Multiplying the customer rating for importance by the percentage of customers not having the service, and adjusting this to produce an index on a scale of 0-100, creates a ranking of services by the most likely sales opportunities. This is shown as Exhibit III-9. It can be seen that even the most likely new service opportunities do not achieve the 50% level of interest. Some caution must be exercised in the interpretation of these figures by companies already providing the service. For instance, with training, one can continue to increase sales for an existing service to existing customers.

EXHIBIT III-10

OVERALL HARDWARE SERVICE IMPORTANCE

COUNTRY	IMPORTANCE	RELATIVE ORDER	
		HARDWARE	SOFTWARE
France	7.9	1	2
Sweden	7.8	2	5
Belgium	7.7	3	4
Holland	7.7	3	2
U.K.	7.6	5	6
Italy	7.6	5	1
Denmark	7.5	7	8
Norway	7.6	8	9
Germany	7.2	9	6

Sample Size: 1321

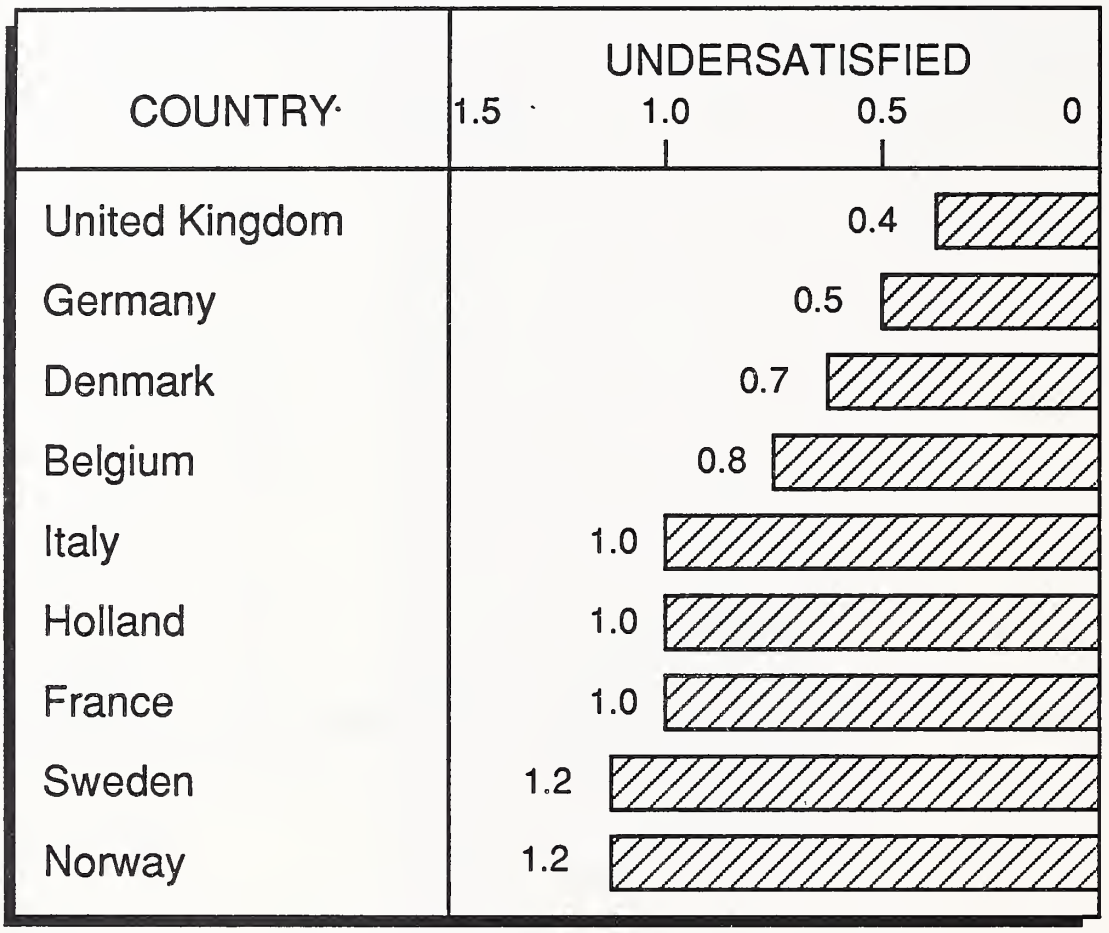
J

Overall Hardware Service Importance

Looking at the overall 'package' of service aspects surveyed, the mean of all the aspect ratings for each country is shown in Exhibit III-10. In addition, the relative software order (see Exhibit III-15) is put alongside in order to give some quick impression of the differences. It should also be noted that importance tends to be inversely related to satisfaction.

EXHIBIT III-11

OVERALL HARDWARE SERVICE SATISFACTION INDEX



A figure of 1 would indicate customer concern, and 2 would indicate real dissatisfaction.

Sample Size: 1321

K

Overall Hardware Service Satisfaction

As can be seen from Exhibit III-11, the least undersatisfied user communities appear to lie within the United Kingdom and Germany. In contrast, the geographical sector with the greatest degree of undersatisfaction appears to be Scandinavia, with the exception of Denmark. Of the largest European countries, and well developed computer markets, France stands out as having a relatively high level of user undersatisfaction with service.

EXHIBIT III-12

HARDWARE SATISFACTION TRENDS 1986-1987

COUNTRY	1987			1986			RELATIVE IMPORTANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
Belgium	8.8	8.2	0.6	7.8	7.7	0.1	worse
Denmark	9.0	9.0	-	-	-	-	-
France	9.6	8.3	1.3	8.2	8.0	0.2	worse
Germany	9.2	8.6	0.6	9.2	8.2	1.0	better
Holland	8.9	8.0	0.9	8.4	7.6	0.8	-
Italy	9.0	8.1	0.9	8.7	7.7	1.0	-
Norway	9.3	7.7	1.6	8.6	7.2	1.4	-
Sweden	9.4	8.3	1.1	8.1	7.6	0.5	worse
United Kingdom	9.0	8.0	1.0	9.2	8.2	1.0	-
Average	9.1	8.2	0.9	8.5	7.8	0.7	-
Responses	1321	1321	-	754	754	-	-
Std. Dev.	1.24	1.49	-	-	-	-	-
Std. Error	0.03	0.04	-	0.1	0.1	-	-

L

Hardware Satisfaction Trends, 1986 to 1987

Exhibit III-12 provides a comparison of overall hardware satisfaction trends between INPUT's 1986 and 1987 survey results. (No comparative statistics are available for Denmark, as this country was not included in the 1986 survey.) It should be noted that the only country in which the customer satisfaction ratings improved was Germany, which already had one of the best ratings. Interestingly, the country with the worst customer ratings in 1986, Norway, indicated a marginally worse rating in 1987.

EXHIBIT III-13

HARDWARE RESPONSE/REPAIR TIMES COUNTRY COMPARISON

COUNTRY	RESPONSE TIME (HR)			REPAIR TIME (HR)			1986		RELATIVE PERFOR-MANCE
	ACC	EXP	Δ	ACC	EXP	Δ	RESP	REP	
Belgium	2.6	2.5	(0.1)	3.1	3.6	0.5	2.6	2.1	worse
Denmark	2.5	2.1	(0.4)	4.0	3.3	(0.7)	-	-	-
France	4.3	4.4	0.1	4.9	7.0	2.1	2.7	3.0	worse
Germany	2.8	3.0	0.2	3.9	4.5	0.6	1.7	2.1	worse
Holland	2.8	2.7	0.1	3.3	3.5	0.2	2.9	2.5	worse
Italy	3.8	4.6	0.8	4.0	4.2	0.2	4.7	2.8	worse
Norway	2.4	2.7	0.3	3.0	3.4	0.4	2.8	2.8	worse
Sweden	2.9	3.0	0.1	5.2	4.4	(0.8)	3.9	2.2	worse
United Kingdom	3.8	4.1	0.3	3.5	4.1	0.6	2.9	2.1	worse
Total/Average	3.4	3.7	0.3	3.9	4.6	0.7	-	-	-

( )= Over-Satisfied
ACC = Acceptable
EXP = Experienced
RESP = Response Experienced (HR)
REP = Repair Experienced (HR)

Sample Size: 1321

M

Hardware Response/ Repair Times— Country Comparison

Comparisons of reported response and repair times between those shown from INPUT's 1986 and 1987 user surveys are presented in Exhibit III-13. This is an area of customer service for which a high importance rating indicated and thus due attention should be paid to methods of reducing the overall times.

Exhibit III-13 however indicates that the 1987 picture is worse than that which emerged from the 1986 survey. The French user base shows the worst statistics with a total response and repair time of 11.4 hours (in comparison to a 1986 statistic of 5.7 hours). The best served market appears to be Denmark with a total response and repair time of 5.4 hours.

EXHIBIT III-14

SYSTEM AVAILABILITY

COUNTRY	1987			BREAKS/ YEAR		CAUSE OF BREAK (Percent)			
						1987		1986	
	IMP	SAT	Δ	1987	1986	HW	SW	HW	SW
Belgium	9.1	8.7	0.4	2.7	1.3	49	51	76	24
Denmark	9.0	9.0	-	2.9	-	57	43	-	-
France	9.5	8.4	1.1	3.0	0.6	62	38	88	12
Germany	9.4	9.0	0.4	1.5	2.3	64	36	89	11
Holland	9.2	8.5	0.7	3.6	1.3	56	44	84	16
Italy	9.1	8.6	0.5	2.7	2.1	55	45	82	18
Norway	9.5	9.0	0.5	5.3	2.7	46	54	59	41
Sweden	9.4	8.6	0.8	2.7	2.3	47	53	63	37
United Kingdom	9.2	8.6	0.6	3.0	2.6	51	49	84	16
Total/Average	9.3	8.7	0.6	3.0	1.9	54	46	78	22

Notes: HW/SW Proportions Normalized

Sample Size: 1321

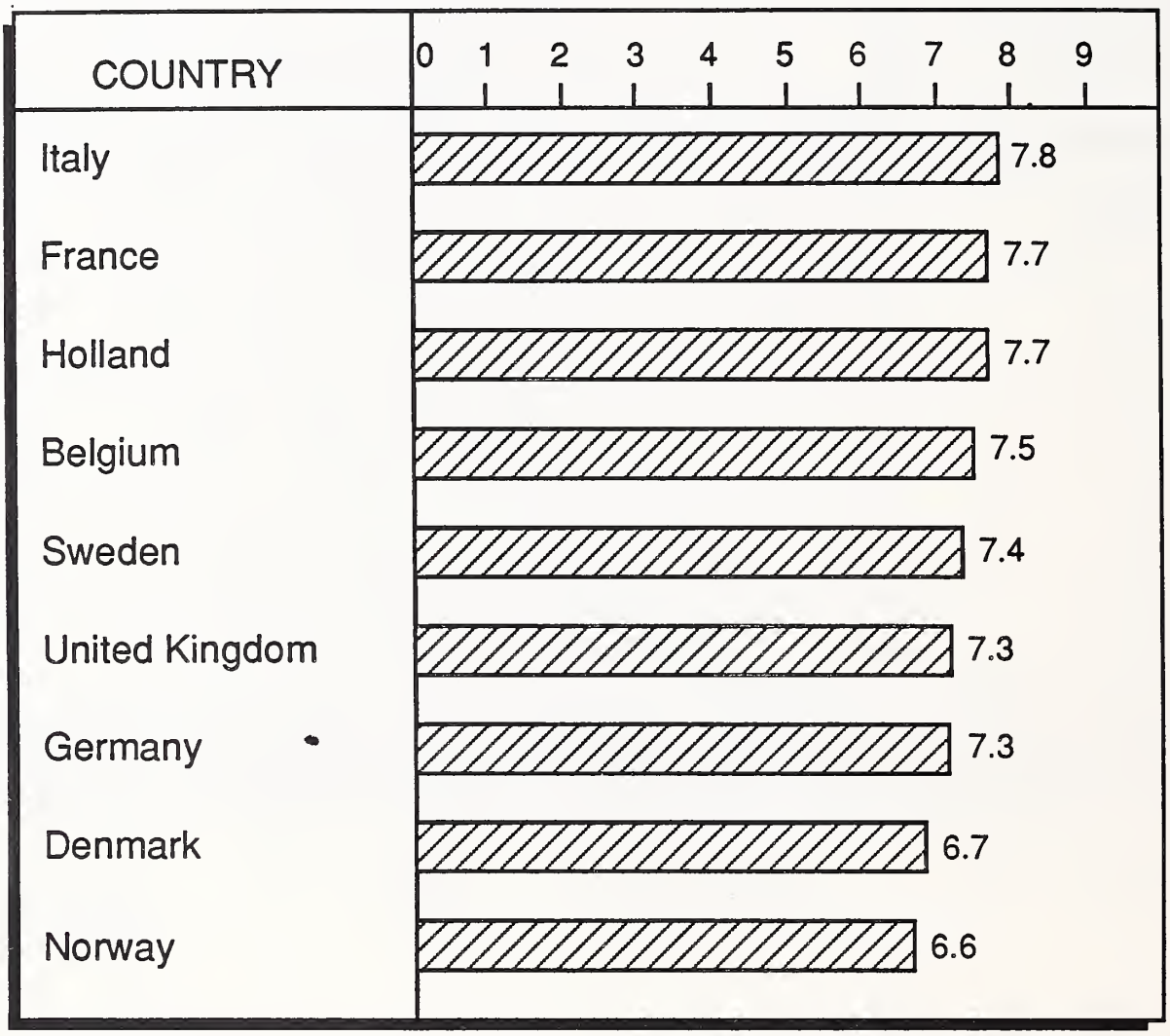
N

System Availability Trends, 1986 to 1987

System availability has one of the highest rating scores in all the surveyed countries, which is why attention needs to be paid to the fix time deterioration that is indicated by the statistics shown in Exhibit III-14. However, satisfaction levels are also high and only marginally of concern, on average, to the customer. Except for Germany, all the country user samples show a higher number of system breaks in 1987 than in 1986 - on average over 50% higher. There is also a big change in the nature of the break (between hardware and software), with this coming into balance against the 1986 ratio of 3.5:1.

EXHIBIT III-15

OVERALL SOFTWARE SERVICE IMPORTANCE RATINGS



Sample Size: 1321

O

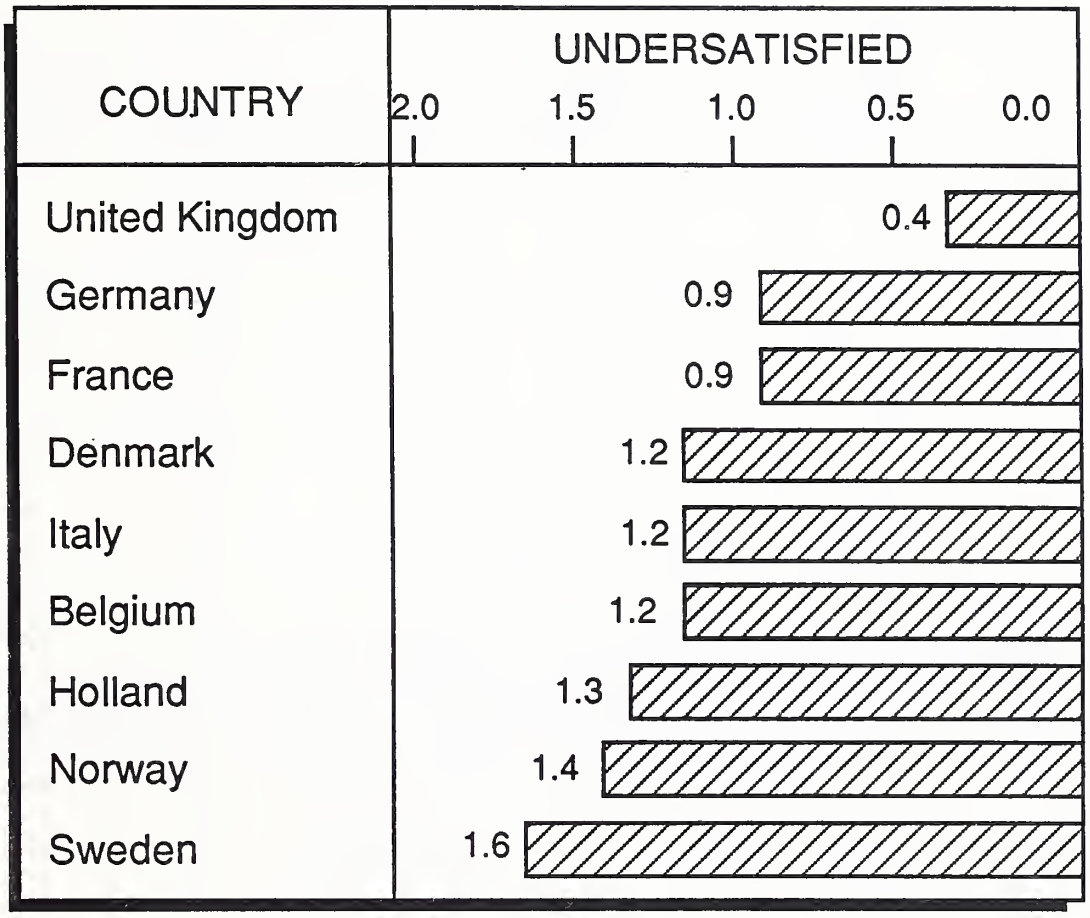
Software Service Importance Ratings

The countries that occupy the lowest three positions in terms of overall software service (Exhibit III-15), also occupy the lowest three positions in the equivalent listing of overall hardware service ratings (See Exhibit III-10). This might indicate that users in these countries view hardware and software support as being of an integral and equal importance.

Conversely, a different pattern is shown in such countries as Denmark, Italy and Holland. This might indicate that in general, users in these countries have relatively uncritical applications or a less critical approach to service.

EXHIBIT III-16

OVERALL SOFTWARE SERVICE SATISFACTION RATINGS



Sample Size: 1321

P

Overall Software Service Satisfaction Ratings	As with the listing for the overall hardware service ratings, UK and Germany are at the top with Norway and Sweden at or near the bottom of the table.

EXHIBIT III-17

SOFTWARE SUPPORT SATISFACTION TRENDS 1986-1987

COUNTRY	1987			TELE. FIX* (%)	1986			RELATIVE IMPORTANCE
	IMP	SAT	Δ		IMP	SAT	Δ	
Belgium	8.5	7.8	0.7	45	8.2	7.6	0.6	-
Denmark	8.7	7.8	0.9	55	-	-	-	-
France	8.3	8.3	0.0	45	8.2	7.7	0.5	better
Germany	9.0	8.3	0.7	51	9.6	9.3	0.3	worse
Holland	8.6	7.6	1.0	44	8.2	7.1	1.1	-
Italy	8.9	7.6	1.3	37	8.6	6.7	1.9	better
Norway	8.5	6.6	1.9	66	7.8	6.1	1.7	-
Sweden	9.3	7.4	1.9	51	8.0	6.9	1.1	worse
United Kingdom	8.8	7.7	1.1	59	8.7	7.4	1.3	-
Total/Average	8.7	7.8	0.9	51	8.4	7.4	1.0	
Responses	1313	1294			714	714		
Std. Dev.	1.69	1.71			-	-		
Std. Error	0.05	0.05			0.1	0.1		

*TELE. FIX= Telephone Fix

Sample Size: 1321

Q

Software Support Satisfaction Trends, 1986 to 1987

Exhibit III-17 provides statistics on software support satisfaction trends. The relative performance improvement is better for software services than for hardware, with two country samples (France & Italy) better, but another two (Germany & Sweden) worse.

It should also be noted that the importance rating attached to software service overall is some 4% lower than with hardware, (i.e., in the customer's view software service is less important than the hardware variety), this accords more or less with the information presented in Exhibit III-14 which shows software-attributable breaks some 8% below hardware breaks.

No data are available for Denmark in 1986, hence no comparisons can be made.

EXHIBIT III-18

SOFTWARE RESPONSE AND FIX TIMES TRENDS 1986 TO 1987

COUNTRY	RESPONSE TIME (HR)			FIX TIME (HR)			1986		RELATIVE PERFOR-MANCE
	ACC	EXP	Δ	ACC	EXP	Δ	RESP	FIX	
Belgium	8.0	12.9	4.9	11.4	12.0	0.6	15.2	38.8	much better
Denmark	6.9	10.4	3.5	11.3	17.4	6.1	-	-	-
France	5.6	6.4	0.8	11.1	20.3	9.2	2.9	4.6	much worse
Germany	9.8	13.4	3.6	15.9	17.5	1.6	8.7	16.4	much worse
Holland	12.1	21.4	9.3	19.0	31.6	12.6	13.3	17.8	much worse
Italy	12.8	32.2	19.4	13.2	35.0	21.8	33.3	30.4	worse
Norway	4.7	7.6	2.9	5.2	9.0	3.5	18.7	12.2	much better
Sweden	5.5	6.0	0.5	10.2	10.4	(0.2)	9.4	11.2	much better
United Kingdom	9.4	22.3	12.9	6.4	15.6	9.2	13.9	19.7	worse
Total/Average	8.8	17.0	8.2	11.0	19.6	8.6	-	-	-

Sample Size: 1321

ACC = Acceptable
EXP = Experienced
RESP = Response Time Experienced (HR)
FIX = Fix Time Experienced (HR)

R

Software Response and Fix Time Trends, 1986 to 1987

Exhibit III-18 provides statistics on software response and fix times. A mixed picture on software fixes emerge, with user samples indicating much better fix times, except for three (Holland, Germany, France) with much worse overall times. This raises the question as to whether, with the number of software and hardware breaks coming into balance, the customer will accept the much longer software phone-to-fix times. The Norwegian and Swedish user samples demonstrate some very respectable times at 16.6hr and 16.4hr respectively, while Italy has a figure of 67.2hr.

EXHIBIT III-19

HARDWARE MAINTENANCE SATISFACTION BY SYSTEM SIZE

COMPANY	LARGE		MEDIUM		SMALL		AVERAGE		
	IMP	SAT	IMP	SAT	IMP	SAT	IMP	SAT	Δ
Concurrent	-	-	8.6	8.2	8.1	8.6	8.5	8.3	0.2
Siemens	8.8	8.5	8.9	8.6	-	-	8.8	8.5	0.3
Olivetti	9.3	8.3	8.8	8.8	8.1	8.2	8.8	8.4	0.4
ITL	10.0	8.5	8.8	8.2	8.8	9.5	8.9	8.5	0.4
Philips	9.0	7.0	9.0	8.7	10.0	10.0	9.1	8.4	0.7
IBM	9.4	8.4	9.2	8.6	9.2	9.3	9.3	8.5	0.8
Nixdorf	8.0	6.0	8.9	8.4	9.2	8.0	9.0	8.1	0.9
HP	9.0	8.4	9.2	8.2	8.9	8.2	9.1	8.2	0.9
NCR	9.5	9.0	9.1	8.1	8.9	8.0	9.1	8.1	1.0
DEC	9.3	8.4	9.4	8.3	9.1	8.1	9.3	8.3	1.0
Honeywell Bull	9.6	8.3	9.1	8.3	8.6	7.2	9.2	8.2	1.0
Unisys	9.2	8.1	9.1	8.0	8.9	7.4	9.1	7.9	1.2
ICL	9.4	8.0	9.1	7.8	9.0	7.8	9.2	7.9	1.3
Wang	8.7	8.3	8.8	7.4	9.6	8.0	9.2	7.8	1.4
Average	9.3	8.2	9.1	8.2	9.0	8.1	9.1	8.2	0.9

Sample Size: 1321

S

Hardware Maintenance Satisfaction by System Size

In Exhibit III-19 the companies are listed in order of their satisfaction index and it can be seen that there is a seven-fold difference, in that index, between the top and bottom companies. However, figures up to one are not viewed as immediate problem areas. It should further be noted that it is the smaller companies that occupy the top positions, with one notable exception, this posing the question as to whether these companies, with a much smaller customer base, spend more time on customer satisfaction than the larger companies.

It is also interesting that the importance levels are consistently high throughout the companies, and through large, medium, and small systems. These statistics are extracted from a specific question on the total impression of importance and satisfaction with the overall service, and are not derived from an average for the hardware package as a whole, comprising questions on twelve aspects of hardware maintenance.

EXHIBIT III-20

SOFTWARE SUPPORT SATISFACTION BY SYSTEM SIZE

COMPANY	LARGE		MEDIUM		SMALL		AVERAGE		
	IMP	SAT	IMP	SAT	IMP	SAT	IMP	SAT	Δ
HP	8.7	7.9	8.6	8.4	8.6	8.1	8.7	8.3	0.4
Nixdorf	10.0	5.0	8.9	8.0	8.1	8.2	8.5	8.0	0.5
Philips	9.0	8.0	8.3	7.7	10.0	10.0	8.6	8.0	0.6
NCR	9.0	8.0	8.7	8.0	8.8	8.1	8.7	8.1	0.6
DEC	8.2	7.7	8.7	8.1	9.0	7.8	8.7	8.0	0.7
Siemens	8.7	8.2	8.8	8.0	-	-	8.8	8.1	0.7
ITL	9.5	8.5	8.2	7.6	9.5	7.8	8.6	7.7	0.9
Honeywell Bull	9.0	7.9	8.7	7.8	7.7	7.3	8.7	7.8	0.9
IBM	8.8	7.5	8.5	7.8	9.1	8.2	8.7	7.7	1.0
Unisys	8.8	7.6	8.7	7.7	8.4	7.6	8.7	7.7	1.0
ICL	9.0	7.8	8.8	7.7	8.3	8.2	8.8	7.8	1.0
Olivetti	8.7	7.6	8.6	7.6	9.4	7.4	8.8	7.6	1.2
Concurrent	-	-	8.6	7.2	9.0	7.4	8.7	7.3	1.4
Wang	8.3	7.3	8.7	7.3	9.3	7.6	9.0	7.4	1.6
Average	8.8	7.7	8.7	7.9	8.7	7.9	8.7	7.8	0.9

Sample Size: 1321

T

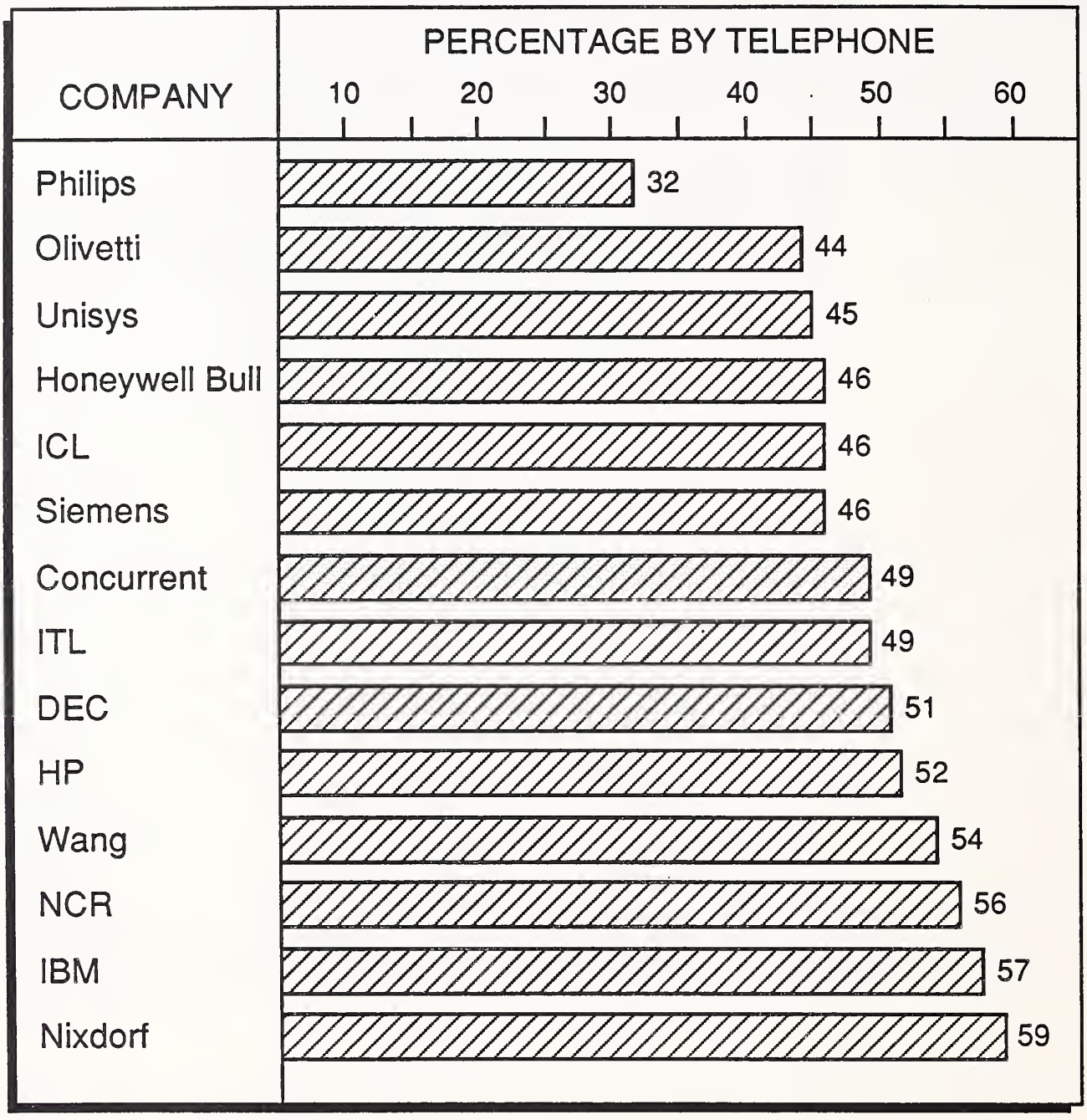
Software Support Satisfaction by System Size

In Exhibit III-20 the companies are listed in order of their satisfaction index and it can be seen that the order is quite different than the one pertaining to hardware. There is again a quite wide spread of indices, from 0.4 to 1.6. The importance and satisfaction levels are still high, but some 4% below the equivalent hardware figure and, once again, it is interesting that the importance levels are consistently high throughout the companies, and through large, medium, and small systems.

These statistics are extracted from a specific question on the total impression of importance and satisfaction with the overall service, and are not derived from an average for the software package as a whole, comprising questions on thirteen aspects of hardware maintenance.

EXHIBIT III-21

SOFTWARE FIXES BY TELEPHONE



Averages:		
	Large Systems	48.5%
	Medium Systems	51.7%
	Small Systems	50.9%
	Average	50.7%

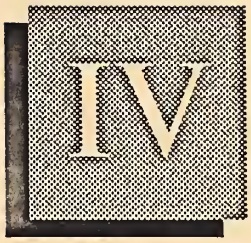
Sample Size: 1321

U

Software Fixes by Telephone

Exhibit III-21 provides a comparison between the different vendor user samples with respect to the percentage of software fixes handled over the telephone. There are wide differences in the reported percentages of software fixes between different companies and system sizes, and there is also a nearly two to one relationship between the telephone fix percentages at the top and bottom ends of the scale, Philips and Nixdorf, both being in the 'smaller' computer company class.

In general, one would expect the bigger companies with larger resources overall to put more emphasis on remote fixes, in order to cut down on the rather expensive site visits - but this is not borne out by the sample statistics. However it is noted that, among nearly all companies, there is a tendency towards a 50:50 split telephone-to-site fix with the combined average coming out at just above 50%.



The Western European Customer Service Market

The Western European Customer Service Market

A

Introduction

The Western European Customer Services Market was researched during 1987 from a number of different sources. These included INPUT field research, published accounts and other public domain company data and previous INPUT research.

Included in this year's report is not only an assessment of the current Customer Services Market but INPUT's forecast of its expected growth through 1992.

INPUT defines the Customer Services Market as consisting of all revenues generated through a vendor's customer service or field maintenance operation that can be grouped under the following headings:

- Hardware Service
- Software Service (System Software, not Applications Software)
- Professional Services (eg. Installation Planning, Configuration advice, etc.)
- Education and Training

INPUT's forecasts are shown in current dollars and thus include an allowance for inflation. Exhibit IV-1 provides economic statistics for 1987 for all the Western European country markets. It includes the U.S. dollar exchange rates for 1987, which have been used in calculating conversions from local currency, as well as the assumed rates of inflation for each individual country market.

It should be appreciated that the Customer Services Market is one part of the overall Computer Market. INPUT separately researches and provides forecast data on the information services market which is defined as consisting of four sectors:

EXHIBIT IV-1

COMPARATIVE ECONOMIC STATISTICS, 1987

	France	U.K.	West Germany	Italy	Holland	Belgium
Gross Domestic Product ($ Billions)	602	532	738	430	146	93
1987 GDP Growth (Percent)	+1.3%	+3.0%	+1.5%	+2.3%	+1.7%	+2.3%
U.S. Dollar Exchange Rates—Average Calendar 1987	6.12	0.63	1.84	1,316.4	2.07	38.4
1987 Inflation Rate (Percent)	+3.5%	+4.4%	+1.0%	+6.2%	+2.0%	+1.7%

Source: OECD
Swiss Bank
National Westminster Bank

Continued

- Processing and Network Services
- Software Products (Systems and Applications)
- Professional Services
- Standard Turnkey Systems

For further data on these markets, please refer to INPUT's report *The Western European Market for Information Services - Analysis and Forecasts 1987-1992* (December 1987).

EXHIBIT IV-1 (Cont'd.)

COMPARATIVE ECONOMIC STATISTICS, 1987

	Sweden	Denmark	Norway	Finland	Switzerland	Spain
Gross Domestic Product ($ Billions)	107	69	62	72	110	203
1987 GDP Growth (Percent)	+2.0%	+1.8%	+1.5%	+2.0%	+2.0%	+3.0%
U.S. Dollar Exchange Rates—Average Calendar 1987	6.85	4.49	6.85	4.49	1.53	126.9
1987 Inflation Rate (Percent)	+5.6%	+4.5%	+7.3%	+4.0%	+1.5%	+6.5%

Source: OECD
Swiss Bank
National Westminster Bank

Continued

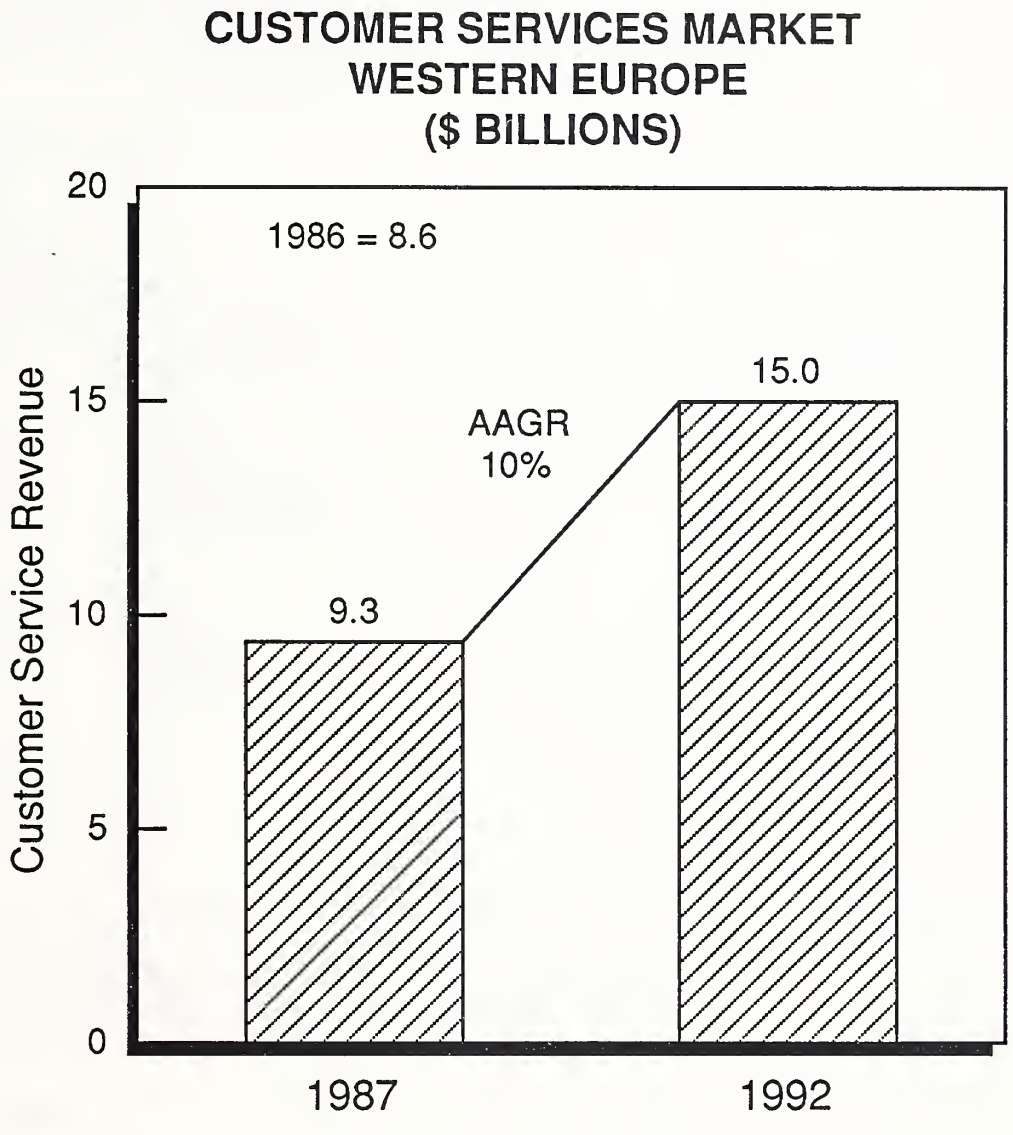
EXHIBIT IV-1 (Cont'd.)

COMPARATIVE ECONOMIC STATISTICS, 1987

	Portugal	Ireland	Austria	Total	U.S.A.
Gross Domestic Product ($ Billions)	25	21	76	3,286	4,062
1987 GDP Growth (Percent)	+3.6%	+2.5%	+2.4%	+2.6%	+2.5%
U.S. Dollar Exchange Rates—Average Calendar 1987	154.2	0.69	12.65	-	-
1987 Inflation Rate (Percent)	+10.5%	+3.5%	+2.5%	+3.9%	+3.8%

Source: OECD
Swiss Bank
National Westminster Bank

EXHIBIT IV-2



B

Market Forecast

Exhibit IV-2 shows INPUT's overall forecast for the Western European Customer Services market. It can be seen that the market in 1987 was assessed at $9.3 billion and is expected to reach $15 billion by calendar year 1992, representing an annual average growth rate (AAGR) of 10%.

EXHIBIT IV-3

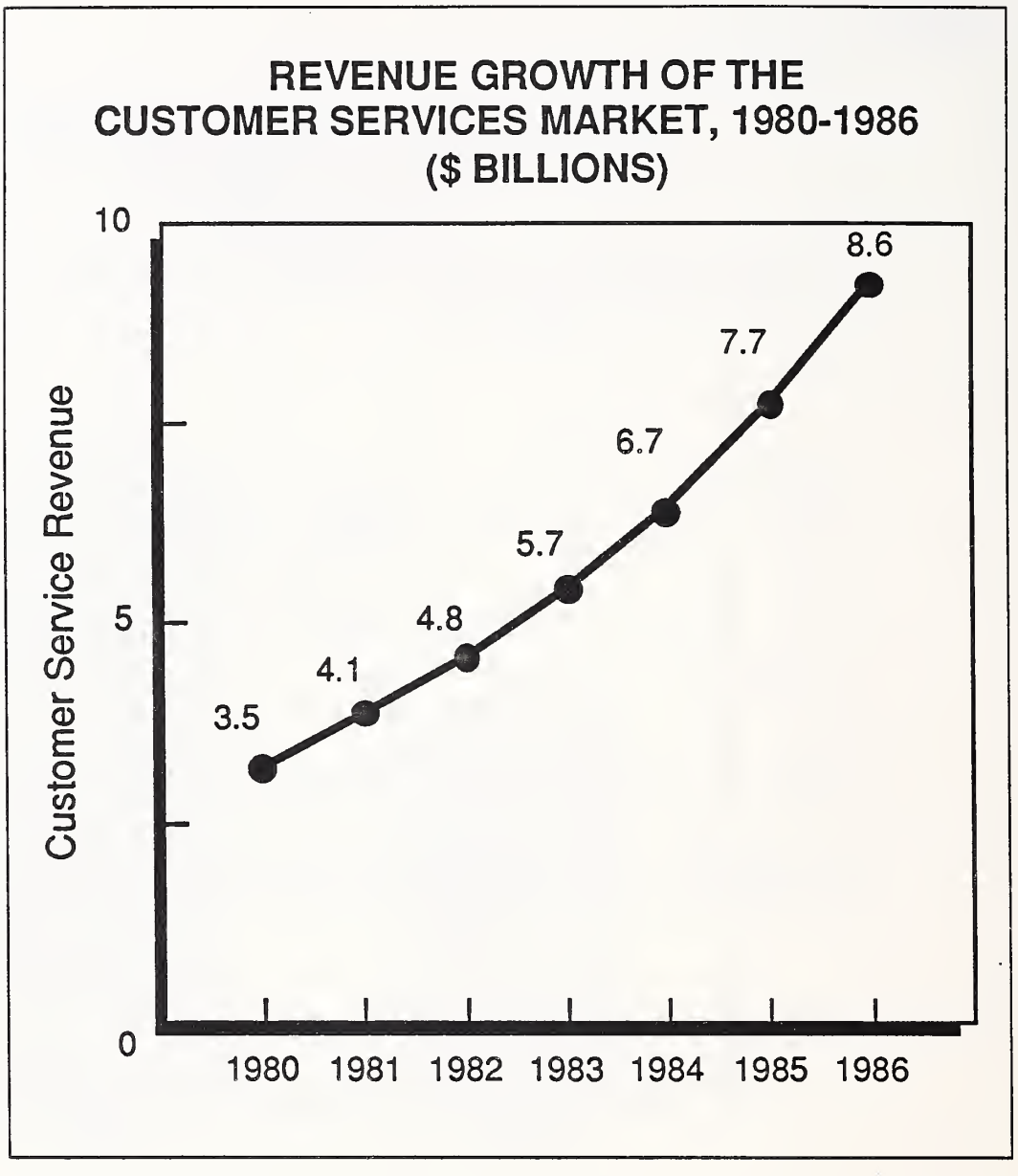
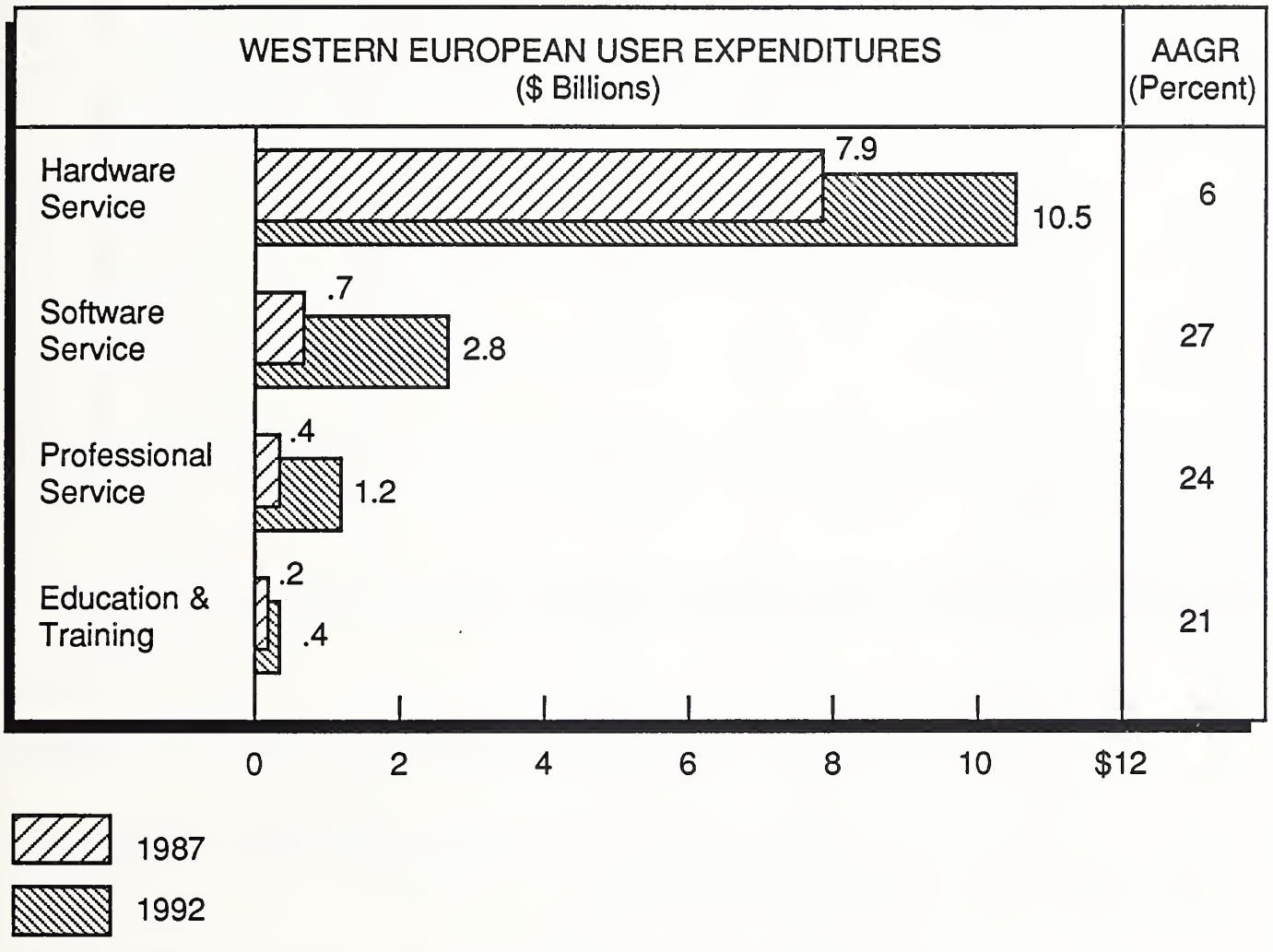


Exhibit IV-3 illustrates the historic trend in revenue growth for the Western European Customer Services market. Annual average growth was 16% for the six year period 1980-1986. However, the year-on-year pattern of growth shows some variation. Between 1980 and 1983 the AAGR was 18%, whereas between 1983 and 1986 growth had declined to an AAGR of 15%. The growth rate decline has continued with the 1985/86 rate measuring 12% and the estimated 1986/87 figure being 8%.

These growth rates reflect the general lowering of inflation during this timescale. As can be seen from Exhibit V-1, the forecast expectation of growth between 1987 and 1992 at 10% annum includes the expectation of inflation at a rate of just under 4% per annum.

EXHIBIT IV-4

CUSTOMER SERVICE MARKET— SERVICE SECTOR ANALYSIS



Exhibits IV-4 and IV-5, show INPUT's assessment of the Customer Services market analysed by the four major sectors of activity. It can readily be seen that of these four, hardware service is by far the most predominant accounting for some 85% of a total 1987 market of $9.3 billion. However, it is also that sector which is expected to grow at the lowest annual average rate. INPUT is forecasting that overall this market is growing at some 10% AAGR to reach around $15 billion by 1992. On this forecast, hardware service would represent some 70% of the total 1992 market, growing in real terms only some 3% above the expected rate of inflation.

The rapidly changing technology of the computer industry has, for some years now, raised the spectre of real declines in hardware service revenues. Previous INPUT annual surveys in Europe have commented on these trends.

EXHIBIT IV-5

MARKET GROWTH BY SERVICE SECTOR

YEAR	Hardware Service	Software Service	Professional Service	Education & Training	TOTAL
1986	7430	670	340	130	8570
1987	7860	860	425	155	9300
1988	8340	1100	530	190	10160
1989	8840	1400	670	230	11140
1992	10550	2810	1240	400	15000
AAGR (Percent)	6	27	24	21	10

Pessimism, particularly amongst vendors, with regard to future growth in customer services revenues was based on such factors as:

- Increasing installations of more reliable and possibly maintenance free, or fault tolerant equipment.
- Users taking less service coverage, and/or relying on alternative sources for post-sales support, such as independent maintenance companies or self service.
- A general belief that the previously monopolistic maintenance market had to undergo a correction owing to price, technological and economic factors.

Subsequently the customer services function has recognised the possibility for increasing revenues in other areas, for example software support and professional services.

Exhibits IV-4 and 5 clearly indicate the much higher growth anticipated in these other areas. In particular, the growth opportunity in the offering of professional services. The key challenge in this area will be the provision of trained professionals capable of meeting this opportunity.

EXHIBIT IV-6

COUNTRY MARKET ANALYSIS

COUNTRY	ESTIMATED 1987 CUSTOMER SERVICES MARKET	
	$ Millions	Millions Local Currency
West Germany	2115	3900
France	1600	9700
UK	1555	980
Italy	1150	1510000
Holland	480	990
Sweden	415	2840
Switzerland	375	575
Spain	340	43150
Belgium	315	12100
Austria	190	2400
Denmark	245	1100
Norway	245	1700
Finland	185	830
Rest of Europe +	190	-
TOTAL	9300	-

+ Republic of Ireland, Portugal, Greece and Turkey

C

Country Market Analysis

Exhibit IV-6 shows the analysis of the total 1987 Western European customer services market by individual country. It can be seen that West Germany is by far the largest individual country market, representing some 23% of the total market.

France and the United Kingdom each account for about 17%, with Italy in fourth place with just under 12%. The Scandinavian countries as a group represent very nearly 12% and Benelux just under 9% of the total market.

Service Performance in Europe

Service Performance in Europe

A

Belgium

1. Hardware Service Performance

Exhibits V-1 andV-2 show respectively hardware service importance and satisfaction rating comparisons between the 1986 and 1987 user samples and the 1987 statistics in the form of a scattergram. In two of the six service aspects surveyed last year there is a marked increase in customer satisfaction even though there is still room for further improvement. Differences in the satisfaction index of less than 0.2 are taken as insignificant in this report.

Compared with the population means there is more scatter, but the overall trend is the same and the average figure for the satisfaction index for the package of hardware services, matches that of the population mean exactly.

Documentation, Engineers Skills and Spares Availability are the least satisfied, and this also matches with the sample population as a whole.

2. Software Support Performance

Exhibits V-3 and V-4 set out the survey results on software support performance in an analogous fashion to that for hardware services. In five of the six support aspects surveyed last year there is a marked increase in customer satisfaction, even though there is still much room for improvement.

Compared with the population means there is a reasonably close correspondence, albeit that the satisfaction plot is further displaced from the importance line, indicating a higher overall level of dissatisfaction than that of the population—i.e, support to the general population has also improved.

EXHIBIT V-1

HARDWARE SERVICE SATISFACTION

BELGIUM

	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
Contract Administration	7.6	7.6	-				
Operator Training	7.6	7.5	0.1	7.6	7.0	0.6	Better
Spares Availability	8.8	8.2	0.6	9.1	8.3	0.8	-
Escalation Procedure	8.2	8.2	0.0				
Engineers Skills	9.0	8.4	0.6	9.0	8.2	0.8	-
Remote Diagnostics	7.0	7.3	(0.3)	6.7	7.1	(0.4)	-
Telephone Support	7.6	7.4	0.2				
Documentation	8.0	7.0	1.0	8.0	6.9	1.1	-
Planning/Consultancy	7.3	7.5	0.2	7.8	6.8	1.0	Better
Out-of-Hours	7.3	7.0	0.3				
Call Handling	8.4	7.9	0.5				
Back-Up Support	8.3	8.0	0.3				
Average	7.9	7.7	0.2				

Sample Size: 95

Documentation, Engineers Skills and Speed of Telephone Fix still feature among the worst satisfied, and this also matches with the sample population.

EXHIBIT V-2

IMPORTANCE OF HARDWARE SERVICES

BELGIUM

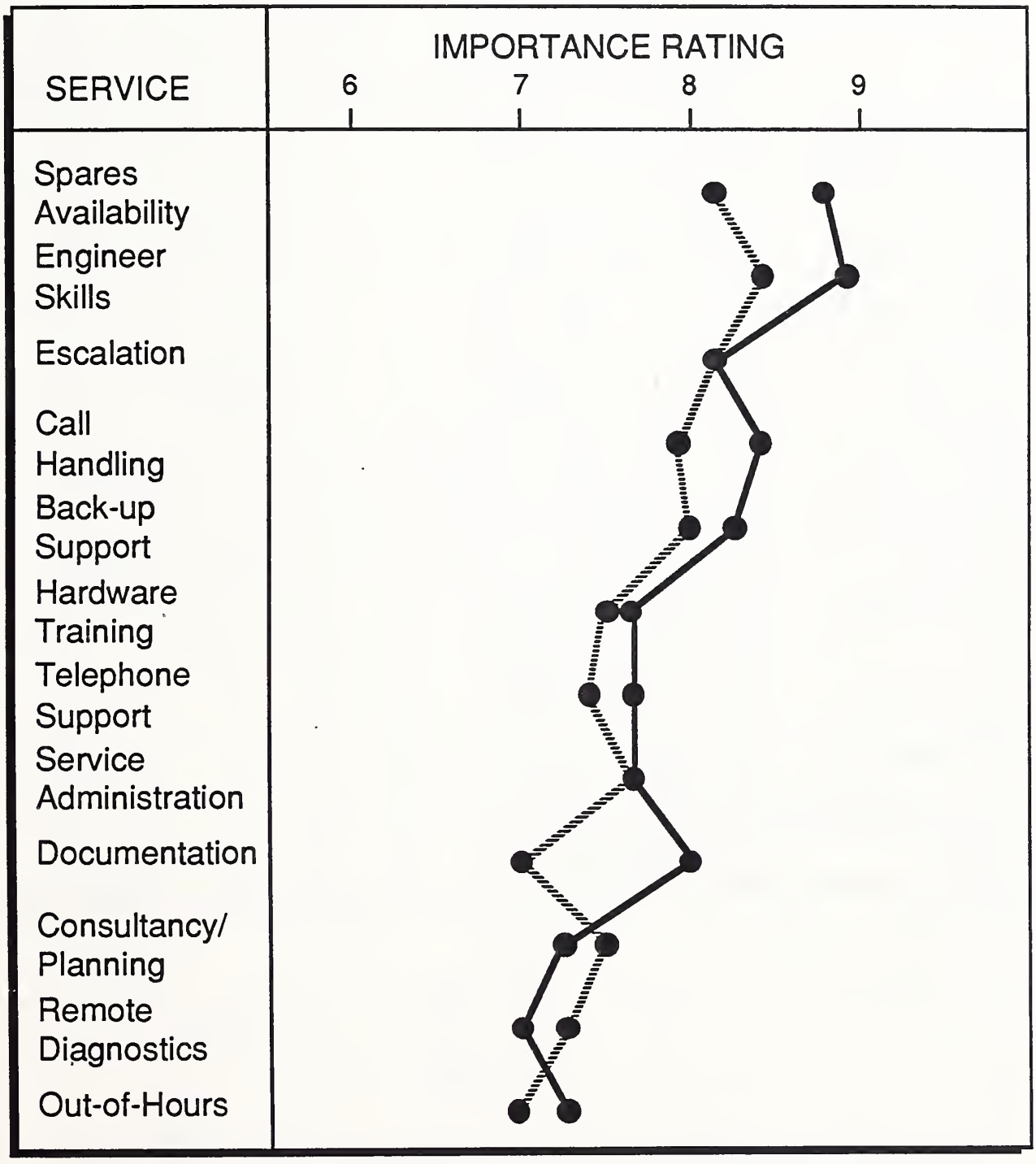


EXHIBIT V-3

SOFTWARE SUPPORT SATISFACTION

BELGIUM

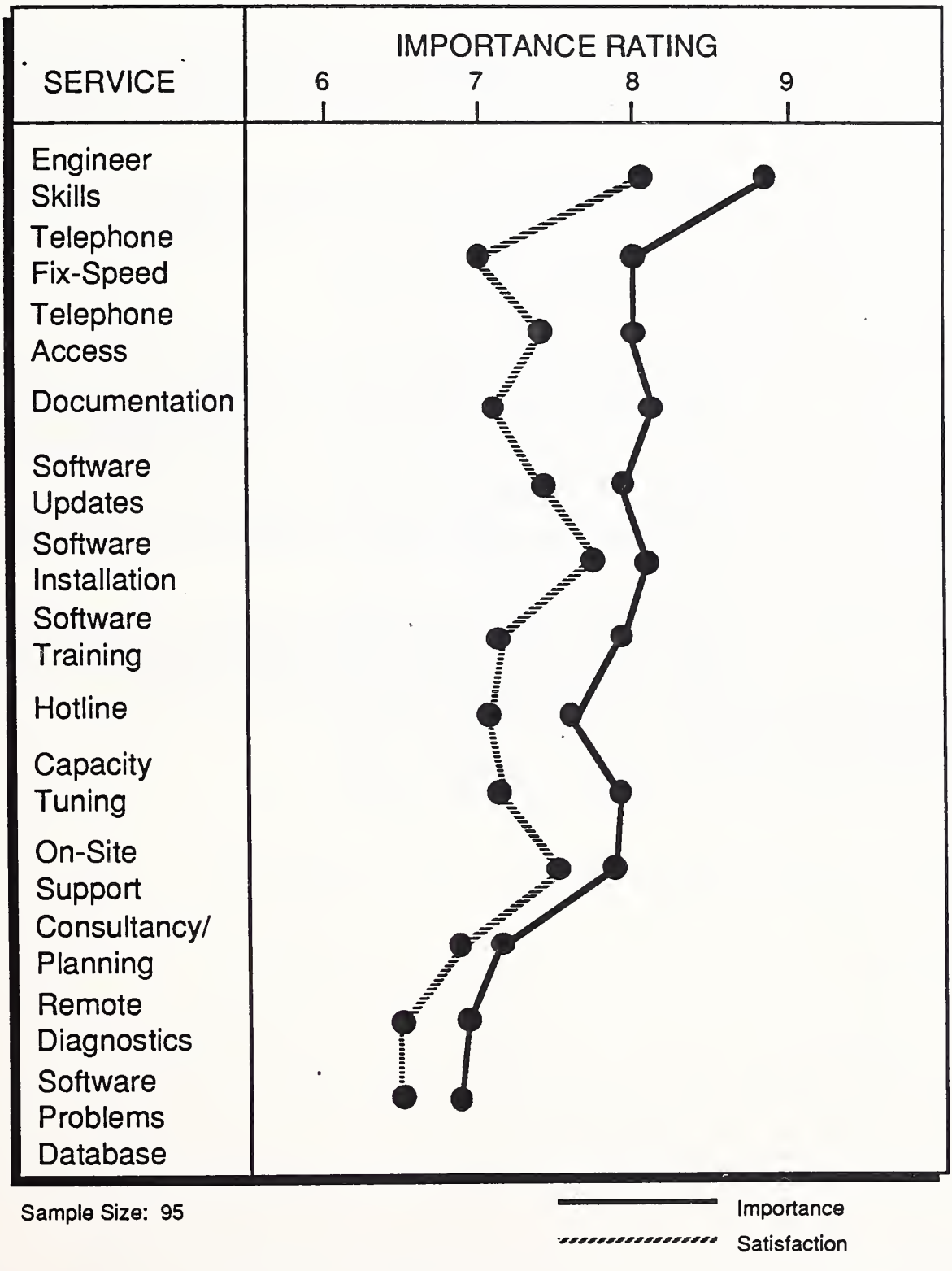
	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
Provision of Updates	7.9	7.4	0.5				
SW Installation	8.1	7.7	0.4	8.0	6.8	1.2	Better
Engineer Skills	8.8	8.1	0.7	8.8	7.5	1.3	Better
Telephone Support:							
Accessibility	8.0	7.4	0.6				
Fix Speed	8.0	7.0	1.0				
Documentation	8.2	7.1	1.1	9.0	6.9	2.1	Better
Planning/Consultancy	7.2	6.9	0.2	8.2	6.8	0.4	
SW Training	7.9	7.2	0.7	8.7	6.9	1.8	Better
On-Site Support	7.8	7.5	0.3				
Hotline	7.6	7.1	0.5				
Capacity Tuning	7.9	7.2	0.7				
Remote Diagnostics	6.9	6.5	0.4	8.0	6.8	1.2	Better
SW Problems Database	6.8	6.5	0.3				
Average	7.8	7.2	0.6				

Sample Size: 95

EXHIBIT V-4

IMPORTANCE OF SOFTWARE SERVICES

BELGIUM



Sample Size: 95

B

Denmark

1. Hardware Service Performance

Denmark did not form part of the INPUT 1986 survey and no comparisons with that year are therefore possible. The 1987 survey results are shown in Exhibits V-5 and V-6.

Compared with the population means there is more scatter, and the overall trend is exaggerated, but the average figure for the satisfaction index for the package of hardware services betters that of the population mean.

Only Spares Availability attains a significant value for dissatisfaction, with most of the aspects being over or fully satisfied.

2. Software Support Performance

The 1987 survey results are shown in Exhibit V-7 and V-8. Compared with the population means there is more scatter, and the overall trend is exaggerated, but the average figure for the satisfaction index for the package of software support, betters that of the sample population.

Engineers Skills and the Provision of Updates feature among the worst satisfied, with Documentation a close third, this not quite matching with the sample population.

An interesting feature in the Danish sample is the vast over-satisfaction with those aspects of support which imply remote support, namely Remote Diagnostics and a Software Problems database.

EXHIBIT V-5

HARDWARE SERVICE SATISFACTION

DENMARK

	1987		
	IMP	SAT	Δ
Contract Administration	7.7	8.2	(0.5)
Operator Training	8.1	7.8	0.3
Spares Availability	9.4	8.4	1.0
Escalation Procedure	8.6	8.2	0.4
Engineers Skills	9.2	8.8	0.4
Remote Diagnostics	7.1	8.8	(1.7)
Telephone Support	7.8	8.0	(0.2)
Documentation	8.1	7.9	0.2
Planning/Consultancy	7.8	8.2	(0.4)
Out-of-Hours	6.1	7.2	(1.1)
Call Handling	8.6	8.7	(0.1)
Back-Up Support	7.8	8.3	(0.5)
Average	8.0	8.2	(0.2)

Sample Size: 23

EXHIBIT V-6

IMPORTANCE OF HARDWARE SERVICES

DENMARK

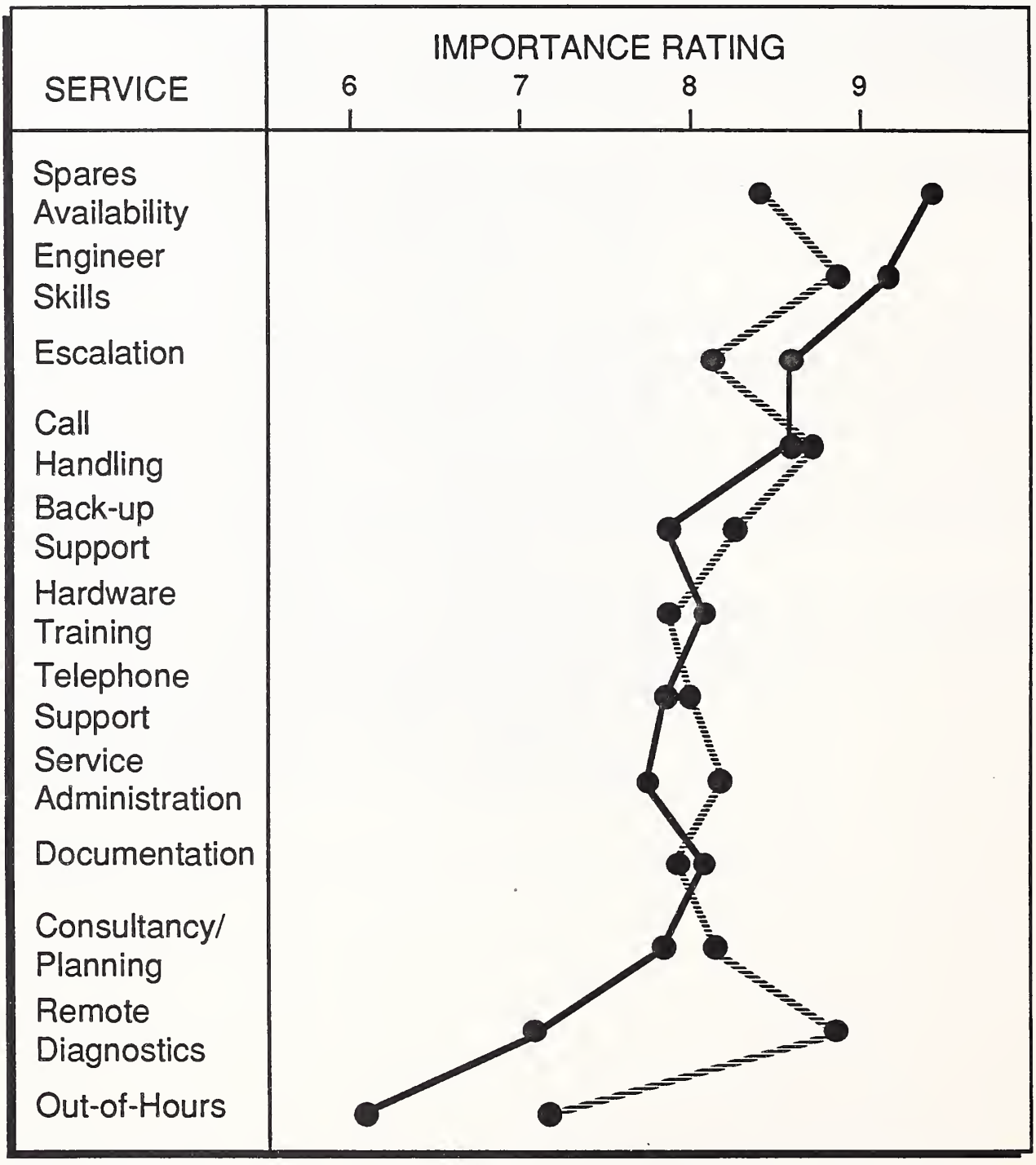


EXHIBIT V-7

SOFTWARE SUPPORT SATISFACTION

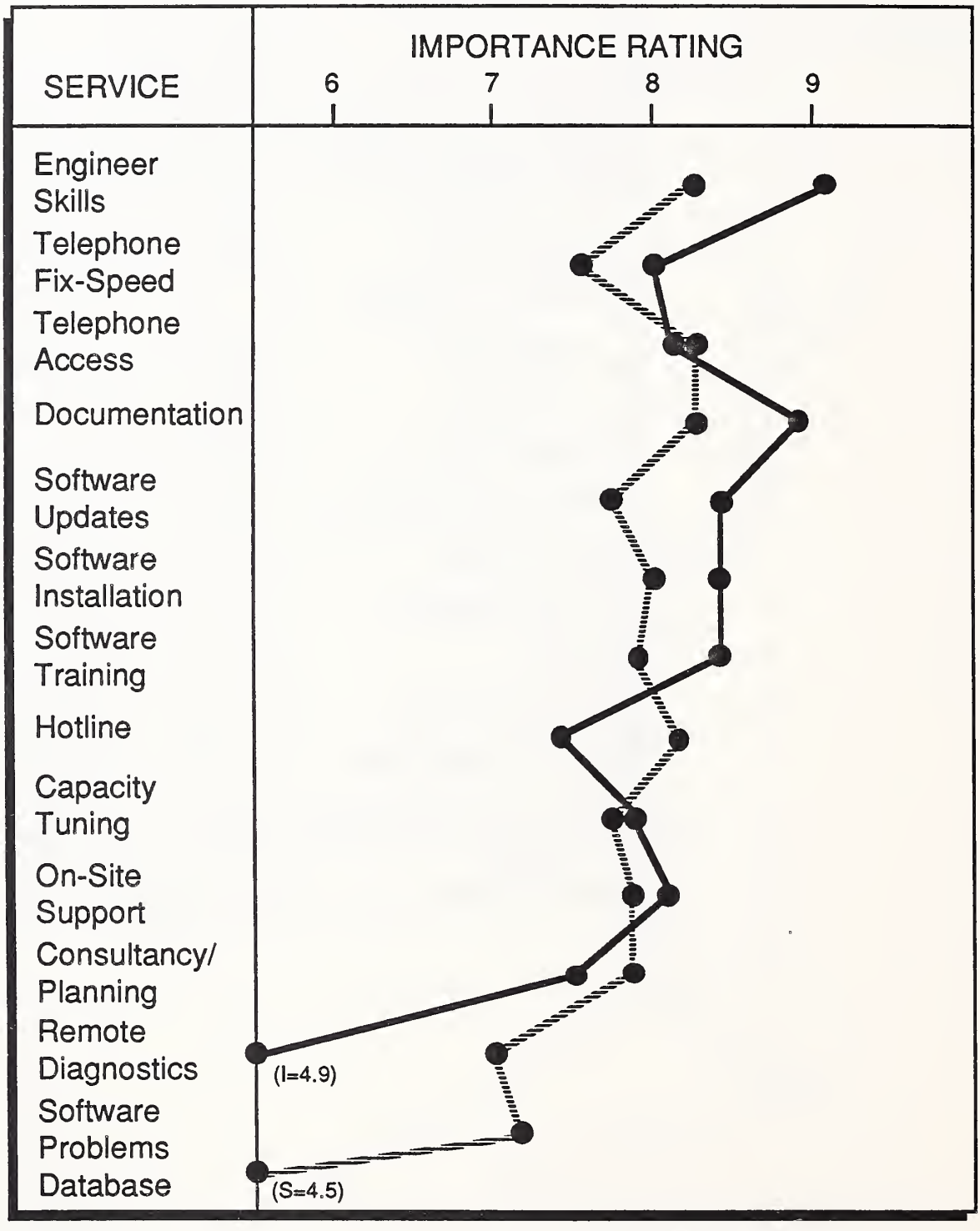
DENMARK

	1987		
	IMP	SAT	Δ
Provision of Updates	8.4	7.7	0.7
SW Installation	8.4	8.0	0.4
Engineer Skills	9.1	8.3	0.8
Telephone Support:			
Accessibility	8.2	8.3	(0.1)
Fix Speed	8.0	7.6	0.4
Documentation	8.9	8.3	0.6
Planning/Consultancy	7.5	7.8	(0.3)
SW Training	8.4	7.9	0.5
On-Site Support	8.1	7.8	0.3
Hotline	7.4	8.2	(0.8)
Capacity Tuning	7.8	7.7	0.1
Remote Diagnostics	4.9	7.0	(2.1)
SW Problems Database	4.5	7.2	(2.7)
Average	7.7	7.8	(0.1)

EXHIBIT V-8

IMPORTANCE OF SOFTWARE SERVICES

DENMARK



C

France

1. Hardware Service Performance

Exhibits V-9 and V-10 show the hardware service performance factors for the French sample. In four of the six service aspects surveyed last year there is a marked increase in customer satisfaction even though there is still ample room for further improvement. Differences in the satisfaction index of less than 0.2 are taken as insignificant in this report.

However, in Spares Availability the satisfaction index has deteriorated by a factor of four and this situation needs close attention.

Compared with the population means there is more scatter, the overall trend is exaggerated, and the average figure for the satisfaction index for the package of hardware services is four times worse than that of the population mean.

Documentation, Call Handling and Spares Availability are the worst satisfied, with Engineer Skills a close fourth; apart from Call handling this matches the sample population.

2. Software Support Performance

In four of the six support aspects surveyed last year there is a marked increase in customer satisfaction, even though there is still much room for improvement. See Exhibits V-11 and V-12.

Compared with the population means there is more scatter, the overall trend is exaggerated, and the average figure for the satisfaction index for the package of software support is twice as bad as that of the sample population.

Documentation, Engineer Skills with Accessibility and Speed of Telephone Support feature among the worst satisfied, and this also matches with the sample population.

EXHIBIT V-9

HARDWARE SERVICE SATISFACTION

FRANCE

	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
Contract Administration	8.5	7.7	0.8				
Operator Training	7.8	7.6	0.2	9.0	6.7	2.3	Better
Spares Availability	9.3	8.1	1.2	9.5	9.2	0.3	Worse
Escalation Procedure	8.4	7.7	0.7				
Engineer Skills	9.3	8.4	0.9	10.0	9.2	0.8	-
Remote Diagnostics	6.9	6.3	(0.6)	8.0	7.9	0.1	Better
Telephone Support	8.2	7.8	0.4				
Documentation	8.0	6.2	1.8	9.2	6.6	2.6	Better
Planning/Consultancy	7.4	7.2	0.2	8.1	6.9	1.2	Better
Out-of-Hours	5.3	5.2	0.1				
Call Handling	9.1	7.9	1.2				
Back-Up Support	8.4	7.8	0.6				
Average	8.1	7.3	0.8				

Sample Size: 226

EXHIBIT V-10

IMPORTANCE OF HARDWARE SERVICES

FRANCE

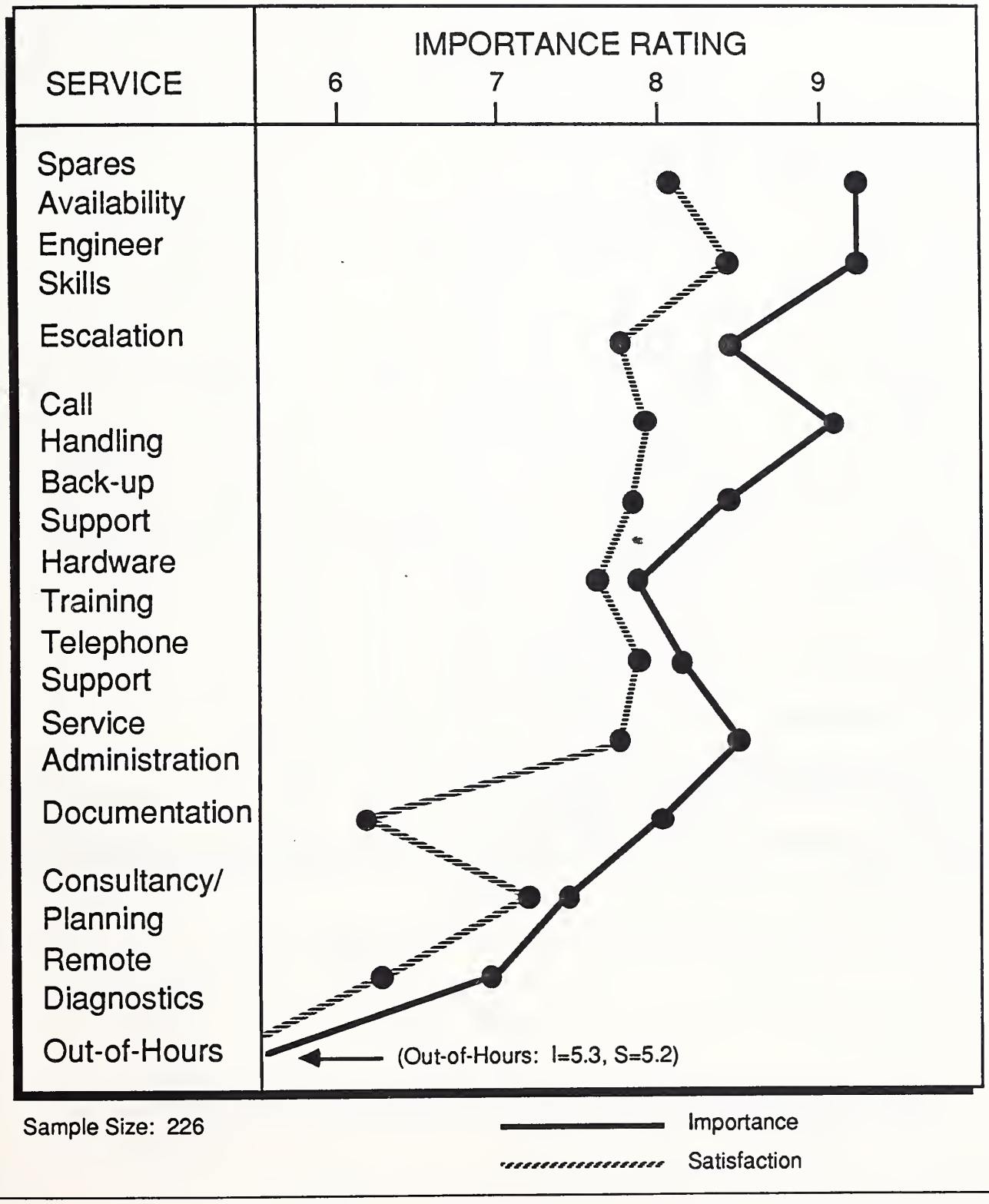


EXHIBIT V-11

SOFTWARE SUPPORT SATISFACTION

FRANCE

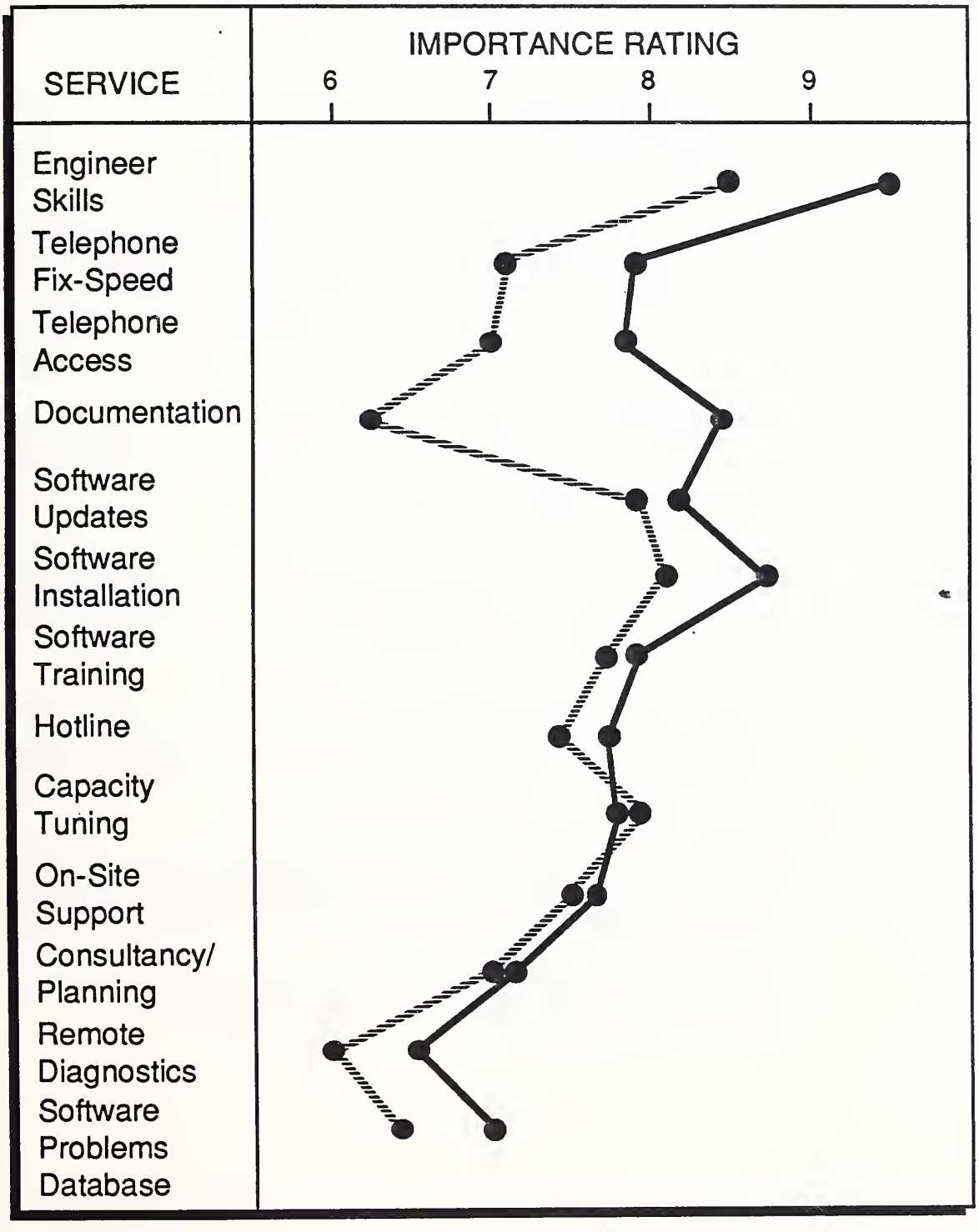
	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
Provision of Updates	8.2	7.9	0.3				
SW Installation	8.7	8.1	0.6	8.2	6.8	1.4	Better
Engineer Skills	9.5	8.5	1.0	9.8	8.7	1.1	
Telephone Support:							
Accessibility	7.8	7.0	0.8				
Fix Speed	7.9	7.1	0.8				
Documentation	8.4	6.3	2.1	9.6	6.5	3.1	Better
Planning/Consultancy	7.1	7.0	0.1	8.2	6.8	1.4	Better
SW Training	7.9	7.7	0.2	9.3	6.6	2.7	Better
On-Site Support	7.6	7.5	0.1				
Hotline	7.7	7.4	0.3				
Capacity Tuning	7.8	7.9	(0.1)				
Remote Diagnostics	6.5	6.0	0.5	8.6	8.1	0.5	
SW Problems Database	7.0	6.4	0.6				
Average	7.9	7.3	0.6				

Sample Size: 226

EXHIBIT V-12

IMPORTANCE OF SOFTWARE SERVICES

FRANCE



Sample Size: 226

D

Germany

1. Hardware Service Performance

In four of the six service aspects surveyed last year there is a marked increase in customer satisfaction even though there is still room for further improvement. Differences in the satisfaction index of less than 0.2 are taken as insignificant in this report. Exhibits V-13 and V-14 show the hardware service performance statistics for Germany.

Only one area indicates a serious problem, the satisfaction index for Documentation has deteriorated by nearly three times and needs close scrutiny to determine the cause.

The scattergram shows a more tightly knit picture than the general population even though there is slightly more scatter: however, the overall trend is the same and the average figure for the satisfaction index for the package of hardware services, is very close to that of the sample population.

Engineer Skills and Spares Availability are the only other aspects which need real attention, and even these have a quite low dissatisfaction level.

2. Software Support Performance

In all of the six support aspects surveyed last year there is a marked increase in customer satisfaction, even though there is still much room for improvement. This is shown in Exhibit V-15.

Compared with the population means there is more scatter, see Exhibit V-16, and the overall trend is exaggerated. The average figure for the satisfaction index for the package of software support corresponds very well to that of the sample population.

As with Denmark, Remote Diagnostics and access to a Software Problems Database are given very low importance ratings. However, in the case of Germany, importance and satisfaction correspond very closely.

On-site Support, Documentation, and Software Training are the worst satisfied, quite different from the sample population.

EXHIBIT V-13

HARDWARE SERVICE SATISFACTION

GERMANY

	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
Contract Administration	7.3	7.5	(0.2)				
Operator Training	7.5	7.3	0.2	7.3	7.3	-	-
Spares Availability	8.3	7.8	0.5	9.3	8.0	1.3	Better
Escalation Procedure	7.6	7.2	0.4				
Engineer Skills	8.7	8.2	0.5	9.4	8.3	1.1	Better
Remote Diagnostics	6.4	6.5	(0.1)	9.2	8.2	1.0	Better
Telephone Support	7.1	7.2	(0.1)				
Documentation	7.3	6.9	0.4	5.7	6.4	(0.7)	Worse
Planning/Consultancy	7.1	6.9	0.2	7.9	7.3	0.6	Better
Out-of-Hours	6.6	6.6	-				
Call Handling	7.7	7.8	(0.1)				
Back-Up Support	7.5	7.3	0.2				
Average	7.4	7.3	0.1				

Sample Size: 223

EXHIBIT V-14

IMPORTANCE OF HARDWARE SERVICES

GERMANY

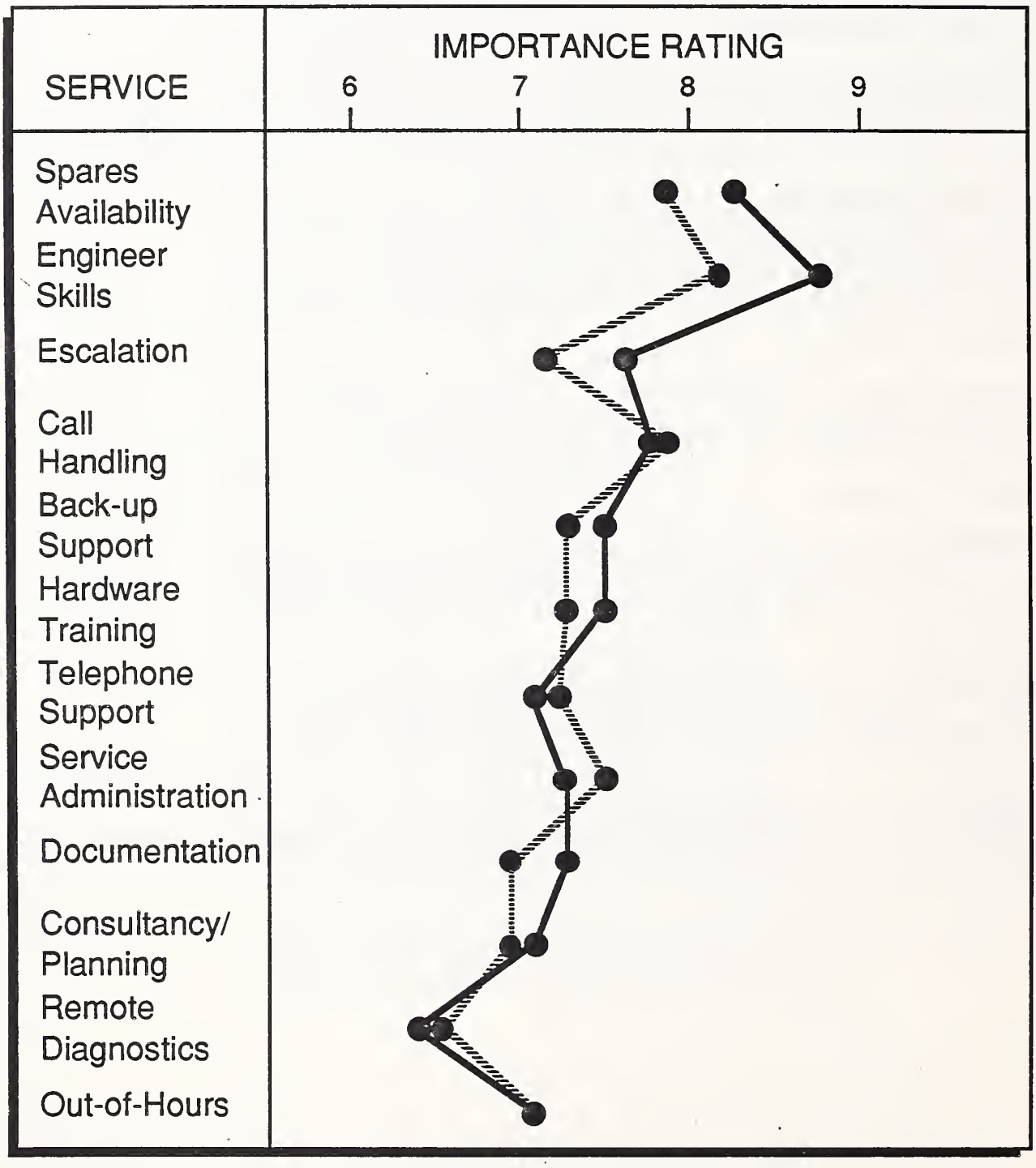


EXHIBIT V-15

SOFTWARE SUPPORT SATISFACTION

GERMANY

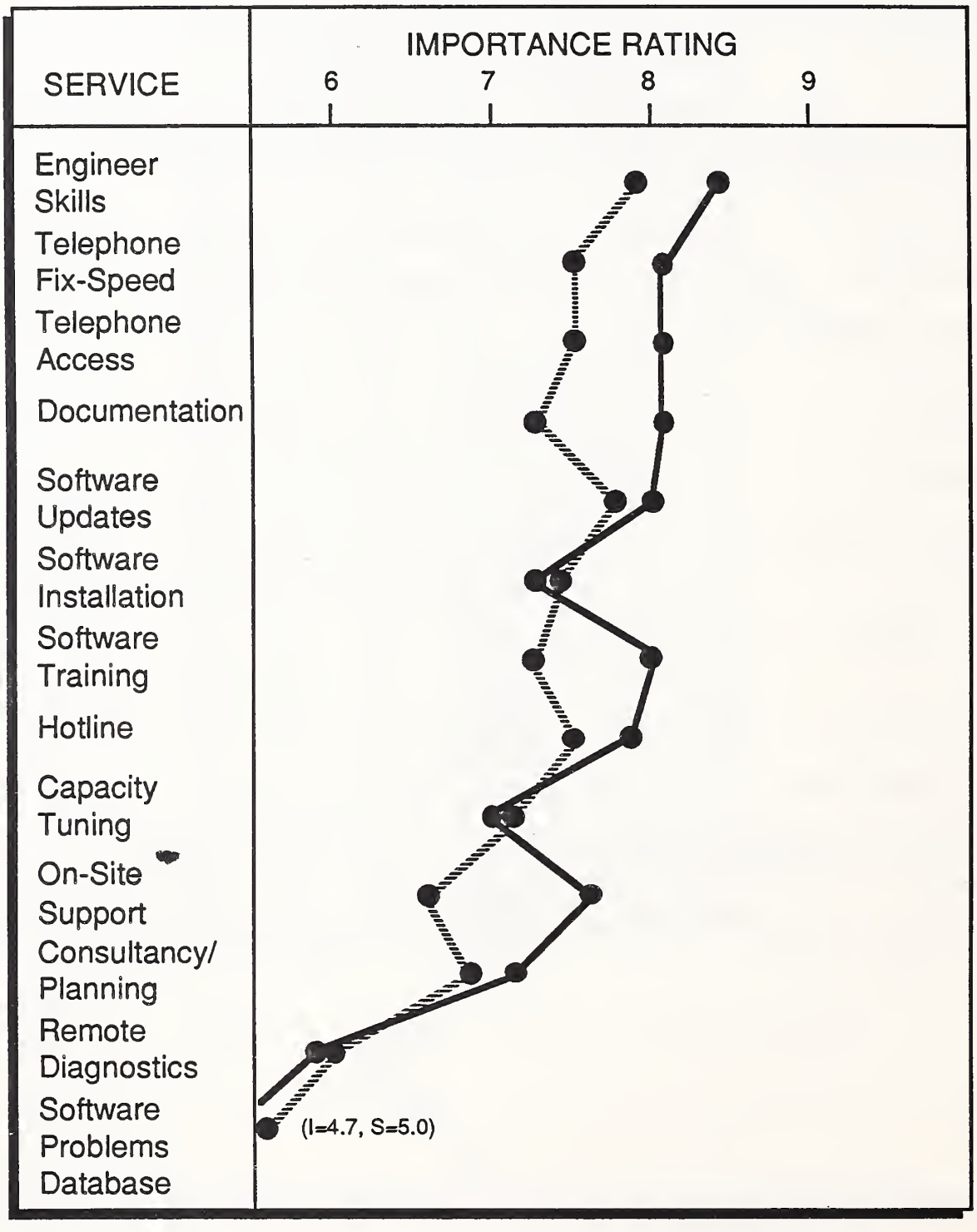
	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	RQ'D	RC'D	Δ	
Provision of Updates	8.0	7.7	0.3				
SW Installation	7.3	7.4	(0.1)	8.7	7.1	1.6	Better
Engineer Skills	8.4	7.9	0.5	8.9	7.6	1.3	Better
Telephone Support:							
Accessibility	8.1	7.5	0.6				
Fix Speed	8.1	7.5	0.6				
Documentation	6.1	7.3	0.8	9.2	7.3	1.9	Better
Planning/Consultancy	7.1	6.8	0.3	8.8	7.4	1.4	Better
SW Training	8.0	7.3	0.7	8.8	7.1	1.7	Better
On-Site Support	7.6	6.6	1.0				
Hotline	7.8	7.5	0.3				
Capacity Tuning	7.0	7.1	(0.1)				
Remote Diagnostics	5.9	6.0	(0.1)	8.9	7.6	1.3	Better
SW Problems Database	4.7	5.0	(0.3)				
Average	7.4	7.0	0.4				

Sample Size: 223

EXHIBIT V-16

IMPORTANCE OF SOFTWARE SERVICES

GERMANY



E

Holland

1. Hardware Service Performance

As can be sen from Exhibit V-17, in comparing service aspects to last year there are two with better satisfaction and two with worse. Differences in the satisfaction index of less than 0.2 are taken as insignificant in this report.

Additionally, the satisfaction index for Documentation and Operator Training has deteriorated by roughly a factor of two in each case. There is hence a need for a determination of the causes for this deterioration.

The scattergram, Exhibit V-18, compares roughly with that for the general population even though there is slightly more scatter. The overall trend is the same except for the higher importance and satisfaction ratings for Remote Diagnostics and Out-of-Hours Service. The average figure for the satisfaction index, for the package of hardware services, is very close to that of the sample population.

The statistics for Holland are different in that Escalation Procedures is the worst satisfied, followed closely by the standard 'betes noires', Documentation and Spares Availability.

2. Software Support Performance

In five of the six support aspects surveyed last year there is a marked increase in customer satisfaction, even though there is still room for improvement, and this can be seen in Exhibit V-19.

Compared with the population means there is more scatter, see Exhibit V-20, but the trend is very similar and the average figure for the satisfaction index for the package of software support corresponds quite closely to that of the sample population. The scattergram itself is quite similar except in the regions of Hotline and Consultancy Planning.

In contrast to Germany and Denmark, Remote Diagnostics and access to a software Problems Database are given quite high importance ratings, and there is a reasonable correspondence between importance and satisfaction.

Documentation, with Accessibility and Speed of Telephone Support are the worst satisfied which, with the exception of Engineers Skills, is very similar to France.

EXHIBIT V-17

HARDWARE SERVICE SATISFACTION

HOLLAND

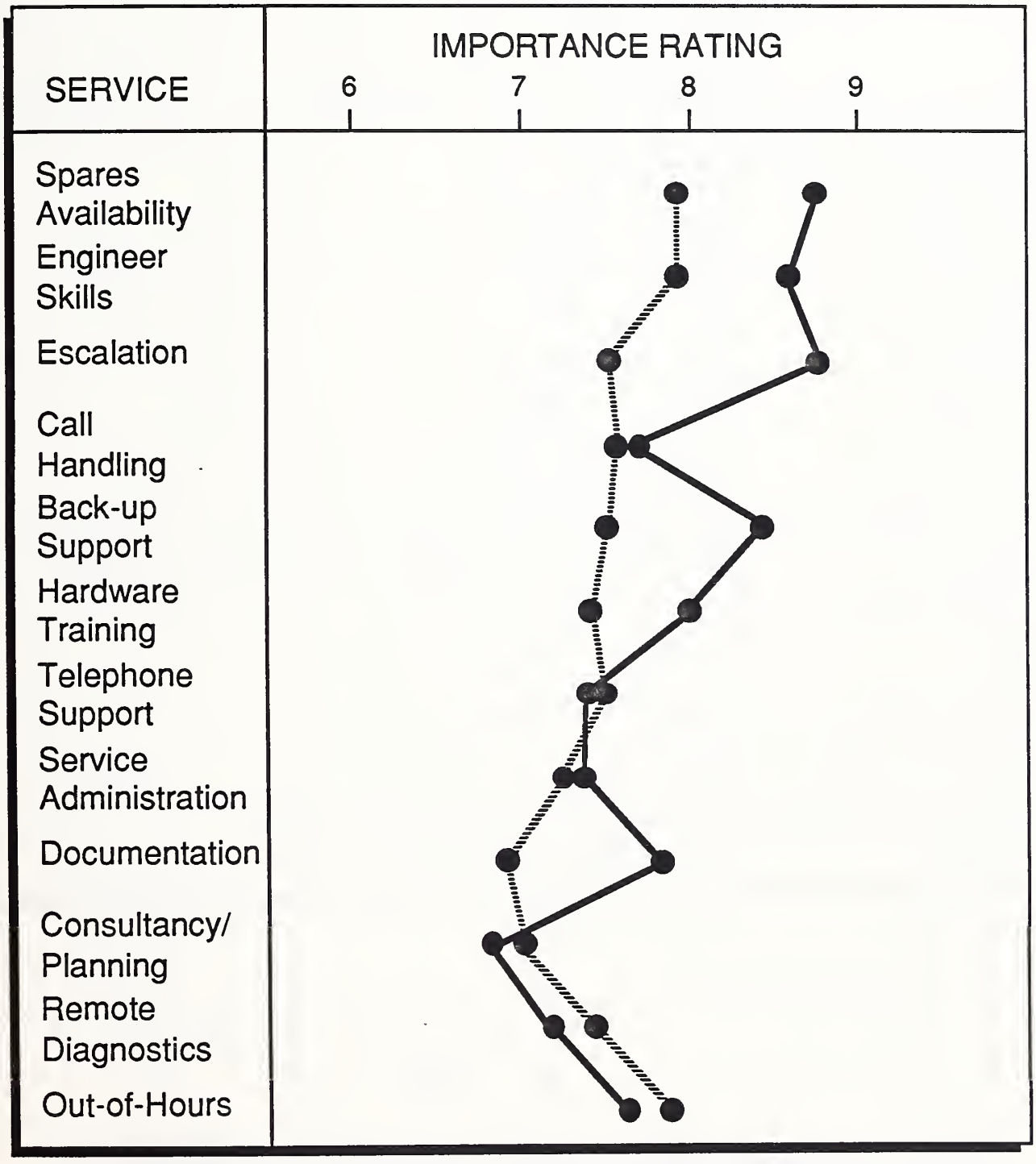
	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
Contract Administration	7.4	7.3	0.1				
Operator Training	8.0	7.4	0.6	6.4	7.2	(0.8)	Worse
Spares Availability	8.7	7.9	0.8	8.6	7.7	0.9	-
Escalation Procedure	8.5	7.5	1.0				
Engineer Skills	8.6	7.9	0.7	8.5	7.7	0.8	-
Remote Diagnostics	7.2	7.4	(0.2)	7.5	7.1	0.4	Better
Telephone Support	7.4	7.5	(0.1)				
Documentation	7.8	6.9	0.9	6.1	7.3	(1.2)	Worse
Planning/Consultancy	6.8	7.0	(0.2)	7.3	7.1	0.2	Better
Out-of-Hours	7.6	7.8	(0.2)				
Call Handling	7.7	7.6	0.1				
Back-Up Support	8.4	7.5	0.9				
Average	7.8	7.5	0.3				

Sample Size: 98

EXHIBIT V-18

IMPORTANCE OF HARDWARE SERVICES

HOLLAND



Sample Size: 98

Importance

Satisfaction

EXHIBIT V-19

SOFTWARE SUPPORT SATISFACTION

HOLLAND

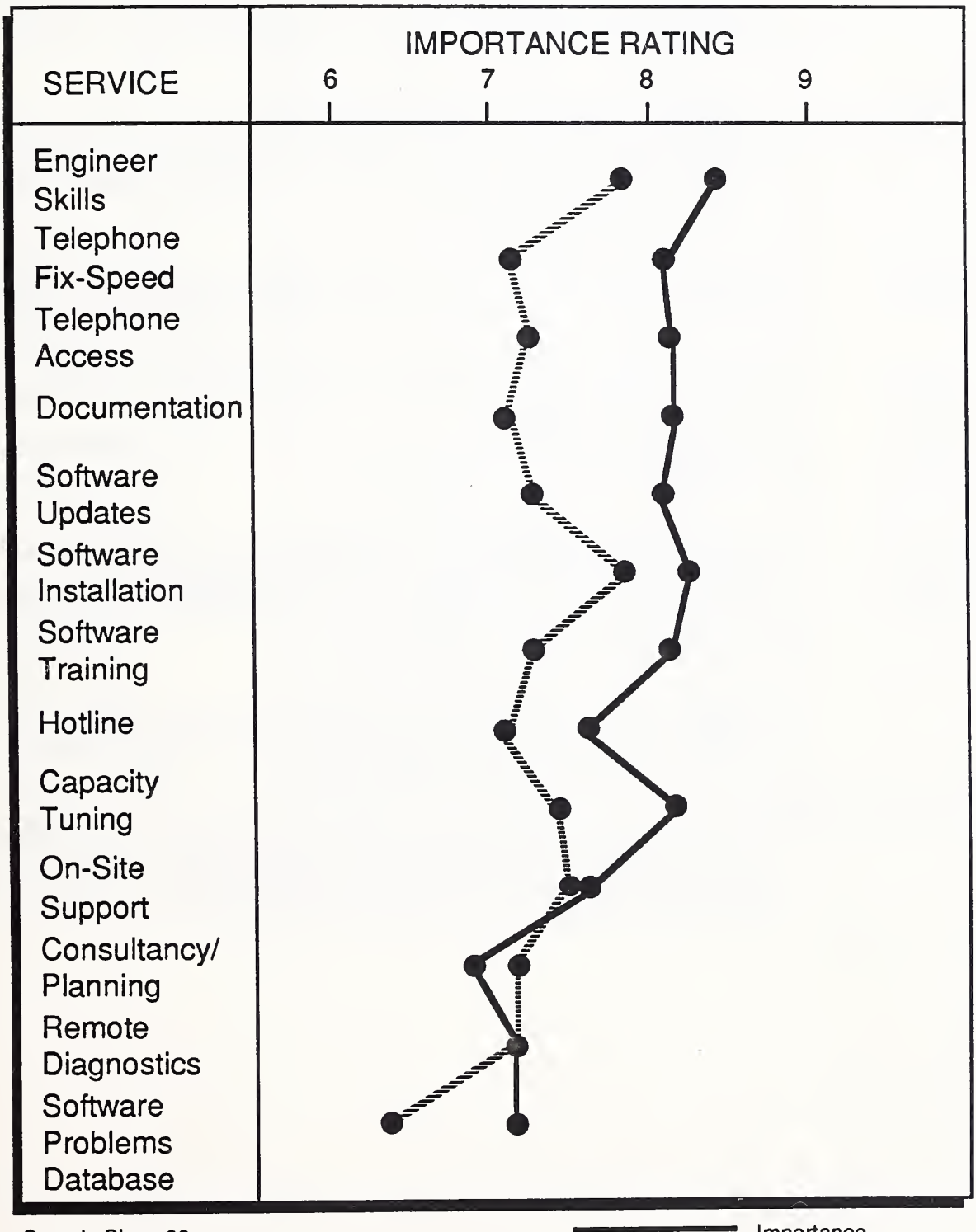
	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
Provision of Updates	8.1	7.3	0.8				
SW Installation	8.3	7.8	0.5	8.3	7.1	1.2	Better
Engineer Skills	8.4	7.8	0.6	8.6	7.5	1.1	Better
Telephone Support:							
Accessibility	8.2	7.3	0.9				
Fix Speed	8.1	7.2	0.9				
Documentation	8.2	7.1	1.1	8.7	7.4	1.3	
Planning/Consultancy	6.9	7.1	(0.2)	7.5	6.8	0.7	Better
SW Training	8.2	7.3	0.9	9.3	7.2	2.1	Better
On-Site Support	7.6	7.5	0.1				
Hotline	7.6	7.1	0.5				
Capacity Tuning	8.2	7.4	0.8				
Remote Diagnostics	7.1	7.1	-	7.3	6.7	0.6	Better
SW Problems Database	7.1	6.4	0.7				
Average	7.8	7.3	0.5				

Sample Size: 98

EXHIBIT V-20

IMPORTANCE OF SOFTWARE SERVICES

HOLLAND



Sample Size: 98

F

Italy

1. Hardware Service Performance

The hardware service performance characteristics comparison for Italy is shown as Exhibit V-21. In four of the six service aspects surveyed last year there is a good increase in customer satisfaction even though there is still room for further improvement. Differences in the satisfaction index of less than 0.2 are taken as insignificant in this report.

Compared with the population means there is more scatter, as can be seen in Exhibit V-22. The overall trend is the same and the average figure for the satisfaction index for the package of hardware services matches that of the population mean exactly.

In fact, examination of the scattergram shows a close correspondence to that of Belgium, and with the same overall satisfaction index figure.

Back-up Support, Spares Availability, and Escalation Procedures, are the worst satisfied, and two of these match quite nicely with the sample population as a whole.

2. Software Support Performance

In all of the six support aspects surveyed last year there is a marked increase in customer satisfaction, even though the dissatisfaction indices are still quite high, resulting in an overall figure twice as high as that for the population. See Exhibit V-23.

Compared with the population means there is more scatter, as is shown in Exhibit V-24, but the trend is very similar, even though there are abrupt swings from satisfaction to dissatisfaction.

Documentation, Telephone Fix Speed, Software Training, Capacity Tuning, and Remote Diagnostics are all among the worst satisfied with a satisfaction index of 0.9, and this needs examination as a total situation in order to formulate a strategy for improvement.

EXHIBIT V-21

HARDWARE SERVICE SATISFACTION

ITALY

	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
Contract Administration	7.1	7.4	(0.3)				
Operator Training	7.8	7.7	0.1	7.0	7.0	-	-
Spares Availability	8.9	8.2	0.7	9.0	7.8	1.2	Better
Escalation Procedure	8.4	7.9	0.5				
Engineers Skills	8.7	8.2	0.5	8.9	8.0	0.9	Better
Remote Diagnostics	7.9	7.8	0.1	7.0	6.4	0.6	Better
Telephone Support	7.6	7.4	0.2				
Documentation	7.9	7.5	0.4	6.3	7.3	(1.0)	Worse
Planning/Consultancy	7.5	7.2	0.3	7.4	6.8	0.6	Better
Out-of-Hours	7.2	7.2	-				
Call Handling	8.0	7.6	0.4				
Back-Up Support	8.1	7.7	0.4				
Average	7.9	7.7	0.2				

Sample Size: 129

EXHIBIT V-22

IMPORTANCE OF HARDWARE SERVICES

ITALY

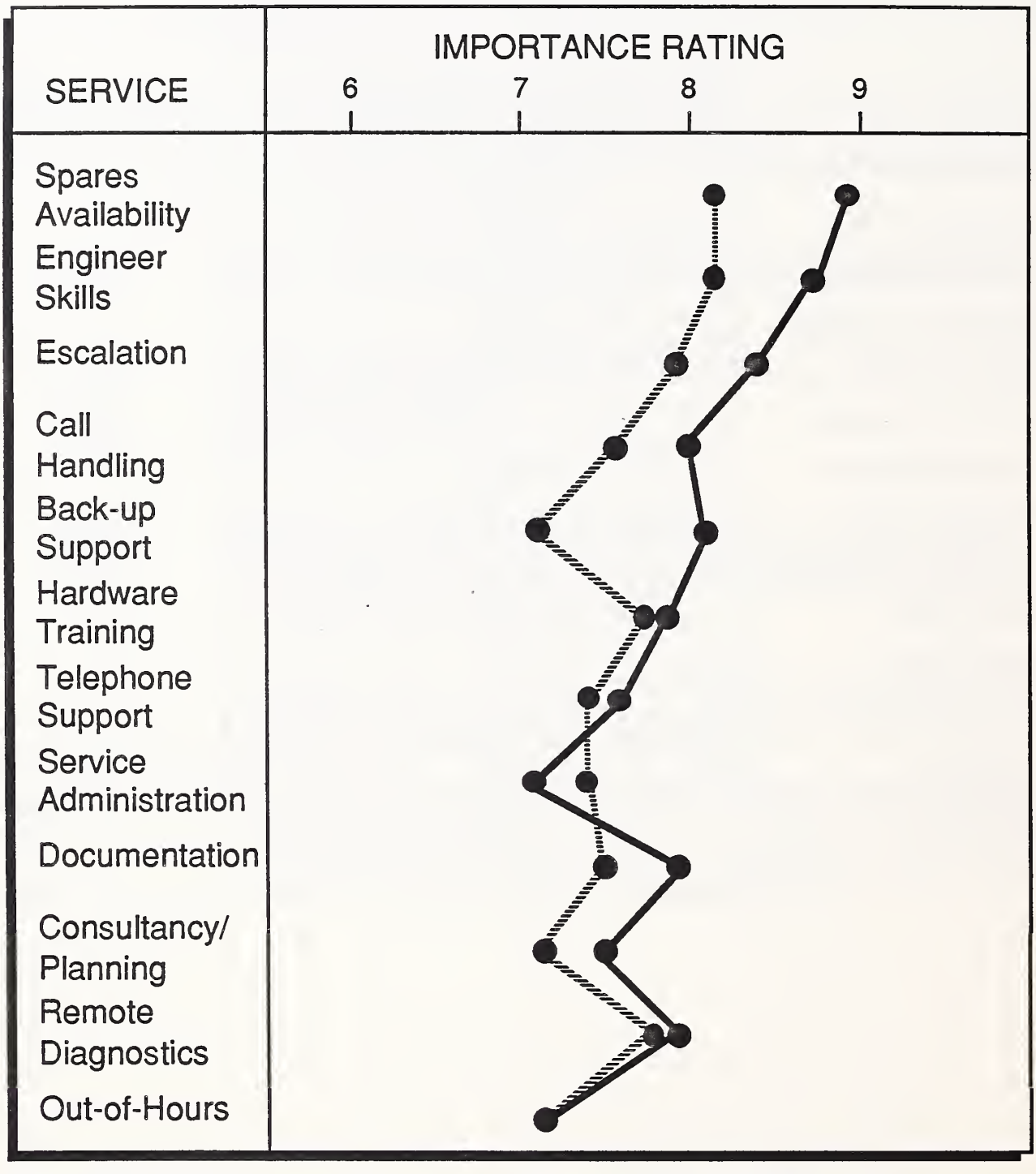


EXHIBIT V-23

SOFTWARE SUPPORT SATISFACTION

ITALY

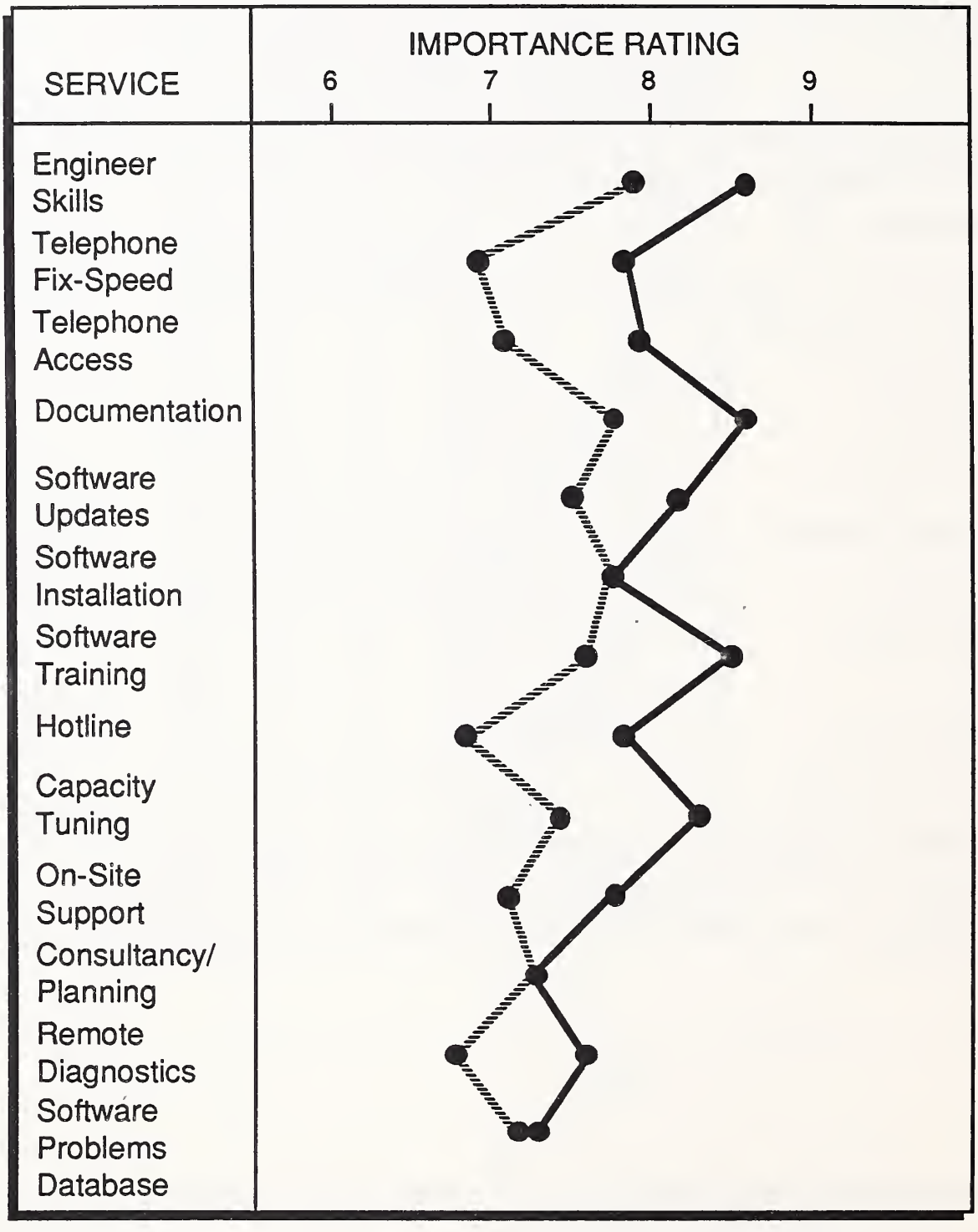
	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
Provision of Updates	8.2	7.5	0.7				
SW Installation	7.7	7.7	-	8.4	6.9	1.5	Better
Engineer Skills	8.6	7.9	0.7	8.9	7.2	1.7	Better
Telephone Support:							
Accessibility	7.9	7.1	0.8				
Fix Speed	7.8	6.9	0.9				
Documentation	8.6	7.7	0.9	9.3	7.6	1.7	Better
Planning/Consultancy	7.3	7.3	-	8.3	6.6	1.7	Better
SW Training	8.5	7.6	0.9	8.9	7.2	1.7	Better
On-Site Support	7.7	7.1	0.6				
Hotline	7.6	6.8	0.8				
Capacity Tuning	8.3	7.4	0.9				
Remote Diagnostics	7.6	6.7	0.9	7.6	6.0	1.6	Better
SW Problems Database	7.3	7.2	0.1				
Average	7.9	7.3	0.6				

Sample Size: 129

EXHIBIT V-24

IMPORTANCE OF SOFTWARE SERVICES

ITALY



Sample Size: 129

Importance

Satisfaction

G

Norway

1. Hardware Service Performance

In three of the six service aspects surveyed last year, as shown in Exhibit V-25, an improvement in customer satisfaction is indicated but the dissatisfaction levels are still very high. In addition, two of the critical services statistics have got worse, namely Spares Availability and Documentation. Differences in the satisfaction index of less than 0.2 are taken as insignificant in this report.

It can be seen from Exhibit V-26 that compared with the population means there is more scatter, and there is no real similarity with the sample population scattergram pattern.

Spares Availability, Engineer Skills, and Escalation Procedures are the worst satisfied, and this matches quite closely with Italy.

2. Software Support Performance

Software support performance statistics are shown in Exhibit V-27. In four of the six support aspects surveyed last year there is a marked increase in customer satisfaction indicated, even though there is still much room for improvement, and one aspect, namely Software Installation, has deteriorated to quite a high dissatisfaction level.

Although the scattergram plot, Exhibit V-28, follows roughly the same route, there is much more scatter and a very high overall level of dissatisfaction. Vendors in Norway will need to examine what is being done incorrectly or whether there are different needs in Norway.

Telephone Support Fix Speed, Software Installation, and Engineer Skills are among the worst satisfied, but the overall satisfaction index of some three times the population figure indicates a significant problem.

EXHIBIT V-25

HARDWARE SERVICE SATISFACTION

NORWAY

	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
Contract Administration	7.2	6.9	0.3				
Operator Training	7.6	7.1	0.5	6.5	5.5	1.0	Better
Spares Availability	9.6	7.7	1.9	8.5	7.0	1.5	Worse
Escalation Procedure	8.5	7.0	1.5				
Engineer Skills	9.3	7.8	1.5	8.0	6.4	1.6	-
Remote Diagnostics	8.3	7.4	0.9	7.5	6.3	1.2	Better
Telephone Support	8.6	7.4	1.2				
Documentation	7.9	7.2	0.7	6.4	6.6	(0.2)	Worse
Planning/Consultancy	7.7	7.2	0.5	7.6	6.0	1.6	Better
Out-of-Hours	7.9	8.2	(0.3)				
Call Handling	8.7	8.3	0.4				
Back-Up Support	8.5	7.2	1.3				
Average	8.3	7.5	0.8				

Sample Size: 46

EXHIBIT V-26

IMPORTANCE OF HARDWARE SERVICES

NORWAY

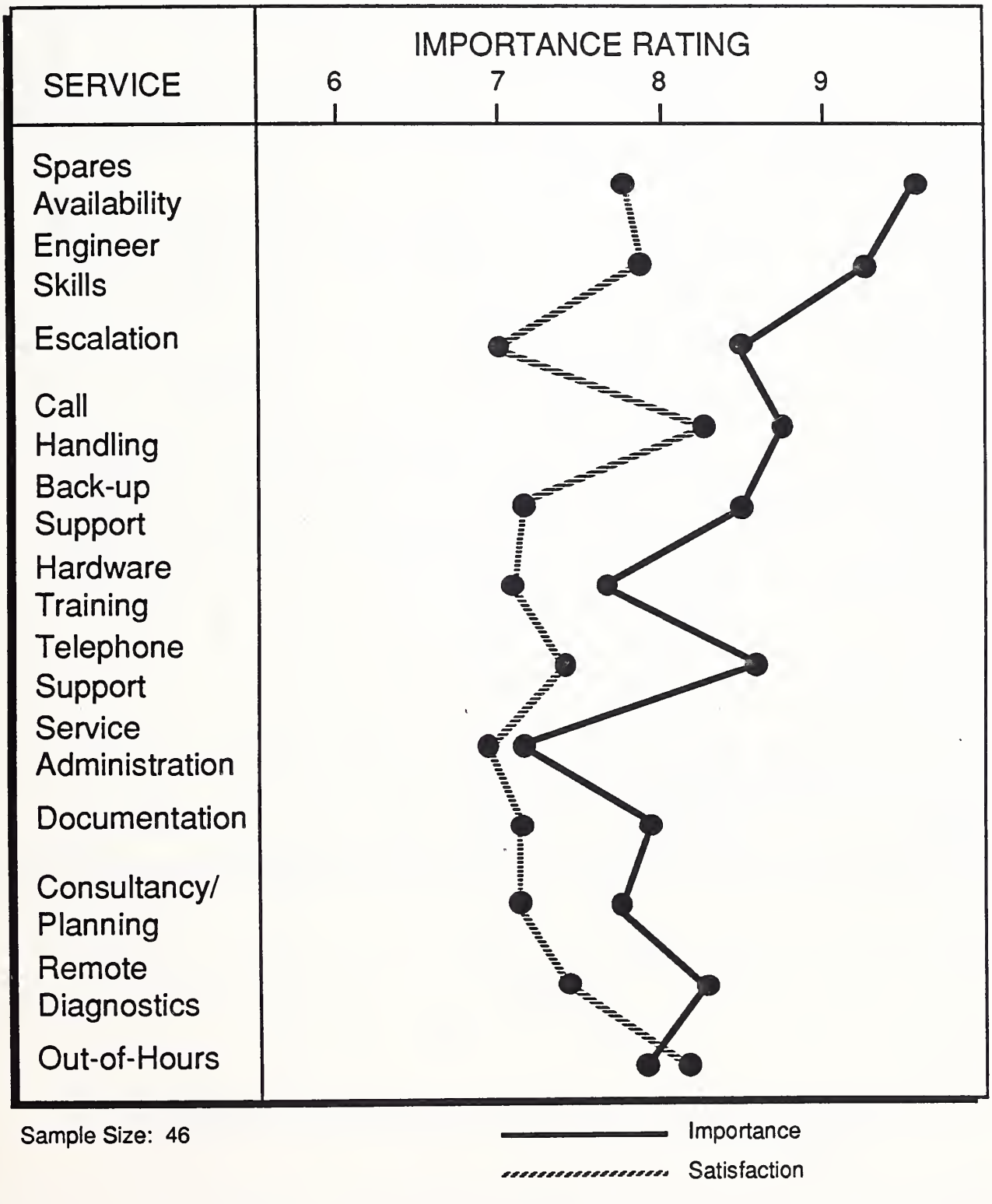


EXHIBIT V-27

SOFTWARE SUPPORT SATISFACTION

NORWAY

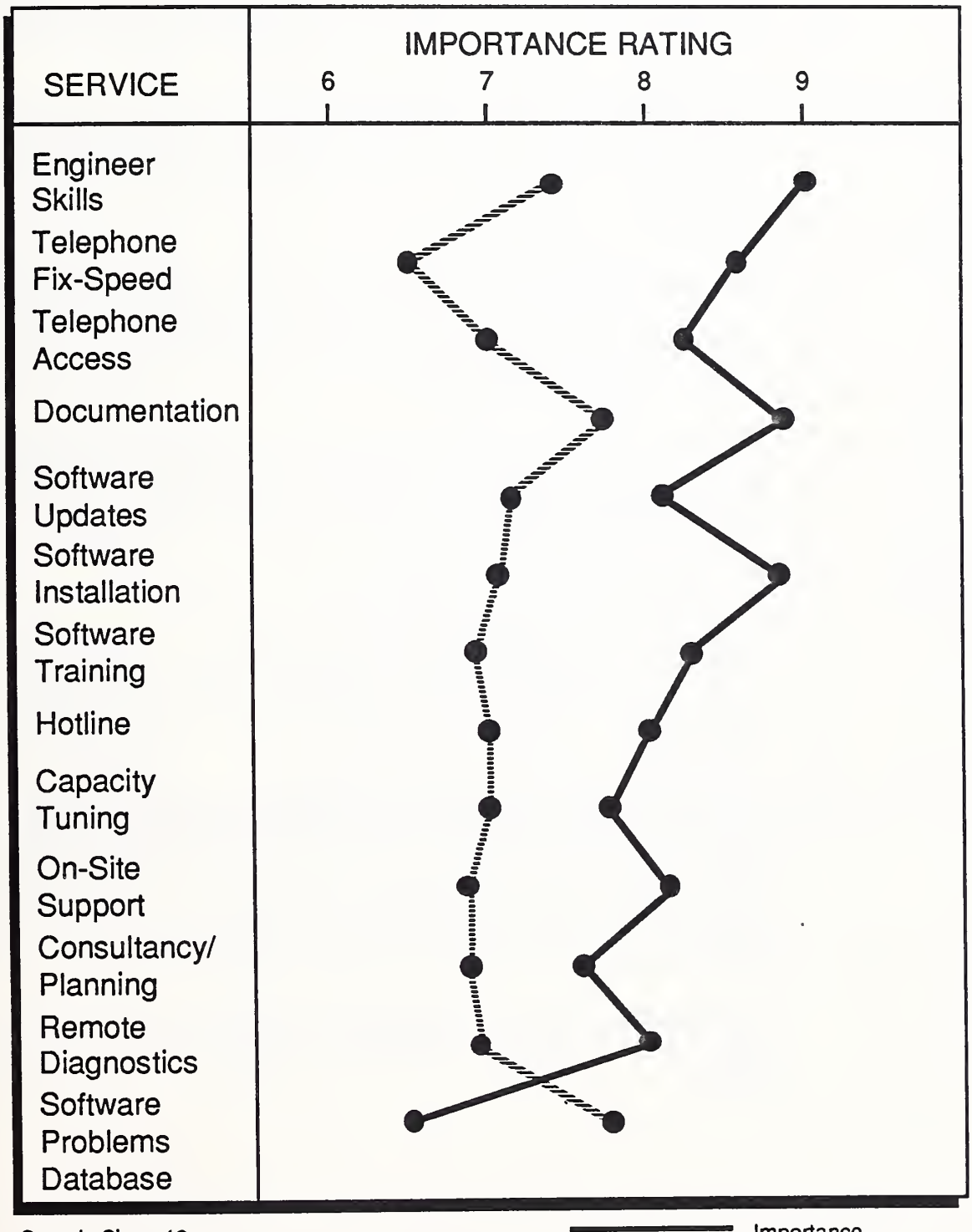
	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
Provision of Updates	8.1	7.2	0.9				
SW Installation	8.8	7.1	1.7	7.8	6.8	1.0	Worse
Engineer Skills	9.0	7.4	1.6	8.2	5.7	2.5	Better
Telephone Support:							
Accessibility	8.3	7.0	1.3				
Fix Speed	8.6	6.5	2.1				
Documentation	8.8	7.7	1.1	9.0	6.6	2.4	Better
Planning/Consultancy	7.6	6.8	0.8	7.4	5.8	1.6	Better
SW Training	8.3	6.9	1.4	7.9	6.2	1.7	Better
On-Site Support	8.2	6.8	1.4				
Hotline	8.0	7.0	1.0				
Capacity Tuning	7.7	7.0	0.7				
Remote Diagnostics	7.9	7.0	0.9	7.0	6.2	0.8	-
SW Problems Database	6.5	7.7	(1.2)				
Average	8.1	7.1	1.0				

Sample Size: 46

EXHIBIT V-28

IMPORTANCE OF SOFTWARE SERVICES

NORWAY



Sample Size: 46

H

Sweden

1. Hardware Service Performance

Exhibits V-29 and V-30 show the hardware performance statistics comparison for Sweden. In two of the six service aspects surveyed last year there is a marked increase in customer satisfaction but there is a corresponding decrease in a further two. Differences in the satisfaction index of less than 0.2 are taken as insignificant in this report.

Compared with the population means there is more scatter, but the overall trend is the same and the average figure for the satisfaction index for the package of hardware services is reasonably close to that of the sample population.

However, it is notable that the Swedes appear to attach higher importance to Back-up Support, Escalation Procedures, and Consultation, but the satisfaction does not match this. It is the view of INPUT that this indicates a higher feeling of vulnerability which could, perhaps, be satisfied with a premium priced service.

Spares Availability, Engineers Skills, and Escalation Procedures show up as the worst satisfied, and these match with the sample population as a whole, but at higher importance and satisfaction levels.

2. Software Support Performance

In four of the six support aspects surveyed last year, see Exhibit V-31, there is an increase in customer satisfaction. There is also, though, a worsening of satisfaction in the areas of Documentation and Planning/ Consultancy.

As with the Hardware plots there is reasonable correspondence with the population means, see Exhibit V-32, albeit that the importance line is at a higher rating level right down to the 'remote' facilities of Diagnostics and Problems database. Again as with hardware service, although the satisfaction plot approximates to that of the population, this might indicate that the users want, and might pay for, something more.

Documentation, Capacity Tuning, and Planning/Consultancy feature among the worst satisfied, which is quite different from the parent population.

EXHIBIT V-29

HARDWARE SERVICE SATISFACTION

SWEDEN

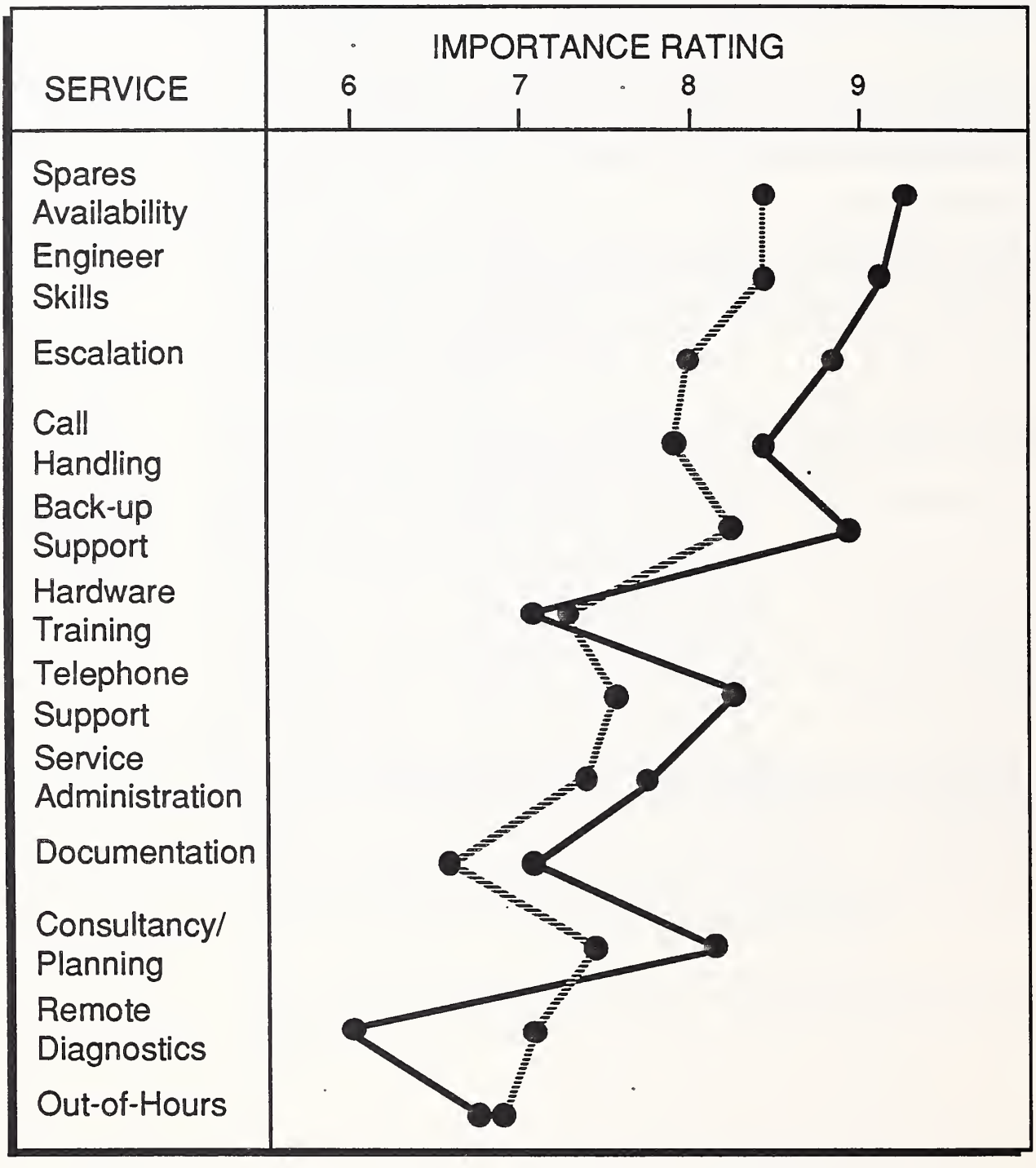
	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
Contract Administration	7.7	7.4	0.3				
Operator Training	7.1	7.3	(0.2)	6.7	6.5	0.2	Better
Spares Availability	9.3	8.4	0.9	9.0	8.0	1.0	-
Escalation Procedure	8.8	8.0	0.8				
Engineer Skills	9.2	8.4	0.8	8.7	7.8	0.9	-
Remote Diagnostics	6.0	7.1	(1.1)	7.4	7.5	(0.1)	Better
Telephone Support	8.3	7.6	0.7				
Documentation	7.1	6.6	0.5	6.2	6.4	(0.2)	Worse
Planning/Consultancy	8.2	7.4	0.6	6.9	6.6	0.3	Worse
Out-of-Hours	6.7	6.8	(0.1)				
Call Handling	8.4	7.9	0.5				
Back-Up Support	8.9	8.3	0.6				
Average	8.0	7.6	0.4				

Sample Size: 74

EXHIBIT V-30

IMPORTANCE OF HARDWARE SERVICES

SWEDEN



Sample Size: 74

Importance

Satisfaction

EXHIBIT V-31

SOFTWARE SUPPORT SATISFACTION

SWEDEN

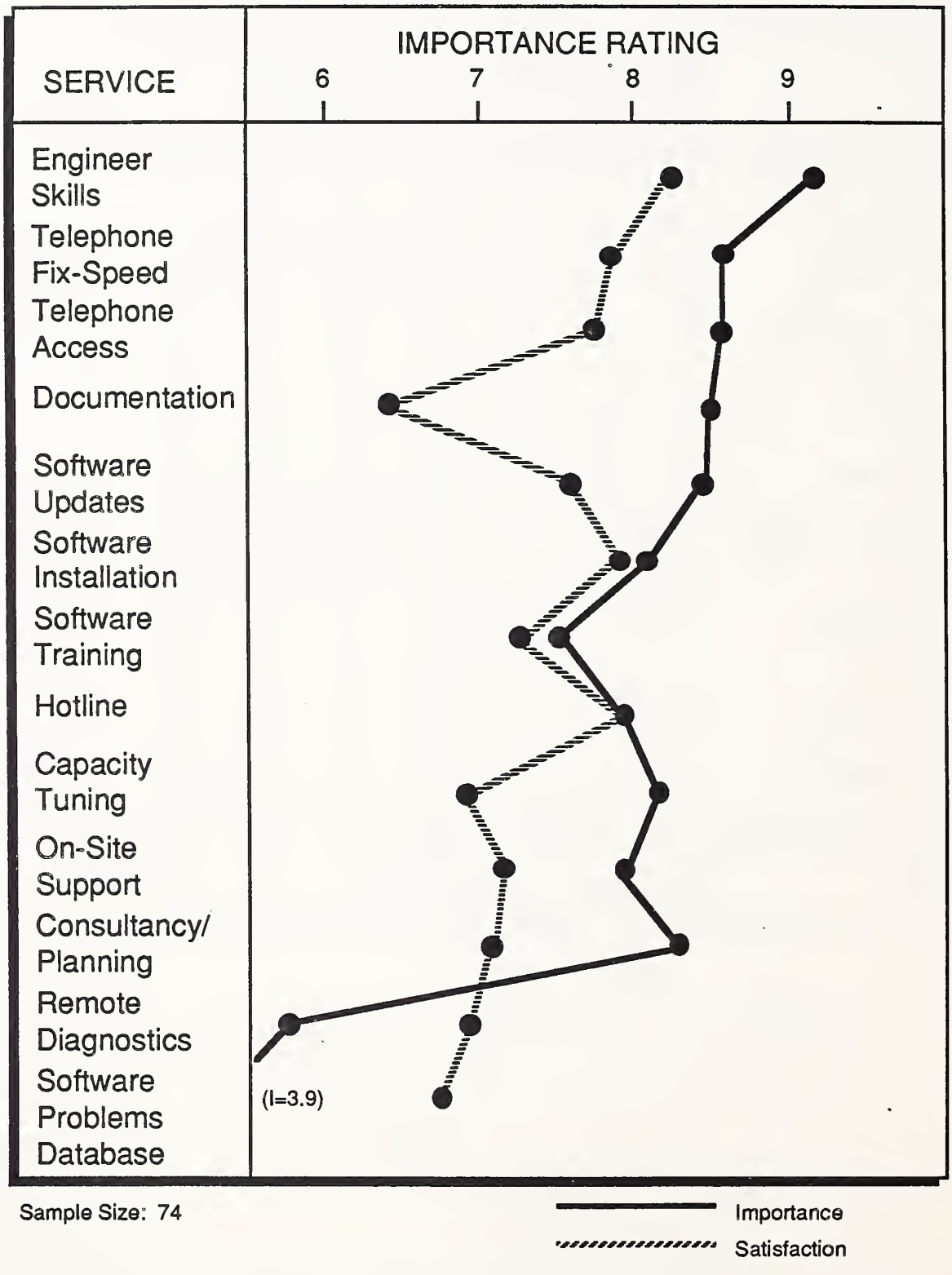
	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
Provision of Updates	8.4	7.6	0.8				
SW Installation	8.1	7.8	0.3	8.0	7.0	1.0	Better
Engineer Skills	9.2	8.3	0.9	8.5	7.3	1.2	Better
Telephone Support:							
Accessibility	8.6	7.7	0.9				
Fix Speed	8.6	7.8	0.8				
Documentation	8.5	6.4	2.1	8.5	6.8	1.7	Worse
Planning/Consultancy	8.3	7.1	1.2	7.5	6.7	0.8	Worse
SW Training	7.5	7.3	0.2	7.7	6.5	1.2	Better
On-Site Support	7.9	7.2	0.7				
Hotline	7.9	7.9	-				
Capacity Tuning	8.2	6.9	1.3				
Remote Diagnostics	5.7	6.9	(1.2)	7.4	6.8	0.6	Better
SW Problems Database	3.9	6.6	(2.7)				
Average	7.8	7.3	0.5				

Sample Size: 74

EXHIBIT V-32

IMPORTANCE OF SOFTWARE SERVICES

SWEDEN



Sample Size: 74

I

UK

1. Hardware Service Performance

In four of the six service aspects surveyed last year, see Exhibit V-33, there is evidence of an increase in customer satisfaction but there is still room for further improvement. Documentation on the other hand got a significantly worse score. Differences in the satisfaction index of less than 0.2 are taken as insignificant in this report.

Compared with the population means there is more scatter, see Exhibit V-34, but the overall trend is the same and the average figure for the satisfaction index for the package of hardware services matches that of the population mean exactly.

Spares Availability and Escalation are the worst satisfied, but the general level of the satisfaction indices are quite low, indicating a high overall level of satisfaction

2. Software Support Performance

Exhibits V-35 and V-36 show the software support performance survey results for the United Kingdom. In all of the six support aspects surveyed last year there is a marked increase in customer satisfaction, indicated by the 1987 sample. The average score for the overall package is better than that of the sample population.

Compared with the population means there is a reasonably close correspondence, but with a sharp downward blip for both satisfaction and importance for Documentation. However, it should be noted that the UK importance plot is consistently lower than that of the sample population, perhaps indicating a more easy satisfaction profile.

There are no services with significant (dis)satisfaction index scores - all in all a very creditable performance in the UK by the surveyed companies.

EXHIBIT V-33

HARDWARE SERVICE SATISFACTION

UNITED KINGDOM

	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
Contract Administration	7.0	7.2	(0.2)				
Operator Training	7.6	7.7	(0.1)	7.1	7.4	(0.3)	-
Spares Availability	8.8	8.1	0.7	9.2	7.9	1.3	Better
Escalation Procedure	8.3	7.6	0.7				
Engineer Skills	8.7	8.3	0.4	9.1	8.1	1.0	Better
Remote Diagnostics	6.8	6.9	(0.1)	7.4	7.2	0.2	Better
Telephone Support	7.3	7.1	0.2				
Documentation	6.6	6.3	0.3	6.5	7.2	(0.7)	Worse
Planning/Consultancy	6.6	6.9	(0.3)	7.2	7.1	0.1	Better
Out-of-Hours	7.0	7.3	(0.3)				
Call Handling	8.0	7.7	0.3				
Back-Up Support	8.4	8.0	0.4				
Average	7.6	7.4	0.2				

Sample Size: 407

EXHIBIT V-34

IMPORTANCE OF HARDWARE SERVICES

UNITED KINGDOM

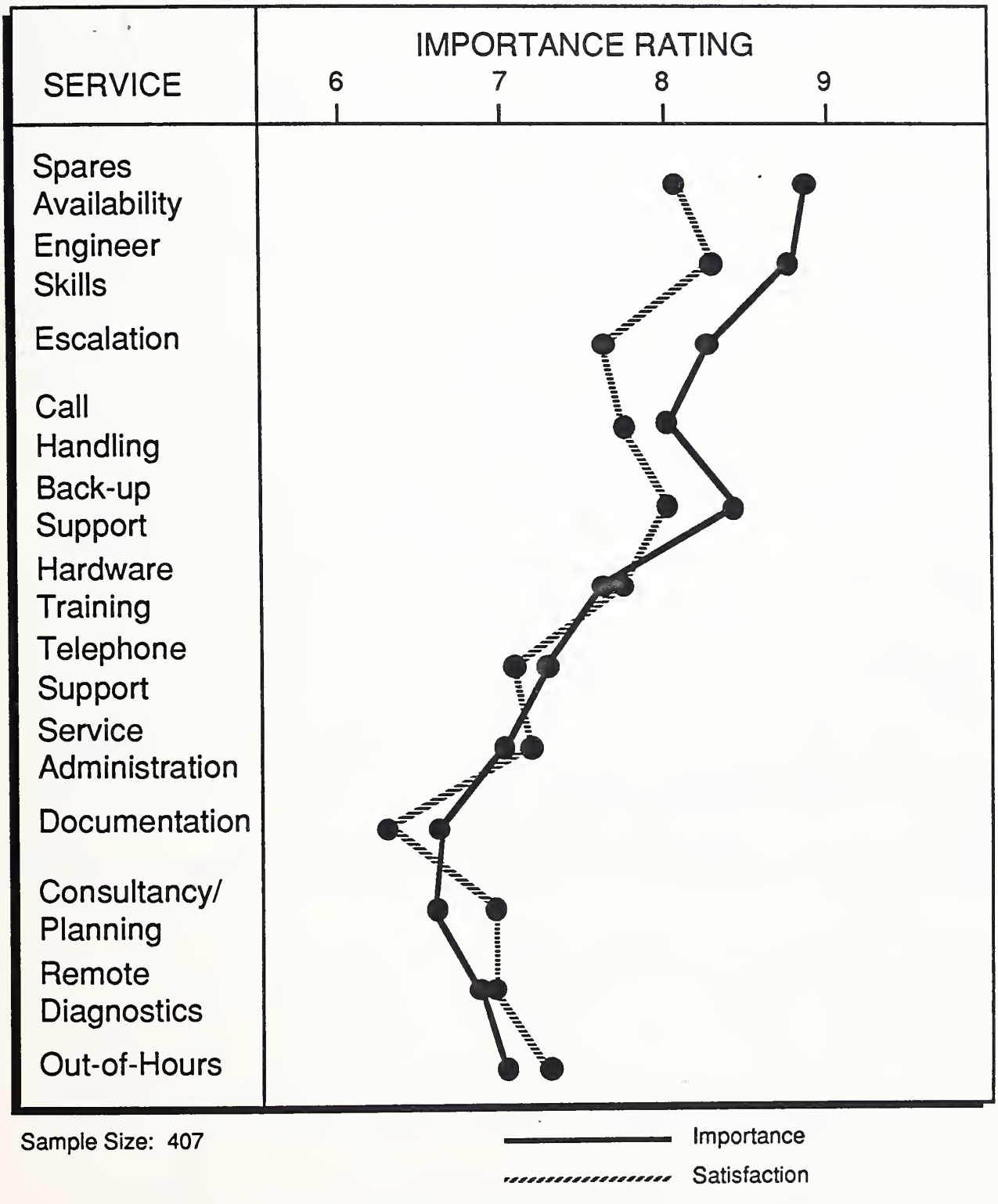


EXHIBIT V-35

SOFTWARE SUPPORT SATISFACTION

UNITED KINGDOM

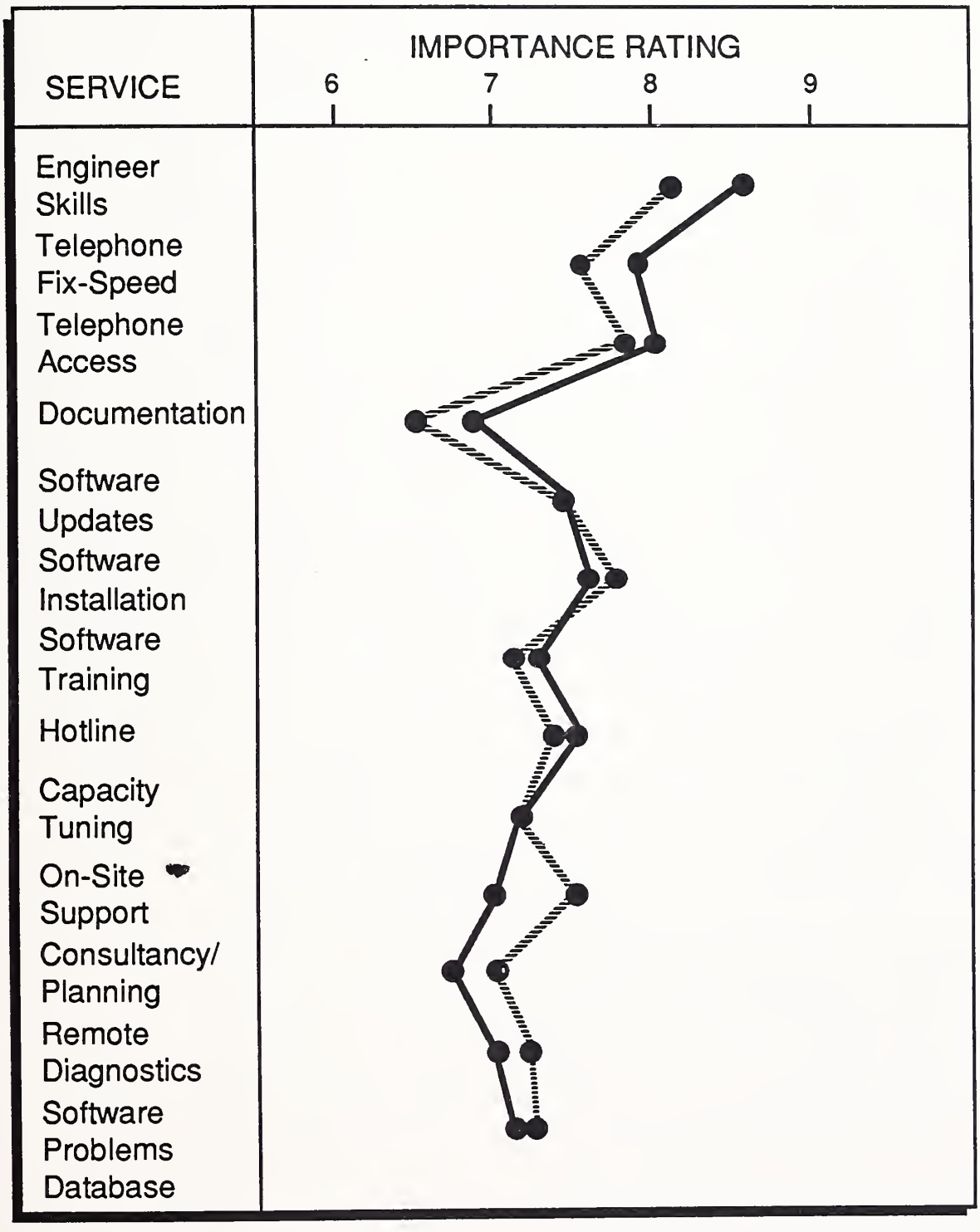
	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
Provision of Updates	7.4	7.4	-				
SW Installation	7.6	7.7	(0.1)	8.0	6.9	1.1	Better
Engineer Skills	8.6	8.2	0.4	8.6	7.1	1.5	Better
Telephone Support:							
Accessibility	8.0	7.8	0.2				
Fix Speed	7.9	7.6	0.3				
Documentation	6.8	6.5	0.3	8.8	7.1	1.7	Better
Planning/Consultancy	6.7	7.0	(0.3)	7.8	6.9	0.9	Better
SW Training	7.3	7.2	0.1	8.3	7.0	1.3	Better
On-Site Support	7.0	7.5	(0.5)				
Hotline	7.5	7.4	0.1				
Capacity Tuning	7.2	7.2	-				
Remote Diagnostics	7.0	7.2	(0.2)	8.2	6.9	1.3	Better
SW Problems Database	7.2	7.3	(0.1)				
Average	7.4	7.4	0.0				

Sample Size: 407

EXHIBIT V-36

IMPORTANCE OF SOFTWARE SERVICES

UNITED KINGDOM



Sample Size: 407

Analysis by Company

VI Analysis by Company

Please note that throughout the exhibits in this chapter the mean for the total population by system size is shown as Population (L), (M) or (S) for Large, Medium, or Small systems.

A Concurrent

The predominant business sector among the 28 customers surveyed was finance and, due to the exacting requirements of this market, the customers can be assumed to be highly critical of any perceived shortcomings (reference Exhibit VI-1).

EXHIBIT VI-1

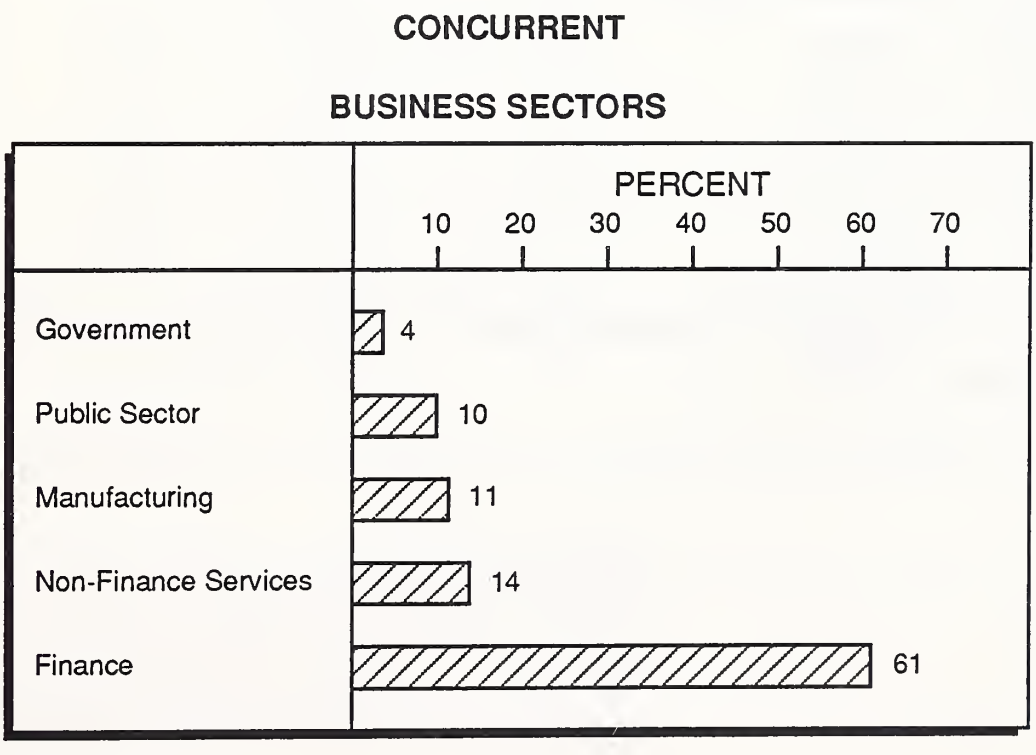


EXHIBIT VI-2

CONCURRENT
HARDWARE SERVICE SATISFACTION
MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	6.9	7.3	(0.4)	0.1	Better
Operator Training	7.1	7.7	(0.6)	0.1	Better
Spares Availability	9.0	8.6	0.4	0.8	Better
Escalation Procedure	8.2	8.1	0.1	0.7	Better
Engineer Skills	8.5	8.4	0.1	0.7	Better
Remote Diagnostics	6.8	7.7	(0.9)	0.0	Better
Telephone Support	7.2	6.9	0.3	0.2	
Documentation	6.4	6.4	0.0	0.7	Better
Planning/Consultancy	6.1	6.9	(0.8)	0.0	Better
Out-of-Hours	6.2	8.6	(2.4)	(0.1)	Better
Call Handling	8.0	8.1	(0.1)	0.4	Better
Back-Up Support	8.7	8.9	(0.2)	0.4	Better
Average	7.4	7.8	(0.4)	0.2	
Population (M)	7.6	6.8	0.8		

Sample Size: 21

With both medium and small systems, and in most service aspects, the performance and satisfaction rating is better with Concurrent than with the sample population, reference Exhibits VI-2 through 6. 42 of the 50 aspects covered are better than that of the sample population. Engineer Skills in software support on medium systems is the only aspect indicating customer concern and, overall, Concurrent has an exceptionally good performance.

EXHIBIT VI-3

CONCURRENT
SOFTWARE SUPPORT SATISFACTION
MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	7.3	7.2	0.1	0.3	
SW Installation	7.4	7.4	0.0	0.2	
Engineer Skills	8.6	7.7	0.9	0.7	
Telephone Support:					
Accessibility	7.3	7.1	0.2	0.6	Better
Fix Speed	7.1	7.2	(0.1)	0.7	Better
Documentation	6.5	7.0	(0.5)	1.0	Better
Planning/Consultancy	6.6	7.2	(0.6)	0.1	Better
SW Training	7.1	7.0	0.1	0.4	Better
On-Site Support	6.7	7.6	(0.9)	0.2	Better
Hotline	7.5	7.8	(0.3)	0.4	Better
Capacity Tuning	7.2	8.0	(0.8)	0.3	Better
Remote Diagnostics	6.9	7.8	(0.9)	0.1	Better
SW Problems Database	7.2	8.0	(0.8)	(0.1)	Better
Average	7.2	7.5	(0.3)	0.3	Better
Population (M)	8.0	7.1	0.9		

Sample Size: 21

EXHIBIT VI-4

CONCURRENT
HARDWARE SERVICE SATISFACTION
SMALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.0	7.7	(0.7)	0.1	Better
Operator Training	7.7	8.0	(0.3)	0.1	Better
Spares Availability	8.6	9.3	(0.7)	0.8	Better
Escalation Procedure	9.0	8.4	0.6	0.7	
Engineer Skills	8.7	8.4	0.3	0.7	Better
Remote Diagnostics	7.9	7.3	0.6	0.0	
Telephone Support	7.1	8.4	(1.3)	0.2	Better
Documentation	6.7	7.0	(0.3)	0.7	Better
Planning/Consultancy	7.0	7.3	(0.3)	0.0	Better
Out-of-Hours	7.9	8.0	(0.1)	(0.1)	
Call Handling	7.7	7.9	(0.2)	0.4	Better
Back-Up Support	8.3	9.1	(0.8)	0.4	Better
Average	7.9	8.1	(0.2)	0.2	Better
Population (S)	7.4	6.5	0.9		

Sample Size: 7

EXHIBIT VI-5

CONCURRENT
SOFTWARE SUPPORT SATISFACTION
SMALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	7.3	7.9	0.6	0.3	
SW Installation	7.3	8.6	(1.3)	0.2	Better
Engineer Skills	8.4	8.7	(0.3)	0.7	Better
Telephone Support:					
Accessibility	8.0	8.3	(0.3)	0.6	Better
Fix Speed	7.1	7.1	0.0	0.7	Better
Documentation	5.3	6.3	(1.0)	1.0	Better
Planning/Consultancy	7.1	7.3	(0.2)	0.1	Better
SW Training	7.0	7.4	(0.4)	0.4	Better
On-Site Support	7.6	8.1	(0.5)	0.2	Better
Hotline	7.9	8.3	(0.4)	0.4	Better
Capacity Tuning	7.7	8.3	(0.6)	0.3	Better
Remote Diagnostics	7.6	8.3	(0.7)	0.1	Better
SW Problems Database	7.7	8.7	(1.0)	(0.1)	Better
Average	7.4	7.9	(0.5)	0.3	Better
Population (S)	7.9	6.9	1.0		

Sample Size: 7

EXHIBIT VI-6

CONCURRENT SOFTWARE SUPPORT SATISFACTION ALL SYSTEMS

	1987			1986	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	7.3	7.4	(0.1)	0.3	
SW Installation	7.4	7.7	(0.3)	0.2	Better
Engineer Skills	8.5	7.9	0.6	0.7	
Telephone Support:					
Accessibility	7.4	7.4	0.0	0.6	Better
Fix Speed	7.2	7.4	(0.2)	0.7	Better
Documentation	6.2	6.8	(0.6)	1.0	Better
Planning/Consultancy	6.8	7.2	(0.4)	0.1	Better
SW Training	7.1	7.1	0.0	0.6	Better
On-Site Support	6.9	7.7	(0.8)	0.2	Better
Hotline	7.6	7.9	(0.3)	0.6	Better
Capacity Tuning	7.4	8.1	(0.7)	0.3	Better
Remote Diagnostics	7.1	8.0	(0.9)	0.1	Better
SW Problems Database	7.3	8.2	(0.9)	(0.1)	Better
Average	7.2	7.6	(0.4)	0.3	Better
Population	8.0	7.1	0.9		

Sample Size: 28

An examination of Exhibits VI-7 and 8 shows that, whereas the plots of hardware maintenance gradually move to quite low importance levels (about 6.5) the software aspects maintain a fairly consistent higher level, with concomitant higher satisfaction levels. It should also be noted that this is one of the very few companies where the customer is satisfied, or more than satisfied, with the Documentation.

EXHIBIT VI-7

CONCURRENT

IMPORTANCE OF HARDWARE SERVICES

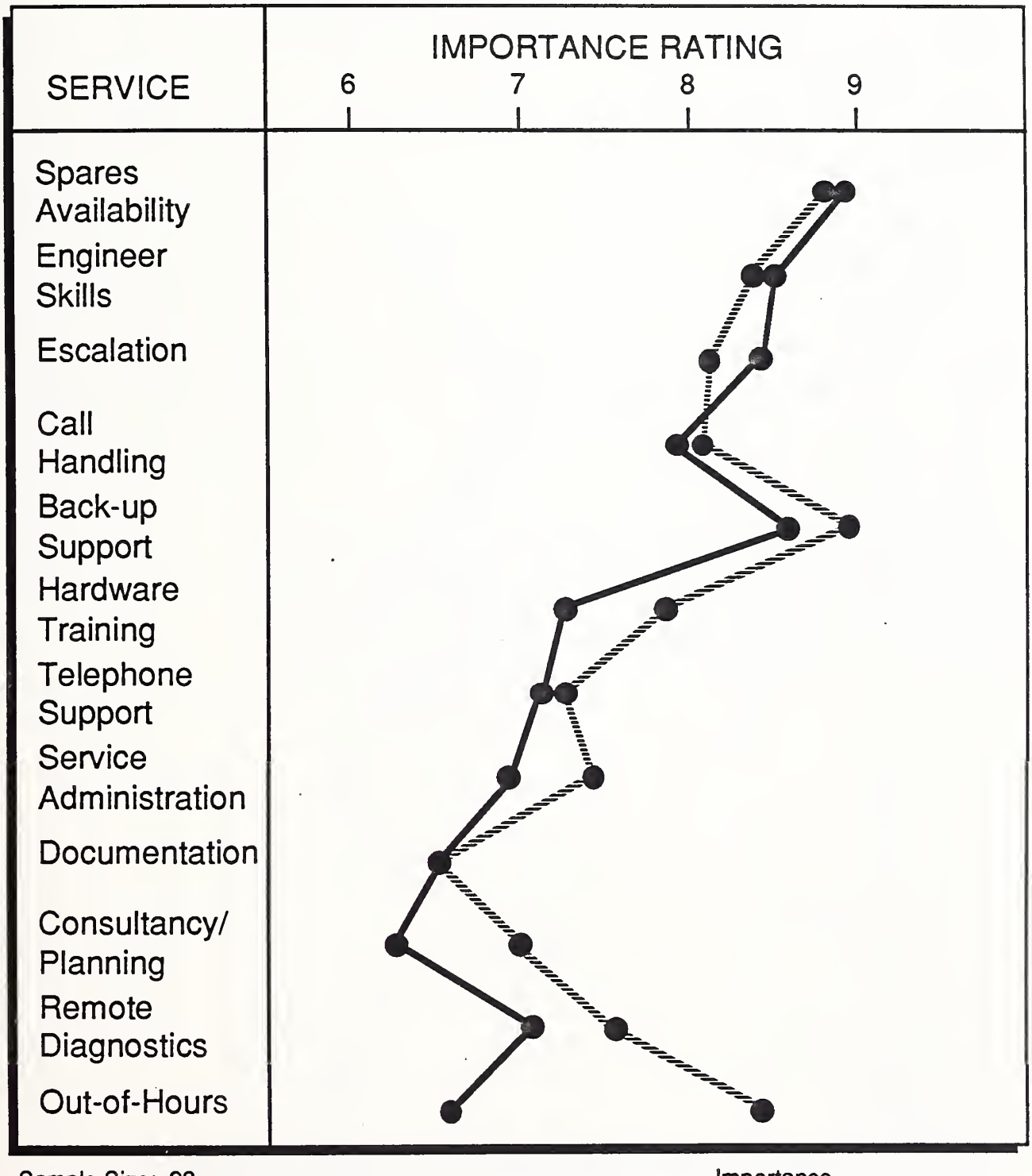


EXHIBIT VI-8

CONCURRENT
IMPORTANCE OF SOFTWARE SERVICES

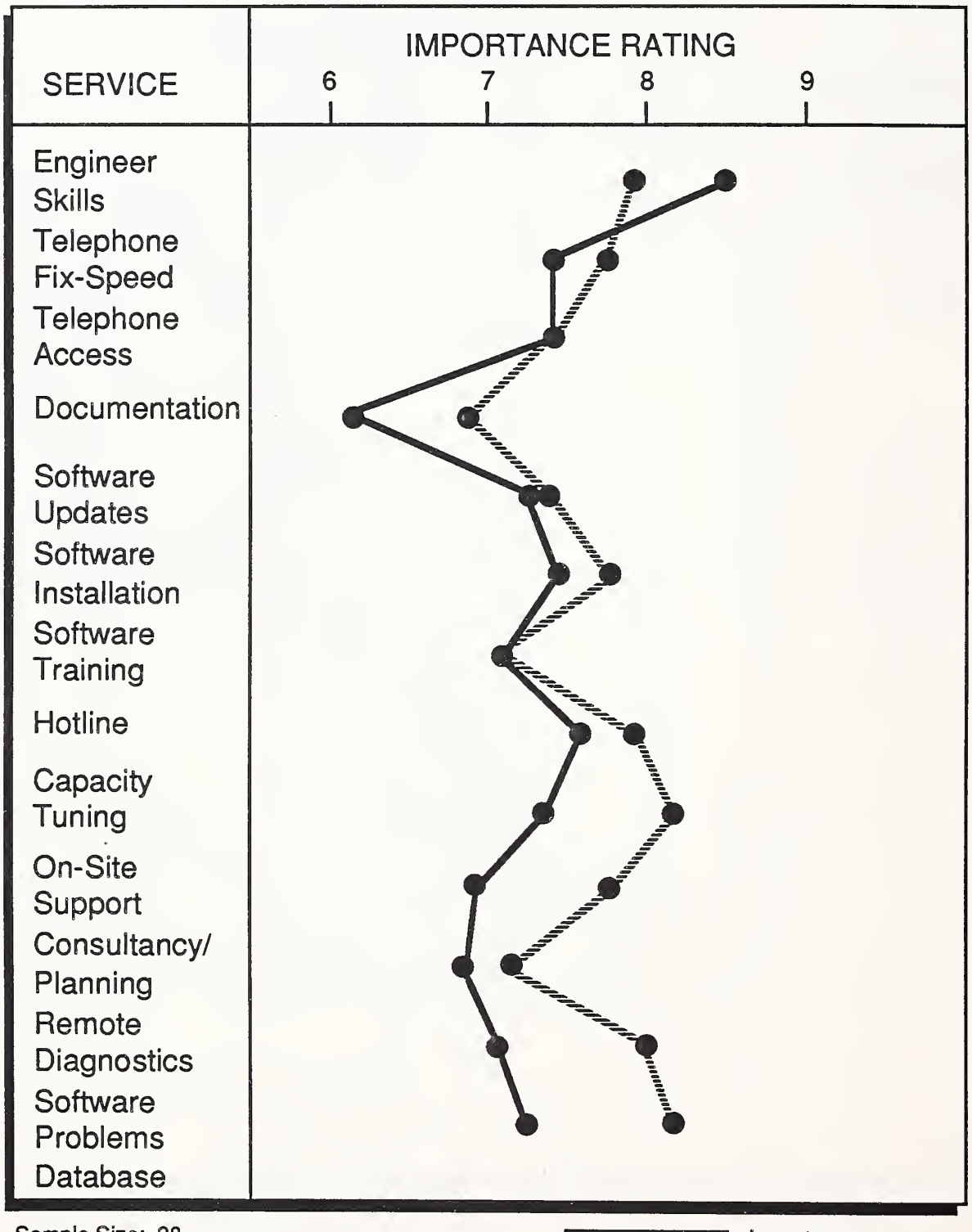


EXHIBIT VI-9

CONCURRENT

BREAKDOWNS BY SYSTEM SIZE

SIZE	BREAKS PA	AREA OF BREAK (Percent)	
		HW	SW
Medium	3.0	50	50
Small	1.1	31	69
Average	2.5	47	53
Population	2.8	54	46

Sample Size: 28

From Exhibit VI-9 it is seen that Concurrent betters the population sample mean for the number of breaks per annum, but there is a very distinct difference between the medium and large systems in this aspect, no doubt due to the increased number of items in a medium system. It is also interesting to note that the proportion of hardware to software breaks is heavily software biased with the small systems.

EXHIBIT VI-10

CONCURRENT

SATISFACTION WITH SYSTEMS AVAILABILITY

SIZE	IMPORTANCE	SATISFACTION	Δ
Medium	8.9	8.5	0.4
Small	8.7	8.9	(0.2)
Average	8.8	8.6	0.2
Population	9.3	8.7	0.6

Sample Size: 28

In satisfaction with system availability (Exhibit VI-10), the average, at 0.2, is three times better than the sample population, although the actual satisfaction levels are approximately the same.

The total of hardware response and fix times is again exceptional as it actually exceeds expectations even though the 'acceptable' time is longer than that of the population (reference Exhibit VI-11).

There is however a totally different picture with the software times, where the average response of 71hr is some 34hr longer than the population mean (reference Exhibit VI-12). There is, however, a big difference between the fix times for small and medium systems.

EXHIBIT VI-11

CONCURRENT

HARDWARE RESPONSE AND FIX TIMES

	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Medium	4.6	4.0	(0.6)	8.7	3.7	4.1	0.4	9.0	8.3	8.1	(0.2)
Small	4.1	3.7	(0.4)	8.0	4.3	4.3	0.0	8.7	8.4	8.0	(0.4)
Average	4.5	3.9	(0.6)	8.5	3.8	4.1	0.3	8.9	8.3	8.0	(0.3)
Population	3.4	3.7	0.3	9.1	3.9	4.6	0.7	9.1	7.3	8.3	1.0

Sample Size: 28

EXHIBIT VI-12

CONCURRENT

SOFTWARE RESPONSE AND FIX TIMES

	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Medium	12.8	46.0	33.2	8.5	10.0	40.2	30.2	8.6	22.8	86.2	63.4
Small	6.5	8.5	2.0	8.6	2.4	2.6	0.2	9.4	8.9	11.1	2.2
Average	11.7	39.4	27.7	8.5	8.4	31.7	23.3	8.8	20.1	71.1	51.0
Population	8.8	17.0	8.2	8.7	11.0	19.6	8.6	8.8	19.8	36.6	16.8

Sample Size: 28

EXHIBIT VI-13

CONCURRENT

HARDWARE SERVICE SUPPLIER BY SYSTEM SIZE

SIZE	MANUFACTURER (Percent)	DEALER (Percent)	TPM (Percent)	SELF (Percent)	SAMPLE
Medium	100	-	-	-	21
Small	100	-	-	-	7
Average	100	-	-	-	28
Population	93	2	5	1	1321

EXHIBIT VI-14

CONCURRENT

SOFTWARE SERVICE SUPPLIER BY SYSTEM SIZE

SIZE	MANUFACTURER (Percent)	SW VENDOR (Percent)	SYSTEMS HOUSE (Percent)	SELF (Percent)	SAMPLE
Medium	90	-	-	14	21
Small	86	-	-	14	7
Average	89	-	-	14	28
Population	80	6	7	20	1321

Sample Size: 28

In Exhibits VI-13 and 14 depicting which vendor supplies the hardware and software support, it is seen that Concurrent gets consistently more of the business than is the case with the sample population, and that TPM's have no penetration according to this survey.

EXHIBIT VI-15

CONCURRENT

CUSTOMER PREFERENCES ON BUNDLING

SIZE	INDIVIDUAL PRICING (Percent)	BUNDLED (Percent)	DON'T KNOW (Percent)	SAMPLE SIZE
Medium	90	5	5	21
Small	100	-	-	7
Average	93	4	3	28

Exhibit VI-15 indicates that the Concurrent customer predominantly prefers individual pricing of service offerings; hence there will need to be an appraisal of either how to change customer attitudes, or how to make each service critical in some performance aspect, and command a premium price for the unbundled services.

EXHIBIT VI-16

CONCURRENT

CUSTOMERS' TOP TRAINING REQUIREMENTS

	MEDIUM (Percent)	SMALL (Percent)	AVERAGE (Percent)
In-House	38	14	32
Technical	19	43	25
System Ops.	19	43	25
Hardware	19	29	21

Sample Size: 28

Exhibit VI-16, depicts the Concurrent customers' top training requirements. There is a very clear distinction between the needs of users of medium and small systems, but this gives the opportunity of setting up focused premium training modules directed specifically at customer needs.

EXHIBIT VI-17

CONCURRENT

TOP REQUIREMENTS AND INTEREST LEVELS FOR OTHER SERVICES

ALL SYSTEM SIZES

SERVICE	IMPORTANCE	PERCENT WITHOUT	DECISION TREE	SAMPLE
Training	6.1	14	9	28
Software Evaluation	5.9	36	21	28
Configuration Planning	5.8	25	15	28
Capacity Planning	5.8	21	12	28

The importance levels for services not currently provided to specific customers are quite low; however, in this aspect Training should be discounted, as ALL users need or have it. All other things being equal, an indication of the best possibility of selling an extra service is found by multiplying the importance rating by the number or percentage of surveyed customers without the service and ordering the results - in the case of Concurrent, the top runner is Software Evaluation with a value of 21 (Exhibit VI-17).

All respondents were asked, in a quite separate question, to give ratings to their overall impression of hardware and software support, and these ratings are shown in Exhibit VI-18. For Concurrent the hardware satisfaction index was much better than that of the sample population, but the software index at 1.4 is climbing to the real dissatisfaction level - this may well be as a result of the extended software response and fix times.

Exhibit VI-19 gives a synopsis of respondents' views on what they believe the current vendor's service performance will be like in five years time: it should be noted that this view is likely to be based on CURRENT performance.

EXHIBIT VI-18

CONCURRENT

VIEWS ON CURRENT SERVICE PERFORMANCE

	HARDWARE			SOFTWARE			SAMPLE SIZES
	IMP	SAT	Δ	IMP	SAT	Δ	
Medium	8.6	8.2	0.4	8.6	7.2	1.4	21
Small	8.1	8.6	(0.5)	9.0	7.4	1.6	7
Average	8.5	8.3	0.2	8.7	7.3	1.4	28
Population	9.1	8.2	0.9	8.7	7.8	0.9	1321

EXHIBIT VI-19

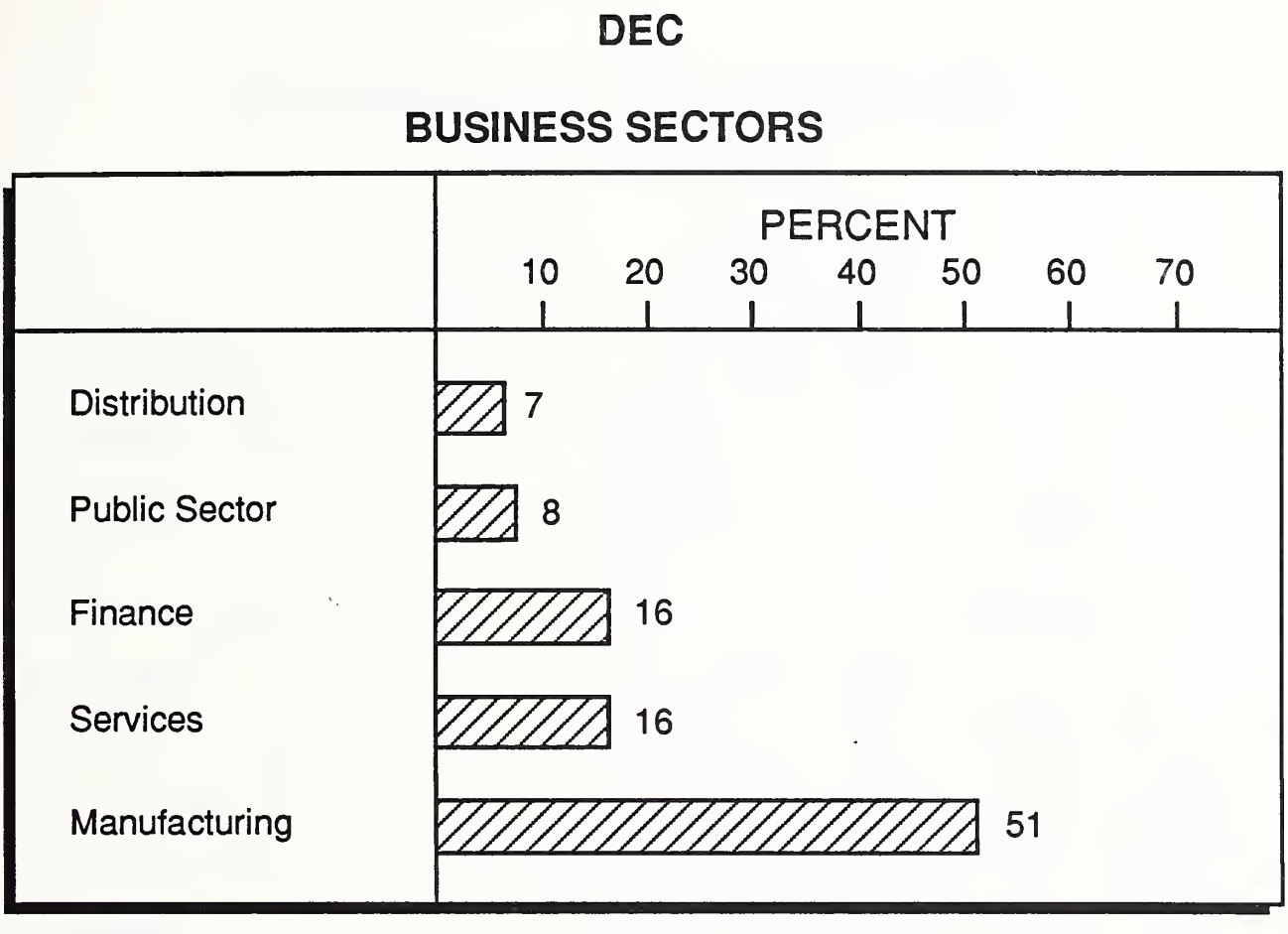
CONCURRENT

VIEWS ON LIKELY PERFORMANCE (OF CURRENT SUPPLIER) IN FIVE YEARS TIME

CUSTOMER VIEW	HOLDING THE VIEW (Percent)
Will Have Different Kit	29
Poor	29
Excellent	25

Sample Size: 28

EXHIBIT VI-20



Sample Size: 193

B

Digital Equipment

Exhibit VI-20 shows that the predominant business sector among the DEC customers was manufacturing, and the proportion, at 51% is reasonably close to that of the sample population, 42%, as a whole.

EXHIBIT VI-21

DEC
HARDWARE SERVICE SATISFACTION
LARGE SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.1	7.3	(0.2)	0.1	Better
Operator Training	7.7	8.0	(0.3)	0.1	Better
Spares Availability	9.0	8.3	0.7	0.8	
Escalation Procedure	8.6	8.1	0.5	0.7	
Engineer Skills	8.9	8.6	0.3	0.7	Better
Remote Diagnostics	7.0	7.1	(0.1)	0.0	
Telephone Support	7.2	7.2	0.0	0.2	
Documentation	6.9	6.9	0.0	0.7	
Planning/Consultancy	6.8	7.3	(0.5)	0.0	Better
Out-of-Hours	6.7	7.0	(0.3)	(0.1)	
Call Handling	8.2	8.2	0.0	0.4	Better
Back-Up Support	8.3	8.0	0.3	0.4	
Average	7.7	7.7	0.0	0.2	
Population (L)	7.7	7.1	0.6		

Sample Size: 37

Only in the large systems (Exhibits VI-21 and 22) with twelve of the 25 aspects being better than the sample population, is there evidence of real improvement. For medium systems (Exhibits VI-23 and 24) there are three aspects better than the population, and only one item (Software Documentation) below average.

EXHIBIT VI-22

DEC
SOFTWARE SUPPORT SATISFACTION
LARGE SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	8.2	7.6	0.6	0.3	
SW Installation	8.1	7.9	0.4	0.2	
Engineer Skills	8.9	8.1	0.8	0.7	
Telephone Support:					
Accessibility	7.8	7.5	0.3	0.6	Better
Fix Speed	7.8	7.2	0.6	0.7	
Documentation	7.8	7.2	0.6	1.0	Better
Planning/Consultancy	7.1	7.3	(0.2)	0.1	Better
SW Training	7.6	7.8	(0.2)	0.4	Better
On-Site Support	7.4	7.7	(0.3)	0.2	Better
Hotline	7.1	7.2	(0.1)	0.4	Better
Capacity Tuning	7.4	7.3	0.1	0.3	
Remote Diagnostics	6.6	6.9	(0.3)	0.1	Better
SW Problems Database	6.5	6.6	(0.1)	(0.1)	
Average	7.6	7.4	0.2	0.3	
Population (L)	8.2	7.3	0.9		

Sample Size: 37

EXHIBIT VI-23

DEC
HARDWARE SERVICE SATISFACTION
MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.9	7.7	0.2	0.1	
Operator Training	7.6	7.6	0.0	0.1	
Spares Availability	9.0	8.3	0.7	0.8	
Escalation Procedure	8.3	7.8	0.5	0.7	
Engineer Skills	9.1	8.3	0.8	0.7	
Remote Diagnostics	7.2	7.5	(0.3)	0.0	Better
Telephone Support	7.8	7.6	0.2	0.2	
Documentation	7.7	7.0	0.7	0.7	
Planning/Consultancy	7.4	7.3	0.1	0.0	
Out-of-Hours	6.5	6.7	(0.2)	(0.1)	
Call Handling	8.6	7.9	0.7	0.4	
Back-Up Support	8.2	7.7	0.5	0.4	
Average	7.9	7.6	0.3	0.2	
Population (M)	7.6	6.8	0.8		

Sample Size: 104

EXHIBIT VI-24

DEC
SOFTWARE SUPPORT SATISFACTION
MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	8.1	7.8	0.3	0.3	
SW Installation	8.3	8.1	0.2	0.2	
Engineer Skills	9.0	8.3	0.7	0.7	
Telephone Support:					
Accessibility	8.2	7.6	0.6	0.6	
Fix Speed	8.2	7.6	0.6	0.7	
Documentation	8.4	7.4	1.0	1.0	
Planning/Consultancy	7.3	7.3	0.0	0.1	
SW Training	8.1	7.8	0.3	0.4	
On-Site Support	7.4	7.3	0.1	0.2	
Hotline	7.7	7.5	0.2	0.4	
Capacity Tuning	7.7	7.4	0.3	0.3	
Remote Diagnostics	6.6	7.1	(0.5)	0.1	Better
SW Problems Database	6.1	7.0	(0.9)	(0.1)	Better
Average	7.8	7.6	0.2	0.3	
Population (M)	8.0	7.1	0.9		

Sample Size: 104

EXHIBIT VI-25

DEC
HARDWARE SERVICE SATISFACTION
SMALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.8	7.6	0.2	0.1	
Operator Training	7.8	7.8	0.0	0.1	
Spares Availability	8.7	7.7	1.0	0.8	
Escalation Procedure	8.3	7.6	0.7	0.7	
Engineer Skills	8.8	8.1	0.7	0.7	
Remote Diagnostics	6.0	5.6	0.4	0.0	
Telephone Support	7.8	7.6	0.2	0.2	
Documentation	7.9	6.3	1.6	0.7	
Planning/Consultancy	6.9	7.2	(0.3)	0.0	Better
Out-of-Hours	5.2	4.7	0.5	(0.1)	
Call Handling	8.5	7.8	0.7	0.4	
Back-Up Support	8.3	8.1	0.2	0.4	
Average	7.7	7.2	0.5	0.2	
Population (S)	7.4	6.5	0.9		

Sample Size: 52

In the small systems area (Exhibits VI-25 and 26) the satisfaction is marginally below the population mean and there are five aspects at the customer concern level, of which Hardware Documentation is the major item at 1.6

EXHIBIT VI-26

DEC
SOFTWARE SUPPORT SATISFACTION
SMALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	8.0	7.7	0.3	0.3	
SW Installation	8.1	7.8	0.3	0.2	
Engineer Skills	8.8	8.0	0.8	0.7	
Telephone Support:					
Accessibility	8.4	7.4	1.0	0.6	
Fix Speed	8.3	7.3	1.0	0.7	
Documentation	8.1	6.8	1.3	1.0	
Planning/Consultancy	7.0	7.0	0.0	0.1	
SW Training	7.9	7.7	0.2	0.4	
On-Site Support	7.5	6.9	0.6	0.2	
Hotline	7.6	7.3	0.3	0.4	
Capacity Tuning	8.0	7.5	0.5	0.3	
Remote Diagnostics	5.4	4.8	0.6	0.1	
SW Problems Database	4.8	4.9	(0.1)	(0.1)	
Average	7.5	7.1	0.4	0.3	
Population (S)	7.9	6.9	1.0		

Sample Size: 52

EXHIBIT VI-27

DEC

HARDWARE SERVICE SATISFACTION-TRENDS

	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
Operator Training	7.7	7.7	0.0	6.5	7.3	(0.8)	-
Spares Availability	8.9	8.2	0.7	8.9	8.3	0.6	-
Engineer Skills	9.0	8.3	0.7	8.7	7.9	0.8	-
Remote Diagnostics	6.9	7.0	(0.1)	7.3	7.0	0.3	Better
Documentation	7.6	6.8	0.8	6.8	7.2	(0.4)	-
Planning/Consultancy	7.2	7.3	(0.1)	7.3	6.9	0.4	Better
Average	7.9	7.6	0.3	7.6	7.4	0.2	

Sample Size: 193

A comparison of a reduced set of service aspects performance figures with those of last year show that, by and large, the hardware satisfaction is about level but tending to deteriorate, but that the software figures are much better. However, it should be noted that the satisfaction index for Documentation is up at the customer concern level (Exhibits VI-27 and 28).

EXHIBIT VI-28

DEC

SOFTWARE SUPPORT SATISFACTION-TRENDS

	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
SW Installation	8.2	8.0	0.2	7.3	6.8	0.5	Better
Engineer Skills	8.9	8.2	0.7	8.0	6.5	1.5	Better
Documentation	8.2	7.2	1.0	8.9	7.4	1.5	Better
Planning/Consultancy	7.2	7.2	0.0	7.5	7.0	0.5	Better
SW Training	7.9	7.8	0.1	8.1	7.2	0.9	Better
Remote Diagnostics	6.3	6.6	(0.3)	8.0	6.5	1.5	Better
Average	7.8	7.5	0.3	8.0	6.9	1.1	

Sample Size: 193

A comparison of the scattergram, Exhibit VI-29, with that for the sample population shows a great similarity, except at the bottom end where the importance and satisfaction ratings fall away very sharply. This would indicate that DEC is managing its resources very well in the 'less important' areas. However, for Spares Availability and Engineer Skills, DEC is in the same situation as the population, with a satisfaction index approaching the customer concern level.

Again, for software support, the scattergram, Exhibit VI-30, corresponds very closely with that of the population, except at the bottom end where importance falls away sharply and there is evidence that the customer is 'over-satisfied'.

From Exhibit VI-31 it is seen that DEC betters the population sample mean for the number of breaks per annum, but that there is a very distinct difference in the proportions of hardware and software breaks. The medium and small installations have the same order of breaks per year, but the large systems are some 40% higher, no doubt due to the greater complexity of the latter.

In respect of satisfaction with system availability, Exhibit VI-32, the satisfaction gap , at 0.7, is marginally greater than with the population, while the actual satisfaction levels are approximately the same.

EXHIBIT VI-29

DEC

IMPORTANCE OF HARDWARE SERVICES

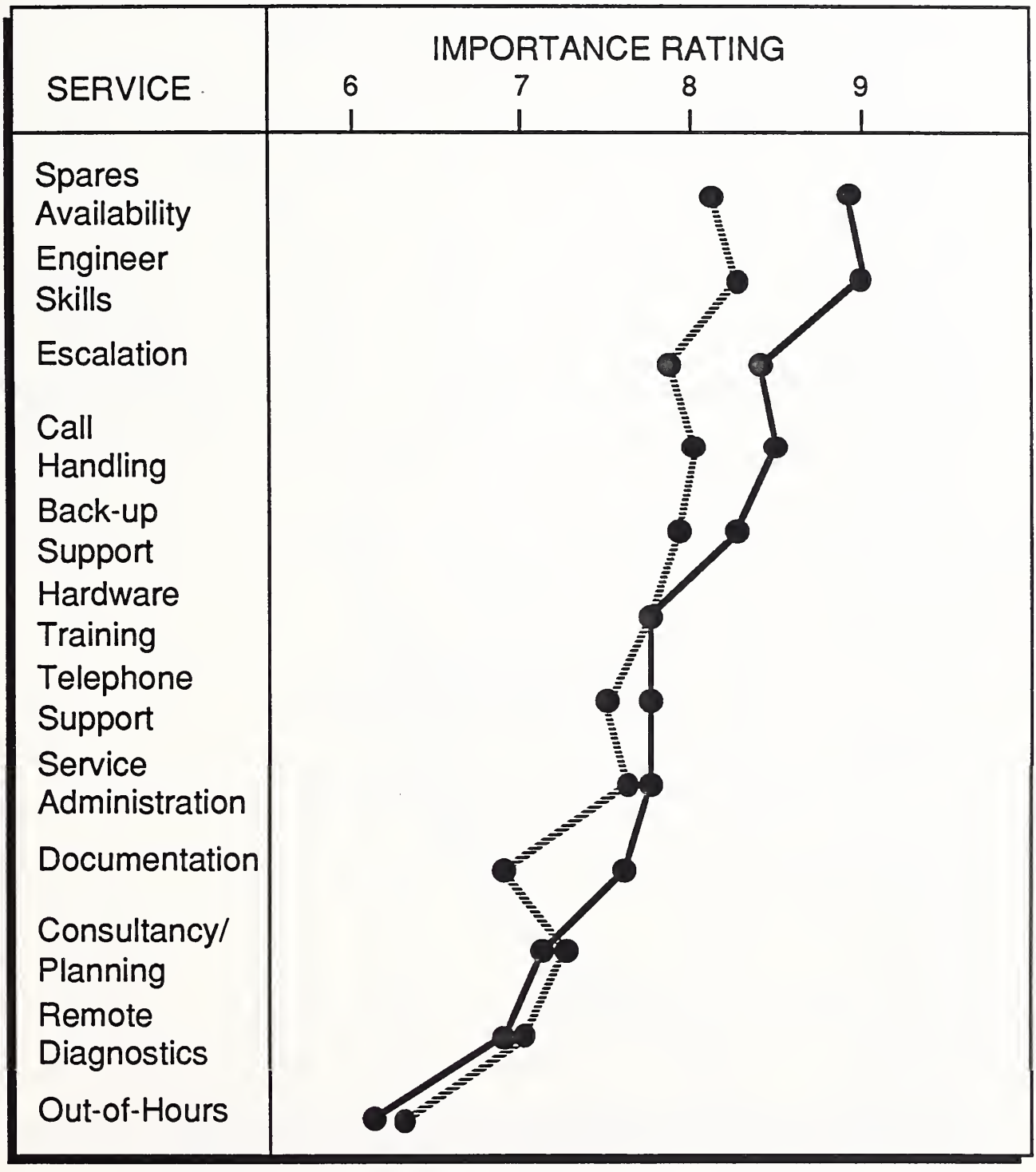
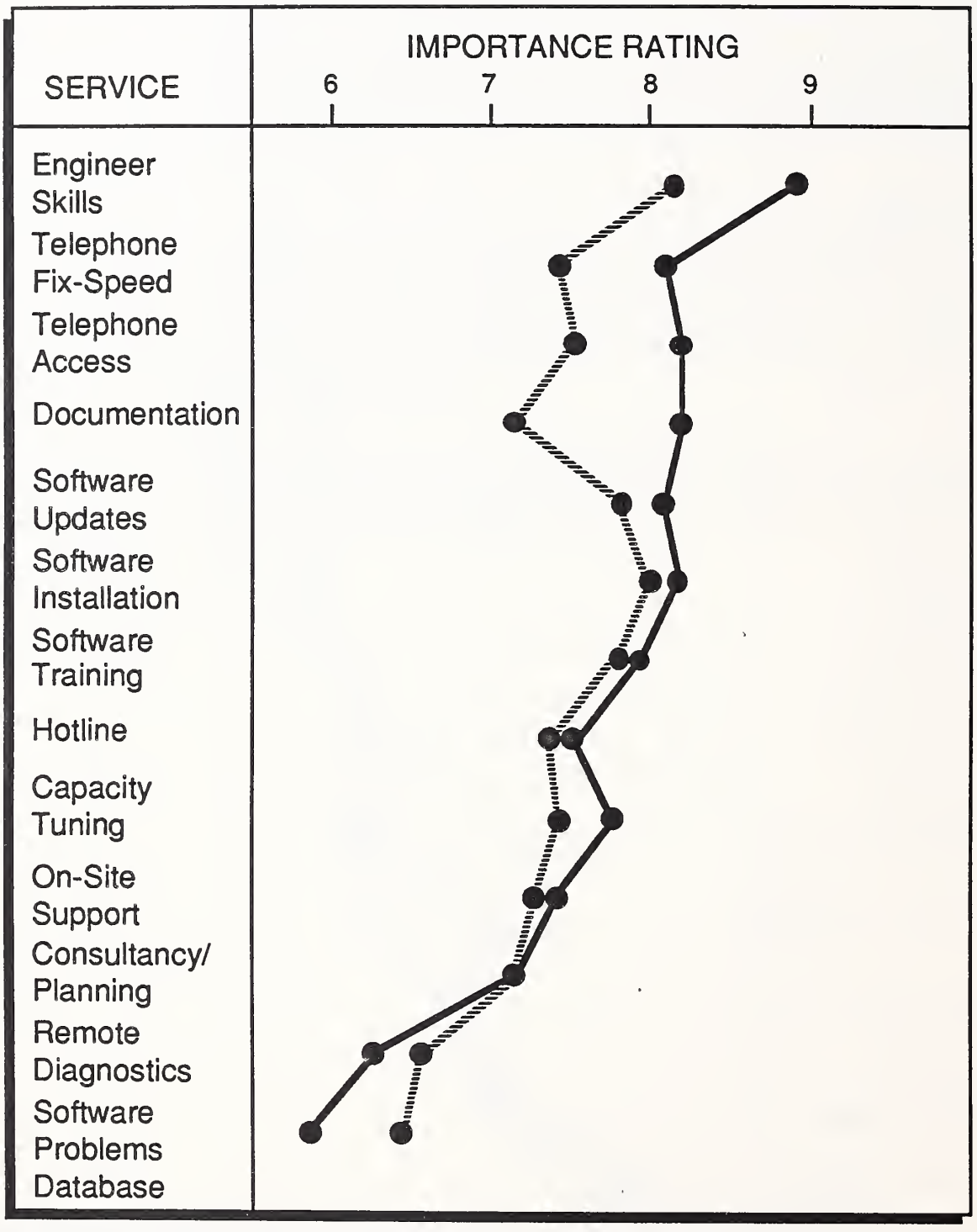


EXHIBIT VI-30

DEC

IMPORTANCE OF SOFTWARE SERVICES



Sample Size: 193

EXHIBIT VI-31

DEC

BREAKDOWNS BY SYSTEM SIZE

SIZE	BREAKS PA	AREA OF BREAK (Percent)	
		HW	SW
Large	3.2	67	33
Medium	2.4	63	37
Small	2.2	57	43
Average	2.5	63	37
Population	2.8	54	46

Sample Size: 193

EXHIBIT VI-32

DEC

SATISFACTION WITH SYSTEMS AVAILABILITY

SIZE	IMPORTANCE	SATISFACTION	Δ
Large	9.4	8.9	0.5
Medium	9.4	8.7	0.7
Small	9.3	8.6	0.7
Average	9.4	8.7	0.7
Population	9.3	8.7	0.6

Sample Size: 193

EXHIBIT VI-33

DEC

HARDWARE RESPONSE AND FIX TIMES

	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	3.0	2.4	(0.6)	8.9	4.1	3.7	(0.4)	9.1	7.1	6.1	(1.0)
Medium	3.6	3.9	0.3	9.2	4.3	4.6	0.3	9.1	7.9	8.5	0.6
Small	6.4	6.4	0.0	8.9	6.4	13.9	7.5	8.8	12.8	20.3	7.5
Average	4.2	4.2	0.0	9.0	4.8	6.7	1.9	9.0	9.0	10.9	1.9
Population	3.4	3.7	0.3	9.1	3.9	4.6	0.7	9.1	7.3	8.3	1.0
Last Year	3.9	3.9	0.0	-	2.9	3.0	-	6.8	6.8	6.9	0.1

Sample Size: 193

A comparison of the hardware response and fix times with those of the sample population, Exhibit VI-33, shows a slightly longer overall time, and a difference between acceptable and experienced times nearly twice as long at 1.9hr. A similar comparison with last year's survey shows a 58% deterioration and a big increase in unsatisfied expectations; this may be of particular importance in the servicing and support of small system owners.

EXHIBIT VI-34

DEC

SOFTWARE RESPONSE AND FIX TIMES

	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	20.9	36.6	15.7	8.4	19.8	34.2	14.4	8.4	40.7	70.8	30.1
Medium	6.9	11.1	4.2	8.6	10.1	10.9	0.8	8.7	17.0	22.0	5.0
Small	5.1	5.9	0.8	9.6	22.2	26.9	4.7	8.8	27.3	32.8	5.5
Average	6.2	10.1	3.9	8.9	15.6	20.8	5.2	8.7	21.8	30.9	9.1
Population	8.8	17.0	8.2	8.7	11.0	19.6	8.6	8.8	19.8	36.6	16.8
Last Year	6.8	11.3	4.5	-	8.3	24.5	16.2	-	15.1	35.8	20.7

Sample Size: 193

Exhibit VI-34 gives a totally different picture with the software times, where the average response of some 31hr is 16% better than the population and 14% better than last year. The pattern of satisfaction of what the customer regards as acceptable response and fix times varies quite dramatically between the three installation sizes. The large system user sample records a total fix time of some 71hr, in comparison to 22hr and 33hr for the medium and small samples respectively.

In Exhibits VI-35 and 36, depicting which vendor supplies the hard and software support, it is seen that DEC gets a lower proportion than with the sample population. There is a small but significant tendency for other people to pick up support contracts, and TPM's appear to have a slightly higher than average customer penetration.

EXHIBIT VI-35

DEC

HARDWARE SERVICE VENDOR BY SYSTEM SIZE

SIZE	MANUFACTURER (Percent)	DEALER (Percent)	TPM (Percent)	SELF (Percent)	SAMPLE
Large	86	3	11	5	37
Medium	90	3	8	1	104
Small	87	10	2	8	52
Average	89	5	7	4	193
Population	93	2	5	1	1321

EXHIBIT VI-36

DEC

SOFTWARE SERVICE VENDOR BY SYSTEM SIZE

SIZE	MANUFACTURER (Percent)	SW VENDOR (Percent)	SYSTEMS HOUSE (Percent)	SELF (Percent)	SAMPLE
Large	81	3	5	22	37
Medium	75	15	8	26	104
Small	54	17	15	35	52
Average	70	13	9	27	193
Population	80	6	7	20	1321

EXHIBIT VI-37

DEC

CUSTOMER PREFERENCES ON BUNDLING

SIZE	INDIVIDUAL PRICING (Percent)	BUNDLED (Percent)	DON'T KNOW (Percent)	SAMPLE SIZE
Large	72	14	14	36
Medium	64	19	17	104
Small	59	22	19	51
Average	64	19	17	191

Exhibit VI-37 gives a 'classic' picture on bundling, where the larger system customer, with a higher number of service options in his 'bundle' prefers individual pricing, and where the smaller system customer with a lower number of options appears to prefer bundling - as long as the price is right.

EXHIBIT VI-38

DEC

CUSTOMERS' TOP TRAINING REQUIREMENTS

REQUIREMENTS	LARGE (Percent)	MEDIUM (Percent)	SMALL (Percent)	AVERAGE (Percent)
On DEC Kit	14	18	21	18
Software	14	13	25	17
System Ops.	16	19	4	15
General	3	15	15	13
Operations	11	11	10	10
Hardware	8	10	8	9

Sample Size: 193

Exhibit VI-38, depicting the DEC user samples' top training requirements, shows there is a very little distinction between the needs of owners of large, medium, or small systems, except for systems operations training for small systems installations.

It is interesting to note that the top need is for training on DEC equipment and, if this is not the result of a DEC initiated strategy, then the causes will need to be established or, perhaps, further opportunities explored.

As shown in Exhibit VI-39, two of the services not yet provided to some customers have importance levels which indicate serious customer interest. All other things being equal, an indication of the best possibility of selling an extra service is found by multiplying the importance rating by the number or percentage of surveyed customers without the service and ranking the results. In the case of DEC, the top items are Network Planning and Disaster Recovery.

EXHIBIT VI-39

DEC

TOP REQUIREMENTS AND INTEREST LEVELS FOR OTHER SERVICES

MEDIUM SYSTEMS

SERVICE	IMPORTANCE	PERCENT WITHOUT	DECISION TREE	SAMPLE
Training	7.6	0	0	104
Disaster Recovery	7.0	55	39	103
Consultancy	6.5	40	26	103
Network Planning	6.0	60	36	102

SMALL SYSTEMS

SERVICE	IMPORTANCE	PERCENT WITHOUT	DECISION TREE	SAMPLE
Training	6.7	0	0	51
Network Planning	5.9	73	43	51
Disaster Recovery	5.8	73	42	48

EXHIBIT VI-40

DEC

VIEWS ON CURRENT SERVICE PERFORMANCE

SYSTEM SIZE	HARDWARE			SOFTWARE			SAMPLE SIZES
	IMP	SAT	Δ	IMP	SAT	Δ	
Large	9.3	8.4	0.9	8.2	7.7	0.5	37
Medium	9.4	8.3	1.1	8.7	8.1	0.6	104
Small	9.1	8.1	1.0	9.0	7.8	1.2	52
Average	9.3	8.3	1.0	8.7	8.0	0.7	193
Population	9.1	8.2	0.9	8.7	7.8	0.9	1321
Last Year	8.9	8.1	0.8	8.5	7.2	1.3	-

All respondents were asked, in a quite separate question, to give ratings to their overall impression of hardware and software support, and these ratings are shown in Exhibit VI-40. For DEC the hardware satisfaction index was slightly better than that of the sample population, and nearly twice as good as DEC's own performance last year. For software the index is better than that for the population and twice as good as last year.

EXHIBIT VI-41

DEC

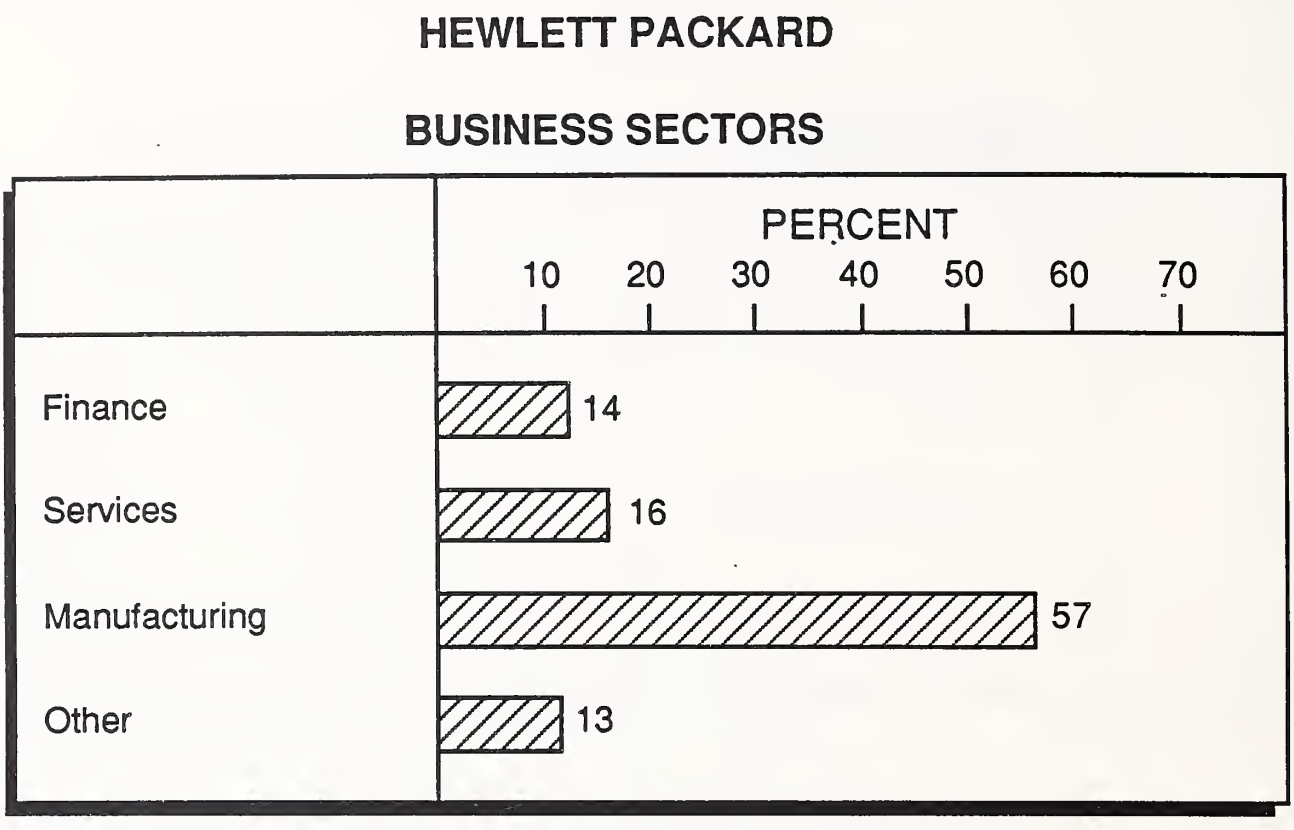
VIEWS ON LIKELY PERFORMANCE (OF CURRENT SUPPLIER) IN FIVE YEARS TIME

CUSTOMER VIEW	HOLDING THE VIEW (Percent)
Excellent	50
Hope for Improvement	11
Same as Now	10

Sample Size: 193

Exhibit VI-41 gives a synopsis of respondents' views on what they believe the current vendors service performance will be like in five years time. It should be noted that this view is likely to be based on CURRENT performance. Even though DEC performance ratings are only about the sample mean, half of the DEC respondents felt that the service would be excellent, and there were very few adverse comments.

EXHIBIT VI-42



C

Hewlett Packard

Exhibit VI-42 shows that the predominant business sector among HP customers surveyed was manufacturing, and that the proportion, at 57% compared with the sample population at 42%, shows a distinct bias to this sector.

EXHIBIT VI-43

HEWLETT PACKARD
HARDWARE SERVICE SATISFACTION
LARGE SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.8	8.1	(0.3)	0.1	Better
Operator Training	7.0	8.2	(1.2)	0.1	Better
Spares Availability	8.5	8.0	0.5	0.8	Better
Escalation Procedure	7.5	7.0	0.5	0.7	
Engineer Skills	8.5	8.4	0.1	0.7	Better
Remote Diagnostics	7.6	7.2	0.4	0.0	
Telephone Support	8.4	8.0	0.4	0.2	
Documentation	6.6	7.1	(0.5)	0.7	Better
Planning/Consultancy	7.2	7.3	(0.1)	0.0	
Out-of-Hours	7.3	7.3	0.0	(0.1)	
Call Handling	7.9	7.8	0.1	0.4	Better
Back-Up Support	8.1	8.0	0.1	0.4	Better
Average	7.8	7.7	0.1	0.2	
Population (L)	7.7	7.1	0.6		

Sample Size: 13

In the large systems area, Exhibits VI-43 and 44, there are seventeen aspects of service which are better than those of the sample population. No aspects appear to approach the concern level.

EXHIBIT VI-44

HEWLETT PACKARD
SOFTWARE SUPPORT SATISFACTION
LARGE SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	7.8	7.8	0.0	0.3	Better
SW Installation	7.5	8.2	(0.7)	0.2	Better
Engineer Skills	8.9	8.9	0.0	0.7	Better
Telephone Support:					
Accessibility	8.7	8.4	0.3	0.6	Better
Fix Speed	8.3	8.2	0.1	0.7	Better
Documentation	6.4	6.9	(0.5)	1.0	Better
Planning/Consultancy	6.9	7.3	(0.4)	0.1	Better
SW Training	7.0	7.5	(0.5)	0.4	Better
On-Site Support	7.4	7.9	(0.5)	0.2	Better
Hotline	8.0	8.3	(0.3)	0.4	Better
Capacity Tuning	7.7	7.5	0.2	0.3	
Remote Diagnostics	7.3	7.0	0.3	0.1	
SW Problems Database	6.7	6.9	(0.2)	(0.1)	
Average	7.5	7.8	(0.3)	0.3	Better
Population (L)	8.2	7.3	0.9		

Sample Size: 13

EXHIBIT VI-45

HEWLETT PACKARD
HARDWARE SERVICE SATISFACTION
MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.5	7.8	(0.3)	0.1	Better
Operator Training	7.6	7.7	(0.1)	0.1	
Spares Availability	9.1	8.5	0.6	0.8	
Escalation Procedure	8.3	8.0	0.3	0.7	Better
Engineer Skills	8.9	8.5	0.4	0.7	Better
Remote Diagnostics	7.7	7.7	0.0	0.0	
Telephone Support	8.4	7.9	0.5	0.2	
Documentation	7.9	7.0	0.9	0.7	
Planning/Consultancy	7.5	7.3	0.2	0.0	
Out-of-Hours	6.6	6.9	(0.3)	(0.1)	
Call Handling	8.3	7.7	0.6	0.4	
Back-Up Support	8.3	7.9	0.4	0.4	
Average	8.0	7.7	0.3	0.2	
Population (M)	7.6	6.8	0.8		

Sample Size: 63

For medium systems, Exhibits VI-45 and 46, performance is comparable to the general population, with only Documentation having a satisfaction index approaching the concern level.

EXHIBIT VI-46

HEWLETT PACKARD
SOFTWARE SUPPORT SATISFACTION
MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	8.1	7.8	0.3	0.3	
SW Installation	8.1	8.1	0.0	0.2	
Engineer Skills	8.8	8.5	0.3	0.7	Better
Telephone Support:					
Accessibility	8.1	7.9	0.2	0.6	Better
Fix Speed	8.3	7.8	0.5	0.7	
Documentation	8.0	7.1	0.9	1.0	
Planning/Consultancy	7.3	7.7	(0.4)	0.1	Better
SW Training	7.9	7.8	0.1	0.4	Better
On-Site Support	7.5	7.3	0.2	0.2	
Hotline	8.0	8.0	0.0	0.4	Better
Capacity Tuning	7.9	7.8	0.1	0.3	
Remote Diagnostics	7.6	7.9	(0.3)	0.1	Better
SW Problems Database	7.1	7.2	(0.1)	(0.1)	
Average	7.9	7.8	0.1	0.3	
Population (M)	8.0	7.1	0.9		

Sample Size: 63

EXHIBIT VI-47

HEWLETT PACKARD
HARDWARE SERVICE SATISFACTION
SMALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.6	8.0	(0.4)	0.1	Better
Operator Training	7.1	8.1	(1.0)	0.1	Better
Spares Availability	9.2	8.3	0.9	0.8	
Escalation Procedure	7.6	7.3	0.3	0.7	Better
Engineer Skills	8.8	8.4	4.0	0.7	
Remote Diagnostics	7.7	7.7	0.0	0.0	
Telephone Support	7.8	8.1	(0.3)	0.2	Better
Documentation	8.1	6.4	1.7	0.7	
Planning/Consultancy	7.8	7.0	0.8	0.0	
Out-of-Hours	6.0	6.1	(0.1)	(0.1)	
Call Handling	8.2	7.4	0.8	0.4	
Back-Up Support	8.3	7.0	1.3	0.4	
Average	7.9	7.5	0.4	0.2	
Population (S)	7.4	6.5	0.9		

Sample Size: 20

With small systems, Exhibits VI-47 and 48, there are ten service aspects out of the 25, which are better than with the sample population, but hardware and software Documentation is near the real dissatisfaction level.

EXHIBIT VI-48

HEWLETT PACKARD
SOFTWARE SUPPORT SATISFACTION
SMALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	8.3	8.3	0.0	0.3	Better
SW Installation	7.6	7.8	(0.2)	0.2	Better
Engineer Skills	8.9	8.2	0.7	0.7	
Telephone Support:					
Accessibility	7.7	8.0	(0.3)	0.6	Better
Fix Speed	7.8	8.3	(0.5)	0.7	Better
Documentation	8.7	6.9	1.8	1.0	
Planning/Consultancy	7.4	7.2	0.2	0.1	
SW Training	7.6	7.9	(0.3)	0.4	Better
On-Site Support	6.6	7.9	(1.3)	0.2	Better
Hotline	8.1	7.3	0.8	0.4	
Capacity Tuning	7.9	7.3	0.6	0.3	
Remote Diagnostics	7.9	7.2	0.7	0.1	
SW Problems Database	7.3	7.4	(0.1)	(0.1)	
Average	7.8	7.7	0.1	0.3	
Population (S)	7.9	6.9	1.0		

Sample Size: 20

A comparison of the scattergram Exhibit VI-49 with that for the sample population shows a little more scatter, but the satisfaction plot stays generally closer to the importance ratings, except for Documentation.

For software support the scattergram, Exhibit VI-50, shows very little scatter and this is similar to that of the population, except at the bottom end. As distinct from the hardware plot, the software version indicates a significantly better overall satisfaction.

EXHIBIT VI-49

HEWLETT PACKARD

IMPORTANCE OF HARDWARE SERVICES

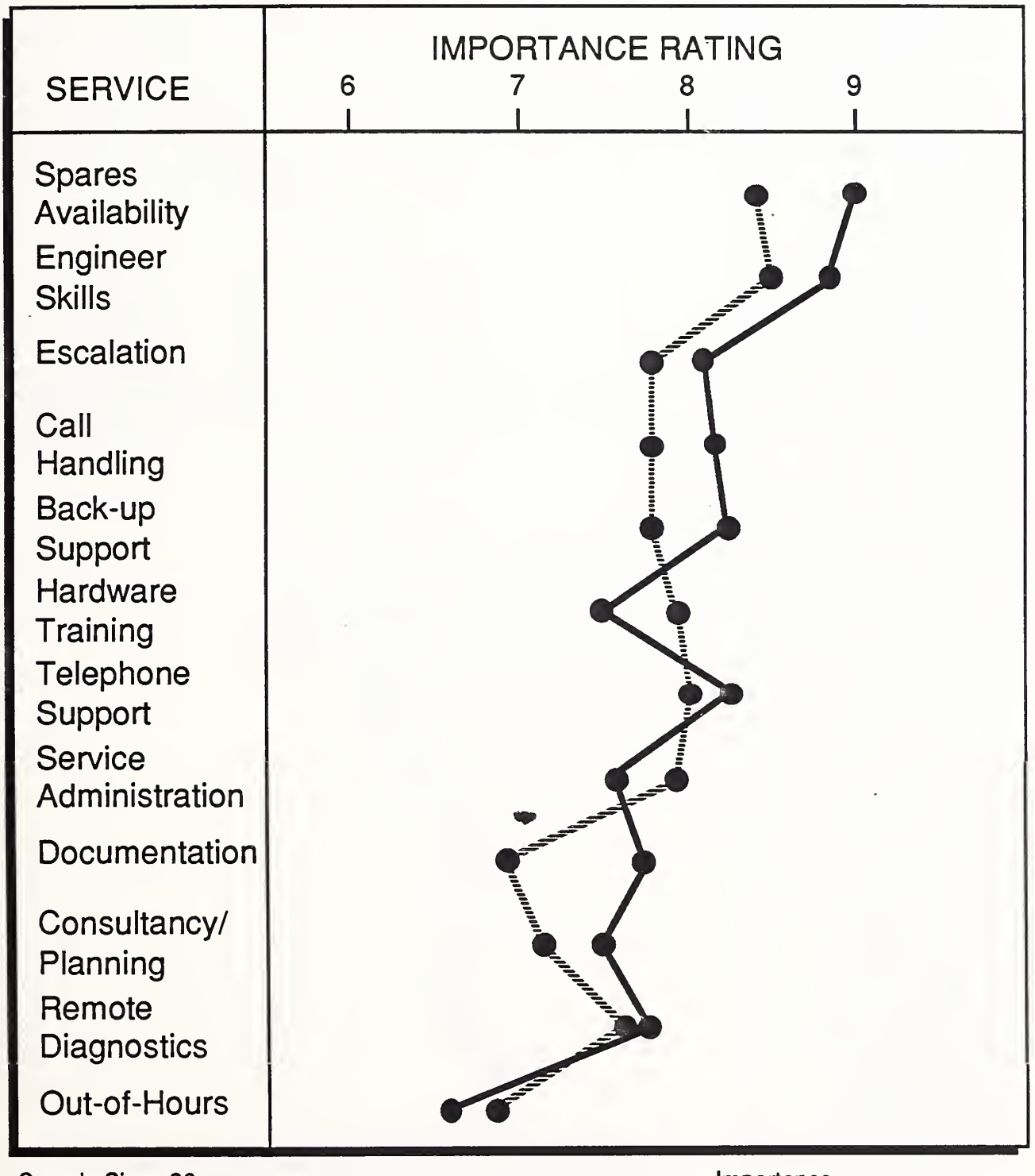


EXHIBIT VI-50

HEWLETT PACKARD

IMPORTANCE OF SOFTWARE SERVICES

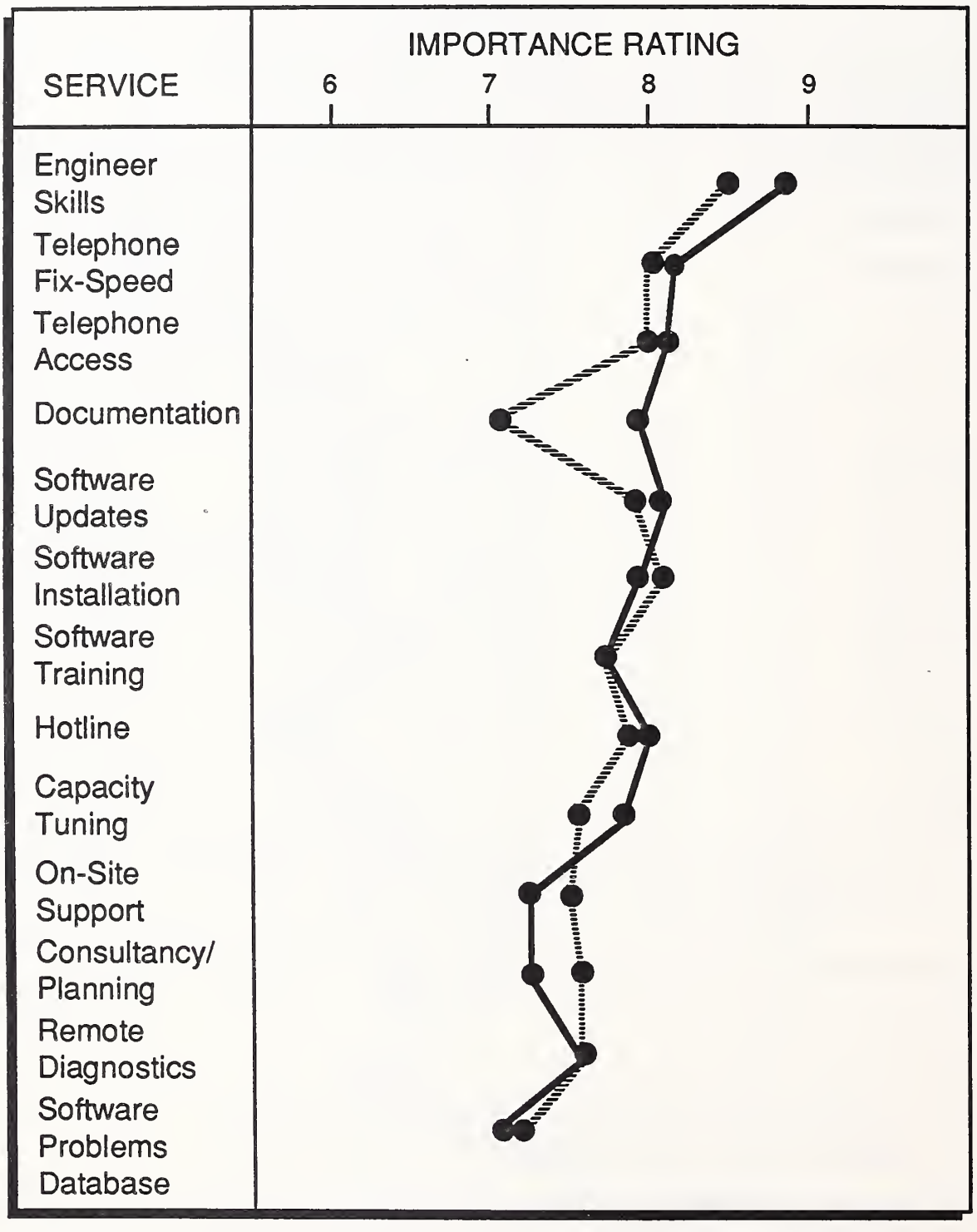


EXHIBIT VI-51

HEWLETT PACKARD

BREAKDOWNS BY SYSTEM SIZE

SIZE	BREAKS PA	AREA OF BREAK (Percent)	
		HW	SW
Large	10.0	62	38
Medium	1.6	59	41
Small	1.5	51	49
Average	2.8	58	42
Population	2.8	54	46

Sample Size: 96

From Exhibit VI-51 it is seen that HP matches the population sample mean for the number of breaks per annum, but that there is a very distinct difference in the performance of large systems, no doubt due to the greater complexity of the installations.

EXHIBIT VI-52

HEWLETT PACKARD

SATISFACTION WITH SYSTEMS AVAILABILITY

SIZE	IMPORTANCE	SATISFACTION	Δ
Large	9.2	8.2	1.0
Medium	9.4	9.0	0.4
Small	8.6	8.3	0.3
Average	9.2	8.7	0.5
Population	9.3	8.7	0.6

Sample Size: 96

In satisfaction with system availability, Exhibit VI-52, the index, at 0.5, is marginally better than that of the population, but the figures indicate no real overall difference in HP customers' attitudes.

EXHIBIT VI-53

HEWLETT PACKARD

HARDWARE RESPONSE AND FIX TIMES

SYSTEM SIZE	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	3.2	3.4	0.2	8.5	2.3	3.2	0.9	8.9	5.5	6.6	1.1
Medium	4.6	4.6	0.0	9.0	4.5	4.4	(0.1)	9.0	9.1	9.0	(0.1)
Small	5.3	7.8	2.5	8.9	5.2	7.2	2.0	8.9	10.5	15.0	4.5
Average	4.6	5.0	0.4	8.9	4.3	4.8	0.5	9.0	8.9	9.8	0.9
Population	3.4	3.7	0.3	9.1	3.9	4.6	0.7	9.1	7.3	8.3	1.0

Sample Size: 96

A comparison of the hardware response and fix times with those of the sample population, Exhibit VI-53, shows an 18% longer overall time and a difference between acceptable and experienced times approximating to the sample mean at 0.9hr. Another interesting facet is that the times for fixing large machines are only (approximately) one half of those for fixing small machines.

EXHIBIT VI-54

HEWLETT PACKARD

SOFTWARE RESPONSE AND FIX TIMES

SYSTEM SIZE	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	21.3	42.9	21.6	8.7	11.1	11.8	0.7	8.6	32.4	54.7	22.3
Medium	10.1	17.7	7.6	8.8	12.5	19.3	6.8	8.8	22.6	37.0	14.4
Small	10.8	29.1	18.3	8.7	9.4	15.7	6.3	8.8	20.2	44.8	24.6
Average	11.9	24.0	12.1	8.7	11.6	17.4	5.8	8.8	23.5	41.4	17.9
Population	8.8	17.0	8.2	8.7	11.0	19.6	8.6	8.8	19.8	36.6	16.8

Sample Size: 96

Exhibit VI-54 gives a slightly different picture for software response and fix times. The average repair of some 41hr is 13% longer than with the population. This should be balanced against the hardware/software break proportions shown in Exhibit VI-52, as there are relatively more hardware breaks - at the lesser total repair times.

In Exhibits VI-55 and 56, depicting which vendor supplies the hardware and software support, it is seen that HP gets roughly the same level of business as with the sample population as a whole.

EXHIBIT VI-55

HEWLETT PACKARD

HARDWARE SERVICE VENDOR BY SYSTEM SIZE

SYSTEM SIZE	MANUFACTURER (Percent)	DEALER (Percent)	TPM (Percent)	SELF (Percent)	SAMPLE
Large	93	7	-	-	13
Medium	92	3	6	-	63
Small	95	-	-	-	20
Average	93	3	4	-	96
Population	93	2	5	1	1321

EXHIBIT I-1

HEWLETT PACKARD

SOFTWARE SERVICE VENDOR BY SYSTEM SIZE

SYSTEM SIZE	MANUFACTURER (Percent)	SW VENDOR (Percent)	SYSTEMS HOUSE (Percent)	SELF (Percent)	SAMPLE
Large	86	-	-	21	13
Medium	79	6	10	19	63
Small	60	5	15	20	20
Average	76	5	9	20	96
Population	80	6	7	20	1321

EXHIBIT VI-57

HEWLETT PACKARD

CUSTOMER PREFERENCES ON BUNDLING

SYSTEM SIZE	INDIVIDUAL PRICING (Percent)	BUNDLED (Percent)	DON'T KNOW (Percent)	SAMPLE SIZE
Large	85	-	15	13
Medium	68	14	18	63
Small	45	25	30	20
Average	65	15	20	96

Exhibit VI-57 gives a 'classic' picture on bundling, where the larger system customer, with a higher number of service options in his 'bundle', prefers individual pricing, and where the smaller system customer with a lower number of options appears to prefer bundling - as long as the price is right.

EXHIBIT VI-58

HEWLETT PACKARD

CUSTOMERS' TOP TRAINING REQUIREMENTS

REQUIREMENT	LARGE (Percent)	MEDIUM (Percent)	SMALL (Percent)	AVERAGE (Percent)
On HP Kit	14	25	10	21
Software	7	22	20	20
General	-	14	25	14
Programming	-	13	25	13
Hardware	-	10	15	9
Systems Ops.	7	10	10	9

Sample Size: 96

Exhibit VI-58, depicts the HP user samples' top training requirements. There are quite different requirements expressed by the owners of large, medium, and small systems. As with DEC it is interesting to note that the top need is for training on own equipment.

As shown in Exhibit VI-59, two of the potential services with high importance levels also indicate relatively low take-up by users. All other things being equal, an indication of the best possibility of selling an extra service is found by multiplying the importance rating by the number or percentage of surveyed customers without the service and ranking the results - in the case of HP, the top items are Disaster Recovery and Software Evaluation.

EXHIBIT VI-59

HEWLETT PACKARD

TOP REQUIREMENTS AND INTEREST LEVELS FOR OTHER SERVICES

MEDIUM SYSTEMS

SERVICE	IMPORTANCE	PERCENT WITHOUT	DECISION TREE	SAMPLE
Disaster Recovery	7.3	51	37	63
Consultancy	7.0	33	23	63
Training	6.9	0	0	63
Capacity Planning	6.9	38	26	63

SMALL SYSTEMS

SERVICE	IMPORTANCE	PERCENT WITHOUT	DECISION TREE	SAMPLE
Disaster Recovery	7.4	75	55	20
Training	7.3	0	0	20
Consultancy	6.9	45	31	20
Software Evaluation	6.6	75	50	20

EXHIBIT VI-60

HEWLETT PACKARD

VIEWS ON CURRENT SERVICE PERFORMANCE

SYSTEM SIZE	HARDWARE			SOFTWARE			SAMPLE SIZES
	IMP	SAT	Δ	IMP	SAT	Δ	
Large	9.0	8.4	0.6	8.7	7.9	0.8	13
Medium	9.2	8.2	1.0	8.6	8.4	0.2	63
Small	8.9	8.2	0.7	8.6	8.1	0.5	20
Average	9.1	8.2	0.9	8.6	8.3	0.3	96
Population	9.1	8.2	0.9	8.7	7.8	0.9	1321

All respondents were asked, in a quite separate question, to give ratings to their overall impression of hardware and software support, and these ratings are shown in Exhibit VI-60. For HP the hardware satisfaction index was identical to that of the sample population, and with software three times better.

EXHIBIT VI-61

HEWLETT PACKARD

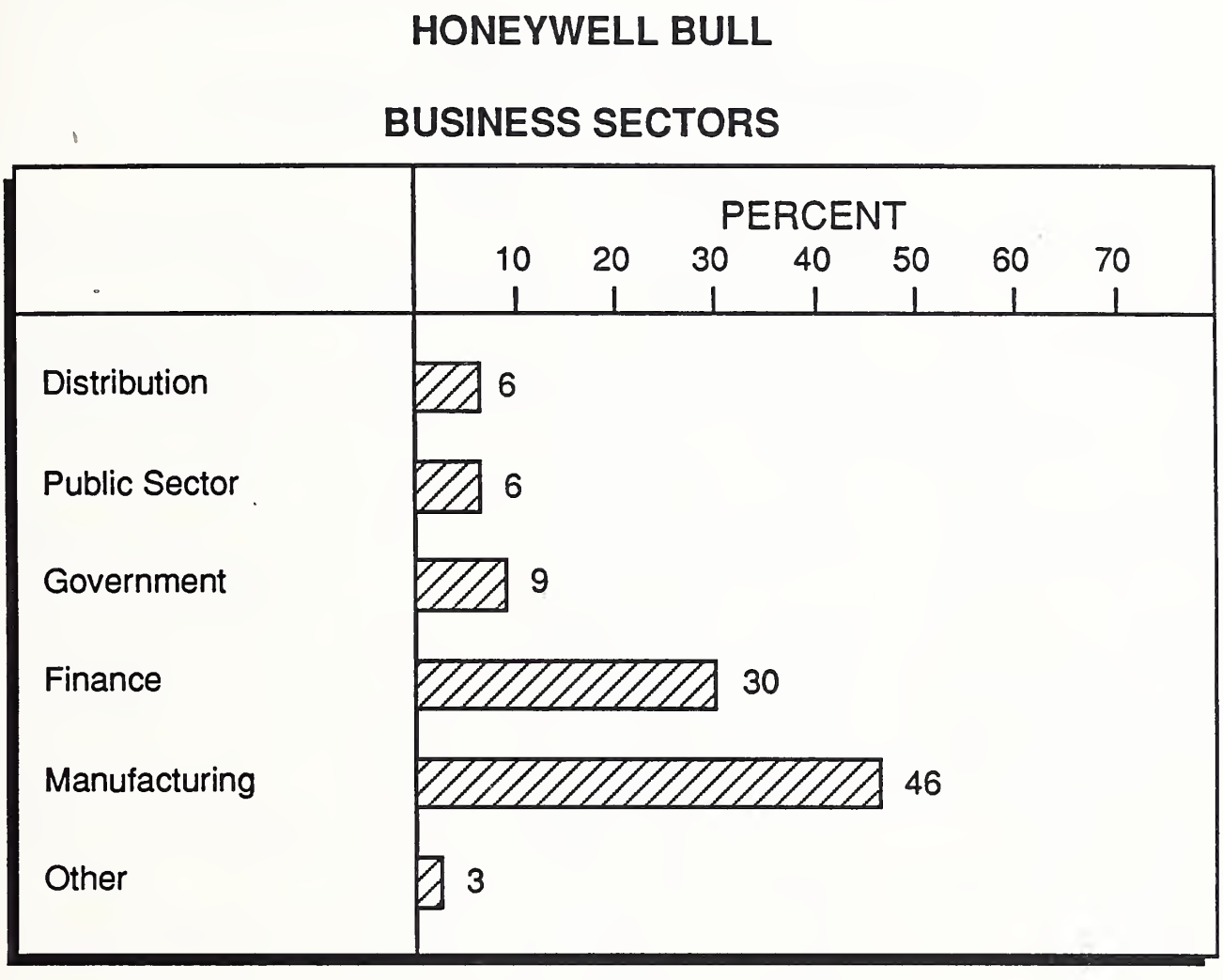
VIEWS ON LIKELY PERFORMANCE (OF CURRENT SUPPLIER) IN FIVE YEARS TIME

CUSTOMER VIEW	HOLDING THE VIEW (Percent)
Excellent	39
Hope for Improvement	13
Same as Now	12

Sample Size: 96

Exhibit VI-61 gives a synopsis of respondents views on what they believe the current vendors service performance will be like in five years time. It should be noted that this view is likely to be based on CURRENT performance. Roughly 51% of the HP sample gave replies that indicate either a measure of satisfaction or even total satisfaction, but HP may want to better this figure to ensure that they continue to be perceived as a "good" service company.

EXHIBIT VI-62



D

Honeywell Bull

Exhibit VI-62 shows that the predominant business sector among the Honeywell Bull customers was manufacturing, and the proportion, at 46%, reasonably close to that of the sample population, at 42%.

EXHIBIT VI-63

HONEYWELL BULL
HARDWARE SERVICE SATISFACTION
LARGE SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.9	7.0	0.9	0.1	
Operator Training	8.1	7.5	0.6	0.1	
Spares Availability	8.9	8.0	0.9	0.8	
Escalation Procedure	8.5	7.7	0.8	0.7	
Engineer Skills	9.2	8.3	0.9	0.7	
Remote Diagnostics	7.8	7.1	0.7	0.0	
Telephone Support	7.9	7.5	0.4	0.2	
Documentation	8.3	7.3	1.0	0.7	
Planning/Consultancy	7.9	7.4	0.5	0.0	
Out-of-Hours	6.9	7.1	(0.2)	(0.1)	
Call Handling	8.8	8.0	0.8	0.4	
Back-Up Support	8.6	7.6	1.0	0.4	
Average	8.2	7.5	0.7	0.2	
Population (L)	7.7	7.1	0.6		

Sample Size: 40

With large systems, Exhibits VI-63 and 64, Honeywell Bull betters the satisfaction level of the sample population. There are seven service aspects out of the 25 where the satisfaction index is approaching the 'concern' level.

EXHIBIT VI-64

HONEYWELL BULL
SOFTWARE SUPPORT SATISFACTION
LARGE SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	8.0	7.5	0.5	0.3	
SW Installation	8.2	8.0	0.2	0.2	
Engineer Skills	9.1	8.0	1.1	0.7	
Telephone Support:					
Accessibility	8.0	7.6	0.4	0.6	
Fix Speed	8.1	7.3	0.8	0.7	
Documentation	8.4	7.5	0.9	1.0	
Planning/Consultancy	7.1	7.2	(0.1)	0.1	
SW Training	8.4	7.4	1.0	0.4	
On-Site Support	8.4	7.7	0.7	0.2	
Hotline	8.1	7.8	0.3	0.4	
Capacity Tuning	7.7	7.7	0.0	0.3	Better
Remote Diagnostics	7.8	7.0	0.8	0.1	
SW Problems Database	7.0	6.9	0.1	(0.1)	
Average	8.0	7.5	0.5	0.3	
Population (L)	8.2	7.3	0.9		

Sample Size: 40

EXHIBIT VI-65

HONEYWELL BULL
HARDWARE SERVICE SATISFACTION
MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.4	7.4	0.0	0.1	
Operator Training	8.1	7.7	0.4	0.1	
Spares Availability	8.8	8.0	0.8	0.8	
Escalation Procedure	8.3	7.5	0.8	0.7	
Engineer Skills	8.9	8.3	0.6	0.7	
Remote Diagnostics	7.0	6.8	0.2	0.0	
Telephone Support	7.6	7.1	0.5	0.2	
Documentation	7.6	6.8	1.0	0.7	
Planning/Consultancy	6.9	7.0	(0.1)	0.0	
Out-of-Hours	7.0	7.0	0.0	(0.1)	
Call Handling	8.1	7.5	0.6	0.4	
Back-Up Support	8.1	7.6	0.5	0.4	
Average	7.8	7.4	0.4	0.2	
Population (M)	7.6	6.8	0.8		

Sample Size: 64

For medium systems, Exhibits VI-65 and 66, the satisfaction gaps are better than those of the sample population, but Telephone Support, Documentation, and On-site Support are at or near the customer concern level.

EXHIBIT VI-66

HONEYWELL BULL
SOFTWARE SUPPORT SATISFACTION
MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	7.8	7.4	0.4	0.3	
SW Installation	8.0	7.7	0.3	0.2	
Engineer Skills	8.8	8.0	0.8	0.7	
Telephone Support:					
Accessibility	8.3	7.3	1.0	0.6	
Fix Speed	8.1	7.0	0.9	0.7	
Documentation	8.1	7.0	1.1	1.0	
Planning/Consultancy	6.8	6.7	0.1	0.1	
SW Training	8.1	7.3	0.8	0.4	
On-Site Support	8.2	7.2	1.0	0.2	
Hotline	7.3	6.7	0.6	0.4	
Capacity Tuning	7.9	7.1	0.8	0.3	
Remote Diagnostics	6.6	6.1	0.5	0.1	
SW Problems Database	7.0	6.9	0.1	(0.1)	
Average	7.8	7.1	0.7	0.3	
Population (M)	8.0	7.1	0.9		

Sample Size: 64

EXHIBIT VI-67

HONEYWELL BULL
HARDWARE SERVICE SATISFACTION
SMALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.7	7.7	0.0	0.1	
Operator Training	7.5	7.1	0.4	0.1	
Spares Availability	9.0	8.1	0.9	0.8	
Escalation Procedure	8.6	7.4	1.2	0.7	
Engineer Skills	8.5	7.4	1.1	0.7	
Remote Diagnostics	7.2	7.8	(0.6)	0.0	Better
Telephone Support	7.7	7.0	0.7	0.2	
Documentation	8.1	7.4	0.7	0.7	
Planning/Consultancy	6.6	7.0	(0.4)	0.0	Better
Out-of-Hours	6.4	6.7	(0.3)	(0.1)	
Call Handling	7.4	7.2	0.2	0.4	
Back-Up Support	7.6	7.1	0.5	0.4	
Average	7.5	7.3	0.2	0.2	
Population (S)	7.4	6.5	0.9		

Sample Size: 11

Exhibits VI-67 and 68 show the survey results for small systems, where there are eight service aspects out of 25 which have better scores than the population. However, there are also seven aspects where the satisfaction index is approaching or above the concern level, including the same items as for medium systems.

EXHIBIT VI-68

HONEYWELL BULL
SOFTWARE SUPPORT SATISFACTION
SMALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	8.1	7.3	0.8	0.3	
SW Installation	6.7	7.6	(0.9)	0.2	Better
Engineer Skills	8.7	8.3	0.4	0.7	Better
Telephone Support:					
Accessibility	7.6	6.9	0.7	0.6	
Fix Speed	7.6	6.6	1.0	0.7	
Documentation	8.8	8.3	0.5	1.0	Better
Planning/Consultancy	7.7	7.2	0.5	0.1	
SW Training	7.9	7.0	0.9	0.4	
On-Site Support	7.7	6.8	0.9	0.2	
Hotline	8.4	7.3	0.9	0.4	
Capacity Tuning	7.5	7.9	(0.4)	0.3	Better
Remote Diagnostics	6.2	7.0	(0.8)	0.1	Better
SW Problems Database	6.9	7.4	(0.5)	(0.1)	Better
Average	7.7	7.4	0.3	0.3	
Population (S)	7.9	6.9	1.0		

Sample Size: 11

EXHIBIT VI-69

HONEYWELL BULL

HARDWARE SERVICE SATISFACTION-TRENDS

	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
Operator Training	8.0	7.6	0.4	7.8	6.9	0.9	Better
Spares Availability	8.9	8.0	0.9	9.2	7.8	1.4	Better
Engineer Skills	8.9	8.2	0.7	9.1	8.0	1.1	Better
Remote Diagnostics	7.3	7.0	0.3	7.3	6.9	0.4	-
Documentation	8.0	7.0	1.0	6.8	6.5	0.3	-
Planning/Consultancy	7.2	7.2	0.0	7.7	6.8	0.9	Better
Average	8.1	7.5	0.6	8.0	7.2	0.8	

Sample Size: 115

A comparison of a reduced set of service aspects performance figures with those of last year show that, by and large, the hardware satisfaction is better, but that the software figures are much better. However, it should be noted that Documentation is at the customer concern level, reference Exhibits VI-69 and 70.

EXHIBIT VI-70

HONEYWELL BULL

SOFTWARE SUPPORT SATISFACTION-TRENDS

	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
SW Installation	8.0	7.8	0.2	8.5	7.0	1.5	Better
Engineer Skills	8.9	8.0	0.9	9.1	7.5	1.6	Better
Documentation	8.3	7.3	1.0	9.0	6.9	2.1	Better
Planning/Consultancy	7.0	6.9	0.1	8.4	6.8	1.6	Better
SW Training	8.2	7.3	0.9	8.9	7.0	1.9	Better
Remote Diagnostics	7.0	6.6	0.4	8.0	6.6	1.4	Better
Average	7.9	7.3	0.6	8.7	7.0	1.7	

A comparison of the scattergram, Exhibit VI-71, with that for the sample population shows more scatter and a higher level of dissatisfaction. As with the general sample Documentation and Escalation Procedures give the least satisfaction.

Again, for software support, the scattergram, Exhibit VI-72, shows much more scatter and a larger displacement of the satisfaction plot indicating less satisfaction in general.

EXHIBIT VI-71

HONEYWELL BULL

IMPORTANCE OF HARDWARE SERVICES

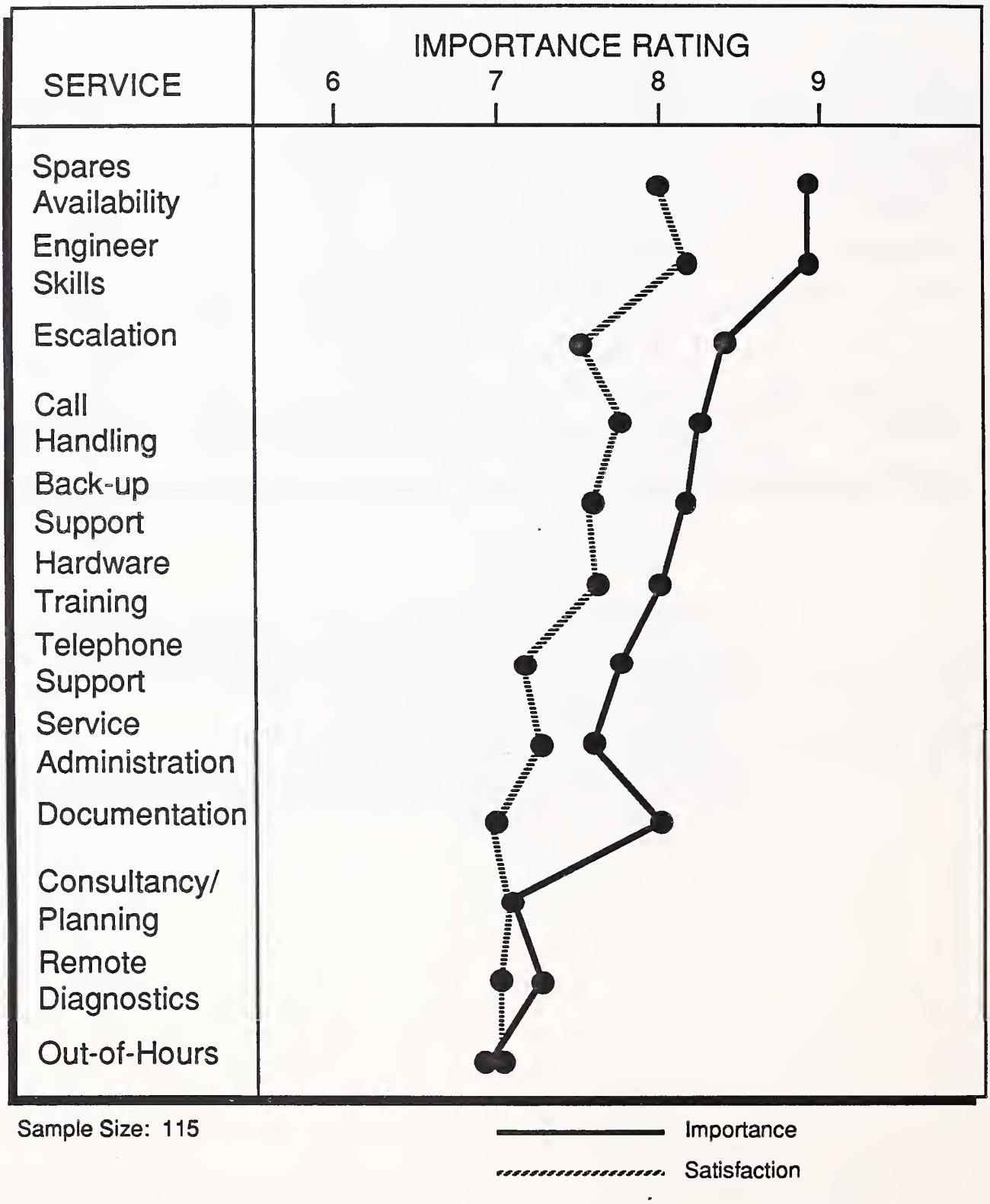
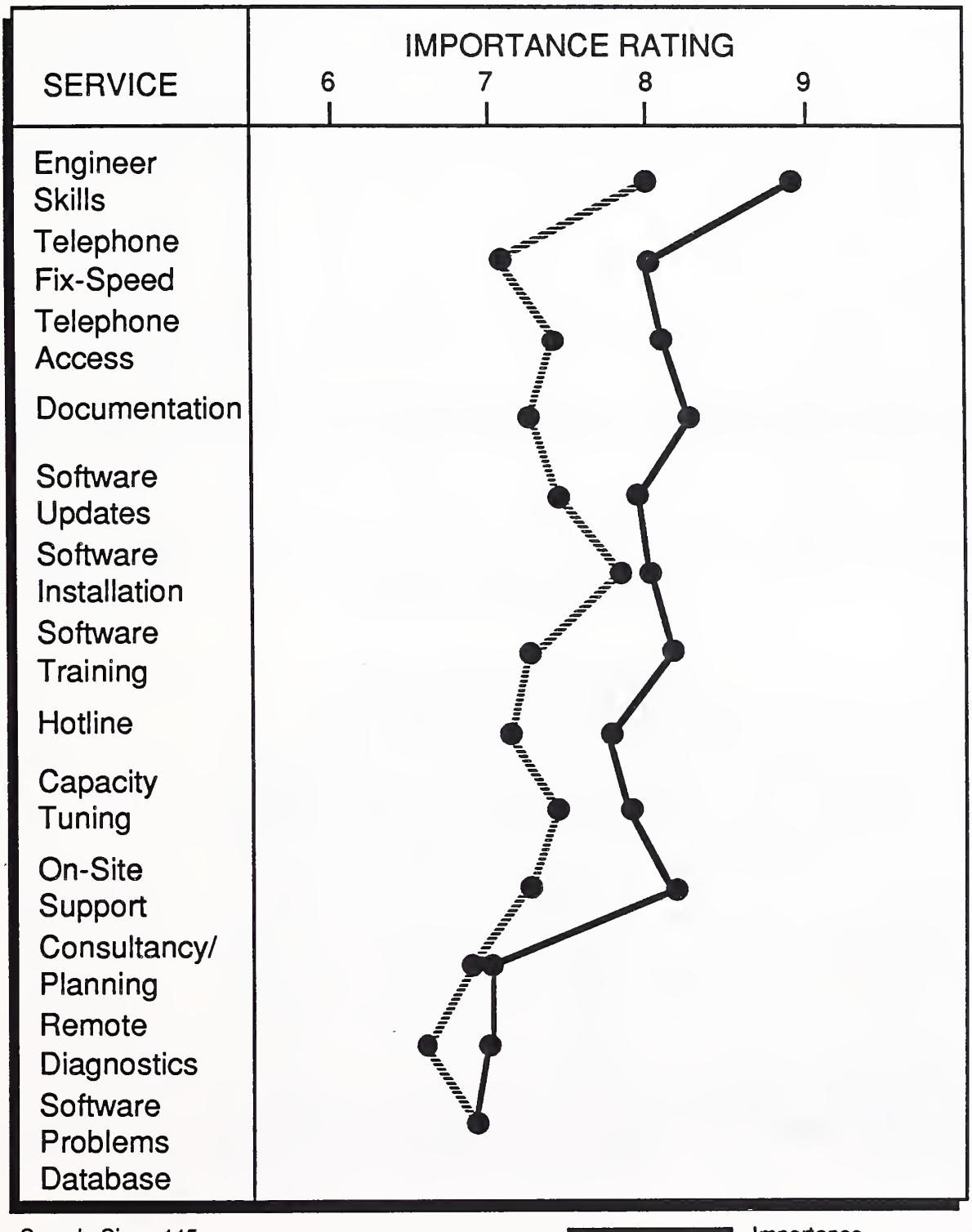


EXHIBIT VI-72

HONEYWELL BULL

IMPORTANCE OF SOFTWARE SERVICES



Sample Size: 115

EXHIBIT VI-73

HONEYWELL BULL

BREAKDOWNS BY SYSTEM SIZE

SIZE	BREAKS PA	AREA OF BREAK (Percent)	
		HW	SW
Large	4.3	61	39
Medium	3.2	61	39
Small	1.7	58	42
Average	3.4	60	40
Population	2.8	54	46

Sample Size: 115

EXHIBIT VI-74

HONEYWELL BULL

SATISFACTION WITH SYSTEMS AVAILABILITY

SIZE	IMPORTANCE	SATISFACTION	Δ
Large	9.4	8.9	0.5
Medium	9.4	8.7	0.7
Small	8.6	8.3	0.3
Average	9.4	8.7	0.7
Population	9.3	8.7	0.6

Sample Size: 115

EXHIBIT VI-75

HONEYWELL BULL

HARDWARE RESPONSE AND FIX TIMES

	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	1.8	2.1	0.3	9.3	2.8	3.5	0.7	9.4	4.6	5.6	1.0
Medium	2.6	2.9	0.3	9.1	3.2	4.0	0.8	9.0	5.8	6.9	1.1
Small	3.7	3.7	0.0	8.5	5.7	5.4	(0.3)	8.7	9.4	9.1	(0.3)
Average	2.4	2.7	0.3	9.1	3.3	3.9	0.6	9.1	5.7	6.6	0.9
Population	3.4	3.7	0.3	9.1	3.9	4.6	0.7	9.1	7.3	8.3	1.0
Last Year	3.2	3.4	0.2	-	2.8	2.6	(0.2)	-	6.0	6.0	0.0

Sample Size: 115

From Exhibit VI-73 it is seen that Honeywell Bull has some 21% more breaks than the population sample mean, with the same classic pattern of more breaks with the larger systems. It can be noted that the rate for large installations is some two-and-one-half times greater than for the small - no doubt due to the greater complexity of the former.

In satisfaction with system availability, Exhibit VI-74, the satisfaction index, at 0.7, is marginally greater than that of the population, and the actual satisfaction levels are approximately the same, this indicating an 'average' performance.

A comparison of the hardware response and fix times with those of the sample population, Exhibit VI-75, shows a 20% better overall repair time, but a difference between acceptable and experienced times of about 1hr - the same as the parent population.

EXHIBIT VI-76

HONEYWELL BULL

SOFTWARE RESPONSE AND FIX TIMES

	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	4.8	9.1	4.3	8.8	12.8	34.0	11.2	8.9	17.6	43.1	25.5
Medium	10.9	26.7	15.8	8.6	12.0	24.1	12.1	8.6	32.9	50.8	17.9
Small	8.0	9.5	1.5	8.3	12.9	16.1	3.2	8.1	20.9	25.6	4.7
Average	8.4	18.4	10.0	8.6	12.3	26.9	14.6	8.7	20.7	45.3	24.6
Population	8.8	17.0	8.2	8.2	11.0	19.6	8.6	8.8	19.8	36.6	16.8
Last Year	6.7	19.0	12.3	-	9.0	25.2	16.2	-	15.7	44.2	28.5

Sample Size: 115

Exhibit VI-76 gives a different picture for the software response and fix times, where the average response of 45hr is some 24% longer than the population and marginally longer than last year.

In Exhibits VI-77 and 78, depicting which vendor supplies the hardware and software support, it is seen that Honeywell Bull appears to achieve more business than with the sample population and that TPM's have a slightly lower customer penetration.

EXHIBIT VI-77

HONEYWELL BULL

HARDWARE SERVICE VENDOR BY SYSTEM SIZE

SIZE	MANUFACTURER (Percent)	DEALER (Percent)	TPM (Percent)	SELF (Percent)	SAMPLE
Large	98	-	3	3	40
Medium	98	-	3	-	64
Small	91	-	9	-	11
Average	97	-	3	1	115
Population	93	2	5	1	1321

EXHIBIT VI-78

HONEYWELL BULL

SOFTWARE SERVICE VENDOR BY SYSTEM SIZE

SYSTEM SIZE	MANUFACTURER (Percent)	SW VENDOR (Percent)	SYSTEMS HOUSE (Percent)	SELF (Percent)	SAMPLE
Large	98	3	3	13	40
Medium	89	-	5	14	64
Small	91	-	-	18	11
Average	92	1	3	14	115
Population	80	6	7	20	1321

EXHIBIT VI-79

HONEYWELL BULL

CUSTOMER PREFERENCES ON BUNDLING

SYSTEM SIZE	INDIVIDUAL PRICING (Percent)	BUNDLED (Percent)	DON'T KNOW (Percent)	SAMPLE SIZE
Large	64	23	13	40
Medium	68	10	22	64
Small	64	18	18	11
Average	66	15	19	115

Exhibit VI-79 gives an even 'picture' across the three system sizes, and indicates the possibility of bundling contracts to at least 30% of customers.

EXHIBIT VI-80

HONEYWELL BULL

CUSTOMERS' TOP TRAINING REQUIREMENTS

REQUIREMENT	LARGE (Percent)	MEDIUM (Percent)	SMALL (Percent)	AVERAGE (Percent)
On HB Kit	23	27	18	24
Software	15	22	9	18
General	18	11	9	13
Lectures	10	13	-	10
New Systems	18	8	-	10
Programming	5	11	18	10

Sample Size: 115

Exhibit VI-80, depicting the Honeywell Bull customers' top training requirements, shows a reasonably close match between the needs of owners of large, medium, or small systems, except for systems operations training for small systems installations. As with other companies it is interesting to note that the top need is for training on 'own' equipment and, again, if this is not the result of a Honeywell initiated strategy, then there may need to be re-evaluation of the initial training modules, or a look at potential opportunities.

As shown in Exhibit VI-81, nearly all of the other services have importance levels which indicate serious customer interest. All other things being equal, an indication of the best possibility of selling an extra service is found by multiplying the importance rating by the number or percentage of surveyed customers without the service and ranking the results - in the case of Honeywell Bull, the top items are Disaster Recovery and Network Planning.

EXHIBIT VI-81

HONEYWELL BULL

TOP REQUIREMENTS AND INTEREST LEVELS FOR OTHER SERVICES

LARGE SYSTEMS

SERVICE	IMPORTANCE	PERCENT WITHOUT	DECISION TREE	SAMPLE
Training	8.1	3	2	40
Network Planning	6.9	50	35	40
Consultancy	6.9	48	33	40

MEDIUM SYSTEMS

SERVICE	IMPORTANCE	PERCENT WITHOUT	DECISION TREE	SAMPLE
Training	7.6	0	0	64
Disaster Recovery	7.3	51	37	63
Consultancy	6.9	30	21	63

EXHIBIT VI-82

HONEYWELL BULL

VIEWS ON CURRENT SERVICE PERFORMANCE

SYSTEM SIZE	HARDWARE			SOFTWARE			SAMPLE SIZES
	IMP	SAT	Δ	IMP	SAT	Δ	
Large	9.6	8.3	1.3	9.0	7.9	1.1	40
Medium	9.1	8.3	0.8	8.7	7.8	0.9	64
Small	8.6	7.2	1.4	7.7	7.3	0.4	11
Average	9.2	8.2	1.0	8.7	7.8	0.9	115
Population	9.1	8.2	0.9	8.7	7.8	0.9	1321
Last Year	8.7	7.8	0.9	8.6	7.2	1.4	-

All respondents were asked, in a quite separate question, to give ratings to their overall impression of hardware and software support, and these ratings are shown in Exhibit VI-82. For Honeywell Bull the hardware satisfaction was marginally below that of the sample population, and about the same as Honeywell Bull's own performance last year. For software the index matches that of the population and is some 66% better than last year's performance.

EXHIBIT VI-83

HONEYWELL BULL

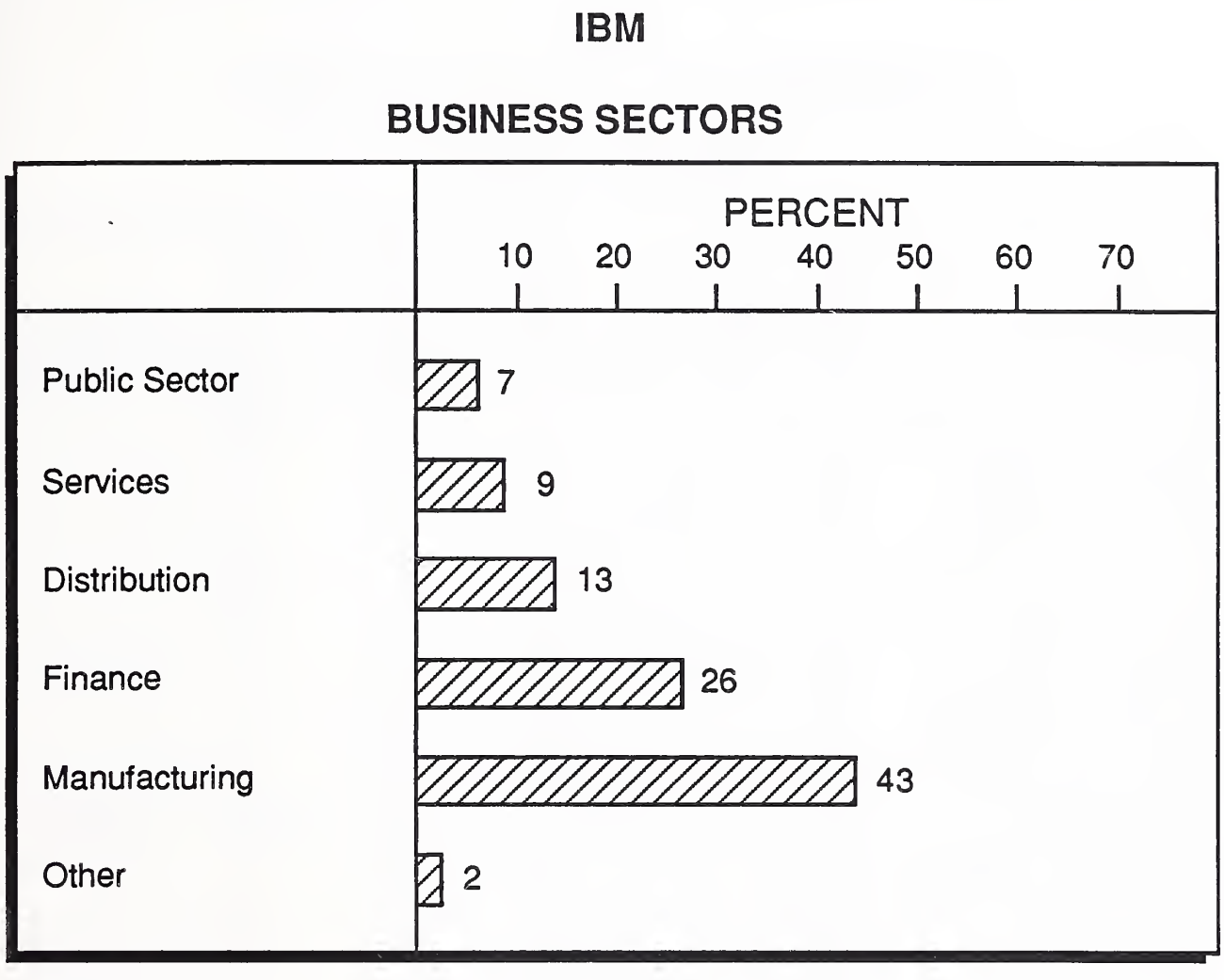
VIEWS ON LIKELY PERFORMANCE (OF CURRENT SUPPLIER) IN FIVE YEARS TIME

CUSTOMER VIEW	HOLDING THE VIEW (Percent)
Excellent	39
Hope for Improvement	17
Will Have Different Kit	14
Have Problems Now	9

Sample Size: 115

Exhibit VI-83 gives a synopsis of respondents views on what they believe the current vendor's service performance will be like in five years time. It should be noted that this view is likely to be based on CURRENT performance. Even though, generally Honeywell ratings are about the mean. Some 40% of the Honeywell respondents felt that the service would be excellent, and a total of 56% expressed no real concern.

EXHIBIT VI-84



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IBM

Exhibit VI-84 shows that the predominant business sector among the IBM customers was manufacturing, and the proportion, at 43%, very close to that of the sample population, at 42%.

EXHIBIT VI-85

IBM
HARDWARE SERVICE SATISFACTION
LARGE SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.5	7.4	0.1	0.1	
Operator Training	7.7	7.4	0.3	0.1	
Spares Availability	9.0	8.2	0.8	0.8	
Escalation Procedure	8.2	7.8	0.4	0.7	
Engineer Skills	9.1	8.6	0.5	0.7	
Remote Diagnostics	7.5	7.7	(0.2)	0.0	
Telephone Support	7.8	7.6	0.2	0.2	
Documentation	7.6	7.3	0.3	0.7	Better
Planning/Consultancy	7.8	7.4	0.4	0.0	
Out-of-Hours	7.8	7.4	0.4	(0.1)	
Call Handling	8.1	8.0	0.1	0.4	Better
Back-Up Support	8.3	7.9	0.4	0.4	
Average	8.0	7.7	0.3	0.2	
Population (L)	7.7	7.1	0.6		

Sample Size: 124

For large systems, Exhibits VI-85 and 86, excepting hardware Documentation and Call Handling, there are at least four items on the software side which are at or above the concern level as indicated by this survey.

EXHIBIT VI-86

IBM
SOFTWARE SUPPORT SATISFACTION
LARGE SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	8.3	7.4	0.9	0.3	
SW Installation	7.8	7.5	0.3	0.2	
Engineer Skills	8.7	8.1	0.6	0.7	
Telephone Support:					
Accessibility	8.5	7.5	1.0	0.6	
Fix Speed	8.6	7.2	1.4	0.7	
Documentation	8.3	7.3	1.0	1.0	
Planning/Consultancy	7.9	7.1	0.8	0.1	
SW Training	8.1	6.9	1.2	0.4	
On-Site Support	7.9	7.1	0.8	0.2	
Hotline	8.2	7.5	0.7	0.4	
Capacity Tuning	8.0	7.1	0.9	0.3	
Remote Diagnostics	7.6	7.0	0.6	0.1	
SW Problems Database	7.1	7.1	0.0	(0.1)	
Average	8.1	7.3	0.8	0.3	
Population (L)	8.2	7.3	0.9		

Sample Size: 124

EXHIBIT VI-87

IBM
HARDWARE SERVICE SATISFACTION
MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.6	7.5	0.1	0.1	
Operator Training	7.5	7.0	0.5	0.1	
Spares Availability	9.0	8.3	0.7	0.8	
Escalation Procedure	8.5	8.1	0.4	0.7	
Engineer Skills	8.9	8.4	0.5	0.7	
Remote Diagnostics	6.8	7.0	(0.2)	0.0	
Telephone Support	7.5	7.5	0.0	0.2	
Documentation	7.6	7.2	0.4	0.7	Better
Planning/Consultancy	7.2	7.1	0.1	0.0	
Out-of-Hours	6.6	7.2	(0.6)	(0.1)	Better
Call Handling	8.1	8.2	(0.1)	0.4	Better
Back-Up Support	8.2	8.0	0.2	0.4	
Average	7.8	7.6	0.2	0.2	
Population (M)	7.6	6.8	0.8		

Sample Size: 75

For medium systems, Exhibits VI-87 and 88, the situation is much the same as with the large installations, except that the Out-of-Hours service is better than for the population as a whole, and the software satisfaction levels are also marginally better.

EXHIBIT VI-88

IBM

SOFTWARE SUPPORT SATISFACTION

MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	7.7	7.8	(0.1)	0.3	Better
SW Installation	8.2	7.7	0.5	0.2	
Engineer Skills	8.6	8.2	0.4	0.7	Better
Telephone Support:					
Accessibility	8.0	7.3	0.7	0.6	
Fix Speed	8.1	7.3	0.8	0.7	
Documentation	8.1	7.2	0.9	1.0	
Planning/Consultancy	7.4	7.0	0.4	0.1	
SW Training	7.8	7.4	0.4	0.4	
On-Site Support	8.0	7.6	0.4	0.2	
Hotline	8.0	7.1	0.9	0.4	
Capacity Tuning	7.6	7.3	0.3	0.3	
Remote Diagnostics	6.6	6.6	0.0	0.1	
SW Problems Database	7.1	7.0	0.1	(0.1)	
Average	7.9	7.3	0.6	0.3	
Population (M)	8.0	7.1	0.9		

Sample Size: 75

EXHIBIT VI-89

IBM
HARDWARE SERVICE SATISFACTION
SMALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.0	8.6	(1.6)	0.1	Better
Operator Training	7.9	8.9	(1.0)	0.1	Better
Spares Availability	9.7	8.7	1.0	0.8	
Escalation Procedure	9.1	9.0	0.1	0.7	
Engineer Skills	9.3	9.0	0.3	0.7	Better
Remote Diagnostics	6.4	7.3	(0.9)	0.0	Better
Telephone Support	7.8	8.7	(0.9)	0.2	Better
Documentation	7.1	7.2	(0.1)	0.7	Better
Planning/Consultancy	8.0	8.1	(0.1)	0.0	
Out-of-Hours	7.4	6.8	0.6	(0.1)	
Call Handling	9.1	9.0	0.1	0.4	Better
Back-Up Support	9.3	9.2	0.1	0.4	Better
Average	8.2	8.4	(0.2)	0.2	Better
Population (S)	7.4	6.5	0.9		

Sample Size: 11

For small systems, the sample indicates a much better hardware service performance, with eight of the twelve hardware service aspects being better than for the population as a whole. On the software side the picture is only marginally better than with the other sizes of installation, reference Exhibits VI-89 and 90.

EXHIBIT VI-90

IBM
SOFTWARE SUPPORT SATISFACTION
SMALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	8.6	8.6	0.0	0.3	Better
SW Installation	8.8	8.8	0.0	0.2	
Engineer Skills	9.2	8.9	0.3	0.7	Better
Telephone Support:					
Accessibility	8.6	8.0	0.6	0.6	
Fix Speed	8.6	8.1	0.5	0.7	
Documentation	8.0	7.3	0.7	1.0	Better
Planning/Consultancy	8.2	8.3	(0.1)	0.1	
SW Training	9.0	7.6	1.4	0.4	
On-Site Support	9.1	8.4	0.7	0.2	
Hotline	8.2	7.2	1.0	0.4	
Capacity Tuning	8.9	8.7	0.2	0.3	
Remote Diagnostics	6.7	5.8	0.9	0.1	
SW Problems Database	6.5	5.9	0.6	(0.1)	
Average	8.3	7.8	0.5	0.3	
Population (S)	7.9	6.9	1.0		

Sample Size: 11

EXHIBIT VI-91

IBM

HARDWARE SERVICE SATISFACTION-TRENDS

	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
Operator Training	7.4	7.9	(0.5)	7.5	7.0	0.5	Better
Spares Availability	9.0	8.4	0.6	9.2	8.4	0.8	-
Engineer Skills	8.8	8.5	0.3	9.2	8.4	0.8	Better
Remote Diagnostics	7.7	7.6	0.1	8.0	7.4	0.6	Better
Documentation	7.7	6.9	0.8	7.0	7.0	0.0	-
Planning/Consultancy	7.5	7.2	0.3	7.7	7.0	0.7	Better
Average	8.0	7.8	0.2	8.1	7.5	0.6	Better

Sample Size: 210

A comparison of a reduced set of service aspects performance figures with those of last year show that, by and large, both hardware and software satisfaction figures are much better. However, it should be noted that software Documentation and Training are still at a customer concern level, Exhibits VI-91 and 92 refer.

EXHIBIT VI-92

IBM

SOFTWARE SUPPORT SATISFACTION-TRENDS

	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
SW Installation	8.0	7.6	0.4	8.2	6.8	1.4	Better
Engineer Skills	8.7	8.2	0.5	9.0	7.7	2.7	Better
Documentation	8.2	7.3	0.9	9.1	7.1	2.0	Better
Planning/Consultancy	7.7	7.1	0.6	8.1	6.8	1.3	Better
SW Training	8.0	7.1	0.9	8.7	6.9	1.6	Better
Remote Diagnostics	7.2	6.9	0.3	8.0	6.9	1.1	Better
Average	8.0	7.4	0.6	8.5	7.0	1.5	Better

A comparison of the scattergram Exhibit VI-93 with that for the sample population indicates the same type of pattern and with roughly the same level of satisfaction. It is interesting that IBM customers indicate high importance and satisfaction levels for the Remote Diagnostic and Out-of-Hours service.

For software support, the scattergram, Exhibit VI-94, shows a generally higher level of importance unmatched against a corresponding higher level of satisfaction, indicating a significantly lower level of satisfaction compared with hardware maintenance.

EXHIBIT VI-93

IBM

IMPORTANCE OF HARDWARE SERVICES

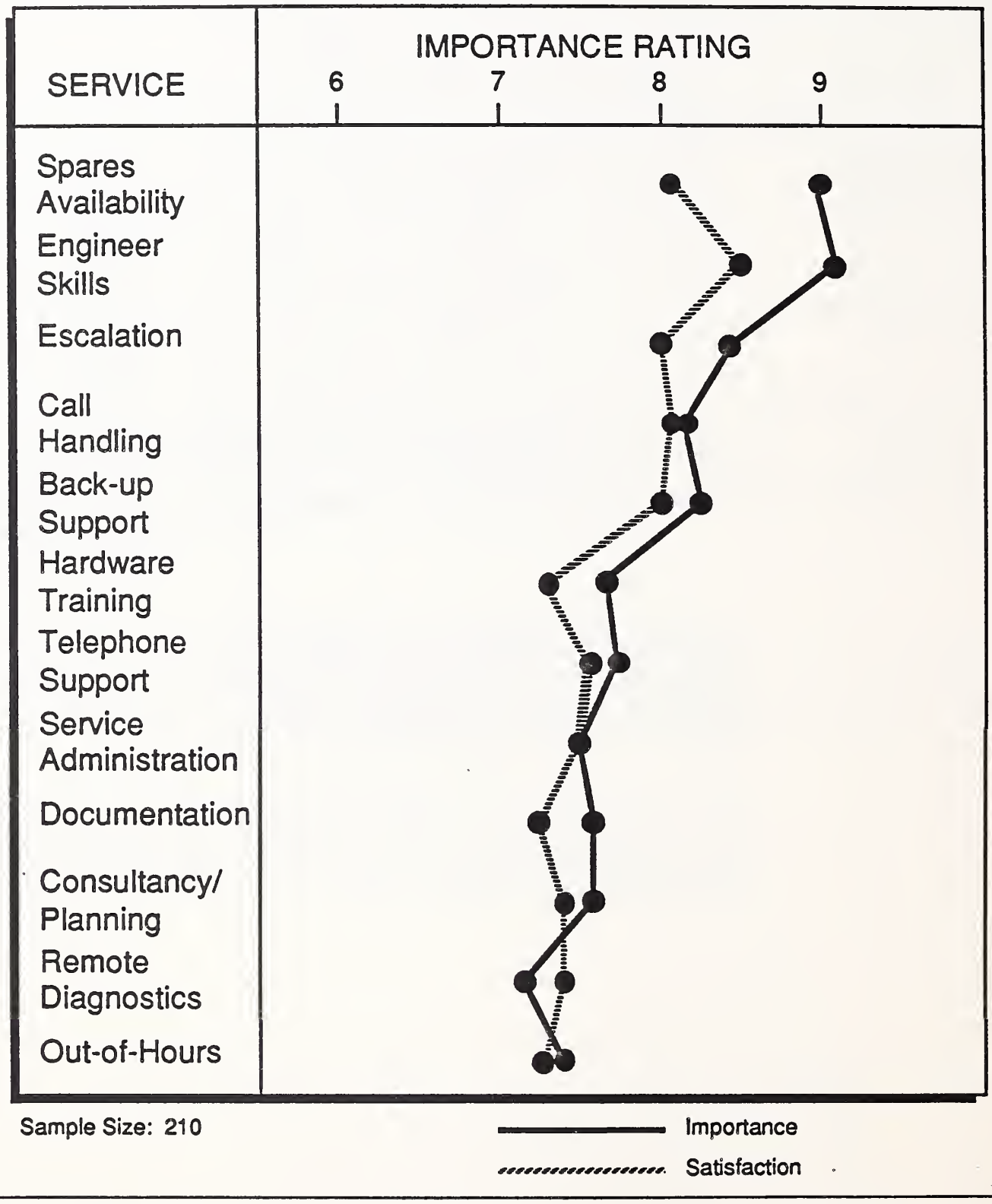
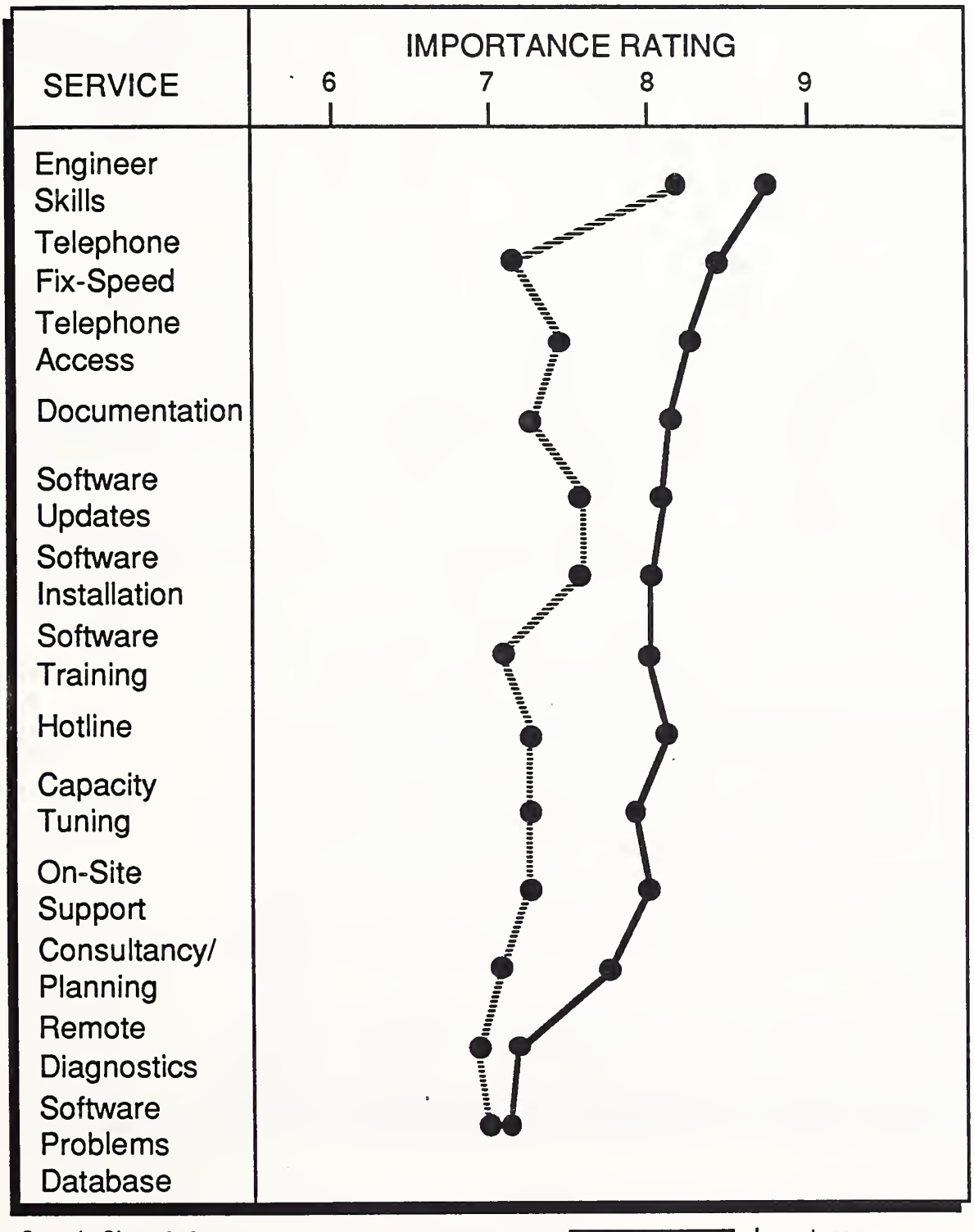


EXHIBIT VI-94

IBM

IMPORTANCE OF SOFTWARE SERVICES



Sample Size: 210

EXHIBIT VI-95

IBM

BREAKDOWNS BY SYSTEM SIZE

SIZE	BREAKS PA	AREA OF BREAK (Percent)	
		HW	SW
Large	2.4	43	57
Medium	2.2	52	48
Small	1.9	65	35
Average	2.3	47	53
Population	2.8	54	46

Sample Size: 210

EXHIBIT VI-96

IBM

SATISFACTION WITH SYSTEMS AVAILABILITY

SIZE	IMPORTANCE	SATISFACTION	Δ
Large	9.4	8.9	0.5
Medium	9.1	8.9	0.2
Small	9.7	9.5	0.2
Average	9.3	8.9	0.4
Population	9.3	8.7	0.6

Sample Size: 210

EXHIBIT VI-97

IBM

HARDWARE RESPONSE AND FIX TIMES

	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	2.0	2.3	0.3	9.5	2.6	3.2	0.6	9.4	4.6	5.5	0.9
Medium	2.7	2.8	0.1	9.2	3.9	4.2	0.3	9.2	6.6	7.0	0.4
Small	7.2	7.6	0.4	9.4	5.4	4.7	(0.7)	10.0	12.6	12.3	(0.3)
Average	2.5	2.6	0.1	9.4	3.2	3.7	0.5	9.4	5.7	6.3	0.6
Population	3.4	3.7	0.3	9.1	3.9	4.6	0.7	9.1	7.3	8.3	1.0
Last Year	2.5	2.4	(0.1)	-	2.5	2.4	(0.1)	-	5.0	4.8	(0.2)

Sample Size: 210

From Exhibit VI-95 it can be seen that the IBM sample has some 18% less breaks than the population sample mean, and with a roughly even number of faults per year irrespective of system size. However, it should be noted that the proportions of hardware to software breaks is opposite to that of the sample population.

In satisfaction with system availability, Exhibit VI-96, the index, at 0.4, is some 33% better than that of the population, while the actual satisfaction rating is marginally better.

A comparison of the hardware response and fix times with those of the sample population, see Exhibit VI-97, shows a 24% better overall repair time, and a difference between acceptable and experienced times of only 36min - better than the parent population.

EXHIBIT VI-98

IBM

SOFTWARE RESPONSE AND FIX TIMES

	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	5.9	10.0	4.1	8.9	7.5	16.3	8.8	9.0	13.4	26.3	12.9
Medium	6.8	11.1	4.3	8.8	8.8	14.1	5.3	8.9	15.6	25.2	9.6
Small	5.1	5.9	0.8	9.6	9.9	10.8	0.9	9.8	15.0	16.7	1.7
Average	6.2	10.1	3.9	8.9	8.1	15.2	7.1	9.0	14.3	25.3	11.0
Population	8.8	17.0	8.2	8.7	11.0	19.6	8.6	8.8	19.8	36.6	16.8
Last Year	5.7	9.3	3.6	-	5.6	12.1	6.5	-	11.3	21.4	10.1

Sample Size: 210

Exhibit VI-98 gives the same type of profile for the software response and fix times. The average total repair time of some 25hr is some 31% better than the population.

In Exhibits VI-99 and 100, depicting which vendor supplies the hardware and software support, it is seen that IBM gets roughly the same amount of business as with the sample population but that TPM's have nearly a three times greater penetration in the hardware area. In contrast IBM does better in the software support area.

EXHIBIT VI-99

IBM

HARDWARE SERVICE VENDOR BY SYSTEM SIZE

SIZE	MANUFACTURER (Percent)	DEALER (Percent)	TPM (Percent)	SELF (Percent)	SAMPLE
Large	93	2	11	2	124
Medium	88	1	16	1	75
Small	73	18	9	-	11
Average	90	3	13	1	210
Population	93	2	5	1	1321

EXHIBIT VI-100

IBM

SOFTWARE SERVICE VENDOR BY SYSTEM SIZE

SYSTEM SIZE	MANUFACTURER (Percent)	SW VENDOR (Percent)	SYSTEMS HOUSE (Percent)	SELF (Percent)	SAMPLE
Large	90	6	4	17	124
Medium	87	1	11	15	75
Small	73	9	-	9	11
Average	88	5	6	16	210
Population	80	6	7	20	1321

EXHIBIT VI-101

IBM

CUSTOMER PREFERENCES ON BUNDLING

SYSTEM SIZE	INDIVIDUAL PRICING (Percent)	BUNDLED (Percent)	DON'T KNOW (Percent)	SAMPLE SIZE
Large	60	23	17	124
Medium	57	27	16	75
Small	100	-	-	11
Average	61	23	16	210

Exhibit VI-101 gives an unusual picture across the three system sizes, with large system user apparently wanting more bundling than the small user. For most companies this is the other way round.

EXHIBIT VI-102

IBM

CUSTOMERS' TOP TRAINING REQUIREMENTS

REQUIREMENT	LARGE (Percent)	MEDIUM (Percent)	SMALL (Percent)	AVERAGE (Percent)
Software	19	17	45	33
Programming	15	20	27	29
General	16	15	-	25
Technical	10	12	9	19
On IBM Kit	8	13	18	18

Sample Size: 210

Exhibit VI-102 depicts the IBM user samples' top training requirements. There is a reasonably close match between the needs of owners of large and medium systems, but the smaller user appears to be much more interested in the software aspect. In the case of IBM samples it is noteworthy that they have a relatively low requirement for training on IBM kit.

As shown in Exhibit VI-103, two of the services not yet provided to some customers have importance levels which indicate serious customer interest. All other things being equal, an indication of the best possibility of selling an extra service is found by multiplying the importance rating by the number or percentage of surveyed customers without the service and ranking the results. In the case of IBM the top items are Disaster Recovery and Software Evaluation.

EXHIBIT VI-103

IBM

TOP REQUIREMENTS AND INTEREST LEVELS FOR OTHER SERVICES

LARGE SYSTEMS

REQUIREMENT	IMPORTANCE	PERCENT WITHOUT	DECISION TREE	SAMPLE
Training	7.4	0	0	124
Disaster Recovery	7.4	70	52	123
Capacity Planning	6.3	46	29	122

SMALL SYSTEMS

REQUIREMENT	IMPORTANCE	PERCENT WITHOUT	DECISION TREE	SAMPLE
Training	8.1	0	0	11
Disaster Recovery	6.8	60	41	10
Software Evaluation	6.6	45	30	11

EXHIBIT VI-104

IBM

VIEWS ON CURRENT SERVICE PERFORMANCE

SYSTEM SIZE	HARDWARE			SOFTWARE			SAMPLE SIZES
	IMP	SAT	Δ	IMP	SAT	Δ	
Large	9.4	8.4	1.0	8.8	7.5	1.3	124
Medium	9.2	8.6	0.6	8.5	7.8	0.7	75
Small	9.2	9.3	(0.1)	9.1	8.2	0.9	11
Average	9.3	8.5	0.8	8.7	7.7	1.0	210
Population	9.1	8.2	0.9	8.7	7.8	0.9	1321
Last Year	8.8	8.0	0.8	8.5	7.3	1.2	-

All respondents were asked, in a quite separate question, to give ratings to their overall impression of hardware and software support, and these ratings are shown in Exhibit VI-104. For IBM the hardware satisfaction index was marginally better than that of the sample population, and at exactly the same level as last year. On the software side the satisfaction gap marginally greater than that of the population and marginally better than with IBM's own performance last year.

EXHIBIT VI-105

IBM

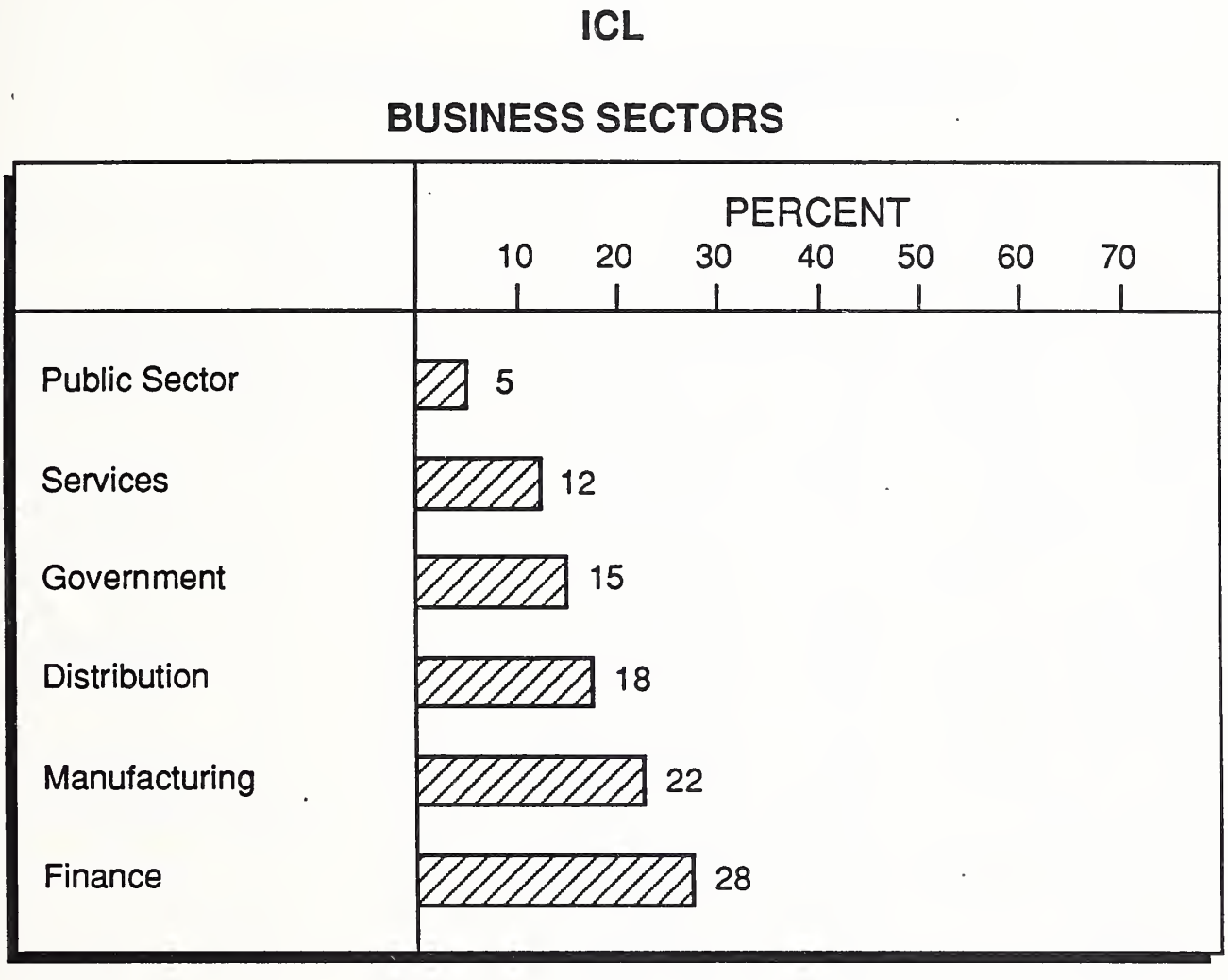
VIEWS ON LIKELY PERFORMANCE (OF CURRENT SUPPLIER) IN FIVE YEARS TIME

CUSTOMER VIEW	HOLDING THE VIEW (Percent)
Excellent	44
Same as Now	11
Good Company	7
Hope for Improvement	7

Sample Size: 210

Exhibit VI-105 gives a synopsis of respondents' views on what they believe the current vendors service performance will be like in five years time. It should be noted that this view is likely to be based on CURRENT performance. Even though IBM ratings are about the sample mean, some 44% of the IBM respondents felt that the service would be excellent, and a total of 62% had no real concern.

EXHIBIT VI-106



Sample Size: 197

F

ICL

Exhibit VI-106 shows a fairly evenly distributed set of business sectors among the ICL customers, which is quite different from that of the sample population.

EXHIBIT VI-107

ICL
HARDWARE SERVICE SATISFACTION
LARGE SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.3	7.0	0.0	0.1	
Operator Training	7.6	7.6	0.0	0.1	
Spares Availability	8.7	8.4	0.3	0.8	Better
Escalation Procedure	8.5	7.8	0.7	0.7	
Engineer Skills	8.7	8.5	0.2	0.7	Better
Remote Diagnostics	7.1	6.9	0.2	0.0	
Telephone Support	7.0	7.6	(0.6)	0.2	Better
Documentation	6.6	6.3	0.3	0.7	Better
Planning/Consultancy	6.7	6.8	(0.1)	0.0	
Out-of-Hours	7.5	7.6	0.1	(0.1)	
Call Handling	8.2	7.9	0.3	0.4	
Back-Up Support	8.3	8.2	0.1	0.4	Better
Average	7.9	7.6	0.3	0.2	
Population (L)	7.7	7.1	0.6		

Sample Size: 56

For large systems, Exhibits VI-107 and 108, there are nine service aspects which show better customer satisfaction, and no aspects at the customer concern level, this is a very creditable performance.

EXHIBIT VI-108

ICL
SOFTWARE SUPPORT SATISFACTION
LARGE SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	7.6	7.5	0.1	0.3	
SW Installation	8.0	7.7	0.3	0.2	
Engineer Skills	8.8	8.2	0.6	0.7	
Telephone Support:					
Accessibility	7.3	7.1	0.2	0.6	Better
Fix Speed	7.4	7.1	0.3	0.7	Better
Documentation	7.2	6.4	0.8	1.0	
Planning/Consultancy	7.0	6.9	0.1	0.1	
SW Training	7.5	7.3	0.2	0.4	
On-Site Support	7.4	7.7	(0.3)	0.2	Better
Hotline	7.8	7.7	0.1	0.4	Better
Capacity Tuning	7.5	7.2	0.3	0.3	
Remote Diagnostics	7.4	7.2	0.2	0.1	
SW Problems Database	7.8	7.3	0.5	(0.1)	
Average	7.6	7.3	0.3	0.3	
Population (L)	8.2	7.3	0.9		

Sample Size: 56

EXHIBIT VI-109

ICL
HARDWARE SERVICE SATISFACTION
MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.1	7.1	0.0	0.1	
Operator Training	7.5	7.0	0.5	0.1	
Spares Availability	9.0	7.7	1.3	0.8	
Escalation Procedure	8.0	7.2	0.8	0.7	
Engineer Skills	8.7	7.9	0.8	0.7	
Remote Diagnostics	6.0	6.1	(0.1)	0.0	
Telephone Support	7.5	6.9	0.6	0.2	
Documentation	6.9	6.1	0.8	0.7	
Planning/Consultancy	6.9	6.8	0.1	0.0	
Out-of-Hours	6.4	6.7	(0.3)	(0.1)	
Call Handling	8.1	7.5	0.6	0.4	
Back-Up Support	8.3	7.6	0.7	0.4	
Average	7.5	7.1	0.4	0.2	
Population (M)	7.6	6.8	0.8		

Sample Size: 103

For medium systems, Exhibits VI-109 and 110, hardware services score twice as well as the parent population and software support some three times better. Software Documentation at 1.8 is approaching the real dissatisfaction level and hardware Spares Availability at 1.3 is over the concern level.

EXHIBIT VI-110

ICL

SOFTWARE SUPPORT SATISFACTION

MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	7.6	7.4	0.2	0.3	
SW Installation	8.0	7.8	0.2	0.2	
Engineer Skills	8.8	8.0	0.8	0.7	
Telephone Support:					
Accessibility	7.8	7.2	0.6	0.6	
Fix Speed	7.9	7.1	0.8	0.7	
Documentation	7.9	6.1	1.8	1.0	
Planning/Consultancy	6.9	6.6	0.3	0.1	
SW Training	7.4	7.1	0.3	0.4	
On-Site Support	7.4	7.3	0.1	0.2	
Hotline	7.3	7.4	(0.1)	0.4	Better
Capacity Tuning	7.5	7.2	0.3	0.3	
Remote Diagnostics	6.3	6.7	(0.4)	0.1	Better
SW Problems Database	6.5	6.8	(0.3)	(0.1)	
Average	7.5	7.2	0.3	0.3	
Population (M)	8.0	7.1	0.9		

Sample Size: 103

EXHIBIT VI-111

ICL
HARDWARE SERVICE SATISFACTION
SMALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	6.6	7.1	(0.5)	0.1	Better
Operator Training	7.7	7.6	0.1	0.1	
Spares Availability	8.9	8.3	0.6	0.8	
Escalation Procedure	8.4	7.4	1.0	0.7	
Engineer Skills	8.7	8.2	0.5	0.7	
Remote Diagnostics	7.0	6.8	0.2	0.0	
Telephone Support	7.7	6.9	0.8	0.2	
Documentation	7.3	6.2	1.1	0.7	
Planning/Consultancy	6.7	6.6	0.1	0.0	
Out-of-Hours	5.9	6.4	(0.5)	(0.1)	Better
Call Handling	7.9	7.5	0.4	0.4	
Back-Up Support	8.0	7.5	0.5	0.4	
Average	7.6	7.2	0.4	0.2	
Population (S)	7.4	6.5	0.9		

Sample Size: 38

For small systems, both hardware and software support is twice as good as the (small systems) population. However Escalation, Documentation, Remote Diagnostics and Telephone Support Accessibility are at the concern level, reference Exhibits VI-111 and -112.

EXHIBIT VI-112

ICL
SOFTWARE SUPPORT SATISFACTION
SMALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	7.6	7.4	0.2	0.3	
SW Installation	8.1	7.9	0.2	0.2	
Engineer Skills	8.8	8.1	0.7	0.7	
Telephone Support:					
Accessibility	7.9	6.9	1.0	0.6	
Fix Speed	7.8	7.1	0.7	0.7	
Documentation	8.1	6.8	1.3	1.0	
Planning/Consultancy	6.5	6.7	(0.2)	0.1	Better
SW Training	7.6	7.0	0.6	0.4	
On-Site Support	6.6	7.0	0.4	0.2	
Hotline	7.4	6.9	0.5	0.4	
Capacity Tuning	7.5	7.1	0.4	0.3	
Remote Diagnostics	7.6	6.6	1.0	0.1	
SW Problems Database	6.7	6.5	0.2	(0.1)	
Average	7.6	7.1	0.5	0.3	
Population (S)	7.9	6.9	1.0		

Sample Size: 38

EXHIBIT VI-113

ICL
HARDWARE SERVICE SATISFACTION
TRENDS

	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
Operator Training	7.6	7.3	0.3	6.9	6.3	0.6	Better
Spares Availability	8.9	8.0	0.9	8.9	7.2	1.7	Better
Engineer Skills	8.7	8.1	0.6	8.9	7.7	1.2	Better
Remote Diagnostics	6.5	6.5	0.0	6.6	5.1	1.5	Better
Documentation	6.9	6.2	0.7	6.3	6.0	0.3	Better
Planning/Consultancy	6.8	6.8	0.0	6.8	6.2	0.6	Better
Average	7.6	7.2	0.4	7.4	6.4	1.0	

Sample Size: 197

A comparison of a reduced set of service aspects performance figures with those of last year show that, by and large, the hardware satisfaction is two-and-one-half times better, but that the software figures are over four times better. A very creditable all-round improvement. However, it should be noted that software Documentation and hardware Spares Availability are at the customer concern level, see Exhibits VI-113 and 114.

EXHIBIT VI-114

ICL
SOFTWARE SUPPORT SATISFACTION
TRENDS

	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
SW Installation	8.0	7.8	0.2	7.6	6.3	1.3	Better
Engineer Skills	8.8	8.1	0.7	8.3	6.8	1.5	Better
Documentation	7.7	6.3	1.4	8.7	6.2	2.5	Better
Planning/Consultancy	6.9	6.7	0.2	7.7	6.3	1.4	Better
SW Training	7.5	7.2	0.3	8.2	6.4	1.8	Better
Remote Diagnostics	6.8	6.8	0.0	6.8	5.0	1.8	Better
Average	7.6	7.2	0.4	7.9	6.2	1.7	

Sample Size: 197

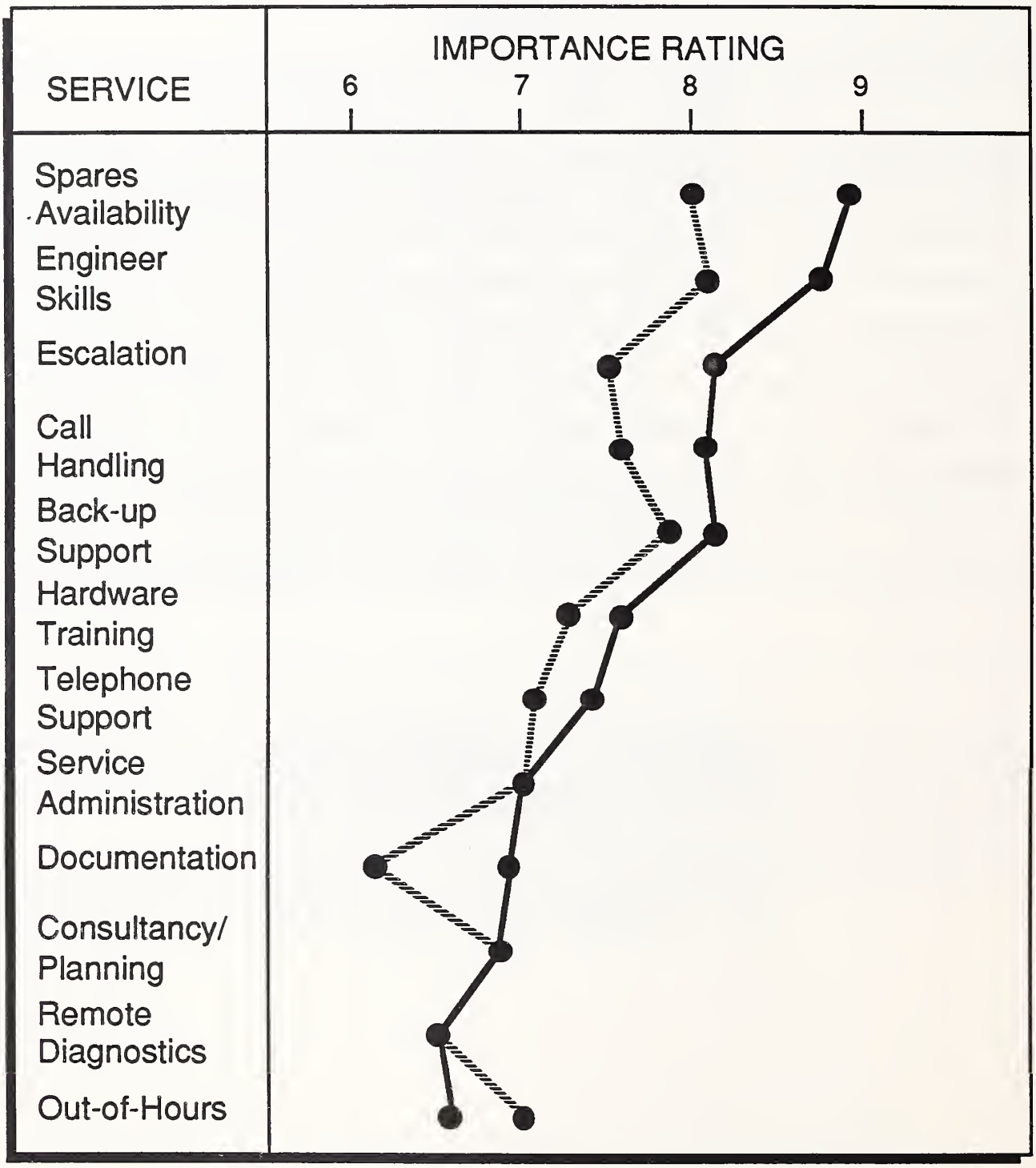
A comparison of the scattergram Exhibit VI-115 with that for the sample population shows a very similar type of pattern and with roughly the same level of satisfaction gap and the apparently consistent level of dissatisfaction with Documentation.

For software support, the scattergram, Exhibit VI-116, again shows a very similar picture except that Documentation has a far higher dissatisfaction level than for the population.

EXHIBIT VI-115

ICL

IMPORTANCE OF HARDWARE SERVICES



Sample Size: 197

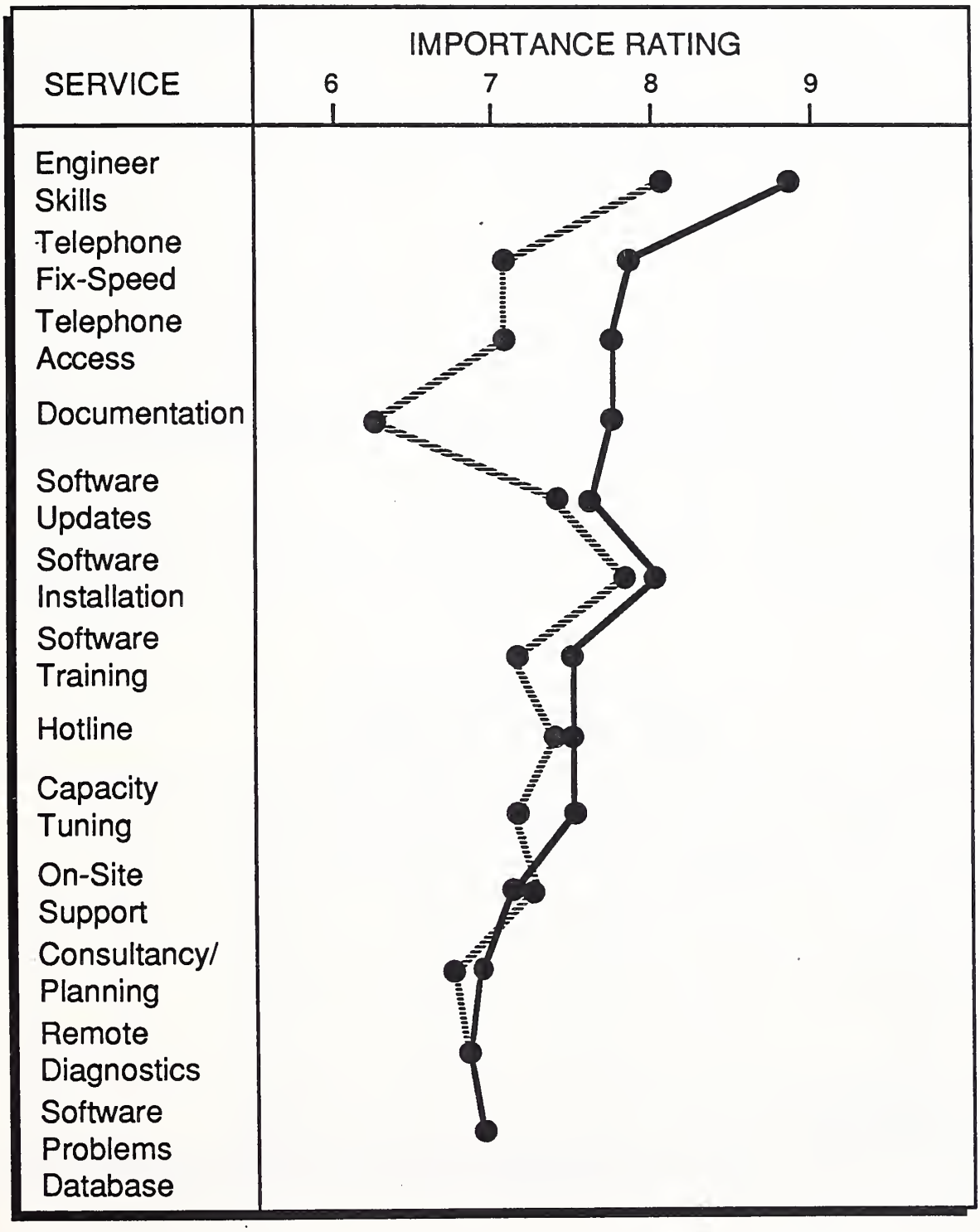
Importance

Satisfaction

EXHIBIT VI-116

ICL

IMPORTANCE OF SOFTWARE SERVICES



Sample Size: 197

EXHIBIT VI-117

ICL

BREAKDOWNS BY SYSTEM SIZE

SIZE	BREAKS PA	AREA OF BREAK (Percent)	
		HW	SW
Large	7.6	48	52
Medium	3.1	50	50
Small	1.6	64	36
Average	4.1	52	48
Population	2.8	54	46

Sample Size: 197

EXHIBIT VI-118

ICL

SATISFACTION WITH SYSTEMS AVAILABILITY

SIZE	IMPORTANCE	SATISFACTION	Δ
Large	9.5	8.6	0.9
Medium	9.2	8.2	1.0
Small	9.3	8.5	0.8
Average	9.3	8.4	0.9
Population	9.3	8.7	0.6

Sample Size: 197

EXHIBIT VI-119

ICL

HARDWARE RESPONSE AND FIX TIMES

SYSTEM SIZE	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	2.2	2.1	(0.1)	9.1	2.6	2.6	0.0	9.3	4.8	4.7	0.1
Medium	2.8	3.0	0.2	9.0	3.8	4.1	0.3	9.1	6.6	7.1	0.5
Small	3.4	3.3	(0.1)	8.9	5.0	5.1	0.1	9.1	8.4	8.4	0.0
Average	2.7	2.8	0.1	9.0	3.7	3.9	0.2	9.1	6.4	6.7	0.3
Population	3.4	3.7	0.3	9.1	3.9	4.6	0.7	9.1	7.3	8.3	1.0
Last Year	2.6	2.5	(0.1)	-	1.8	2.3	0.5	-	4.4	4.8	0.4

Sample Size: 197

From Exhibit VI-117 it can be seen that ICL has some 46% more breaks than the population sample mean, and with large system breaks being nearly five times as great as with the small systems. While this is, no doubt, due to the greater complexity and size of the larger systems, it is sufficiently worse than the sample mean to merit investigation.

In satisfaction with system availability, Exhibit VI-118, the satisfaction gap, at 0.9, is 50% greater than that of the population, while the actual satisfaction rating is also marginally lower.

A comparison of the hardware response and fix times with those of the sample population, Exhibit VI-119, shows a 19% better overall repair time, and a difference between acceptable and experienced times of only 18min, much better than the parent population.

EXHIBIT VI-120

ICL

SOFTWARE RESPONSE AND FIX TIMES

	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	7.2	14.8	7.6	8.6	6.2	15.3	9.1	8.9	13.4	30.1	16.7
Medium	7.6	10.8	3.2	8.6	8.4	10.3	1.9	8.5	16.0	21.1	5.1
Small	6.1	7.3	1.2	8.8	10.9	16.0	5.1	8.7	17.0	23.3	6.3
Average	7.2	11.2	4.0	8.7	8.3	13.0	4.7	8.6	15.5	24.2	8.7
Population	8.8	17.0	8.2	8.7	11.0	19.6	8.6	8.8	19.8	36.6	16.8
Last Year	6.6	11.1	4.5	-	8.7	12.7	4.0	-	15.3	23.8	8.5

Sample Size: 197

Exhibit VI-120 gives the same type of profile for the software response and fix times. The average total repair time of some 24hr is 34% better than the population.

In Exhibits VI-121 and 122, depicting which vendor supplies the hardware and software support, it is seen that ICL gets more hardware contracts than does the sample population. The sample indicates a lower intrusion of TPM's.

EXHIBIT VI-121

ICL

HARDWARE SERVICE VENDOR BY SYSTEM SIZE

SYSTEM SIZE	MANUFACTURER (Percent)	DEALER (Percent)	TPM (Percent)	SELF (Percent)	SAMPLE
Large	100	-	-	-	56
Medium	100	-	-	2	103
Small	97	-	3	3	38
Average	99	-	1	2	197
Population	93	2	5	1	1321

EXHIBIT VI-122

ICL

SOFTWARE SERVICE VENDOR BY SYSTEM SIZE

SYSTEM SIZE	MANUFACTURER (Percent)	SW VENDOR (Percent)	SYSTEMS HOUSE (Percent)	SELF (Percent)	SAMPLE
Large	71	2	4	46	56
Medium	82	4	10	28	103
Small	71	3	13	16	38
Average	77	3	9	31	197
Population	80	6	7	20	1321

EXHIBIT VI-123

ICL

CUSTOMER PREFERENCES ON BUNDLING

SIZE	INDIVIDUAL PRICING (Percent)	BUNDLED (Percent)	DON'T KNOW (Percent)	SAMPLE SIZE
Large	77	9	14	56
Medium	62	18	20	103
Small	55	16	29	38
Average	65	15	20	197

Exhibit VI-123 gives the classic picture across the three system sizes, with the large user apparently wanting less bundling, and the smaller user accepting more.

EXHIBIT VI-124

ICL

CUSTOMERS' TOP TRAINING REQUIREMENTS

REQUIREMENT	LARGE (Percent)	MEDIUM (Percent)	SMALL (Percent)	AVERAGE (Percent)
Software	23	21	18	21
General	13	17	13	15
Technical	20	12	11	14
Hardware	14	17	3	13
Programming	9	12	18	12
System Ops.	16	13	5	12

Sample Size: 197

Exhibit VI-124, depicting the ICL customers' top training requirements, shows there is a reasonably close match of requirements across all system sizes. It is noteworthy that there is no significant need for any training on ICL kit amongst the sample, this is in marked contrast to some of the other companies in this field.

As shown in Exhibit VI-125, only one of the services not yet provided to some customers has an importance levels which indicates serious customer interest. All other things being equal, an indication of the best possibility of selling an extra service is found by multiplying the importance rating by the number or percentage of surveyed customers without the service and ranking the results. In the case of ICL the top two are Disaster Recovery and Network Management.

EXHIBIT VI-125

ICL

TOP REQUIREMENTS AND INTEREST LEVELS FOR OTHER SERVICES

LARGE SYSTEMS

SERVICE	IMPORTANCE	PERCENT WITHOUT	DECISION TREE	SAMPLE
Disaster Recovery	7.3	43	31	56
Training	7.2	0	0	56
Network Management	6.7	52	35	56
Software Evaluation	6.7	47	32	55

MEDIUM SYSTEMS

SERVICE	IMPORTANCE	PERCENT WITHOUT	DECISION TREE	SAMPLE
Training	7.0	0	0	103
Disaster Recovery	6.9	52	36	102
Consultancy	5.8	49	28	103

EXHIBIT VI-126

ICL

VIEWS ON CURRENT SERVICE PERFORMANCE

SYSTEM SIZE	HARDWARE			SOFTWARE			SAMPLE SIZES
	IMP	SAT	Δ	IMP	SAT	Δ	
Large	9.4	8.0	1.4	9.0	7.8	1.2	56
Medium	9.1	7.8	1.3	8.8	7.7	1.1	103
Small	9.0	7.8	1.2	8.3	8.2	0.1	38
Average	9.2	7.9	1.3	8.8	7.8	1.0	197
Population	9.1	8.2	0.9	8.7	7.8	0.9	1321
Last Year	8.1	7.3	0.8	7.7	6.6	1.1	-

All respondents were asked, in a quite separate question, to give ratings to their overall impression of hardware and software support, and these ratings are shown in Exhibit VI-126. For ICL the software satisfaction gap was marginally greater than that of the sample population, and marginally better than with their own performance last year. With hardware, the satisfaction gap is some 44% greater than with the sample population , and 63% greater than with the ICL performance last year.

EXHIBIT VI-127

ICL

VIEWS ON LIKELY PERFORMANCE (OF CURRENT SUPPLIER) IN FIVE YEARS TIME

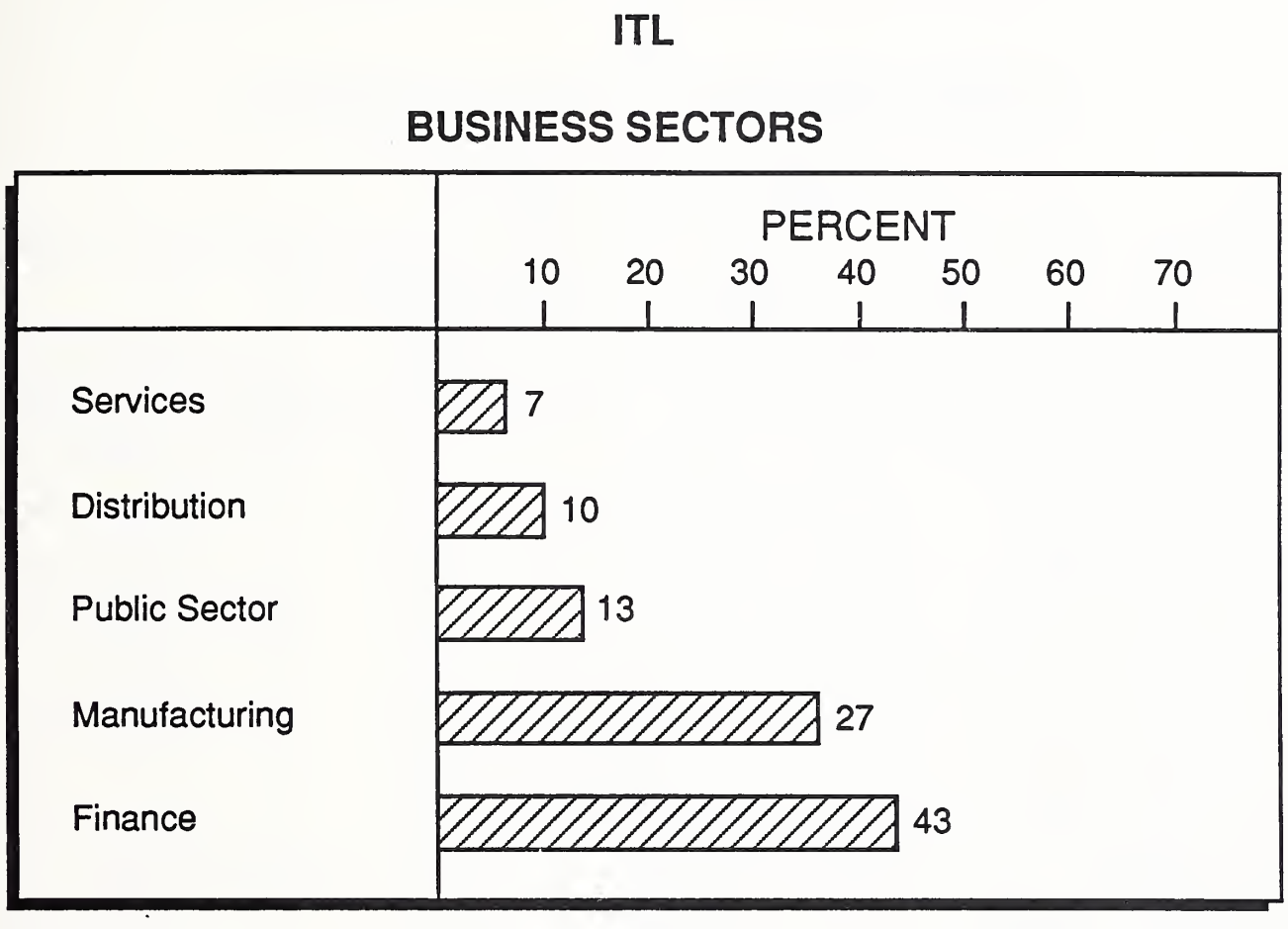
CUSTOMER VIEW	HOLDING THE VIEW (Percent)
Excellent	51
Will Have Different Kit	16
Reasonable	9

Sample Size: 197

Exhibit VI-127 gives a synopsis of respondents' views on what they believe the current vendors service performance will be like in five years time. It should be noted that this view is likely to be based on CURRENT performance.

Even though the general ICL ratings are close to the sample mean, about 51% of the ICL respondents felt that the service would be excellent, and a total of 60% had no real concern. This may be a reflection of the very good relative performance improvements during the past year.

EXHIBIT VI-128



Sample Size: 30

G

ITL

Exhibit VI-128 shows that ITL is an example of a company supplying business sectors at variance with the population mean. This may affect the rating levels given. There are two large system installations included in the survey but, due to the cell size, no separate tables have been included.

EXHIBIT VI-129

ITL
HARDWARE SERVICE SATISFACTION
MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.2	7.4	(0.2)	0.1	Better
Operator Training	7.6	8.1	(0.5)	0.1	Better
Spares Availability	8.8	8.7	0.1	0.8	Better
Escalation Procedure	8.2	8.1	0.1	0.7	Better
Engineer Skills	8.6	8.4	0.2	0.7	Better
Remote Diagnostics	7.3	7.1	0.2	0.0	
Telephone Support	7.0	6.6	0.4	0.2	
Documentation	5.5	5.8	(0.3)	0.7	Better
Planning/Consultancy	7.0	7.2	(0.2)	0.0	
Out-of-Hours	7.2	7.6	(0.4)	(0.1)	Better
Call Handling	7.8	7.9	(0.1)	0.4	Better
Back-Up Support	8.6	8.5	0.1	0.4	Better
Average	7.6	7.6	0.0	0.2	
Population (M)	7.6	6.8	0.8		

Sample Size: 22

For medium systems, Exhibits VI-129 and 130, there are twenty one service aspects which show a better customer satisfaction, and most of the satisfaction indices indicate complete customer satisfaction - altogether an exceptional performance.

EXHIBIT VI-130

ITL
SOFTWARE SUPPORT SATISFACTION
MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	7.5	7.5	0.0	0.3	Better
SW Installation	8.1	8.3	(0.2)	0.2	Better
Engineer Skills	8.4	8.2	0.2	0.7	Better
Telephone Support:					
Accessibility	7.6	7.5	0.1	0.6	Better
Fix Speed	7.1	7.2	(0.1)	0.7	Better
Documentation	5.5	6.0	(0.5)	1.0	Better
Planning/Consultancy	6.6	7.2	(0.6)	0.1	Better
SW Training	6.8	7.5	(0.7)	0.4	Better
On-Site Support	7.3	7.6	(0.3)	0.2	Better
Hotline	7.5	7.7	(0.2)	0.4	Better
Capacity Tuning	7.5	7.7	(0.2)	0.3	Better
Remote Diagnostics	7.5	7.6	(0.1)	0.1	Better
SW Problems Database	7.7	7.7	0.0	(0.1)	
Average	7.3	7.5	(0.2)	0.3	Better
Population (M)	8.0	7.1	0.9		

Sample Size: 22

EXHIBIT VI-131

ITL
HARDWARE SERVICE SATISFACTION
SMALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.8	8.2	(0.4)	0.1	Better
Operator Training	8.0	7.8	0.2	0.1	
Spares Availability	9.3	8.7	0.6	0.8	
Escalation Procedure	8.4	8.6	(0.2)	0.7	Better
Engineer Skills	8.5	8.3	0.2	0.7	Better
Remote Diagnostics	7.7	8.2	(0.5)	0.0	Better
Telephone Support	7.8	8.3	(0.5)	0.2	Better
Documentation	5.8	7.0	(1.2)	0.7	Better
Planning/Consultancy	7.5	7.7	(0.2)	0.0	
Out-of-Hours	8.0	8.3	(0.3)	(0.1)	
Call Handling	8.0	8.5	(0.5)	0.4	Better
Back-Up Support	8.5	8.7	(0.2)	0.4	Better
Average	7.9	8.2	(0.3)	0.2	Better
Population (S)	7.4	6.5	0.9		

Sample Size: 6

For small systems, Exhibits VI-131 and 132, the satisfaction levels are still very good, with ITL performing better than the population mean in twenty one aspects. Due note should be taken of the small cell size.

EXHIBIT VI-132

ITL

SOFTWARE SUPPORT SATISFACTION

SMALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	6.5	8.0	(1.5)	0.3	Better
SW Installation	8.0	8.7	(0.7)	0.2	Better
Engineer Skills	8.0	8.5	(0.5)	0.7	Better
Telephone Support:					
Accessibility	7.7	8.0	(0.3)	0.6	Better
Fix Speed	7.8	7.7	0.1	0.7	Better
Documentation	5.2	5.8	(0.6)	1.0	Better
Planning/Consultancy	7.0	7.2	(0.2)	0.1	Better
SW Training	7.0	7.5	(0.5)	0.4	Better
On-Site Support	7.5	8.2	(0.7)	0.2	Better
Hotline	6.3	7.0	(0.7)	0.4	Better
Capacity Tuning	7.3	8.0	(0.7)	0.3	Better
Remote Diagnostics	7.5	7.8	(0.3)	0.1	Better
SW Problems Database	7.7	8.7	(1.0)	(0.1)	Better
Average	7.2	7.8	(0.6)	0.3	Better
Population (S)	7.9	6.9	1.0		

Sample Size: 6

A comparison of the scattergram Exhibit VI-133 with that for the sample population shows a very different scatter pattern. All the service aspects are at significant importance levels and are consistently matched and exceeded by the satisfaction plot.

For software support, the scattergram, Exhibit VI-134, shows the same high degree of scatter, with the satisfaction higher than that of the importance ratings - an exceptional overall picture.

EXHIBIT VI-133

ITL

IMPORTANCE OF HARDWARE SERVICES

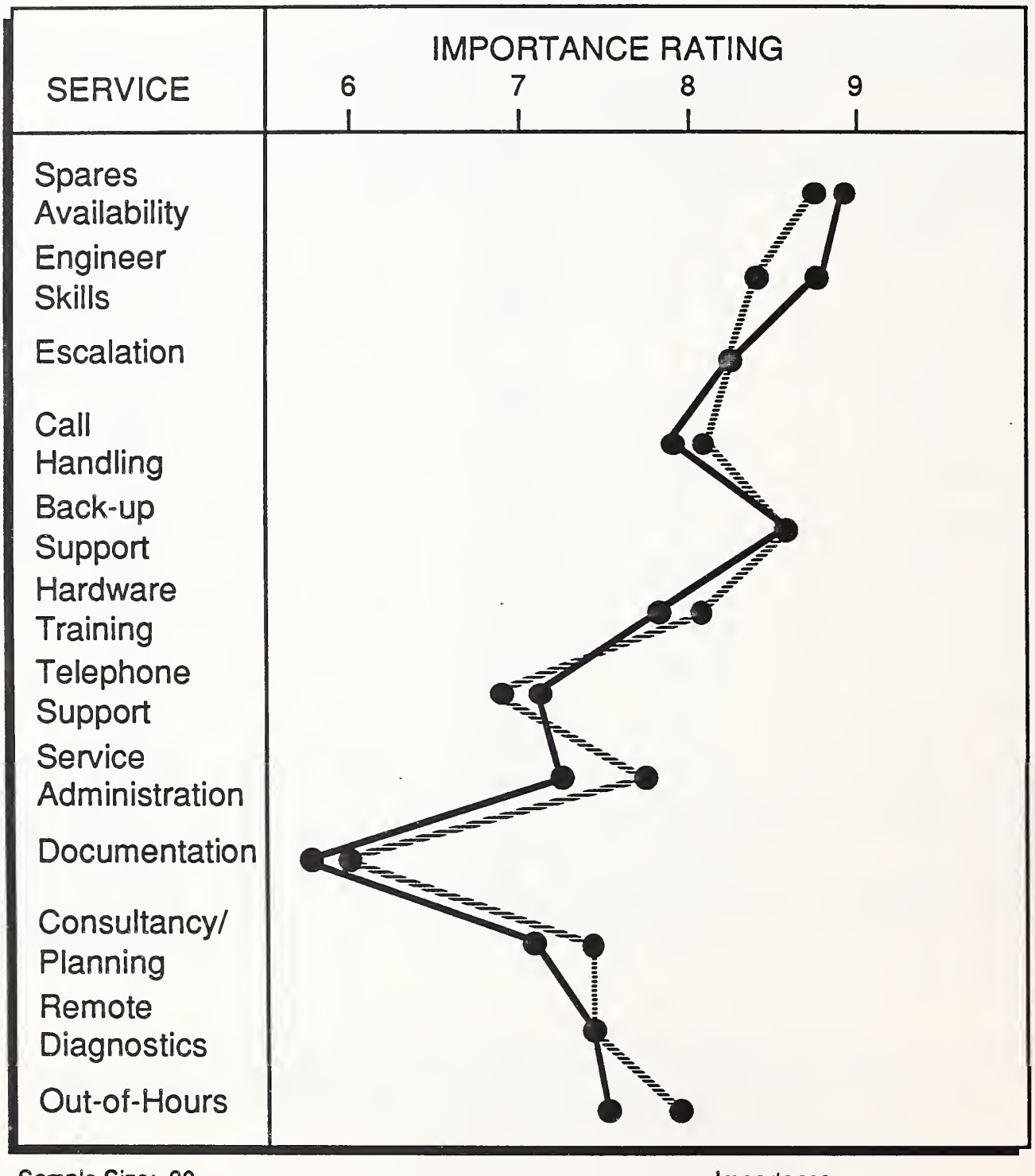
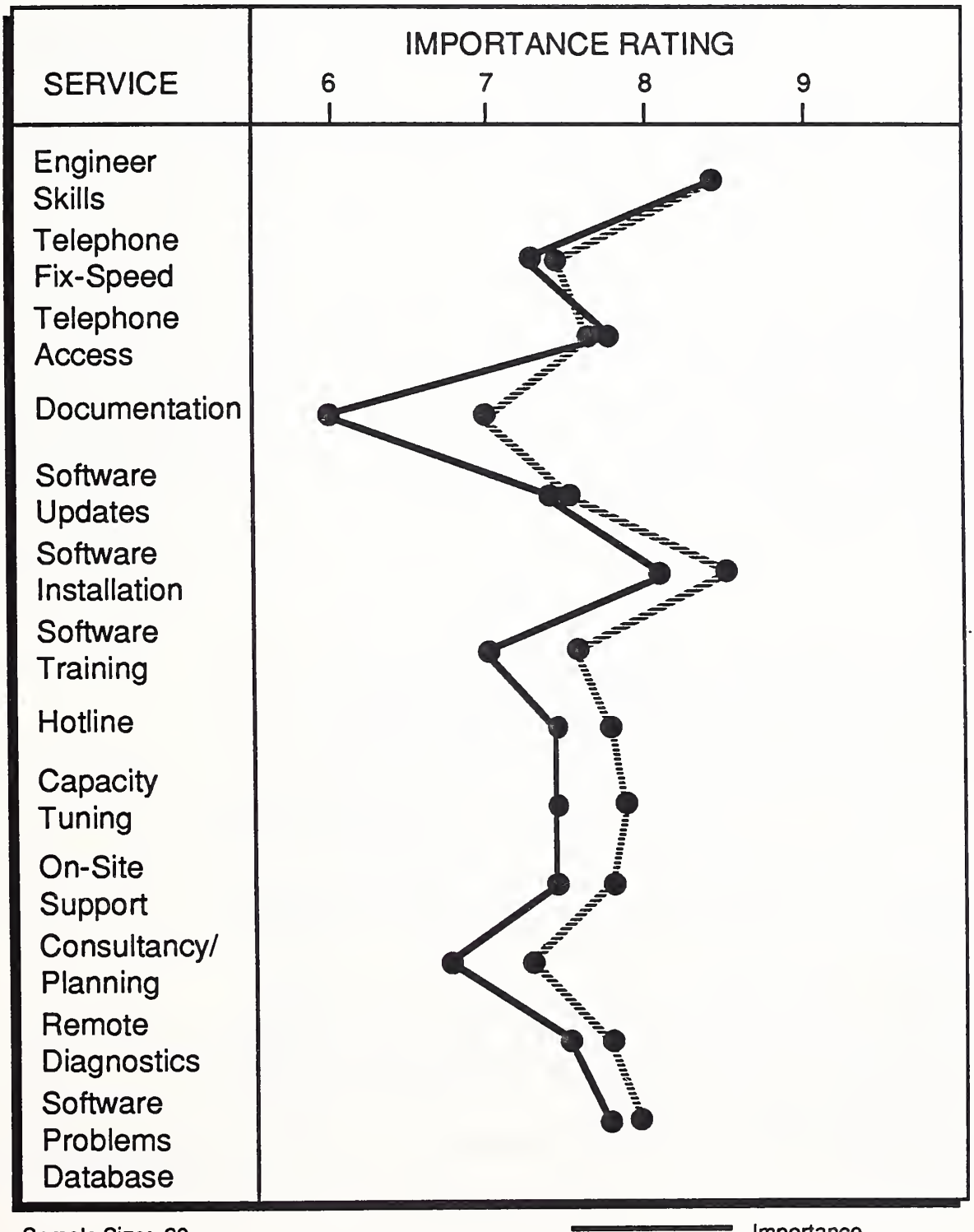


EXHIBIT VI-134

ITL

IMPORTANCE OF SOFTWARE SERVICES



Sample Size: 30

EXHIBIT VI-135

ITL

BREAKDOWNS BY SYSTEM SIZE

SIZE	BREAKS PA	AREA OF BREAK (Percent)	
		HW	SW
Large	2.5	48	52
Medium	4.1	45	55
Small	1.3	61	39
Average	3.4	49	51
Population	2.8	54	46

Sample Size: 30

EXHIBIT VI-136

ITL

SATISFACTION WITH SYSTEMS AVAILABILITY

SIZE	IMPORTANCE	SATISFACTION	Δ
Large	10.0	9.0	1.0
Medium	9.1	8.8	0.3
Small	9.3	9.2	0.1
Average	9.2	8.9	0.3
Population	9.3	8.7	0.6

Sample Size: 30

EXHIBIT VI-137

ITL

HARDWARE RESPONSE AND FIX TIMES

SYSTEM SIZE	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	4.0	3.5	(0.5)	10.0	3.0	3.0	0.0	10.0	7.0	6.5	(0.5)
Medium	3.9	4.3	0.4	9.0	3.0	3.8	0.8	9.7	6.9	8.1	1.2
Small	8.3	5.3	(3.0)	9.7	3.0	3.5	0.5	9.3	11.3	8.8	(2.5)
Average	4.8	4.5	(0.3)	9.2	3.0	3.7	0.7	9.6	7.8	8.2	0.4
Population	3.4	3.7	0.3	9.1	3.9	4.6	0.7	9.1	7.3	8.3	1.0

Sample Size: 30

In view of the above it is rather puzzling to see, from Exhibit VI-135, that ITL has some 21% more breaks than the population sample mean, and that most of these breaks are from the medium system area (which also had the largest sample). This may indicate that a good rapport with a customer results in a better company image, despite any actual performance shortcomings.

In satisfaction with system availability, Exhibit VI-136, the index, at 0.3, is 50% better than that of the population, and the actual satisfaction level is also marginally better, again despite the 'breaks' performance.

A comparison of the hardware response and fix times with those of the sample population, Exhibit VI-137, shows an overall repair time matching the population mean and a difference between acceptable and experienced times of only 24min - better than the parent population.

EXHIBIT VI-138

ITL

SOFTWARE RESPONSE AND FIX TIMES

SYSTEM SIZE	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	6.0	6.0	0.0	9.0	2.5	2.5	0.0	10.0	8.5	8.5	0.0
Medium	11.6	27.6	16.0	9.0	5.1	5.7	0.6	9.2	16.7	33.3	16.6
Small	5.2	5.2	0.0	9.5	6.2	6.5	0.3	9.7	11.4	11.7	0.3
Average	9.8	21.0	11.2	9.1	5.2	5.6	0.4	9.4	15.0	26.6	11.6
Population	8.8	17.0	8.2	8.7	11.0	19.6	8.6	8.8	19.8	36.6	16.8

Sample Size: 30

Exhibit VI-138 gives an even better picture with the software response and fix times, where the average total repair time of some 27hr is about 27% better than with the population.

In Exhibits VI-139 and 140, depicting which vendor supplies the hardware and software support, it is seen that ITL gets all the hardware contracts, and there is no penetration whatsoever by TPM's. Exhibit VI-140 again shows that ITL pick up most of the software contracts, as against the sample population with only 80%

EXHIBIT VI-139

ITL

HARDWARE SERVICE VENDOR BY SYSTEM SIZE

SIZE	MANUFACTURER (Percent)	DEALER (Percent)	TPM (Percent)	SELF (Percent)	SAMPLE
Large	100	-	-	-	2
Medium	100	-	-	-	22
Small	100	-	-	-	6
Average	100	-	-	-	30
Population	93	2	5	1	1321

EXHIBIT VI-140

ITL

SOFTWARE SERVICE VENDOR BY SYSTEM SIZE

SYSTEM SIZE	MANUFACTURER (Percent)	SW VENDOR (Percent)	SYSTEMS HOUSE (Percent)	SELF (Percent)	SAMPLE
Large	100	-	-	-	2
Medium	91	-	-	9	22
Small	100	-	-	-	6
Average	93	-	-	7	30
Population	80	6	7	20	1321

EXHIBIT VI-141

ITL

CUSTOMER PREFERENCES ON BUNDLING

SIZE	INDIVIDUAL PRICING (Percent)	BUNDLED (Percent)	DON'T KNOW (Percent)	SAMPLE SIZE
Large	100	-	-	2
Medium	100	-	-	22
Small	80	-	20	5
Average	90	-	10	29

EXHIBIT VI-142

ITL

CUSTOMERS' TOP TRAINING REQUIREMENTS

REQUIREMENT	LARGE (Percent)	MEDIUM (Percent)	SMALL (Percent)	AVERAGE (Percent)
In-House	50	36	50	40
Technical	-	41	17	33
Operator	50	18	67	30
Operations	50	27	-	23
Lectures	-	27	17	23

Sample Size: 30

EXHIBIT VI-143

ITL

TOP REQUIREMENTS AND INTEREST LEVELS FOR OTHER SERVICES

ALL SYSTEM SIZES

SERVICE	IMPORTANCE	PERCENT WITHOUT	DECISION TREE	SAMPLE
Configuration Planning	6.1	30	18	30
Environmental Planning	6.1	13	8	30
Software Evaluation	6.1	17	10	30
Capacity Planning	6.0	17	10	30

As shown in Exhibit VI-141, the ITL user sample overwhelmingly indicates individual, non-bundled prices for the service options. Were it decided to attempt to go over to bundling as an option, it would be necessary to so some detailed investigation into customer perceptions.

Exhibit VI-142, depicting the ITL user samples' top training requirements, shows there are distinct differences of requirements across all system sizes, but attention is drawn to the small cell sizes for large and small systems. As shown in Exhibit VI-143, none of the other services have importance levels which indicate serious customer interest. All other things being equal, an indication of the best possibility of selling an extra service is found by multiplying the importance rating by the number or percentage of surveyed customers without the service and ranking the results. In the case of ITL this gives no figure better than 18 out of 100, which is not sufficiently large in its own right to justify any new service.

EXHIBIT VI-144

ITL

VIEWS ON CURRENT SERVICE PERFORMANCE

SYSTEM SIZES	HARDWARE			SOFTWARE			SAMPLE SIZES
	IMP	SAT	Δ	IMP	SAT	Δ	
Large	10.0	8.5	1.5	9.5	8.5	1.0	2
Medium	8.8	8.2	0.6	8.2	7.6	0.6	22
Small	8.8	9.5	(0.7)	9.5	7.8	1.7	6
Average	8.9	8.5	0.4	8.6	7.7	0.9	30
Population	9.1	8.2	0.9	8.7	7.8	0.9	1321

All respondents were asked, in a quite separate question, to give ratings to their overall impression of hardware and software support, and these ratings are shown in Exhibit VI-144. For ITL the hardware satisfaction index was twice as good as that of the sample population, with the software index matching exactly. This set of results is not quite as good as might have been expected from the ratings given in the hardware and software package questions.

EXHIBIT VI-145

ITL

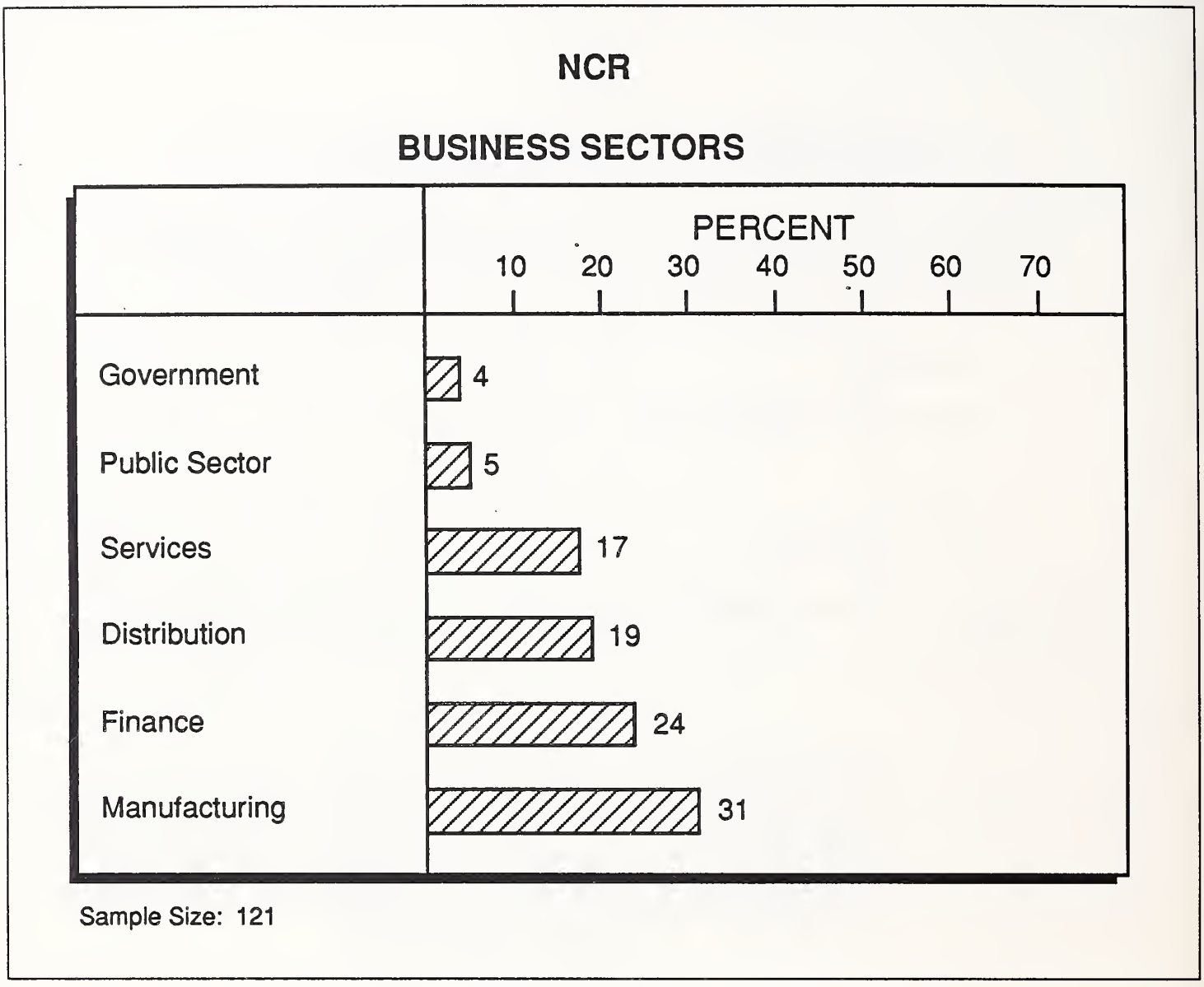
VIEWS ON LIKELY PERFORMANCE (OF CURRENT SUPPLIER) IN FIVE YEARS TIME

CUSTOMER VIEW	HOLDING THE VIEW (Percent)
Excellent	63
Will Have Different Kit	23
Poor	13
Good Company	13

Sample Size: 30

Exhibit VI-145 gives a synopsis of respondents' views on what they believe the current vendors' service performance will be like in five years time. It should be noted that this view is likely to be based on CURRENT performance. ITL has an exceptional set of performance ratings, and this carries through to the future, with about 63% of the ITL respondents feeling that the service would be excellent.

EXHIBIT VI-146



H

NCR

Exhibit VI-146 shows a fairly evenly distributed set of business sectors among the NCR customers, but not quite the same as the sample population.

EXHIBIT VI-147

NCR
HARDWARE SERVICE SATISFACTION
LARGE SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	5.5	8.3	(2.8)	0.1	Better
Operator Training	8.5	8.3	0.2	0.1	
Spares Availability	9.5	8.8	0.7	0.8	
Escalation Procedure	9.5	9.3	0.2	0.7	Better
Engineer Skills	9.5	8.8	0.7	0.7	
Remote Diagnostics	3.8	7.0	(3.2)	0.0	Better
Telephone Support	6.5	8.7	(1.2)	0.2	Better
Documentation	6.8	7.0	(0.2)	0.7	Better
Planning/Consultancy	6.0	7.3	(1.3)	0.0	Better
Out-of-Hours	9.0	9.0	0.0	(0.1)	
Call Handling	9.5	9.0	0.5	0.4	
Back-Up Support	9.8	9.3	0.5	0.4	
Average	7.8	8.4	(0.6)	0.2	Better
Population (L)	7.7	7.1	0.6		

Sample Size: 4

For large systems, Exhibits VI-147 and 148, compared to the parent population there are eleven service aspects which show a better customer satisfaction, but also four aspects (all on the software side) with satisfaction indices between the customer concern and real dissatisfaction levels - in fact Documentation is at the 'pain' level. Due account must be taken of the small cell size.

EXHIBIT VI-148

NCR
SOFTWARE SUPPORT SATISFACTION
LARGE SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	10.0	8.5	1.5	0.3	
SW Installation	3.8	7.3	(2.5)	0.2	Better
Engineer Skills	9.8	9.3	0.5	0.7	
Telephone Support:					
Accessibility	6.3	8.3	(2.0)	0.6	Better
Fix Speed	7.0	8.0	(1.0)	0.7	Better
Documentation	8.0	4.8	3.2	1.0	
Planning/Consultancy	7.3	6.3	1.0	0.1	
SW Training	8.0	7.0	1.0	0.4	
On-Site Support	7.0	7.0	0.0	0.2	
Hotline	9.3	8.8	0.5	0.4	
Capacity Tuning	7.3	8.0	(0.7)	0.3	Better
Remote Diagnostics	6.5	5.7	0.8	0.1	
SW Problems Database	5.0	8.5	(3.5)	(0.1)	Better
Average	7.3	7.5	(0.2)	0.3	Better
Population (L)	8.2	7.3	0.9		

Sample Size: 4

EXHIBIT VI-149

NCR
HARDWARE SERVICE SATISFACTION
MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.0	7.3	(0.3)	0.1	Better
Operator Training	7.2	7.3	(0.1)	0.1	
Spares Availability	8.7	7.8	0.9	0.8	
Escalation Procedure	8.0	7.3	0.7	0.7	
Engineer Skills	9.0	8.3	0.7	0.7	
Remote Diagnostics	6.3	6.7	(0.4)	0.0	Better
Telephone Support	7.0	7.2	(0.2)	0.2	Better
Documentation	7.2	6.4	0.8	0.7	
Planning/Consultancy	6.1	6.6	(0.5)	0.0	Better
Out-of-Hours	6.4	6.4	0.0	(0.1)	
Call Handling	7.8	7.6	0.2	0.4	
Back-Up Support	8.2	7.6	0.6	0.4	
Average	7.4	7.2	0.2	0.2	
Population (M)	7.6	6.8	0.8		

Sample Size: 73

For medium systems, see Exhibits VI-149 and 150, both hardware and software services show a slight tendency to improve on the sample population. Software Documentation, at 1.2, is the aspect least satisfied and there is a generally good picture of satisfaction with eight aspects better than those of the population.

EXHIBIT VI-150

NCR
SOFTWARE SUPPORT SATISFACTION
MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	7.6	7.5	0.1	0.3	
SW Installation	7.2	7.2	0.0	0.2	
Engineer Skills	8.5	8.0	0.5	0.7	
Telephone Support:					
Accessibility	7.9	7.5	0.4	0.6	
Fix Speed	7.7	7.3	0.6	0.7	
Documentation	7.4	6.2	1.2	1.0	
Planning/Consultancy	6.0	6.4	(0.4)	0.1	Better
SW Training	7.6	7.4	0.2	0.4	
On-Site Support	6.5	6.4	0.1	0.2	
Hotline	7.2	6.8	0.4	0.4	
Capacity Tuning	6.4	6.8	(0.4)	0.3	Better
Remote Diagnostics	5.5	5.9	(0.4)	0.1	Better
SW Problems Database	4.8	5.8	(1.0)	(0.1)	Better
Average	6.9	6.9	0.0	0.3	Better
Population (M)	8.0	7.1	0.9		

Sample Size: 73

EXHIBIT VI-151

NCR
HARDWARE SERVICE SATISFACTION
SMALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.1	7.2	(0.1)	0.1	
Operator Training	6.9	7.5	(0.6)	0.1	Better
Spares Availability	8.6	7.9	0.7	0.8	
Escalation Procedure	8.0	7.4	0.6	0.7	
Engineer Skills	8.8	8.3	0.5	0.7	
Remote Diagnostics	6.9	6.5	0.4	0.0	
Telephone Support	7.6	7.2	0.4	0.2	
Documentation	7.3	6.5	0.8	0.7	
Planning/Consultancy	6.5	7.0	(0.5)	0.0	Better
Out-of-Hours	5.6	6.6	(1.0)	(0.1)	Better
Call Handling	8.3	7.8	0.5	0.4	
Back-Up Support	8.2	7.6	0.6	0.4	
Average	7.5	7.3	0.2	0.2	
Population (S)	7.4	6.5	0.9		

Sample Size: 44

For small systems the picture for NCR is roughly the same as for the medium installations, with software Documentation the least satisfied aspect, just over the concern level at an index of 1.2, Exhibits VI-151 and 152 refer.

EXHIBIT VI-152

NCR
SOFTWARE SUPPORT SATISFACTION
SMALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	7.5	7.3	0.2	0.3	
SW Installation	8.2	7.8	0.4	0.2	
Engineer Skills	8.8	8.0	0.8	0.7	
Telephone Support:					
Accessibility	8.2	7.7	0.5	0.6	
Fix Speed	8.0	7.5	0.5	0.7	
Documentation	7.8	6.6	1.2	1.0	
Planning/Consultancy	7.1	7.0	0.1	0.1	
SW Training	7.2	7.0	0.2	0.4	
On-Site Support	6.9	7.6	(0.7)	0.2	Better
Hotline	7.3	7.1	0.2	0.4	
Capacity Tuning	7.0	6.8	0.2	0.3	
Remote Diagnostics	6.7	6.2	0.5	0.1	
SW Problems Database	6.9	6.4	0.5	(0.1)	
Average	7.5	7.2	0.3	0.3	
Population (S)	7.9	6.9	1.0		

Sample Size: 44

A comparison of the scattergram, Exhibit VI-153, with that for the sample population shows much more scatter but the same general trends, except that the satisfaction levels for the 'least important' services are far higher.

For software support, the scattergram, Exhibit VI-154, again shows a very similar picture to the range population except that Documentation has a far higher dissatisfaction level. The importance ratings for the 'least important' services fall away more rapidly, indicating complete satisfaction, perhaps built up over a number of years.

EXHIBIT VI-153

NCR

IMPORTANCE OF HARDWARE SERVICES

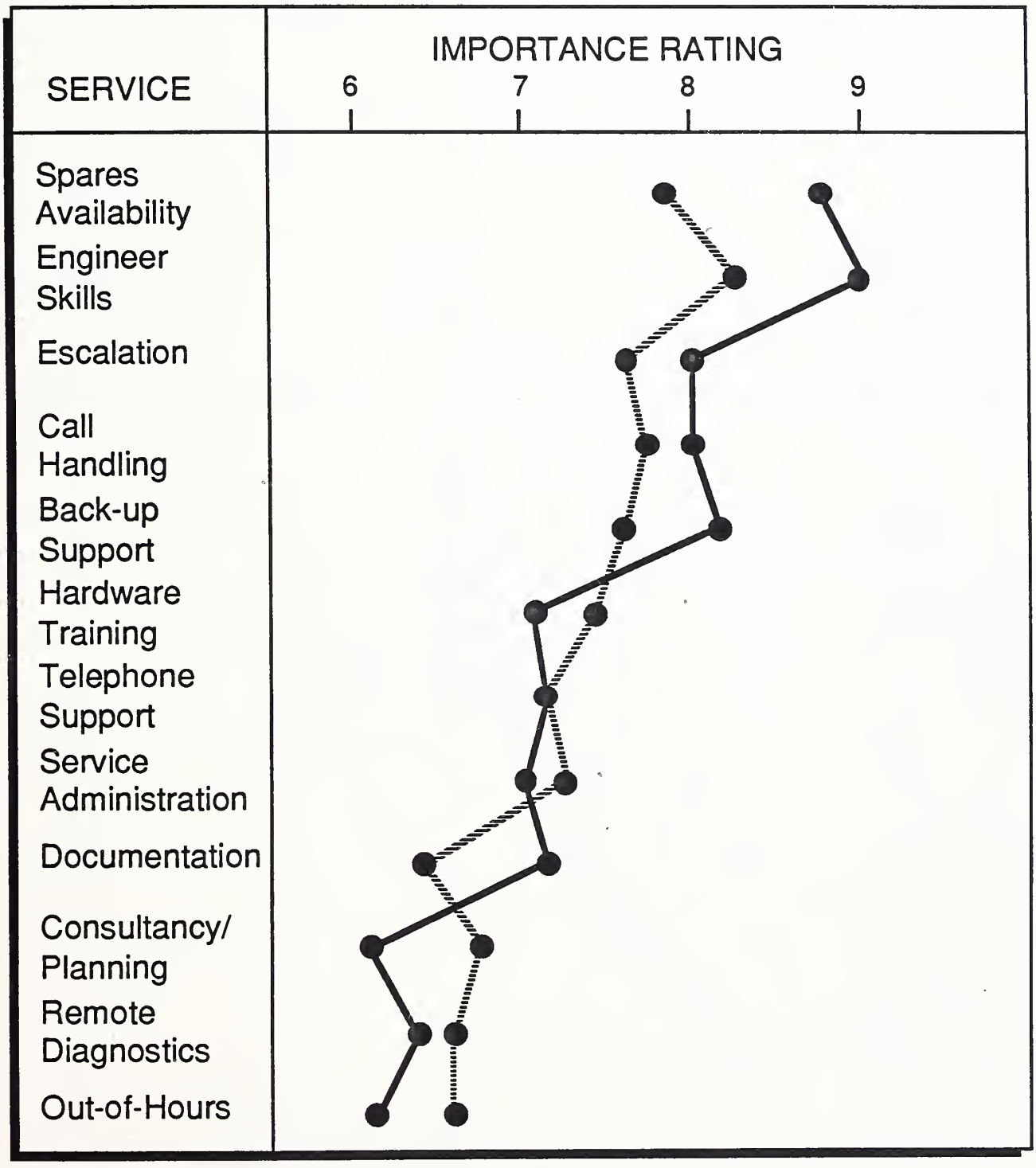


EXHIBIT VI-154

NCR

IMPORTANCE OF SOFTWARE SERVICES

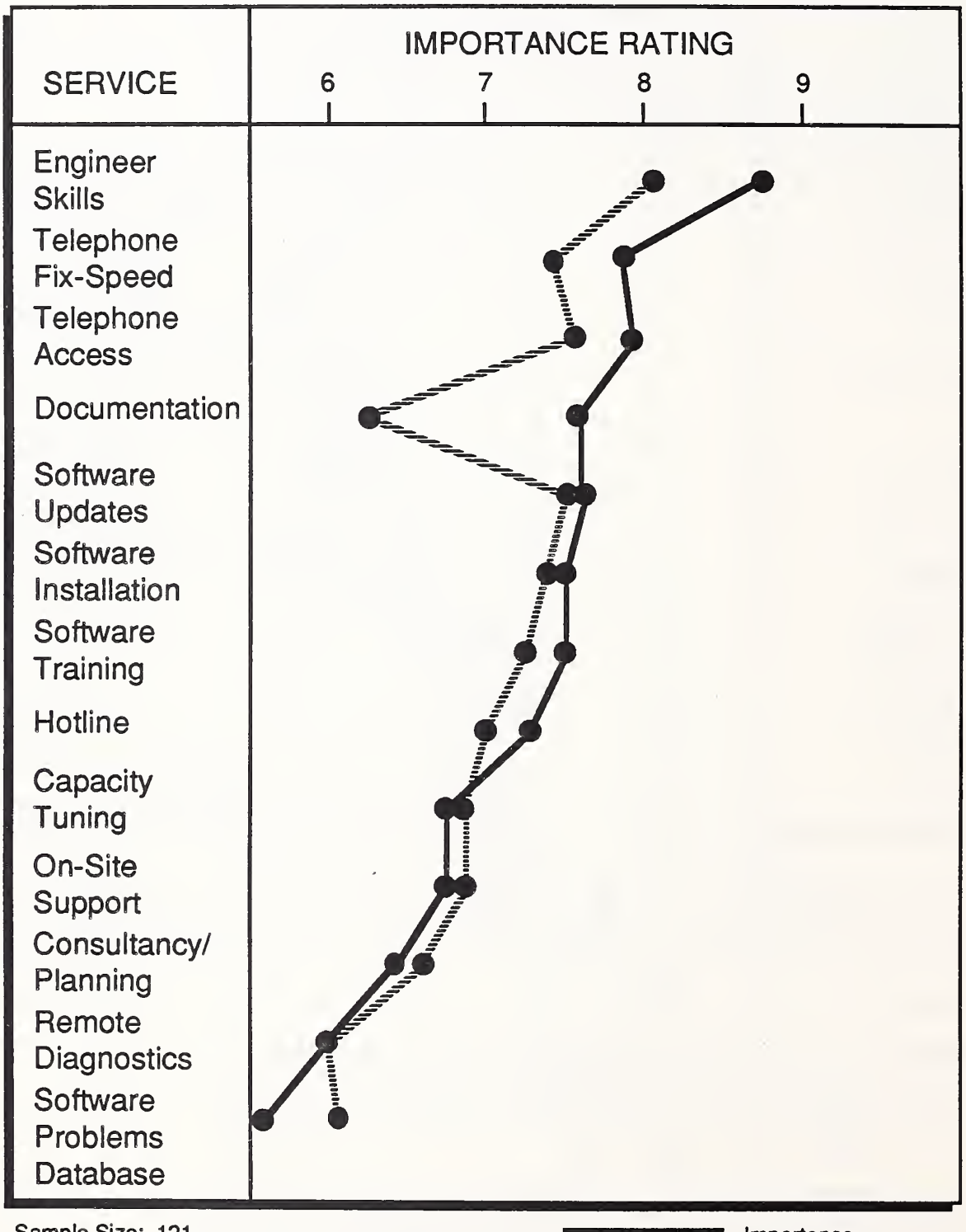


EXHIBIT VI-155

NCR

BREAKDOWNS BY SYSTEM SIZE

SIZE	BREAKS PA	AREA OF BREAK (Percent)	
		HW	SW
Large	2.8	37	63
Medium	1.6	43	57
Small	1.9	49	51
Average	1.8	46	54
Population	2.8	54	46

Sample Size: 121

From Exhibit VI-155 it is seen that NCR has some 36% less breaks than the population sample mean, and the figure for large system breaks is as low as that for the sample population encompassing all system sizes. It should also be noted that the relative proportions of hardware and software faults are exactly opposite to that of the population, and that this might have been expected to make the job of attaining good customer satisfaction a little more difficult due to the normally longer software fix times.

EXHIBIT VI-156

NCR

SATISFACTION WITH SYSTEMS AVAILABILITY

SIZE	IMPORTANCE	SATISFACTION	Δ
Large	9.8	9.3	0.5
Medium	9.4	8.8	0.6
Small	8.8	8.3	0.5
Average	9.2	8.7	0.5
Population	9.3	8.7	0.6

Sample Size: 121

In satisfaction with system availability, Exhibit VI-156, the index, at 0.5, is, in fact, marginally better than the population, at roughly the same importance levels.

EXHIBIT VI-157

NCR

HARDWARE RESPONSE AND FIX TIMES

	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	1.5	1.5	0.0	9.5	1.8	2.0	0.2	9.8	3.3	3.5	0.2
Medium	3.3	3.9	0.6	9.1	3.8	4.2	0.4	9.3	7.1	8.1	1.0
Small	5.4	6.3	0.9	8.8	5.5	5.9	0.4	9.0	10.9	12.2	1.3
Average	4.0	4.7	0.7	9.0	4.4	4.8	0.4	9.2	8.4	9.5	1.1
Population	3.4	3.7	0.3	9.1	3.9	4.6	0.7	9.1	7.3	8.3	1.0

Sample Size: 121

A comparison of the hardware response and fix times with those of the sample population, Exhibit VI-157, shows a 14% longer overall repair time. The difference between acceptable and experienced times, at 1.1hr, is only marginally longer than with the parent population.

EXHIBIT VI-158

NCR

SOFTWARE RESPONSE AND FIX TIMES

SYSTEM SIZE	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	21.2	37.2	16.0	7.5	11.0	21.0	10.0	8.8	32.2	58.2	26.0
Medium	9.6	21.2	11.6	8.8	12.9	19.7	6.8	8.8	22.5	40.9	18.4
Small	8.7	13.0	4.3	9.1	12.7	22.7	10.0	8.8	21.4	35.7	14.3
Average	9.7	18.7	9.0	8.8	12.8	20.0	7.2	8.8	22.5	38.7	16.2
Population	8.8	17.0	8.2	8.7	11.0	19.6	8.6	8.8	19.8	36.6	16.8

Sample Size: 121

Exhibit VI-158 shows the same type of profile with the software response and fix times, where the average total repair time of some 39hr is nearly two hours longer than with the population. The difference between the acceptable and experienced times is somewhat better. It is the view of INPUT that, to some extent, customers adjust their expectations to meet vendor performance.

In Exhibits VI-159 and 160, depicting which vendor supplies the hardware and software support, it is indicated that NCR gets slightly more hardware contracts, and slightly fewer software contracts, than does the sample population. There is a slightly lower penetration by TPM's in this case.

EXHIBIT VI-159

NCR

HARDWARE SERVICE VENDOR BY SYSTEM SIZE

SYSTEM SIZE	MANUFACTURER (Percent)	DEALER (Percent)	TPM (Percent)	SELF (Percent)	SAMPLE
Large	100	-	-	-	4
Medium	99	1	1	-	73
Small	93	-	7	-	44
Average	97	1	3	-	121
Population	93	2	5	1	1321

EXHIBIT VI-160

NCR

SOFTWARE SERVICE VENDOR BY SYSTEM SIZE

SYSTEM SIZE	MANUFACTURER (Percent)	SW VENDOR (Percent)	SYSTEMS HOUSE (Percent)	SELF (Percent)	SAMPLE
Large	100	-	-	-	4
Medium	85	-	5	22	73
Small	61	9	20	20	44
Average	76	3	11	21	121
Population	80	6	7	20	1321

EXHIBIT VI-161

NCR

CUSTOMER PREFERENCES ON BUNDLING

SIZE	INDIVIDUAL PRICING (Percent)	BUNDLED (Percent)	DON'T KNOW (Percent)	SAMPLE SIZE
Large	50	50	-	4
Medium	78	8	14	73
Small	65	21	14	43
Average	73	14	13	120

Exhibit VI-161 shows an interesting picture for bundling on the large systems, where there are equal preferences, but the medium and small user samples indicate the need for more un-bundled services.

EXHIBIT VI-162

NCR

CUSTOMERS' TOP TRAINING REQUIREMENTS

REQUIREMENT	LARGE (Percent)	MEDIUM (Percent)	SMALL (Percent)	AVERAGE (Percent)
Software	25	14	18	16
Programming	-	18	5	12
General	25	10	16	12
On NCR Kit	-	14	7	11
System Ops.	-	14	7	11

Exhibit VI-162, depicting the NCR user samples' top training requirements, shows there is a fairly diverse mix of requirements across all system sizes and, as with some other companies, the need for training on 'own' kit is mentioned. If this is not the result of an NCR-initiated strategy, then there may be a need for an evaluation of the initial training modules or, perhaps an evaluation of the opportunities for post-installation premium priced additional modules.

As shown in Exhibit VI-163, three of the other services have importance levels which indicate serious customer interest. All other things being equal, an indication of the best possibility of selling an extra service is found by multiplying the importance rating by the number or percentage of surveyed customers without the service and ranking the results. In the case of NCR the top two are Problems Management and Disaster Recovery.

EXHIBIT VI-163

NCR

TOP REQUIREMENTS AND INTEREST LEVELS FOR OTHER SERVICES

LARGE AND MEDIUM SYSTEMS

SERVICE	IMPORTANCE	PERCENT WITHOUT	DECISION TREE	SAMPLE
Training	6.8	0	0	77
Disaster Recovery	7.1	60	43	75
Problems Management (L)	8.5	75	64	4

L = Large Systems Only

SMALL SYSTEMS

SERVICE	IMPORTANCE	PERCENT WITHOUT	DECISION TREE	SAMPLE
Training	6.8	0	0	44
Disaster Recovery	7.0	52	37	44
Problems Management	4.6	82	38	44

EXHIBIT VI-164

NCR

VIEWS ON CURRENT SERVICE PERFORMANCE

SYSTEM SIZE	HARDWARE			SOFTWARE			SAMPLE SIZES
	IMP	SAT	Δ	IMP	SAT	Δ	
Large	9.5	9.0	0.5	9.0	8.0	1.0	4
Medium	9.1	8.1	1.0	8.7	8.0	0.7	73
Small	8.9	8.0	0.9	8.8	8.1	0.7	44
Average	9.1	8.1	1.0	8.7	8.1	0.6	121
Population	9.1	8.2	0.9	8.7	7.8	0.9	1321

All respondents were asked, in a quite separate question, to give ratings to their overall impression of hardware and software support, and these ratings are shown in Exhibit VI-164. For NCR the hardware satisfaction gap was marginally greater than that of the sample population. The software satisfaction index is some 33% better. Both have the same levels of importance ratings as the population.

EXHIBIT VI-165

NCR

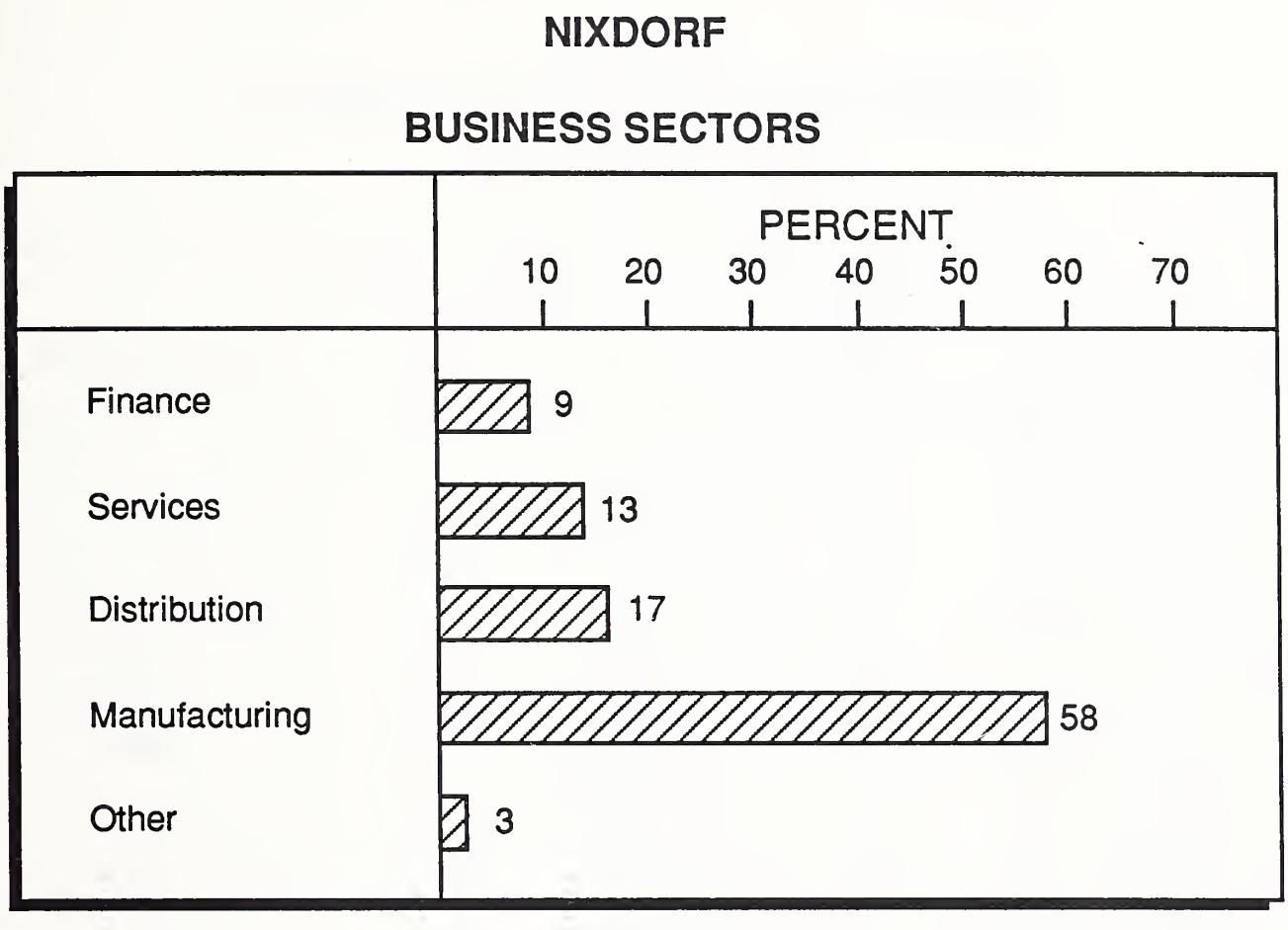
VIEWS ON LIKELY PERFORMANCE (OF CURRENT SUPPLIER) IN FIVE YEARS TIME

CUSTOMER VIEW	HOLDING THE VIEW (Percent)
Excellent	48
Will Have Different Kit	10
Same as Now	9
Poor	9

Sample Size: 121

Exhibit VI-165 gives a synopsis of respondents' views on what they believe the current vendors service performance will be like in five years time. It should be noted that this view is likely to be based on CURRENT performance. Even though the NCR ratings are only around the sample mean, about 48% of the NCR respondents felt that the service would be excellent, and a total of 57% had no real concern.

EXHIBIT VI-166



Sample Size: 69

I

Nixdorf

Exhibit VI-166 shows that the Nixdorf respondents were predominantly from the manufacturing sector, and at a significant proportion more than with the total population. There were responses from only one large Nixdorf system, hence no separate tables are included.

EXHIBIT VI-167

NIXDORF
HARDWARE SERVICE SATISFACTION
MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.3	7.4	(0.1)	0.1	
Operator Training	7.7	7.9	(0.2)	0.1	Better
Spares Availability	8.2	7.6	0.6	0.8	
Escalation Procedure	8.1	7.8	0.3	0.7	Better
Engineer Skills	8.4	8.1	0.3	0.7	Better
Remote Diagnostics	6.0	6.6	(0.6)	0.0	Better
Telephone Support	7.6	7.7	(0.1)	0.2	Better
Documentation	6.8	6.7	0.1	0.7	Better
Planning/Consultancy	7.0	7.1	(0.1)	0.0	
Out-of-Hours	6.6	6.5	0.1	(0.1)	
Call Handling	8.6	7.8	0.8	0.4	
Back-Up Support	8.0	7.7	0.3	0.4	
Average	7.5	7.4	0.1	0.2	
Population (M)	7.6	6.8	0.8		

Sample Size: 33

For medium systems, Exhibits VI-167 and 168, there are fifteen service aspects which show a better customer satisfaction than with the sample population, and 36% of the satisfaction indices indicate complete customer satisfaction.

EXHIBIT VI-168

NIXDORF
SOFTWARE SUPPORT SATISFACTION
MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	7.6	7.6	0.0	0.3	Better
SW Installation	7.3	7.3	0.0	0.2	
Engineer Skills	8.2	8.0	0.2	0.7	Better
Telephone Support:					
Accessibility	8.0	7.6	0.4	0.6	
Fix Speed	7.8	7.8	0.0	0.7	Better
Documentation	6.8	6.7	0.1	1.0	Better
Planning/Consultancy	6.4	6.7	(0.3)	0.1	Better
SW Training	7.1	7.0	0.1	0.4	Better
On-Site Support	7.4	7.0	0.4	0.2	
Hotline	8.2	7.7	0.5	0.4	
Capacity Tuning	7.0	7.1	(0.1)	0.3	Better
Remote Diagnostics	6.8	7.5	(0.7)	0.1	Better
SW Problems Database	6.6	7.3	(0.7)	(0.1)	Better
Average	7.3	7.3	0.0	0.3	Better
Population (M)	8.0	7.1	0.9		

Sample Size: 33

EXHIBIT VI-169

NIXDORF
HARDWARE SERVICE SATISFACTION
SMALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.8	7.7	0.1	0.1	
Operator Training	7.4	7.2	0.2	0.1	
Spares Availability	8.9	7.9	1.0	0.8	
Escalation Procedure	7.9	7.2	0.7	0.7	
Engineer Skills	8.7	7.8	0.9	0.7	
Remote Diagnostics	8.1	7.7	0.4	0.0	
Telephone Support	7.7	7.7	0.0	0.2	
Documentation	6.5	6.1	0.4	0.7	Better
Planning/Consultancy	6.0	6.5	(0.5)	0.0	Better
Out-of-Hours	5.5	5.5	0.0	(0.1)	
Call Handling	7.7	7.6	0.1	0.4	Better
Back-Up Support	7.6	7.4	0.2	0.4	
Average	7.5	7.2	0.3	0.2	
Population (S)	7.4	6.5	0.9		

Sample Size: 35

For small systems, Exhibits VI-169 and 170, there are nine service aspects better than those of the population mean. There are four aspects approaching the customer concern level, chief of these being software Telephone Support Accessibility.

EXHIBIT VI-170

NIXDORF
SOFTWARE SUPPORT SATISFACTION
SMALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	7.6	7.6	0.0	0.3	Better
SW Installation	8.3	7.6	0.7	0.2	
Engineer Skills	8.9	8.1	0.8	0.7	
Telephone Support:					
Accessibility	8.6	7.6	1.0	0.6	
Fix Speed	8.5	7.6	0.9	0.7	
Documentation	7.2	6.3	0.9	1.0	
Planning/Consultancy	6.2	6.4	(0.2)	0.1	Better
SW Training	7.1	7.1	0.0	0.4	Better
On-Site Support	7.0	7.5	(0.5)	0.2	Better
Hotline	6.9	6.8	0.1	0.4	Better
Capacity Tuning	6.7	7.4	(0.7)	0.3	Better
Remote Diagnostics	7.7	7.5	0.2	0.1	
SW Problems Database	5.8	6.1	(0.3)	(0.1)	
Average	7.4	7.2	0.2	0.3	
Population (S)	7.9	6.9	1.0		

Sample Size: 35

A comparison of the scattergram Exhibit VI-171 with that for the sample population shows a rough similarity, but with a falling off of the importance levels for the 'least important' services.

For software support, the scattergram Exhibit VI-172 shows a high degree of scatter, but with the satisfaction plot closer to customer requirements than that of the population.

EXHIBIT VI-171

NIXDORF

IMPORTANCE OF HARDWARE SERVICES

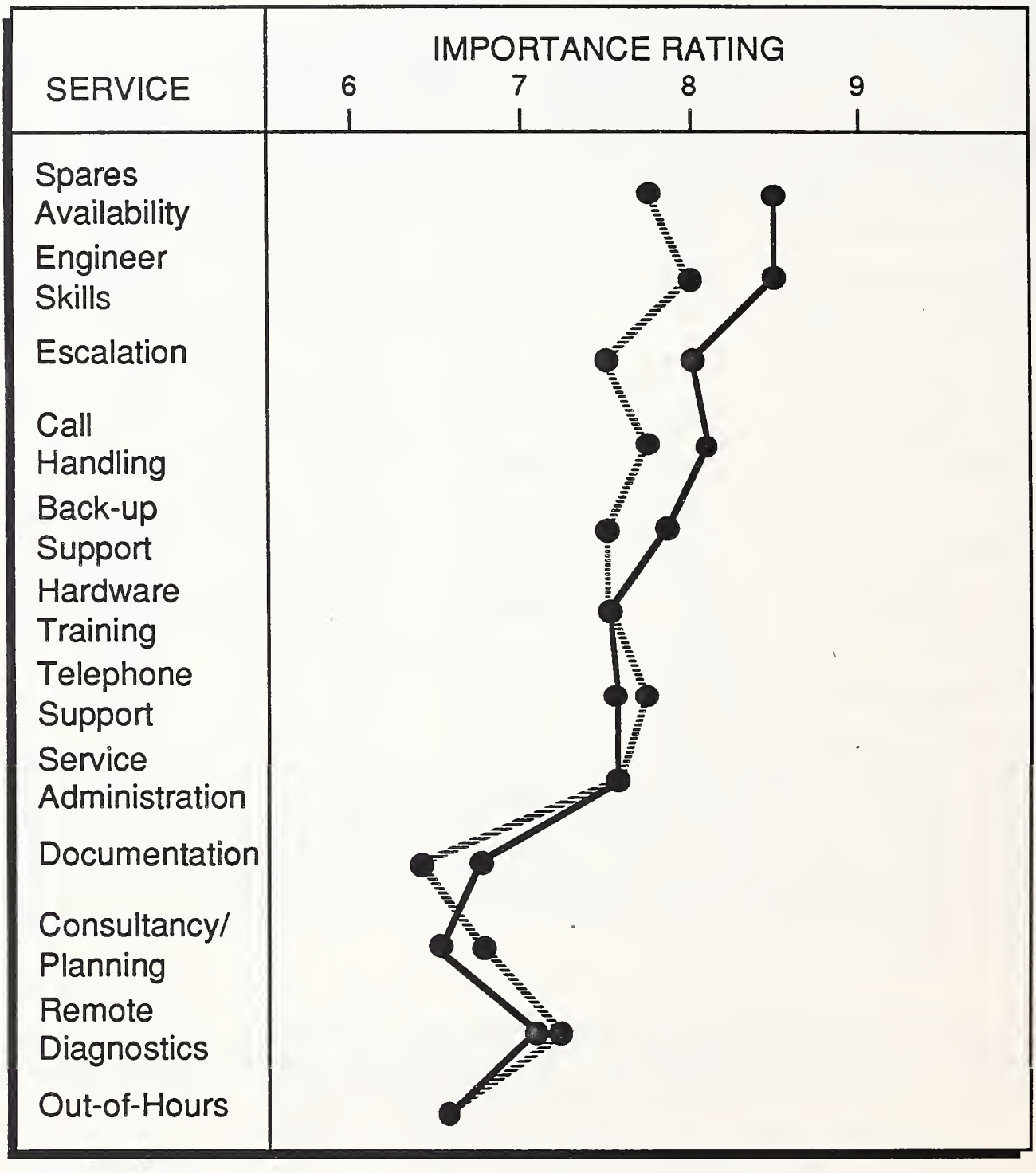
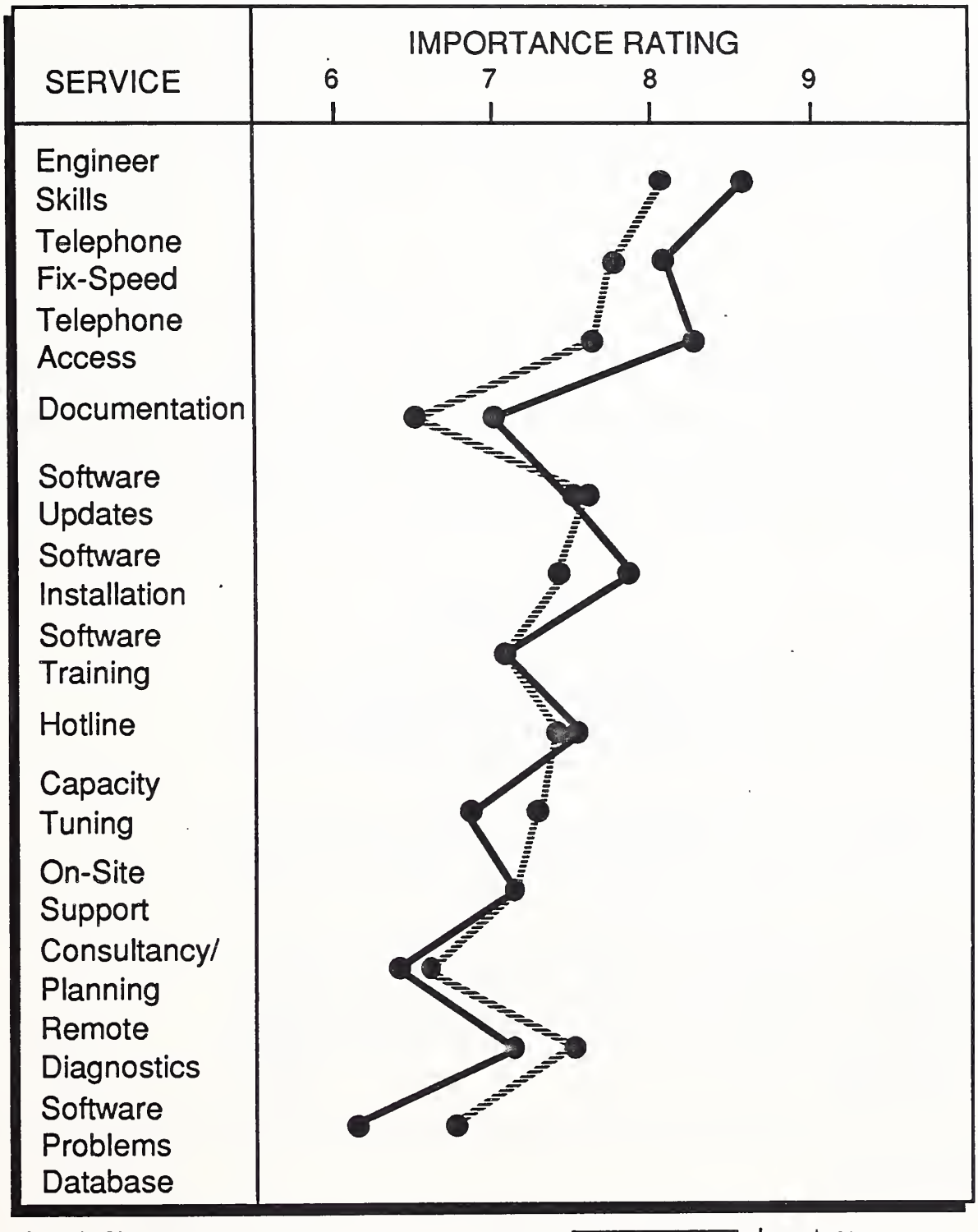


EXHIBIT VI-172

NIXDORF

IMPORTANCE OF SOFTWARE SERVICES



Sample Size: 69

EXHIBIT VI-173

NIXDORF

BREAKDOWNS BY SYSTEM SIZE

SIZE	BREAKS PA	AREA OF BREAK (Percent)	
		HW	SW
Medium	2.7	52	48
Small	2.1	61	39
Average	2.4	57	43
Population	2.8	54	46

EXHIBIT I-1

EXHIBIT VI-174

NIXDORF

SATISFACTION WITH SYSTEMS AVAILABILITY

SIZE	IMPORTANCE	SATISFACTION	Δ
Medium	9.3	8.9	0.4
Small	9.4	8.1	1.3
Average	9.4	8.5	0.9
Population	9.3	8.7	0.6

Sample Size: 68

EXHIBIT VI-175

NIXDORF

HARDWARE RESPONSE AND FIX TIMES

SYSTEM SIZE	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	2.0	2.0	0.0	9.0	1.0	2.0	1.0	10.0	3.0	4.0	1.0
Medium	2.7	2.9	0.2	8.9	3.7	3.3	(0.4)	8.7	6.4	6.2	(0.2)
Small	4.4	6.6	2.2	9.0	4.5	4.6	0.1	9.1	8.9	11.2	2.3
Average	3.5	4.8	1.3	8.9	4.1	4.5	0.4	9.0	7.6	9.3	1.7
Population	3.4	3.7	0.3	9.1	3.9	4.6	0.7	9.1	7.3	8.3	1.0

Sample Size: 69

To back up the previous ratings, Exhibit VI-173 shows that the Nixdorf sample has an overall 17% better performance on system breaks than the population sample mean, and that a greater proportion of these breaks is from the medium system area.

In satisfaction with system availability (Exhibit VI-174), the satisfaction gap, at 0.9, is 50% greater than that of the population, while the actual satisfaction level is only marginally lower.

A comparison of the hardware response and fix times with those of the sample population, Exhibit VI-175, shows an overall repair time about 12% longer than the population mean and a difference between acceptable and experienced times of 1.7hr, nearly double the parent population at 1hr.

EXHIBIT VI-176

NIXDORF

SOFTWARE RESPONSE AND FIX TIMES

SYSTEM SIZE	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	16.0	16.0	0.0	8.0	4.0	8.0	4.0	8.0	20.0	24.0	4.0
Medium	7.1	8.6	1.5	8.4	12.1	16.8	4.7	8.2	19.2	25.4	6.2
Small	8.0	25.0	17.0	8.7	10.5	28.4	17.9	8.9	18.5	53.4	34.9
Average	7.7	17.1	9.4	8.6	11.2	22.4	11.2	8.6	18.9	39.5	20.6
Population	8.8	17.0	8.2	8.7	11.0	19.6	8.6	8.8	19.8	36.6	16.8

Sample Size: 69

Exhibit VI-176 provides a similar profile for the software response and fix times, where the average total repair time of nearly 40hr is some 8% longer than with the population, and gives a difference between acceptable and experienced times of about 21hr.

In Exhibits VI-177 and 178, depicting which vendor supplies the hardware and software support, it is seen that Nixdorf gets proportionately more of the hardware and software contracts than with the sample population, with only a marginal penetration by TPM's.

EXHIBIT VI-177

NIXDORF

HARDWARE SERVICE VENDOR BY SYSTEM SIZE

SIZE	MANUFACTURER (Percent)	DEALER (Percent)	TPM (Percent)	SELF (Percent)	SAMPLE
Large	100	-	-	-	1
Medium	100	-	-	-	33
Small	91	6	3	-	35
Average	96	3	1	-	69
Population	93	2	5	1	1321

EXHIBIT VI-178

NIXDORF

SOFTWARE SERVICE VENDOR BY SYSTEM SIZE

SIZE	MANUFACTURER (Percent)	SW VENDOR (Percent)	SYSTEMS HOUSE (Percent)	SELF (Percent)	SAMPLE
Large	100	-	-	-	1
Medium	94	3	-	12	33
Small	77	17	-	14	35
Average	86	10	-	12	69
Population	80	6	7	20	1321

EXHIBIT VI-179

NIXDORF

CUSTOMER PREFERENCES ON BUNDLING

SIZE	INDIVIDUAL PRICING (Percent)	BUNDLED (Percent)	DON'T KNOW (Percent)	SAMPLE SIZE
Large	100	-	-	1
Medium	94	6	-	33
Small	57	17	26	35
Average	75	12	13	69

As shown in Exhibit VI-179, Nixdorf customers appear to tend to prefer individual, non-bundled prices for the service options and, were it decided to attempt to go over to bundling as an option, it would be necessary to do some detailed investigation into customer perceptions.

EXHIBIT VI-180

NIXDORF

CUSTOMERS' TOP TRAINING REQUIREMENTS

REQUIREMENT	MEDIUM (Percent)	SMALL (Percent)	AVERAGE (Percent)
On NIXDORF Kit	42	20	30
Software	27	20	23
Hardware	12	14	13
System Ops.	9	11	10

Exhibit VI-180, depicting the Nixdorf user samples' top training requirements, indicates that there is a reasonable closeness of requirements across medium and small systems sizes, excepting training on 'own' kit for medium system users.

As shown in Exhibit VI-181, only two of the other services have importance levels which indicate serious customer interest. All other things being equal, an indication of the best possibility of selling an extra service is found by multiplying the importance rating by the number or percentage of surveyed customers without the service and ranking the results. In the case of Nixdorf the top two aspects are Disaster Recovery and Software Evaluation.

EXHIBIT VI-181

NIXDORF

TOP REQUIREMENTS AND INTEREST LEVELS FOR OTHER SERVICES

MEDIUM SYSTEMS

SERVICE	IMPORTANCE	PERCENT WITHOUT	DECISION TREE	SAMPLE
Training	7.0	0	0	33
Disaster Recovery	7.5	24	18	33
Software Evaluation	6.1	53	32	32

SMALL SYSTEMS

SERVICE	IMPORTANCE	PERCENT WITHOUT	DECISION TREE	SAMPLE
Disaster Recovery	6.9	54	37	35
Consultancy	6.3	46	29	35
Training	6.8	0	0	35

EXHIBIT VI-182

NIXDORF

VIEWS ON CURRENT SERVICE PERFORMANCE

SYSTEM SIZE	HARDWARE			SOFTWARE			SAMPLE SIZES
	IMP	SAT	Δ	IMP	SAT	Δ	
Large	8.0	6.0	2.0	10.0	5.0	5.0	1
Medium	8.9	8.4	0.5	8.9	8.0	0.9	33
Small	9.2	8.0	1.2	8.1	8.2	(0.1)	35
Average	9.0	8.1	0.9	8.5	8.0	0.5	69
Population	9.1	8.2	0.9	8.7	7.8	0.9	1321

All respondents were asked, in a quite separate question, to give ratings to their overall impression of hardware and software support, and these ratings are shown in Exhibit VI-182. For Nixdorf the hardware satisfaction index matches that of the sample population, with the software index some 80% better.

EXHIBIT VI-183

NIXDORF

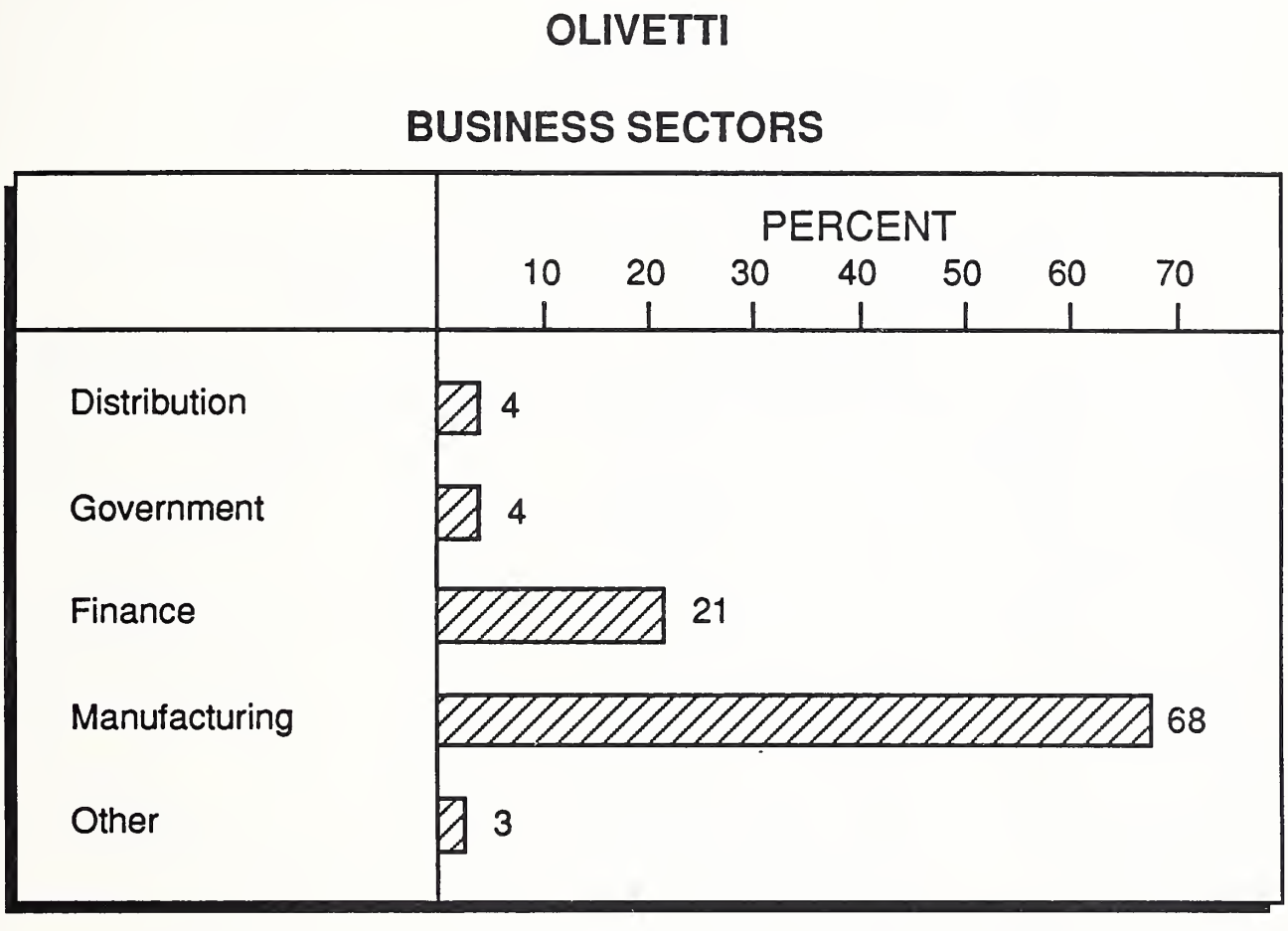
VIEWS ON LIKELY PERFORMANCE (OF CURRENT SUPPLIER) IN FIVE YEARS TIME

CUSTOMER VIEW	HOLDING THE VIEW (Percent)
Excellent	32
Hope for Improvement	20
Same as Now	16
Will Have Different Kit	9

Sample Size: 69

Exhibit VI-183 gives a synopsis of respondents' views on what they believe the current vendors service performance will be like in five years time. It should be noted that this view is likely to be based on CURRENT performance. Nixdorf has a set of performance ratings around the sample mean and this carries through to the future, with about 32% of the respondents feeling that the service would be excellent, and a total of 48% with no apparent adverse feelings.

EXHIBIT VI-184



Sample Size: 28

J

Olivetti

Exhibit VI-184 shows a heavy bias towards the manufacturing business sector among the Olivetti customers, which is different from the sample population.

EXHIBIT VI-185

OLIVETTI
HARDWARE SERVICE SATISFACTION
LARGE SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.2	7.1	0.1	0.1	
Operator Training	8.1	7.9	0.2	0.1	
Spares Availability	7.7	8.5	(0.8)	0.8	Better
Escalation Procedure	8.1	7.9	0.2	0.7	Better
Engineer Skills	9.0	8.4	0.6	0.7	
Remote Diagnostics	7.4	7.5	(0.1)	0.0	
Telephone Support	7.4	8.1	(0.7)	0.2	Better
Documentation	7.4	6.8	0.6	0.7	
Planning/Consultancy	8.0	7.9	0.1	0.0	
Out-of-Hours	7.7	7.9	(0.2)	(0.1)	
Call Handling	7.7	7.8	(0.1)	0.4	Better
Back-Up Support	7.9	8.0	(0.1)	0.4	Better
Average	7.8	7.8	0.0	0.2	
Population (L)	7.7	7.1	0.6		

Sample Size: 9

For large systems, Exhibits VI-185 and 186, the hardware service aspects show a better customer satisfaction than with the software support, where Engineer Skills has reached the concern level, but in both cases the overall satisfaction index is better than that of the large systems population.

EXHIBIT VI-186

OLIVETTI
SOFTWARE SUPPORT SATISFACTION
LARGE SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	8.2	7.9	0.3	0.3	
SW Installation	7.8	7.8	0.0	0.2	
Engineer Skills	9.0	7.9	1.1	0.7	
Telephone Support:					
Accessibility	8.6	7.9	0.7	0.6	
Fix Speed	8.4	7.6	0.8	0.7	
Documentation	8.7	7.9	0.8	1.0	
Planning/Consultancy	7.9	7.9	0.0	0.1	
SW Training	8.7	8.0	0.7	0.4	
On-Site Support	7.8	7.3	0.5	0.2	
Hotline	8.4	7.9	0.5	0.4	
Capacity Tuning	8.1	7.9	0.2	0.3	
Remote Diagnostics	8.2	7.5	0.7	0.1	
SW Problems Database	8.0	7.8	0.2	(0.1)	
Average	8.3	7.8	0.5	0.3	
Population (L)	8.2	7.3	0.9		

Sample Size: 9

EXHIBIT VI-187

OLIVETTI
HARDWARE SERVICE SATISFACTION
MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	8.0	7.9	0.1	0.1	
Operator Training	8.1	8.4	(0.3)	0.1	Better
Spares Availability	8.7	8.5	0.2	0.8	Better
Escalation Procedure	8.3	7.8	0.5	0.7	
Engineer Skills	8.7	8.3	0.4	0.7	Better
Remote Diagnostics	7.6	7.3	0.3	0.0	
Telephone Support	8.2	8.4	(0.2)	0.2	Better
Documentation	7.8	7.4	0.4	0.7	Better
Planning/Consultancy	7.3	7.3	0.0	0.0	
Out-of-Hours	7.6	7.6	0.0	(0.1)	
Call Handling	7.9	7.2	0.7	0.4	
Back-Up Support	8.4	8.3	0.1	0.4	Better
Average	8.1	7.9	0.2	0.2	
Population (M)	7.6	6.8	0.8		

Sample Size: 11

For medium systems, Exhibits VI-187 and 188, there are nine service aspects which are better than the mean of the sample population. However, there are also two software aspects which are at the concern level, one of these being the usual 'bete noire' of Documentation.

EXHIBIT VI-188

OLIVETTI
SOFTWARE SUPPORT SATISFACTION
MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	8.2	8.3	(0.1)	0.3	Better
SW Installation	8.3	7.9	0.4	0.2	
Engineer Skills	8.8	8.2	0.6	0.7	
Telephone Support:					
Accessibility	8.6	8.0	0.6	0.6	
Fix Speed	8.6	7.9	0.7	0.7	
Documentation	8.8	7.6	1.2	1.0	
Planning/Consultancy	7.1	7.3	(0.2)	0.1	Better
SW Training	8.4	7.7	0.7	0.4	
On-Site Support	7.9	7.6	0.3	0.2	
Hotline	7.6	7.6	0.0	0.4	Better
Capacity Tuning	8.3	7.2	1.1	0.3	
Remote Diagnostics	7.7	7.1	0.6	0.1	
SW Problems Database	7.3	6.6	0.7	(0.1)	
Average	8.1	7.6	0.5	0.3	
Population (M)	8.0	7.1	0.9		

Sample Size: 11

EXHIBIT VI-189

OLIVETTI
HARDWARE SERVICE SATISFACTION
SMALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.0	7.0	0.0	0.1	
Operator Training	7.3	7.6	(0.3)	0.1	Better
Spares Availability	8.4	7.9	0.5	0.8	Better
Escalation Procedure	6.8	7.8	(1.0)	0.7	Better
Engineer Skills	9.0	8.0	1.0	0.7	
Remote Diagnostics	6.7	6.5	0.2	0.0	
Telephone Support	7.7	7.4	0.3	0.2	
Documentation	7.6	7.1	0.5	0.7	
Planning/Consultancy	6.7	7.0	(0.3)	0.0	Better
Out-of-Hours	5.8	6.3	(0.5)	(0.1)	Better
Call Handling	7.8	7.6	0.2	0.4	
Back-Up Support	7.3	7.4	(0.1)	0.4	Better
Average	7.3	7.3	0.0	0.2	
Population (S)	7.4	6.5	0.8		

Sample Size: 8

For small systems, Exhibits VI-189 and 190, the picture is much better, particularly on the software side, with some fifteen aspects being better than with the sample population.

A comparison of the scattergram Exhibit VI-191 with that for the sample population shows less scatter and, most unusually, a complete satisfaction of the customers requirements for Spares Availability - Olivetti is unique in this aspect. In addition the importance and satisfaction levels stay up at

EXHIBIT VI-190

OLIVETTI
SOFTWARE SUPPORT SATISFACTION
SMALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	7.8	7.1	0.7	0.3	
SW Installation	7.4	8.5	(1.1)	0.2	Better
Engineer Skills	8.6	8.6	0.0	0.7	Better
Telephone Support:					
Accessibility	6.5	6.0	0.5	0.6	
Fix Speed	6.3	6.0	0.3	0.7	Better
Documentation	8.0	7.4	0.6	1.0	Better
Planning/Consultancy	5.9	7.3	(1.4)	0.1	Better
SW Training	8.3	8.3	0.0	0.4	Better
On-Site Support	7.8	8.9	(1.1)	0.2	Better
Hotline	5.6	6.1	(0.5)	0.4	Better
Capacity Tuning	7.4	7.3	0.1	0.3	
Remote Diagnostics	5.7	5.7	0.0	0.1	
SW Problems Database	7.0	8.8	(1.8)	(0.1)	Better
Average	7.1	7.4	(0.3)	0.3	Better
Population (S)	7.9	6.9	1.0		

Sample Size: 8

a higher level than is the case with the population, perhaps indicating a dynamic sales strategy.

For software support, the scattergram, Exhibit VI-192, shows a great deal of scatter and, as discussed above, a higher dissatisfaction level than with hardware services. It should be noted that, again as with hardware, the importance and satisfaction levels stay higher than with the population mean.

EXHIBIT VI-191

OLIVETTI

IMPORTANCE OF HARDWARE SERVICES

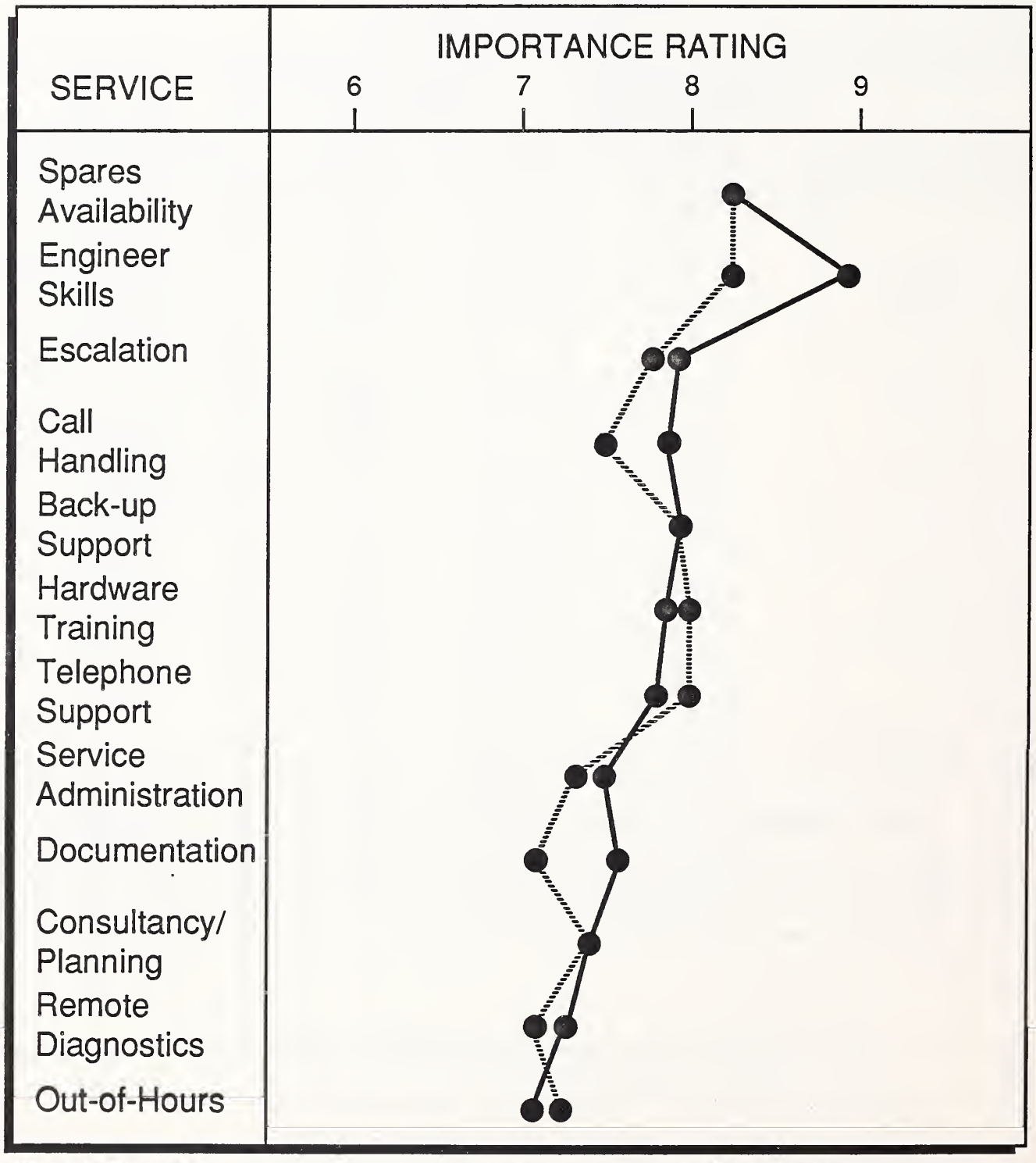
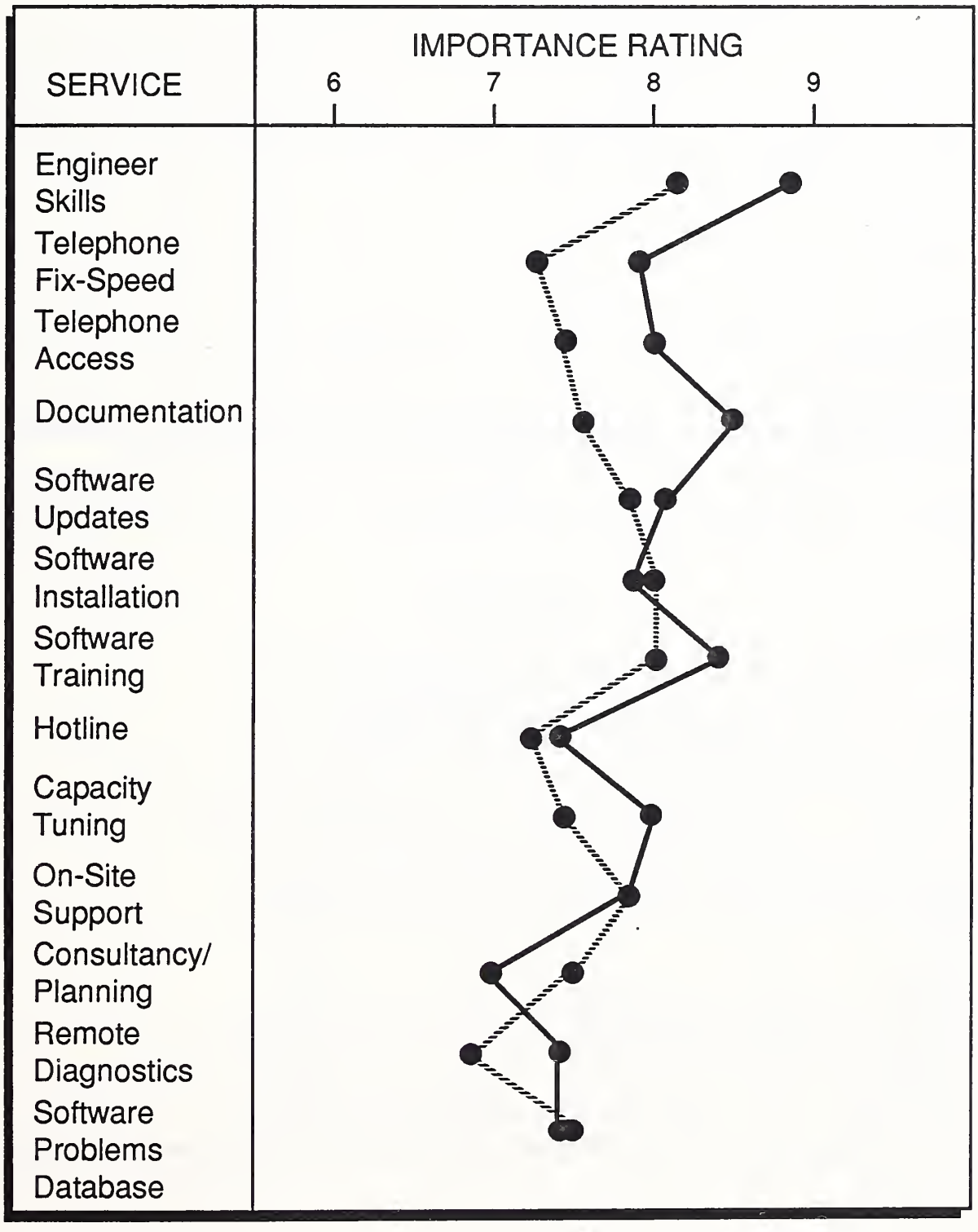


EXHIBIT VI-192

OLIVETTI

IMPORTANCE OF SOFTWARE SERVICES



Sample Size: 128

EXHIBIT VI-193

OLIVETTI

BREAKDOWNS BY SYSTEM SIZE

SIZE	BREAKS PA	AREA OF BREAK (Percent)	
		HW	SW
Large	1.0	44	56
Medium	1.2	48	52
Small	2.1	65	35
Average	1.3	52	48
Population	2.8	54	46

EXHIBIT Vi-194

OLIVETTI

SATISFACTION WITH SYSTEMS AVAILABILITY

SIZE	IMPORTANCE	SATISFACTION	I-S
Large	9.2	8.0	1.2
Medium	8.6	8.6	0.0
Small	9.8	9.0	0.8
Average	9.1	8.6	0.5
Population	9.3	8.7	0.6

Sample Size: 28

EXHIBIT VI-195

OLIVETTI

HARDWARE RESPONSE AND FIX TIMES

SYSTEM SIZE	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	2.9	3.0	0.1	8.4	3.9	3.9	0.0	8.4	6.8	6.9	0.1
Medium	5.6	4.6	(1.0)	8.6	3.5	3.4	(0.1)	8.4	9.1	8.0	(1.1)
Small	10.5	8.3	(2.2)	9.3	4.4	4.4	0.0	8.8	14.9	12.7	(2.2)
Average	6.1	5.2	(0.9)	8.8	3.9	3.9	0.0	8.5	10.0	9.1	(0.9)
Population	3.4	3.7	0.3	9.1	3.9	4.6	0.7	9.1	7.3	8.3	1.0

Sample Size: 28

From Exhibit VI-193 it is seen that the Olivetti sample has a notable record for the small number of breaks per year, across all the system sizes, being over twice as good as with the population. Another interesting aspect is that the larger systems have less breaks, and must reflect a good company service strategy, big systems tend to be more critical.

In satisfaction with system availability, Exhibit VI-194, the index, at 0.5, is, in fact, marginally better than the population, at roughly the same importance levels. This indicates that Olivetti customers expect a lot from their vendor (balanced against the very low number of breaks).

A comparison of the hardware response and fix times with those of the sample population, Exhibit VI-195, shows another unique feature of the Olivetti service, a shorter repair time than that which the customer would find acceptable. However, it is noted that the actual time, at 9.1hr, is longer than the population mean at 8.3hr.

EXHIBIT VI-196

OLIVETTI

SOFTWARE RESPONSE AND FIX TIMES

SYSTEM SIZE	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	10.2	12.2	2.0	8.4	11.3	24.0	12.7	8.4	21.5	36.2	14.7
Medium	5.5	9.2	3.7	8.5	4.4	5.3	0.9	8.5	9.9	14.5	4.6
Small	16.0	24.8	8.8	8.1	10.2	13.0	2.8	8.0	26.2	37.8	11.6
Average	9.0	13.6	4.6	8.4	8.0	13.9	5.9	8.3	17.0	27.5	10.5
Population	8.8	17.0	8.2	8.7	11.0	19.6	8.6	8.8	19.8	36.6	16.8

Sample Size: 28

Exhibit VI-196 shows the profile for the software response and fix times, where the average total repair time of some 28hr is only 9hr better than with the population. The difference between acceptable and experienced times at 10.5hr is some 62% better than with the population.

In Exhibits VI-197 and 198, depicting which vendor supplies the hardware and software support, it is seen that Olivetti gets 19% fewer hardware contracts, and 32% fewer software contracts, than does the sample population. There is a far greater intrusion of TPM's in this sample.

EXHIBIT VI-197

OLIVETTI

HARDWARE SERVICE VENDOR BY SYSTEM SIZE

SIZE	MANUFACTURER (Percent)	DEALER (Percent)	TPM (Percent)	SELF (Percent)	SAMPLE
Large	89	11	11	-	9
Medium	64	18	27	-	11
Small	75	13	13	13	8
Average	75	14	18	4	28
Population	93	2	5	1	1321

EXHIBIT VI-198

OLIVETTI

SOFTWARE SERVICE VENDOR BY SYSTEM SIZE

SIZE	MANUFACTURER (Percent)	SW VENDOR (Percent)	SYSTEMS HOUSE (Percent)	SELF (Percent)	SAMPLE
Large	56	11	-	11	9
Medium	45	18	18	-	11
Small	62	13	-	38	8
Average	54	14	7	14	28
Population	80	6	7	20	1321

EXHIBIT VI-199

OLIVETTI

CUSTOMER PREFERENCES ON BUNDLING

SIZE	INDIVIDUAL PRICING (Percent)	BUNDLED (Percent)	DON'T KNOW (Percent)	SAMPLE SIZE
Large	44	44	12	9
Medium	60	-	40	10
Small	63	12	25	8
Average	56	19	25	27

Exhibit VI-199 shows an interesting picture for bundling on the large system sample, where there are equal preferences, but the medium and small user samples indicate very definitely a preference for more unbundled services.

EXHIBIT VI-200

OLIVETTI

CUSTOMERS TOP TRAINING REQUIREMENTS

REQUIREMENT	LARGE (Percent)	MEDIUM (Percent)	SMALL (Percent)	AVERAGE (Percent)
General	44	-	12	18
Software	11	27	-	14
Programming	11	18	-	11

Sample Size: 28

Exhibit VI-200, depicting the Olivetti user samples' top training requirements, shows that there is a fairly diverse mix of requirements across all system sizes, but only a few aspects with any significance of response.

EXHIBIT VI-201

OLIVETTI

TOP REQUIREMENTS AND INTEREST LEVELS FOR OTHER SERVICES

ALL SYSTEM SIZES

SERVICE	IMPORTANCE	PERCENT WITHOUT	DECISION TREE	SAMPLE
Disaster Recovery	7.7	74	57	27
Training	7.4	0	0	27
Software Evaluation	7.0	56	39	27
Media Services	6.6	52	34	27

As shown in Exhibit VI-201, two of the other services have importance levels which indicate serious customer interest. All other things being equal, an indication of the best possibility of selling an extra service is found by multiplying the importance rating by the number or percentage of surveyed customers without the service and ranking the results. In the case of Olivetti the top two are Disaster Recovery and Software Evaluation.

All respondents were asked, in a quite separate question, to give ratings to their overall impression of hardware and software support, and these ratings are shown in Exhibit VI-202. For Olivetti the hardware satisfaction index is twice as good as that of the sample population, but with software the satisfaction gap is some 33% greater, both with a slightly lower level of importance ratings compared to the population.

Exhibit VI-203 gives a synopsis of respondents' views on what they believe the current vendors service performance will be like in five years time. It should be noted that this view is likely to be based on CURRENT performance. Even though Olivetti has some uniquely good service performance aspects and a relatively high level of customer satisfaction, the proportion of customers feeling that Olivetti performance will be excellent in five years time is only 25% - this is below the figure for other companies with worse satisfaction levels.

EXHIBIT VI-202

OLIVETTI

VIEWS ON CURRENT SERVICE PERFORMANCE

SYSTEM SIZE	HARDWARE			SOFTWARE			SAMPLE SIZES
	IMP	SAT	Δ	IMP	SAT	Δ	
Large	9.3	8.3	1.0	8.7	7.6	1.1	9
Medium	8.8	8.8	0.0	8.6	7.6	1.0	11
Small	8.1	8.2	(0.1)	9.4	7.4	2.0	8
Average	8.8	8.4	0.4	8.8	7.6	1.2	28
Population	9.1	8.2	0.9	8.7	7.8	0.9	1321

EXHIBIT VI-203

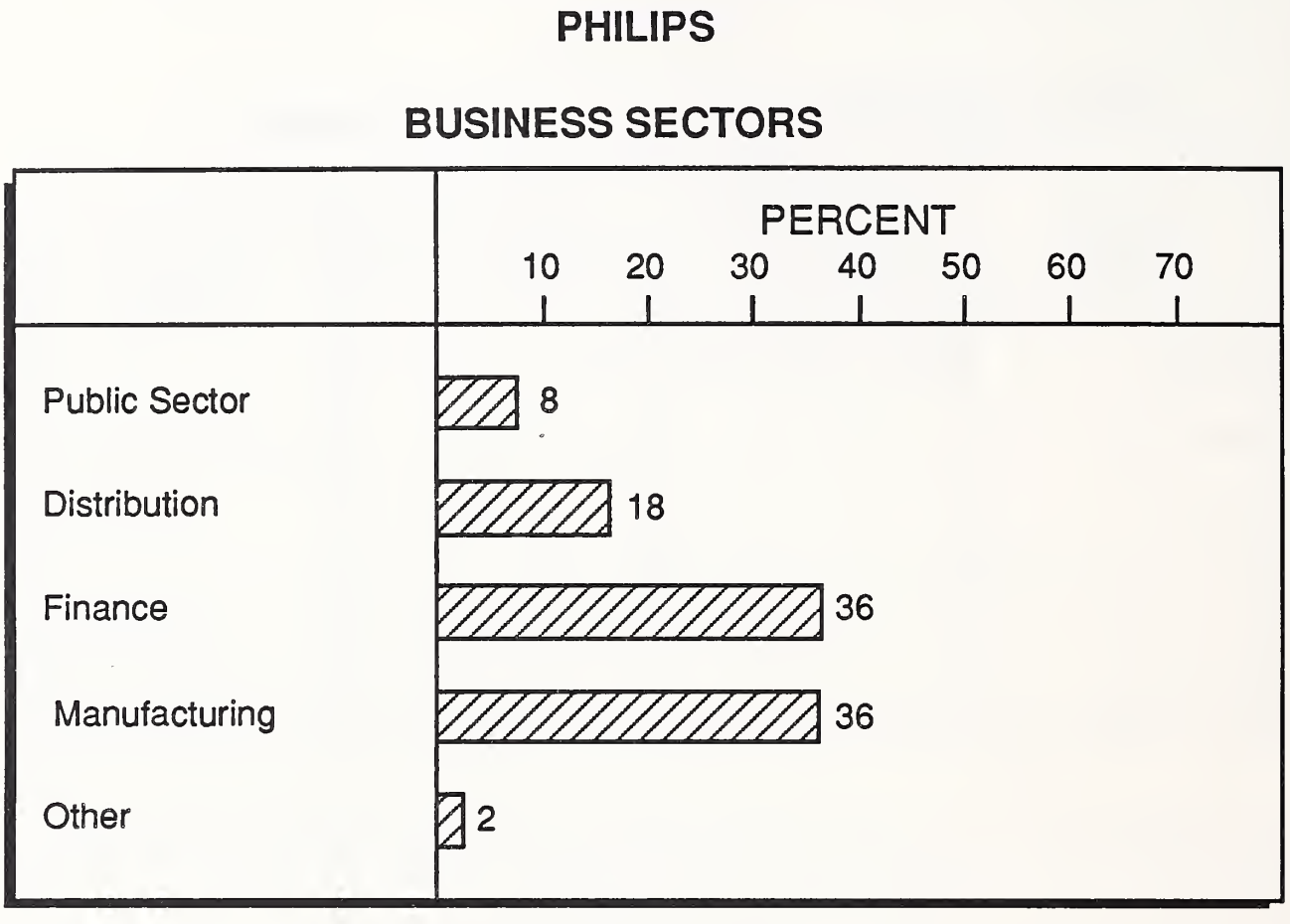
OLIVETTI

VIEWS ON LIKELY PERFORMANCE (OF CURRENT SUPPLIER) IN FIVE YEARS TIME

CUSTOMER VIEW	HOLDING THE VIEW (Percent)
Excellent	25
Will Have Different Kit	14

Sample Size: 28

EXHIBIT VI-204



Sample Size: 11

K

Philips

Exhibit VI-204 shows that there is a reasonable approximation of business sectors, among the Philips customers, to that of the sample population, but with a slightly higher proportion among financial sector customers. As there was only a relatively small sample for Philips, the various system sizes have been grouped together.

EXHIBIT VI-205

PHILIPS
HARDWARE SERVICE SATISFACTION
ALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	8.8	7.7	1.1	0.1	
Operator Training	7.9	7.0	0.9	0.1	
Spares Availability	8.6	8.0	0.6	0.8	
Escalation Procedure	8.8	7.1	1.7	0.7	
Engineer Skills	8.6	8.0	0.6	0.7	
Remote Diagnostics	5.9	5.3	0.6	0.0	
Telephone Support	7.4	6.7	0.7	0.2	
Documentation	9.0	6.9	2.1	0.7	
Planning/Consultancy	7.8	6.8	1.0	0.0	
Out-of-Hours	6.6	6.5	0.1	(0.1)	
Call Handling	8.9	8.1	0.8	0.4	
Back-Up Support	8.8	8.3	0.5	0.4	
Average	8.1	7.2	0.9	0.2	
Population	7.6	6.8	0.8		

Sample Size: 11

Exhibit VI-205 shows that there are four hardware aspects with satisfaction indices between the concern and the dissatisfaction levels, and a further two quite close, all-in-all giving an index marginally worse than that of the sample population.

EXHIBIT VI-206

PHILIPS

SOFTWARE SUPPORT SATISFACTION

ALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	8.8	8.0	0.8	0.3	
SW Installation	8.1	8.1	0.0	0.2	
Engineer Skills	9.1	8.4	0.7	0.7	
Telephone Support:					
Accessibility	7.4	6.3	1.1	0.6	
Fix Speed	7.4	6.3	1.1	0.7	
Documentation	8.8	7.3	1.5	1.0	
Planning/Consultancy	6.7	8.1	(1.4)	0.1	Better
SW Training	8.7	7.7	1.0	0.4	
On-Site Support	8.0	7.4	0.6	0.2	
Hotline	5.7	6.4	(0.7)	0.4	Better
Capacity Tuning	8.5	8.2	0.3	0.3	
Remote Diagnostics	5.6	6.0	(0.4)	0.1	Better
SW Problems Database	6.6	7.1	(0.5)	(0.1)	Better
Average	7.6	7.3	0.3	0.3	
Population	8.0	7.1	0.9		

Sample Size: 11

For software, Exhibit VI-206, the picture is somewhat better, with four aspects being better than with the sample population, but also with four items at or above the concern level. However, overall, the satisfaction index is significantly better than with the population.

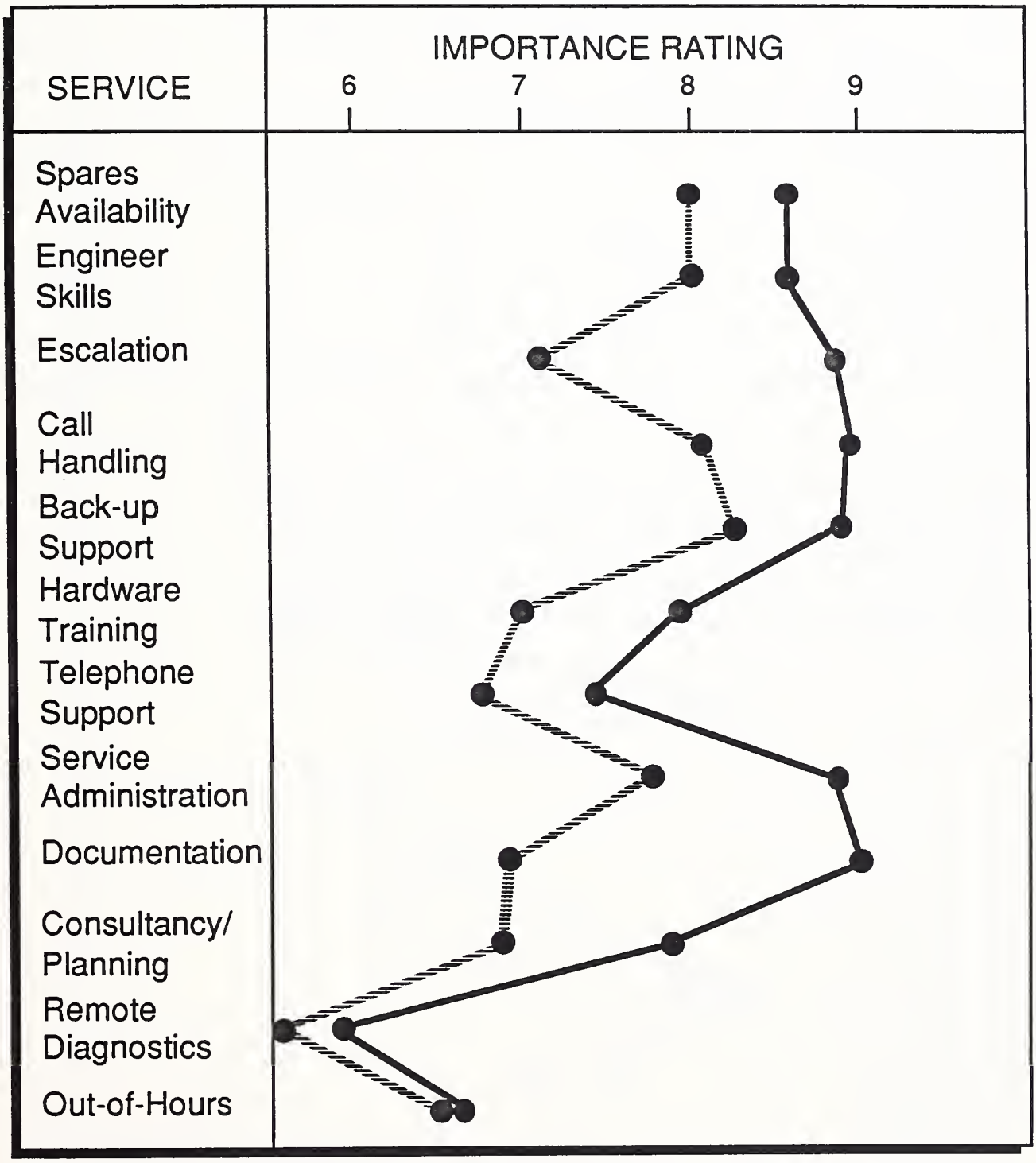
A comparison of the scattergram Exhibit VI-207 with that for the sample population shows that Philips has a quite different profile from that of the other companies surveyed, and also some quite large dissatisfaction gaps.

For software support, the scattergram, Exhibit VI-208, again shows a great deal of scatter and very little similarity with the profile of the sample population, indicating, perhaps, a different technology sector and a different approach to service management. There is still, as with the parent population, an 'over satisfaction', at the bottom end of the plot.

EXHIBIT VI-207

PHILIPS

IMPORTANCE OF HARDWARE SERVICES

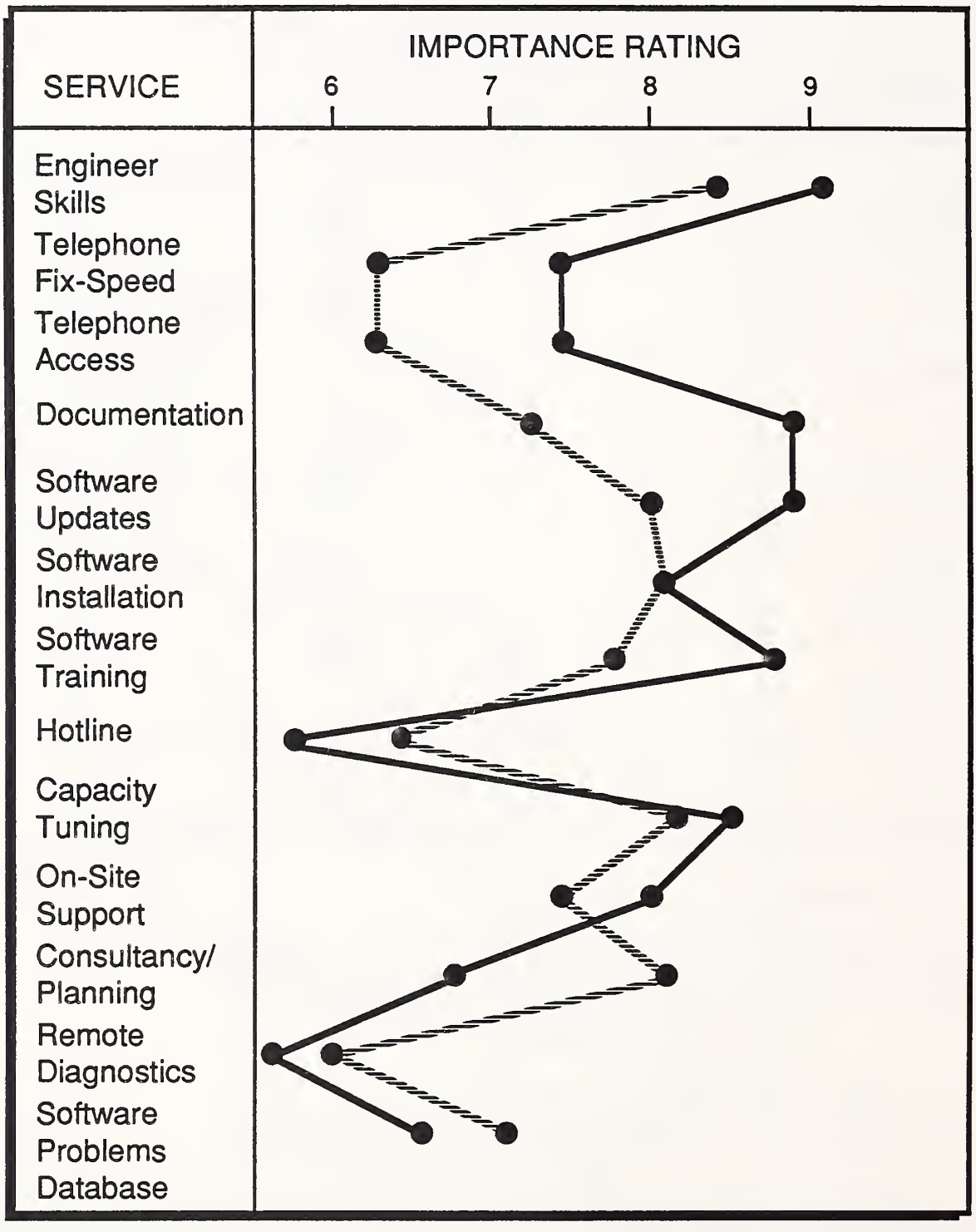


Sample Size: 11

EXHIBIT VI-208

PHILIPS

IMPORTANCE OF SOFTWARE SERVICES



Sample Size: 11

EXHIBIT VI-209

PHILIPS

BREAKDOWNS BY SYSTEM SIZE

SIZE	BREAKS PA	AREA OF BREAK (Percent)	
		HW	SW
Large	3.7	68	32
Medium	1.7	67	33
Average	2.2	67	33
Population	2.8	54	46

From Exhibit VI-209 it is indicated that Philips have quite a good record for the number of breaks per year, across all the system sizes being some 21% better than the population. Another interesting aspect is that the proportion of hardware breaks is much higher than with the sample population and, all other things being equal, this should imply lower over- all repair times.

EXHIBIT VI-210

PHILIPS

SATISFACTION WITH SYSTEMS AVAILABILITY

SIZE	IMPORTANCE	SATISFACTION	Δ
Medium	8.7	7.3	1.4
Small	9.3	10.0	(0.7)
Average	9.1	9.2	(0.1)
Population	9.3	8.7	0.6

Sample Size: 10

In satisfaction with system availability, Exhibit VI-210, the index, at (0.1), is far far better than the population, and at roughly the same importance levels.

EXHIBIT VI-211

PHILIPS

HARDWARE RESPONSE AND FIX TIMES

SYSTEM SIZE	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	3.7	9.0	5.3	9.7	2.0	2.5	0.5	6.3	5.7	11.5	5.8
Medium	3.0	2.6	(0.4)	9.0	3.1	2.7	(0.4)	8.6	6.1	5.7	(0.4)
Small	1.0	1.0	0.0	10.0	4.0	4.0	0.0	10.0	5.0	5.0	0.0
Average	3.0	4.2	1.2	9.3	3.0	2.8	(0.2)	8.1	6.0	7.0	1.0
Population	3.4	3.7	0.3	9.1	3.9	4.6	0.7	9.1	7.3	8.3	1.0

Sample Size: 11

A comparison of the hardware response and fix times with those of the sample population, Exhibit VI-211, shows an overall repair time some 16% better. The difference between acceptable and experienced times only matches the population mean at 1hr.

EXHIBIT VI-212

PHILIPS

SOFTWARE RESPONSE AND FIX TIMES

SYSTEM SIZE	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	6.0	5.0	(1.0)	9.3	21.0	21.0	0.0	9.3	27.0	26.0	(1.0)
Medium	5.8	4.8	(1.0)	9.0	8.0	10.4	2.4	8.8	13.8	15.2	1.4
Small	1.0	1.0	0.0	10.0	-	-	-	10.0	-	-	-
Average	5.3	4.4	(0.9)	9.2	12.3	13.4	1.1	9.1	17.6	17.8	0.2
Population	8.8	17.0	8.2	8.7	11.0	19.6	8.6	8.8	19.8	36.6	16.8

Sample Size: 11

Exhibit VI-212 provides a positive profile for the software response and fix times, where the average total repair time of some 18hr is 19hr better than with the population. The difference between acceptable and experienced times is only 12 min, rather better than the population at 17hr.

In Exhibits VI-213 and 214, depicting which vendor supplies the hardware and software support, it is seen that Philips gets some 12% fewer hardware contracts, and 20% fewer software contracts, than does the sample population. No TPM presence was detected at all.

EXHIBIT VI-213

PHILIPS

HARDWARE SERVICE VENDOR BY SYSTEM SIZE

SIZE	MANUFACTURER (Percent)	DEALER (Percent)	TPM (Percent)	SELF (Percent)	SAMPLE
Large	67	33	-	-	3
Medium	100	-	-	-	7
Small	-	-	-	100	1
Average	82	9	-	9	11
Population	93	2	5	1	1321

EXHIBIT VI-214

PHILIPS

SOFTWARE SERVICE VENDOR BY SYSTEM SIZE

SYSTEM SIZE	MANUFACTURER (Percent)	SW VENDOR (Percent)	SYSTEMS HOUSE (Percent)	SELF (Percent)	SAMPLE
Large	100	-	-	-	3
Medium	57	-	-	43	7
Small	-	-	-	100	1
Average	64	-	-	36	11
Population	80	6	7	20	1321

EXHIBIT VI-215

PHILIPS

CUSTOMER PREFERENCES ON BUNDLING

SIZE	INDIVIDUAL PRICING (Percent)	BUNDLED (Percent)	DON'T KNOW (Percent)	SAMPLE SIZE
Large	33	67	-	3
Medium	43	29	28	7
Small	-	-	-	-
Average	50	33	17	10

EXHIBIT VI-216

PHILIPS

CUSTOMERS' TOP TRAINING REQUIREMENTS

REQUIREMENT	LARGE (Percent)	MEDIUM/SMALL (Percent)	AVERAGE (Percent)
Software	67	29	36
General	-	29	18

Sample Size: 10

EXHIBIT VI-217

PHILIPS

TOP REQUIREMENTS AND INTEREST LEVELS FOR OTHER SERVICES

ALL SYSTEM SIZES

SERVICE	IMPORTANCE	PERCENT WITHOUT	DECISION TREE	SAMPLE
Software Evaluation	7.7	36	28	11
Training	7.7	0	0	11
Disaster Recovery	7.5	64	48	11
Capacity Planning	7.5	36	27	11
Consultancy	7.2	36	26	11

Exhibit VI-215 shows the user samples' indication of customer preferences on bundling. The very small sample makes it impossible to draw any real conclusions.

Exhibit VI-216, depicting the Philips customers' top training requirements, shows only Software training as being of reasonably significant interest among the ten respondents to this question.

As shown in Exhibit VI-217, four of the other services have importance levels which indicate serious customer interest. All other things being equal, an indication of the best possibility of selling an extra service is found by multiplying the importance rating by the number or percentage of surveyed customers without the service and ranking the results. In the case of Philips the top two are Disaster Recovery and Software Evaluation.

EXHIBIT VI-218

PHILIPS

VIEWS ON CURRENT SERVICE PERFORMANCE

SYSTEM SIZE	HARDWARE			SOFTWARE			SAMPLE SIZES
	IMP	SAT	Δ	IMP	SAT	Δ	
Large	9.0	7.0	2.0	9.0	8.0	1.0	3
Medium	9.0	8.7	0.3	8.3	7.7	0.6	7
Small	10.0	10.0	0.0	10.0	10.0	0.0	1
Average	9.1	8.4	0.7	8.6	8.0	0.6	11
Population	9.1	8.2	0.9	8.7	7.8	0.9	1321

All respondents were asked, in a quite separate question, to give ratings to their overall impression of hardware and software support, and these ratings are shown in Exhibit VI-218. For Philips the hardware satisfaction index is marginally better than that of the sample population, while the software satisfaction index is some 33% better.

EXHIBIT VI-219

PHILIPS

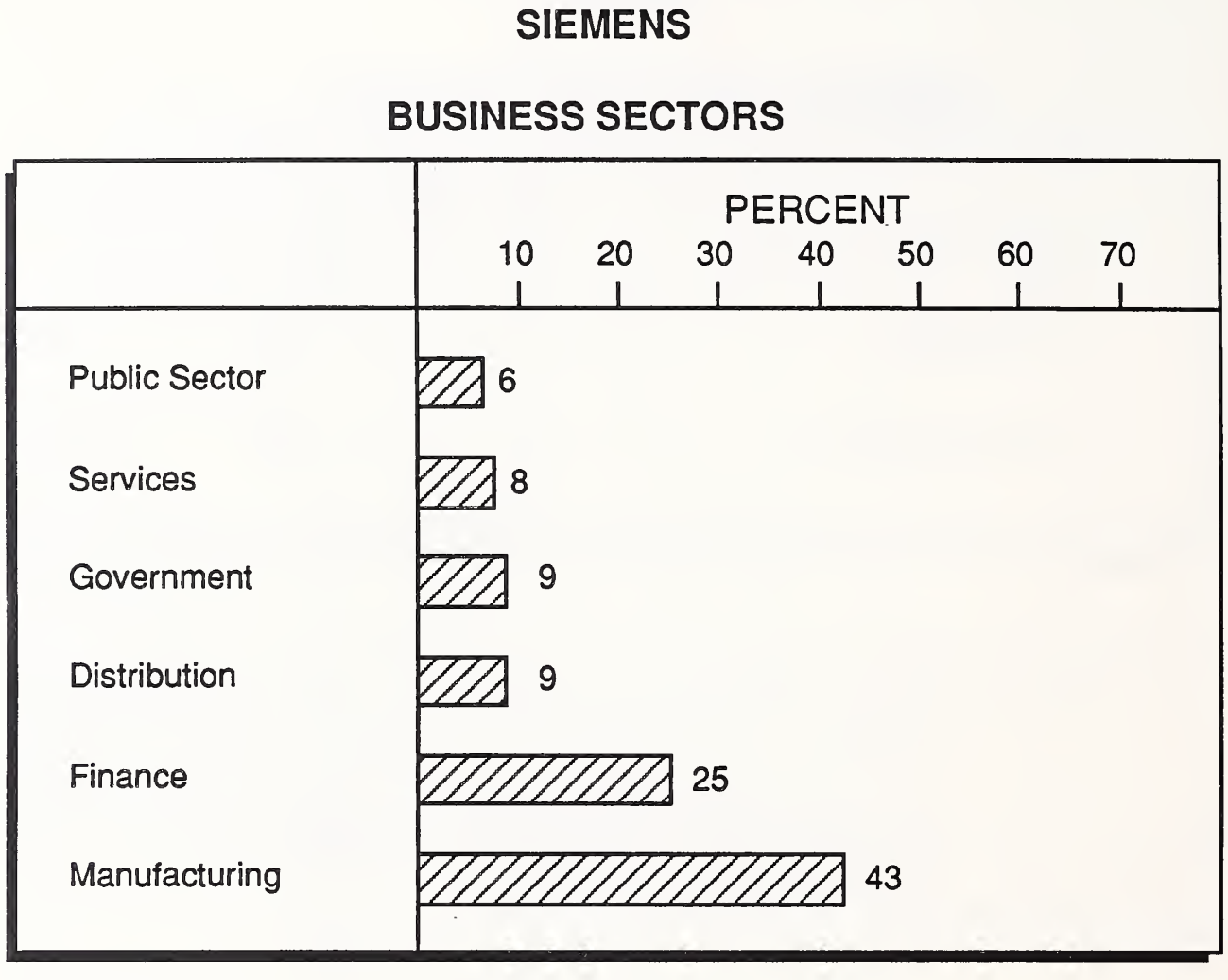
VIEWS ON LIKELY PERFORMANCE (OF CURRENT SUPPLIER) IN FIVE YEARS TIME

CUSTOMER VIEW	HOLDING THE VIEW (Percent)
Excellent	27
Same as Now	27

Sample Size: 11

Exhibit VI-219 gives a synopsis of respondents' views on what they believe the current vendors service performance will be like in five years' time. It should be noted that this view is likely to be based on CURRENT performance. The percentage of Philips customers that believe that this performance will be excellent in five years time is quite low compared to other companies in the same field.

EXHIBIT VI-220



Sample Size: 53

L

Siemens

Exhibit VI-220 shows the analysis of business sectors, among the Siemens user sample and this is very close to the sample population.

EXHIBIT VI-221

SIEMENS
HARDWARE SERVICE SATISFACTION
LARGE SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.0	7.5	(0.5)	0.1	Better
Operator Training	6.5	6.5	0.0	0.1	
Spares Availability	8.0	7.8	0.2	0.8	Better
Escalation Procedure	7.8	7.6	0.2	0.7	Better
Engineer Skills	8.9	8.4	0.5	0.7	
Remote Diagnostics	5.7	7.1	(1.4)	0.0	Better
Telephone Support	5.5	6.1	(0.6)	0.2	Better
Documentation	6.7	6.9	(0.2)	0.7	Better
Planning/Consultancy	7.2	7.6	(0.4)	0.0	Better
Out-of-Hours	8.5	8.2	(0.3)	(0.1)	
Call Handling	7.4	8.0	(0.6)	0.4	Better
Back-Up Support	7.5	7.3	0.2	0.4	
Average	7.2	7.4	(0.2)	0.2	Better
Population (L)	7.7	7.1	0.6		

Sample Size: 19

For large systems, Exhibits VI-221 and 222, there are eleven service aspects which show a better customer satisfaction than with the sample distribution, and no aspects whatsoever at the customer concern level.

EXHIBIT VI-222

SIEMENS
SOFTWARE SUPPORT SATISFACTION
LARGE SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	7.8	7.6	0.2	0.3	
SW Installation	8.2	8.0	0.2	0.2	
Engineer Skills	8.2	7.9	0.3	0.7	Better
Telephone Support:					
Accessibility	7.6	7.4	0.2	0.6	Better
Fix Speed	7.8	7.2	0.6	0.7	
Documentation	8.3	7.7	0.6	1.0	Better
Planning/Consultancy	7.7	7.2	0.5	0.1	
SW Training	8.1	7.6	0.5	0.4	
On-Site Support	8.0	7.7	0.3	0.2	
Hotline	7.5	7.8	(0.3)	0.4	Better
Capacity Tuning	6.4	6.3	0.1	0.3	
Remote Diagnostics	5.6	5.6	0.0	0.1	
SW Problems Database	5.5	5.9	(0.4)	(0.1)	Better
Average	7.4	7.2	0.2	0.3	
Population (L)	8.2	7.3	0.9		

Sample Size: 19

EXHIBIT VI-223

SIEMENS
HARDWARE SERVICE SATISFACTION
MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.3	7.4	(0.1)	0.1	
Operator Training	7.9	7.5	0.4	0.1	
Spares Availability	8.6	8.1	0.5	0.8	Better
Escalation Procedure	7.5	7.1	0.4	0.7	Better
Engineer Skills	8.8	8.1	0.7	0.7	
Remote Diagnostics	7.2	7.2	0.0	0.0	
Telephone Support	7.4	7.6	(0.2)	0.2	Better
Documentation	7.0	6.4	0.6	0.7	
Planning/Consultancy	6.7	7.1	(0.4)	0.0	Better
Out-of-Hours	7.0	7.4	(0.4)	(0.1)	Better
Call Handling	7.8	7.9	(0.1)	0.4	Better
Back-Up Support	7.6	7.4	0.2	0.4	
Average	7.6	7.4	0.2	0.2	
Population (M)	7.6	6.8	0.8		

Sample Size: 34

For medium systems, Exhibits VI-223 and 224, the picture is very similar to that of the large installations, but there are only ten aspects that are better than the population mean. However the satisfaction indices are much better than those of the population.

EXHIBIT VI-224

SIEMENS
SOFTWARE SUPPORT SATISFACTION
MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	7.9	7.7	0.2	0.3	
SW Installation	7.5	7.4	0.1	0.2	
Engineer Skills	8.0	7.9	0.1	0.7	Better
Telephone Support:					
Accessibility	8.1	7.7	0.4	0.6	
Fix Speed	8.0	7.4	0.6	0.7	
Documentation	8.2	7.5	0.7	1.0	Better
Planning/Consultancy	7.0	7.2	(0.2)	0.1	Better
SW Training	7.9	7.5	0.4	0.4	
On-Site Support	8.1	7.4	0.7	0.2	
Hotline	8.1	7.8	0.3	0.4	
Capacity Tuning	8.0	7.9	0.1	0.3	
Remote Diagnostics	6.5	6.7	(0.2)	0.1	Better
SW Problems Database	4.5	3.3	1.2	(0.1)	
Average	7.5	7.2	0.3	0.3	
Population (M)	8.0	7.1	0.9		

Sample Size: 34

EXHIBIT VI-225

SIEMENS
HARDWARE SERVICE SATISFACTION
OVERALL

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.2	7.5	(0.3)	0.1	Better
Operator Training	7.4	7.2	0.2	0.1	
Spares Availability	8.4	8.0	0.4	0.8	Better
Escalation Procedure	7.6	7.3	0.3	0.7	Better
Engineer Skills	8.8	8.2	0.6	0.7	
Remote Diagnostics	6.7	7.2	(0.5)	0.0	Better
Telephone Support	6.7	7.1	(0.4)	0.2	Better
Documentation	6.9	6.6	0.3	0.7	Better
Planning/Consultancy	6.9	7.3	(0.4)	0.0	Better
Out-of-Hours	7.6	7.7	(0.1)	(0.1)	
Call Handling	7.7	7.9	(0.2)	0.4	Better
Back-Up Support	7.6	7.4	0.2	0.4	
Average	7.5	7.5	0.0	0.2	
Population	7.6	6.8	0.8		

Sample Size: 53

For systems overall, Exhibits VI-225 and 226, there is an almost identical result, with ten of the service aspects being better than with the population, and no aspects reaching the concern level, and an overall satisfaction index for hardware representing complete satisfaction.

EXHIBIT VI-226

SIEMENS
SOFTWARE SUPPORT SATISFACTION
OVERALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	7.9	7.6	0.3	0.3	
SW Installation	7.8	7.6	0.2	0.2	
Engineer Skills	8.1	7.9	0.2	0.7	Better
Telephone Support:					
Accessibility	7.9	7.6	0.3	0.6	Better
Fix Speed	7.9	7.3	0.6	0.7	
Documentation	8.3	7.6	0.7	1.0	Better
Planning/Consultancy	7.3	7.2	0.1	0.1	
SW Training	8.0	7.5	0.5	0.4	
On-Site Support	8.1	7.5	0.6	0.2	
Hotline	7.9	7.8	0.1	0.4	Better
Capacity Tuning	7.4	7.3	0.1	0.3	
Remote Diagnostics	6.2	6.3	(0.1)	0.1	
SW Problems Database	4.9	4.3	0.6	(0.1)	
Average	7.5	7.2	0.3	0.3	
Population	8.0	7.1	0.9		

Sample Size: 53

EXHIBIT VI-227

SIEMENS
HARDWARE SERVICE SATISFACTION
TRENDS

SERVICE ASPECTS	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
Operator Training	7.4	7.2	0.2	6.8	6.9	(0.1)	
Spares Availability	8.4	8.0	0.4	9.2	7.5	1.7	Better
Engineer Skills	8.8	8.2	0.6	9.2	7.9	1.3	Better
Remote Diagnostics	6.7	7.2	(0.5)	8.7	8.2	0.5	Better
Documentation	6.9	6.6	0.3	5.9	6.3	(0.4)	
Planning/Consultancy	6.9	7.3	(0.4)	7.8	6.8	1.0	Better
Average	7.5	7.4	0.1	7.9	7.3	0.6	Better

Sample Size: 53

A comparison of a reduced set of service aspects performance figures with those of last year shows that the hardware satisfaction index is six times times better, while software is even better at seven times, Exhibits VI-227 and 228.

EXHIBIT VI-228

SIEMENS
SOFTWARE SUPPORT SATISFACTION
TRENDS

	1987			1986			RELATIVE PERFORMANCE
	IMP	SAT	Δ	IMP	SAT	Δ	
SW Installation	7.8	7.6	0.2	8.5	7.3	1.2	Better
Engineer Skills	8.1	7.9	0.2	8.6	7.2	1.4	Better
Documentation	8.3	7.6	0.7	9.1	7.2	1.9	Better
Planning/Consultancy	7.3	7.2	0.1	7.9	6.7	1.2	Better
SW Training	8.0	7.5	0.5	8.5	7.1	1.4	Better
Remote Diagnostics	6.2	6.3	(0.1)	8.1	7.3	0.8	Better
Average	7.6	7.4	0.2	8.5	7.1	1.4	Better

Sample Size: 53

A comparison of the scattergram Exhibit VI-229 with that for the sample population shows a quite different profile with the maintenance of high levels of importance and satisfaction throughout the range of services, and a better level of satisfaction.

For software support, the scattergram, Exhibit VI-230, shows a very different picture, with the Software Problems database having a very low importance rating indeed. This might indicate that the service is so good that it is of no perceived customer importance, or perhaps that Siemens have engineers skilled enough to have a minimum requirement for machine based help.

EXHIBIT VI-229

SIEMENS

IMPORTANCE OF HARDWARE SERVICES

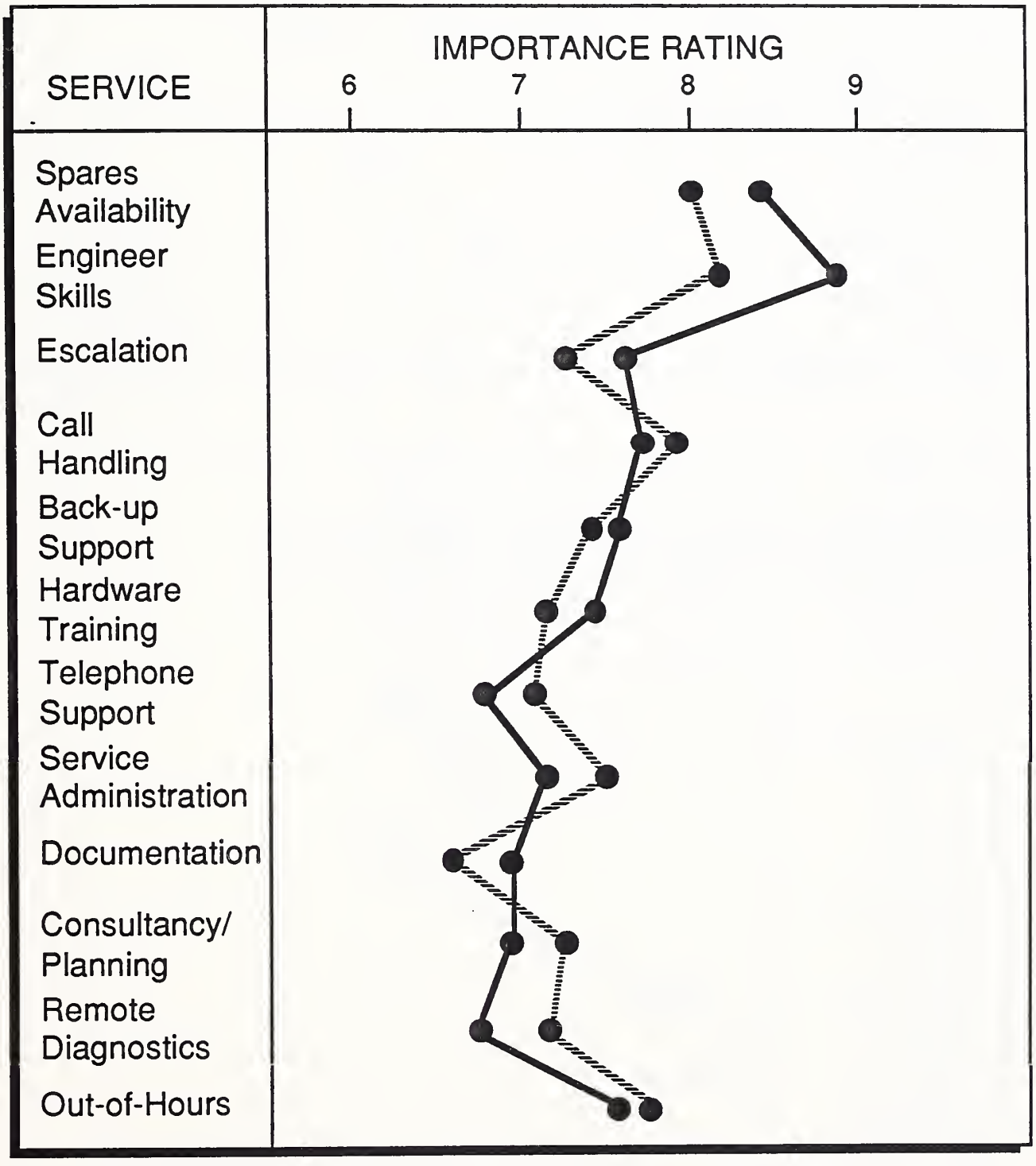
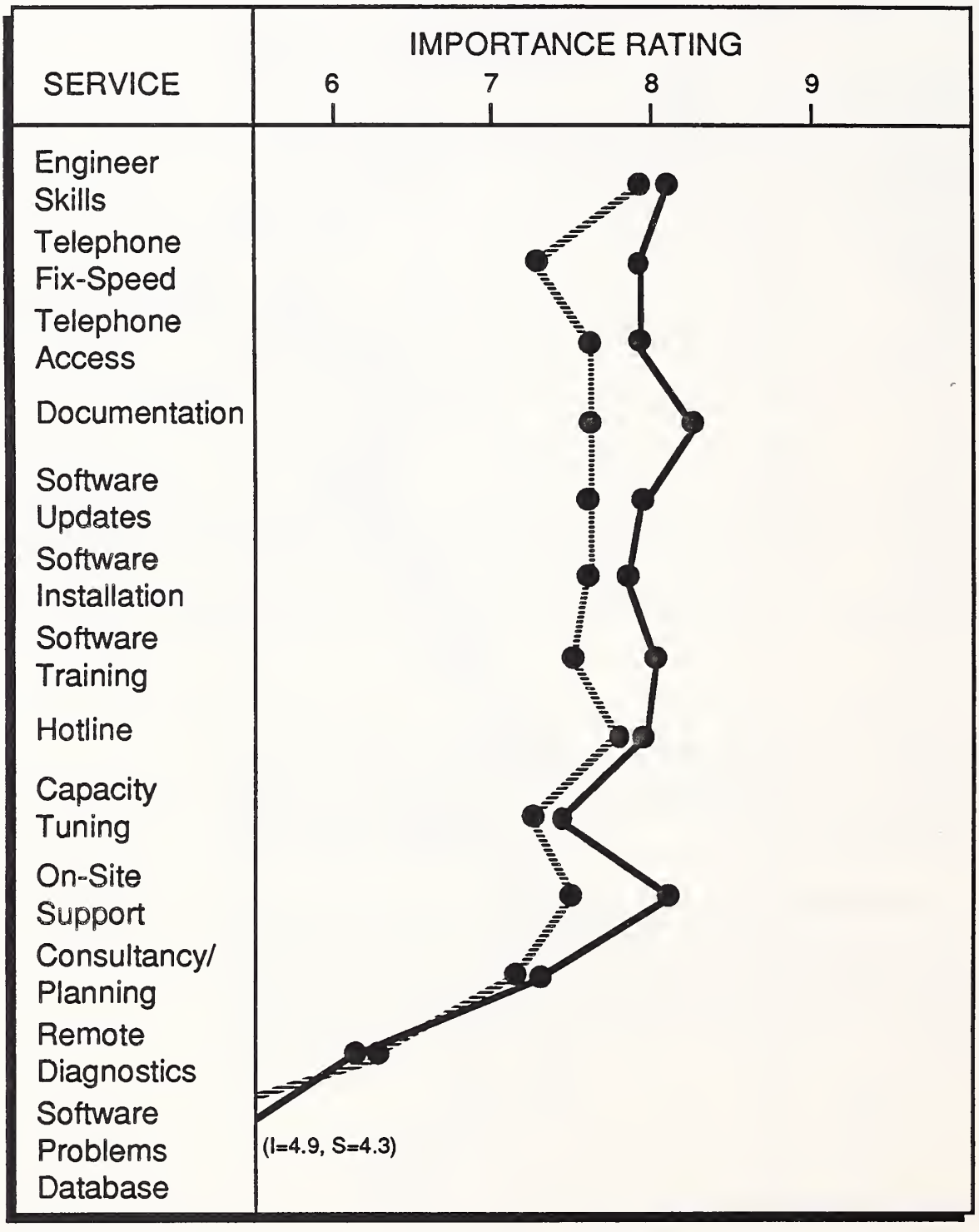


EXHIBIT VI-230

SIEMENS

IMPORTANCE OF SOFTWARE SERVICES



Sample Size: 53

EXHIBIT VI-231

SIEMENS

BREAKDOWNS BY SYSTEM SIZE

SIZE	BREAKS PA	AREA OF BREAK (Percent)	
		HW	SW
Large	2.1	55	45
Medium	1.8	51	49
Average	1.9	52	48
Population	2.8	54	46

Sample Size: 53

From Exhibit VI-231 it is seen that the Siemens sample has some 32% less breaks than the population sample mean, and with a hardware-to-software break ratio roughly equivalent to the population.

EXHIBIT VI-232

SIEMENS

SATISFACTION WITH SYSTEMS AVAILABILITY

SIZE	IMPORTANCE	SATISFACTION	Δ
Medium	9.3	8.9	0.4
Small	9.1	8.9	0.2
Average	9.2	8.9	0.3
Population	9.3	8.7	0.6

Sample Size: 53

In satisfaction with system availability, Exhibit VI-232, the index, at 0.3, is 50% better than that of the population, while the actual satisfaction level is also marginally better.

EXHIBIT VI-233

SIEMENS

HARDWARE RESPONSE AND FIX TIMES

SYSTEM SIZE	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	1.3	1.3	0.0	9.2	2.7	3.0	0.3	8.8	4.0	4.3	0.3
Medium	2.1	2.2	0.1	8.8	2.6	2.7	0.1	8.9	4.7	4.9	0.2
Average	1.8	1.9	0.1	8.9	2.6	2.8	0.2	8.2	4.4	4.7	0.3
Population	3.4	3.7	0.3	9.1	3.9	4.6	0.7	9.1	7.3	8.3	1.0
Last Year	2.0	2.8	0.8	-	2.4	2.7	0.3	-	4.4	5.5	1.1

Sample Size: 53

A comparison of the hardware response and fix times with those of the sample population, Exhibit VI-233, shows a a 43% better overall repair time, and a difference between acceptable and experienced times of only 18min - much better than the parent population. Moreover, a similar comparison with last year's times shows a 15% improvement.

EXHIBIT VI-234

SIEMENS

SOFTWARE RESPONSE AND FIX TIMES

SYSTEM SIZE	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	13.5	14.7	1.2	8.2	12.7	15.3	2.6	8.6	26.2	30.0	3.8
Medium	8.0	21.8	13.8	8.5	8.9	11.6	2.7	8.5	16.9	33.4	16.5
Average	9.9	19.4	9.5	8.4	10.2	12.8	2.6	8.5	20.1	32.2	12.1
Population	8.8	17.0	8.2	8.7	11.0	19.6	8.6	8.8	19.8	36.6	16.8
Last Year	7.8	16.5	8.7	-	12.4	14.1	1.7	-	20.2	30.6	10.4

Sample Size: 53

Exhibit VI-234 gives a more conventional profile with the software response and fix times, where the average total repair time of some 32hr is only 12% better than the population, and some 5% longer than the Siemens performance last year.

In Exhibits VI-235 and 236, depicting which vendor supplies the hardware and software support, it is seen that Siemens sample obtains more service contracts than does the sample population and has a far less intrusion of TPM's.

EXHIBIT VI-235

SIEMENS

HARDWARE SERVICE VENDOR BY SYSTEM SIZE

SYSTEM SIZE	MANUFACTURER (Percent)	DEALER (Percent)	TPM (Percent)	SELF (Percent)	SAMPLE
Large	95	-	5	-	19
Medium	97	-	-	3	34
Average	96	-	2	2	53
Population	93	2	5	1	1321

EXHIBIT VI-236

SIEMENS

SOFTWARE SERVICE VENDOR BY SYSTEM SIZE

SYSTEM SIZE	MANUFACTURER (Percent)	SW VENDOR (Percent)	SYSTEMS HOUSE (Percent)	SELF (Percent)	SAMPLE
Large	84	5	11	21	19
Medium	91	6	3	12	34
Average	89	6	6	15	53
Population	80	6	7	20	1321

EXHIBIT VI-237

SIEMENS

CUSTOMER PREFERENCES ON BUNDLING

SYSTEM SIZE	INDIVIDUAL PRICING (Percent)	BUNDLED (Percent)	DON'T KNOW (Percent)	SAMPLE SIZE
Large	42	21	37	19
Medium	74	24	2	34
Average	62	23	15	53

Exhibit VI-237 indicates that a predominance of both large and medium system users would prefer unbundled pricing - especially the case for medium-sized installations.

EXHIBIT VI-238

SIEMENS

CUSTOMERS' TOP TRAINING REQUIREMENTS

REQUIREMENT	LARGE (Percent)	MEDIUM (Percent)	AVERAGE (Percent)
Software	26	15	19
On SIEMENS Kit	16	18	17
Programming	5	21	15
System Ops.	11	18	15
General	11	12	11

Sample Size: 53

Exhibit VI-238 depicts the Siemens user samples' top training requirements. There is a reasonably close match of requirements across all system sizes and it is salutary that training on Siemens kit comes second on the list, especially with the good ratings that Siemens has achieved.

As shown in Exhibit VI-239, only one of the other services has an importance level which indicates serious customer interest. All other things being equal, an indication of the best possibility of selling an extra service is found by multiplying the importance rating by the number or percentage of surveyed customers without the service and ranking the results. In the case of Siemens the top two are Disaster Recovery and Software Evaluation.

EXHIBIT VI-239

SIEMENS

TOP REQUIREMENTS AND INTEREST LEVELS FOR OTHER SERVICES

LARGE SYSTEMS

SERVICE	IMPORTANCE	PERCENT WITHOUT	DECISION TREE	SAMPLE
Training	7.0	0	0	19
Disaster Recovery	6.8	63	43	19

MEDIUM SYSTEMS

SERVICE	IMPORTANCE	PERCENT WITHOUT	DECISION TREE	SAMPLE
Training	6.8	0	0	33
Disaster Recovery	7.4	47	35	32
Software Evaluation	6.1	63	39	30

EXHIBIT VI-240

SIEMENS

VIEWS ON CURRENT SERVICE PERFORMANCE

SYSTEM SIZE	HARDWARE			SOFTWARE			SAMPLE SIZES
	IMP	SAT	Δ	IMP	SAT	Δ	
Large	8.8	8.5	0.3	8.7	8.2	0.5	19
Medium	8.9	8.6	0.3	8.8	8.0	0.8	34
Average	8.8	8.5	0.3	8.8	8.1	0.7	53
Population	9.1	8.2	0.9	8.7	7.8	0.9	1321
Last Year	8.6	8.0	0.6	8.6	6.9	1.7	-

All respondents were asked, in a quite separate question, to give ratings to their overall impression of hard and software support, and these ratings are shown in Exhibit VI-240. For Siemens the hardware satisfaction index is three times better than that of the sample population, and twice as good as their own performance last year. With software, the satisfaction index is some 22% better than that of the sample population , and 59% better than the Siemens performance for last year.

EXHIBIT VI-241

SIEMENS

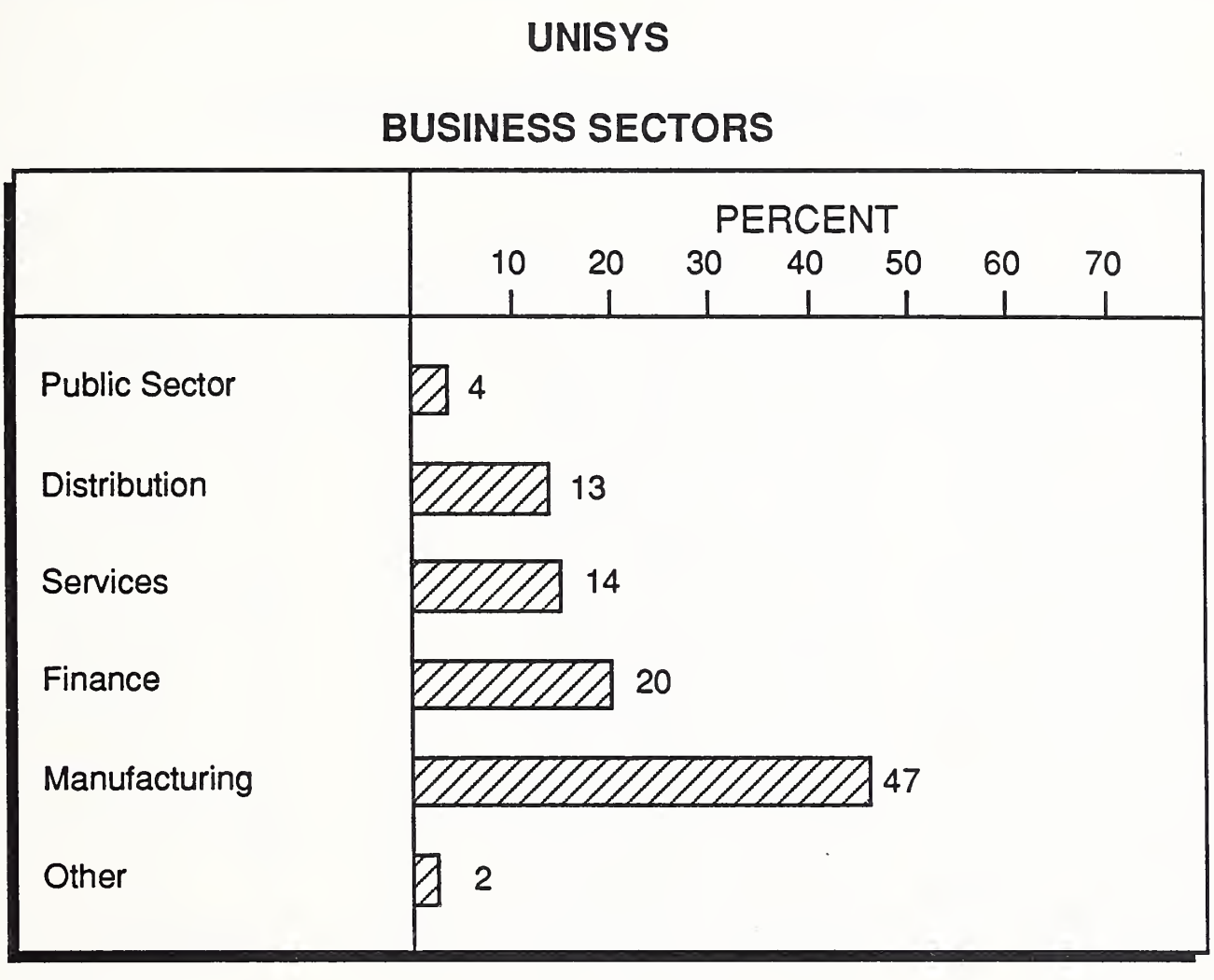
VIEWS ON LIKELY PERFORMANCE (OF CURRENT SUPPLIER) IN FIVE YEARS TIME

CUSTOMER VIEW	HOLDING THE VIEW (Percent)
Excellent	40
Same as Now	32
Hope for Improvement	17

Sample Size: 53

Exhibit VI-241 gives a synopsis of respondents views on what they believe the current vendor's service performance will be like in five years time; it should be noted that this view is likely to be based on CURRENT performance. Perhaps because Siemens has an exceptional set of performance ratings in some areas, 40% of the Siemens respondents felt that the service would be excellent, and a total of 72% had no real concern.

EXHIBIT VI-242



M

Unisys

Exhibit VI-242 shows a set of distribution figures for business sectors among the UNISYS customers which is quite close to that of the sample population.

EXHIBIT VI-243

UNISYS
HARDWARE SERVICE SATISFACTION
LARGE SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	8.1	7.7	0.4	0.1	
Operator Training	8.7	7.9	0.8	0.1	
Spares Availability	9.1	8.0	1.1	0.8	
Escalation Procedure	8.5	7.5	1.0	0.7	
Engineer Skills	8.9	8.0	0.9	0.7	
Remote Diagnostics	7.6	6.8	0.8	0.0	
Telephone Support	7.6	7.0	0.6	0.2	
Documentation	7.9	6.5	1.4	0.7	
Planning/Consultancy	7.7	7.4	0.3	0.0	
Out-of-Hours	8.2	7.7	0.5	(0.1)	
Call Handling	8.0	7.5	0.5	0.4	
Back-Up Support	7.9	7.8	0.1	0.4	Better
Average	8.2	7.3	0.9	0.2	
Population (L)	7.7	7.1	0.6		

Sample Size: 38

For large systems, Exhibits VI-243 and 244, there are only two service aspects which shows a better customer satisfaction level than the population out of the 25 in the two tables, and there are ten aspects at or near the customer concern level.

EXHIBIT VI-244

UNISYS
SOFTWARE SUPPORT SATISFACTION
LARGE SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	8.2	7.0	1.2	0.3	
SW Installation	8.1	7.5	0.6	0.2	
Engineer Skills	8.8	7.6	1.2	0.7	
Telephone Support:					
Accessibility	7.6	7.4	0.2	0.6	Better
Fix Speed	7.6	7.1	0.5	0.7	
Documentation	8.3	7.1	1.2	1.0	
Planning/Consultancy	7.8	6.9	0.9	0.1	
SW Training	8.4	7.4	1.0	0.4	
On-Site Support	8.3	7.4	0.9	0.2	
Hotline	7.9	6.7	1.2	0.4	
Capacity Tuning	7.7	7.4	0.3	0.3	
Remote Diagnostics	6.8	6.2	0.6	0.1	
SW Problems Database	7.5	7.0	0.5	(0.1)	
Average	7.9	7.1	0.8	0.3	
Population (L)	8.2	7.3	0.9		

Sample Size: 38

EXHIBIT VI-245

UNISYS
HARDWARE SERVICE SATISFACTION
MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.6	7.3	0.3	0.1	
Operator Training	7.6	7.5	0.1	0.1	
Spares Availability	9.0	7.7	1.3	0.8	
Escalation Procedure	8.4	7.6	0.8	0.7	
Engineer Skills	8.9	7.8	1.1	0.7	
Remote Diagnostics	6.6	6.4	0.2	0.0	
Telephone Support	8.0	7.1	0.9	0.2	
Documentation	7.9	6.6	1.3	0.7	
Planning/Consultancy	7.3	6.9	0.4	0.0	
Out-of-Hours	6.5	6.3	0.2	(0.1)	
Call Handling	8.3	7.7	0.6	0.4	
Back-Up Support	8.2	7.4	0.8	0.4	
Average	7.9	7.2	0.7	0.2	
Population (M)	7.5	6.8	0.7		

Sample Size: 59

For medium systems, Exhibits VI-245 and 246, the satisfaction gap with hardware services matches the sample population, while software services are nearly twice as good. Software Documentation at 1.6 is approaching the real dissatisfaction level and hardware Spares Availability and Documentation, at 1.3, are over the concern level.

EXHIBIT VI-246

UNISYS
SOFTWARE SUPPORT SATISFACTION
MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	8.1	7.4	0.7	0.3	
SW Installation	7.7	7.4	0.3	0.2	
Engineer Skills	8.6	8.0	0.6	0.7	
Telephone Support:					
Accessibility	8.0	7.5	0.5	0.6	
Fix Speed	8.0	7.3	0.7	0.7	
Documentation	8.4	6.8	1.6	1.0	
Planning/Consultancy	7.0	7.1	(0.1)	0.1	
SW Training	8.0	7.3	0.7	0.4	
On-Site Support	7.1	6.8	0.3	0.2	
Hotline	8.0	7.1	0.9	0.4	
Capacity Tuning	7.9	7.7	0.2	0.3	
Remote Diagnostics	6.6	6.4	0.2	0.1	
SW Problems Database	6.6	6.2	0.4	(0.1)	
Average	7.7	7.2	0.5	0.3	
Population (M)	8.0	7.1	0.9		

Sample Size: 59

EXHIBIT VI-247

UNISYS
HARDWARE SERVICE SATISFACTION
SMALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.2	6.9	0.3	0.1	
Operator Training	8.5	8.0	0.5	0.1	
Spares Availability	8.9	7.3	1.6	0.8	
Escalation Procedure	8.1	7.3	0.8	0.7	
Engineer Skills	9.1	7.8	1.3	0.7	
Remote Diagnostics	6.4	6.8	(0.4)	0.0	Better
Telephone Support	7.9	7.3	0.6	0.2	
Documentation	7.8	6.6	1.2	0.7	
Planning/Consultancy	6.5	6.9	(0.4)	0.0	Better
Out-of-Hours	6.4	6.9	(0.5)	(0.1)	Better
Call Handling	8.3	8.0	0.3	0.4	
Back-Up Support	8.6	7.6	1.0	0.4	
Average	7.8	7.3	0.5	0.2	
Population (S)	7.4	6.5	0.9		

Sample Size: 14

For small systems there are three aspects of hardware service which record a better performance relative to the sample population, see Exhibit VI-247. For software services there are six aspects which are better than the population, but the operation of the Software Problems Database is at the dissatisfaction level, with Documentation and Capacity Tuning at the concern level, see Exhibit VI-248.

EXHIBIT VI-248

UNISYS
SOFTWARE SUPPORT SATISFACTION
SMALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	8.1	7.7	0.4	0.3	
SW Installation	8.0	8.0	0.0	0.2	
Engineer Skills	8.5	8.5	0.0	0.7	Better
Telephone Support:					
Accessibility	8.4	8.4	0.0	0.6	Better
Fix Speed	8.5	8.1	0.4	0.7	Better
Documentation	8.4	7.2	1.2	1.0	
Planning/Consultancy	6.5	7.2	(0.7)	0.1	Better
SW Training	7.9	7.7	0.2	0.4	
On-Site Support	6.9	6.6	0.3	0.2	
Hotline	7.4	6.9	0.5	0.4	
Capacity Tuning	5.9	7.1	(1.2)	0.3	Better
Remote Diagnostics	5.5	6.4	(0.9)	0.1	Better
SW Problems Database	7.1	5.3	1.8	(0.1)	
Average	7.5	7.3	0.2	0.3	
Population (S)	7.9	6.9	1.0		

Sample Size: 14

A comparison of the scattergram Exhibit VI-249 with that for the sample population shows a very similar type of pattern but with the satisfaction plot well away from the importance ratings. For software support, the scattergram, Exhibit VI-250, shows a very similar picture with the two plots farther apart than with the sample population.

EXHIBIT VI-249

UNISYS
IMPORTANCE OF HARDWARE SERVICES

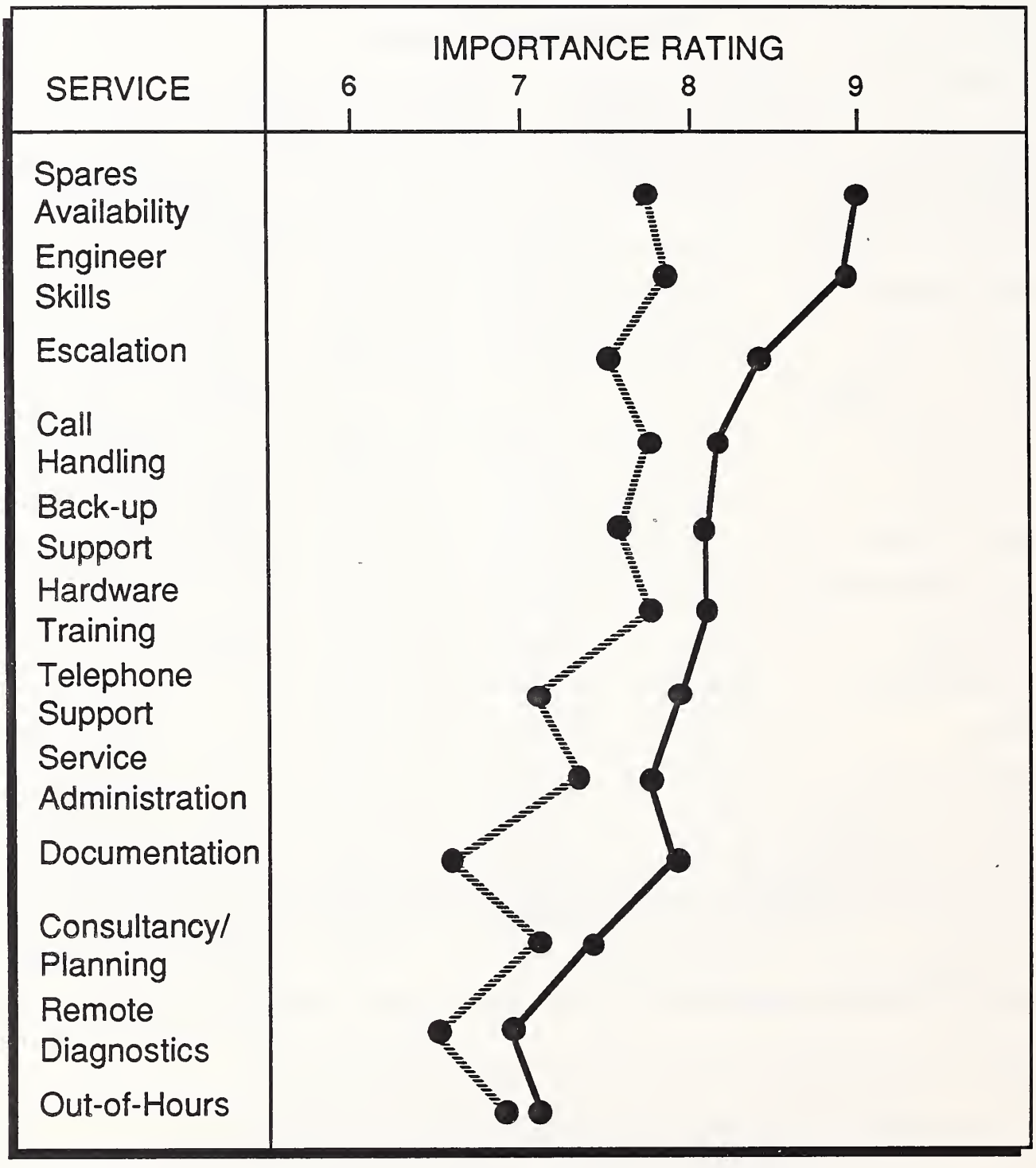
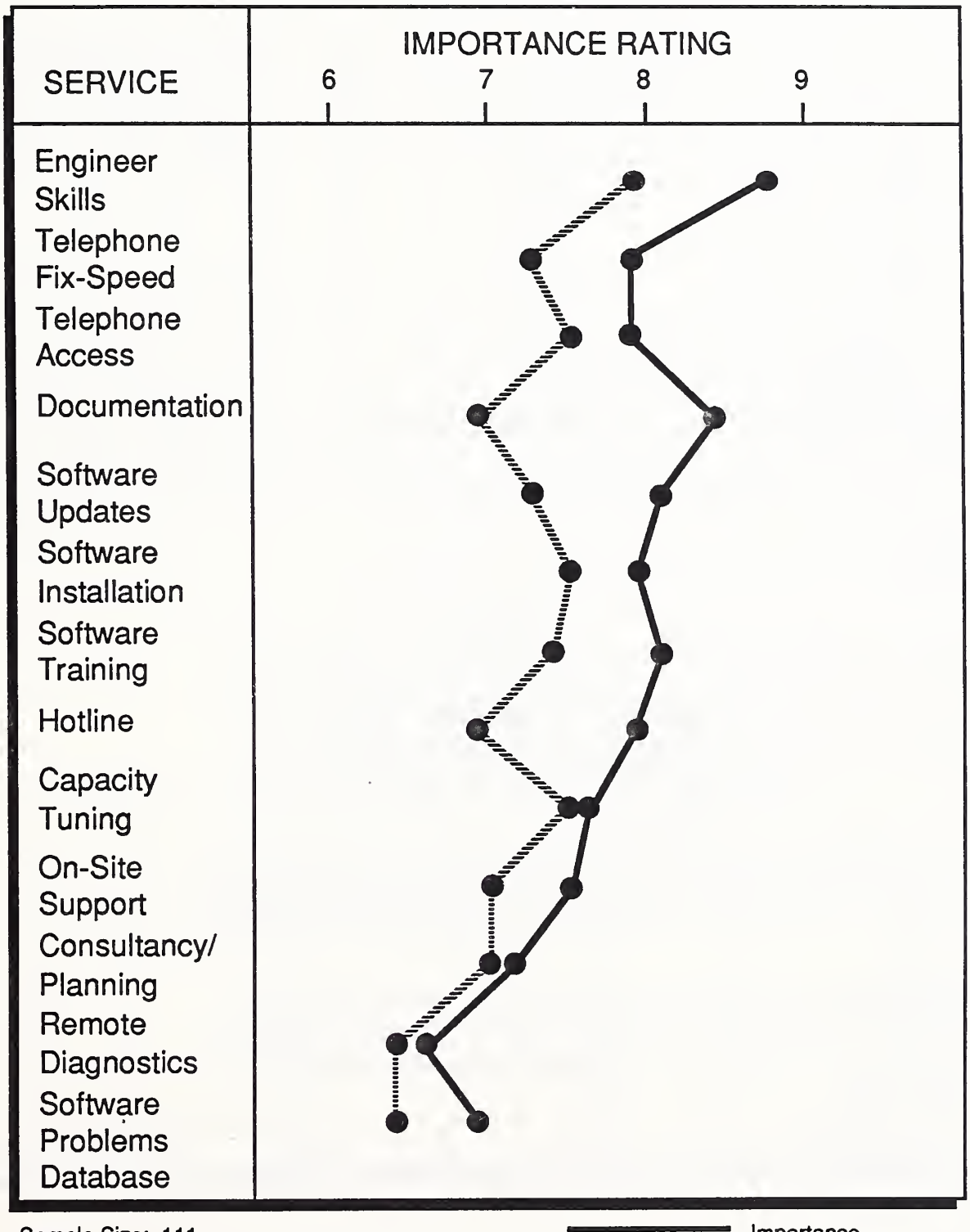


EXHIBIT VI-250

UNISYS

IMPORTANCE OF SOFTWARE SERVICES



Sample Size: 111

EXHIBIT VI-251

UNISYS

BREAKDOWNS BY SYSTEM SIZE

SIZE	BREAKS PA	AREA OF BREAK (Percent)	
		HW	SW
Large	6.5	56	44
Medium	2.8	61	39
Small	2.0	60	40
Average	4.0	59	41
Population	2.8	54	46

Sample Size: 111

EXHIBIT VI-252

UNISYS

SATISFACTION WITH SYSTEMS AVAILABILITY

SIZE	IMPORTANCE	SATISFACTION	Δ
Large	9.4	8.3	1.1
Medium	9.0	8.6	0.4
Small	9.2	7.8	1.4
Average	9.2	8.4	0.8
Population	9.3	8.7	0.6

Sample Size: 111

EXHIBIT VI-253

UNISYS

HARDWARE RESPONSE AND FIX TIMES

SYSTEM SIZE	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	2.4	2.7	0.3	8.6	3.4	4.5	1.1	8.9	5.8	7.2	1.4
Medium	3.4	3.3	(0.1)	9.2	4.1	5.1	1.0	9.2	7.5	8.4	0.9
Small	3.4	4.1	0.7	9.4	4.4	4.9	0.5	9.2	7.8	9.0	1.2
Average	3.1	3.2	0.1	9.0	3.9	4.9	1.0	9.1	7.0	8.1	1.1
Population	3.4	3.7	0.3	9.1	3.9	4.6	0.7	9.1	7.3	8.3	1.0

Sample Size: 111

From Exhibit VI-251 it is seen that the Unisys sample has some 43% more breaks than the population sample mean, and with the figure for large system breaks being over three times greater than with the small systems. This is, no doubt, due to the greater complexity and size of the larger systems, but it would still merit investigation.

In satisfaction with system availability, Exhibit VI-252, the satisfaction gap, at 0.8, is somewhat greater than that of the sample population, while the actual satisfaction level is also marginally lower—no doubt a reflection of the larger number of breaks.

A comparison of the hardware response and fix times with those of the sample population, Exhibit VI-253, shows a performance matching very closely that of the sample population.

EXHIBIT VI-254

UNISYS

SOFTWARE RESPONSE AND FIX TIMES

	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	15.0	26.4	11.4	8.5	14.6	41.0	26.4	8.7	29.6	67.4	37.8
Medium	13.9	24.0	10.1	8.9	13.6	30.9	17.3	8.8	27.5	54.9	27.4
Small	10.1	59.8	49.7	9.1	12.1	54.9	42.8	8.9	22.2	114.7	92.0
Average	13.9	28.5	14.6	8.8	13.8	37.3	23.5	8.8	27.7	65.8	38.1
Population	8.8	17.0	8.2	8.7	11.0	19.6	8.6	8.8	19.8	36.6	16.8

Sample Size: 111

Exhibit VI-254 gives a quite different profile for the software response and fix times. The average total repair time of some 66hr is 80% longer than with the population, giving a difference between acceptable and experienced times of some 38hr.

In Exhibits VI-255 and 256, depicting which vendor supplies the hardware and software support, it is seen that the Unisys sample gets more hardware contracts than does the sample population and has a far less intrusion of TPM's. This is interesting in view of the long software repair times, but fortunately TPM's are not strong in software support.

EXHIBIT VI-255

UNISYS

HARDWARE SERVICE VENDOR BY SYSTEM SIZE

SYSTEM SIZE	MANUFACTURER (Percent)	DEALER (Percent)	TPM (Percent)	SELF (Percent)	SAMPLE
Large	100	-	3	3	38
Medium	98	2	-	-	59
Small	93	-	-	-	14
Average	99	1	1	1	111
Population	93	2	5	1	1321

EXHIBIT VI-256

UNISYS

SOFTWARE SERVICE VENDOR BY SYSTEM SIZE

SYSTEM SIZE	MANUFACTURER (Percent)	SW VENDOR (Percent)	SYSTEMS HOUSE (Percent)	SELF (Percent)	SAMPLE
Large	89	-	-	24	38
Medium	85	2	3	17	59
Small	60	-	20	20	14
Average	84	1	5	20	111
Population	80	6	7	20	1321

EXHIBIT VI-257

UNISYS

CUSTOMER PREFERENCES ON BUNDLING

SYSTEM SIZE	INDIVIDUAL PRICING (Percent)	BUNDLED (Percent)	DON'T KNOW (Percent)	SAMPLE SIZE
Large	55	21	24	38
Medium	59	17	24	58
Small	72	14	14	14
Average	59	18	23	110

Exhibit VI-257 shows that only some 59% of the Unisys sample of users would prefer individual prices. Within that figure, there are the small system users at 72%; this would imply a different marketing strategy for small systems users.

EXHIBIT VI-258

UNISYS

CUSTOMERS' TOP TRAINING REQUIREMENTS

REQUIREMENT	LARGE (Percent)	MEDIUM (Percent)	MEDIUM (Percent)	AVERAGE (Percent)
Software	37	17	7	23
Programming	24	17	7	18
On UNISYS Kit	11	15	20	14
General	13	14	7	13
New Systems	16	10	-	11
Operator	11	8	13	10

Sample Size: 111

Exhibit VI-258, depicting the Unisys user samples' top training requirements, shows there is quite a different spread of requirements across the system sizes, and it is noteworthy that there is a requirement for training on Unisys kit. If this is not the result of a Unisys initiated strategy, then the situation may need further evaluation.

As shown in Exhibit VI-259, four of the other services have importance levels which indicate serious customer interest. All other things being equal, an indication of the best possibility of selling an extra service is found by multiplying the importance rating by the number or percentage of surveyed customers without the service and ranking the results. In the case of Unisys the top two are Disaster Recovery and Network Management.

EXHIBIT VI-259

UNISYS

TOP REQUIREMENTS AND INTEREST LEVELS FOR OTHER SERVICES

LARGE SYSTEMS

SERVICE	IMPORTANCE	PERCENT WITHOUT	DECISION TREE	SAMPLE
Disaster Recovery	8.1	61	49	38
Training	7.7	0	0	38
Network Planning	7.5	55	41	38
Network Management	7.3	58	42	38
Software Evaluation	7.3	47	35	38

MEDIUM SYSTEMS

SERVICE	IMPORTANCE	PERCENT WITHOUT	DECISION TREE	SAMPLE
Training	7.8	0	0	59
Consultancy	6.8	46	31	59
Disaster Recovery	6.5	71	46	59

EXHIBIT VI-260

UNISYS

VIEWS ON CURRENT SERVICE PERFORMANCE

SYSTEM SIZE	HARDWARE			SOFTWARE			SAMPLE SIZES
	IMP	SAT	Δ	IMP	SAT	Δ	
Large	9.2	8.1	1.1	8.8	7.6	1.2	38
Medium	9.1	8.0	1.1	8.7	7.7	1.0	59
Small	8.9	7.4	1.5	8.4	7.6	0.8	14
Average	9.1	7.9	1.2	8.7	7.7	1.0	111
Population	9.1	8.2	0.9	8.7	7.8	0.9	1321

All respondents were asked, in a quite separate question, to give ratings to their overall impression of hardware and software support, and these ratings are shown in Exhibit VI-260. For Unisys the hardware satisfaction gap is 33% greater than that of the sample population and at the concern level. With software, the satisfaction gap is only marginally greater than that of the sample population, even with the very long repair times experienced by customers.

EXHIBIT VI-261

UNISYS

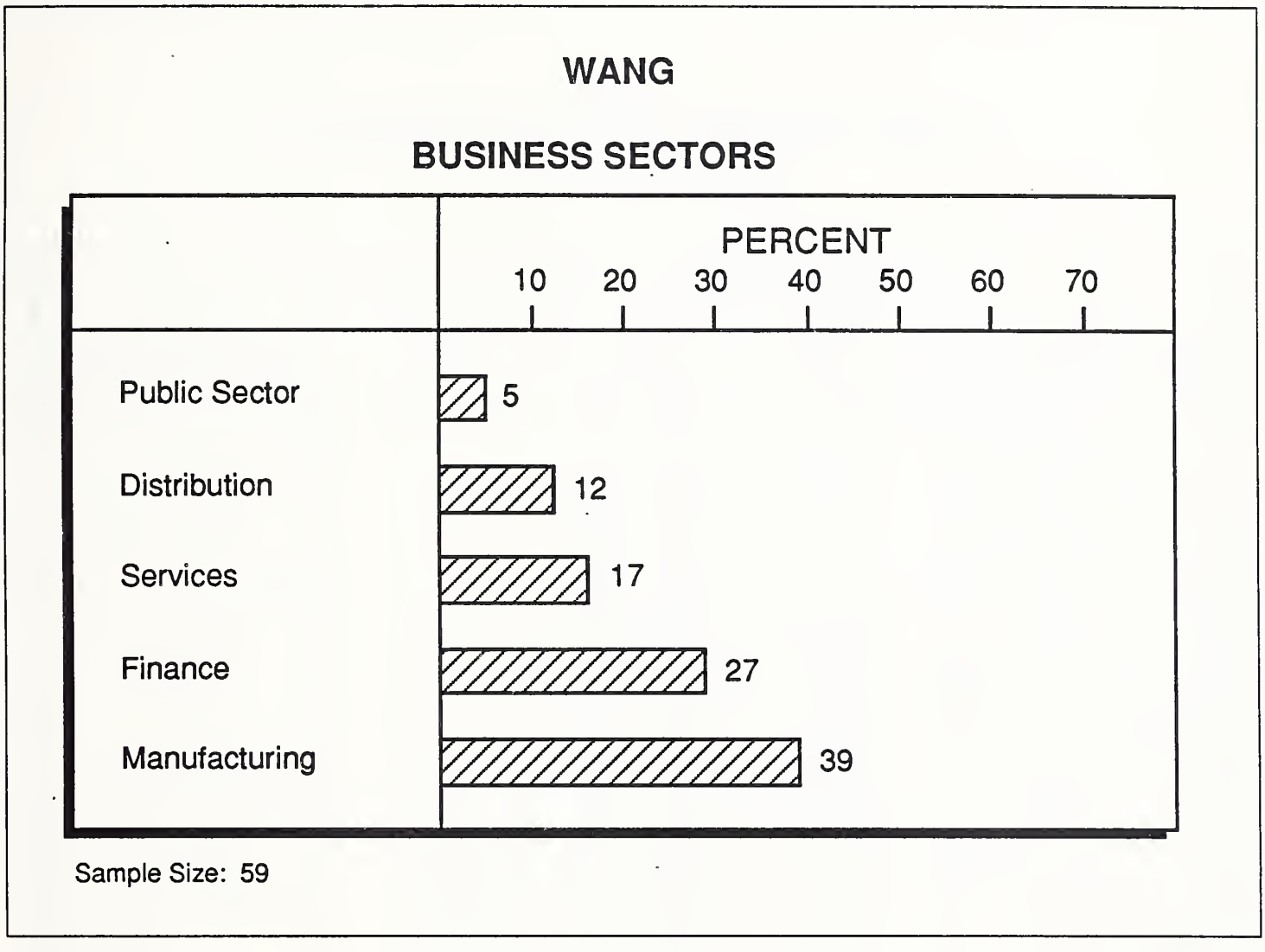
VIEWS ON LIKELY PERFORMANCE (OF CURRENT SUPPLIER) IN FIVE YEARS TIME

CUSTOMER VIEW	HOLDING THE VIEW (Percent)
Excellent	40
Same as Now	9
Will Have Different Kit	8

Sample Size: 111

Exhibit VI-261 gives a synopsis of respondents' views on what they believe the current vendors service performance will be like in five years time; it should be noted that this view is likely to be based on CURRENT performance. Even though the Unisys ratings are around or below the sample mean, about 40% of the Unisys respondents felt that the service would be excellent, and a total of 49% had no real concern.

EXHIBIT VI-184



N

Wang

Exhibit VI-262 shows a set of distribution figures for business sectors among the Wang customers, which is quite close to that of the sample population.

EXHIBIT VI-263

WANG
HARDWARE SERVICE SATISFACTION
LARGE SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	7.7	7.0	0.7	0.1	
Operator Training	9.3	8.0	1.3	0.1	
Spares Availability	7.7	6.7	1.0	0.8	
Escalation Procedure	8.3	7.0	1.3	0.7	
Engineer Skills	8.5	7.0	1.5	0.7	
Remote Diagnostics	6.0	2.0	4.0	0.0	
Telephone Support	8.0	7.7	0.3	0.2	
Documentation	8.3	7.0	1.3	0.7	
Planning/Consultancy	7.7	7.0	0.7	0.0	
Out-of-Hours	9.3	6.5	2.8	(0.1)	
Call Handling	8.0	7.0	1.0	0.4	
Back-Up Support	8.7	7.0	1.7	0.4	
Average	8.1	6.7	1.4	0.2	
Population (L)	7.7	7.1	0.6		

Sample Size: 3

For large systems, Exhibits VI-263 and 264, there is only a very small cell size, but the figures are exhibited for completeness, and the general pattern of results conforms to those of the medium systems.

EXHIBIT VI-264

WANG
SOFTWARE SUPPORT SATISFACTION
LARGE SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	6.7	5.7	1.0	0.3	
SW Installation	8.3	8.0	0.3	0.2	
Engineer Skills	8.0	8.0	0.0	0.7	Better
Telephone Support:					
Accessibility	8.0	7.0	1.0	0.6	
Fix Speed	8.0	5.7	2.3	0.7	
Documentation	8.0	6.7	1.3	1.0	
Planning/Consultancy	8.0	7.0	1.0	0.1	
SW Training	8.0	6.3	1.7	0.4	
On-Site Support	8.0	4.0	4.0	0.2	
Hotline	6.7	5.7	1.0	0.4	
Capacity Tuning	7.5	6.0	1.5	0.3	
Remote Diagnostics	8.7	*		0.1	
SW Problems Database	7.7	2.5	5.2	(0.1)	
Average	7.8	6.1	1.7	0.3	
Population (L)	8.2	7.3	0.9		

Sample Size: 3

* Not included (no responses given)

EXHIBIT VI-265

WANG
HARDWARE SERVICE SATISFACTION
MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	8.0	7.0	1.0	0.1	
Operator Training	7.4	6.9	0.5	0.1	
Spares Availability	9.0	7.4	1.6	0.8	
Escalation Procedure	8.4	6.7	1.7	0.7	
Engineer Skills	8.7	7.6	1.1	0.7	
Remote Diagnostics	5.9	5.2	0.7	0.0	
Telephone Support	6.7	5.9	0.8	0.2	
Documentation	6.5	5.4	1.1	0.7	
Planning/Consultancy	7.2	6.6	0.6	0.0	
Out-of-Hours	7.4	5.5	1.9	(0.1)	
Call Handling	7.9	6.9	1.0	0.4	
Back-Up Support	8.6	7.4	1.2	0.4	
Average	7.6	6.5	1.1	0.2	
Population (M)	7.6	6.8	0.8		

Sample Size: 23

For medium systems, Exhibits VI-265 and 266, the general performance is below that of the sample population, with some thirteen aspects which are at or over the concern level. As with the general population the worst aspects include Escalation and Spares Availability, but the poor rating for Out-of-Hours Service is unusual.

EXHIBIT VI-266

WANG
SOFTWARE SUPPORT SATISFACTION
MEDIUM SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	7.6	7.0	0.6	0.3	
SW Installation	7.4	7.4	0.0	0.2	
Engineer Skills	8.7	7.6	1.1	0.7	
Telephone Support:					
Accessibility	8.5	7.3	1.2	0.6	
Fix Speed	8.4	7.3	1.1	0.7	
Documentation	7.4	6.1	1.3	1.0	
Planning/Consultancy	7.2	6.9	0.3	0.1	
SW Training	7.6	7.1	0.5	0.4	
On-Site Support	7.4	6.8	0.6	0.2	
Hotline	7.5	6.6	0.9	0.4	
Capacity Tuning	7.7	6.9	0.8	0.3	
Remote Diagnostics	6.9	5.9	1.0	0.1	
SW Problems Database	5.9	6.0	(0.1)	(0.1)	
Average	7.6	6.9	0.7	0.3	
Population (M)	8.0	7.1	0.9		

Sample Size: 23

EXHIBIT VI-267

WANG
HARDWARE SERVICE SATISFACTION
SMALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Contract Administration	8.5	7.7	0.8	0.1	
Operator Training	7.9	7.9	0.0	0.1	
Spares Availability	9.5	7.9	1.6	0.8	
Escalation Procedure	8.9	7.6	1.3	0.7	
Engineer Skills	9.1	8.4	0.7	0.7	
Remote Diagnostics	4.9	4.0	0.9	0.0	
Telephone Support	8.5	7.6	0.9	0.2	
Documentation	7.3	5.4	1.9	0.7	
Planning/Consultancy	7.4	7.1	0.3	0.0	
Out-of-Hours	5.0	3.9	1.1	(0.1)	
Call Handling	9.2	7.7	1.5	0.4	
Back-Up Support	8.8	7.6	1.2	0.4	
Average	7.9	6.9	1.0	0.2	
Population (S)	7.4	6.5	0.9		

Sample Size: 33

The position for small systems, Exhibits VI-267 and 268, shows the same general picture as for medium systems except that the satisfaction indices are marginally worse. Although they match the sample population.

EXHIBIT VI-268

WANG
SOFTWARE SUPPORT SATISFACTION
SMALL SYSTEMS

	1987			POPULATION	RELATIVE PERFORMANCE
	IMP	SAT	Δ	Δ	
Provision of Updates	8.4	7.6	0.8	0.3	
SW Installation	8.7	7.3	1.4	0.2	
Engineer Skills	9.4	8.2	1.2	0.7	
Telephone Support:					
Accessibility	8.4	7.2	1.2	0.6	
Fix Speed	8.5	7.3	1.2	0.7	
Documentation	7.7	5.5	2.2	1.0	
Planning/Consultancy	7.5	6.9	0.6	0.1	
SW Training	8.4	7.2	1.2	0.4	
On-Site Support	7.9	6.8	1.1	0.2	
Hotline	7.4	7.0	0.4	0.4	
Capacity Tuning	8.3	7.6	0.7	0.3	
Remote Diagnostics	4.6	3.8	0.8	0.1	
SW Problems Database	5.3	4.7	0.6	(0.1)	
Average	7.7	6.7	1.0	0.3	
Population (S)	7.9	6.9	1.0		

Sample Size: 33

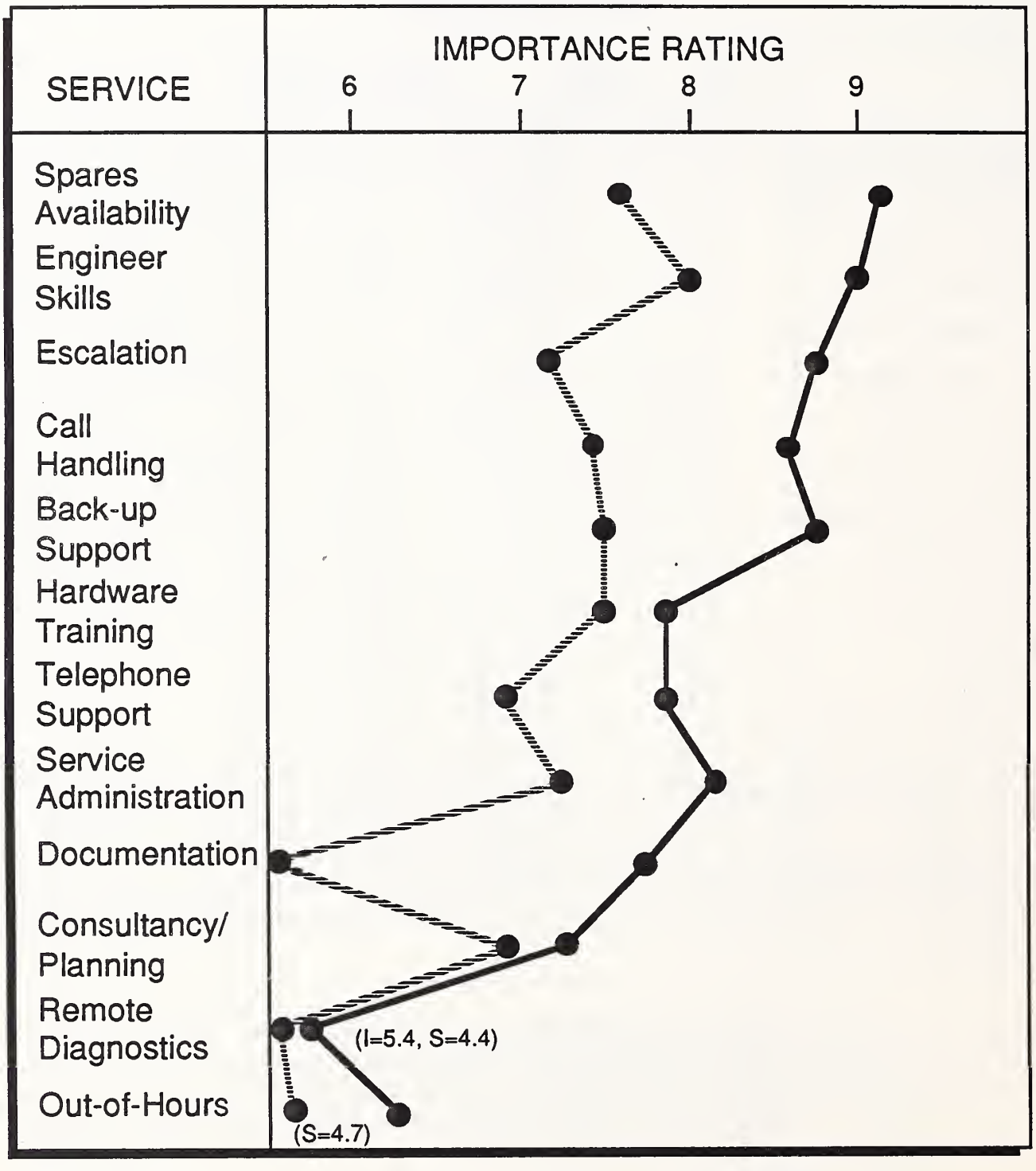
A comparison of the scattergram Exhibit VI-269 with that for the sample population shows a very different type of pattern, with the satisfaction plot well away from the importance ratings. This might merit an investigation as to whether it is the technology or the techniques which are 'fuelling' the satisfaction gap.

For software support, the scattergram, Exhibit VI-270, shows a slightly better picture with the two plots closer together, but the overall impression is much the same as for hardware.

EXHIBIT VI-269

WANG

IMPORTANCE OF HARDWARE SERVICES



Sample Size: 59

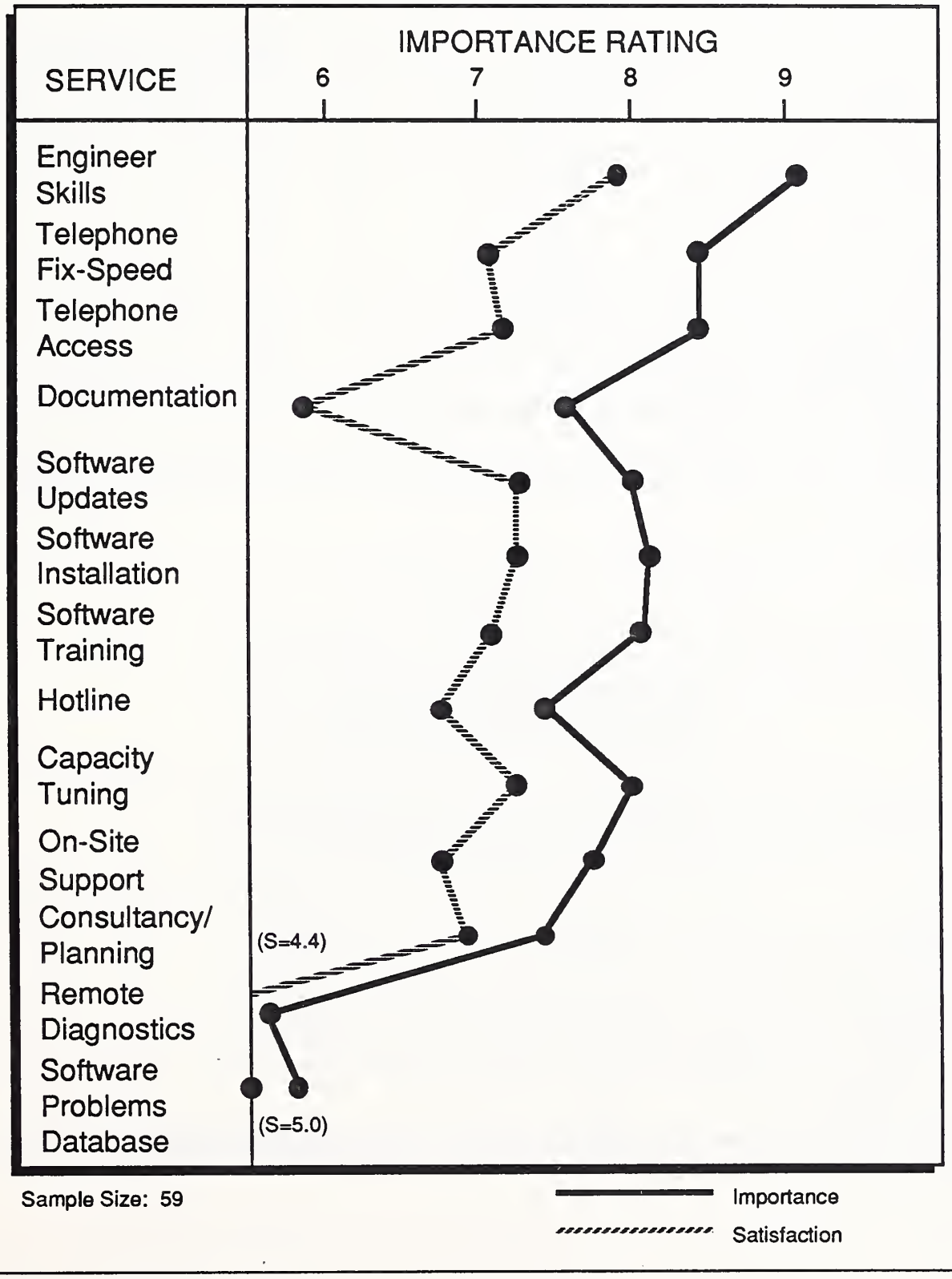
Importance

Satisfaction

EXHIBIT VI-270

WANG

IMPORTANCE OF SOFTWARE SERVICES



Sample Size: 59

EXHIBIT VI-271

WANG

BREAKDOWNS BY SYSTEM SIZE

SIZE	BREAKS PA	AREA OF BREAK (Percent)	
		HW	SW
Large	4.3	31	69
Medium	2.5	58	42
Small	2.7	51	49
Average	2.7	53	47
Population	2.8	54	46

Sample Size: 59

EXHIBIT VI-272

WANG

SATISFACTION WITH SYSTEMS AVAILABILITY

SIZE	IMPORTANCE	SATISFACTION	Δ
Large	9.3	9.3	0.0
Medium	9.3	8.5	0.8
Small	9.4	8.4	1.0
Average	9.4	8.5	0.9
Population	9.3	8.7	0.6

Sample Size: 59

EXHIBIT VI-273

WANG

HARDWARE RESPONSE AND FIX TIMES

SYSTEM SIZE	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	3.3	4.0	0.7	8.0	3.0	4.0	1.0	7.7	6.3	8.0	1.7
Medium	3.3	5.3	2.0	9.3	3.3	6.4	3.1	9.4	6.6	11.7	5.1
Small	5.6	6.3	0.7	9.3	5.1	6.1	1.0	9.4	10.7	12.4	1.7
Average	4.6	5.8	1.2	9.2	4.4	6.2	1.8	9.3	9.0	12.0	3.0
Population	3.4	3.7	0.3	9.1	3.9	4.6	0.7	9.1	7.3	8.3	1.0

Sample Size: 59

From Exhibit VI-271 it can be seen that the Wang sample has less breaks than the population sample mean. Large system breaks being 59% more prevalent than with the small systems. This is, no doubt, due to the greater complexity and size of the larger systems.

In satisfaction with system availability, Exhibit VI-272, the gap, at 0.9, is 50% greater than that of the population, with a greater importance rating, and a smaller satisfaction rating: i.e., importance rises as satisfaction declines, but only just approaching the concern level.

A comparison of the hardware response and fix times with those of the sample population, Exhibit VI-273, shows a total repair time some 45% longer than that of the population, and the difference between acceptable and experienced times three times longer. However, the problem would appear to lie with the medium systems customers only.

EXHIBIT VI-274

WANG

SOFTWARE RESPONSE AND FIX TIMES

SYSTEM SIZE	RESPONSE TIMES				FIX TIMES				TOTALS (HR)		
	ACC	EXP	Δ	IMP	ACC	EXP	Δ	IMP	ACC	EXP	Δ
Large	4.7	30.1	25.4	7.7	24.0	24.0	0.0	7.5	28.7	54.1	25.4
Medium	7.1	16.7	9.6	9.0	9.9	14.4	4.5	8.4	17.0	31.1	14.1
Small	6.7	12.8	6.1	9.3	8.4	14.8	6.4	9.3	15.1	27.6	12.5
Average	6.8	15.4	8.6	9.1	9.2	14.8	5.6	9.1	16.0	30.2	14.2
Population	8.8	17.0	8.2	8.7	11.0	19.6	8.6	8.8	19.8	36.6	16.8

Sample Size: 59

Exhibit VI-274 gives a quite different picture for the software response and fix times, where the average total repair time of some 30hr is 17% better than that of the population, giving a difference between acceptable and experienced times of about 14hr, better than the population mean by some 16%.

In Exhibits VI-275 and 276, depicting which vendor supplies the hardware and software support, it is seen that the Wang sample obtains far less hardware contracts than does the sample population and has had its service market significantly penetrated by TPM's. The same type of picture is also beginning to emerge on the software side, with Wang taking 16% less contracts than that of the sample mean.

EXHIBIT VI-275

WANG

HARDWARE SERVICE VENDOR BY SYSTEM SIZE

SYSTEM SIZE	MANUFACTURER (Percent)	DEALER (Percent)	TPM (Percent)	SELF (Percent)	SAMPLE
Large	100	-	-	-	3
Medium	87	9	4	-	23
Small	58	12	27	3	33
Average	71	10	17	2	59
Population	93	2	5	1	1321

EXHIBIT VI-276

WANG

SOFTWARE SERVICE VENDOR BY SYSTEM SIZE

SYSTEM SIZE	MANUFACTURER (Percent)	SW VENDOR (Percent)	SYSTEMS HOUSE (Percent)	SELF (Percent)	SAMPLE
Large	100	-	-	-	3
Medium	87	4	-	13	23
Small	45	18	6	15	33
Average	64	12	3	14	59
Population	80	6	7	20	1321

EXHIBIT VI-277

WANG

CUSTOMER PREFERENCES ON BUNDLING

SYSTEM SIZE	INDIVIDUAL PRICING (Percent)	BUNDLED (Percent)	DON'T KNOW (Percent)	SAMPLE SIZE
Large	100	-	-	3
Medium	61	17	22	23
Small	39	28	33	33
Average	51	22	27	59

Exhibit VI-277 shows that only some 51% of the Wang user sample would prefer individual prices. Within that figure, there is the medium system sample at 61%, and this would imply a different marketing strategy for small systems users.

EXHIBIT VI-278

WANG

CUSTOMERS' TOP TRAINING REQUIREMENTS

REQUIREMENT	LARGE (Percent)	MEDIUM (Percent)	MEDIUM (Percent)	AVERAGE (Percent)
Software	33	30	18	24
On WANG Kit	33	26	21	24
Programming	33	13	18	17
General	-	17	12	14
Hardware	33	13	9	12

Exhibit VI-278, depicting the Wang user samples' top training requirements, and neglecting the large systems users because of cell size, there is a reasonable correspondence between the medium and small user responses. It is noteworthy that there is a quite high requirement for training on Wang kit. If this is not the result of a Wang initiated strategy, then it may need further investigation to determine the cause.

As shown in Exhibit VI-279, there are two other services having importance levels which indicate serious customer interest. All other things being equal, an indication of the best possibility of selling an extra service is found by multiplying the importance rating by the number or percentage of surveyed customers without the service and ranking the results. In the case of Wang the top two are Software Evaluation and Capacity Planning.

EXHIBIT VI-279

WANG

TOP REQUIREMENTS AND INTEREST LEVELS FOR OTHER SERVICES

LARGE AND MEDIUM SYSTEMS

SERVICE	IMPORTANCE	PERCENT WITHOUT	DECISION TREE	SAMPLE
Software Evaluation	6.2	36	22	25
Training	7.0	0	0	26
Disaster Recovery	7.0	46	32	26

SMALL SYSTEMS

SERVICE	IMPORTANCE	PERCENT WITHOUT	DECISION TREE	SAMPLE
Software Evaluation	7.2	75	54	32
Consultancy	6.9	48	33	33
Capacity Planning	6.8	69	47	32

EXHIBIT VI-280

WANG

VIEWS ON CURRENT SERVICE PERFORMANCE

SYSTEM SIZE	HARDWARE			SOFTWARE			SAMPLE SIZES
	IMP	SAT	Δ	IMP	SAT	Δ	
Large	8.7	8.3	0.4	8.3	7.3	1.0	3
Medium	8.8	7.4	1.4	8.7	7.3	1.4	23
Small	9.6	8.0	1.6	9.3	7.6	1.7	33
Average	9.2	7.8	1.4	9.0	7.4	1.6	59
Population	9.1	8.2	0.9	8.7	7.8	0.9	1321

All respondents were asked, in a quite separate question, to give ratings to their overall impression of hardware and software support, and these ratings are shown in Exhibit VI-280. For Wang the hardware satisfaction gap is 36% longer than with of the sample population. With software, the satisfaction gap is 78% greater than with the sample population, and these figures are above the concern level.

EXHIBIT VI-281

WANG

VIEWS ON LIKELY PERFORMANCE (OF CURRENT SUPPLIER) IN FIVE YEARS TIME

CUSTOMER VIEW	HOLDING THE VIEW (Percent)
Excellent	39
Reasonable	10
Hope for Improvement	10
Poor	8

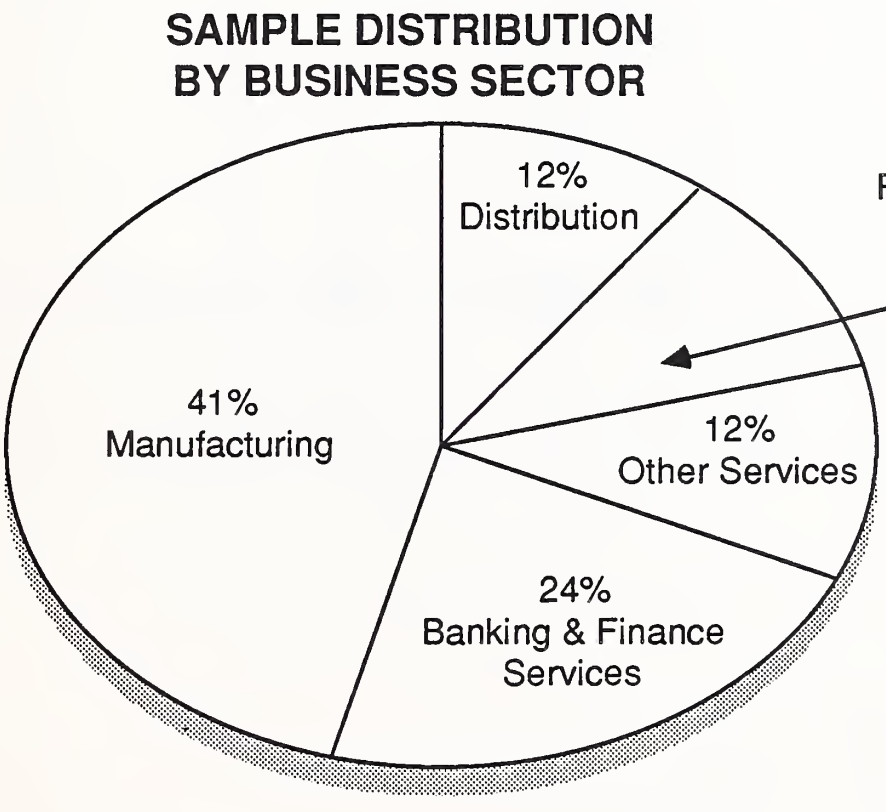
Sample Size: 59

Exhibit VI-281 gives a synopsis of respondents' views on what they believe the current vendors service performance will be like in five years time. It should be noted that this view is likely to be based on CURRENT performance. Even though Wang has a somewhat lower set of performance ratings than the sample population, about 39% of the Wang respondents felt that the service would be excellent, and a total of 59% had no real concern.

Appendix: Additional Statistical Data

Appendix: Additional Statistical Data

EXHIBIT A-1



Sample Size: 1321

EXHIBIT A-2

CELL SIZE BY COUNTRY

COUNTRY	CELL SIZE
Belgium	95
Denmark	23
France	226
Germany	223
Holland	98
Italy	129
Norway	46
Sweden	74
United Kingdom	407

EXHIBIT A-3

CELL SIZES BY COMPANY

COMPANY	LARGE	MEDIUM	SMALL	TOTAL
Concurrent	-	21	7	28
DEC	37	104	52	193
Hewlett Packard	13	63	20	96
Honeywell-Bull	40	64	11	115
IBM	124	75	11	210
ICL	56	103	38	197
ITL	2	22	6	30
NCR	4	73	44	121
Nixdorf	1	33	35	69
Olivetti	9	11	8	28
Philips	3	7	1	11
Siemens	19	34	-	53
Unisys	38	59	14	111
Wang	3	23	33	59
TOTAL	350	692	280	1321

EXHIBITA-4

SOFTWARE FIXES BY TELEPHONE

COMPANY	LARGE SYSTEMS (Percent)	MEDIUM SYSTEMS (Percent)	SMALL SYSTEMS (Percent)	AVERAGE (Percent)
Philips	52	29	01	32
Olivetti	38	65	23	44
Unisys	34	49	53	45
Honeywell Bull	45	49	37	46
ICL	43	47	47	46
Siemens	43	48	-	46
Concurrent	-	44	64	49
ITL	34	50	50	49
DEC	48	53	49	51
Hewlett Packard	54	57	36	52
Wang	31	51	58	54
NCR	51	56	56	56
IBM	58	55	59	57
Nixdorf	90	57	60	59

Telephone fixes as a percentage of total software fixes.

Sample Size: 1321

EXHIBIT A-5

OVERALL HARDWARE SERVICE STANDARD ERROR

		SAMPLE	AVERAGE	STANDARD DEVIATION	STANDARD ERROR
Service	IMP	1293	7.5	1.88	0.05
Administration	SAT	1275	7.4	1.74	0.05
Hardware	IMP	1287	7.6	2.22	0.06
Training	SAT	1221	7.5	1.83	0.05
Spares	IMP	1314	8.9	1.39	0.04
Availability	SAT	1285	8.1	1.65	0.05
Escalation	IMP	1265	8.3	1.67	0.0.5
	SAT	1178	7.6	1.70	0.05
Engineer	IMP	1316	8.9	1.15	0.03
Skills	SAT	1304	8.2	1.33	0.04
Remote	IMP	1242	6.9	2.84	0.08
Diagnostics	SAT	1007	6.9	2.64	0.08
Telephone	IMP	1286	7.6	2.19	0.06
Support	SAT	1202	7.4	1.97	0.06
Documentation	IMP	1297	7.4	2.20	0.06
	SAT	1250	6.7	2.03	0.06
Planning/	IMP	1283	7.1	2.13	0.06
Consultancy	SAT	1193	7.1	1.80	0.05
Outside	IMP	1276	6.7	2.94	0.08
Hours	SAT	1093	6.8	2.64	0.08
Call	IMP	1306	8.2	1.63	0.05
Handling	SAT	1275	7.8	1.53	0.04
Back-Up	IMP	1297	8.2	1.64	0.05
Support	SAT	1257	7.8	1.57	0.04

EXHIBIT A-6

OVERALL SOFTWARE SERVICE STANDARD ERROR

		SAMPLE	AVERAGE	STANDARD DEVIATION	STANDARD ERROR
Update Provision	IMP	1303	7.9	1.75	0.05
	SAT	1277	7.6	1.65	0.05
Software Installation	IMP	1287	7.9	1.96	0.05
	SAT	1235	7.7	1.73	0.05
Engineer Skills	IMP	1299	8.8	1.29	0.04
	SAT	1268	8.1	1.49	0.04
Telephone Access	IMP	1306	8.0	2.04	0.0.6
	SAT	1249	7.4	2.04	0.06
Telephone Spped of Fix	IMP	1305	8.0	2.09	0.06
	SAT	1246	7.3	2.05	0.06
Documentation	IMP	1308	7.9	1.96	0.05
	SAT	1286	6.9	1.94	0.05
Planning/ Consultancy	IMP	1286	7.1	2.23	0.06
	SAT	1172	7.0	1.94	0.06
Software Training	IMP	1305	7.8	1.97	0.05
	SAT	1172	7.0	1.94	0.06
On-Site Support	IMP	1292	7.5	2.24	0.06
	SAT	1193	7.3	2.04	0.06
Hotline	IMP	1275	7.7	2.21	0.06
	SAT	1164	7.3	2.06	0.06
Capacity Tuning	IMP	1290	7.4	2.21	0.06
	SAT	1192	7.1	2.31	0.07
Remote Diagnostics	IMP	1259	6.8	3.03	0.09
	SAT	1013	6.6	2.88	0.09
Remote Diagnostics	IMP	1233	7.0	2.85	0.10
	SAT	992	6.8	2.77	0.10

Appendix: Questionnaire

Appendix: Questionnaire

Write in make to which this questionnaire refers _____

Q1 a. What is the model number of the CPU? Write in. _____
If more than one, take largest.

b. How many are installed at this address? Write in. _____

c. How many terminals are attached? Please include intelligent and dumb terminals.

Write in. 1) Local _____

2) Remote _____

d. What disk capacity do you have? Write in. _____ KB

_____ MB

_____ GB

e. How many tape drives do you have? Write in. _____

f. How many printers do you have? Write in. _____

g. What is your best estimate of the total system price or value. (In local currency.)

Write in. _____

h. Who services the equipment? (Read out.)

Manufacturer 1

Dealer 1

TPM or Third party maintenance contractor	1
Your own company	1
Other (Please Specify)	1

i. What type of hardware maintenance arrangements do you have? (Read Out.)

Maintenance Agreement	1
Warranty	1
T&M Time and Materials	1
Other (Please Specify)	1

(If warranty mentioned at Q1i, ask Q1j.)

j. For what period is the warranty? Write in. _____

k. What is the principal use of this particular computer installation? (Read out.) Code only one.

Administrative System	1
Used for development only	2
Real Time Transactions-Internal	3
Real Time Transactions-External to the Company	4
Industrial Automation	5
Other (Please Specify)	6

Third Party Maintenance (TPM)
(Independent Maintenance)

If respondent uses TPM at Q1h, ask Q2a
If respondent is not using TPM, ask Q2b

The following questions apply to your _____ system.

Q2 a. Why do you **use** a TPM company? (Please circle one or more.)
Tick and rotate start.

Convenience	1
Cost	1
One source of maintenance for multi-vendor equipment	1
Efficiency	1
Other (Please Specify)	1

If not using TPM at Q1h ask:

b. Why do you **not** use a TPM company? (Please circle one or more.)
Rotate order.

You are satisfied with the manufacturer	1
Manufacturer has service advantage over TPM (Please Comment)	1
TPM unable to support software	1
You are tied to the manufacturer by contract (Please Comment)	1
Financial weakness of TPM company	1

Unaware/not been approached by TPMs	1
Considered and rejected TPM (Please Comment)	1
Fear of vendor response (Please Comment)	1
Other (Please Comment)	1

c. Would you prefer to have all your maintenance managed by one contractor at each site?

Yes	1
No	2

If cost mentioned at Q2a, ask Q2d.

d. What has been the average saving in percentage terms? Write in. _____ %

If yes to Q2c, then ask:

e. Would you prefer that contractor to be: (Read out.)

	YES	NO
Your main supplier	1	2
One of your hardware suppliers	1	2
A TPM organisation1	1	2
Other (Please Specify)	1	2

Hardware Service

I would like to ask you some questions concerning hardware service, such as systems availability, response and repair times, etc. These questions will be related to your satisfaction with, and your expectations of, the maintenance services for this system.

Mainframe and Mini

Q3 a. I would like to ask you for your overall assessment of the importance of hardware maintenance and your level of satisfaction with it. Firstly, how important is hardware maintenance to your operation? Please rate on a scale of 0 to 10, where 10 is extremely important. (If rating is 10, record as X.)

Importance Rating _____

b. And how would you rate your level of satisfaction with the hardware maintenance again on a scale of 0 to 10, where 0 is appalling and 10 is outstanding. (If rating is 10, record as X.)

Satisfaction Rating _____

c. If we define Systems Availability as the percentage of your normal working hours that the system is operational, how would you rate your satisfaction with that availability on a scale of 0 to 10, where 0 is appalling and 10 is outstanding and would you rate the importance that you attach to this factor on a scale of 0 = Not important at all to 10 = Extremely important. (If rating is 10, record as X.)

Satisfaction Rating _____

d. Importance Rating _____

e. How many times per year does your total system fail completely?
Write in. _____

f. On average, what percentage of the systems interruptions that you experience are hardware related and what percentage are software related?

Hardware _____

Software _____

Other _____

Total 100%

Comments:

Q4 a. If we define hardware response time as the time it takes between reporting a fault and the arrival of the service engineer, on average what response time do you feel is acceptable and what response time do you experience? Could you please giveyour answers in working hours where 8 hours equals one working day. We are still talking about your main system during normal working hours.

Acceptable _____ Hrs Experience _____ Hrs

b. How important is Response Time to you? (Please rate on a scale of 0 = Not important at all to 10 = Extremely important.) If rating is 10, record as X.

Importance Rating _____

c. On average, what repair time do you find acceptable and what repair time do you experience?

Acceptable _____ Hrs Experience _____ Hrs

d. How important is Repair Time to you? (Please rate on a scale of 0 = Not important at all to 10 = Extremely important.) If rating is 10, record as X.

Importance Rating _____

Q5 I would just like you to rate some further factors concerning hardware maintenance from your system supplier.

In each case I would like you to tell me first how **important** the factor is to your operation, again on a scale of 0 = Not important at all to 10 = Extremely important, and then your overall level of **satisfaction** on a scale of 0 = Appalling to 10 = Outstanding. (If rating is 10, record as X.)

Rotate Order:

	Importance	**Satisfaction**
Quality of Service Administration (e.g., invoicing)		
Operator Training on Hardware		
Availability of Spares		
Problems Escalation		
Technician Skill Level		
Remote Diagnostics Report		
Telephone Support		
Quality of Documentation		
Other Hardware Support Services (e.g., Planning, Consultancy)		

	Importance	Satisfaction
Service outside standard hours		
Service call handling		
Back-up support for Engineer		

Hardware Service Pricing

Q6 a. In general, what percentage increase/decrease did you pay on your hardware maintenance charges in 1986 for your main supplier?

Increase _____ % Decrease _____ %

No Change 1

b. In general, what percentage increase/decrease do you expect to pay on your hardware maintenance charges in 1987 and 1988?

	Increase	Decrease	No Change
1987	_____ %	_____ %	1
1988	_____ %	_____ %	1

c. What is your approximate annual hardware maintenance expenditure for your main system?

Local Currency _____ State Year 198 ____

d. How satisfied are you with your hardware maintenance pricing? (Please rate on a scale of 0 = Not satisfied at all to 10 = Extremely satisfied.) If rating is 10, record as X.

Satisfaction Rating _____

e. How important is hardware maintenance pricing to you? (Please rate on a scale of 0 = Not important at all to 10 = Extremely important.) If rating is 10, record as X.

Importance Rating _____

f. Do you have any comments about hardware maintenance pricing?

Software Support

I would now like to ask you some questions about the support of your systems software for your _____ (Confirm manufacturer and model number.)

Q7 Who supports the systems software on this system? (Read out.)

Manufacturer	1
Software product vendor	1
Systems house	1
In-house	1
Other (Please State)	1

I would like you to answer the following questions in respect of the systems software support you get from the manufacturer of your equipment.

(Note to interviewer: If this is impossible for some reason get respondent to answer in respect of their most significant source of systems software support—Please identify who that is.)

Main systems software supporter. (If not manufacturer.) _____

Q8 a. Firstly, I would like to ask you for your overall assessment of the importance to your organisation of system software support and your level of satisfaction with it.

Firstly, how important is systems software support to your operation, please rate on a scale of o to 10, where 0 is not important at all and 10 is extremely important. And how would you rate your level of satisfaction with systems software support again on a scale of 0 to 10, where 0 is appalling and 10 is outstanding. (If rating is 10, record as X.)

Importance Rating _____ Satisfaction Rating _____

b. What percentage of your system software problems in general are solved over the telephone?

_____ %

c. For those system software problems that cannot be solved by telephone, on average what response time do you find acceptable (i.e., the time taken by software specialist to arrive on site), and what response time do you actually experience?

Definition: A working day is 8 hours

Acceptable _____ Hrs Experience _____ Hrs

d. How important is Response Time to you? (Please rate on a scale of 0 = Not important at all to 10 = Extremely important.) If rating is 10, record as X.

Importance Rating _____

e. If we define "fix time" as the time it takes to identify a "work around" solution to a software problem, on average what "fix time" do you find acceptable and experience?

Definition: A working day is 8 hours

Acceptable _____ Hrs Experience _____ Hrs

f. How important is "fix time" to you? (Please rate on a scale of 0 = Not important at all to 10 = Extremely important.) If rating is 10, record as X.

Importance Rating _____

Q9 I would just like you to rate some further factors concerning hardware maintenance from your system supplier.

In each case I would like you to tell me first how important the factor is to your operation, again on a scale of 0 = Not important at all to 10 = Extremely important, and then your overall level of satisfaction on a scale of 0 = Appalling to 10 = Outstanding. (If rating is 10, record as X.)

Rotate Order:

	Importance Rating	**Satisfaction Rating**
Provision of Updates		
Software Installation		
Technical Skill of Technician		
Telephone Support - Accessibility of Service		
Telephone Support - Speed of Problem Resolution		
Quality of Documentation		
Other System Software Support Services (e.g., Planning/ Consultancy)		
Software Training		

	Importance	Satisfaction
On-Site Support		
Hotline (Expert-to-Expert) Service		
System Capacity Tuning		
Remote Diagnostics		
Access to Software Problems Database		

(Please answer for all systems software)

Q10 a. In general, what percentage increase/decrease did you pay on your systems software support expenditure in 1986?

Increase _____% Decrease _____ % No Change 1

b. In general, what percentage increase/decrease do you expect to pay on your systems software support expenditure in 1987 and 1988?

	Increase	Decrease	No Change
1987	_____ %	_____ %	1
1988	_____ %	_____ %	1

c. What is your approximate annual systems software support expenditure?

Local Currency _____ (State Year) 198 _____

d. How satisfied are you with your systems software support pricing? (Please rate on a scale of o = Not satisfied at all to 10 = Extremely satisfied.) If rating is 10, record as X.

Satisfaction Rating _____

e. How important is system software support pricing to you? (Please rate on a scale of 0 = Not important at all to 10 = Extremely important.) If rating is 10, record as X.

Importance Rating _____

f. Do you have any comments about system software support pricing?

Other Services

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

(Not to Interviewer: The assumption here is that these services would be provided at extra cost.)

Q11 a. Firstly, are there any additional services that you would like and what is your level of interest in them on a scale of o to 10 where 0 is low interest and 10 is very high interest? (If rating is 10, record as X.)

	Levels of Interest 0-10
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____

(If no response, move to Q11b.)

b. Which of the following services do you have?

c. What is your level of interest in these services on a scale of 0 - 10 where 0 is low interest and 10 is very high interest? (If rating is 10, record as X.) Read out and record a rating for **all** services listed whether already have or not.

Rotate Order:

	Q11b Have Service	**Q11c Level of Interest**
Configuration Planning	1	
Capacity Planning	1	
Environmental Planning (inc. Cabling)	1	
Software Evaluation	1	
Training (Specify)	1	

	Q11b Have Service	Q11c Level of Interest
Consultancy	1	
Network Planning	1	
Network Management	1	
Disaster Recovery	1	
Media Services (i.e. Supplies)	1	
Facilities Management	1	
Problems Management	1	

If training mentioned at Q11b, ask Q11d.

d. What type of training would you be interested in?
Comments:

Q12 Would you in general prefer each of these services to be individually priced or would you prefer to have a totally bundled service offering? (Record below)

Individually priced	1
Bundled	2
Don't know	3

Q13 Finally, how well do you think that your current support vendors will be able to service your requirements in five years time?

Comments:

Personal Computers

Q14 a. Do you have any PCs - Desktop/business personal minicomputers?

Yes 1

No 2

b. What are the **two** main types of PCs that you have installed?

	I	II
Manufacturer		
Model Number		
Number Installed		

c. Who services this equipment? (Please circle)

Manufacturer	1
Dealer	1
TPM or Third party Maintenance contractor	1
Other (Please Specify)	1
Your own company	5

If service by manufacturer, TPM, or dealer only ask:

d. What type of maintenance do you have? (Please circle)

Maintenance Agreement	1
Warranty	1
T&M Time and Materials	1
Other (Please Specify)	1

If warranty mentioned at Q14d, ask Q14e.

e. For what period? Write in. _____