USER SATISFACTION WITH VENDOR CUSTOMER SERVICES

TRENDS AND ISSUES IN WESTERN EUROPE 1986

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User Satisfaction—Trends and Issues, 1990

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Abstract

This report presents a review of trends and issues in user satisfaction with customer service in Western Europe in 1990. The report summarises data previously published by INPUT in three reports titled *User Satisfaction with Vendor Customer Services in Western Europe, 1990*. Each report refers to either the large, medium or small systems sector of the market.

The data presented in this report was collected by INPUT during 1990 in a survey of computer users in the following countries:

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

The report identifies trends in user perception between 1989 and 1990 for defined aspects of customer service. Thus the data allows comparison of changing user needs with actual service performance.

In addition, the report analyses the results of in-depth interviews, conducted with computer users, aimed at identifying key user issues relating to the perceived level of service provided by vendors.

This report contains 166 pages including 136 exhibits.

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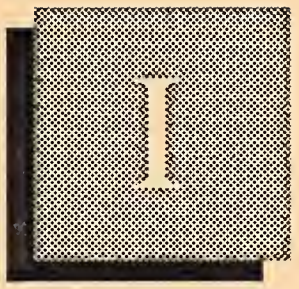
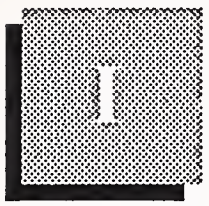


Introduction



Introduction

A

Objectives and Scope

This report provides data relating to trends in user satisfaction with vendor customer services in Western Europe.

The report has three objectives:

- To provide data indicating trends in user satisfaction with customer services that have occurred between 1989 and 1990. The report also presents data relating user perception of vendor response and repair/fix time performance and system failure rates between 1988 and 1990.
- To provide analysis and identification of key user issues with vendor customer services
- To provide data relating to the comparative performance of twelve vendors' customer services organisations.

In order to take full advantage of some aspects of the data, the analysis has been concentrated primarily on companies and secondarily on countries.

B

Methodology

The data presented in this report was compiled from interviews with computer users throughout Western Europe. Users were chosen at random and interviewed by telephone in their native languages. The basis of the interview was a questionnaire relating to some 150 aspects of service and support, compiled in discussion with major service vendors. A copy of the 1990 user questionnaire is included as Appendix A.

Details of user samples that relate to the data presented in this report are as follows:

- Interviews with 1,211 computer users during 1990
- Interviews with 1,626 computer users in 1989
- Interviews with 1,593 computer users in 1988

A breakdown of the 1990 user interview sample is provided in Exhibits I-1 and I-2.

Data presenting the key user issues with vendor customer services in 1990 was compiled from 30 additional in-depth user interviews, which were conducted either face-to-face or by telephone. A copy of the questionnaire used for in-depth interviews is included as Appendix B.

EXHIBIT I-1

User Sample by Vendor

Vendor	System Range			
	Large	Medium	Small	Total
Amdahl	105	-	-	105
Bull	7	38	37	82
Digital	31	31	29	91
Hewlett-Packard	-	71	10	81
IBM	66	148	43	257
ICL	45	107	46	198
NCR	7	29	-	36
Philips	-	63	16	79
Siemens	5	17	3	25
Stratus	-	40	-	40
Unisys	18	42	17	77
Wang	21	28	33	82
Other Vendors	19	24	15	58
Total	324	638	249	1,211

EXHIBIT I-2

User Sample by Country

Vendor	System Range			
	Large	Medium	Small	Total
Belgium	15	23	8	46
France	34	94	55	183
Germany	39	93	22	154
Italy	44	50	24	118
Netherlands	16	54	17	87
Norway	7	10	7	24
Spain	22	52	16	90
Sweden	13	51	18	82
United Kingdom	102	164	70	336
Other European Countries	32	47	12	91
Total	324	638	249	1,211

C

Report Structure

- Chapter II explains the interpretation of the data presented in the report.
- Chapter III is an Executive Overview of the key trends in Western Europe and presents the data in condensed form.
- Chapter IV contains analysis of the in-depth user interviews and identifies the key issues that emerged from them.
- Chapter V presents analysis of vendor hardware service and systems software support performance trends in Western Europe overall.
- Chapter VI contains analysis relating to the hardware service and systems software support performance trends of 12 individual vendors segmented by system size.

- Chapter VII presents data that compares the user satisfaction achievements of 12 individual vendors and the level of user satisfaction achieved in four key country markets in 1990.
- Appendix A contains the 1990 user questionnaire used for general telephone interviews.
- Appendix B contains the user questionnaire used for in-depth user interviews.

D

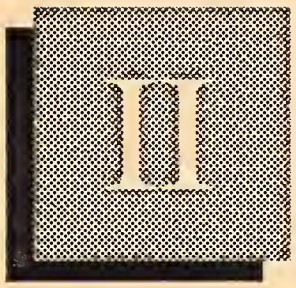
Related INPUT Reports

Data from the following reports was also used:

- *Customer Services in Western Europe, 1989* (Annual Report)
- *Customer Services in Western Europe, 1988* (Annual Report)

The base data used for presentation of 1990 vendor service performance achievements was from:

- *User Satisfaction with Vendor Customer Services, Final Results 1990.* This report was published in three volumes: Large Systems, Medium Systems and Small Systems.



Interpretation of the Data

II

Interpretation of the Data

A

Definitions

- Hardware: any computer system or peripheral system.
- Software: operating systems software, NOT applications.
- Large system: a system that the vendor considers part of that vendor's large system product range—for example, IBM 309X and 308X, Bull DPS 8, or Digital VAX 8XXX.
- Medium system: a system that is considered by the vendor as part of that vendor's medium systems product range—for example, IBM 43XX, S/38, Bull DPS7, or Digital VAX 6XXX.
- Small system: a system that is considered by the vendor as part of that vendor's small system product range—for example, IBM S/36 and S/34, Bull DPS 6, or Digital MicroVAX.

B

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 = total and absolute dissatisfaction
  - 5 = average satisfaction
  - 10 = total satisfaction

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

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

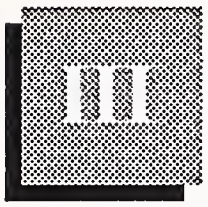
- Figures of importance 8 and satisfaction 9 would indicate overfulfillment of the importance needs and would give a satisfaction index of -1. In INPUT's analysis, an overfulfillment of -1 is represented as (1).

- Figures of importance 6 and satisfaction 5 indicate underfulfillment of the importance needs, the degree of underfulfillment being related to the magnitude of this difference.

- Satisfaction index can thus be interpreted as follows:

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

Executive Overview of Western Europe



Executive Overview of Western Europe

A

Vendor Efforts Are Rewarded by Improvements in User Satisfaction with Service

User satisfaction with the performance of vendor customer services organisations has improved compared to the previous year, which suggests that efforts made by vendors in this area are now beginning to be appreciated by users.

Since 1987, user satisfaction with customer services has been on a progressive and relatively significant decline. However, the results of INPUT's latest survey of over 1,200 computer users throughout Western Europe highlights two important changes:

- Overall user satisfaction with hardware service and systems software support shows marginal improvements over results obtained in 1989.
- More importantly, the trend of declining user satisfaction has been arrested and promises to reverse if current trends continue.

Although results indicate that much progress has been made, specific areas of service continue to be of concern to users:

- Even though the progressive decline of user satisfaction with systems software support has been checked, user satisfaction nevertheless remains at a level that indicates a degree of concerns and worries.
- Systems software support response and fix time performance continues to indicate a more than 20% shortfall against user expectations.
- Service and support documentation remains a key user issue and is the cause of a relatively high degree of user dissatisfaction.
- User satisfaction with vendor customer service remains a subject of concern and worry in some individual country markets.

- Four country markets indicate a degree of user concerns and worries related to hardware service, and six country markets relative to systems software support.

Continued efforts and pressure by customer services vendors are a primary requirement to ensure that current trends are maintained. Vendors are therefore urged to apply all efforts to achieving further improvement in user satisfaction as a primary organisational goal.

Exhibit III-1 identifies the major trends that emerge from INPUT's 1990 survey of computer users in Western Europe.

EXHIBIT III-1

Key Trends in User Satisfaction 1990

- User satisfaction improves
  - Hardware service
  - Systems software support
- System failure rates improve
- Specific elements remain critical

In overall terms, all trend indicators measured indicate that a positive improvement in user perception of vendor service has been achieved in 1990. Trend indicators that measure this improvement in user perception are:

- Satisfaction with hardware service
- Satisfaction with systems software support
- Satisfaction with systems availability
- System failure rates
- Hardware service response and repair times
- Systems software support response and fix times

Not all items listed show positive improvement, but overall level of user satisfaction with service performance has improved as a consequence of improvement in some aspects and consistency in others.

As a result of 1990 vendor performance achievements, a previous decline in user satisfaction with vendor service has been arrested and is showing signs of reversal.

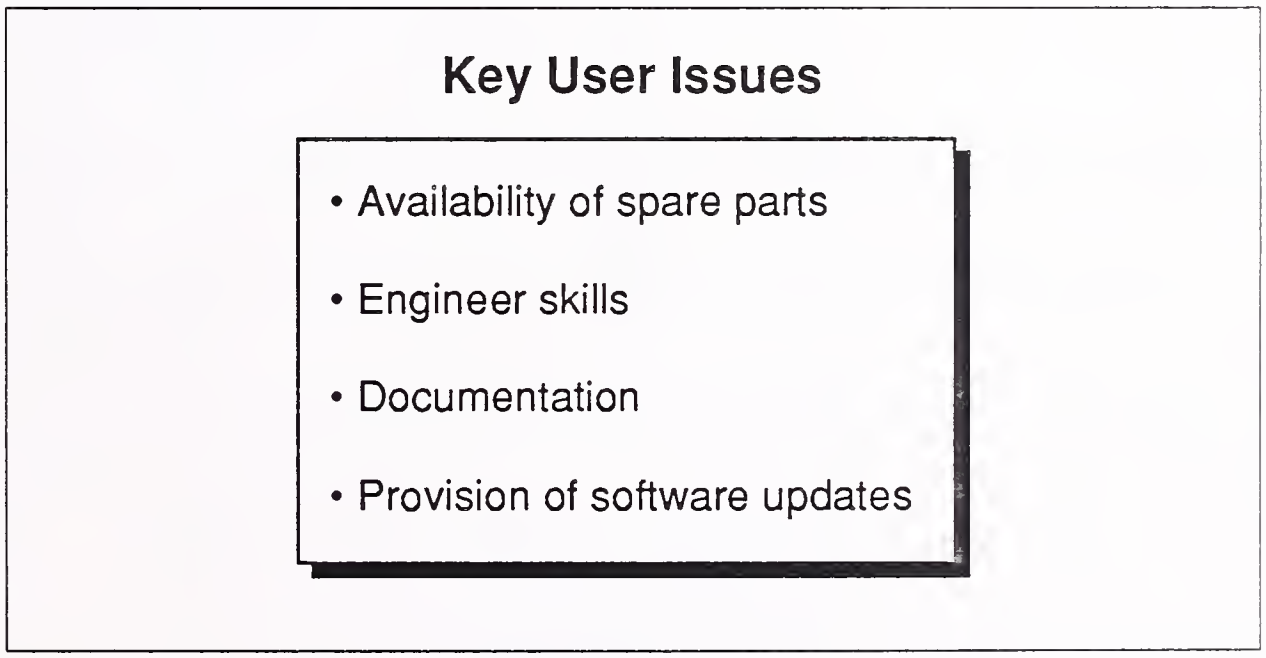
B

Major Issues and Trends

Although a significant improvement in user satisfaction with vendor service has been achieved, some major issues remain. These issues, most of which are long-standing, are listed in Exhibit III-2.

The issues listed in Exhibit III-2 are not universal to all system size market sectors. For example, apart from systems software support engineer skills, large system users seem relatively satisfied with the level of vendor service provided. However, there are some signs that user satisfaction in the medium and small systems sectors is becoming more critical. Although at present these trends are relatively insignificant, it is nonetheless important to be aware that they exist. For example, in the medium systems sector, user satisfaction with system software support is rated at the concern level (satisfaction index >1.0) in four aspects of service:

EXHIBIT III-2



- Engineer skills
- Documentation
- Provision of updates
- Remote diagnostics

In the small systems sector, user satisfaction is rated at the concern level in three aspects of systems software support:

- Engineer skills
- Documentation
- Provision of updates

The major ongoing user issue is satisfaction with support documentation, which is now mainly concentrated on system software support documentation in the medium and small systems sectors.

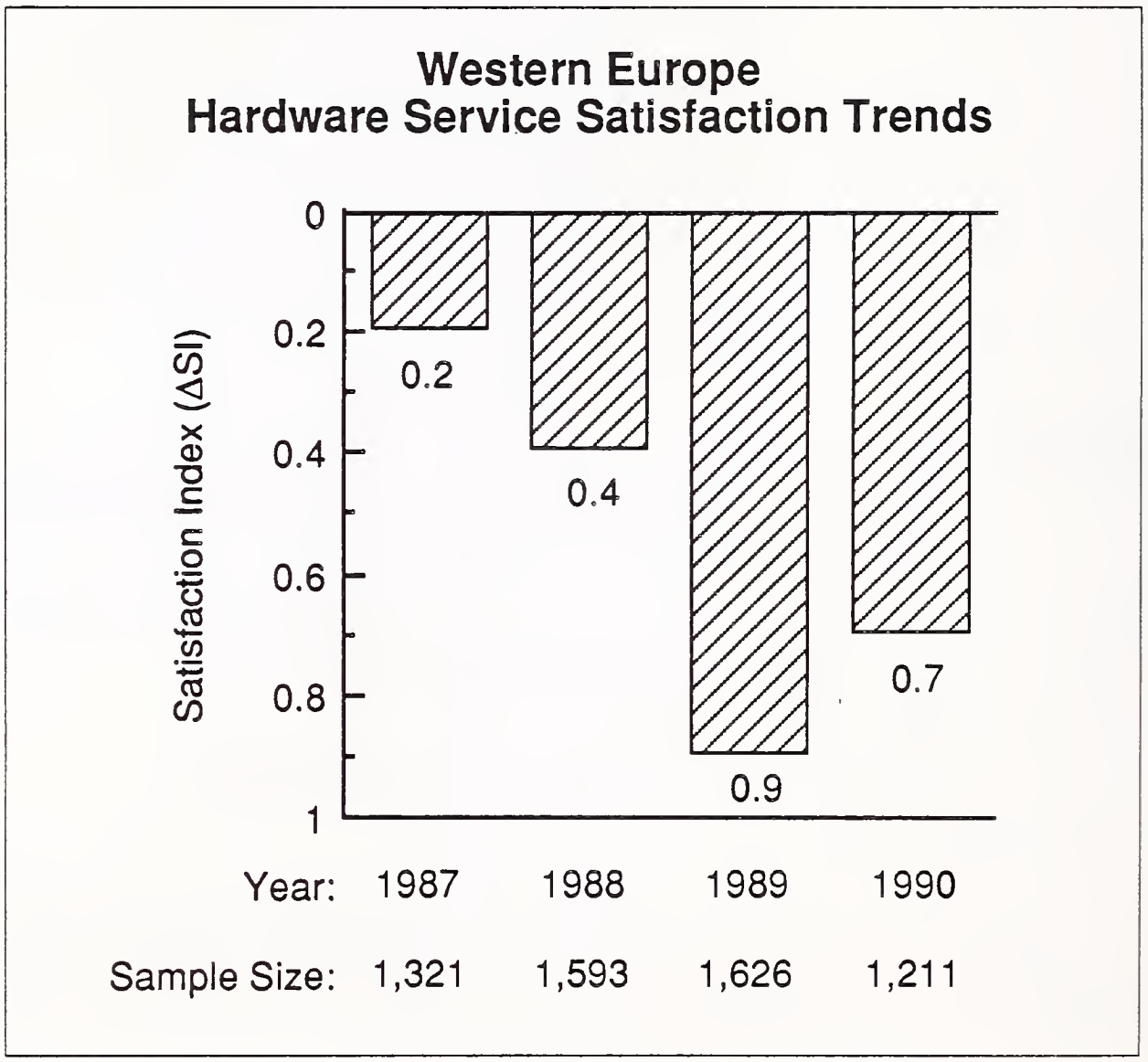
C

Service Trends

1. Hardware Service Satisfaction

Exhibit III-3 illustrates overall trends in user satisfaction with hardware service over the four-year period from 1987 to 1990.

EXHIBIT III-3



Two important characteristics, highlighted by Exhibit III-3, are:

- The progressive and relatively significant decline in user satisfaction with hardware service between 1987 and 1989, at which time the level of satisfaction almost reached the concern level where (satisfaction index = 1.0).
- A reversal of the trend in user satisfaction between 1989 and 1990.

However, the trend data illustrated is an overall average and within this average, pockets of user concern remain. For example, users of medium-sized computer systems in Germany rate all five aspects of hardware service at the concern level.

Computer user satisfaction with hardware service in Germany is relatively poor and vendors are recommended to investigate this phenomenon more closely.

When assessing this data, readers are advised that in 1990, five aspects of hardware service were surveyed, compared with twelve aspects in 1989 and previous years. The comparisons are still valid; the five aspects of hardware service focused on in 1990 were chosen as the most critical areas:

- Spares availability
- Engineer skills
- Problem escalation
- Documentation
- Remote diagnostics

2. Systems Software Support Satisfaction

Exhibit III-4 illustrates the overall trends in user satisfaction with systems software support over the four-year period 1987 to 1990.

Data contained in Exhibit III-4 indicates a similar trend to that in hardware service:

- A relatively significant decline in user satisfaction between 1987 and 1989

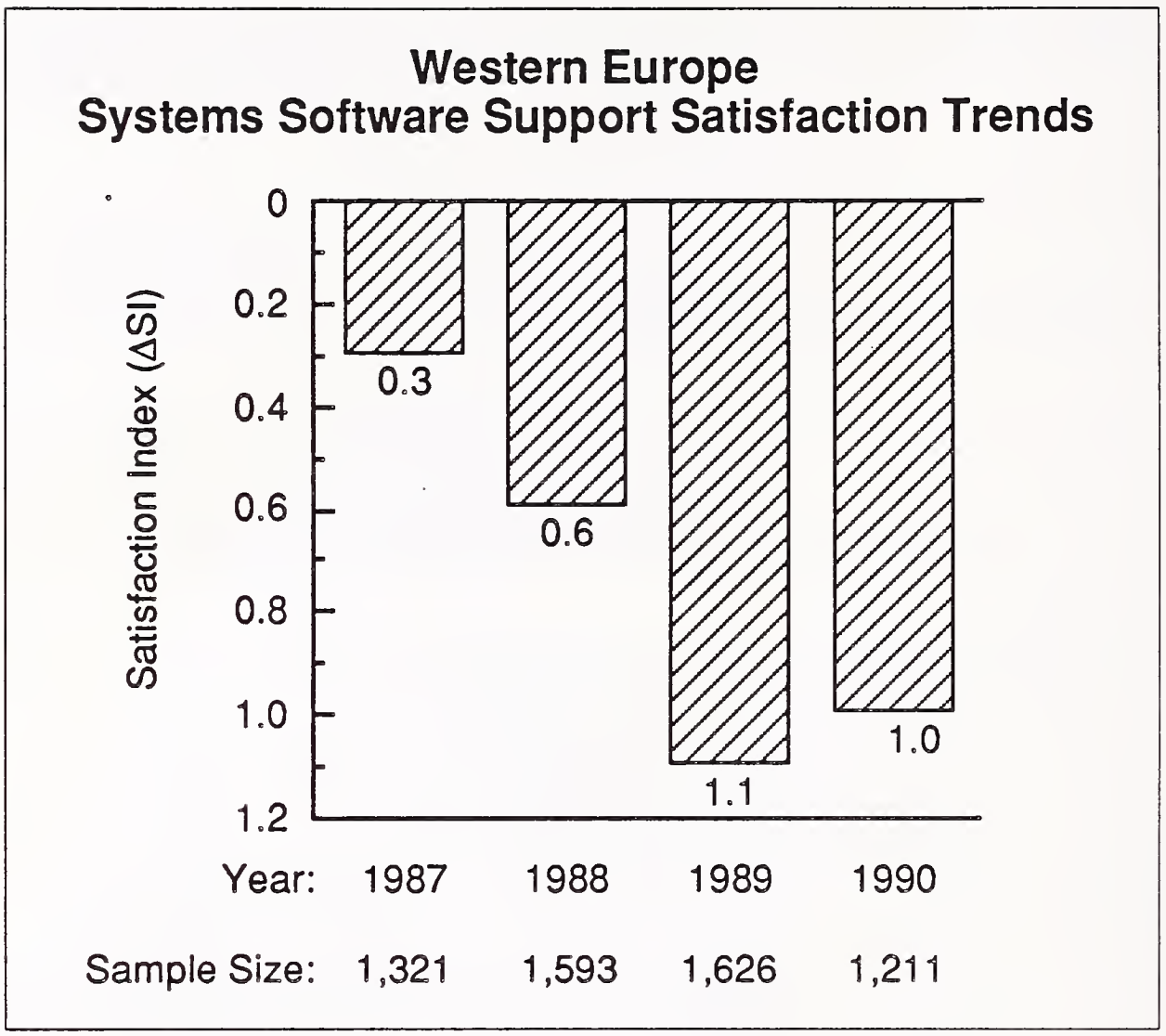
- A reversal of this decline between 1989 and 1990

There is one important difference, however. User satisfaction with systems software support is still rated overall at the concern level (satisfaction index = 1.0).

As with hardware service, user satisfaction with systems software support in Germany is relatively poor.

Due to the overall concern ratings given by users to systems software support, vendors are recommended to make urgent efforts to maintain the positive trend found in the 1990 survey.

EXHIBIT III-4



When assessing this data, readers are advised that in 1990, five aspects of systems software support were surveyed, compared with thirteen aspects in 1989 and previous years. The comparisons are still valid. The five aspects of system software support focused on were chosen as the more critical areas:

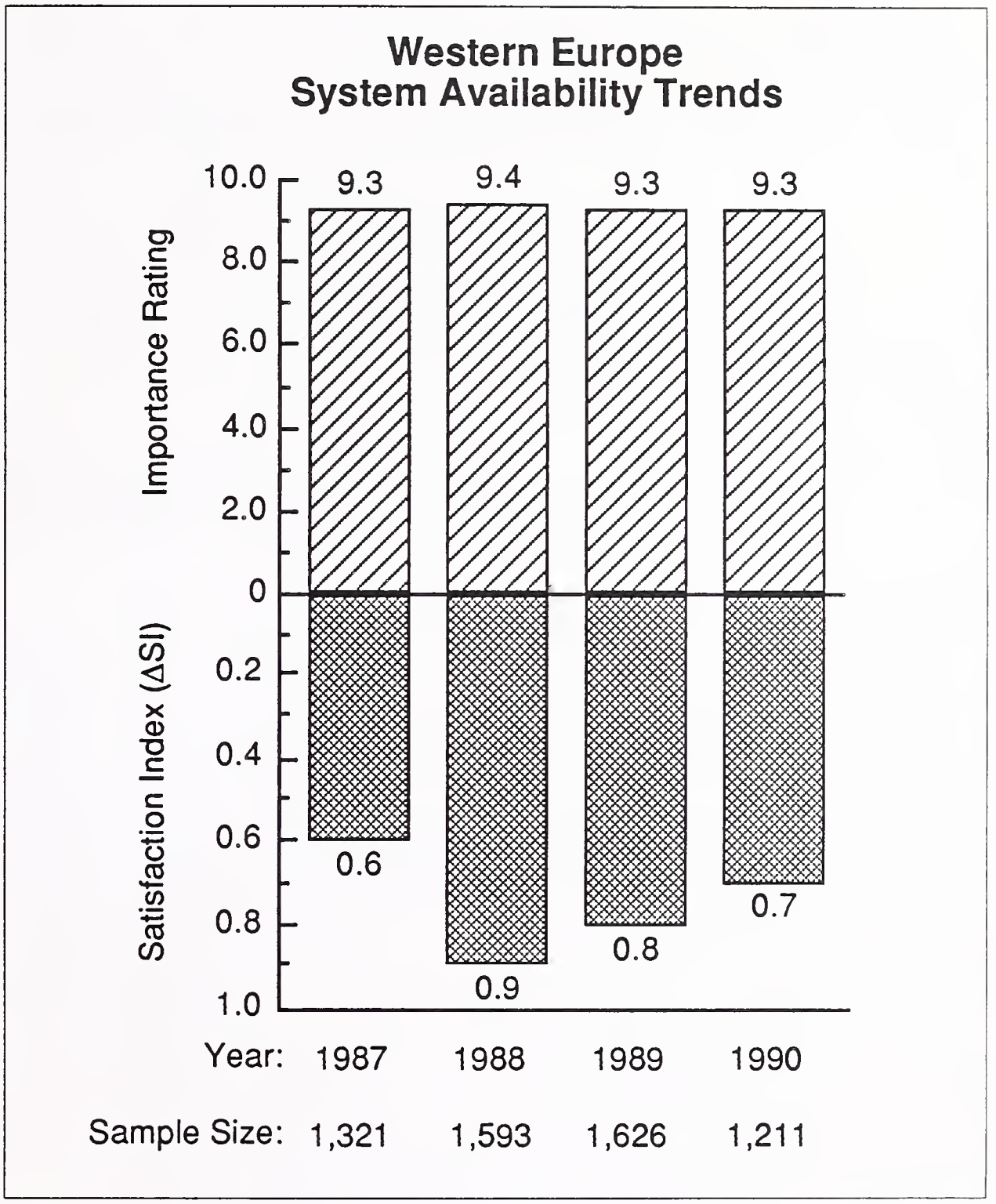
- Engineer skills
- Documentation
- Software installation
- Provision of updates
- Remote diagnostics

3. Systems Availability

Exhibit III-5 illustrates the trends in user importance ratings for systems availability and the level of user satisfaction achieved over the four-year period from 1987 to 1990.

The data contained in Exhibit III-5 illustrates the following characteristics:

EXHIBIT III-5



- Users place a consistently high level of importance on systems availability. Systems availability is, overall, the most important aspect of computer operations and therefore attracts the highest importance ratings.

- User satisfaction with systems availability was also relatively constant between 1987 and 1990, and except for 1988, the overall level of user satisfaction with system availability has remained slightly below the concern level (Δ SI = 1.0).

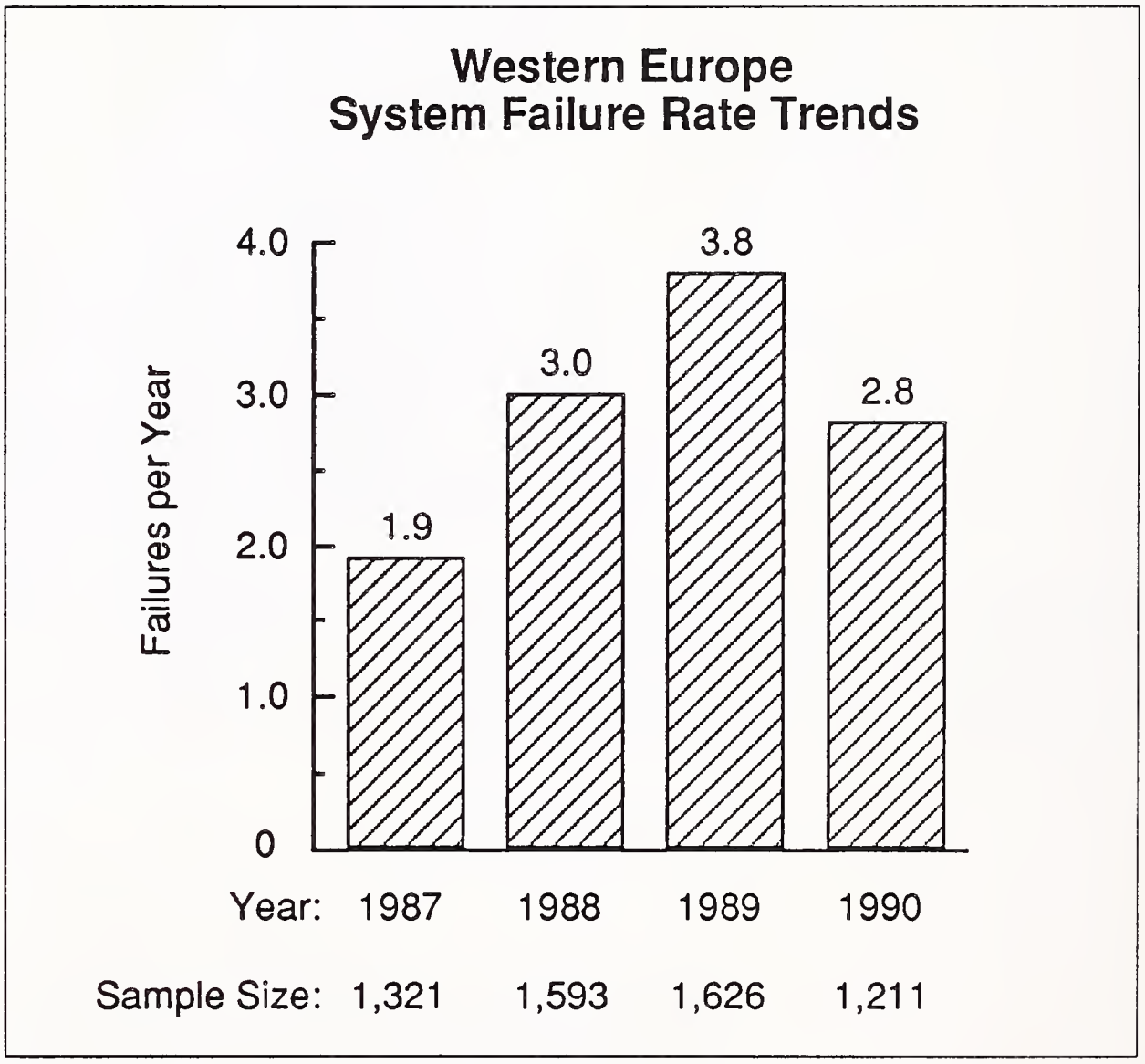
Even in Germany, where user satisfaction with service is generally low, satisfaction with system availability is below the concern level, with one exception. That exception is in the medium-systems sector where satisfaction is rated at the concern level.

4. System Failure Rates

Exhibit III-6 illustrates user-perceived trends in system failure rates over the four-year period between 1987 and 1990.

The trend data contained in Exhibit III-6 indicates that following a three-year period between 1987 and 1989 during which the user-perceived numbers of system failures increased, this trend has now been reversed. The degree of this trend reversal is significant in that the user-perceived level of system failures reduced by over 25% between 1989 and 1990.

EXHIBIT III-6

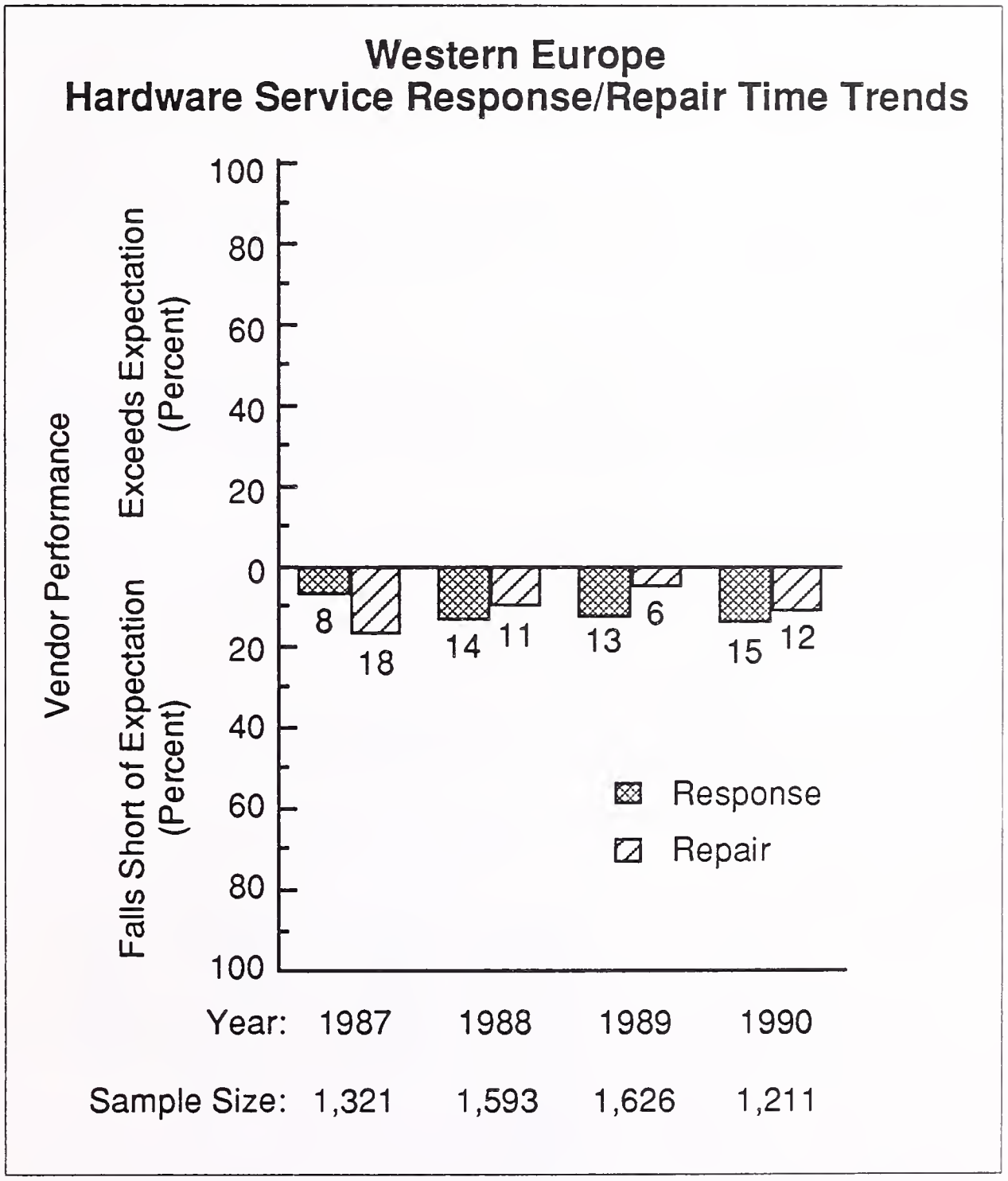


5. Hardware Service Response and Repair Times

Exhibit III-7 illustrates trends in user perception of vendor hardware response and repair time performance over the four-year period from 1987 to 1990.

Over the four-year period illustrated, vendor response and repair time performance has remained relatively constant. However, one key factor illustrated by the trend data in Exhibit III-7 is that vendor performance, overall, consistently falls below user expectation levels. While a small shortfall is not an unacceptable situation, ideally this shortfall should be kept below 10%.

EXHIBIT III-7



Response time and vendor responsiveness are the more important of the two factors (response and repair) illustrated by Exhibit III-7. It is possible that by improving response time performance, repair time decreases in significance, within reasonable limits.

6. Systems Software Response and Fix Times

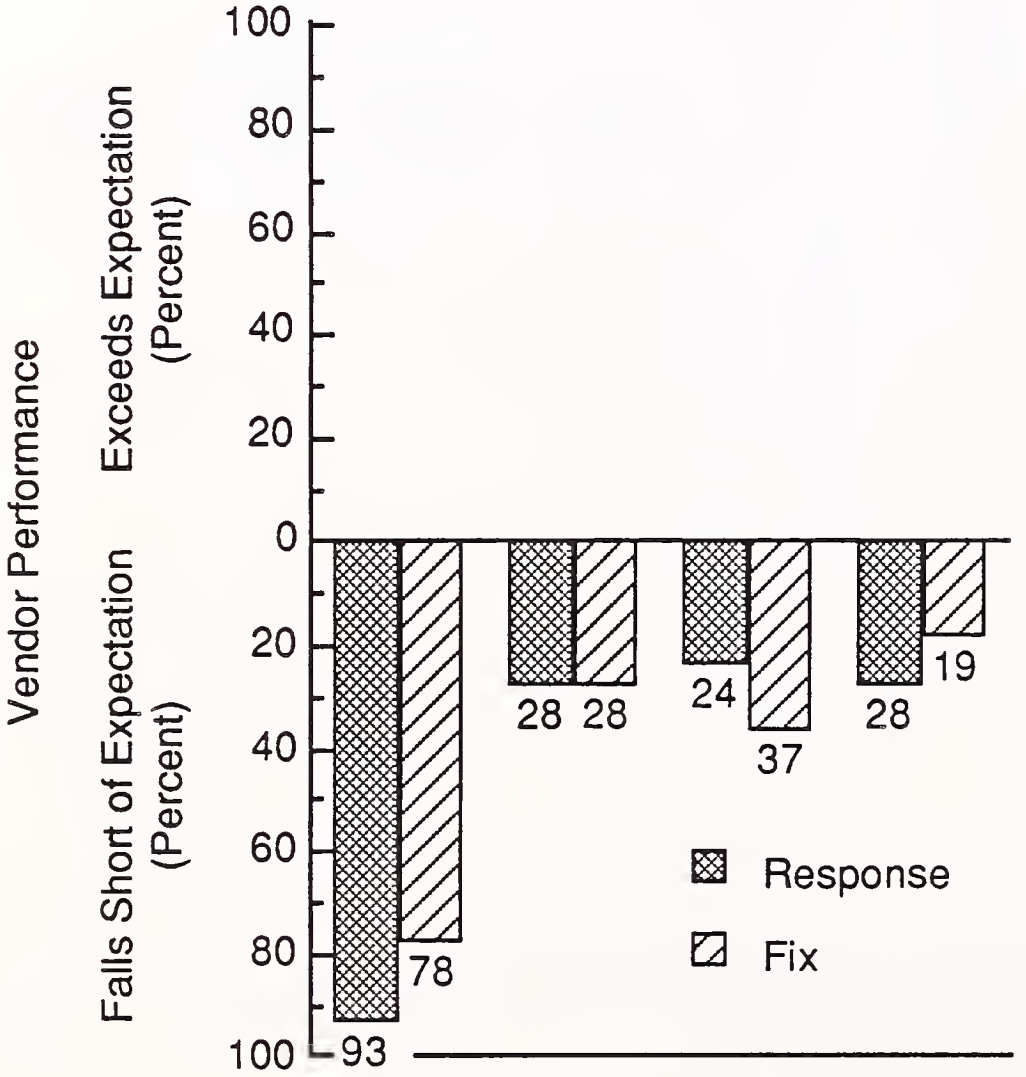
Exhibit III-8 illustrates trends in user perception of vendor systems software response and fix time performance over the four-year period from 1987 to 1990.

In overall terms, a significant improvement in vendor performance is indicated between 1987 and 1990. One major problem, however, is that both response and repair time performance fall short of user expectation levels by a significant margin.

As in the case of hardware service, response time performance is likely to be the most critical factor and the shortfall against user expectation is almost 30%. Vendors are therefore urged to make all efforts to improve perceived response time performance.

EXHIBIT III-8

Western Europe
Systems Software Support Response/Fix Time Trends



D

Vendor Quality Image Ratings

During the course of user interviews, INPUT requested that users provide answers to the following questions:

- How important is hardware maintenance, or systems software support, to your business and how satisfied are you with it? Answers to this question tend to be reflexive or reactive.

- Users are requested to provide importance and satisfaction ratings for five aspects of hardware service and five aspects of systems software support. Answers to these questions tend to be more considered or weighted responses.

A June 1989 INPUT report, *Quality Issues, Western European Customer Services*, contained analysis of the connection between reflex response and measurable service performance. This analysis concluded that the reflex response was a measure of vendors' service quality image.

Exhibits III-9 to III-14 provide a comparison between the considered (or weighted) responses and vendors' service quality image (reflex responses). In these exhibits, vendors are listed in order of overall user satisfaction with service.

- Overall user satisfaction ratings are expressed as the mean value of the satisfaction ratings for either the five individual aspects of hardware service or the five individual aspects of systems software support.

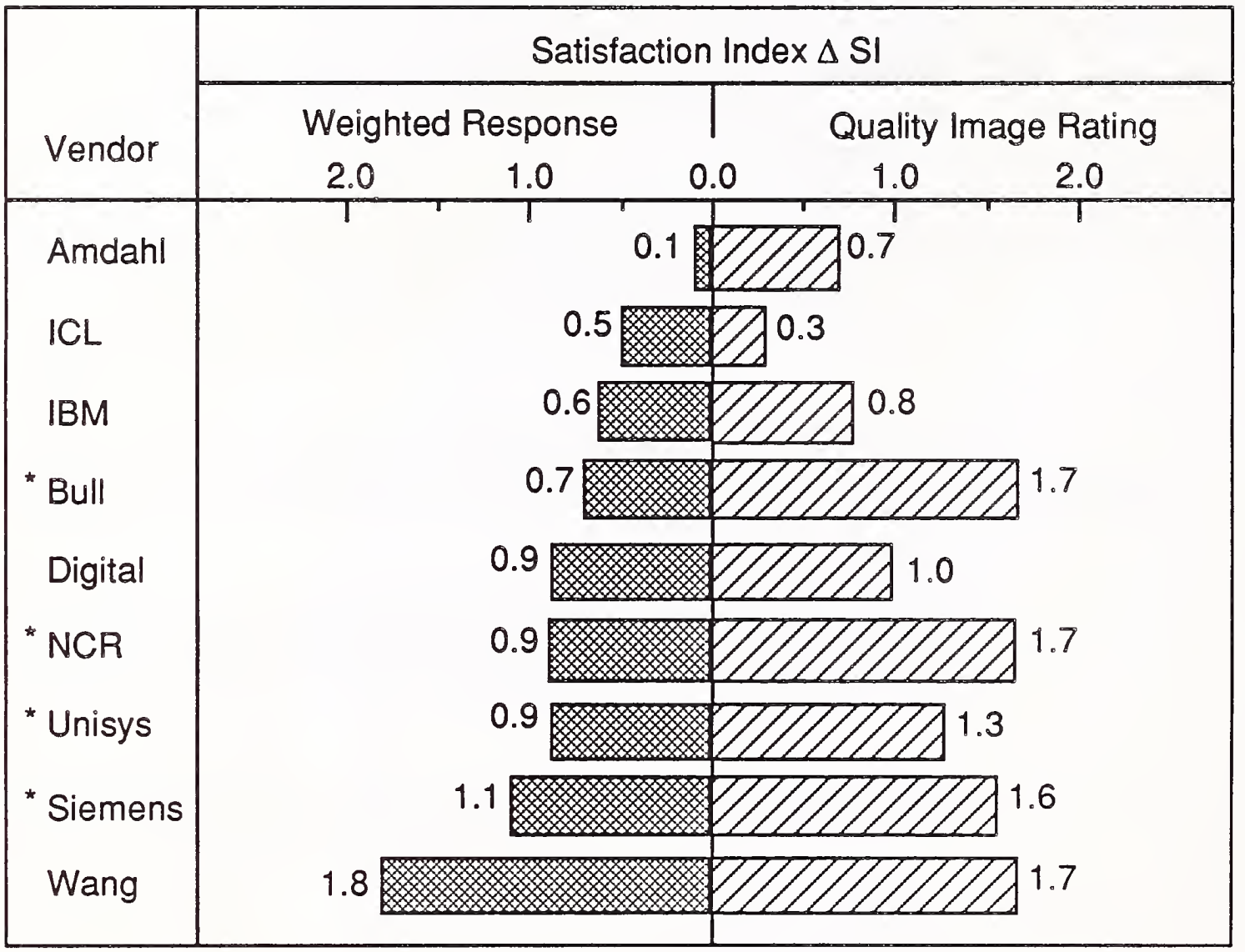
- Vendor quality image rating is related to these individual aspects of service but also includes additional service performance factors such as:

  - satisfaction with system availability
  - system failure rates
  - vendor response time
  - vendor repair/fix time

The most significant factor that emerges from the data in Exhibits III-9 to III-14 is satisfaction with systems software support. Although the system size segments were not separated in 1989, only two vendors achieved a better than concern level rating for the weighted response, whereas in 1990, four vendors achieved this overall level of performance. This trend further supports the overall improvement in user satisfaction that has occurred between 1989 and 1990.

EXHIBIT III-9

Western Europe
Vendor Service Quality Image
Large Systems—Hardware Service



Note: * indicates small sample

Total sample size: 324

EXHIBIT III-10

Western Europe
Vendor Service Quality Image
Large Systems—Systems Software Support

Note: * indicates small sample

Total sample size: 324

EXHIBIT III-11

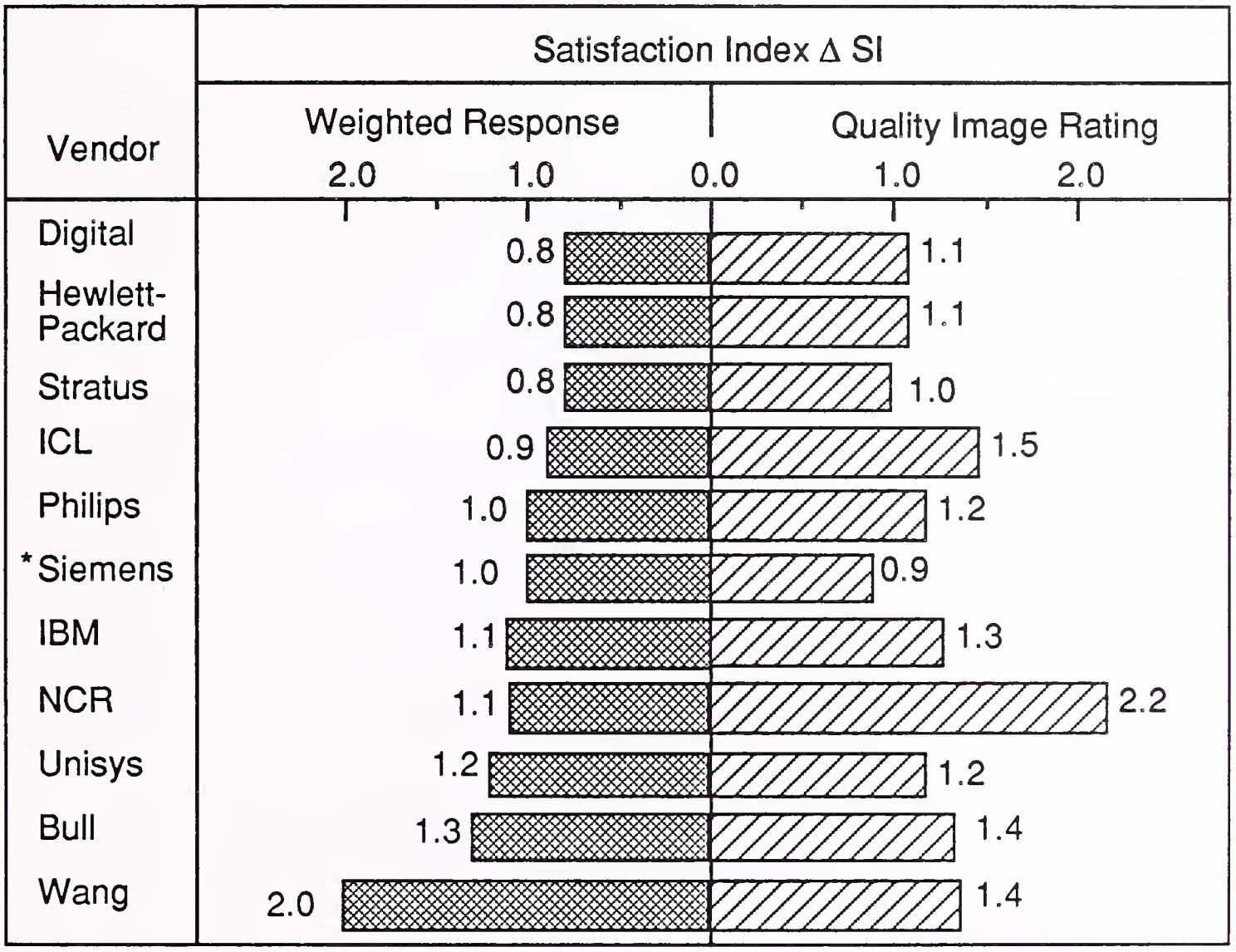
Western Europe
Vendor Service Quality Image
Medium Systems—Hardware Service

Note: * indicates small sample

Total sample size: 638

EXHIBIT III-12

Western Europe
Vendor Service Quality Image
Medium Systems—Systems Software Support



Note: * indicates small sample

Total sample size: 638

EXHIBIT III-13

Western Europe
Vendor Service Quality Image
Small Systems—Hardware Service

Note: * indicates small sample

Total sample size: 249

EXHIBIT III-14

Western Europe
Vendor Service Quality Image
Small Systems—Systems Software Support

Note: * indicates small sample

Total sample size: 249

Key User Issues with Customer Service in Western Europe

IV

Key User Issues with Customer Service in Western Europe

This chapter highlights the findings from a series of detailed follow-on interviews with thirty customer service users designed to provide insight into the overall findings of the survey. Twenty-eight such interviews were conducted, the principal findings of which are detailed in this chapter.

A Hardware Service

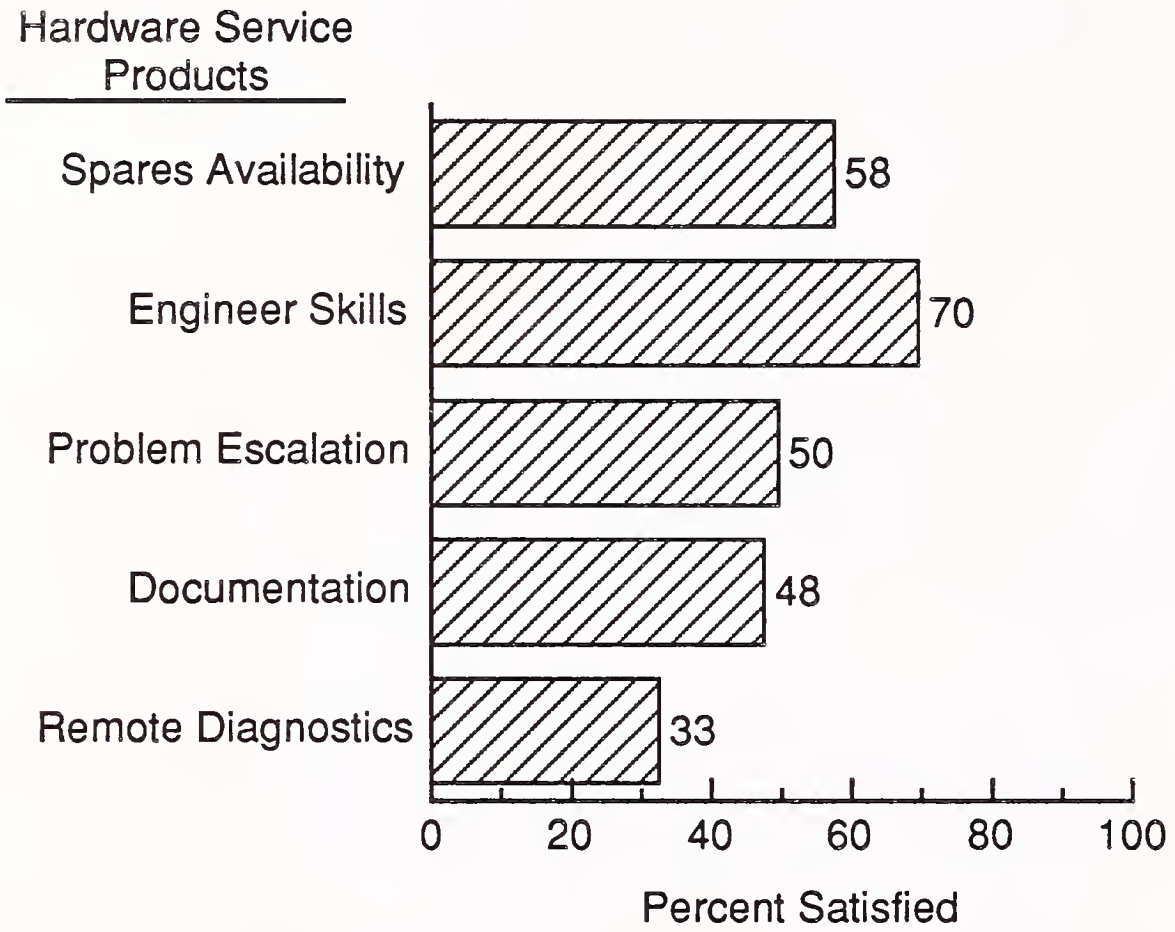
Only 53% of the sample expressed a general level of satisfaction with the hardware service they have received without feeling the need to voice some level of criticism. There are indications, therefore, that there are a number of points of concern that are widely felt among the user community. Exhibit IV-1 provides a breakdown of the overall levels of satisfaction expressed about the principal constituents of the hardware service product.

These ratings can be compared to the percentage of respondents who expressed dissatisfaction with particular elements of hardware service as illustrated in Exhibit IV-2. From this comparison a number of issues emerge:

- Although there is an apparently healthy majority of respondents who are satisfied with the skill levels of engineers, this disguises the fact that there is a significant minority who are not, which at over 25% of the whole gives cause for concern. Examples of the issues with which users are unhappy include the opinion that engineers are over-specialised and do not have sufficient knowledge of the complete systems environment. A second point that attracted comment was that competent engineers tended to be the exception rather than the rule. Exhibit IV-4 includes a list of the comments made by respondents on the subject of engineer skills.

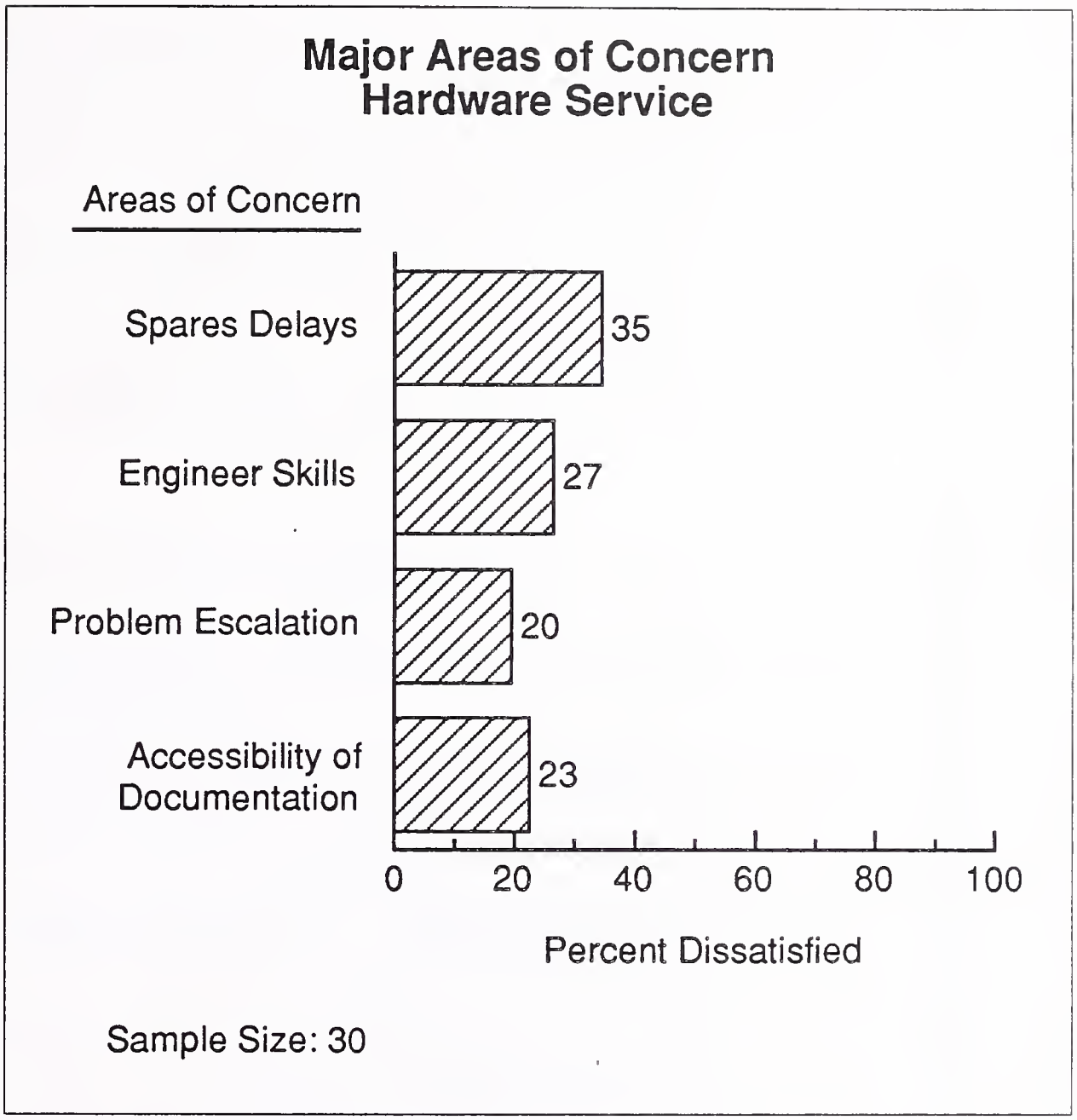
EXHIBIT IV-1

Percent of Respondents Expressing Satisfaction with the Constituent Element of Hardware Service



Sample Size: 30

EXHIBIT IV-2



- Delays in the shipment of spares constitutes the largest single source of dissatisfaction expressed about the spares operation. Examples of the causes of dissatisfaction include delays of up to three months in the shipment of replacement print heads, and one individual claimed regular delays of two to three weeks in the shipment of a wide range of spares. There are also indications that users detected delays in replacing failed components of obsolete equipment. The overall figure of 35% of the sample expressing dissatisfaction, coupled with the types of comments made (see Exhibit IV-4) indicates that this particular aspect of service continues to cause problems.

- As can be seen from the fact that less than half of the sample expressed satisfaction with documentation, this aspect of hardware service is a cause for concern. In addition to the 23% who claim that documentation is excessively bulky and difficult to comprehend, a further 16% make adverse comments with respect to quality.

The specific areas of concern highlighted by respondents indicates that the quality of service provided is not fully meeting expectations. This finding is consistent with the satisfaction index for hardware service, derived from the total sample, which is summarised in Exhibit IV-3.

An overall average rating of 0.7, while remaining within the range classified as satisfied, does indicate the potential existence of pockets of concern, supported by specific ratings of concern within the medium and small systems categories. The areas of concern expressed by respondents to the in-depth user interviews complement the overall findings of the survey and provides a degree of insight into the factors contributing to the areas of satisfaction that exist.

EXHIBIT IV-3

Satisfaction Index for Hardware Service

Service Category	Satisfaction Index Δ SI			
	Large Systems	Medium Systems	Small Systems	Average
Spares Availability	0.8	1.0	0.8	0.9
Engineer Skills	0.6	0.8	0.7	0.7
Problem Escalation	0.6	0.7	0.9	0.7
Documentation	0.2	1.0	1.0	0.7
Remote Diagnostics	0.1	0.8	0.4	0.4
Weighted Rating	0.4	0.8	0.8	0.7

Sample Size: 1,211

EXHIBIT IV-4

Selected Comments from Respondents
Hardware Service

General

- Does very well—difficult to fault
- Provider good in terms of response and fix times
- No complaints. Remote diagnostics—excellent service
- Hardware service a problem. Parts take a long time to turn up and they are often the wrong ones when they arrive
- Aged machine. Availability of parts is a problem. Attitude of provider becoming slacker
- Repair times are too long. Service is expensive and quality of replacement parts a problem

Spares Availability

- Not bad—spares a problem. Provider will often take a peripheral away for up to a week
- Peripheral spares can be difficult—3 month delay on print heads
- We need spares on site but the vendor refuses. We can therefore wait 2-3 weeks for parts

EXHIBIT IV-4 (Cont.)

Selected Comments from Respondents
Hardware Service

- Engineer Skills
  - Engineer knowledge very good but lacks understanding of complete environment
  - Variable—good engineers are overspecialized and there is no single point of contact
  - Allocated engineer excellent; but overall level of skills is unsatisfactory
- Problem Escalation
  - Problem escalation could be improved. The user was not kept informed of status
  - Problem escalation theoretically good but, in practice, it doesn't meet the requirement
  - Problem escalation poor. There is a lack of account management
  - Problem escalation poor. System of call handling is excessively bureaucratic

EXHIBIT IV-4 (Cont.)

Selected Comments from Respondents
Hardware Service

Documentation

- Vast. Too much. OK but vastness wastes time and there is a lot of duplication
- Room for improvement. Varies from good to diabolical. Quality of reproduction and explanation pretty poor
- Below average. Not enough, not easy to follow, always behind revision level of software
- Worse than diabolical. Draft copies sometimes supplied. The binder costs extra and they are behind on revision level
- 1 out of 10. Attributed to the age of the kit
- Overcomplex, verbose and no index

Remote Diagnostics

- Excellent innovation—very effective
- Improves speed of diagnosis
- Archaic. Nothing constructive emerged.

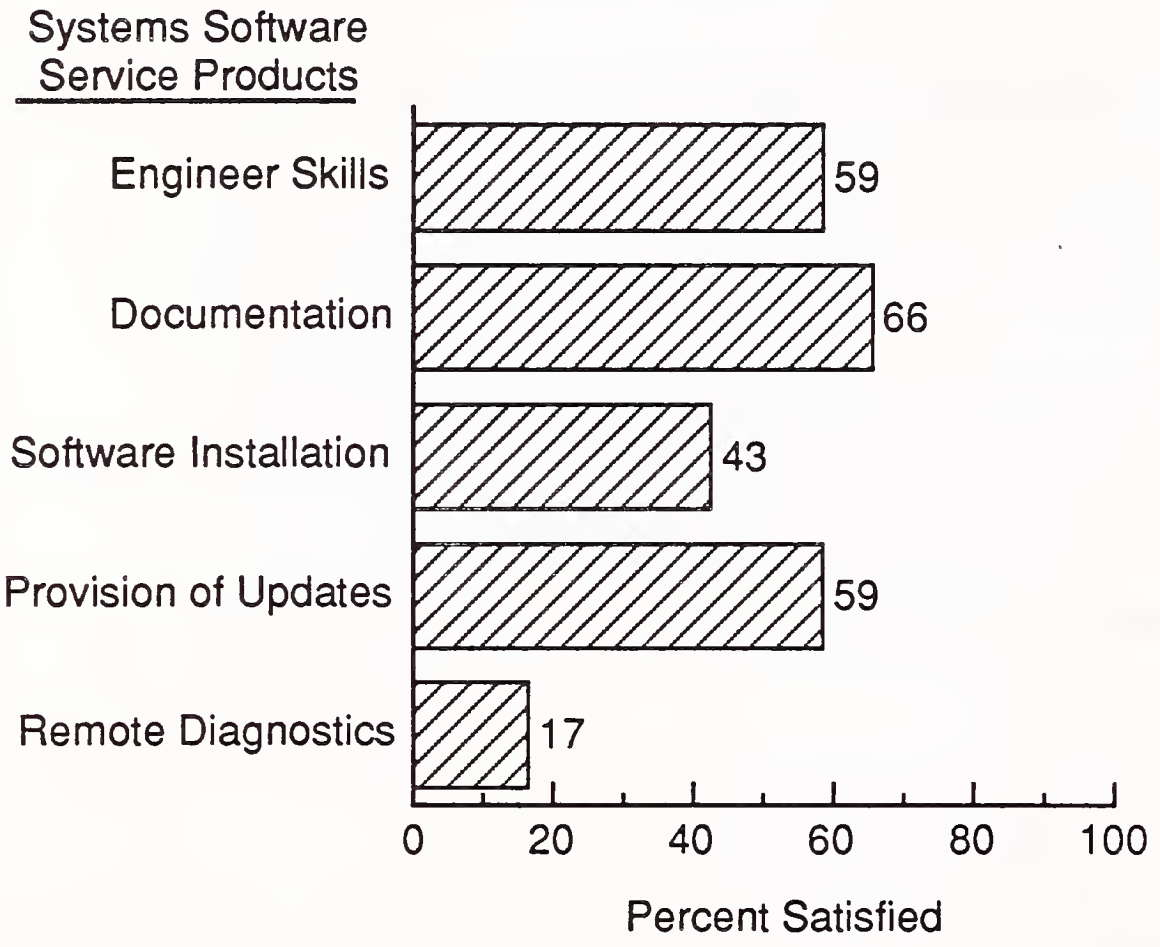
B

Systems Software Support

Overall, 77% of respondents expressed satisfaction with the level of systems software service that they received. Exhibit IV-5 provides a breakdown of the overall levels of satisfaction expressed about the principal constituents of the software service product.

EXHIBIT IV-5

Percent of Respondents Expressing Satisfaction with the Constituent Element of Systems Software Service



Sample Size: 30

Although the percentages stated and provided in Exhibit IV-5 do not support the overall level of satisfaction, the discrepancy is largely explained by the fact that a significant proportion of respondents claimed that the service products were not applicable to their operation. If these figures are excluded from the calculation, the percentage of satisfied users is as follows:

- Engineer skills 68%
- Documentation 76%
- Software installation 60%
- Provision of updates 65%
- Remote diagnostics 25%

These figures, which express the percentage of users of the services within the sample, broadly support the overall level of satisfaction reported.

Only two issues caused an appreciable level of concern among the interviewees. Twenty-four percent cite problems with the availability and responsiveness of appropriately qualified staff capable of providing an acceptable level of support, and 20% complain about the quality of documentation. However, 26% of respondents make a series of complaints at the provision of software updates, including 11% who comment on the late delivery of new releases of software. The remaining 15% offer a number of miscellaneous complaints, including concerns over the quality level of newly released software and dissatisfaction at the level of pressure applied by vendors to persuade customers to upgrade. Although no single issue emerges as a key cause of concern among users, the general level of dissatisfaction expressed is worthy of comment. Exhibit IV-7 provides a selection of comments that indicate the principal areas of concern.

Exhibit IV-6 illustrates the satisfaction indexes for software service derived from the total sample.

EXHIBIT IV-6

Satisfaction Index for Software Service

Service Category	Satisfaction Index Δ SI			
	Large Systems	Medium Systems	Small Systems	Average
Engineer Skills	1.1	1.0	1.1	1.1
Documentation	1.4	1.4	1.6	1.5
Software Installation	0.7	0.6	0.6	0.6
Provision of Updates	0.9	1.1	1.2	1.1
Remote Diagnostics	0.5	1.0	0.8	0.8
Weighted Rating	0.9	1.0	1.1	1.0

Sample Size: 1,211

The findings of the in-depth interviews are consistent with the satisfaction index insofar as they highlight the principal areas of concern within the areas of engineer skills, documentation and the provision of updates. However, it will be noted that the overall systems software support satisfaction rating of 1.0 compares unfavorably with that of hardware, rated at 0.7. This variation is in apparent contradiction to findings of the in-depth survey, which indicates a higher percentage of satisfied users of systems software services than of hardware.

The explanation behind the discrepancy lies in the different levels of expectation attached to hardware and systems software service by users. The increasing reliability levels of equipment coupled with the perception that hardware service is becoming increasingly simple has resulted in a rise in the expected level of hardware performance. Although the importance rating for software support is broadly equivalent to that of hardware, the increasing complexity of software products has resulted in an understanding, on the part of users, of the complexities involved in the provision of software support. This factor goes a considerable way towards explaining the fact that the main issue concerning engineer skills is not the overall skill level of the engineers, but the difficulty of identifying the person with the appropriate level of knowledge within the vendor's organisation.

EXHIBIT IV-7

Selected Comments from Respondents
Systems Software Support

General

- Disappointed in service. Speed of response on the hotline a problem and the technical knowledge of the person logging the call is also a problem
- Operating system support is barely adequate. There is a lack of documentation and new revisions are not automatically supplied.
- Support is theoretically available but very hard to get hold of. Have old software and expertise has evaporated
- Pretty good. Have occasional problems but the provider responds well and faults are usually found in the next release which is good enough

Engineer Skills

- Engineers are OK to good, but systems engineers are difficult to get hold of and not that knowledgeable.
- Software engineers are OK. Field engineers are not involved. Software is part of the escalation procedure and response is a problem
- Adequate. Questions eventually get answered but it is difficult to get hold of the right person.
- Good skills not needed. The problem is finding the right person.

EXHIBIT IV-7 (Cont.)

Selected Comments from Respondents
Systems Software Support

Documentation

- Awful
- Vast. Heavy going and never in the right place.
- Better than hardware but could be improved
- Behind revision levels but thorough and comprehensive. Vendor has no tracking procedures
- Difficult on old equipment. Experience time delays. Documentation is behind software revision levels and is neither complete nor thorough

Software Installation

- Satisfactory to good. Technical competence good
- Generally adequate. If problems do occur it takes time to solve them
- Simple procedure properly conducted

EXHIBIT IV-7 (Cont.)

Selected Comments from Respondents
Systems Software Support

Provision of System Software Updates

- News of new releases slow. Delivery is also slow.
- Causing problems. Vendor is pushing an upgrade but the customers are unwilling to move.
- Poor. Not informed of availability. Difficult to get vendor to load it, but documentation is not good enough to do it out of the book.
- The quality of information is poor, sketchy and uncoordinated
- Do not always trust updates. Too many bugs.
- Does not happen and therefore not happy. Support is withdrawn too early

Remote diagnostics

- Offered but not taken up
- No problems—excellent
- A bit lacking. Not sharp enough. It needs to be more focused.
- Vendor is not very good. Lots of requests for dumps.

C

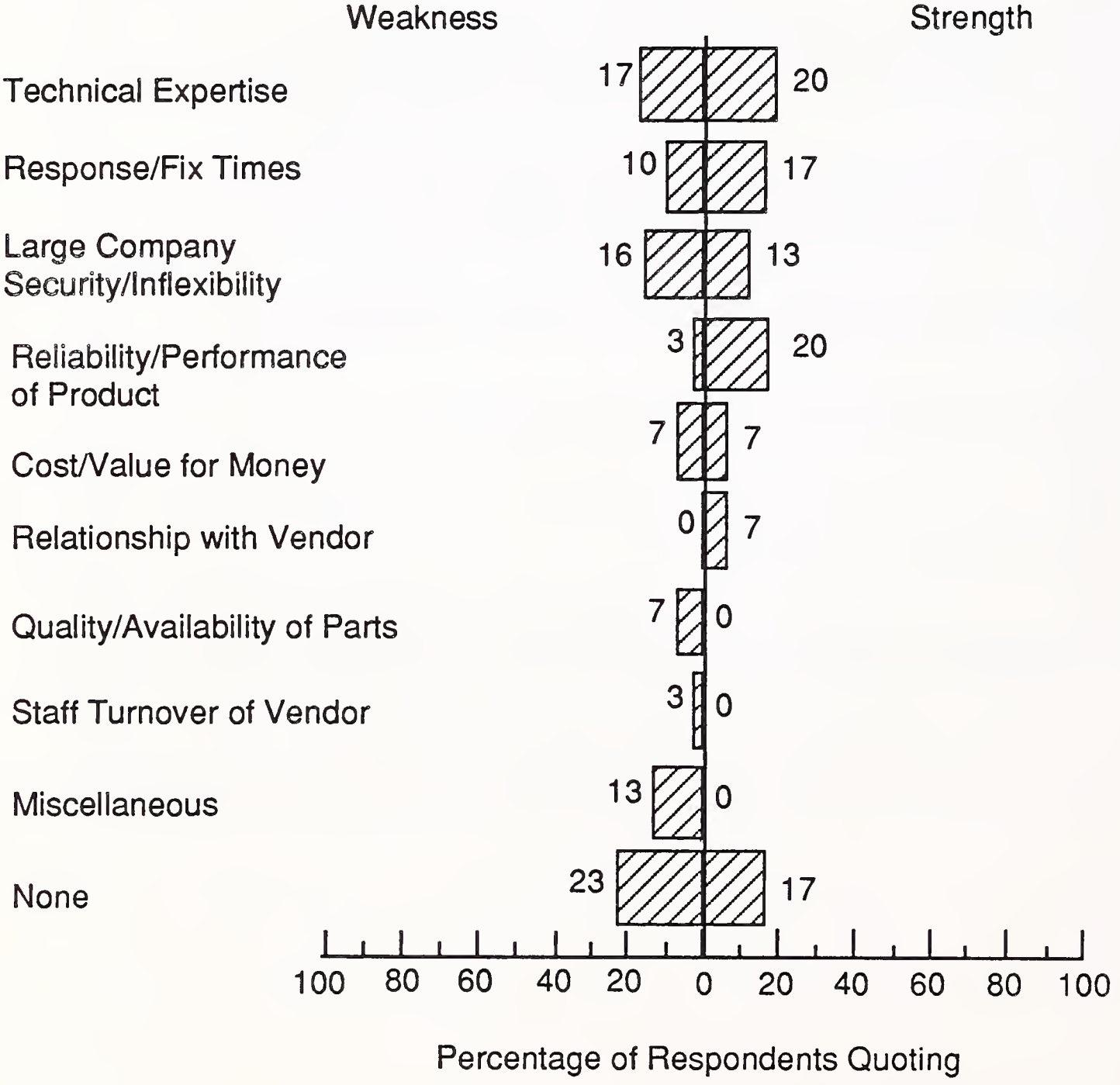
Strengths and Weaknesses

Exhibit IV-8 illustrates the areas of strengths and weaknesses highlighted by respondents.

The principal point to note in comparing the perceived strengths and weaknesses is that, on balance, strengths outweigh weaknesses, but no single area is regarded as either overwhelmingly strong or weak. This observation broadly supports the general levels of satisfaction expressed about both hardware and systems software service.

EXHIBIT IV-8

Strengths and Weaknesses



Sample Size: 30

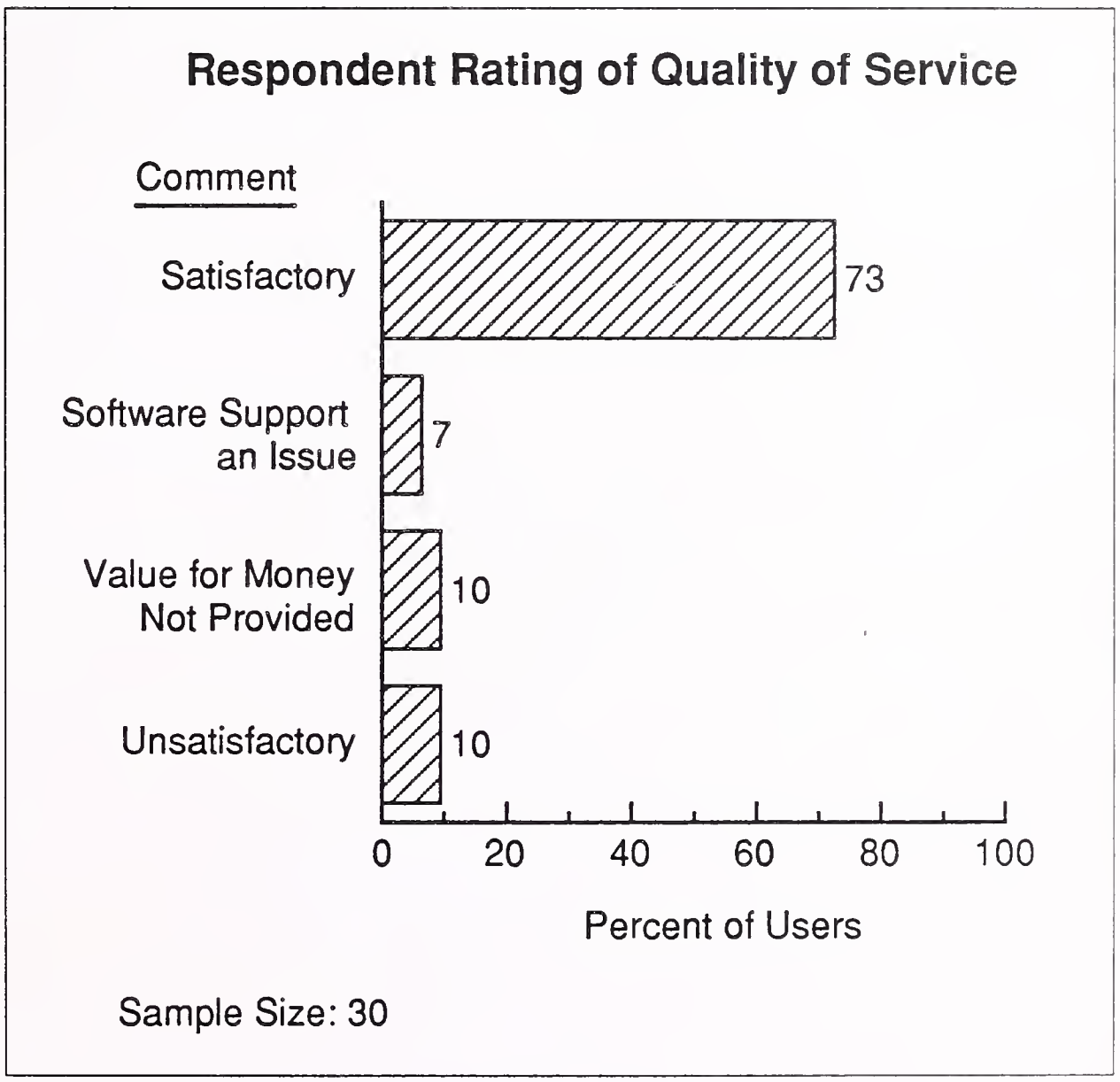
D

Quality of Service

Exhibit IV-9 indicates the percentage of respondents that regard the overall quality of service as satisfactory.

The key point to note from Exhibit IV-9 is the high proportion of respondents that regard the overall quality of service they receive as satisfactory. However, the fact that 7% of respondents quote systems software support as an issue, despite the high overall rating the systems software service received, lends some support to the interpretation placed on the data reflecting the low level of customer expectation in the area of software support.

EXHIBIT IV-9



E

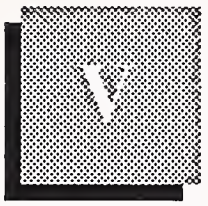
Other Services

The principal finding that emerges from respondents concerning the demand for other services—in addition to hardware and software service—is that no strong demand exists for any alternative service. Forty-seven percent of respondents state that they have no requirement for any other service, and no particular service offering attracted a proportion of more than 3% of the sample.

It is, however, noteworthy that 13% of respondents stated that their vendor makes no attempt to market a range of alternative services, which suggests that a degree of ignorance exists within the user community about the benefits to be accrued from such services.

Equipment vendors are therefore faced with the need to market services strongly to create user awareness. However, indication was given during interviews that users have a perception that equipment vendor services are expensive.

Western European Trends, 1988-1990



Western European Trends, 1988-1990

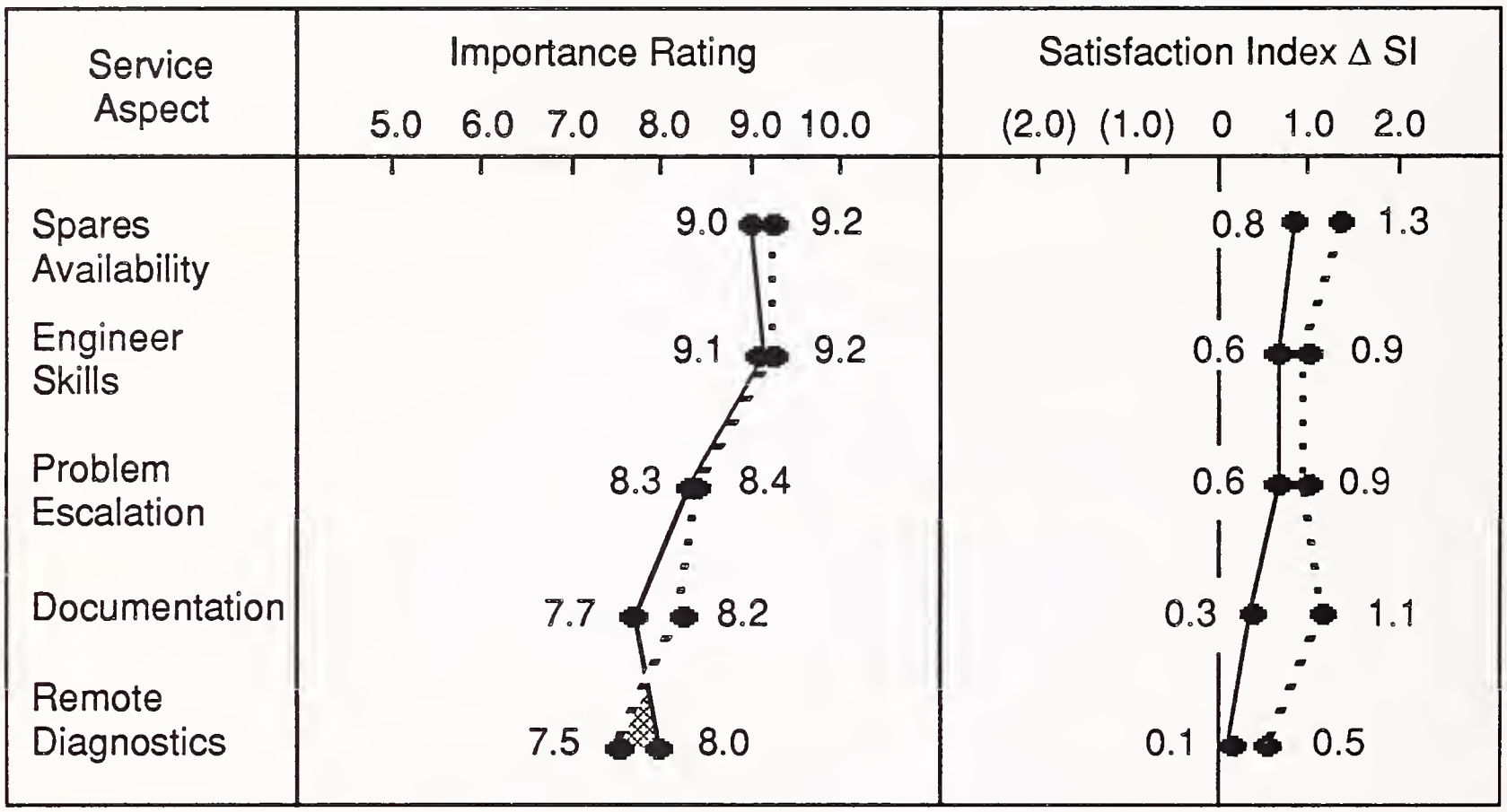
This chapter of the report presents data comparing trends in user satisfaction with vendor service performance.

Data presented is divided by system size—large, medium and small systems—and is presented in the following formats:

- Trends in user satisfaction with vendor hardware service and systems software support performance are shown in graphical format. These trends indicate changes in user requirements for service and related vendor performance that have occurred between 1989 and 1990.
  - Changes in the importance users place on each aspect of service are shown. Areas where importance ratings have increased between 1989 and 1990 are shaded to highlight the significance of changes.
  - Changes in satisfaction index (Δ SI) are shown relating the vendor performance to user needs. Areas where user satisfaction has declined in 1990 have been shaded to highlight aspects of service where the vendor has not responded to user needs. These changes may relate to increased importance or decreased satisfaction.
- Trends in system failure rates are shown in bar graph form to illustrate changes that have occurred between 1988 and 1990. System failure rates are expressed as the number of times each year the user perceived the vendor's system to have failed completely for a period of more than one hour.
- Trends in vendor hardware service and systems software support response and repair/fix time performance are presented in the form of bar graphs, illustrating changes that have occurred between 1988 and 1990. Response and repair/fix times are expressed as the percentage by which they exceed or fall short of user requirements.

EXHIBIT V-1

Hardware Service Trends 1989-1990
Western Europe—Large Systems



Sample Size: 1989 = 441
1990 = 324

1990
1989

Increased Importance
Decreased Satisfaction

EXHIBIT V-2

Hardware Service Trends 1989-1990
Western Europe—Medium Systems

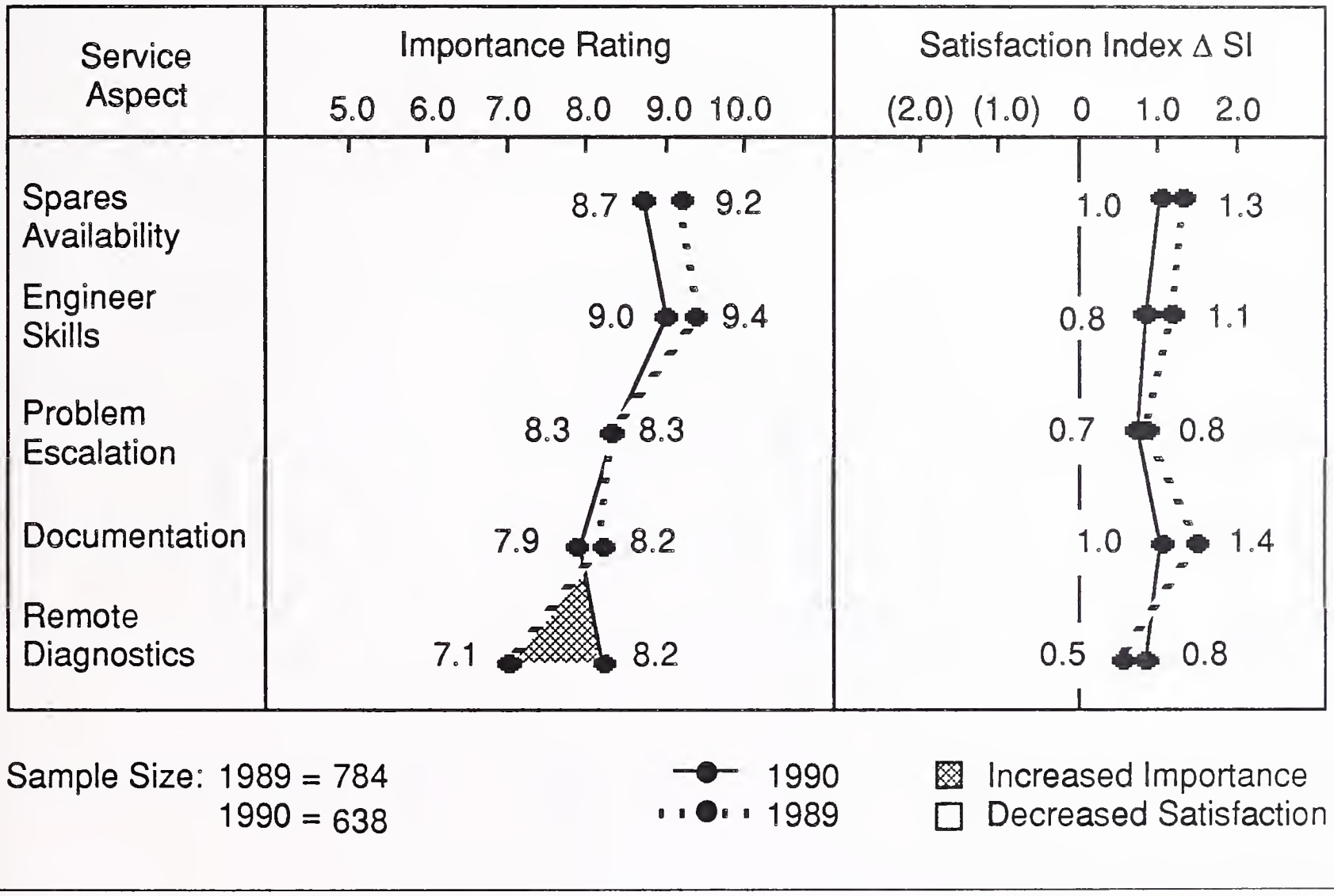


EXHIBIT V-3

Hardware Service Trends 1989-1990
Western Europe—Small Systems

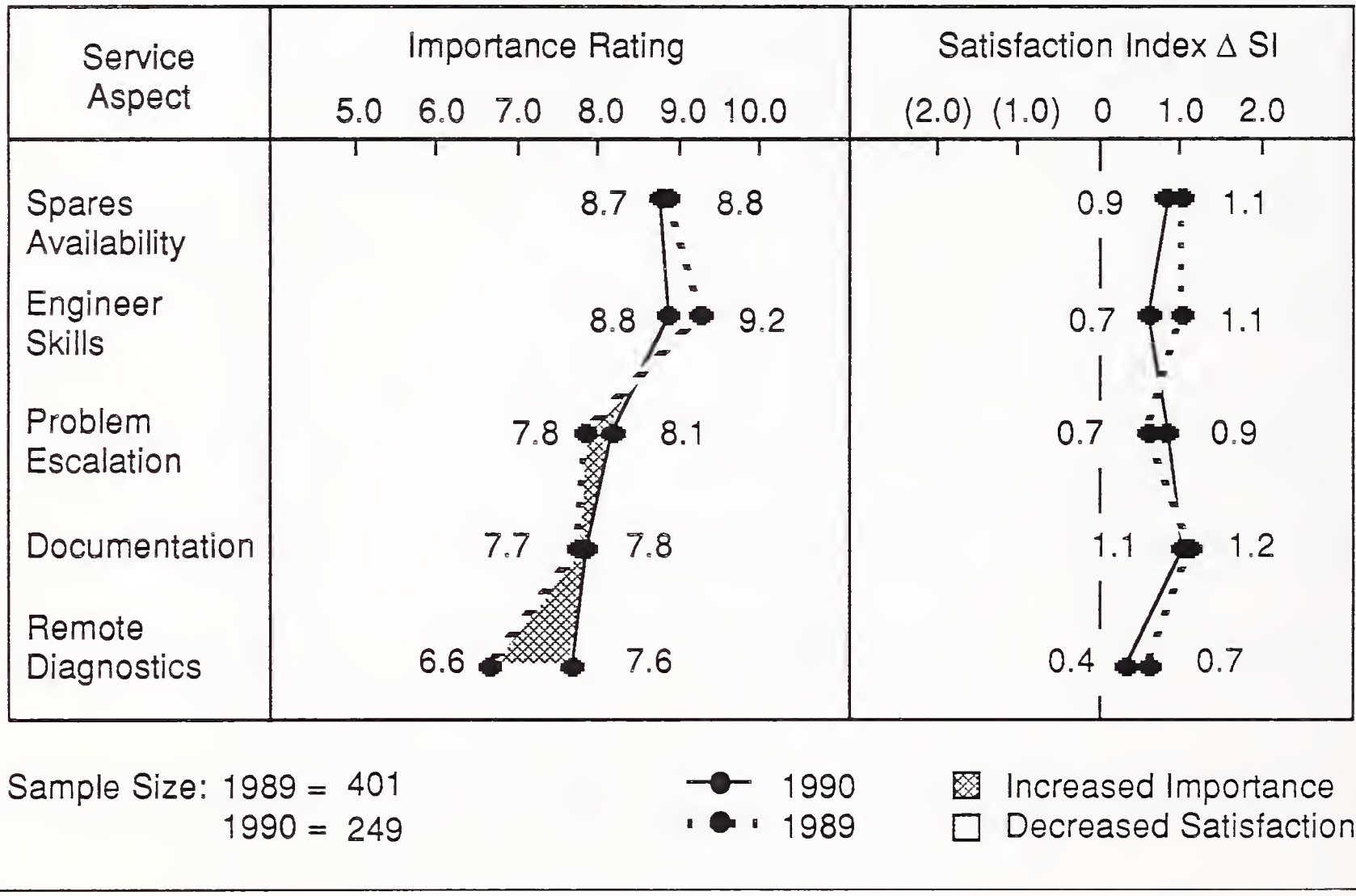


EXHIBIT V-4

Systems Software Support Trends 1989-1990
Western Europe—Large Systems

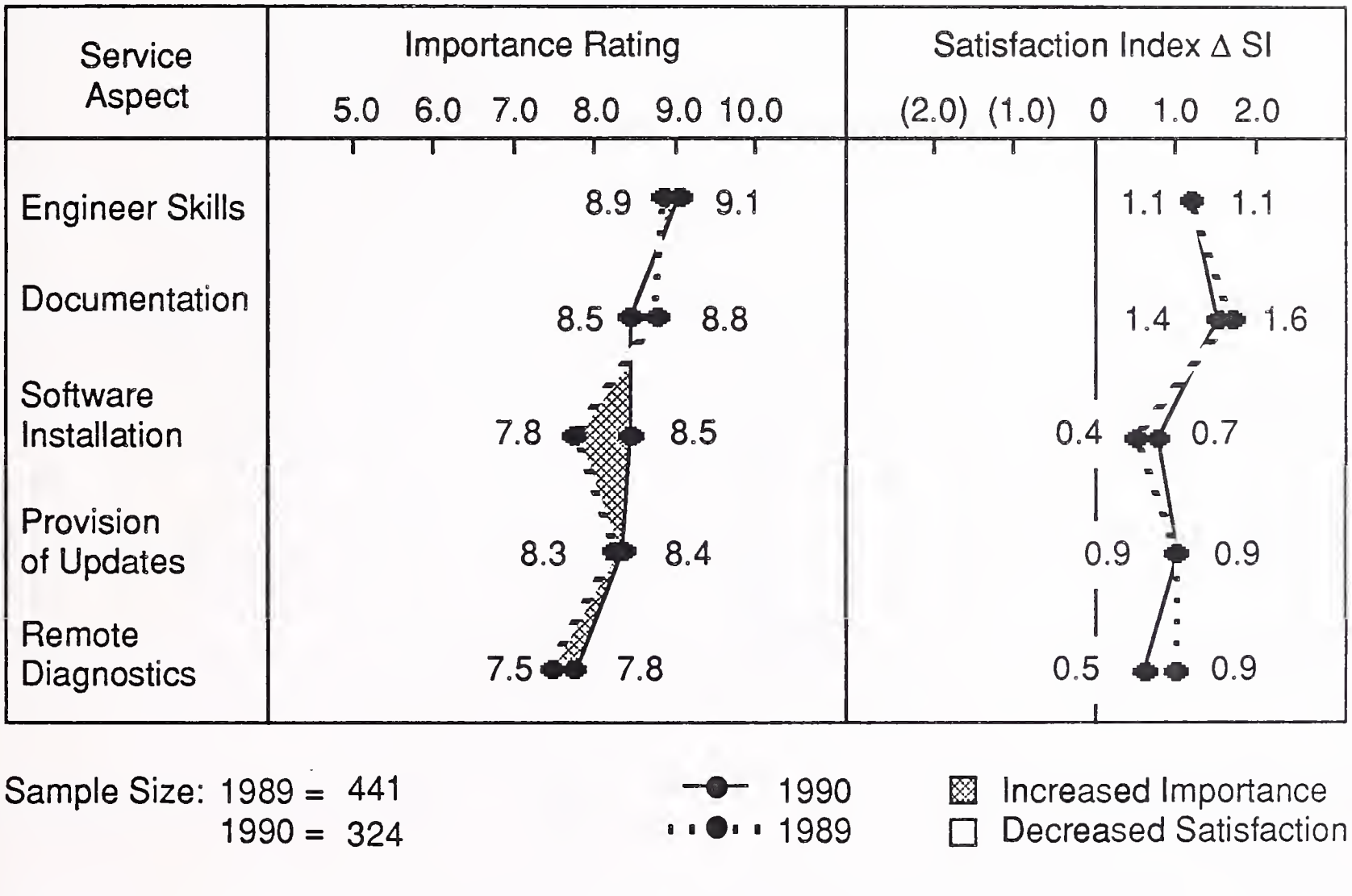


EXHIBIT V-5

Systems Software Support Trends 1989-1990
Western Europe—Medium Systems

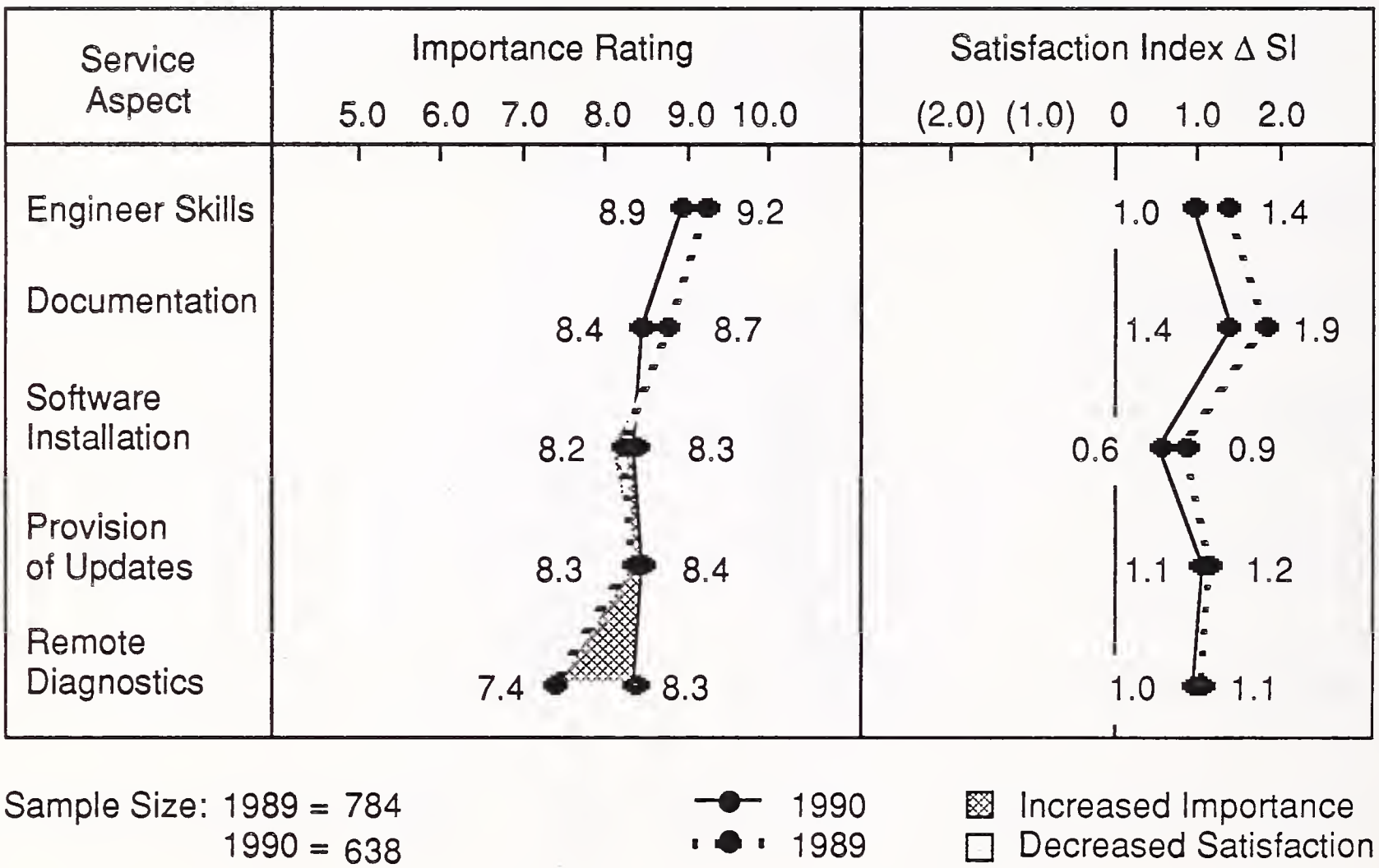


EXHIBIT V-6

Systems Software Support Trends 1989-1990
Western Europe—Small Systems

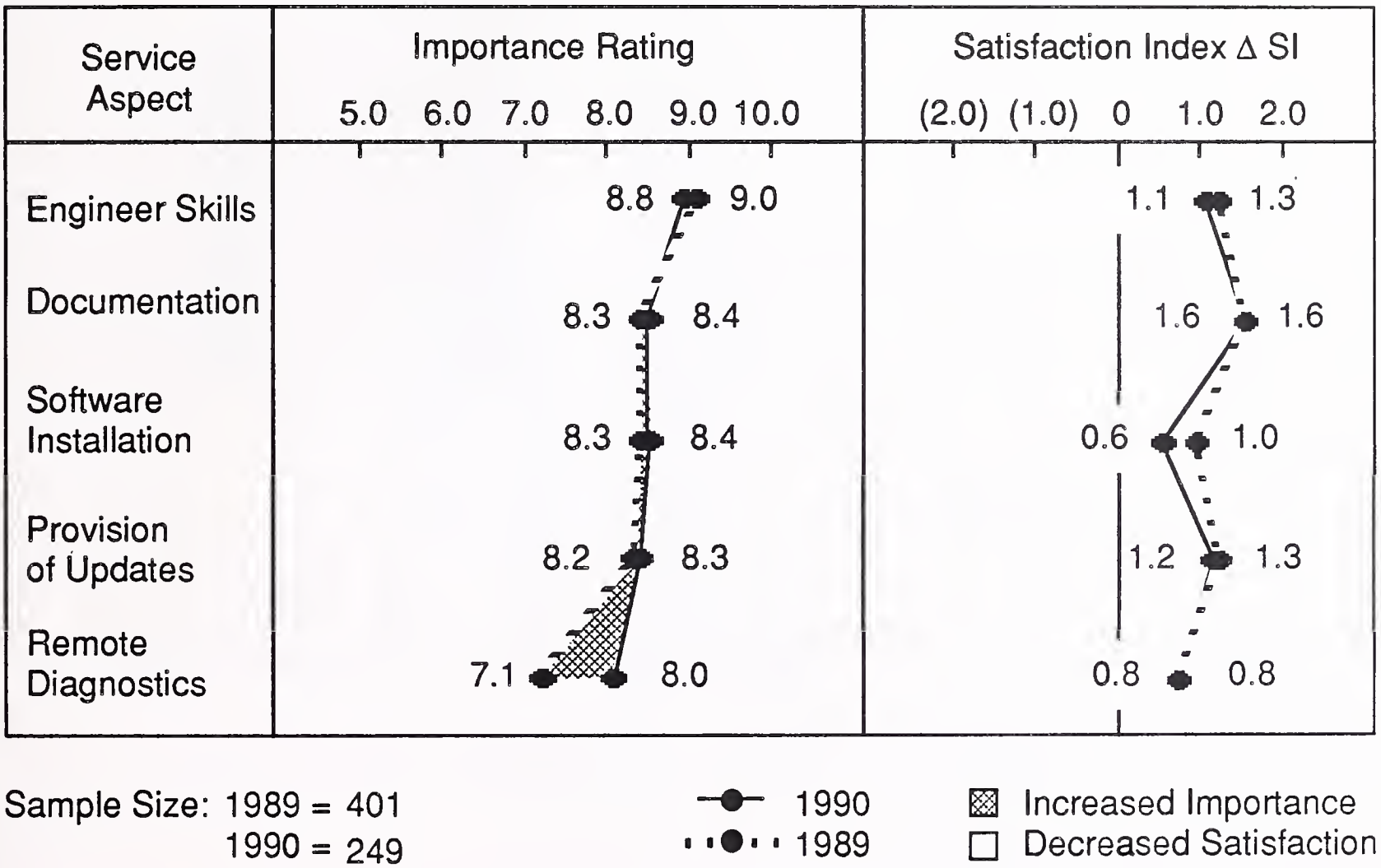


EXHIBIT V-7

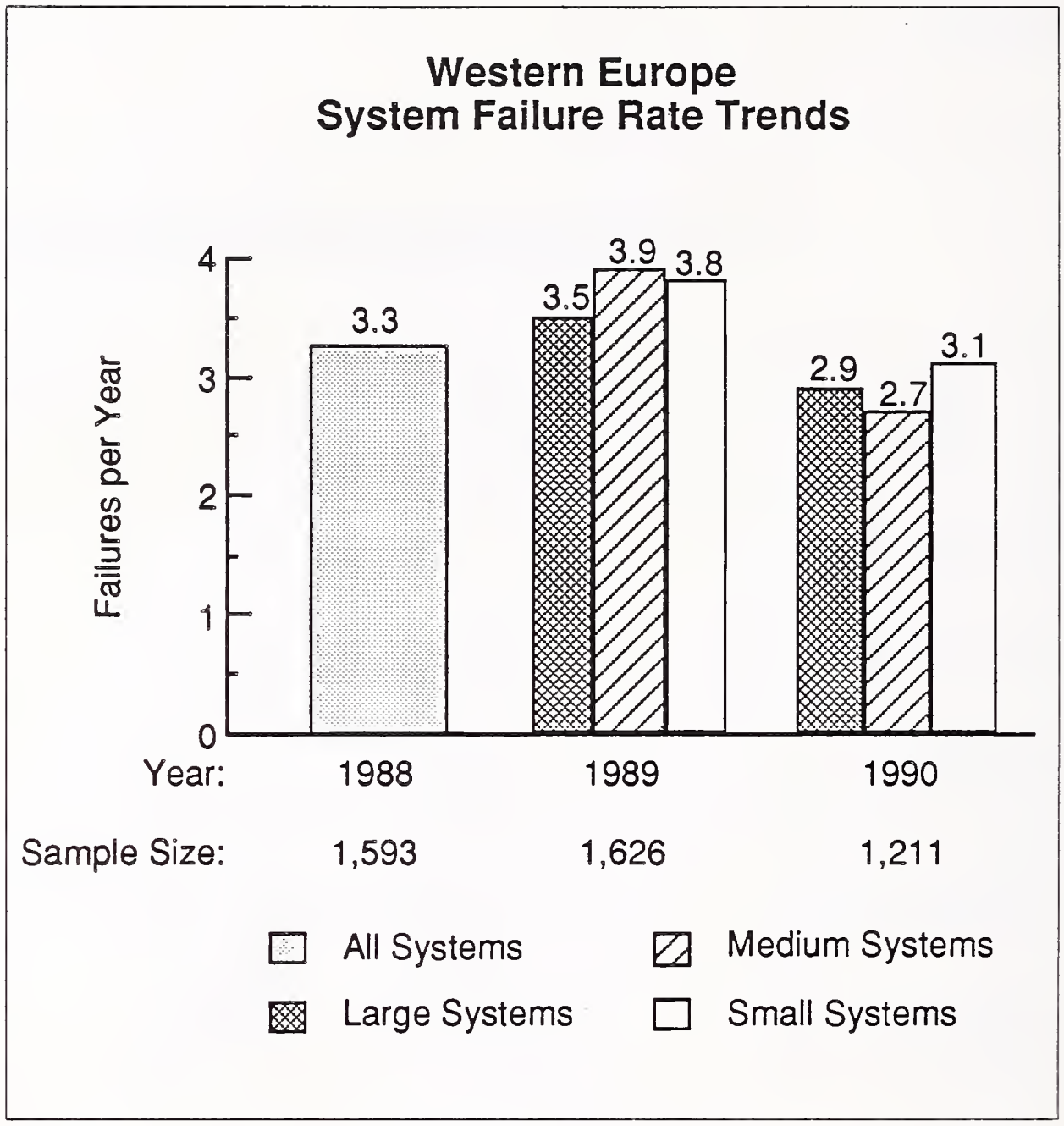


EXHIBIT V-8

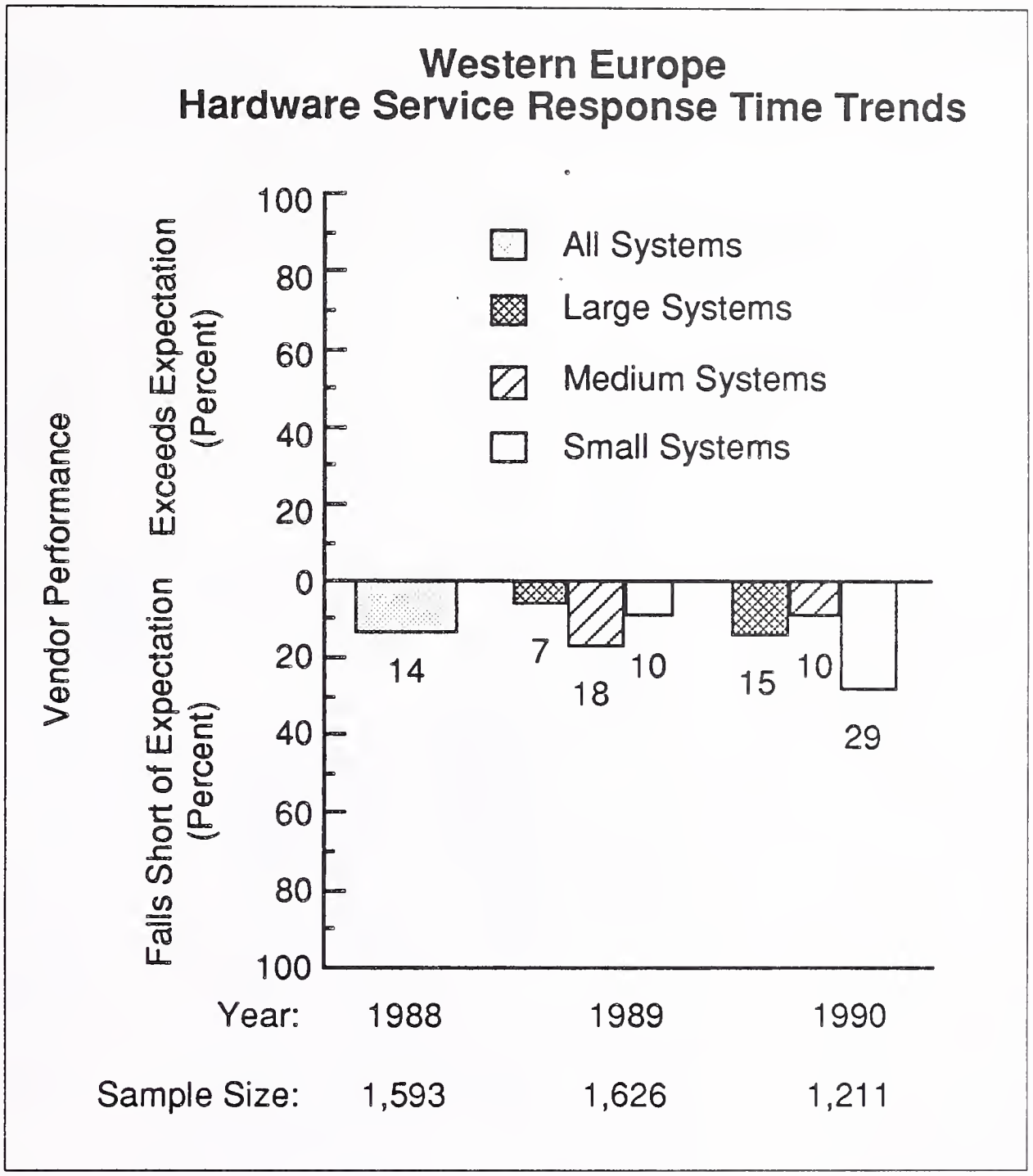


EXHIBIT V-9

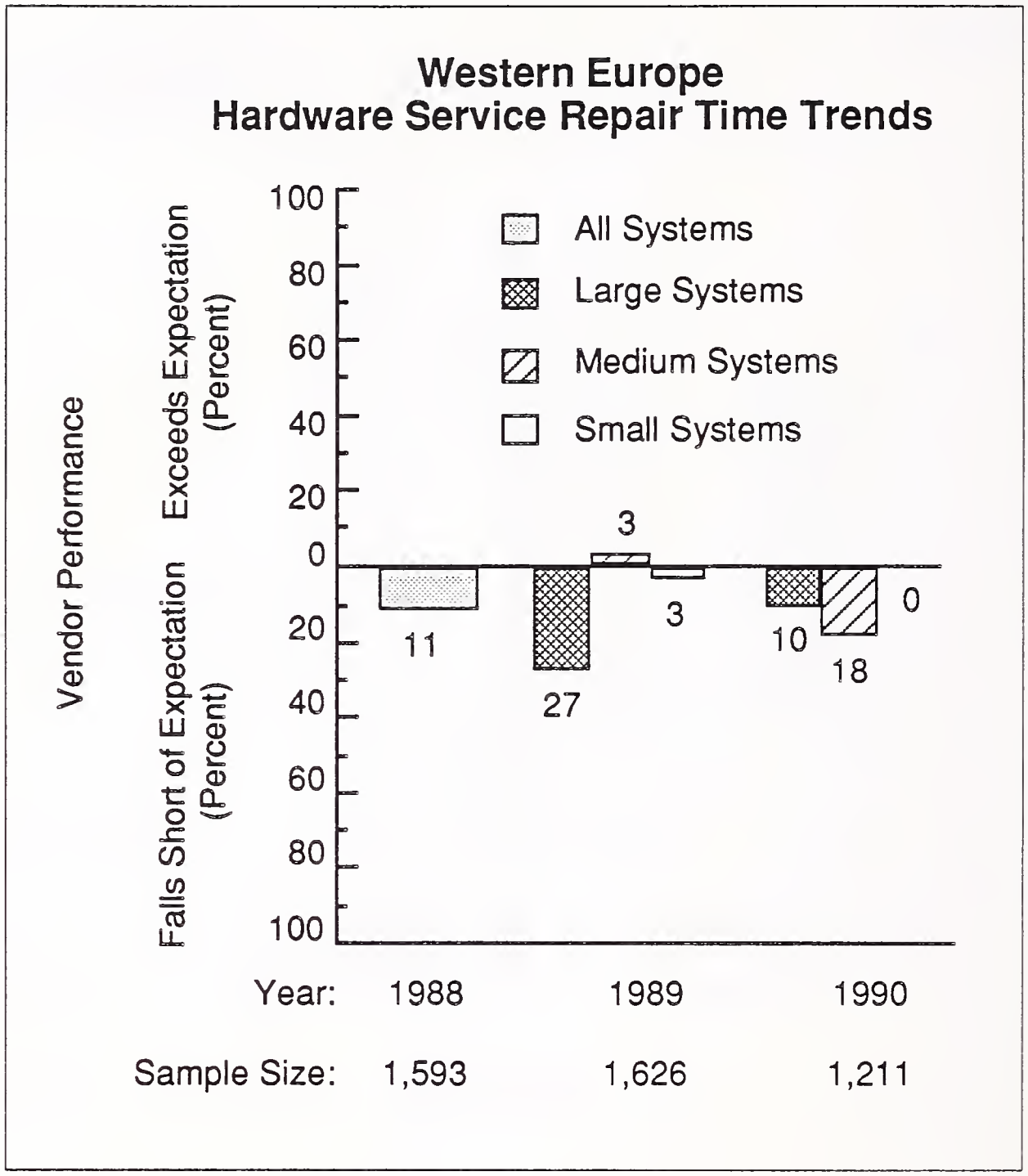


EXHIBIT V-10

Western Europe
Systems Software Support Response Time Trends

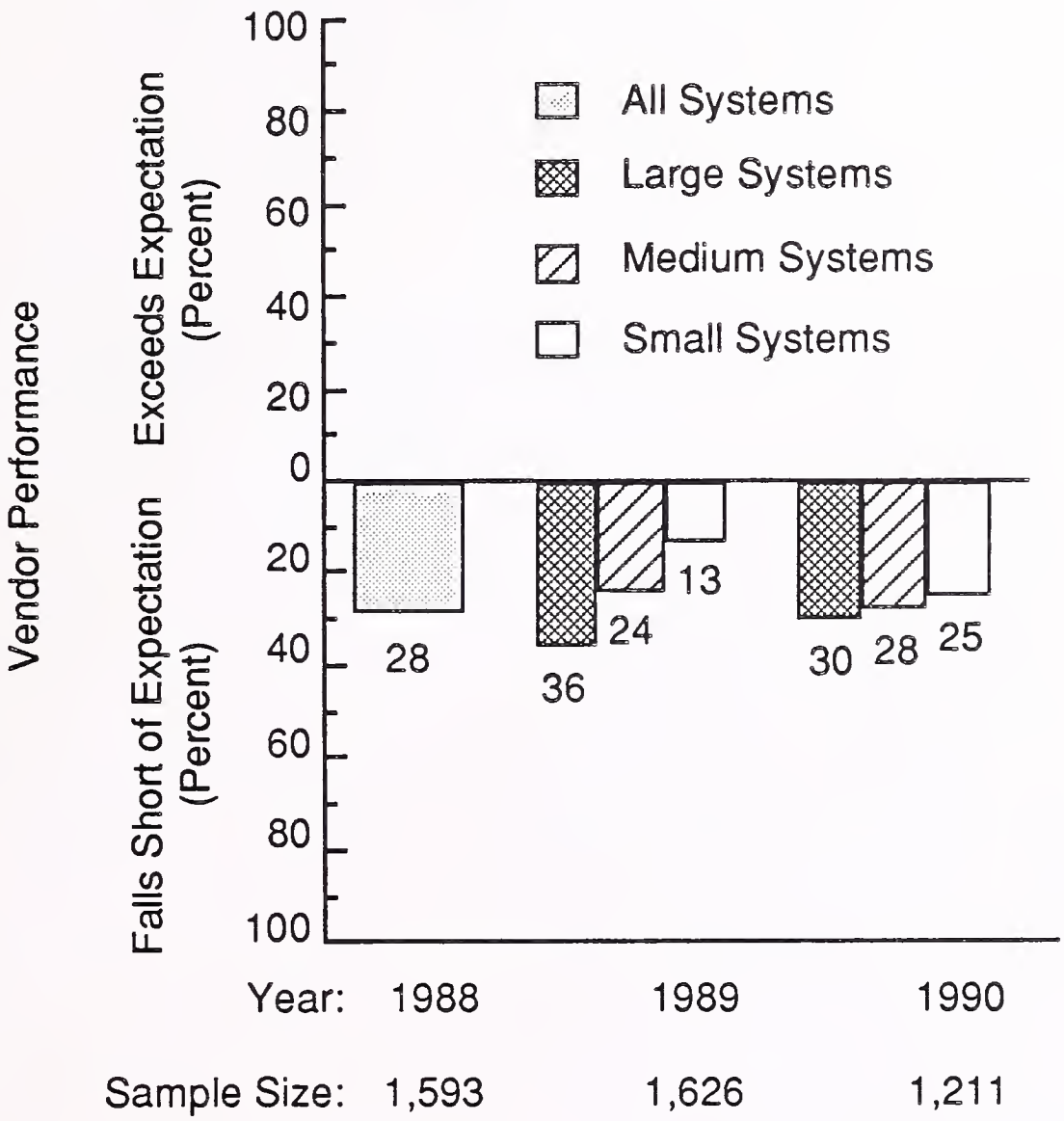
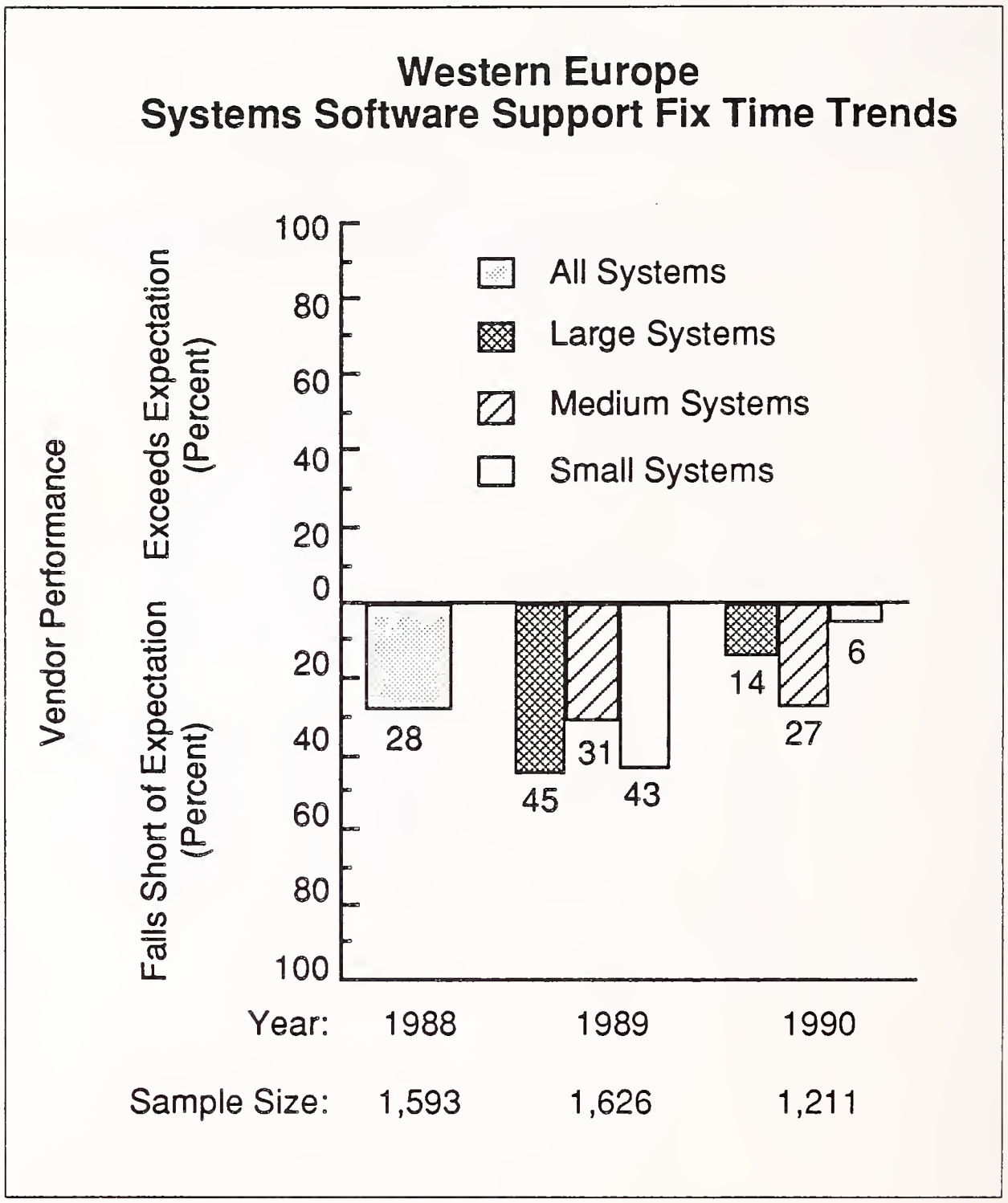


EXHIBIT V-11



Key Service Trends

VI

Key Service Trends, 1988-1990

This chapter of the report presents data comparing trends in user perception of vendor service performance between 1988 and 1990.

Data relating to each vendor's service performance are illustrated in four exhibits in the following formats:

- Trends in user satisfaction with vendor hardware service and systems software support performance are shown in graphical format. These trends indicate changes in user requirements for service and related vendor performance that have occurred between 1989 and 1990.

  - The graphs show changes in the importance users place on each aspect of service. Areas where importance ratings have increased between 1989 and 1990 are shaded to highlight the significance of changes.

  - Changes in satisfaction index (Δ SI) relating the vendors' performance to user needs as shown. Areas where user satisfaction has declined in 1990 have been shaded to highlight aspects of service where the vendor has not responded to user needs. These changes may relate to increased importance or decreased satisfaction.

- Trends in systems failure rates are shown in bar graph form to illustrate changes that have occurred between 1988 and 1990. System failure rates are expressed as the number of times each year the user perceived the vendor's system to have failed completely for a period of more than one hour.

- Trends in vendor hardware service and systems software support response and repair/fix time performance are presented in the form of bar graphs, illustrating changes that have occurred between 1988 and 1990. Response and repair/fix times are expressed as the percentage by which they exceed or fall short of user requirements. Data relating to vendor hardware service and systems software support performance is shown in the same exhibit.

A

Large Systems

Exhibits VI-1 to VI-20 indicate trends in large systems users' perception of vendor service performance between 1988 and 1990. Trend data included is restricted to those vendors for which the user sample size is considered by INPUT to be sufficiently large to provide a valid statistical result (i.e., user samples larger than 20).

Trend data is presented for the following vendors:

- Amdahl
- Digital
- IBM
- ICL

EXHIBIT VI-1

Hardware Service Trends 1989-1990
Amdahl—Large Systems

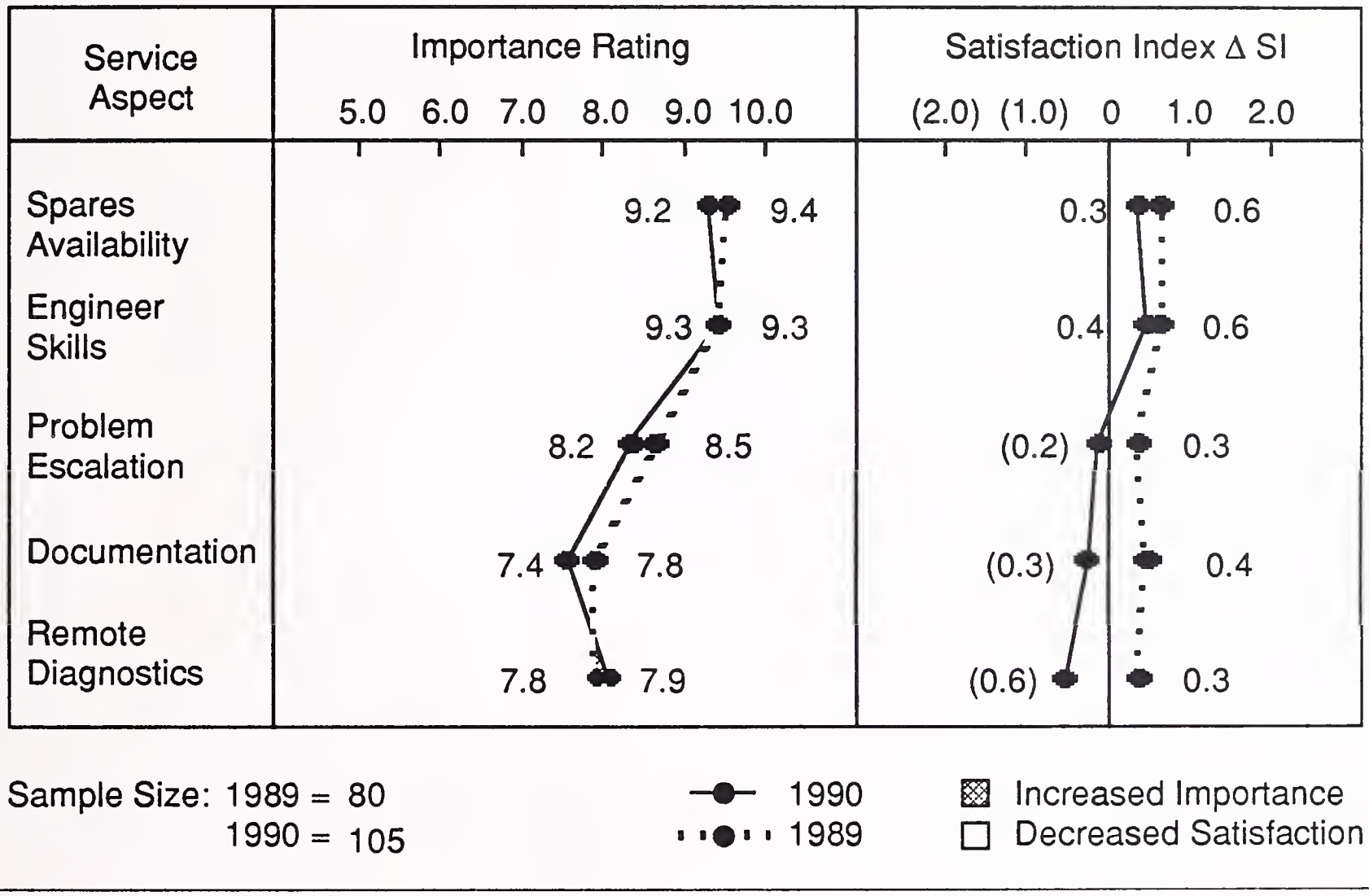


EXHIBIT VI-2

Systems Software Support Trends 1989-1990
Amdahl—Large Systems

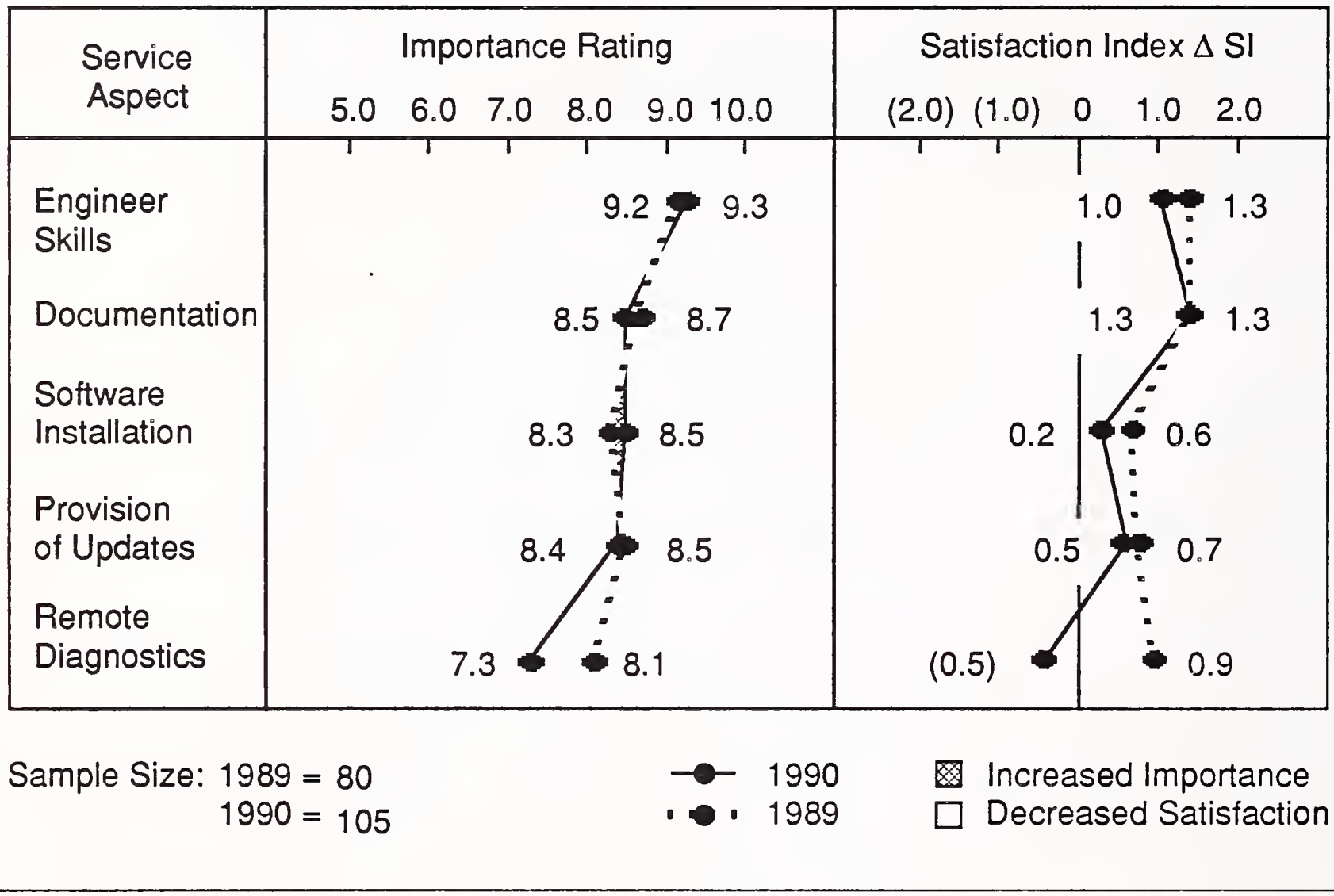


EXHIBIT VI-3

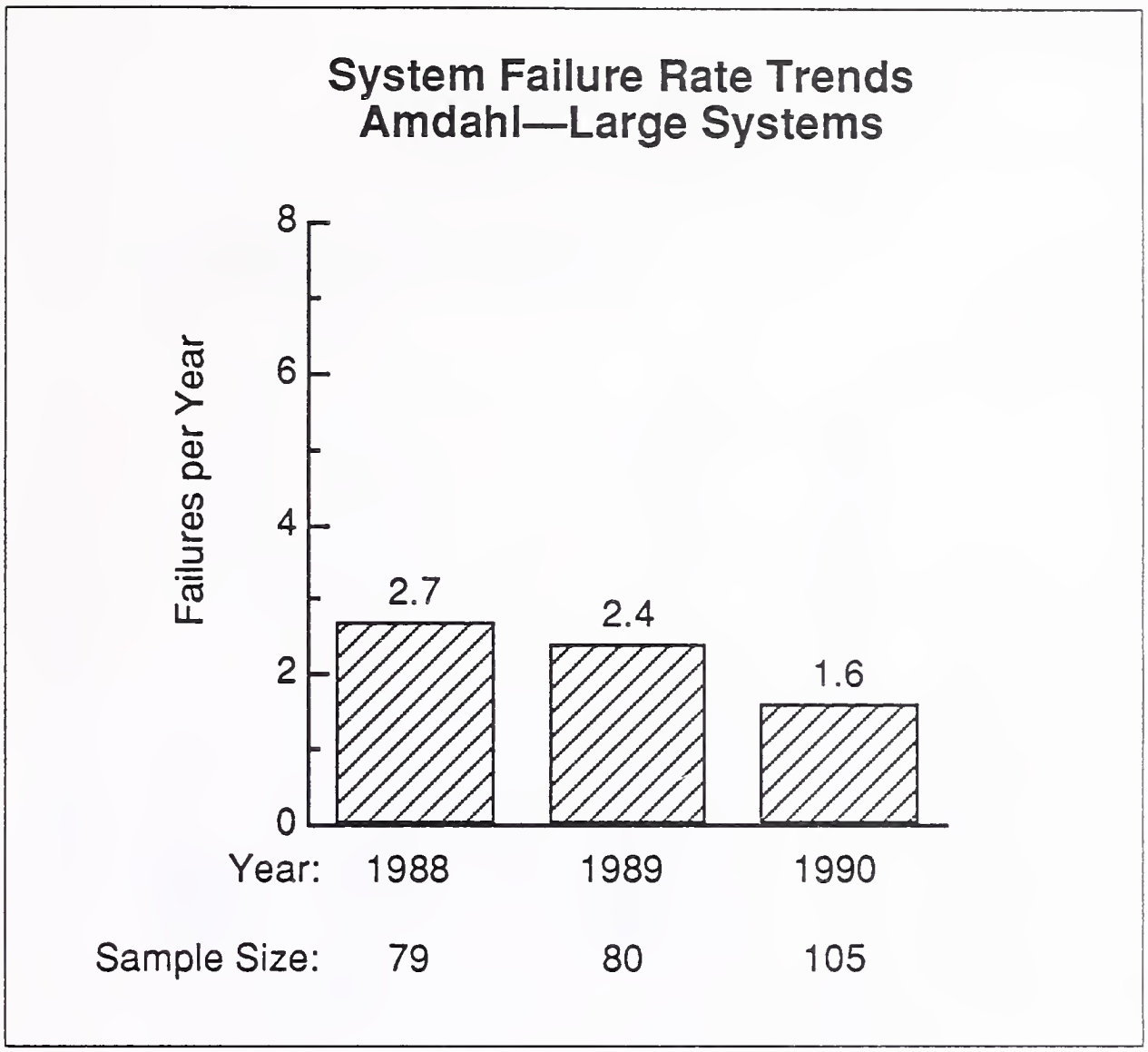


EXHIBIT VI-4

Hardware Service Response/Repair Time Trends
Amdahl—Large Systems

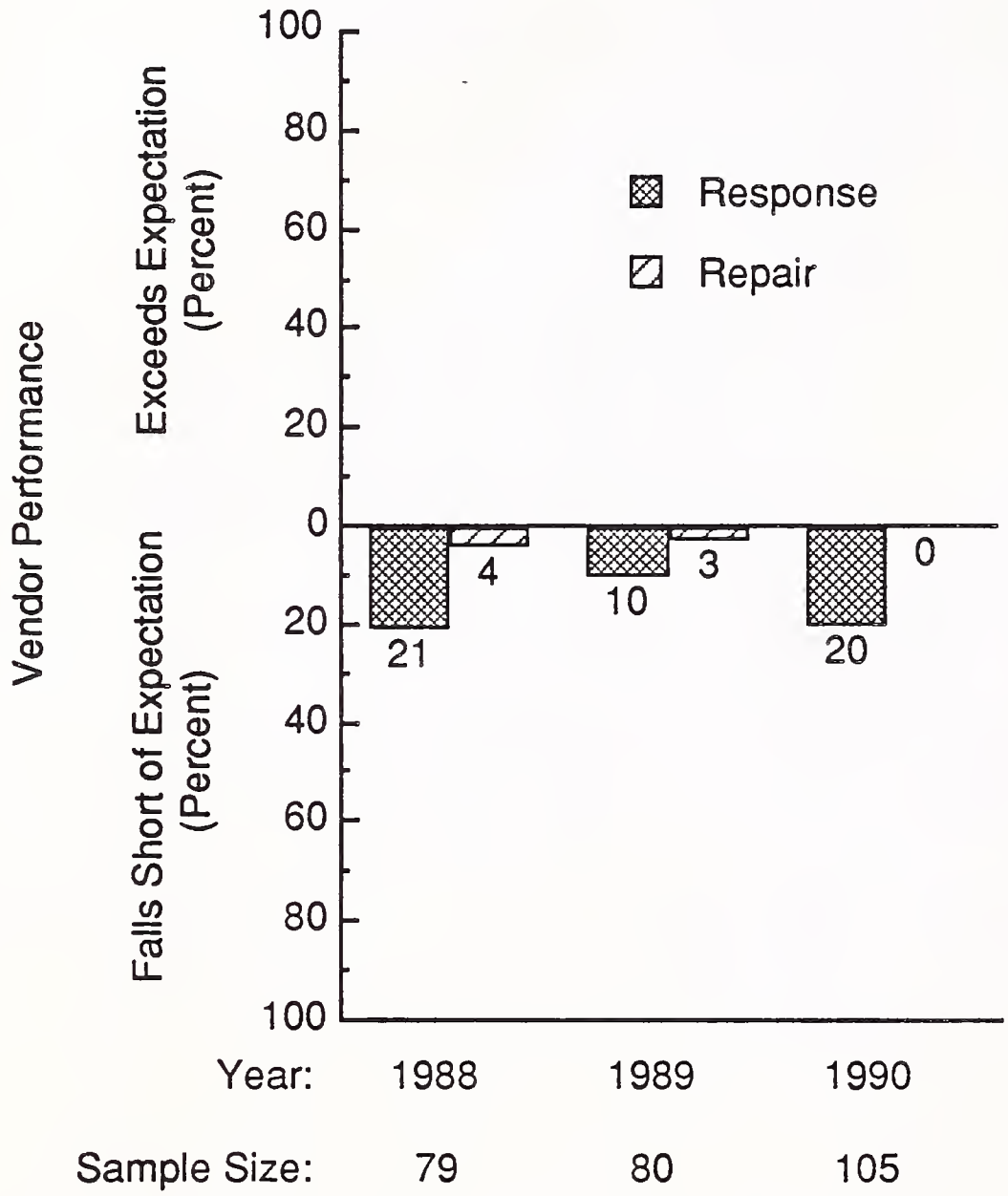


EXHIBIT VI-5

Systems Software Support Response/Fix Time Trends Amdahl—Large Systems

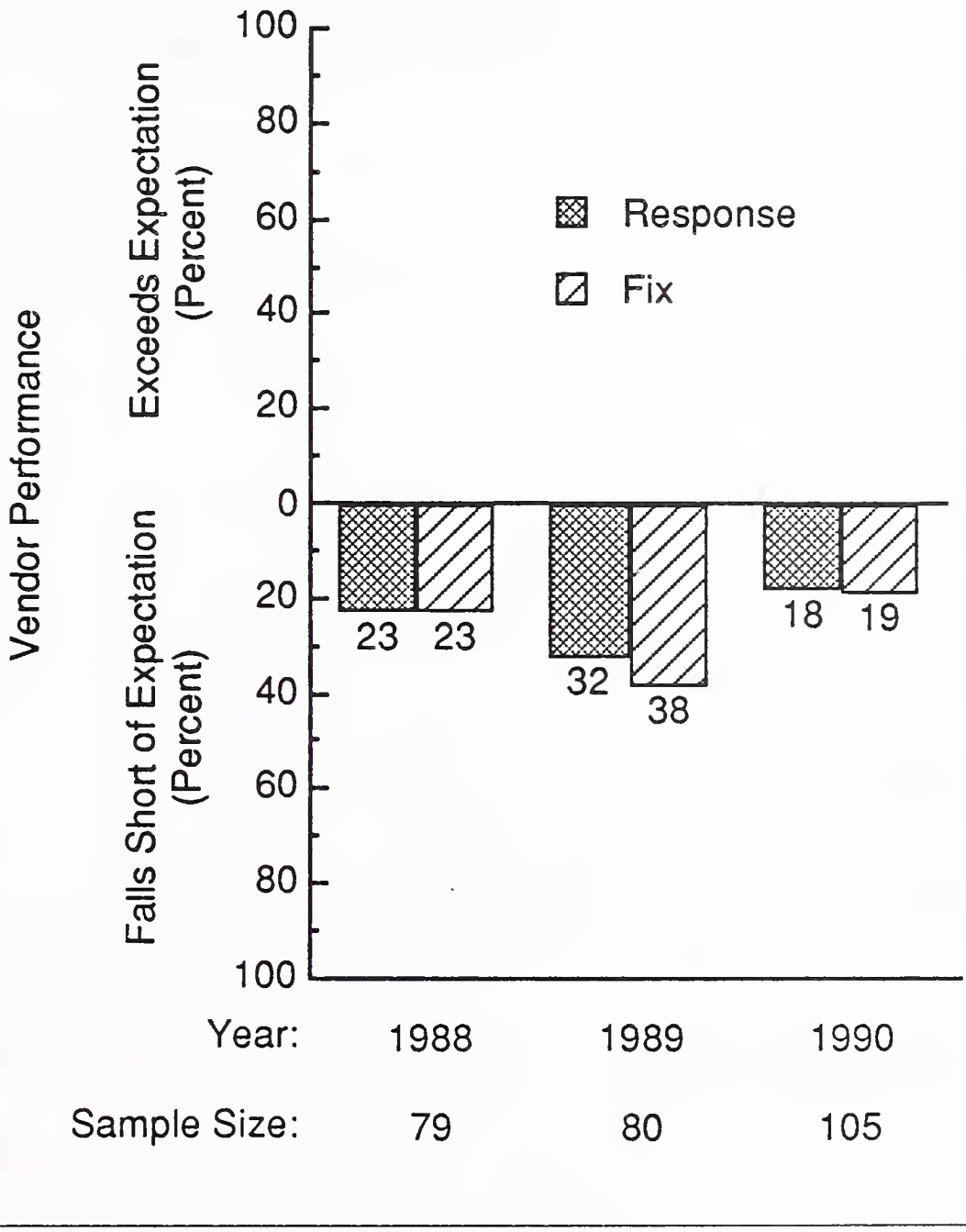


EXHIBIT VI-6

Hardware Service Trends 1989-1990
Digital—Large Systems

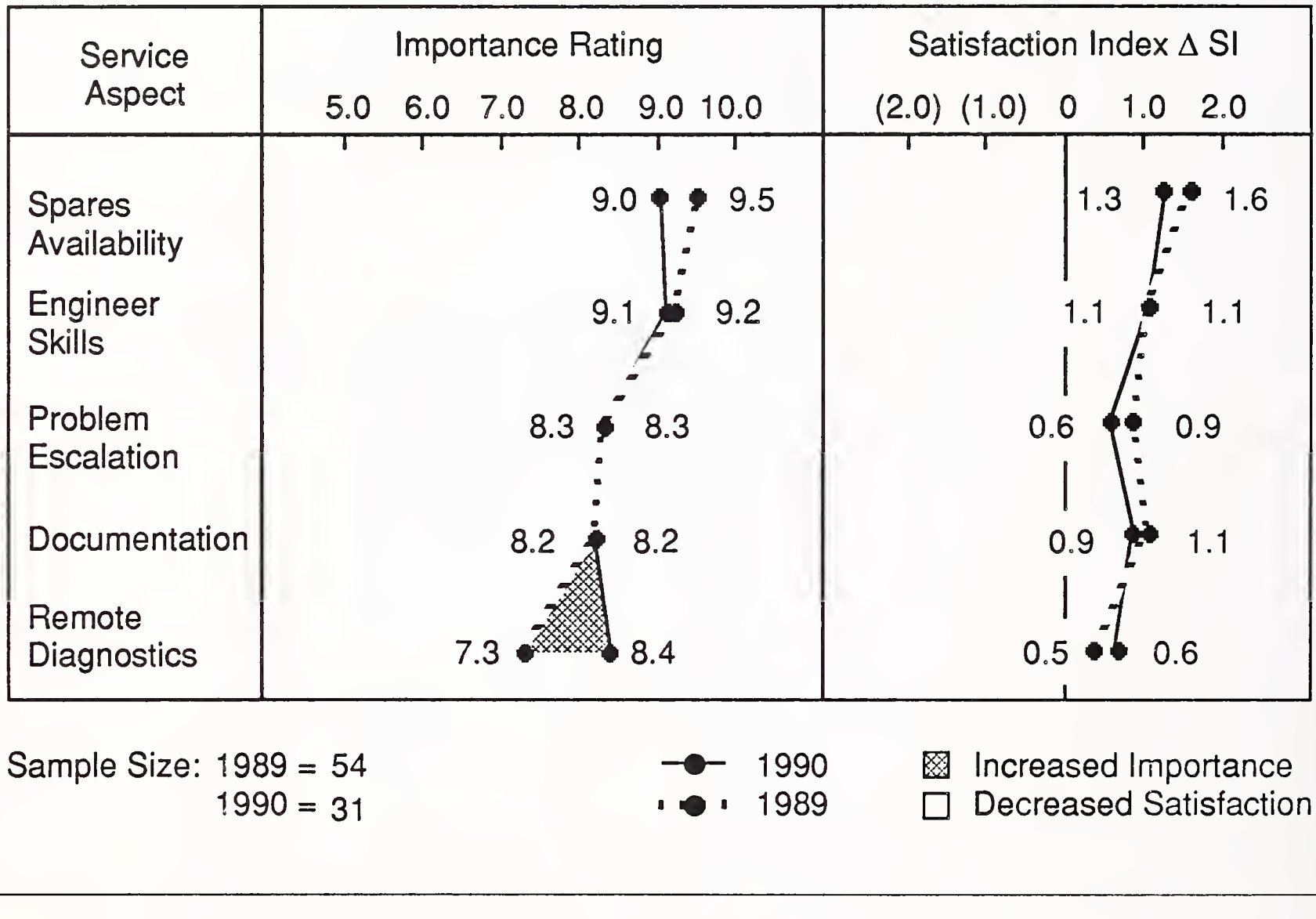
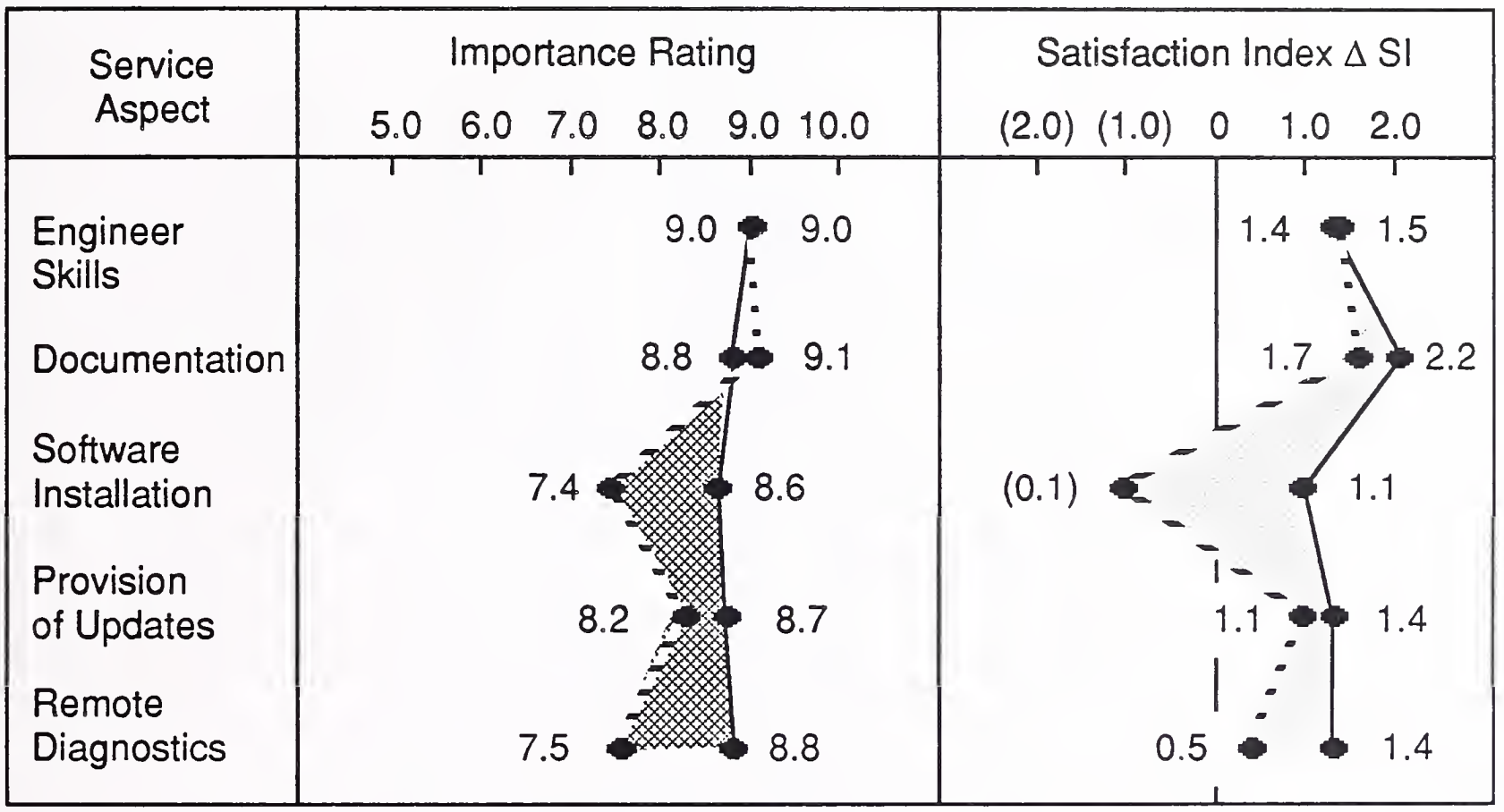


EXHIBIT VI-7

Systems Software Support Trends 1989-1990
Digital—Large Systems



Sample Size: 1989 = 54
1990 = 31

1990
1989

Increased Importance
Decreased Satisfaction

EXHIBIT VI-8

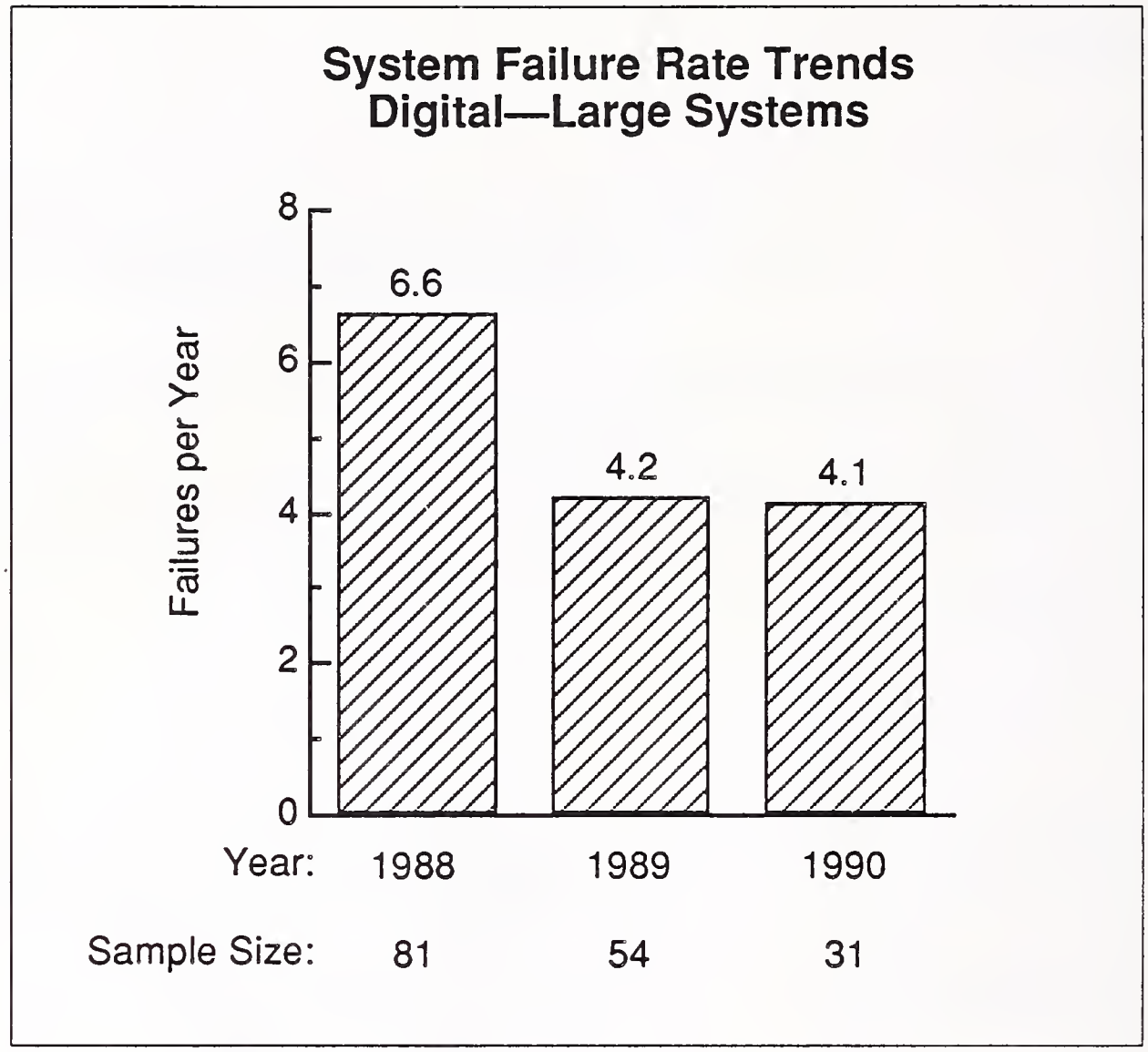


EXHIBIT VI-9

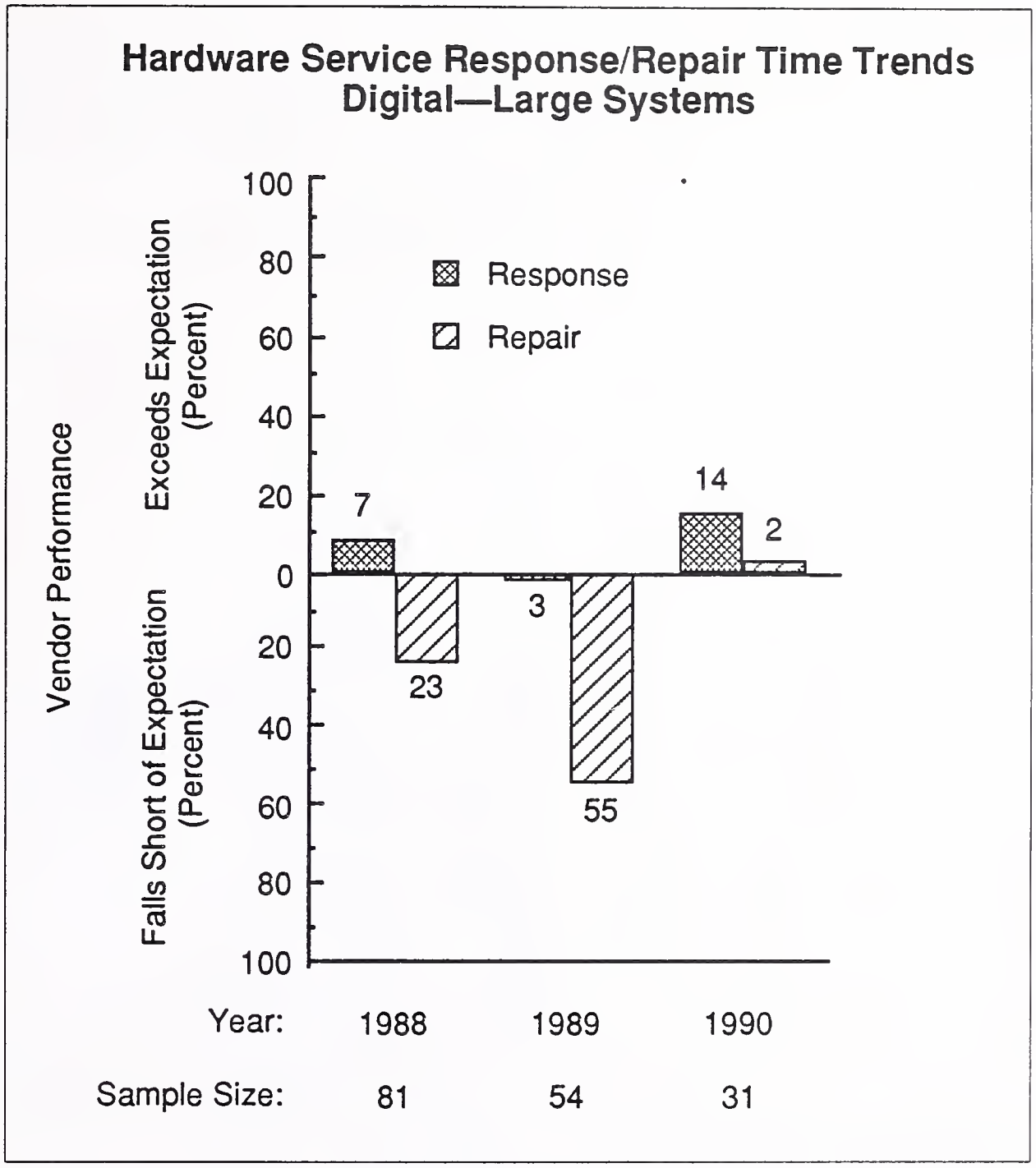


EXHIBIT VI-10

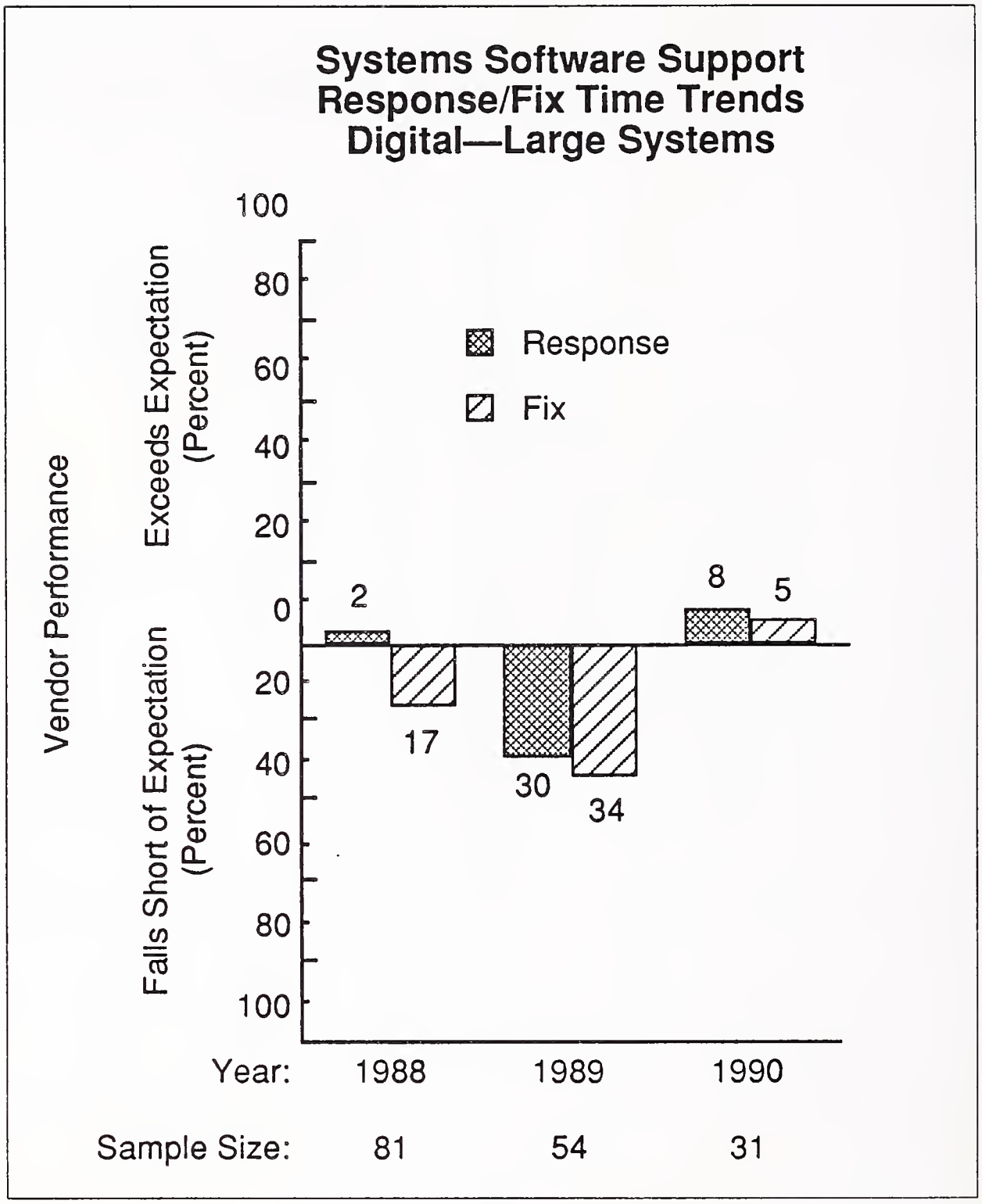


EXHIBIT VI-11

Hardware Service Trends 1989-1990
IBM—Large Systems

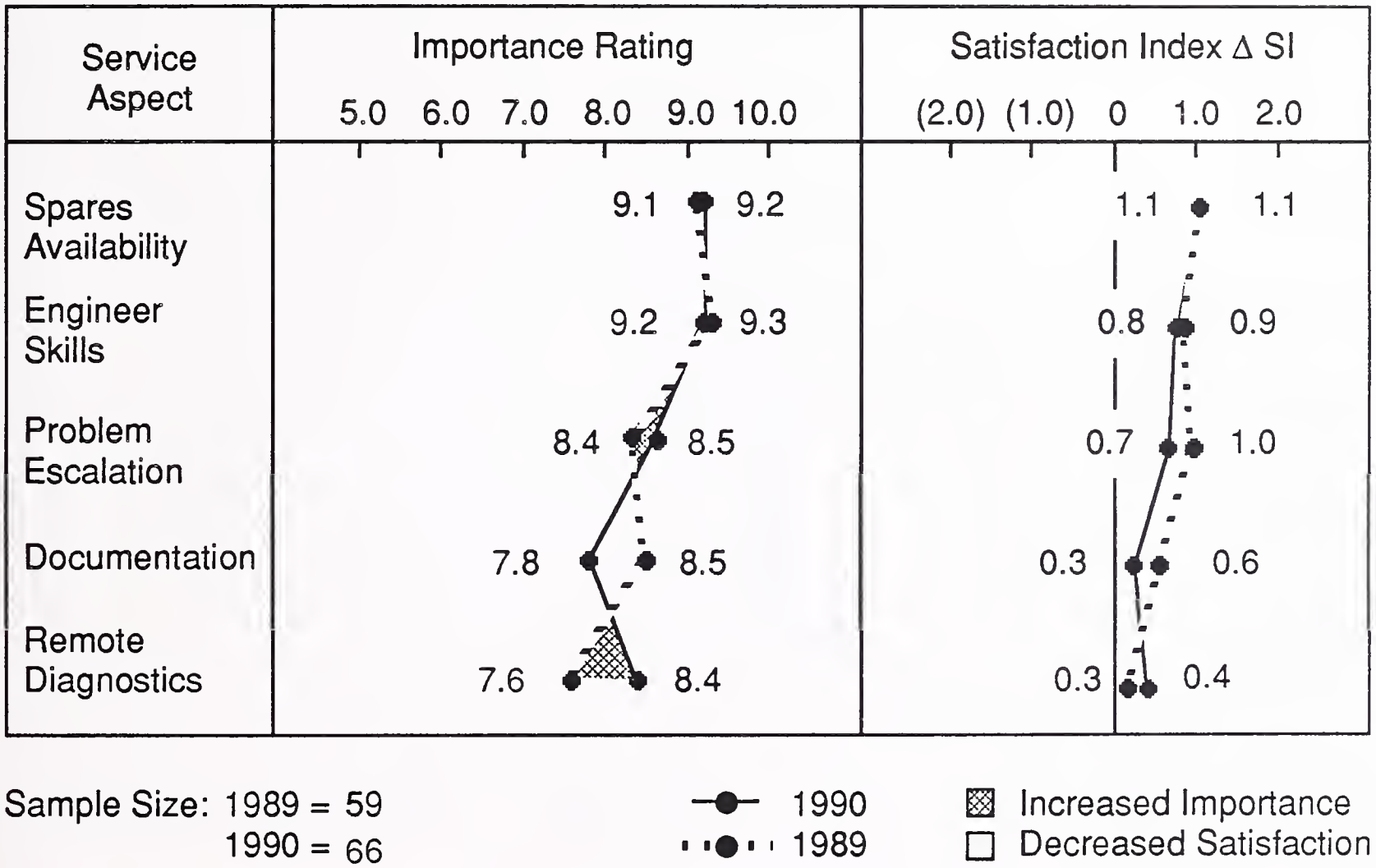


EXHIBIT VI-12

Systems Software Support Trends 1989-1990
IBM—Large Systems

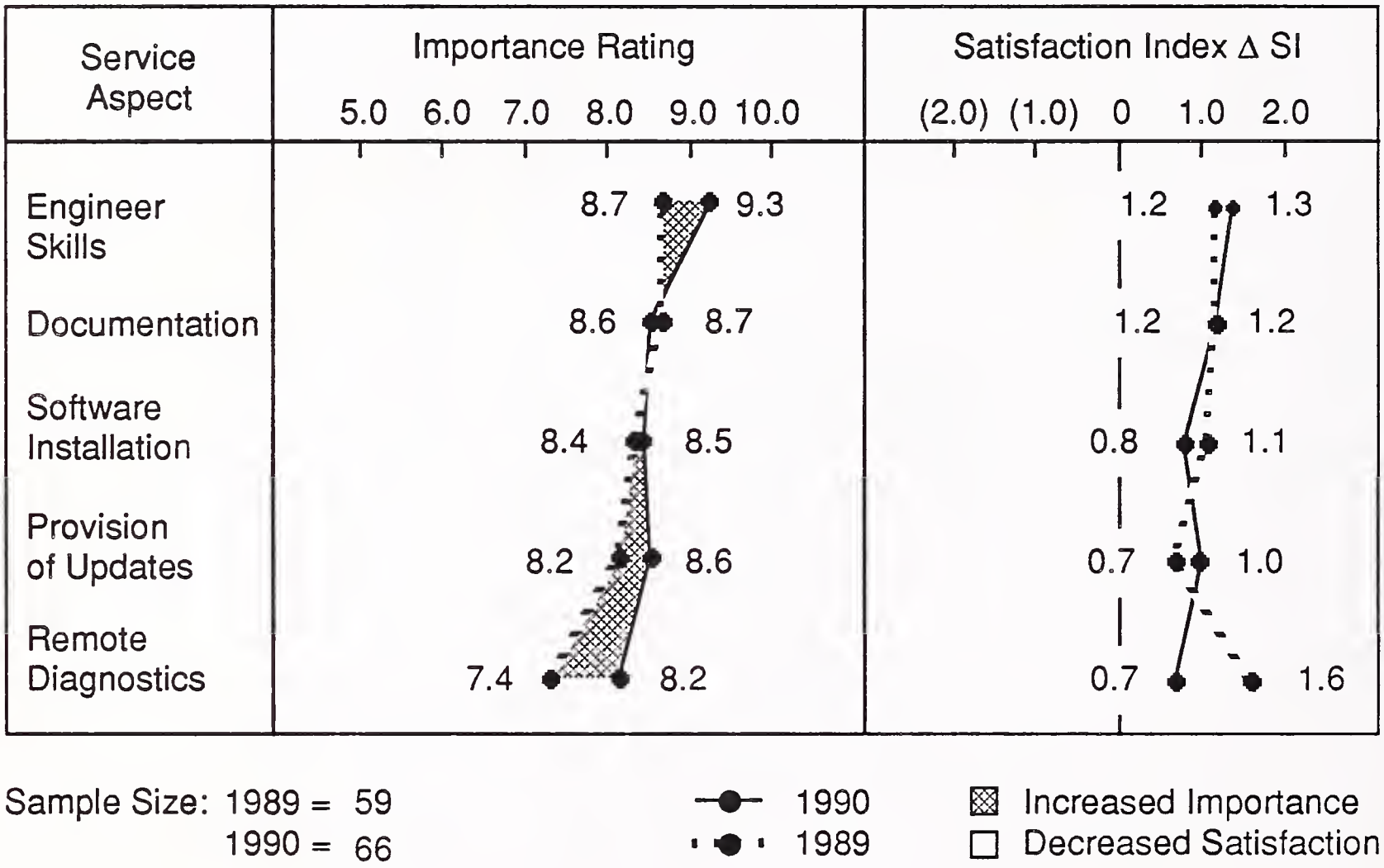


EXHIBIT VI-13

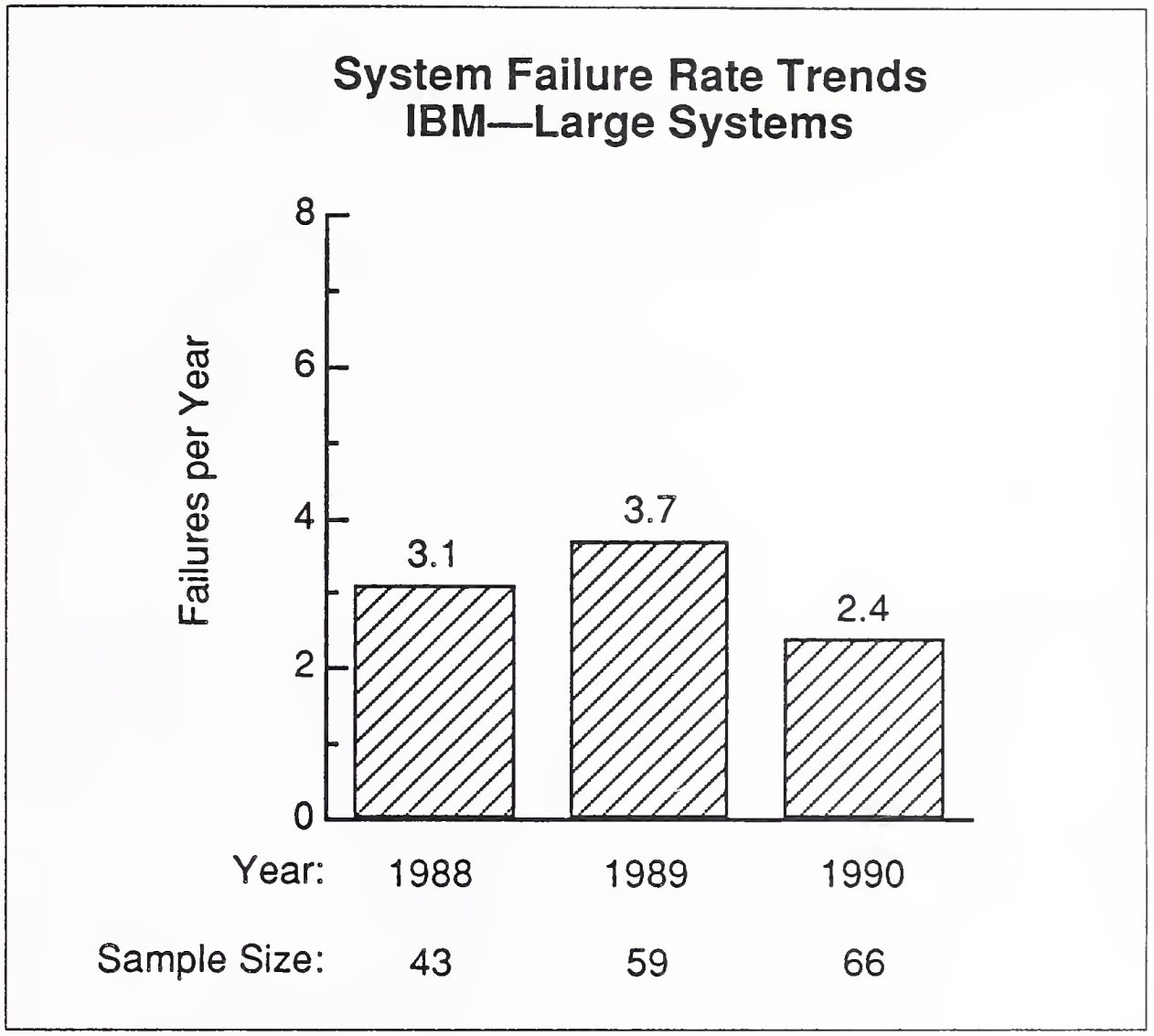


EXHIBIT VI-14

Hardware Service Response/Repair Time Trends
IBM—Large Systems

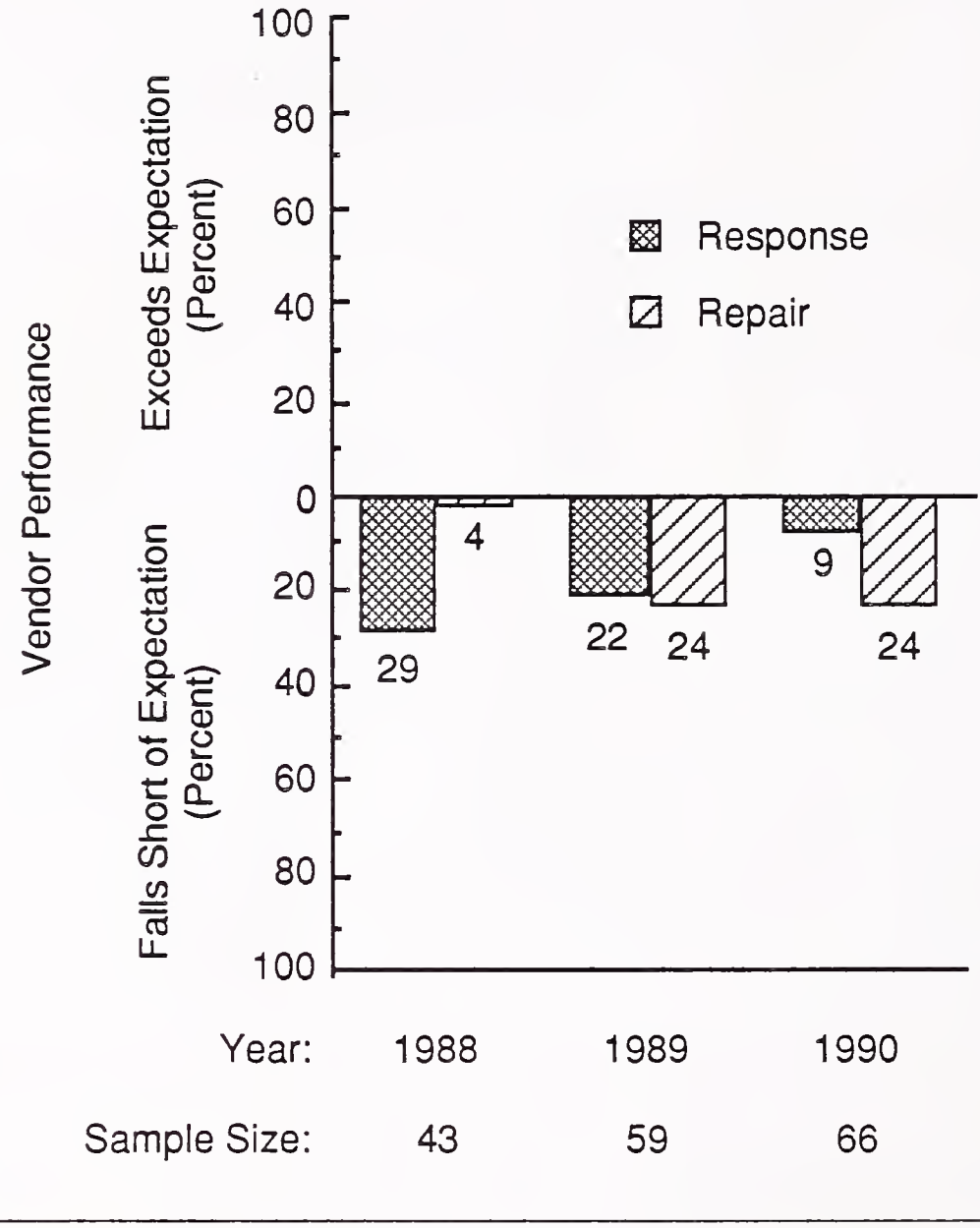


EXHIBIT VI-15

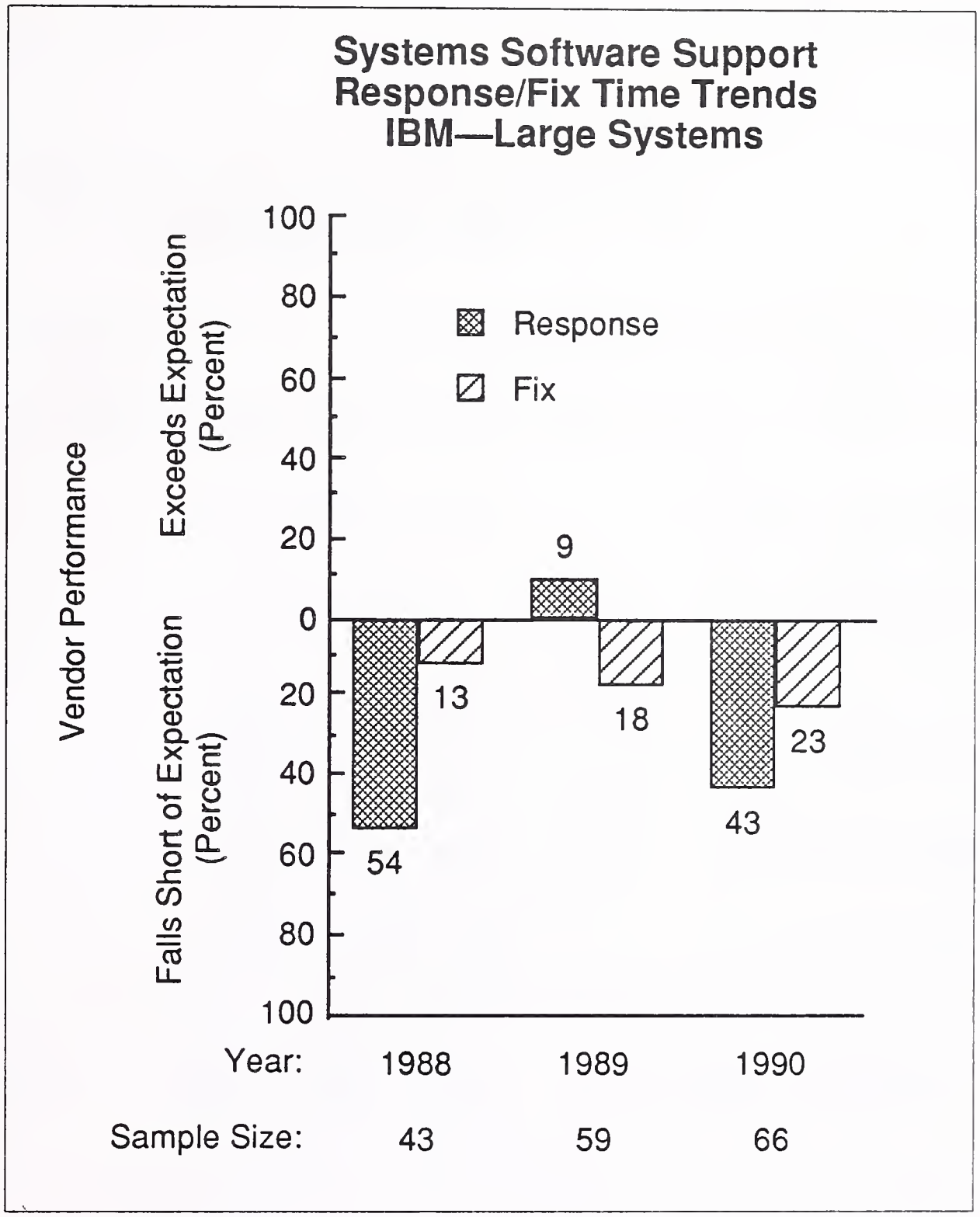


EXHIBIT VI-16

Hardware Service Trends 1989-1990
ICL—Large Systems

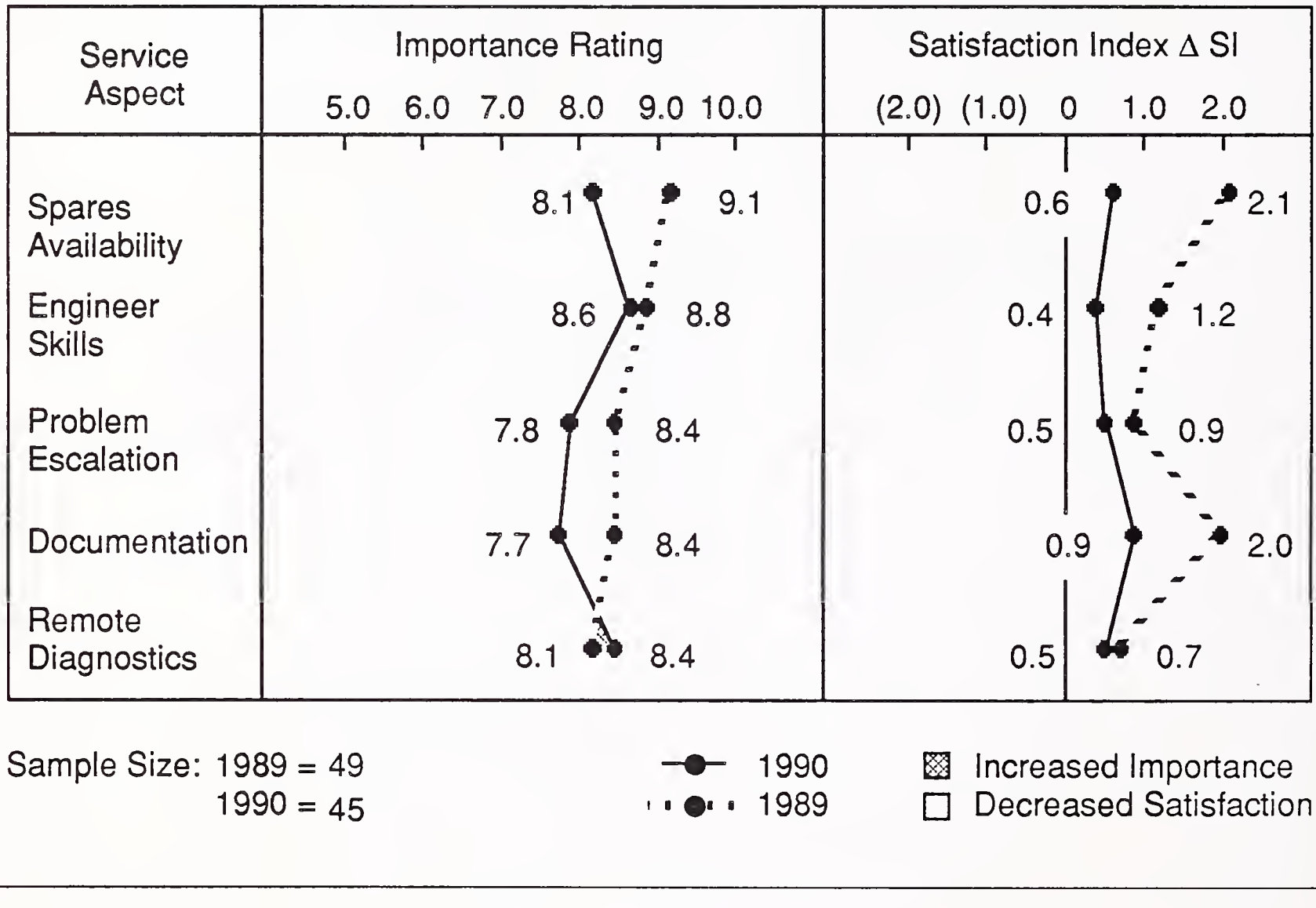


EXHIBIT VI-17

Systems Software Support Trends 1989-1990
ICL—Large Systems

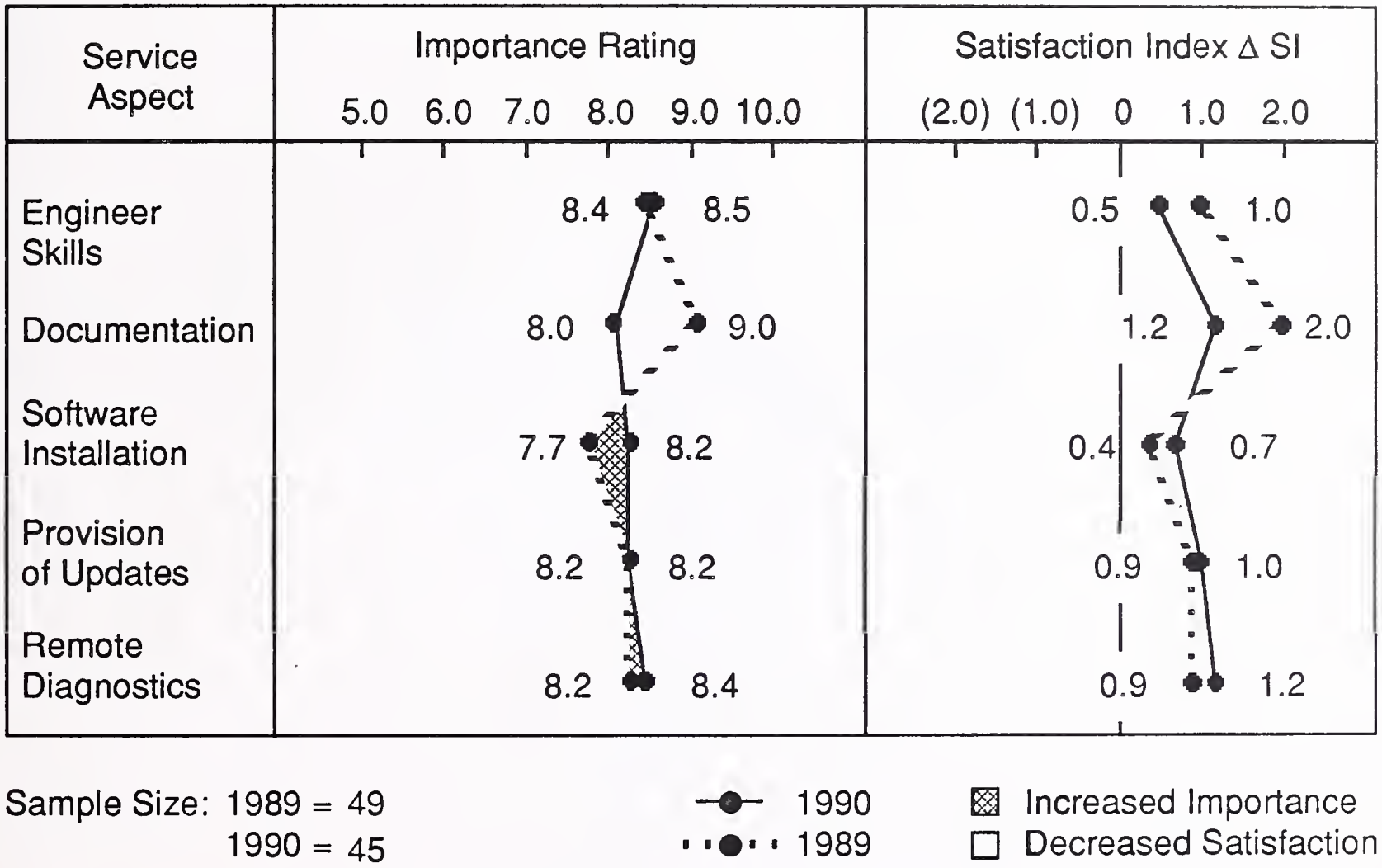


EXHIBIT VI-18

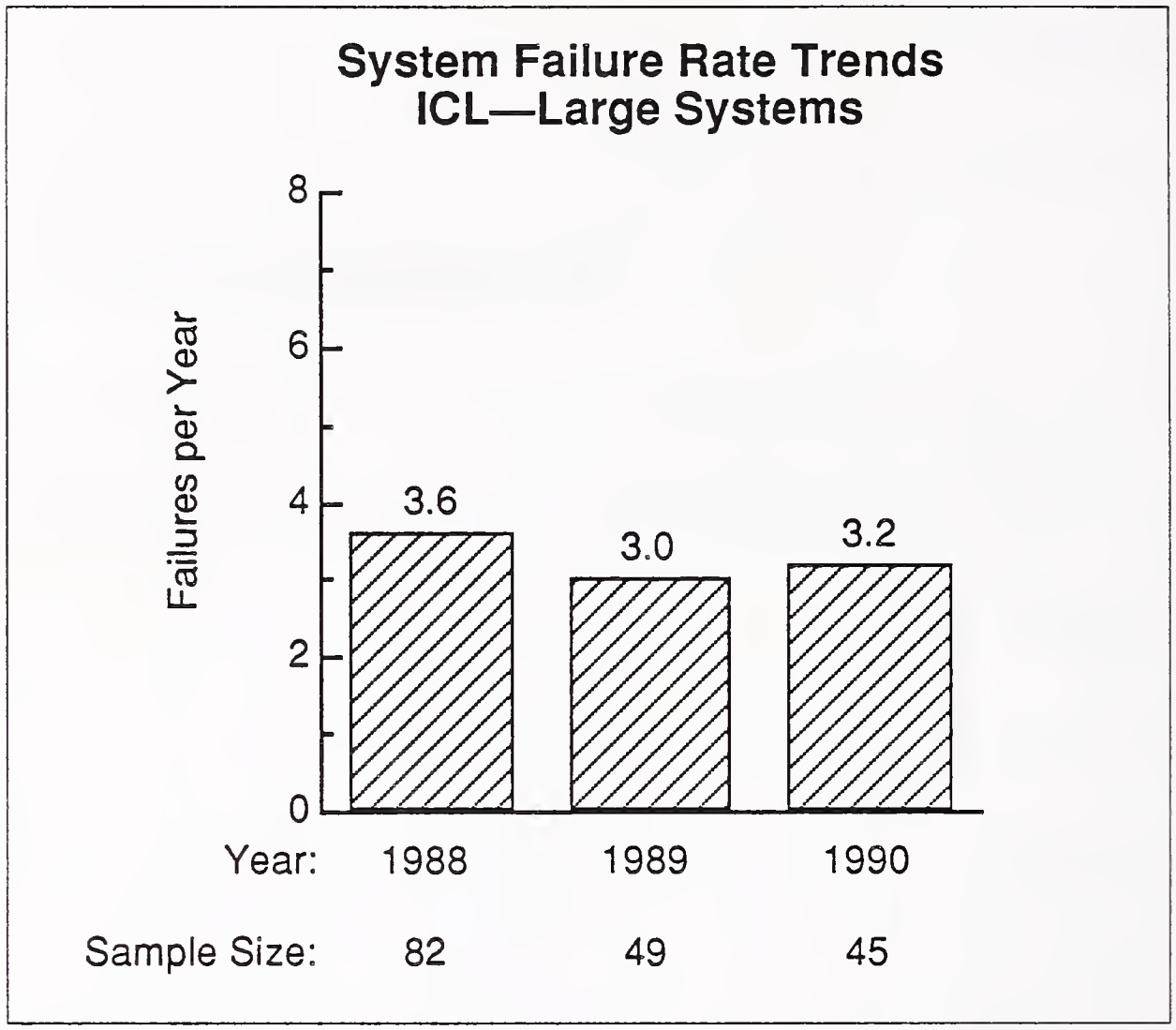


EXHIBIT VI-19

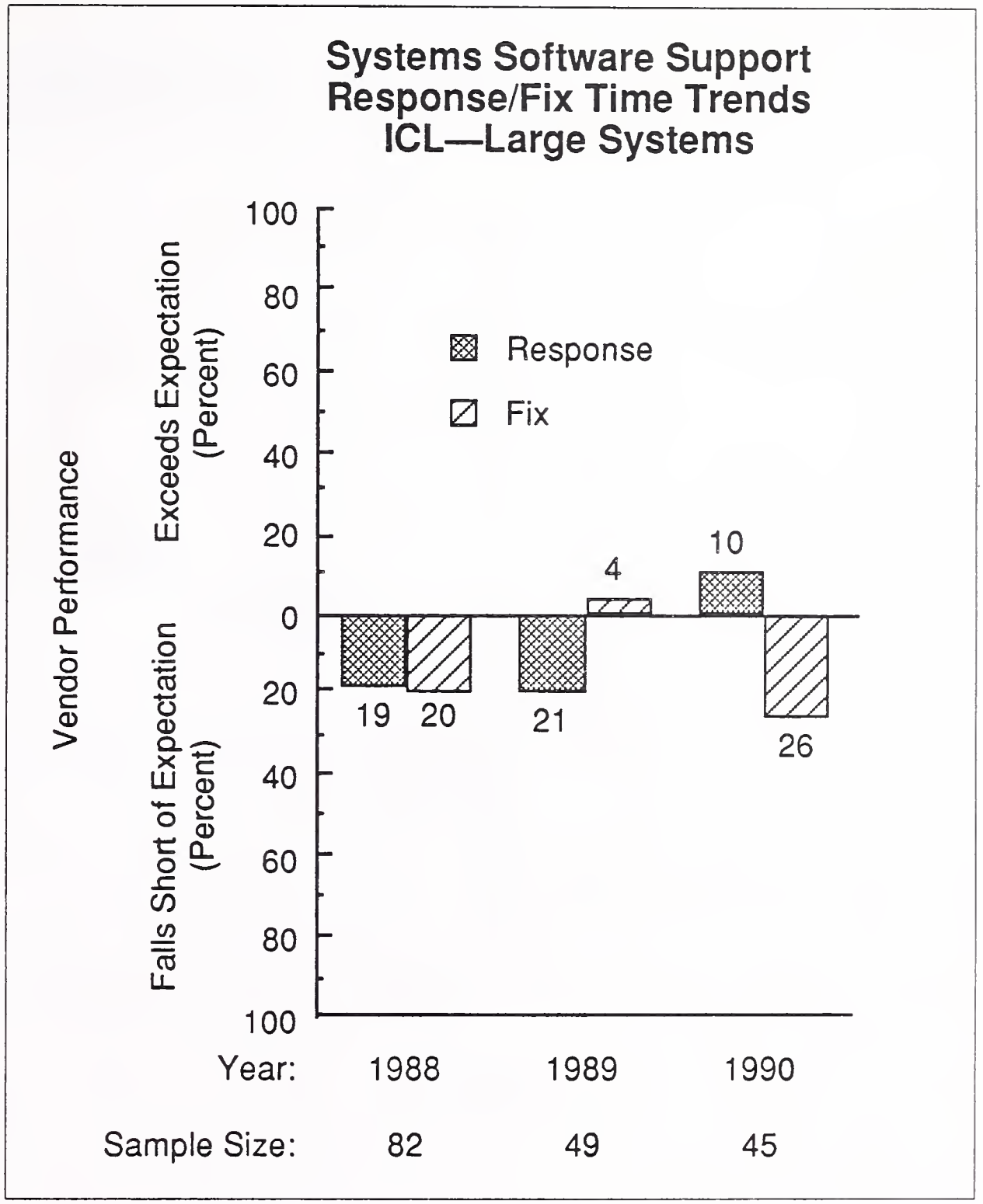
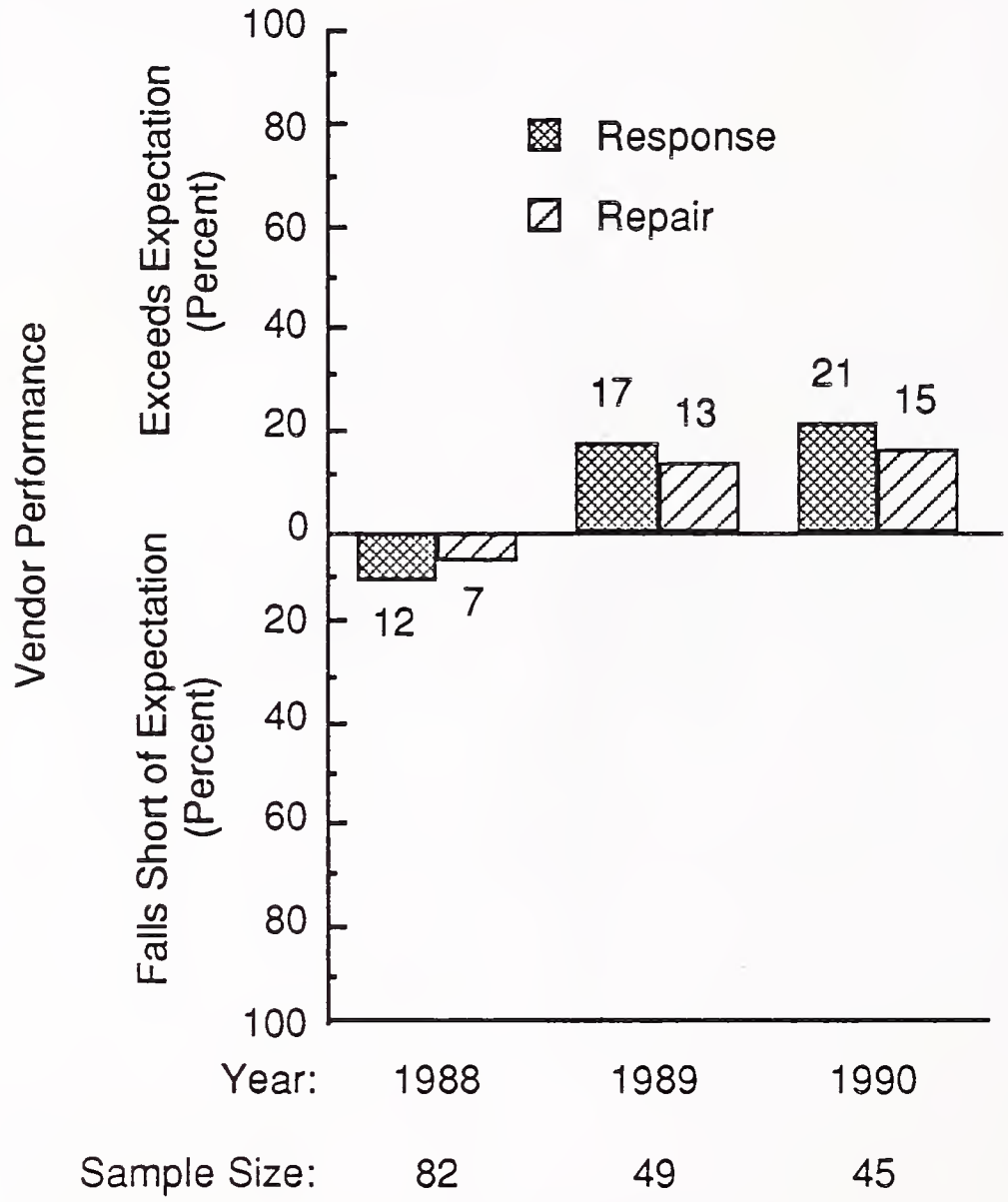


EXHIBIT VI-20

Hardware Service Response/Repair Time Trends
ICL—Large Systems



B

Medium Systems

Exhibits VI-21 to VI-60 indicate trends in medium systems user perception of vendor performance between 1988 and 1990. Trend data included is restricted to those vendors for which the user sample size is considered by INPUT to be sufficiently large to provide a valid statistical result (i.e., user sample is larger than 20).

Trend data is presented for the following vendors:

- Bull
- Digital
- Hewlett-Packard
- IBM
- ICL
- NCR
- Stratus
- Unisys

EXHIBIT VI-21

Hardware Service Trends 1989-1990
Bull—Medium Systems

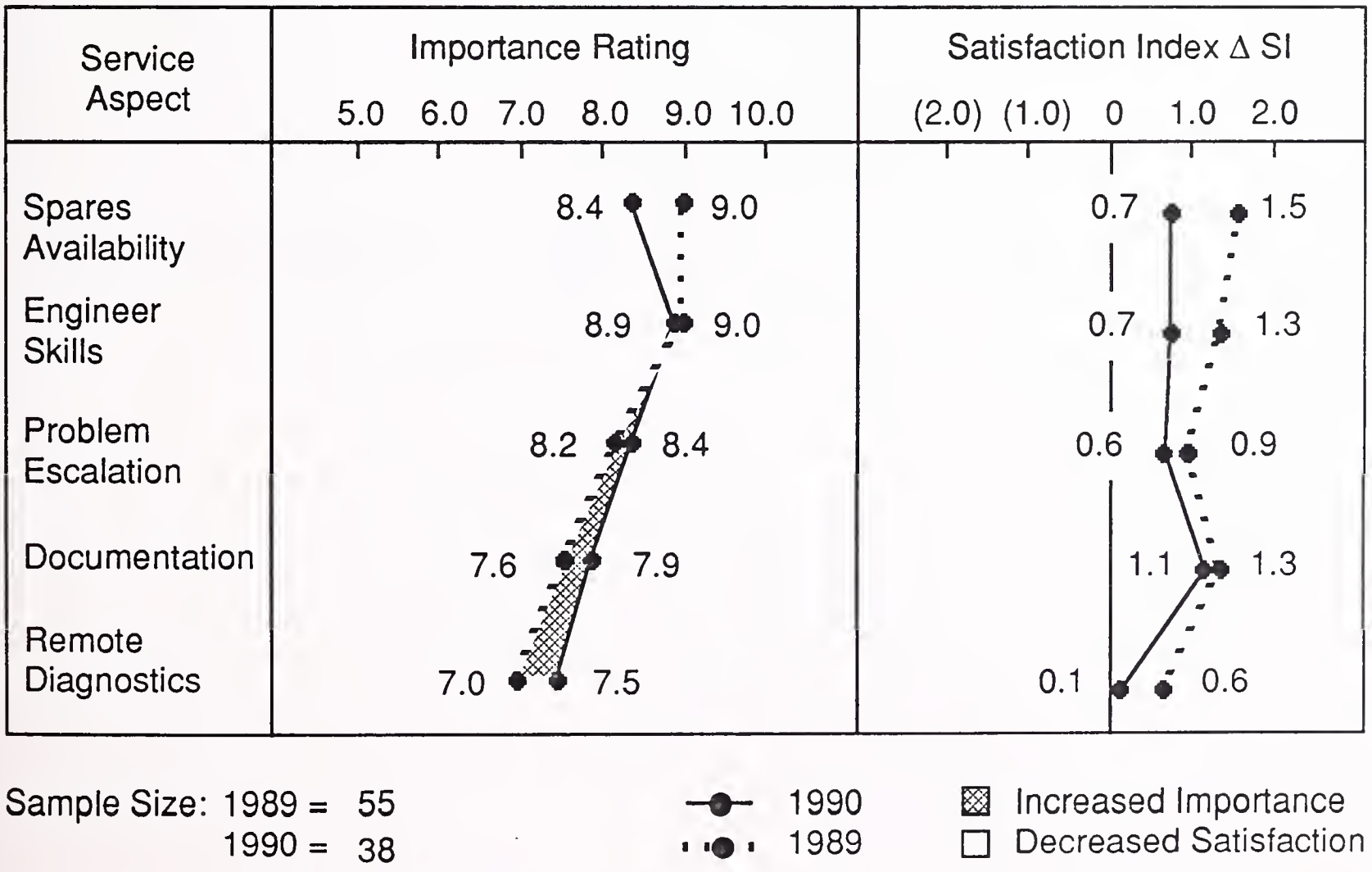


EXHIBIT VI-22

Systems Software Support Trends 1989-1990
Bull—Medium Systems

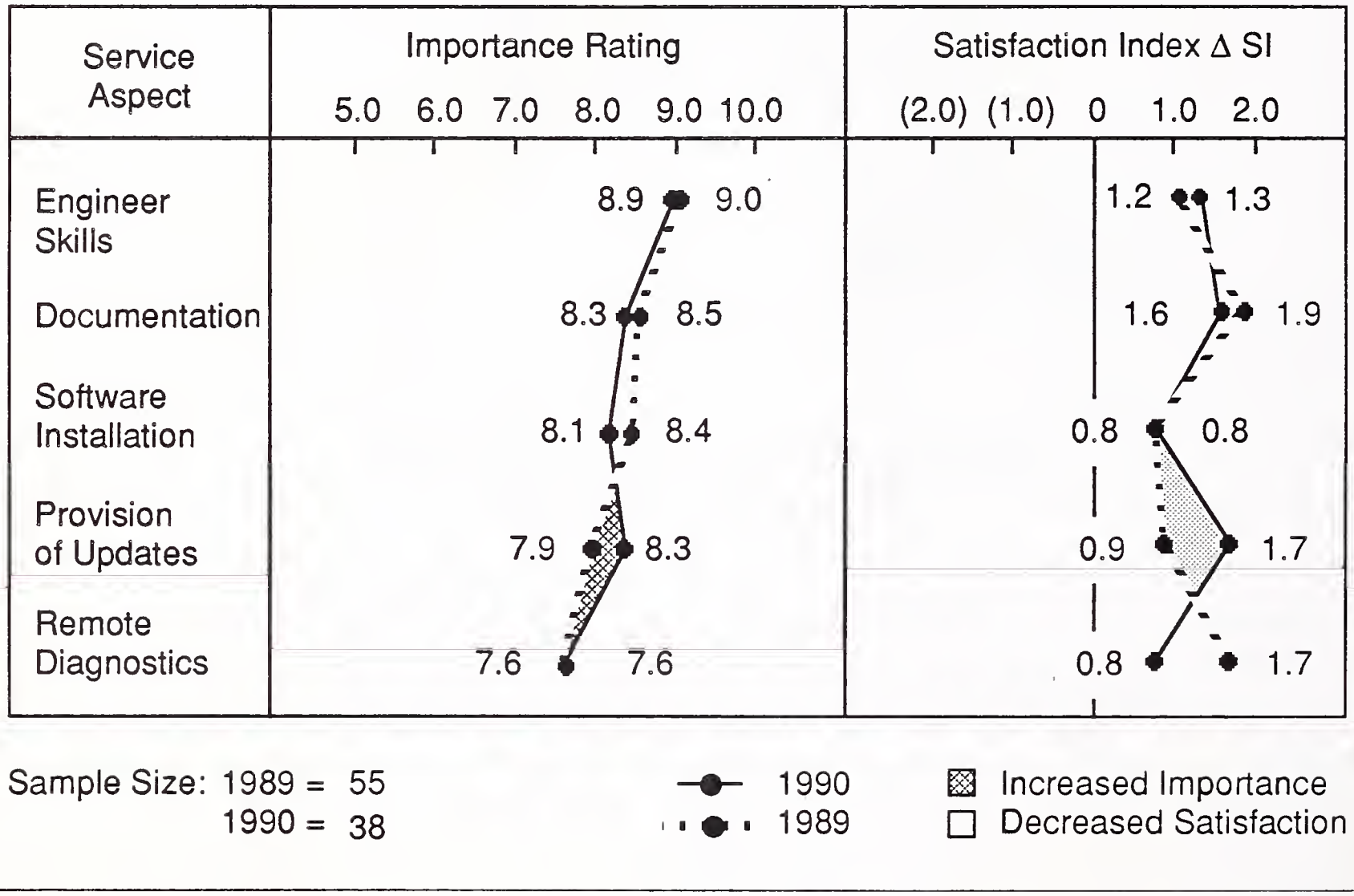


EXHIBIT VI-23

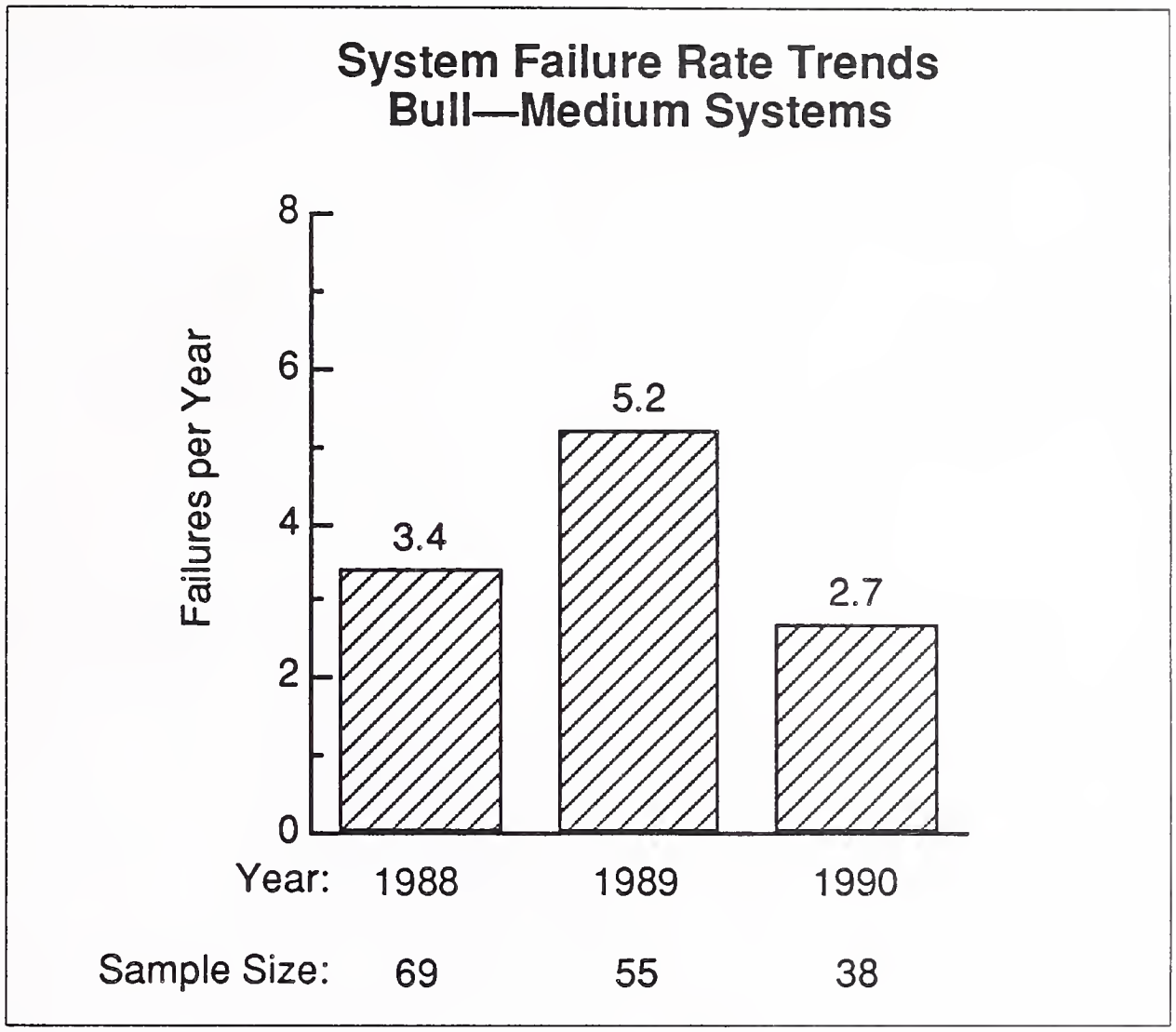
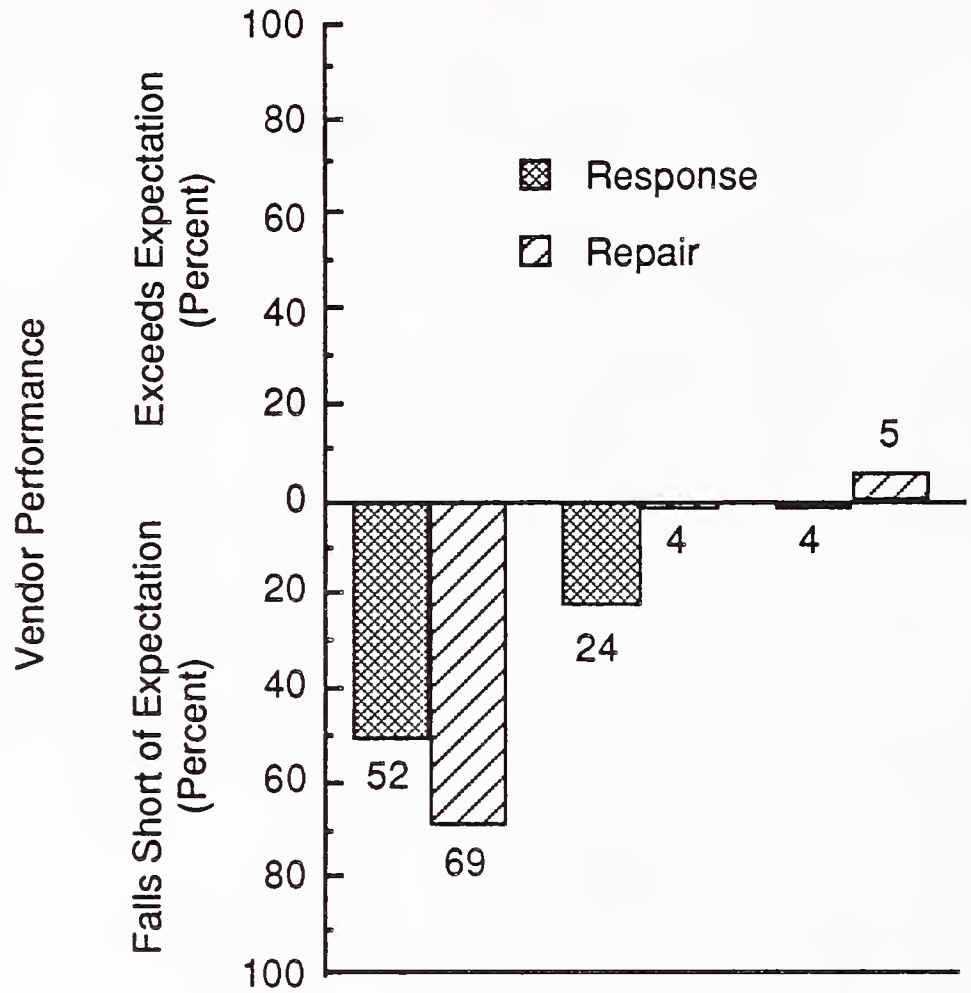


EXHIBIT VI-24

Hardware Service Response/Repair Time Trends
Bull—Medium Systems



	1988	1989	1990
Year:			
Sample Size:	69	55	38

EXHIBIT VI-25

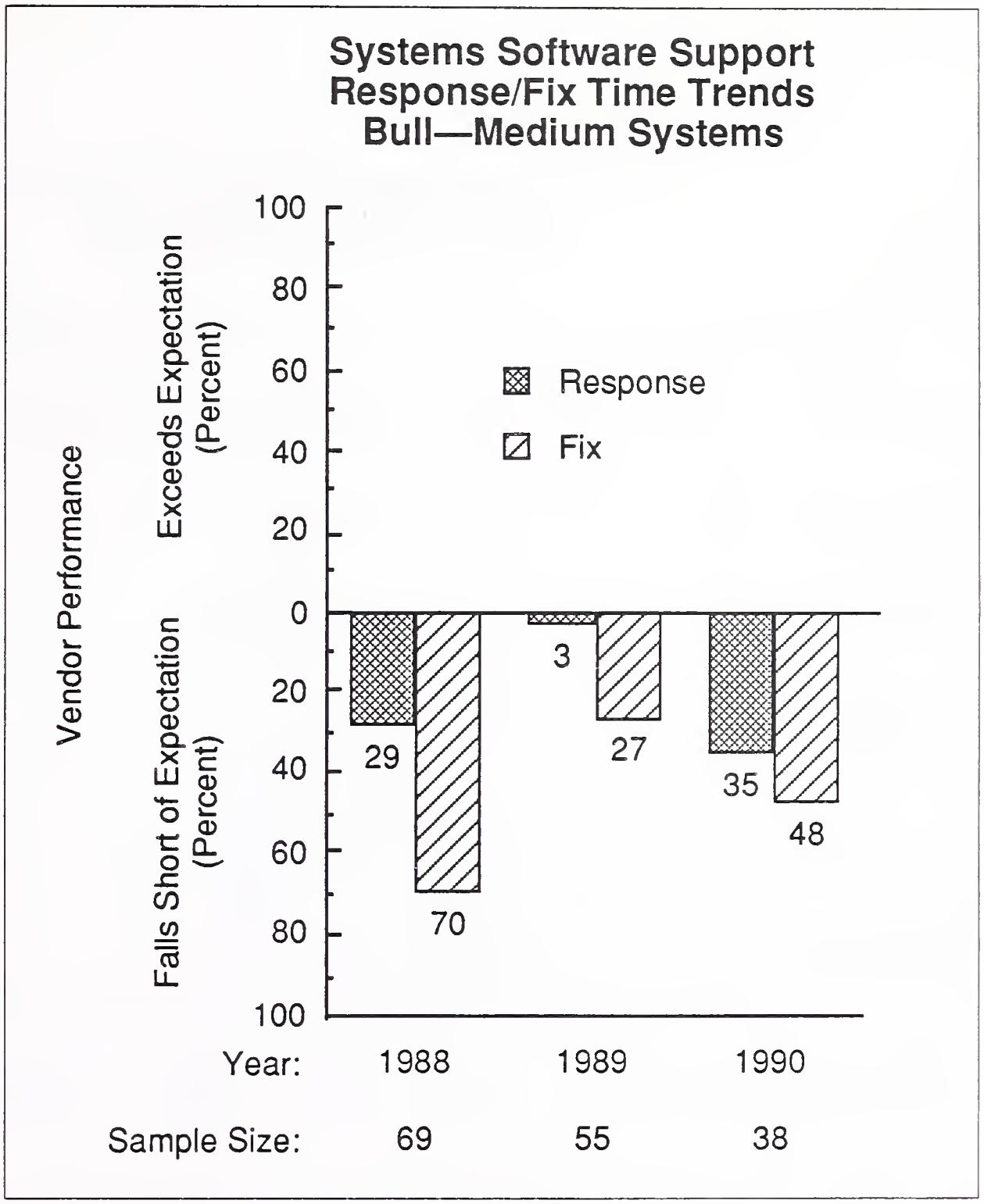


EXHIBIT VI-26

Hardware Service Trends 1989-1990
Digital—Medium Systems

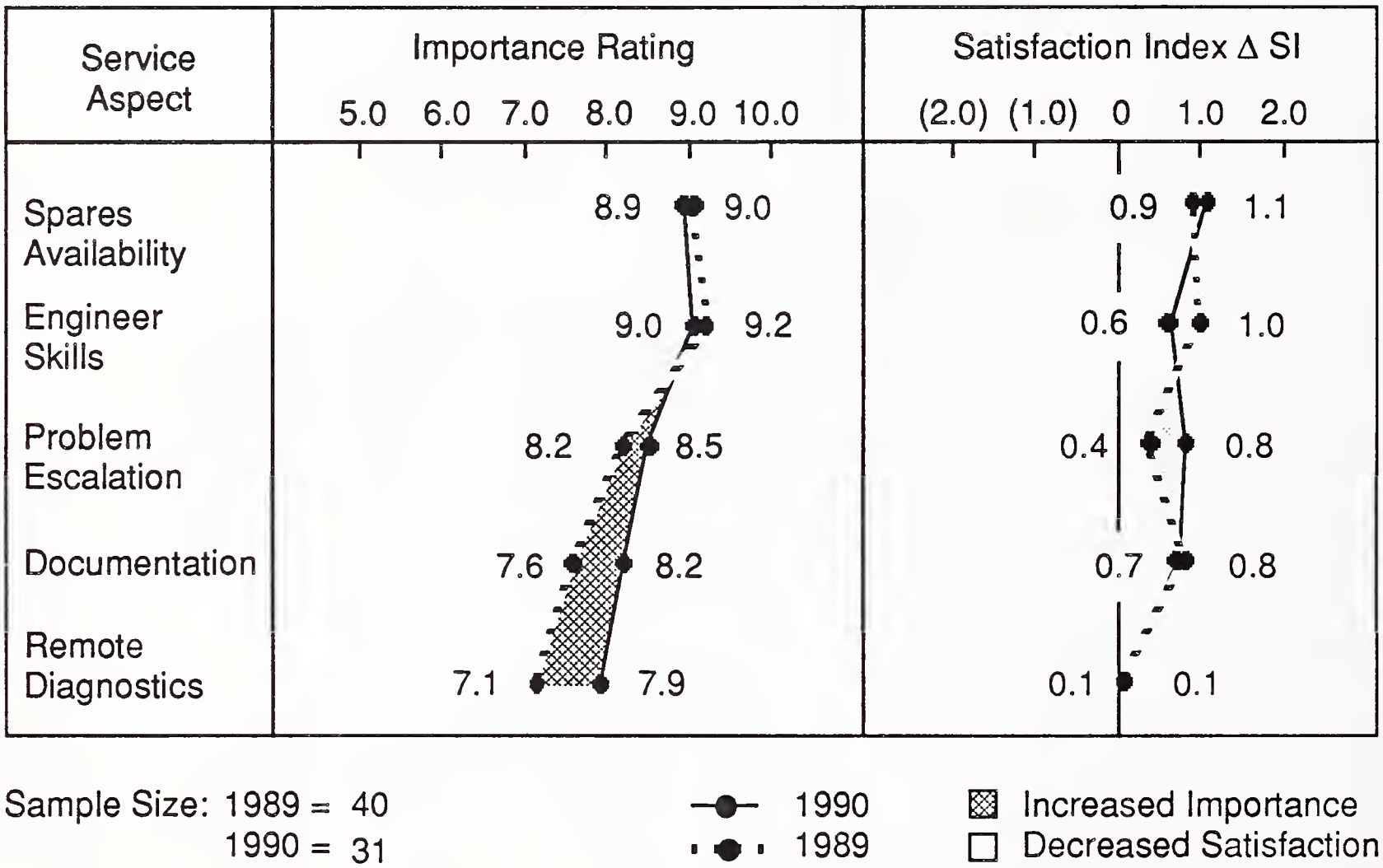


EXHIBIT VI-27

Systems Software Support Trends 1989-1990
Digital—Medium Systems

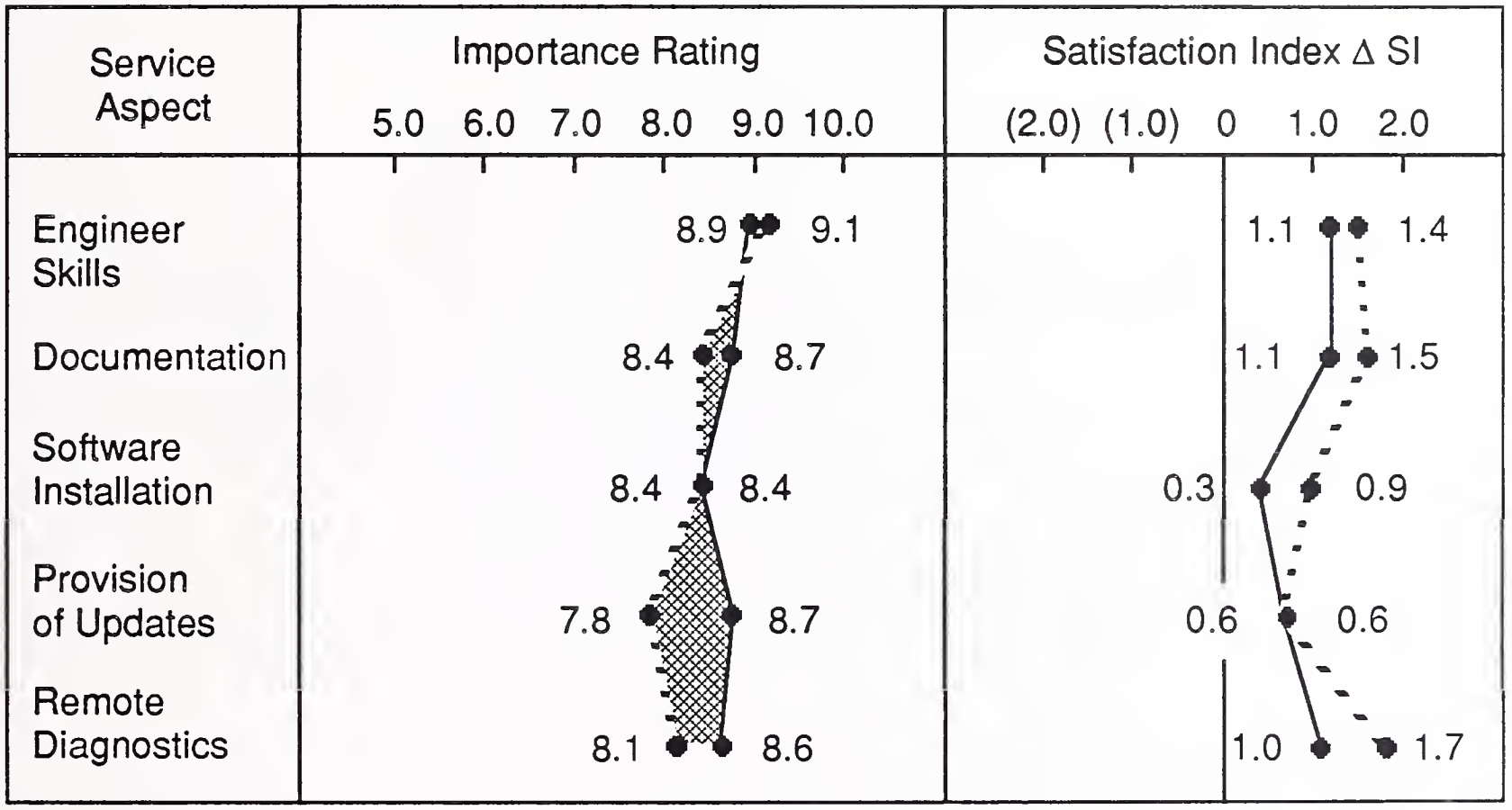


EXHIBIT VI-28

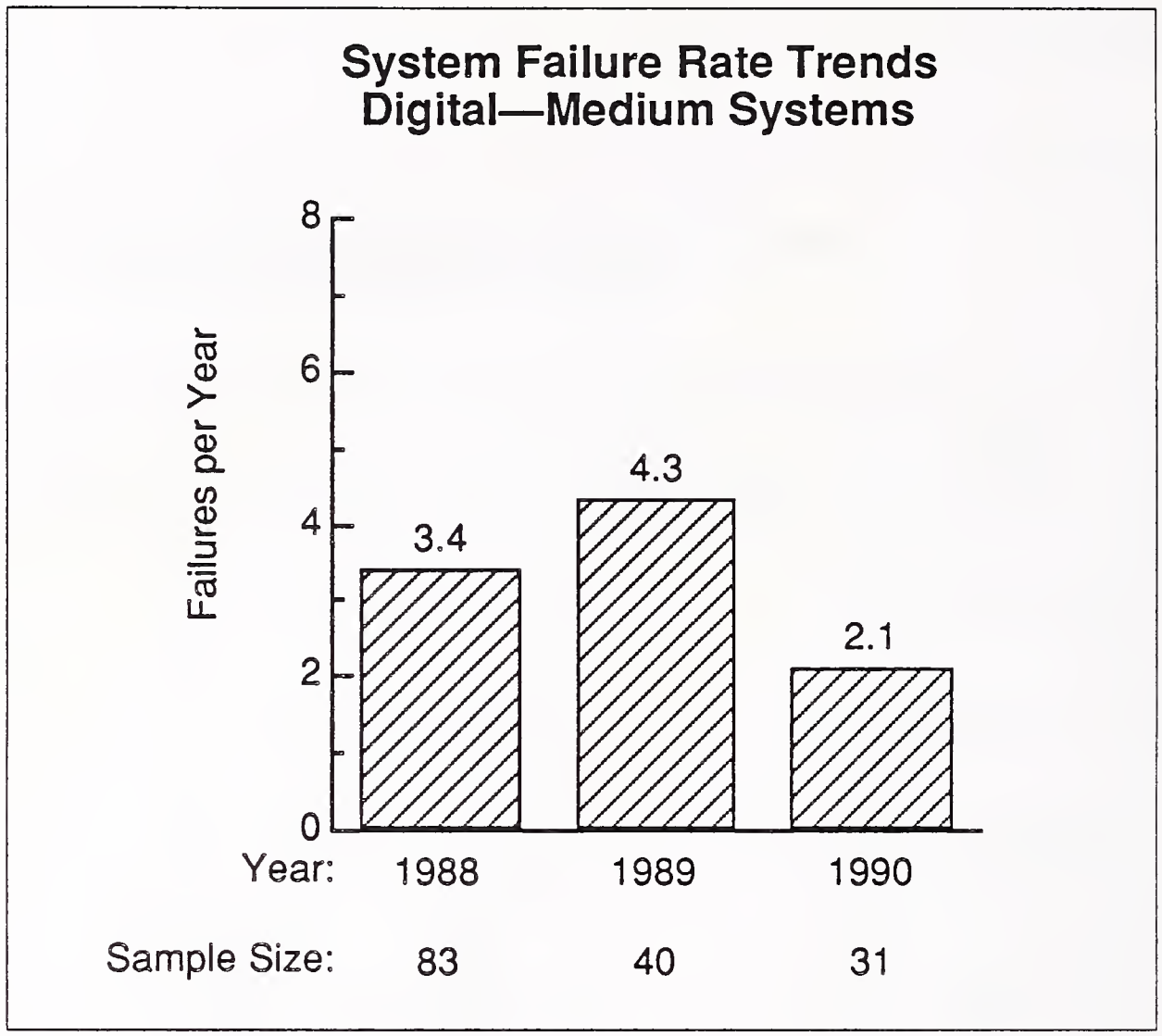
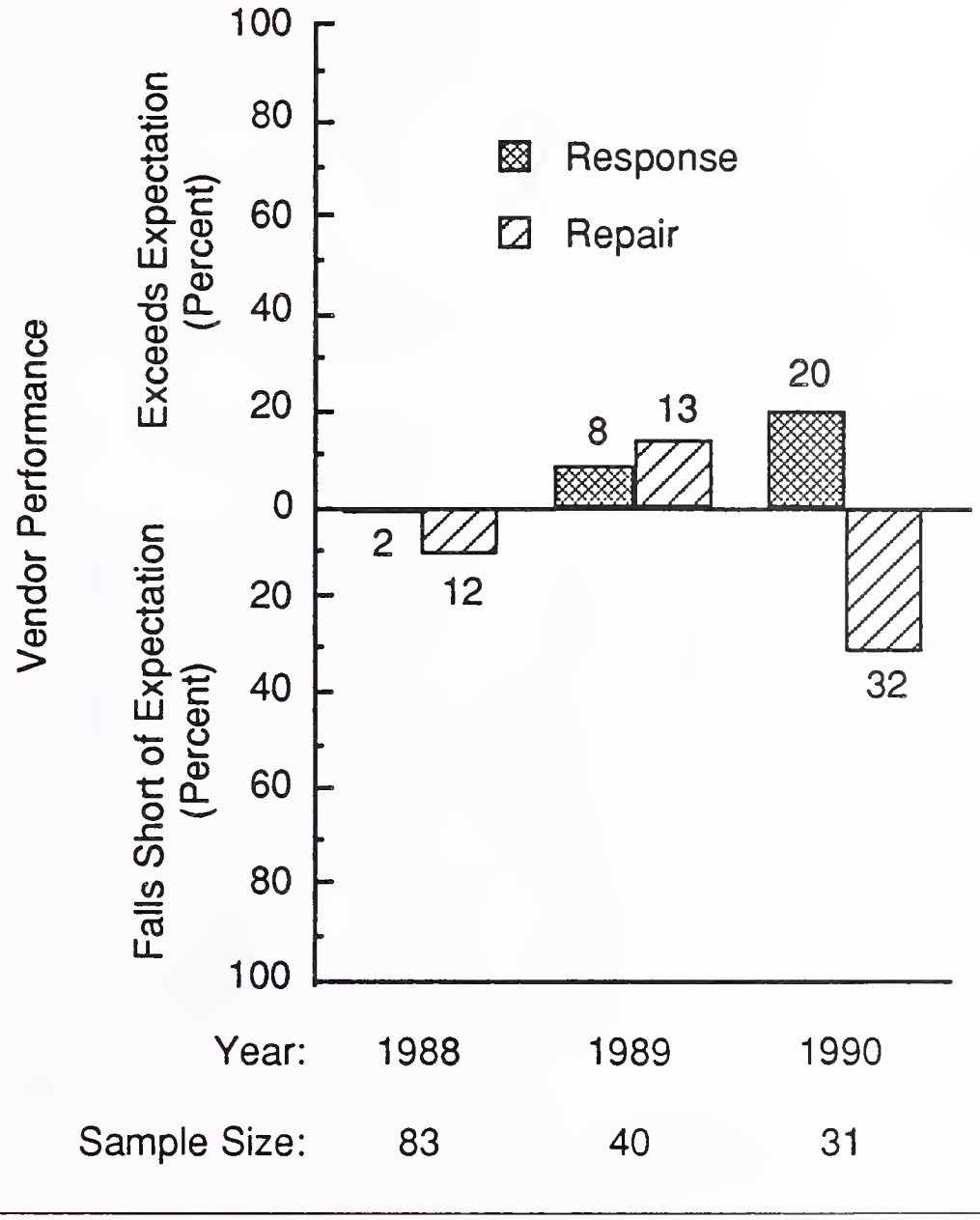


EXHIBIT VI-29

Hardware Service Response/Repair Time Trends
Digital—Medium Systems



	1988	1989	1990
Year:			
Sample Size:	83	40	31

EXHIBIT VI-30

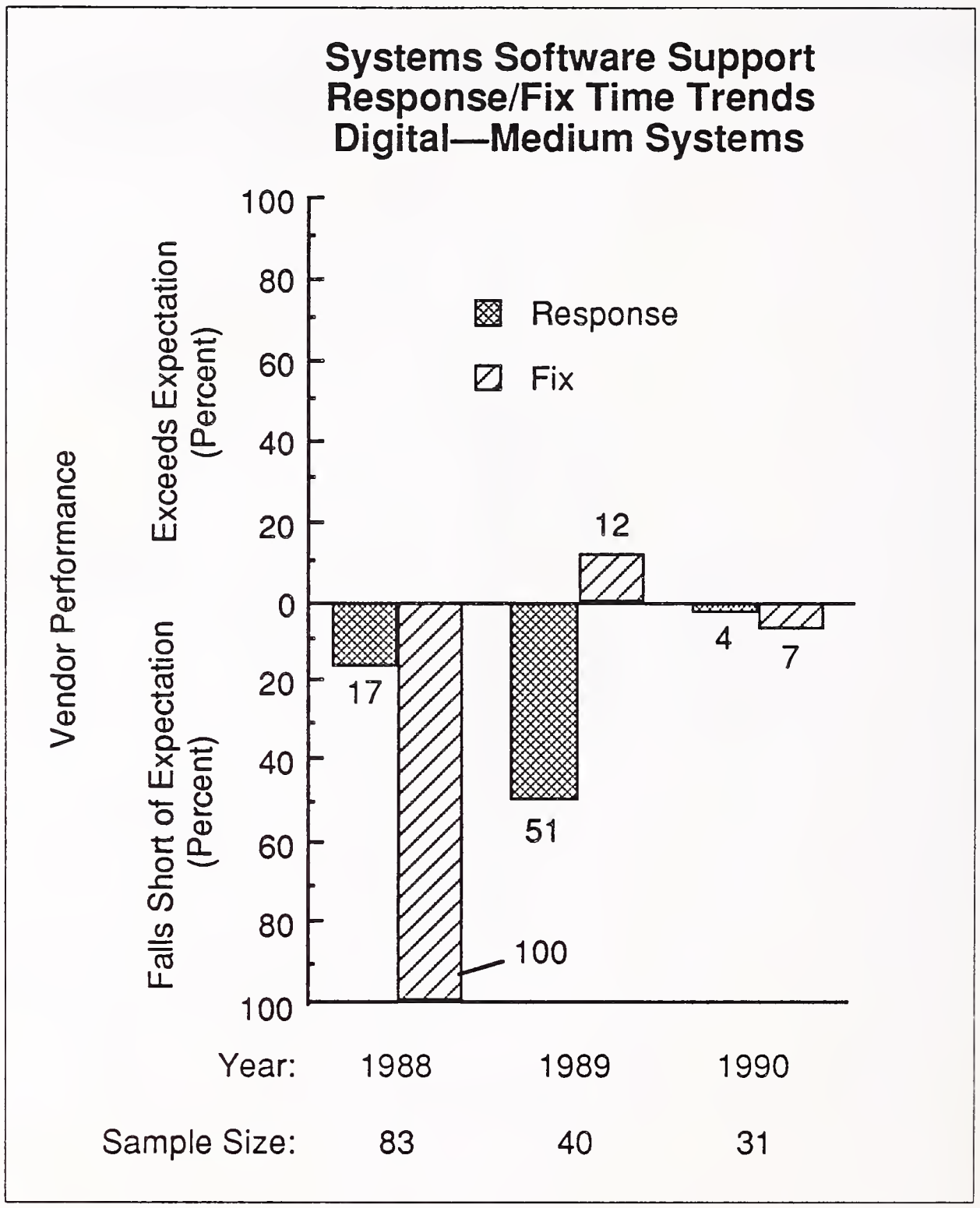


EXHIBIT VI-31

Hardware Service Trends 1989-1990
Hewlett-Packard—Medium Systems

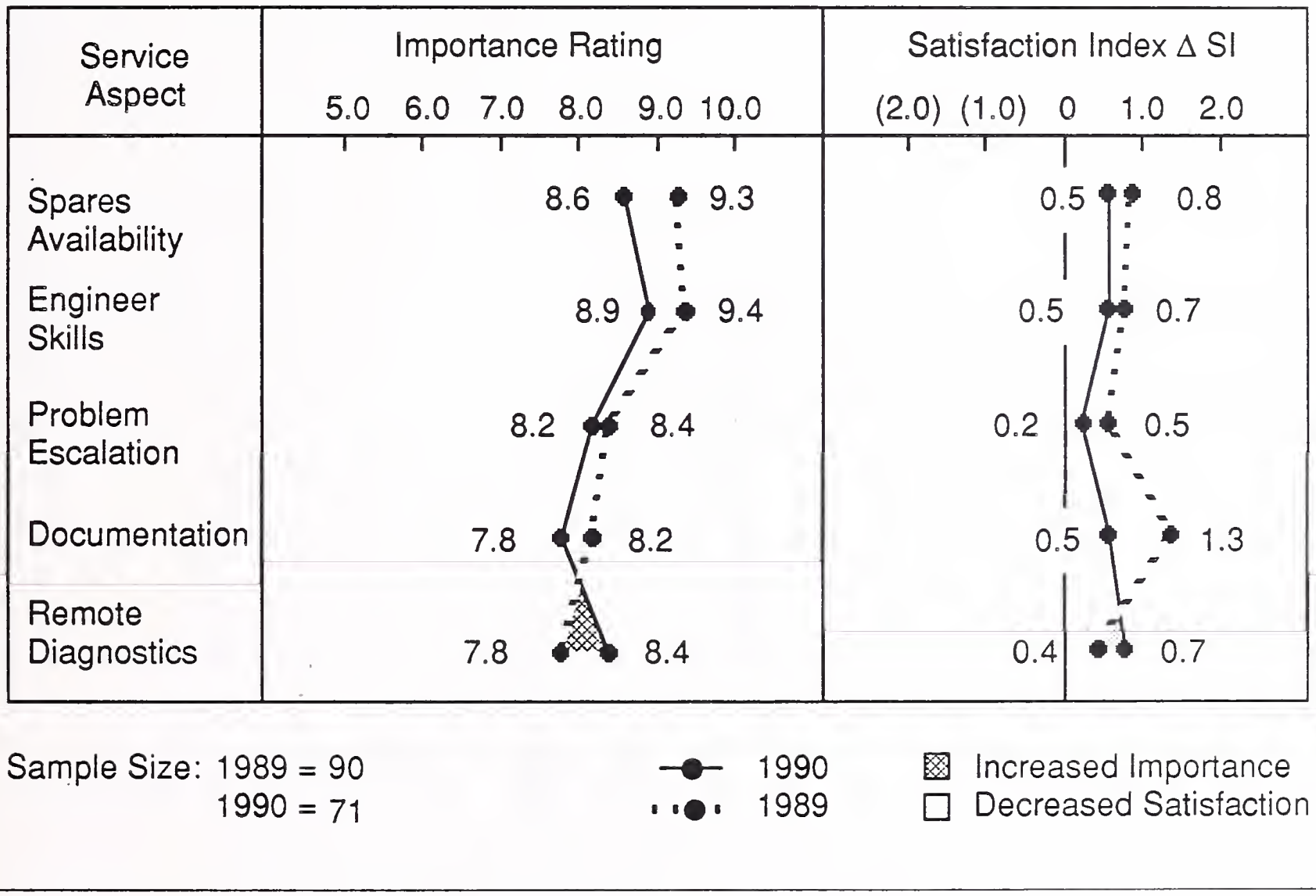


EXHIBIT VI-32

Systems Software Support Trends 1989-1990
Hewlett-Packard—Medium Systems

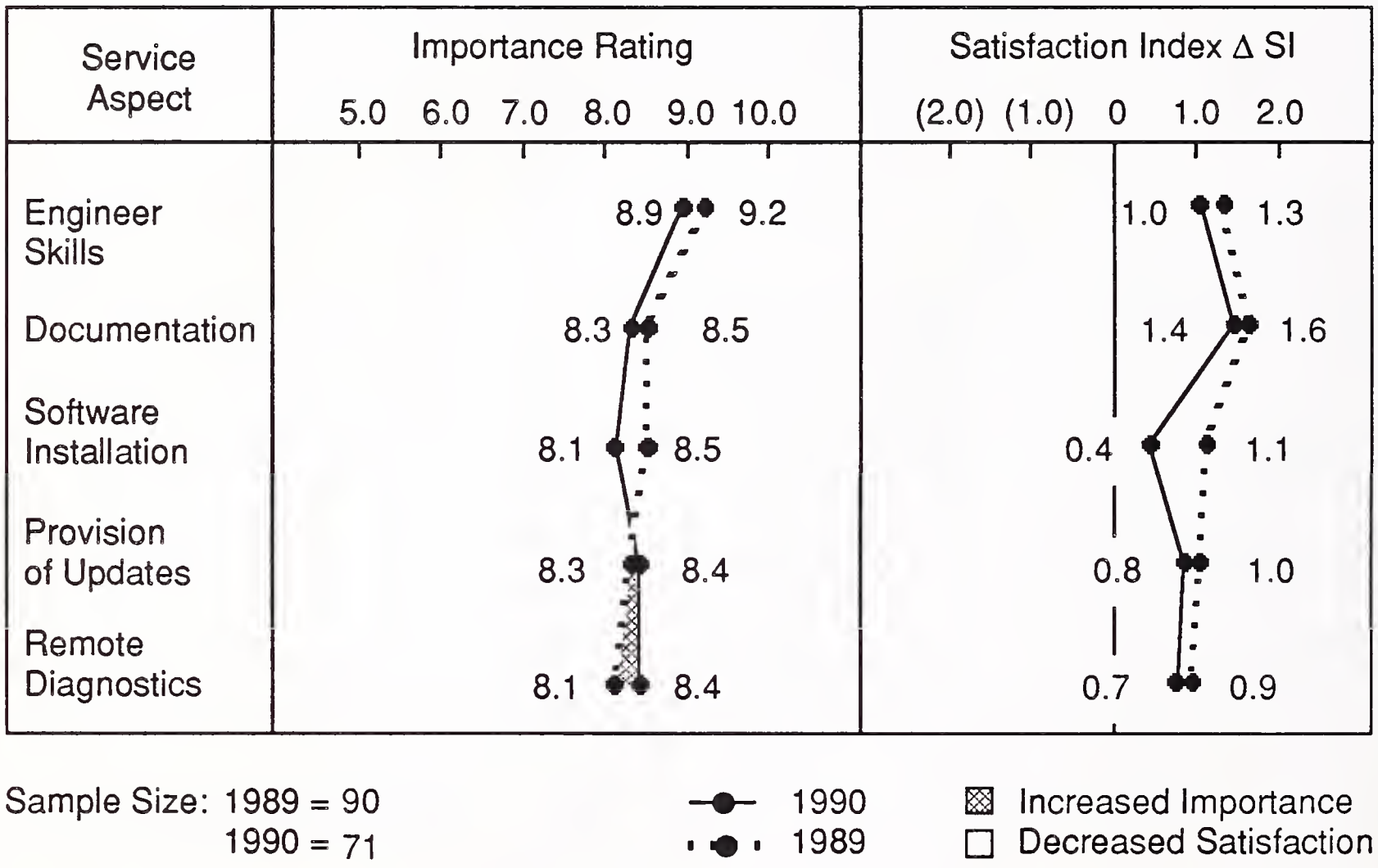


EXHIBIT VI-33

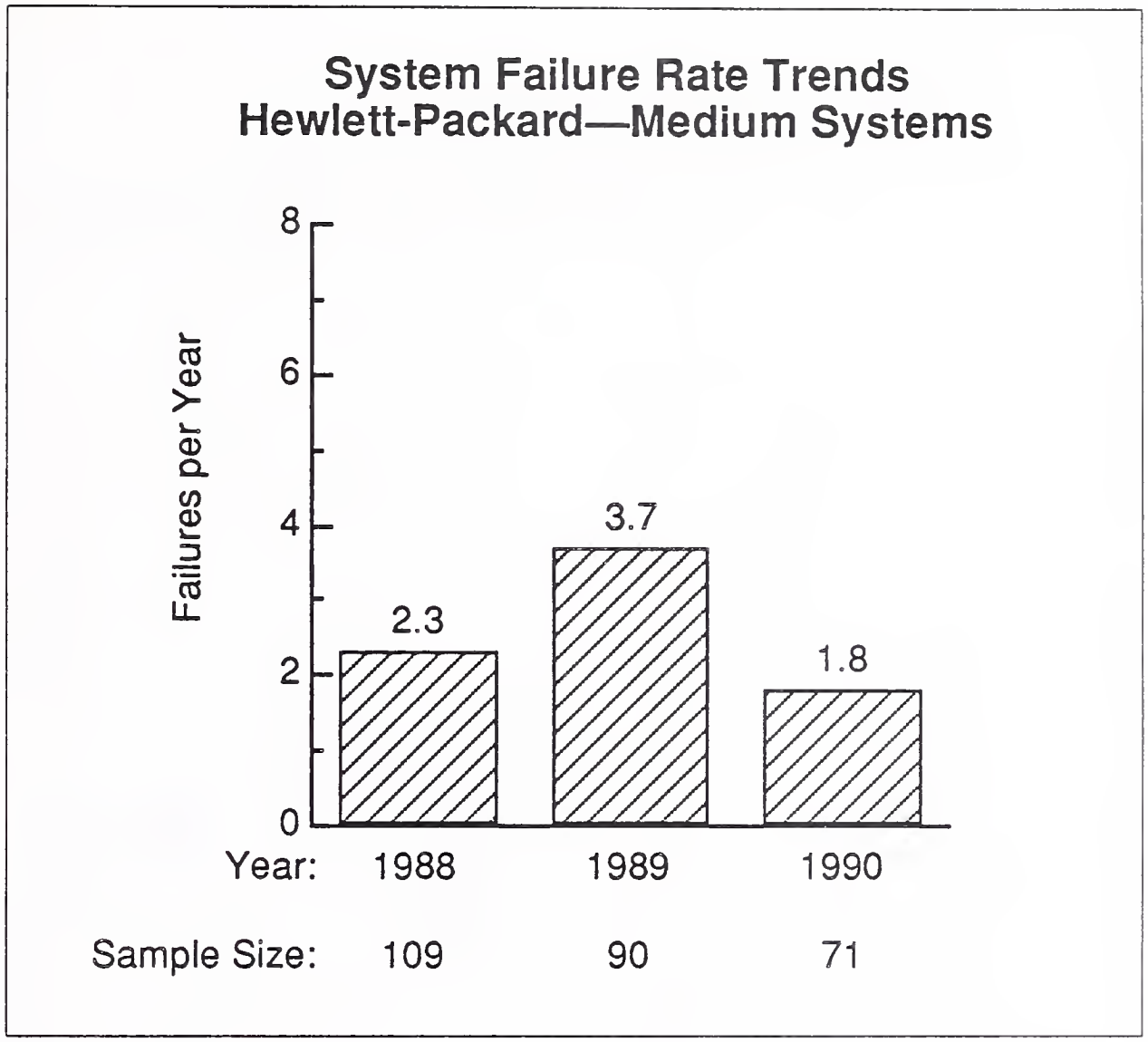


EXHIBIT VI-34

Hardware Service Response/Repair Time Trends
Hewlett-Packard—Medium Systems

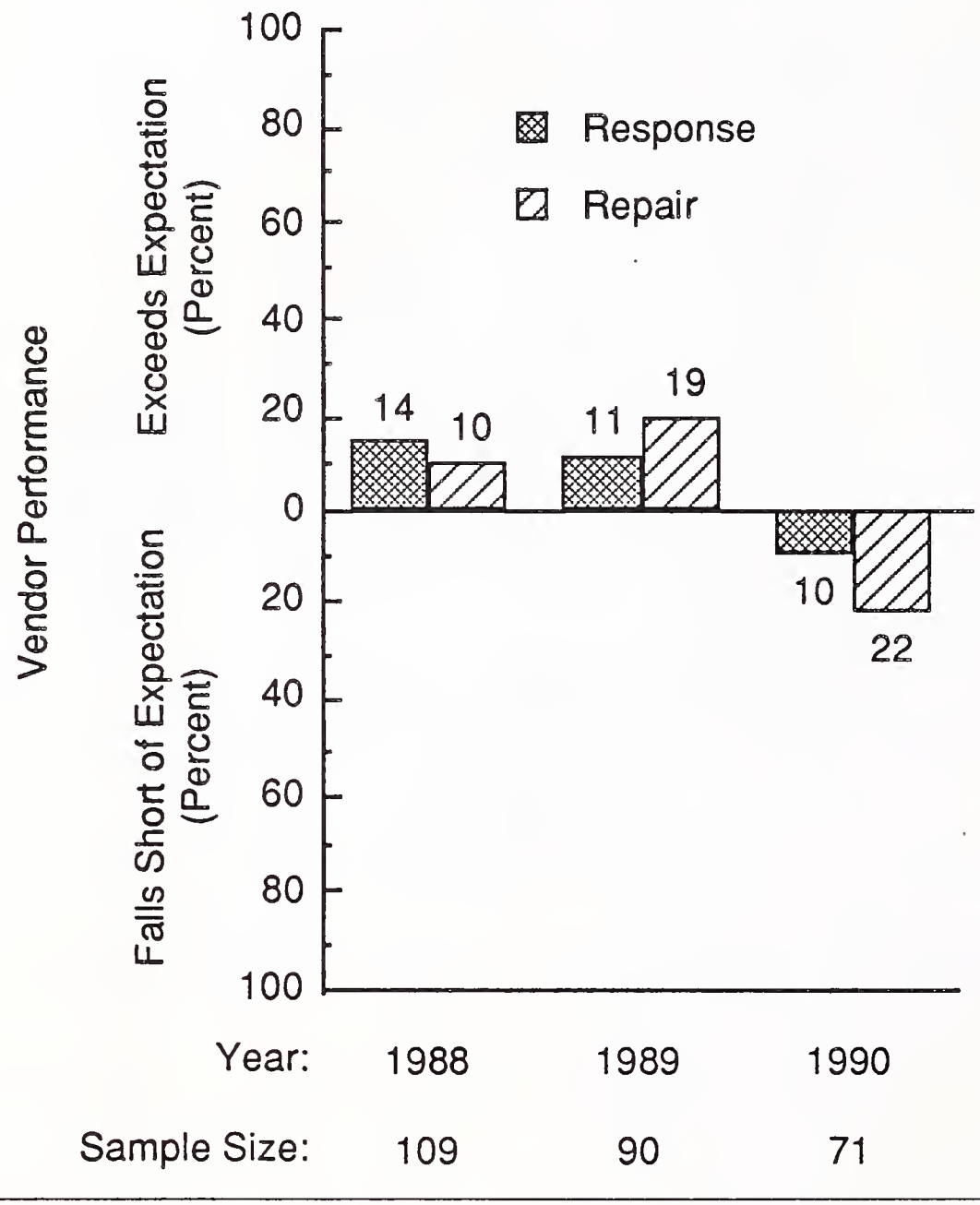


EXHIBIT VI-35

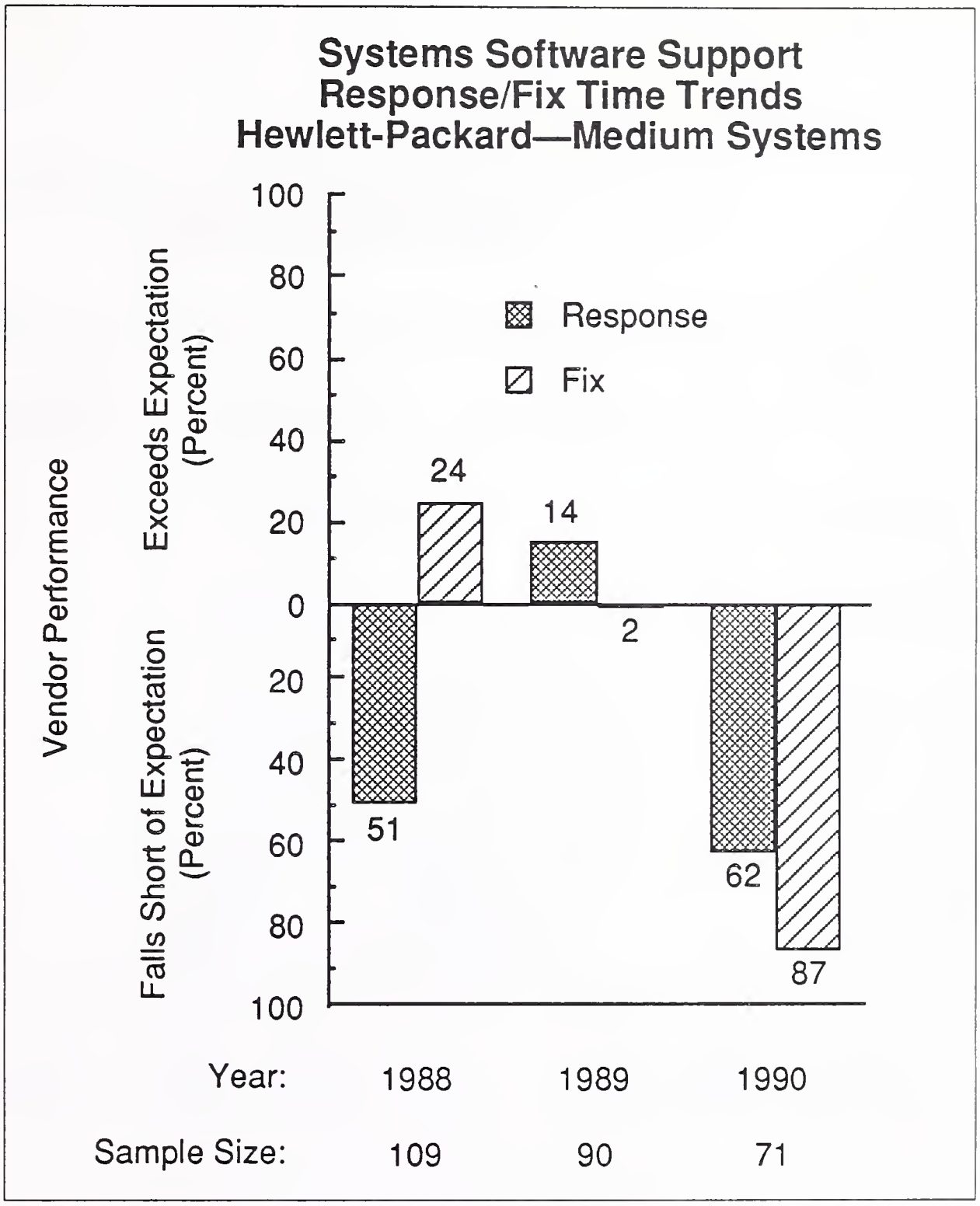


EXHIBIT VI-36

Hardware Service Trends 1989-1990
IBM—Medium Systems

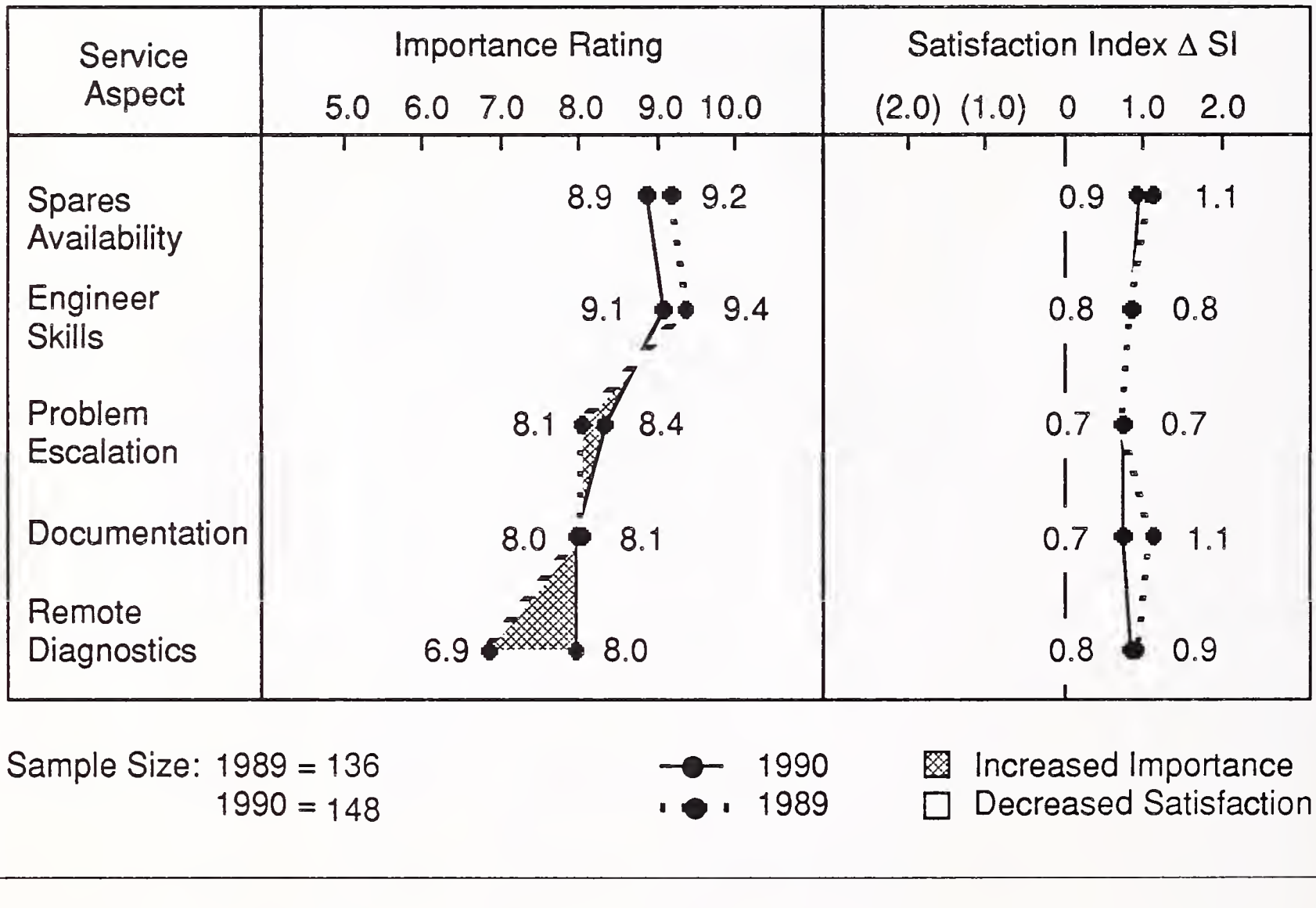


EXHIBIT VI-37

Systems Software Support Trends 1989-1990
IBM—Medium Systems

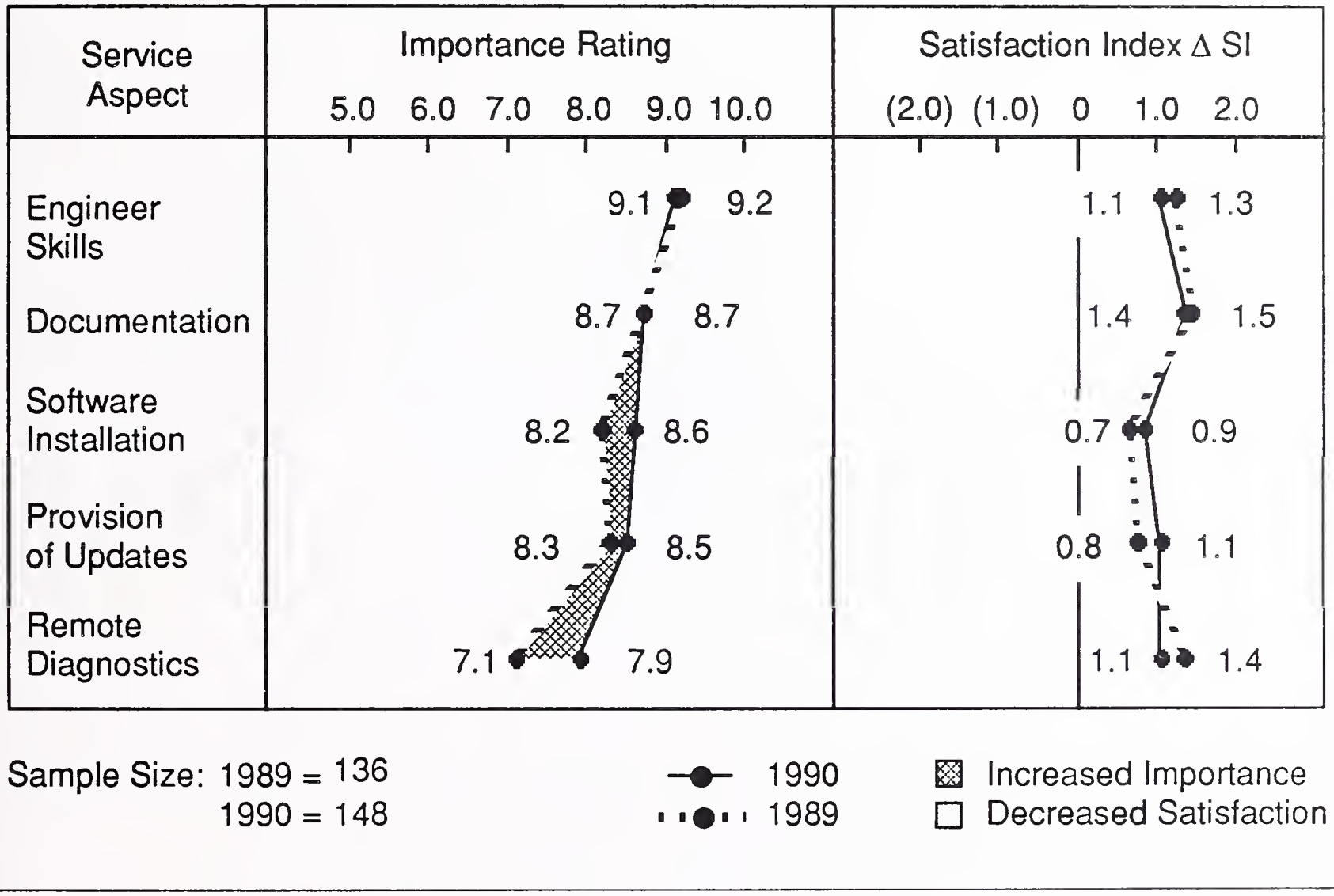


EXHIBIT VI-38

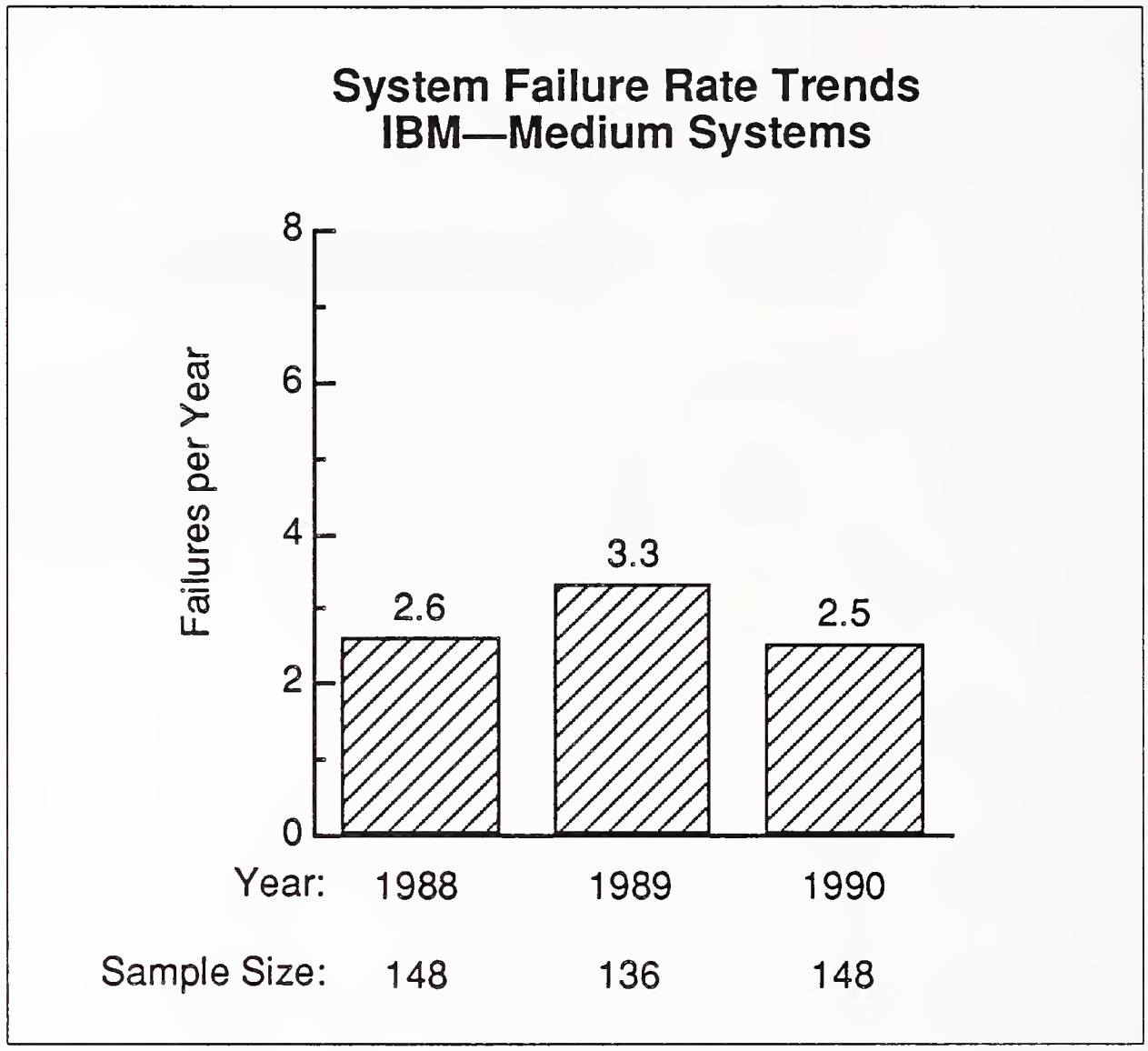


EXHIBIT VI-39

Hardware Service Response/Repair Time Trends
IBM—Medium Systems

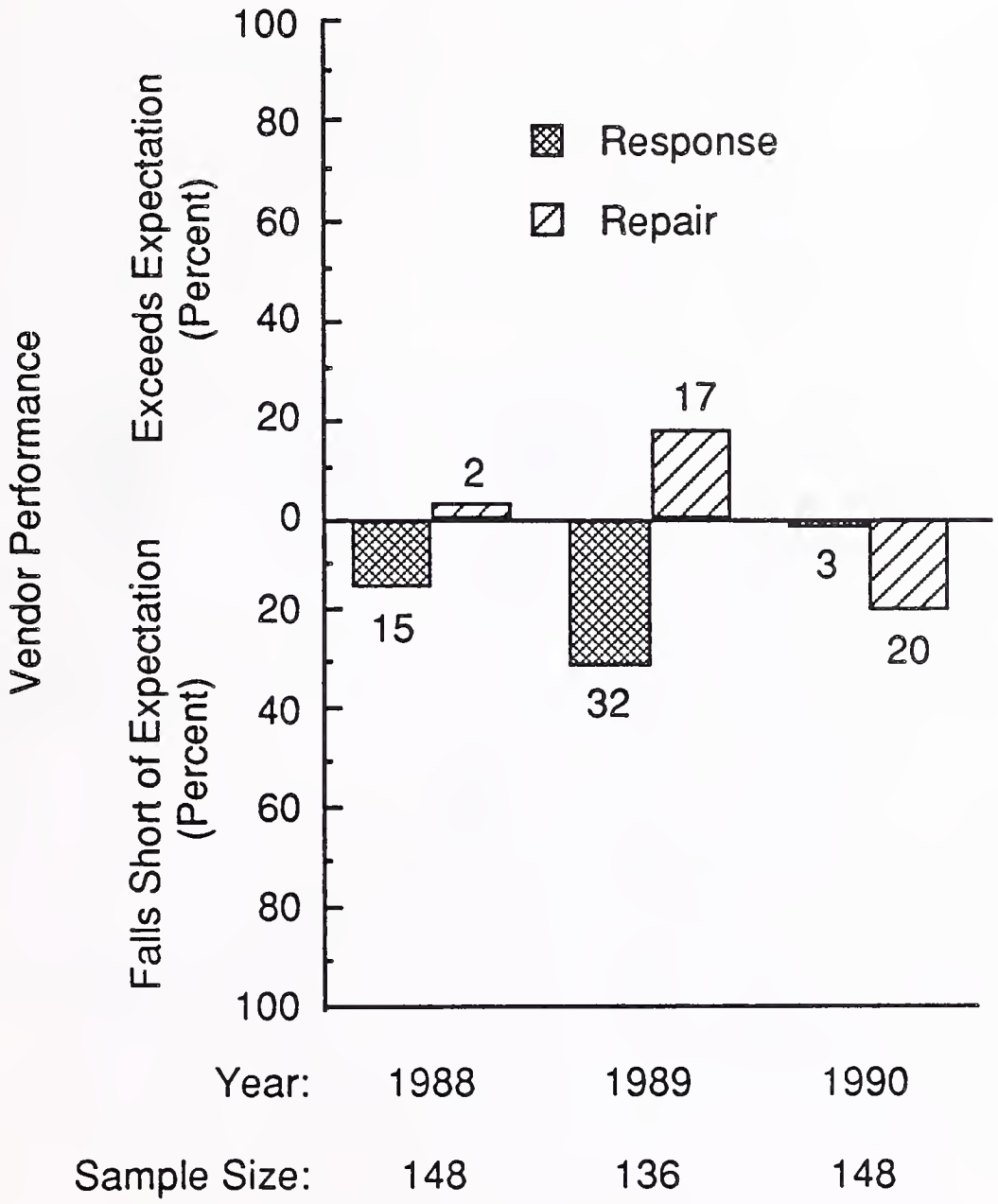


EXHIBIT VI-40

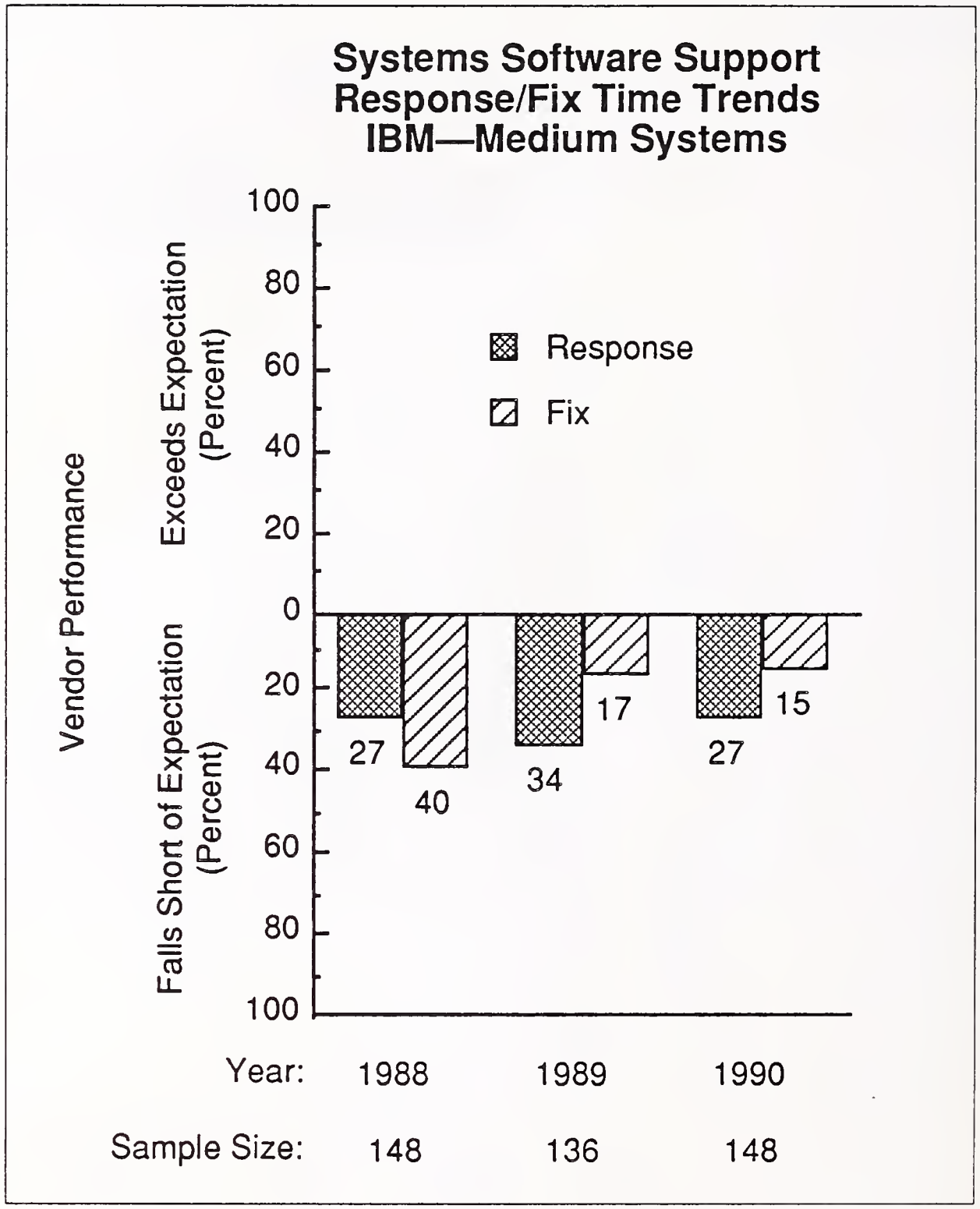
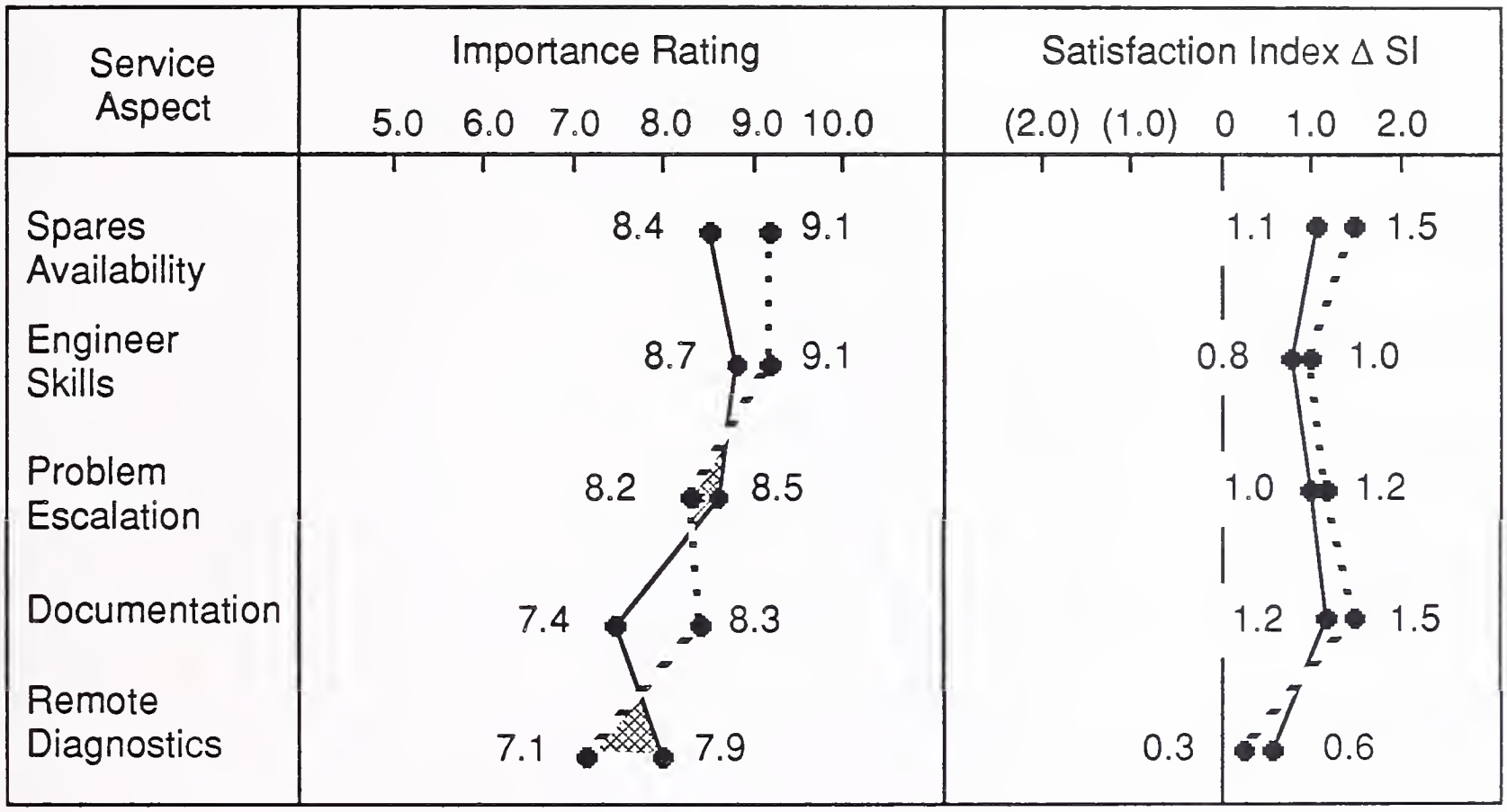


EXHIBIT VI-41

Hardware Service Trends 1989-1990
ICL—Medium Systems



Sample Size: 1989 = 55
1990 = 107

1990
1989

Increased Importance
Decreased Satisfaction

EXHIBIT VI-42

Systems Software Support Trends 1989-1990
ICL—Medium Systems

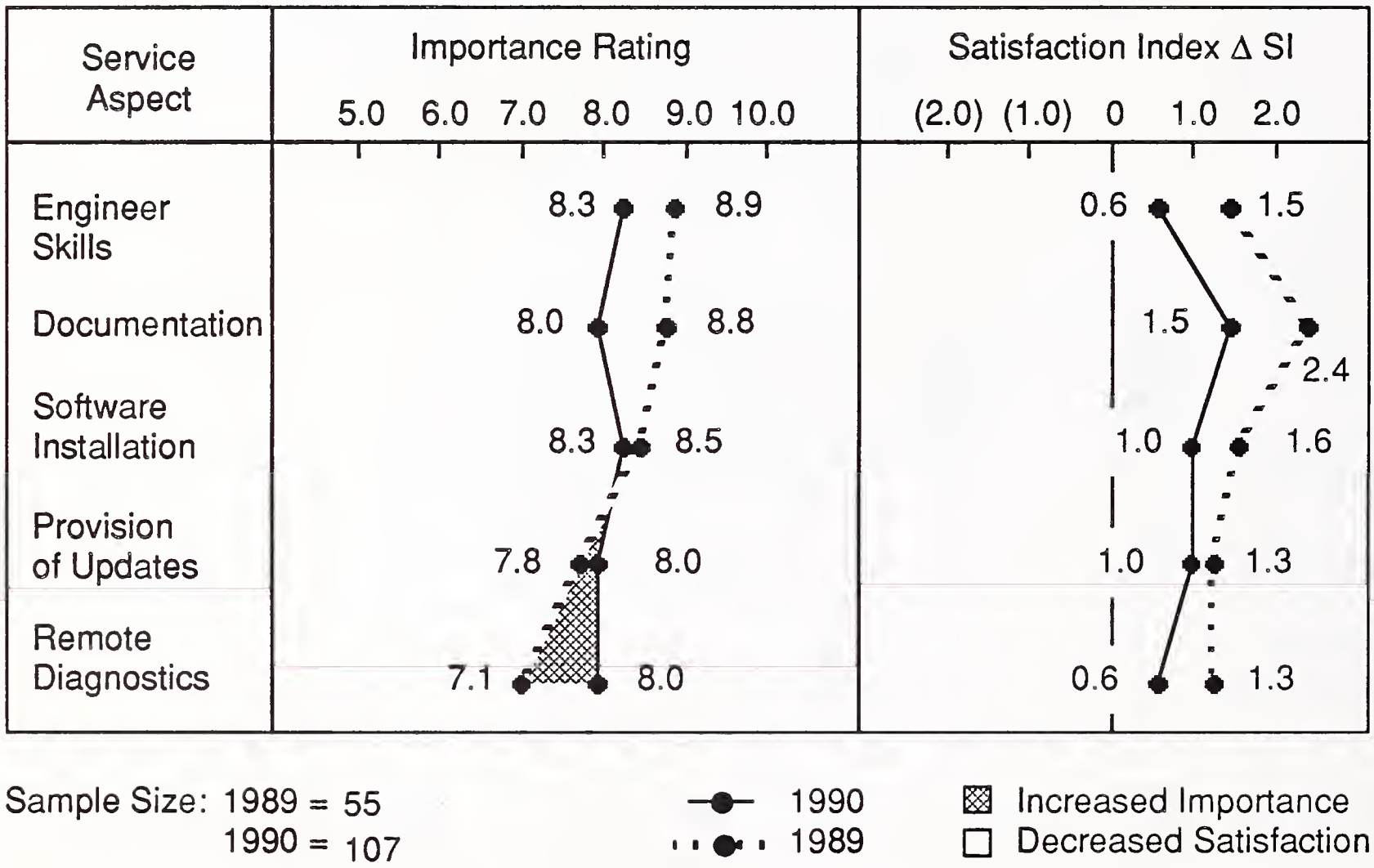


EXHIBIT VI-43

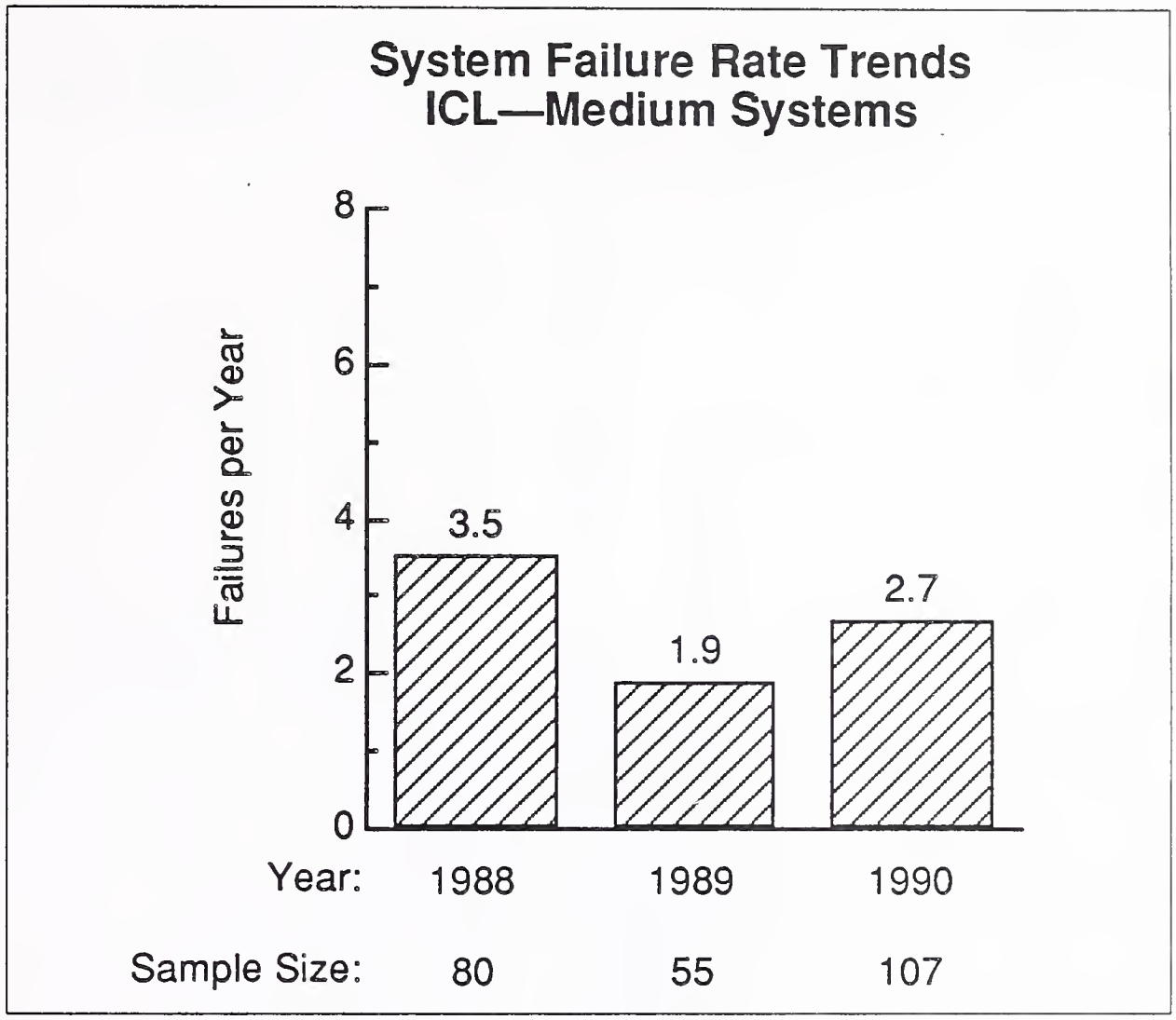
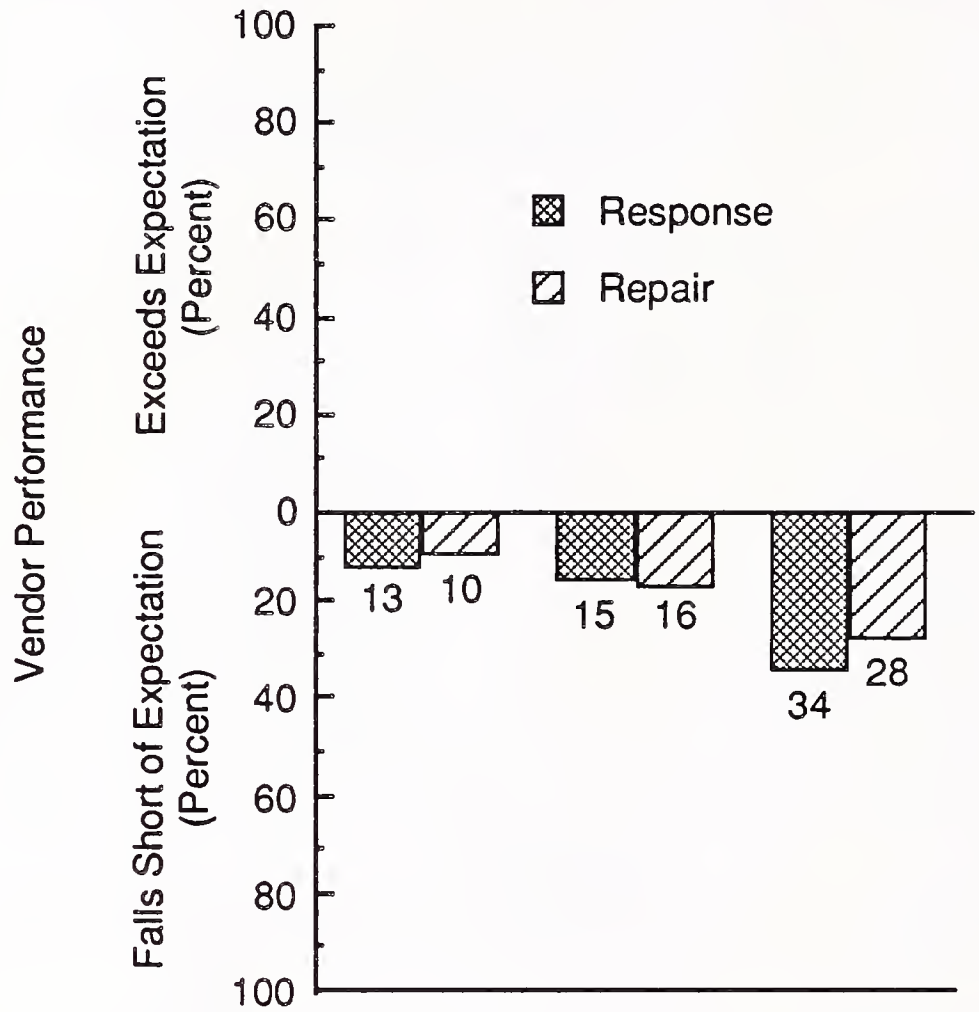


EXHIBIT VI-44

Hardware Service Response/Repair Time Trends
ICL—Medium Systems



	1988	1989	1990
Year:			
Sample Size:	80	55	107

EXHIBIT VI-45

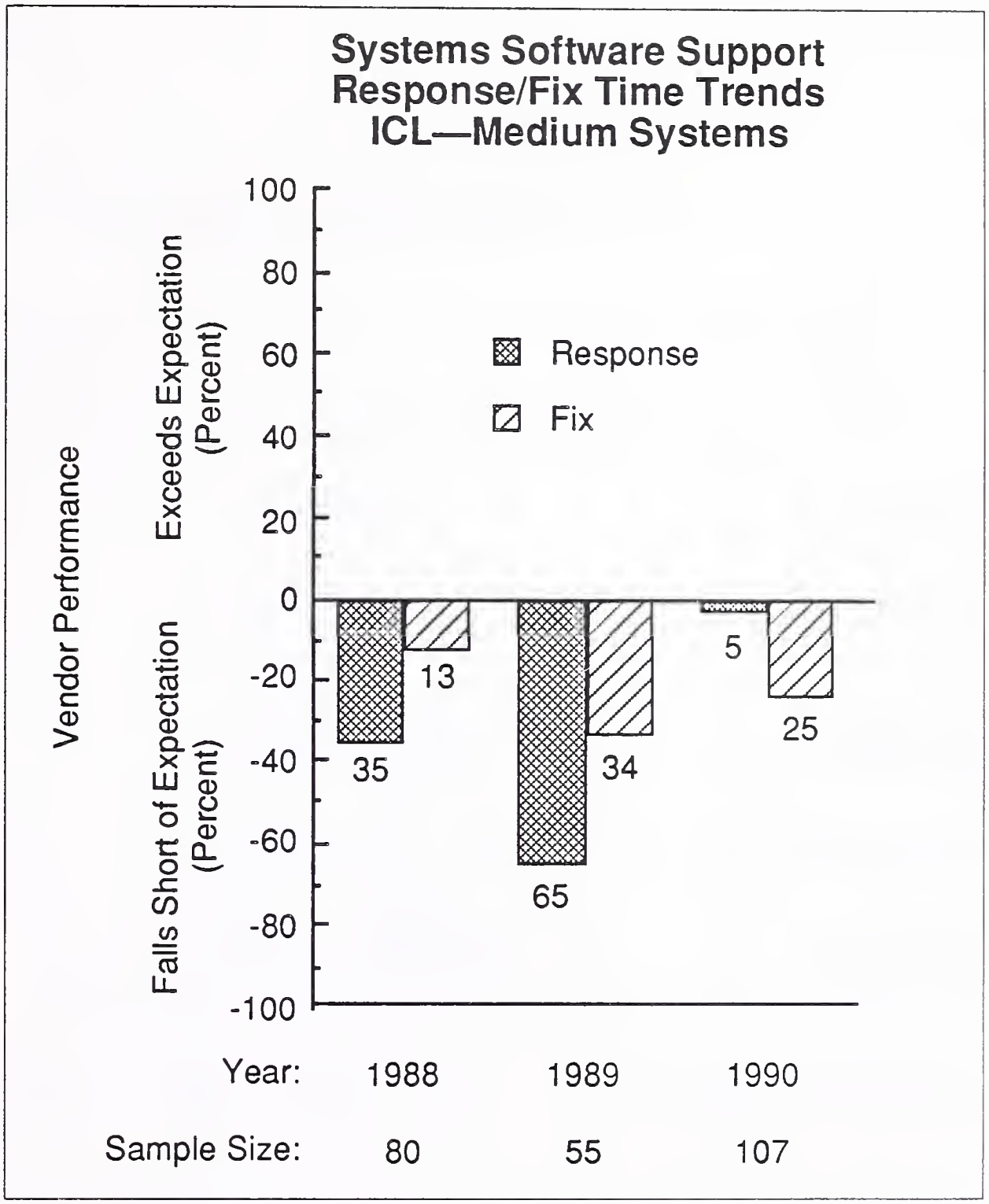


EXHIBIT VI-46

Hardware Service Trends 1989-1990
NCR—Medium Systems

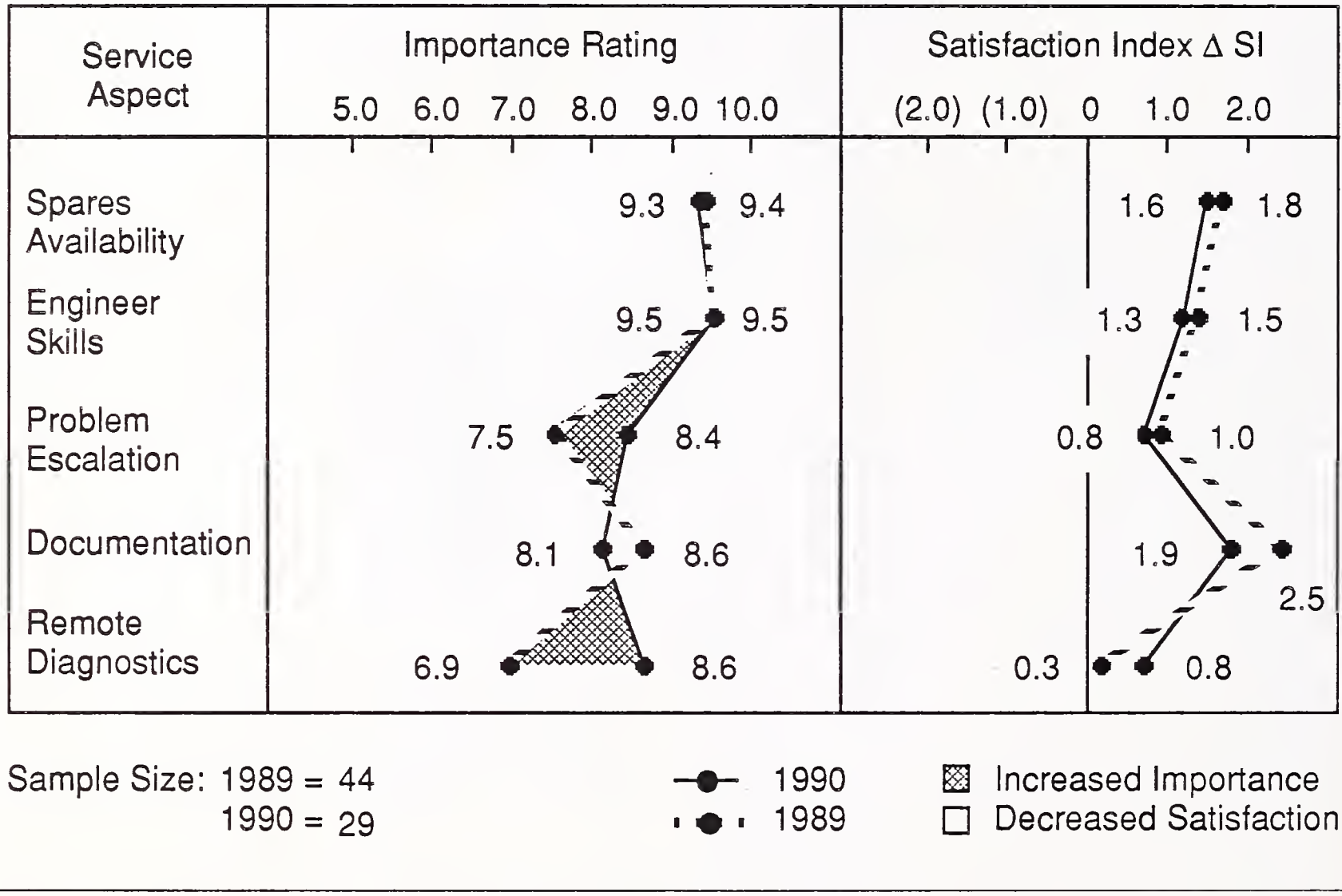


EXHIBIT VI-47

Systems Software Support Trends 1989-1990
NCR—Medium Systems

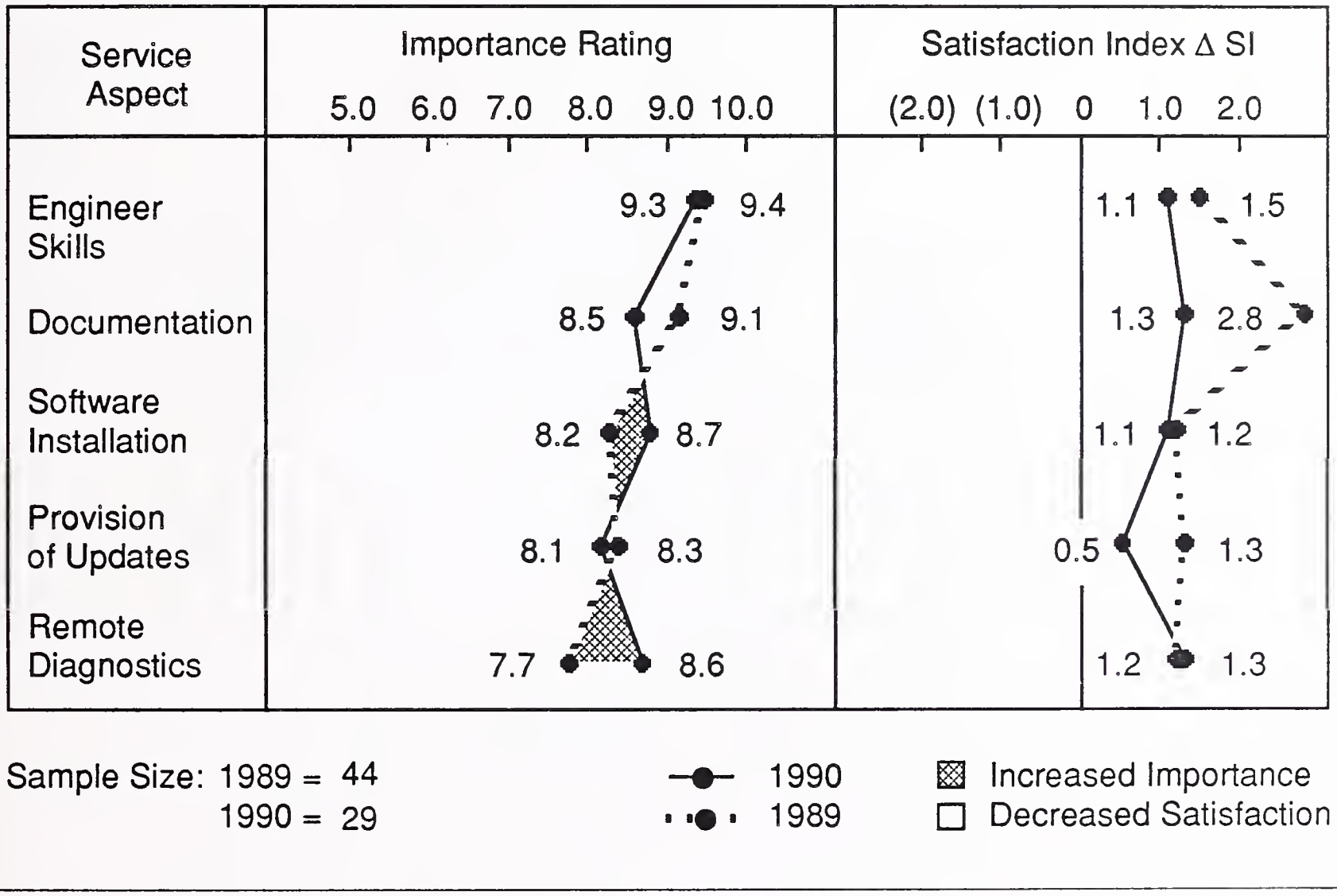


EXHIBIT VI-48

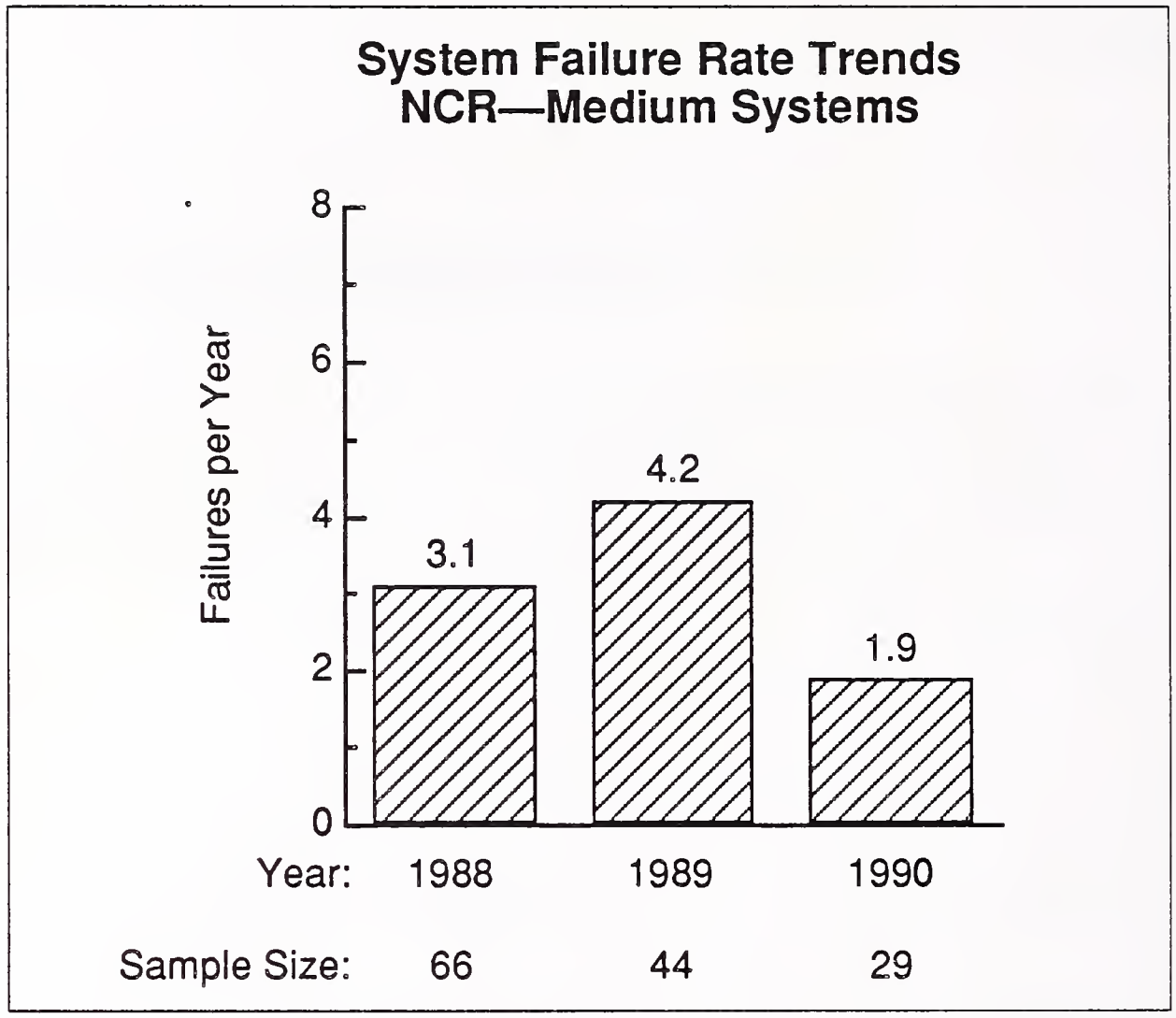


EXHIBIT VI-49

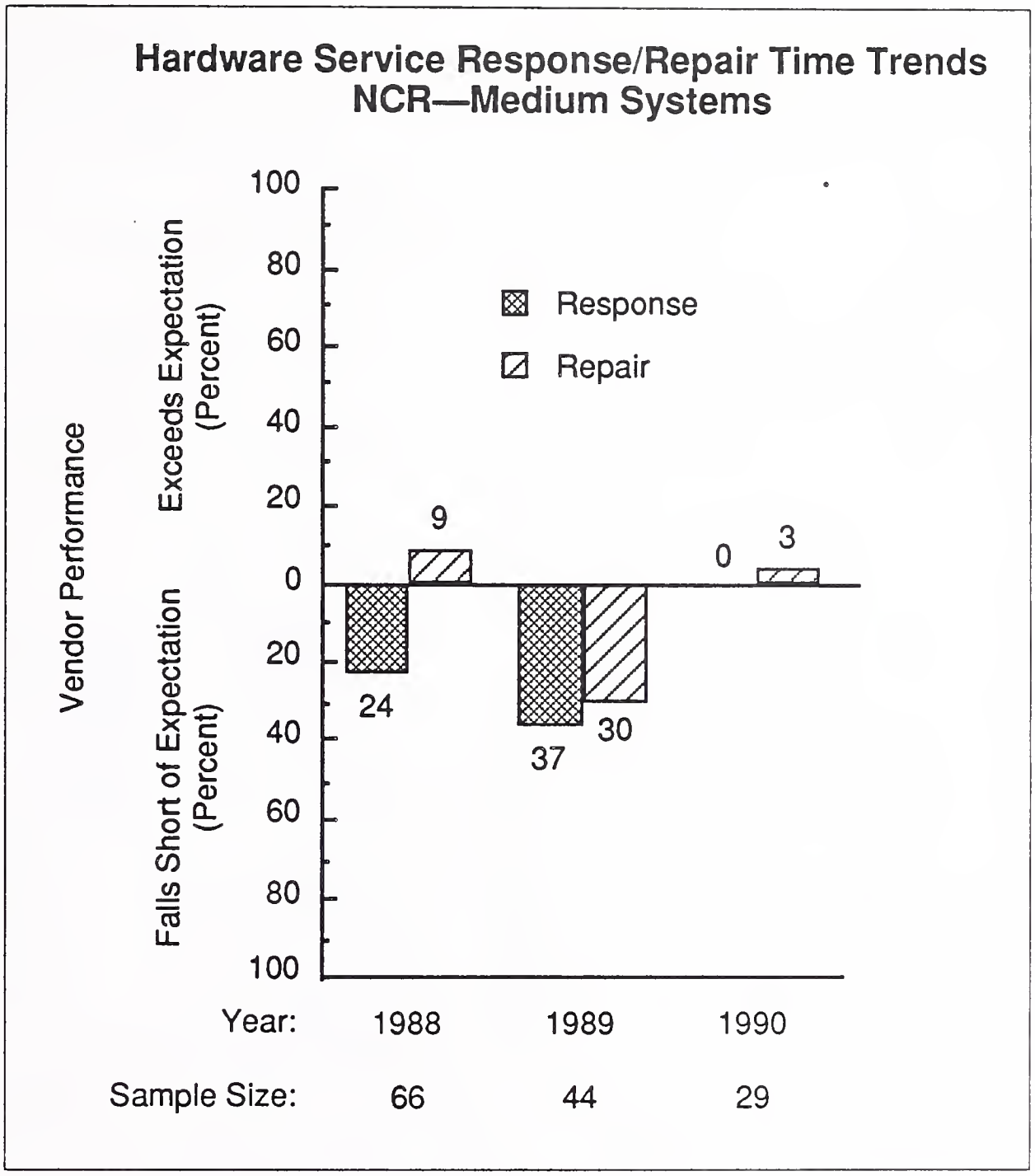


EXHIBIT VI-50

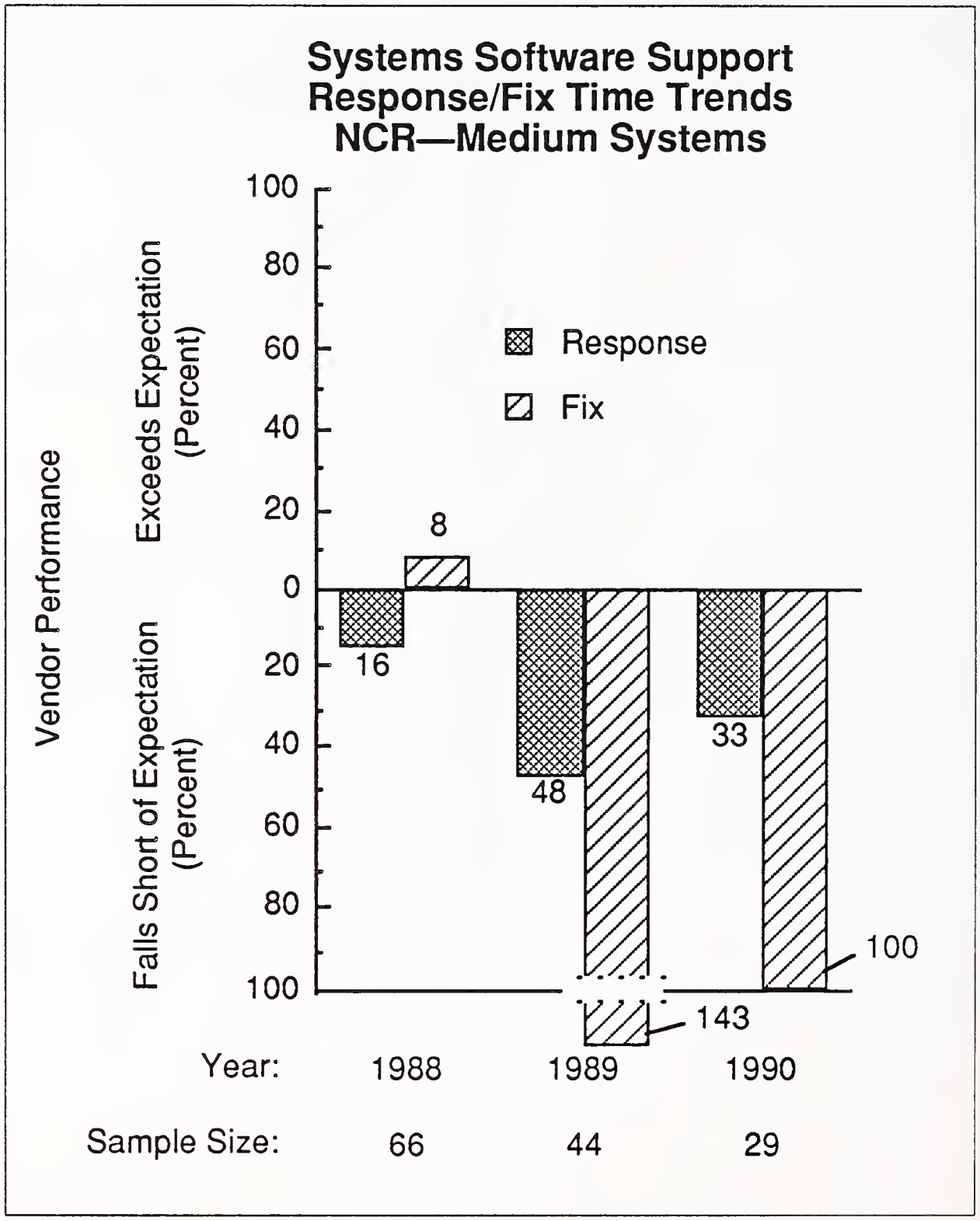


EXHIBIT VI-51

Hardware Service Trends 1989-1990
Stratus—Medium Systems

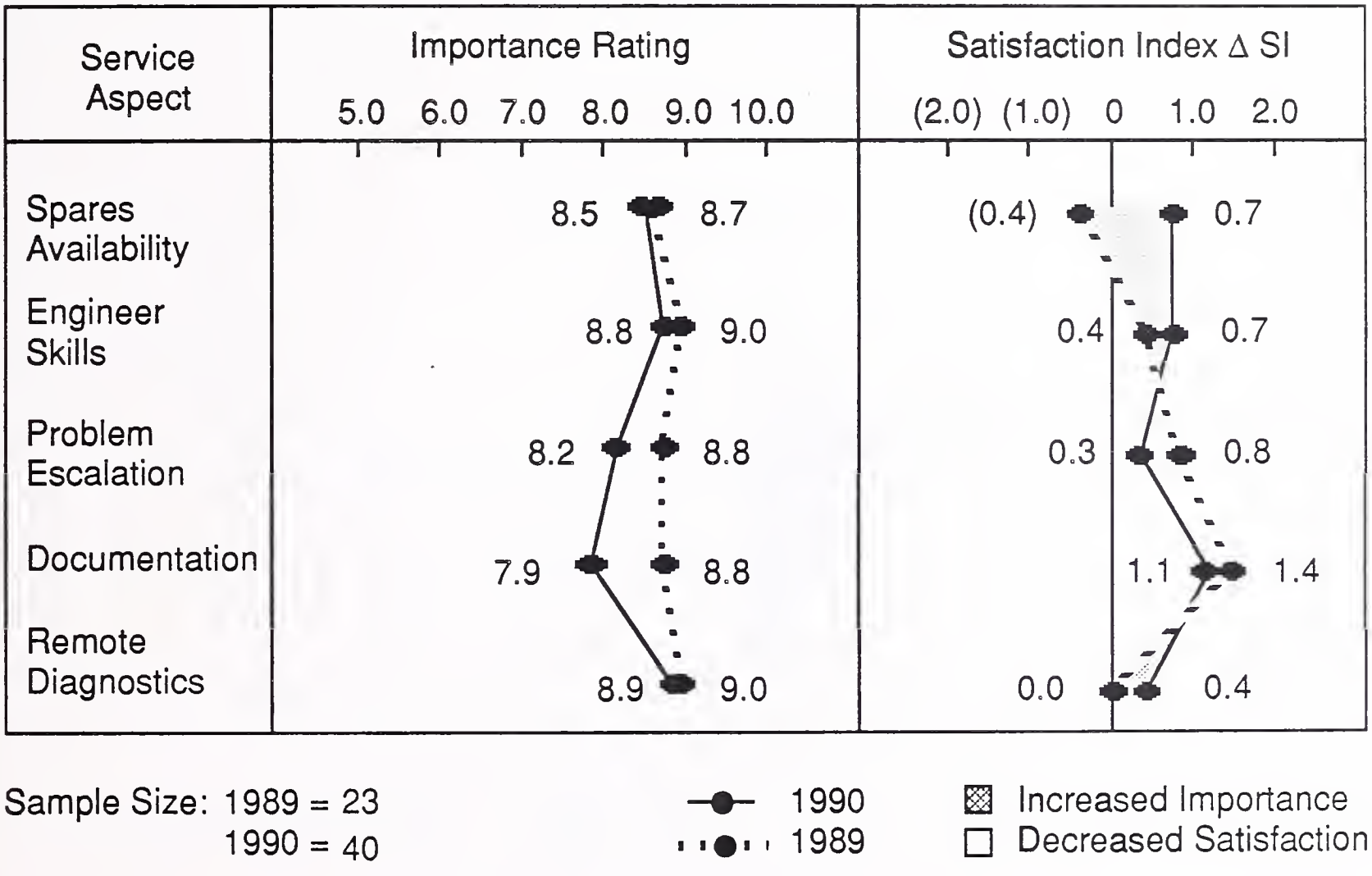
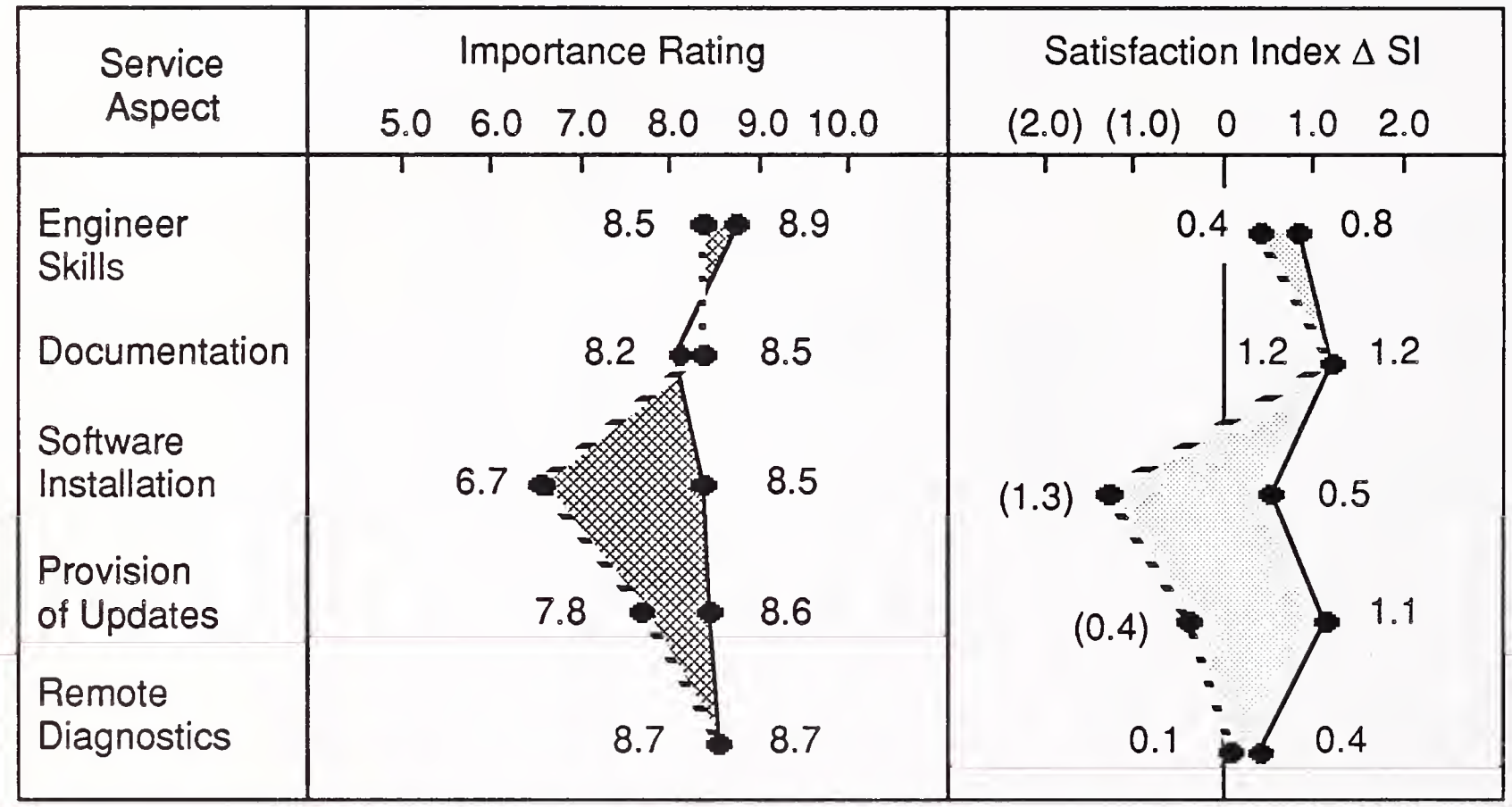


EXHIBIT VI-52

Systems Software Support Trends 1989-1990
Stratus—Medium Systems



Sample Size: 1989 = 23
1990 = 40

1990
1989

Increased Importance
Decreased Satisfaction

EXHIBIT VI-53

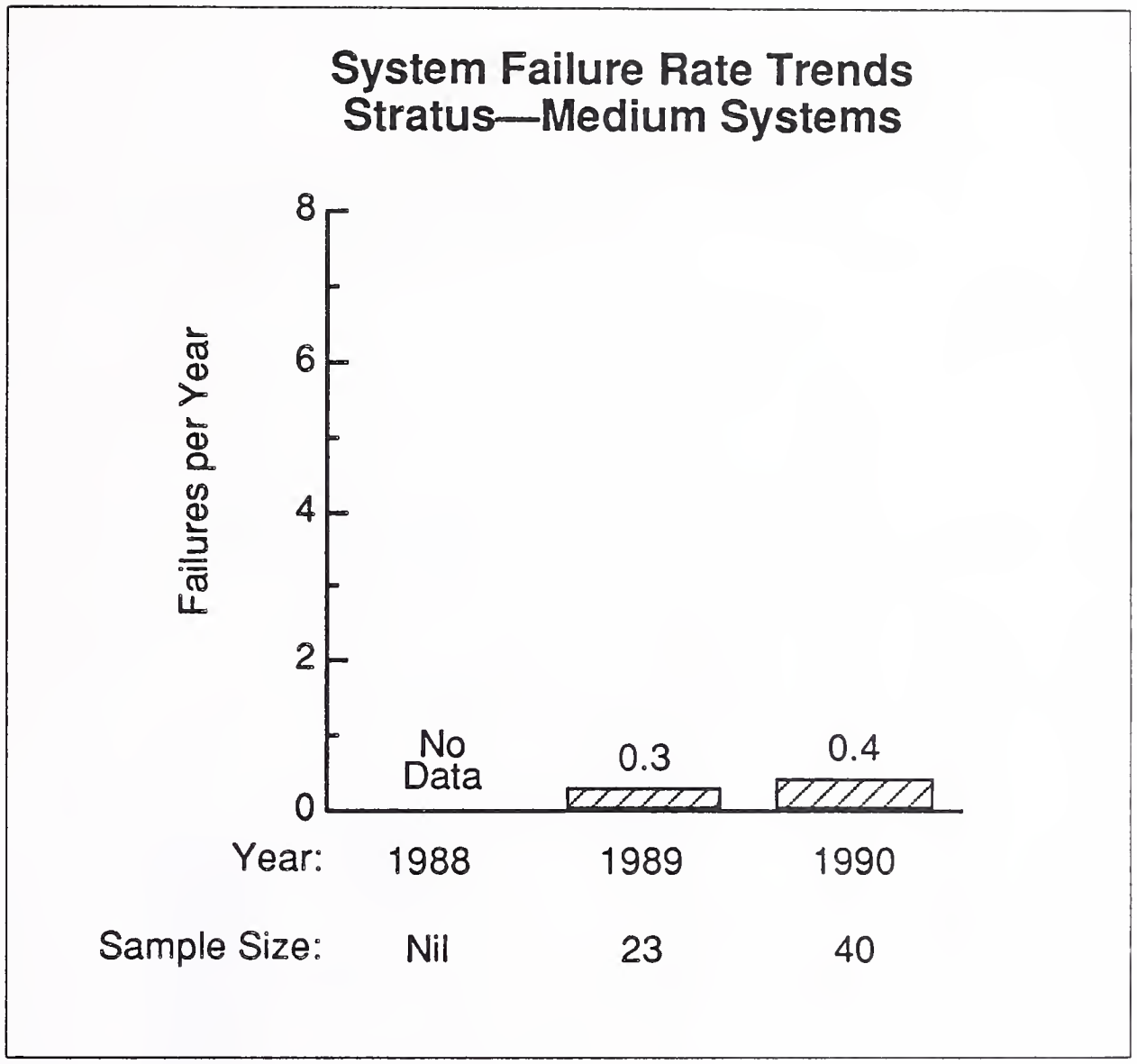


EXHIBIT VI-54

Hardware Service Response/Repair Time Trends
Stratus—Medium Systems

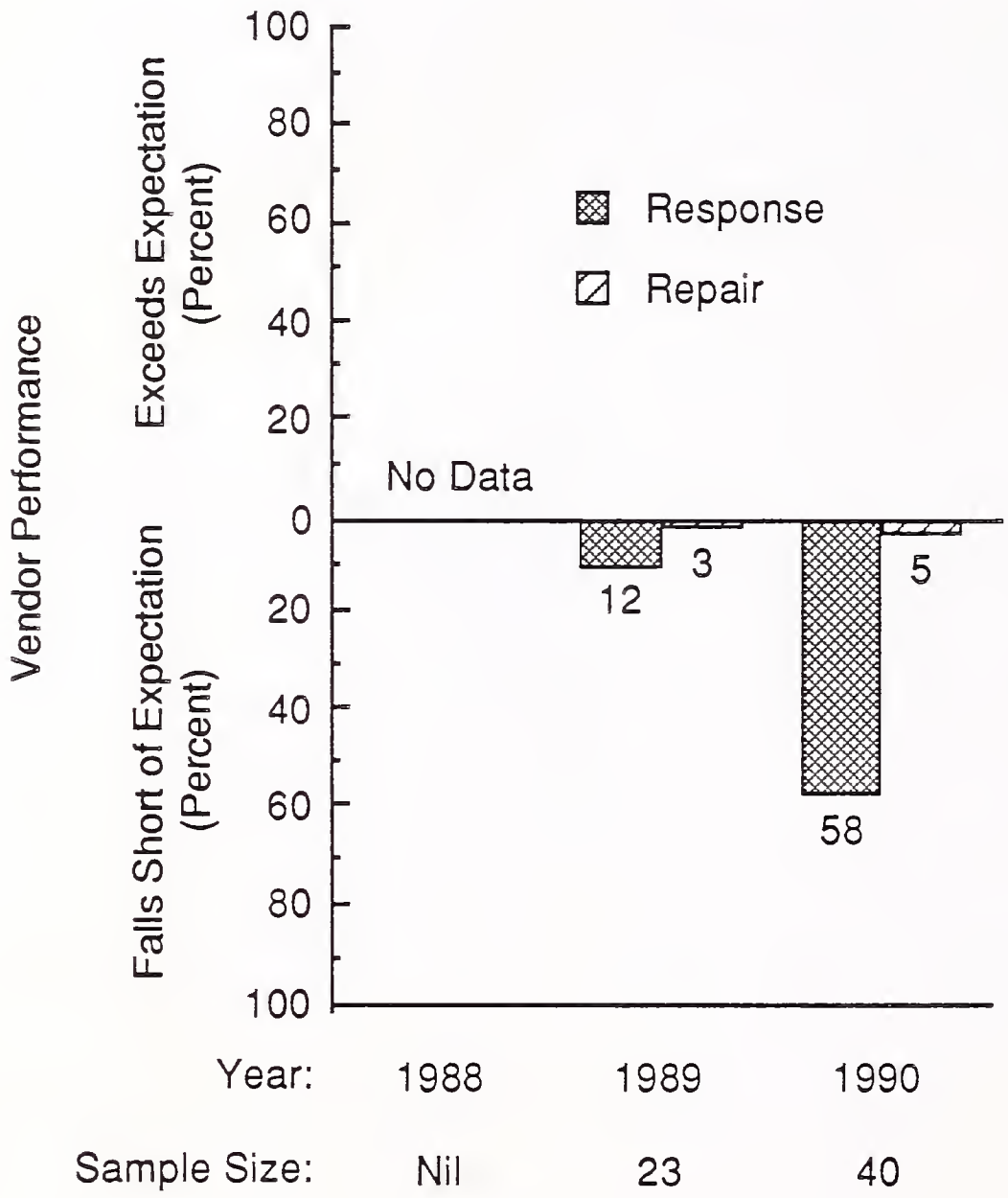


EXHIBIT VI-55

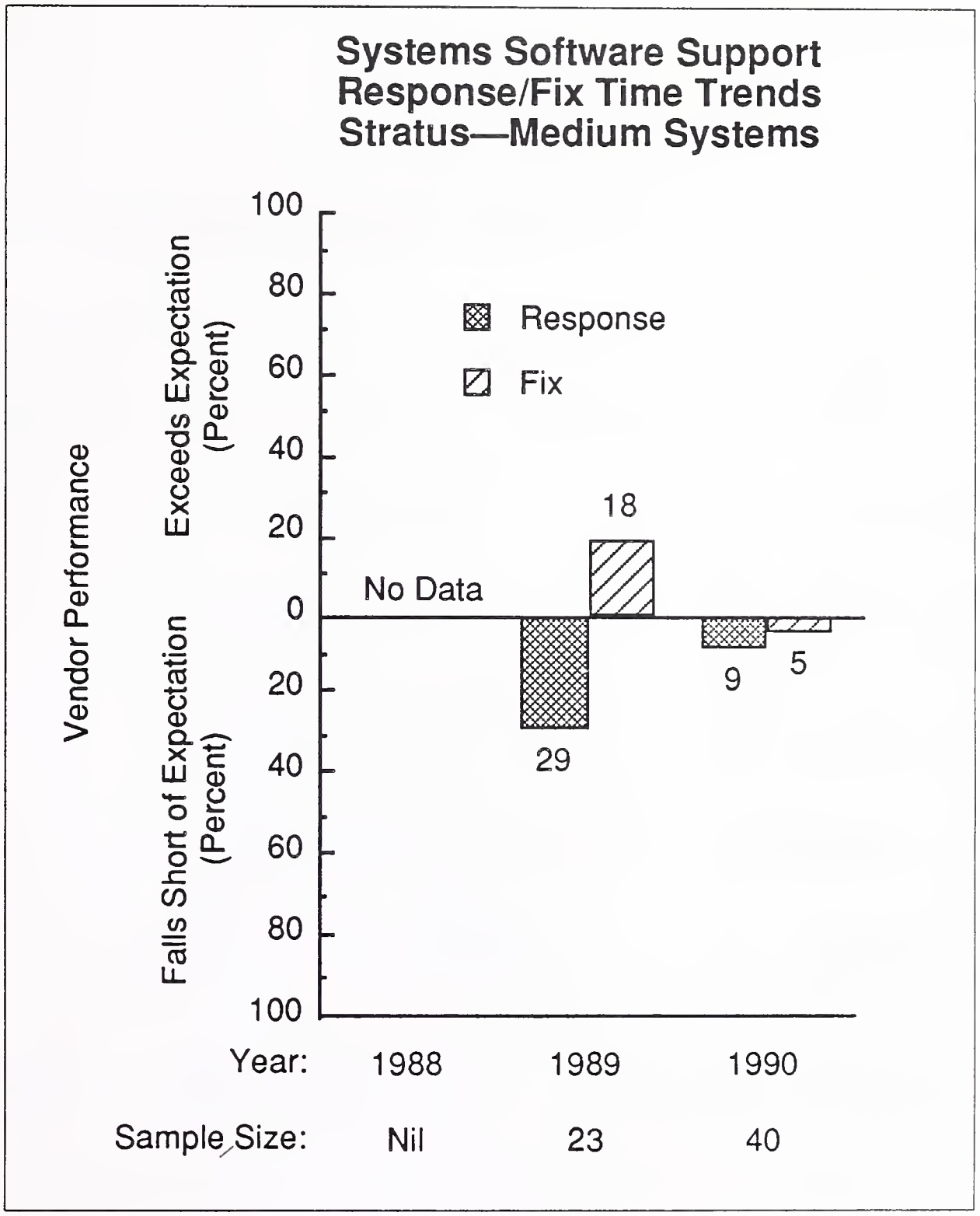


EXHIBIT VI-56

Hardware Service Trends 1989-1990
Unisys—Medium Systems

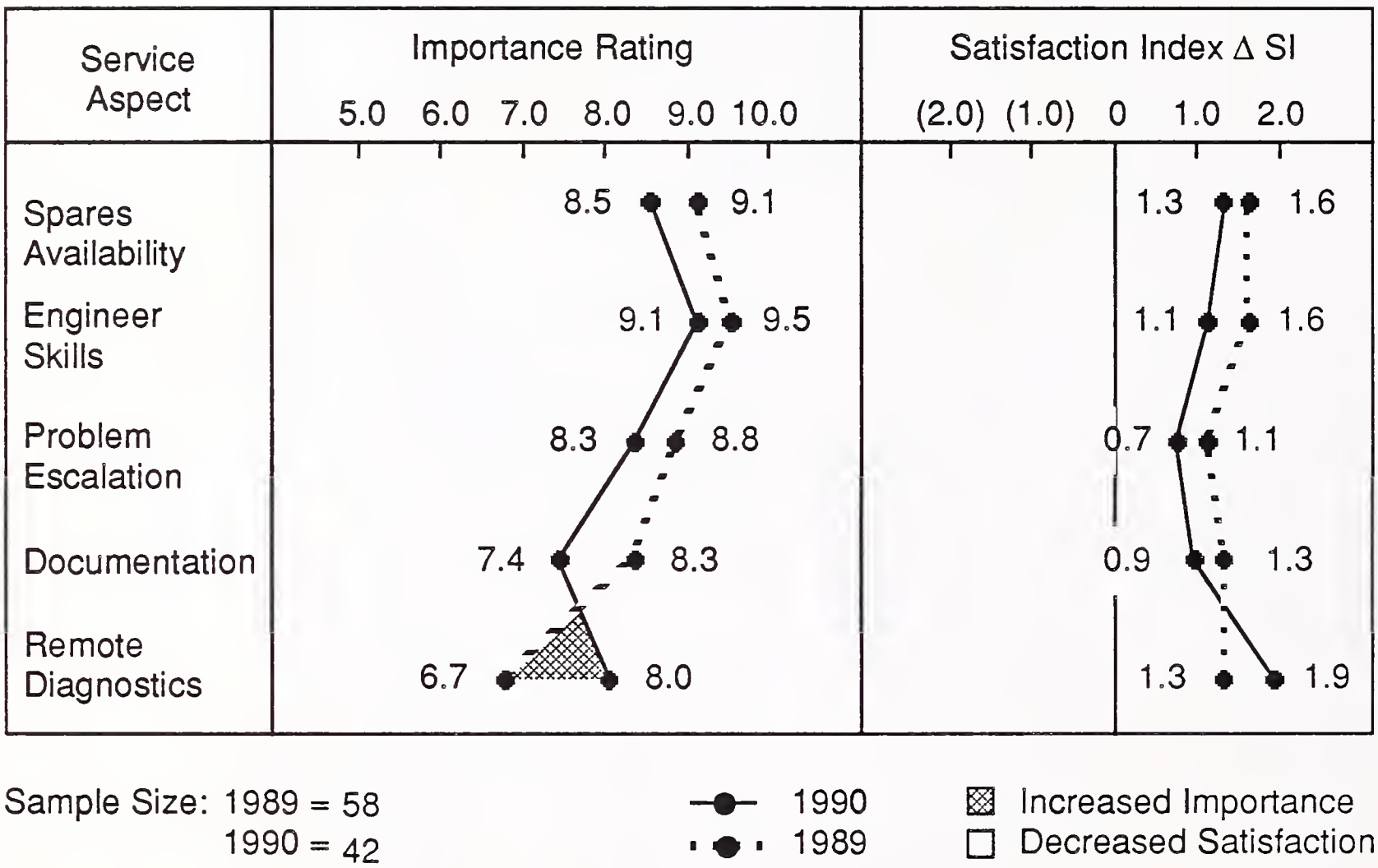


EXHIBIT VI-57

Systems Software Support Trends 1989-1990
Unisys—Medium Systems

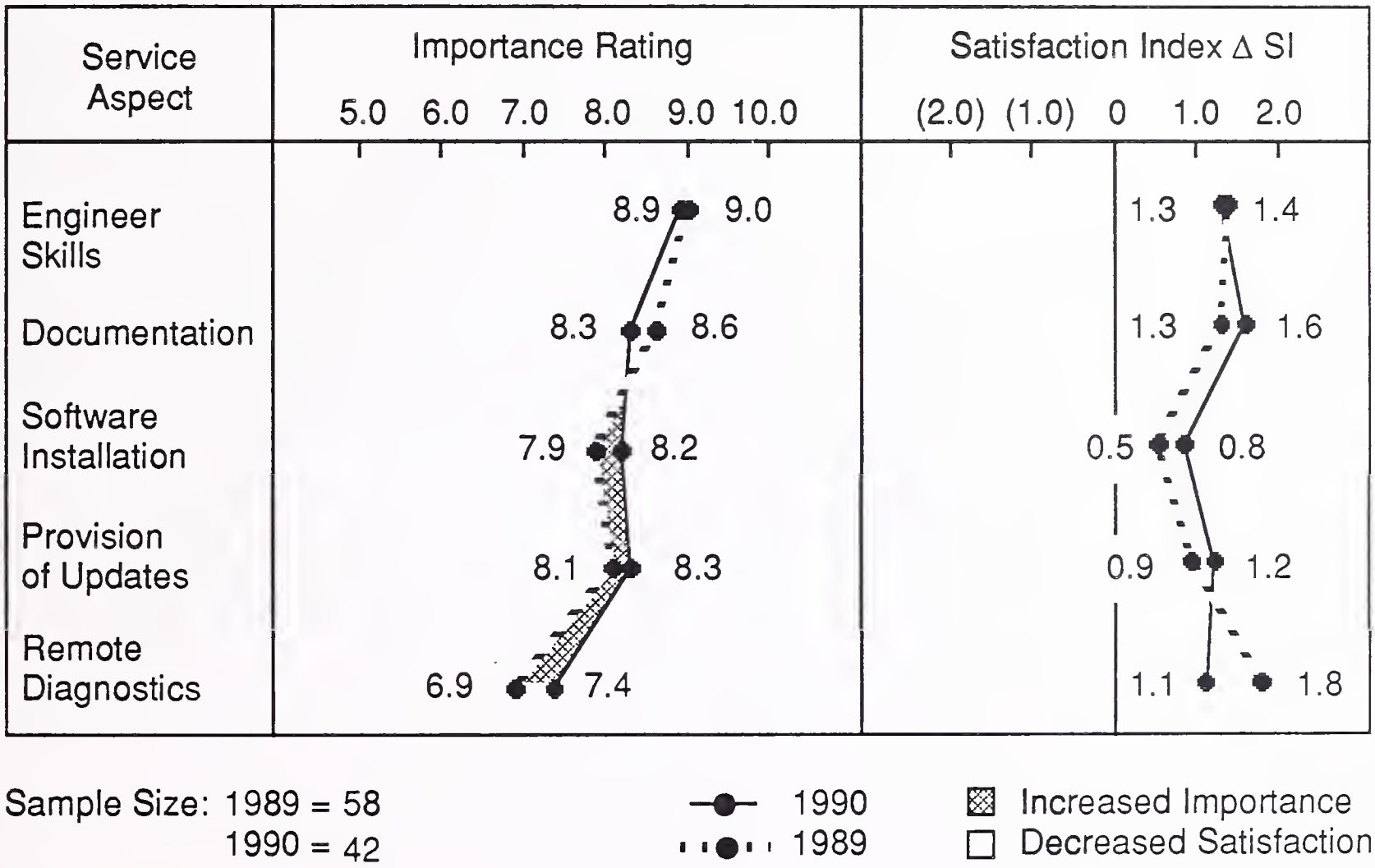


EXHIBIT VI-58

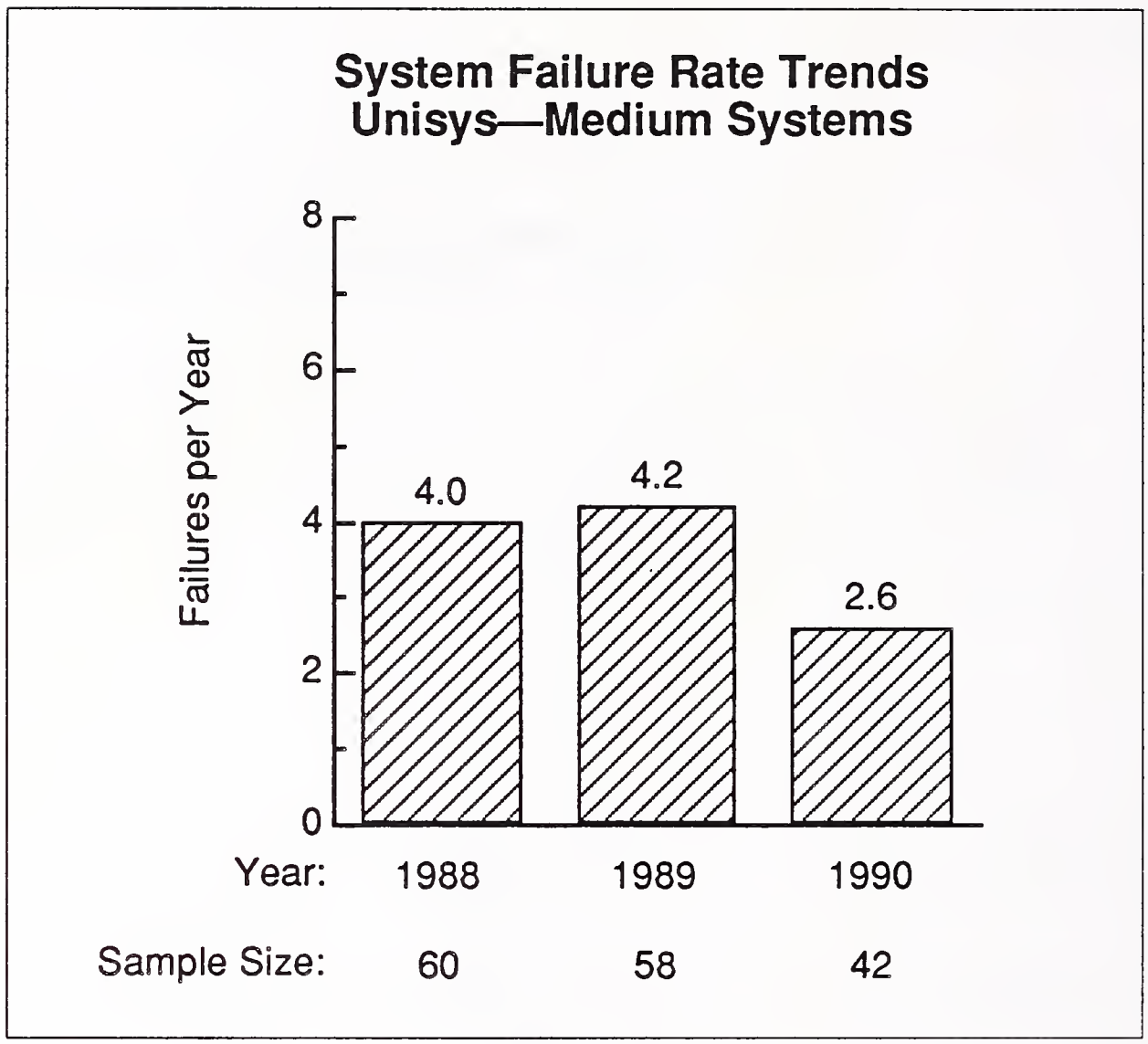


EXHIBIT VI-59

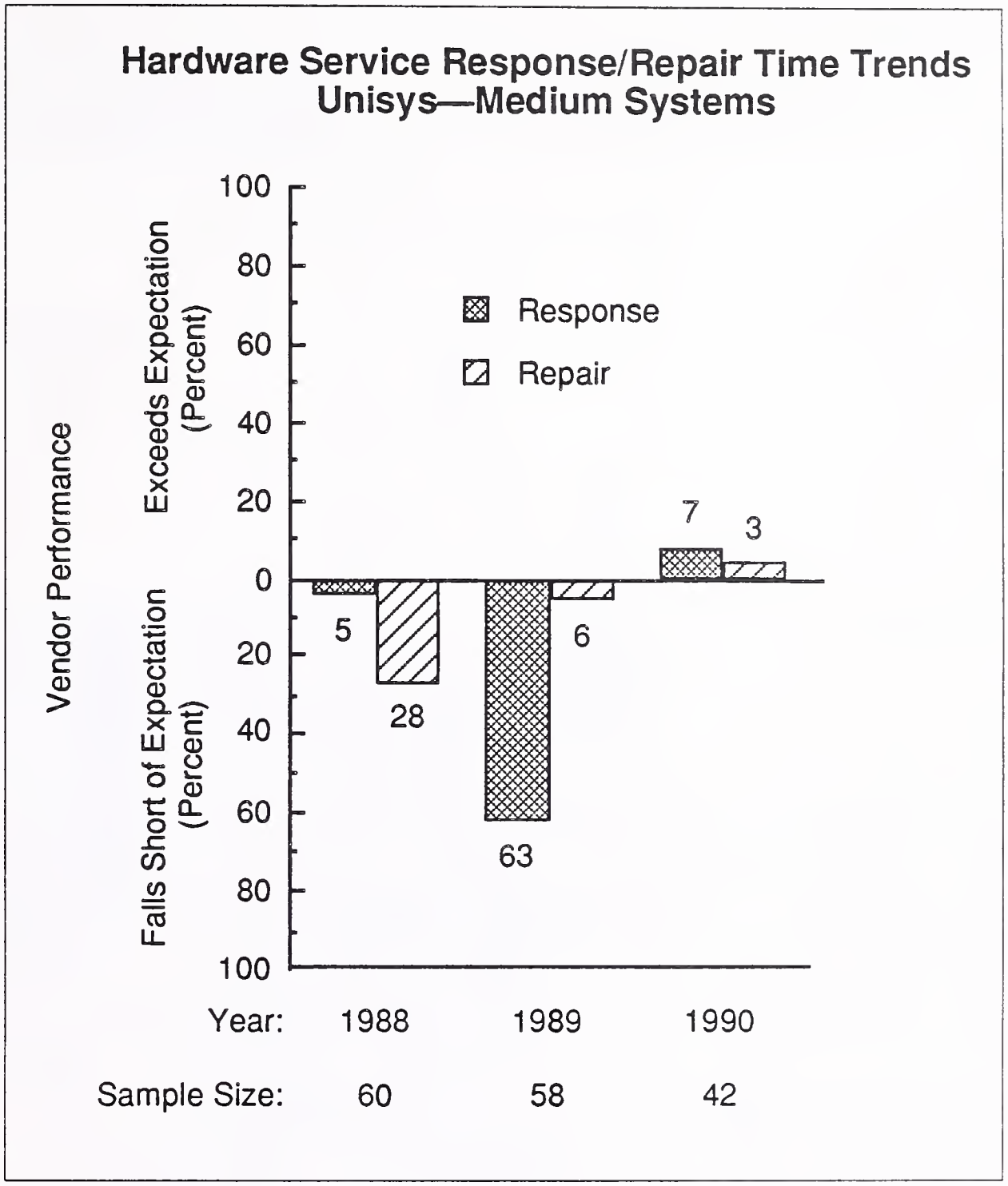
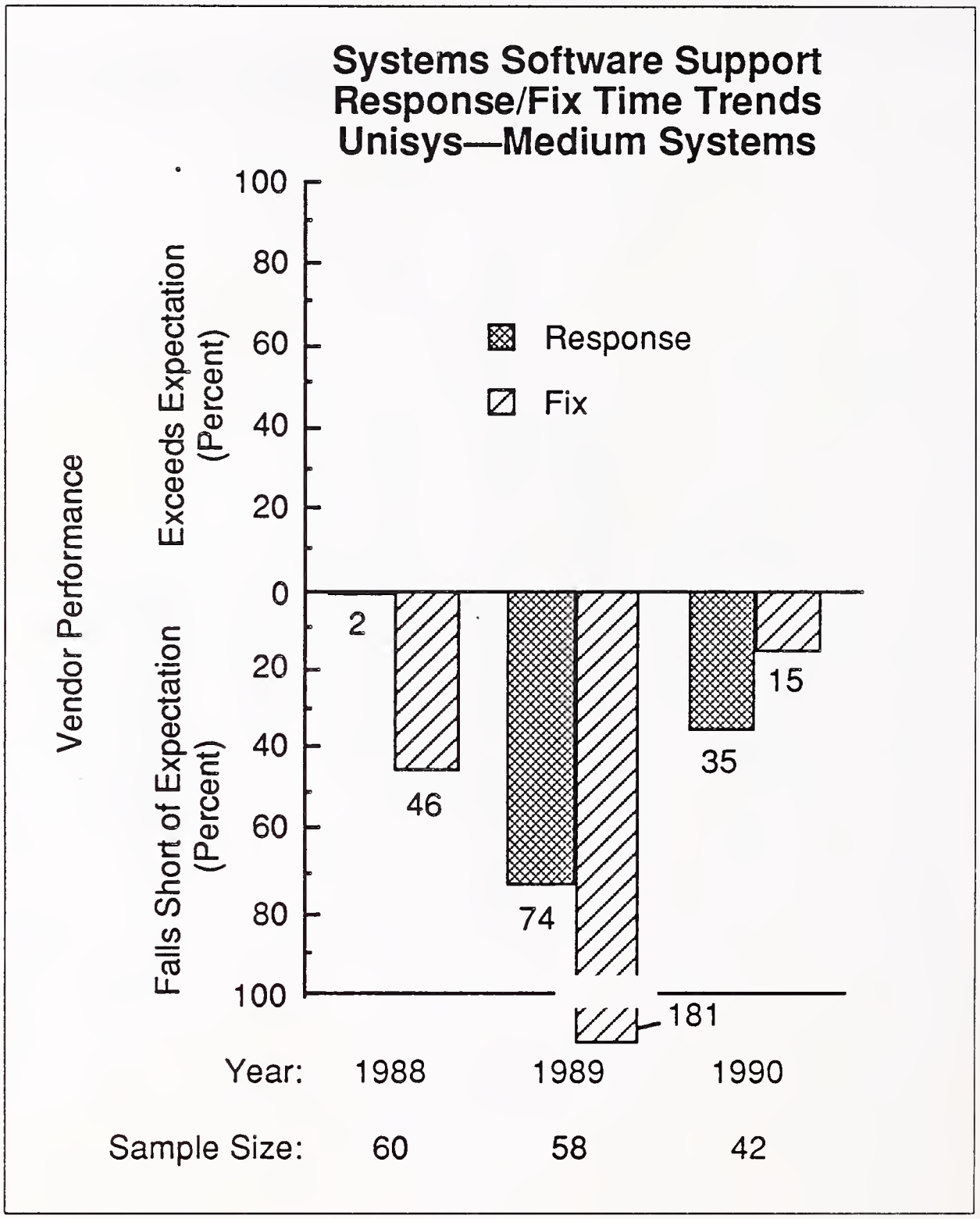


EXHIBIT VI-60



C

Small Systems

Exhibit VI-61 to VI-80 indicate trends in small systems user perception of vendor performance between 1989 and 1990. Trend data included is restricted to those vendors for which the user sample size is considered by INPUT to be sufficiently large to provide a valid statistical result (i.e., user sample is larger than 20).

Trend data is presented for the following vendors:

- Bull
- Digital
- IBM
- ICL

EXHIBIT VI-61

Hardware Service Trends 1989-1990
Bull—Small Systems

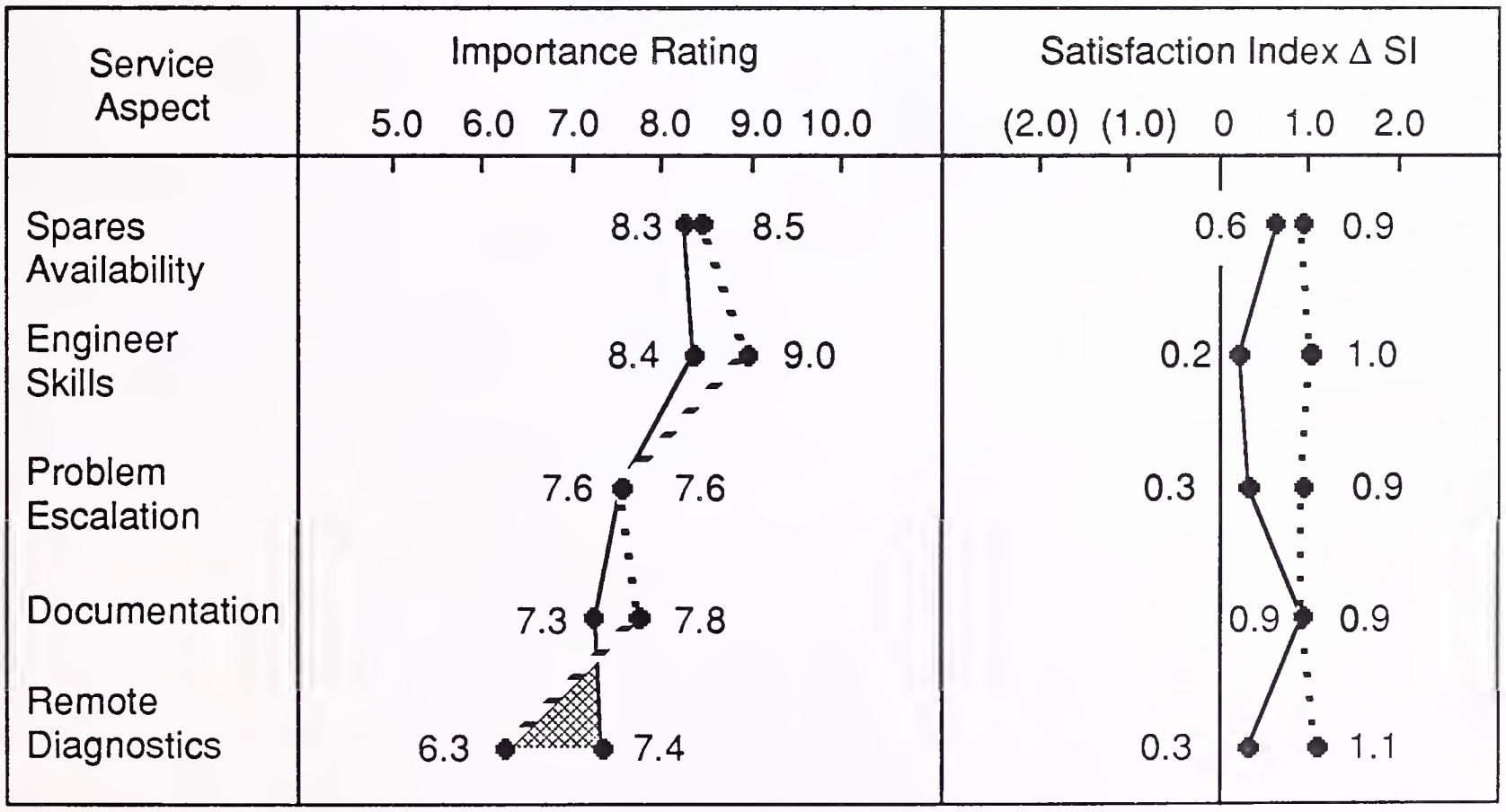


EXHIBIT VI-62

Systems Software Support Trends 1989-1990
Bull—Small Systems

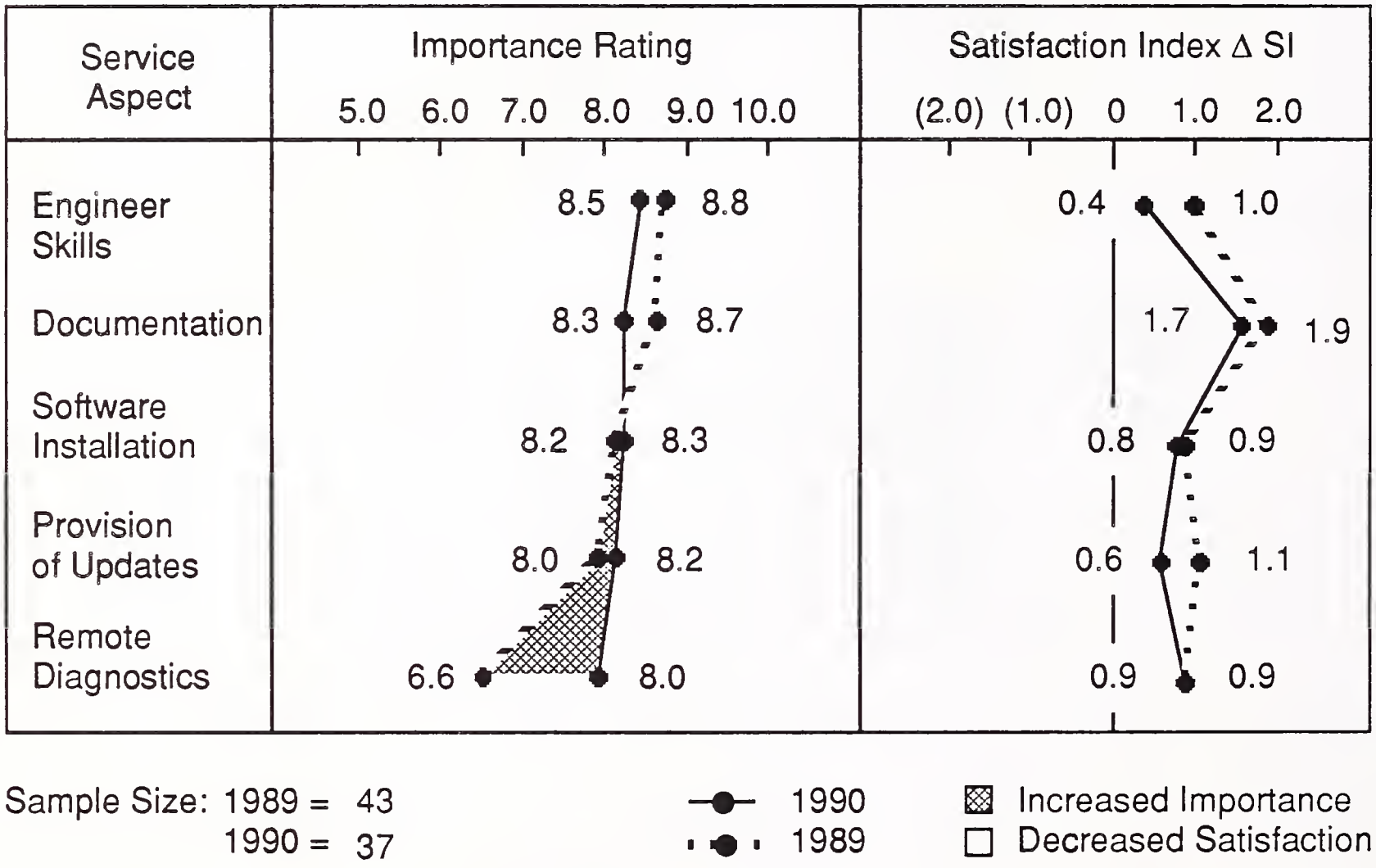


EXHIBIT VI-63

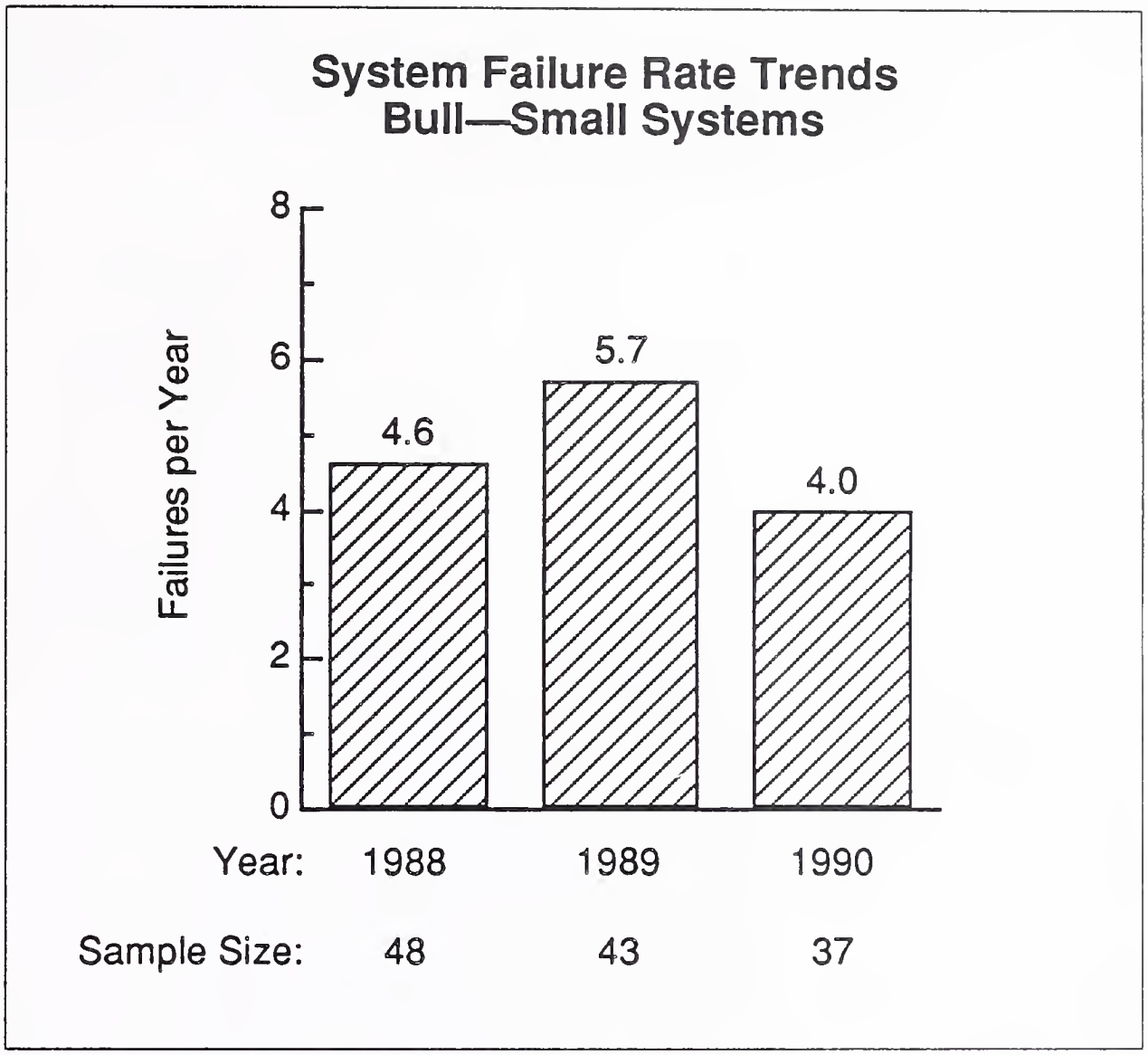
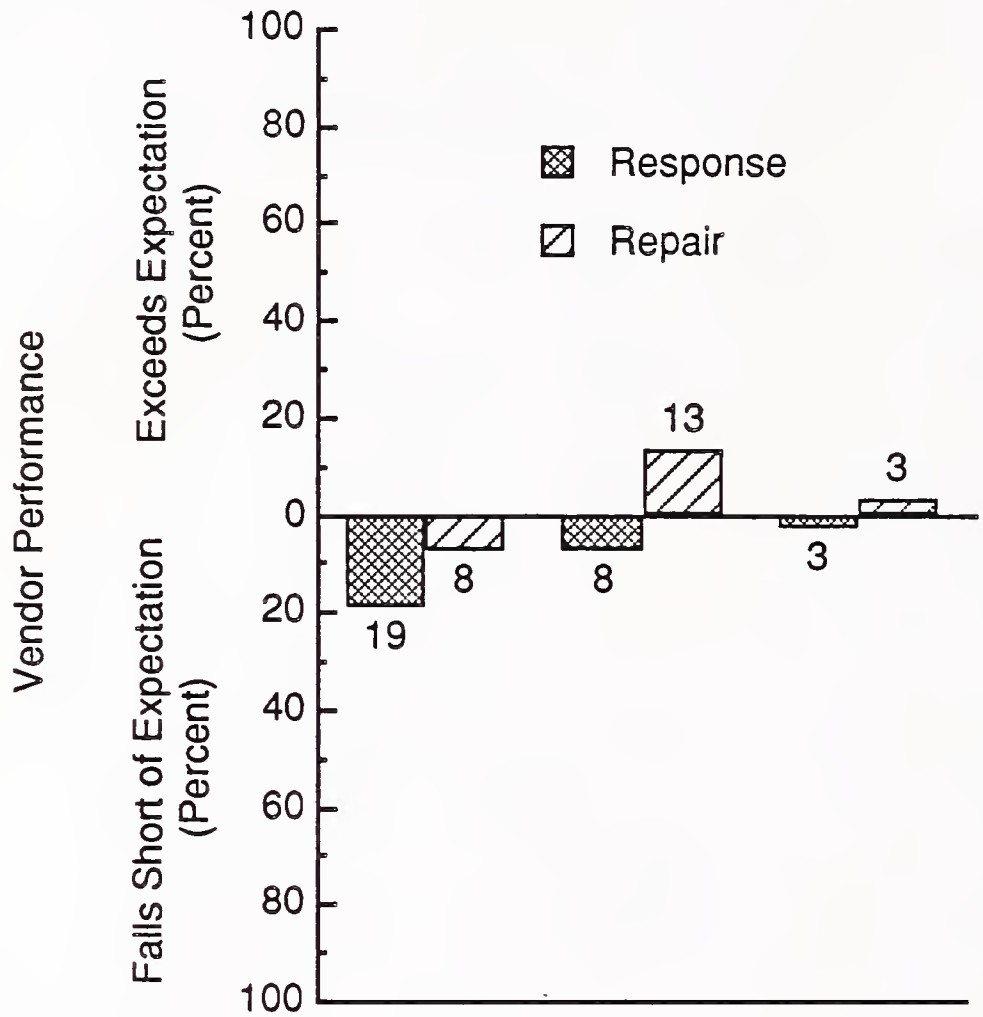


EXHIBIT VI-64

Hardware Service Response/Repair Time Trends
Bull—Small Systems



	1988	1989	1990
Year:			
Sample Size:	48	43	37

EXHIBIT VI-65

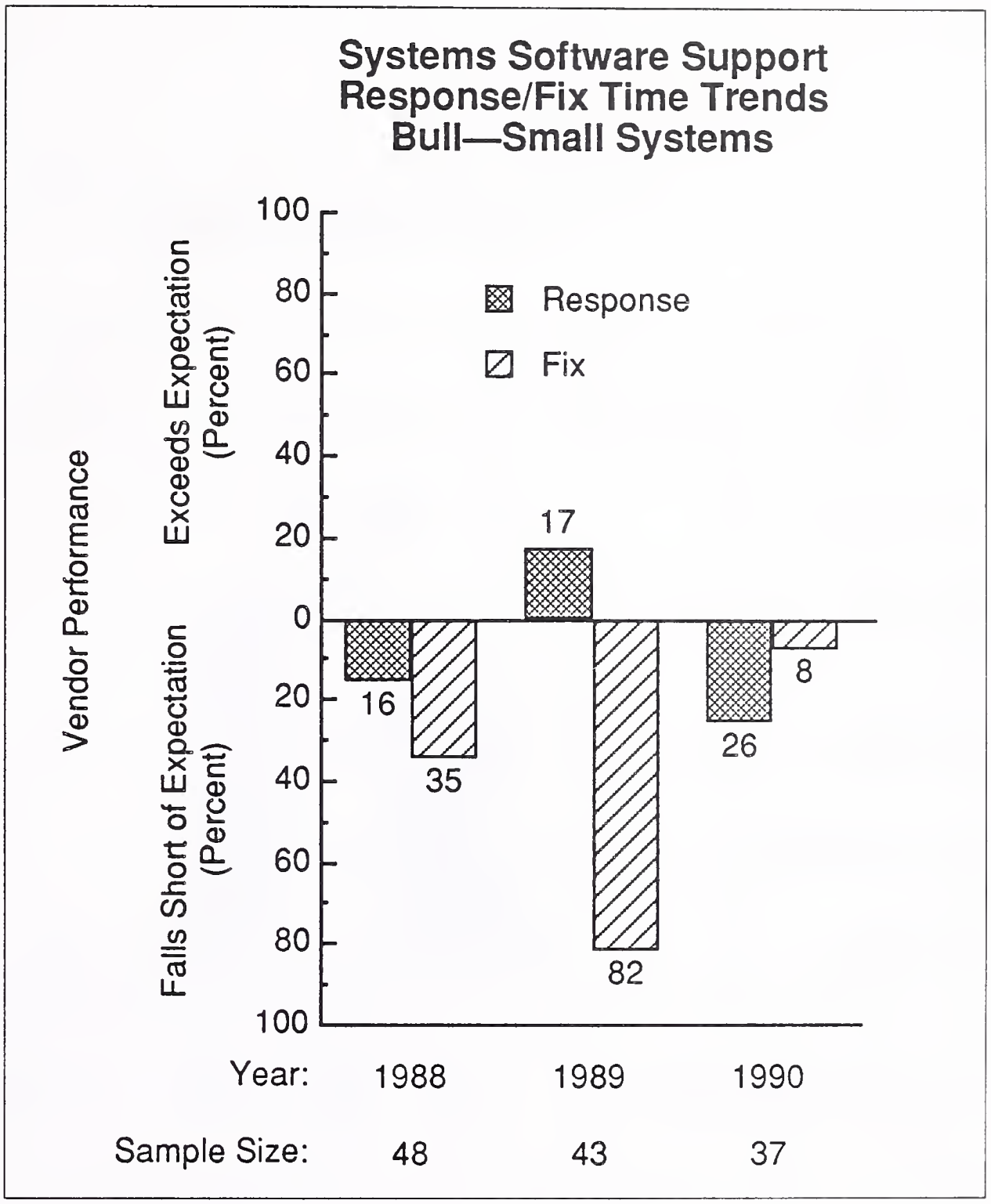


EXHIBIT VI-66

Hardware Service Trends 1989-1990
Digital—Small Systems

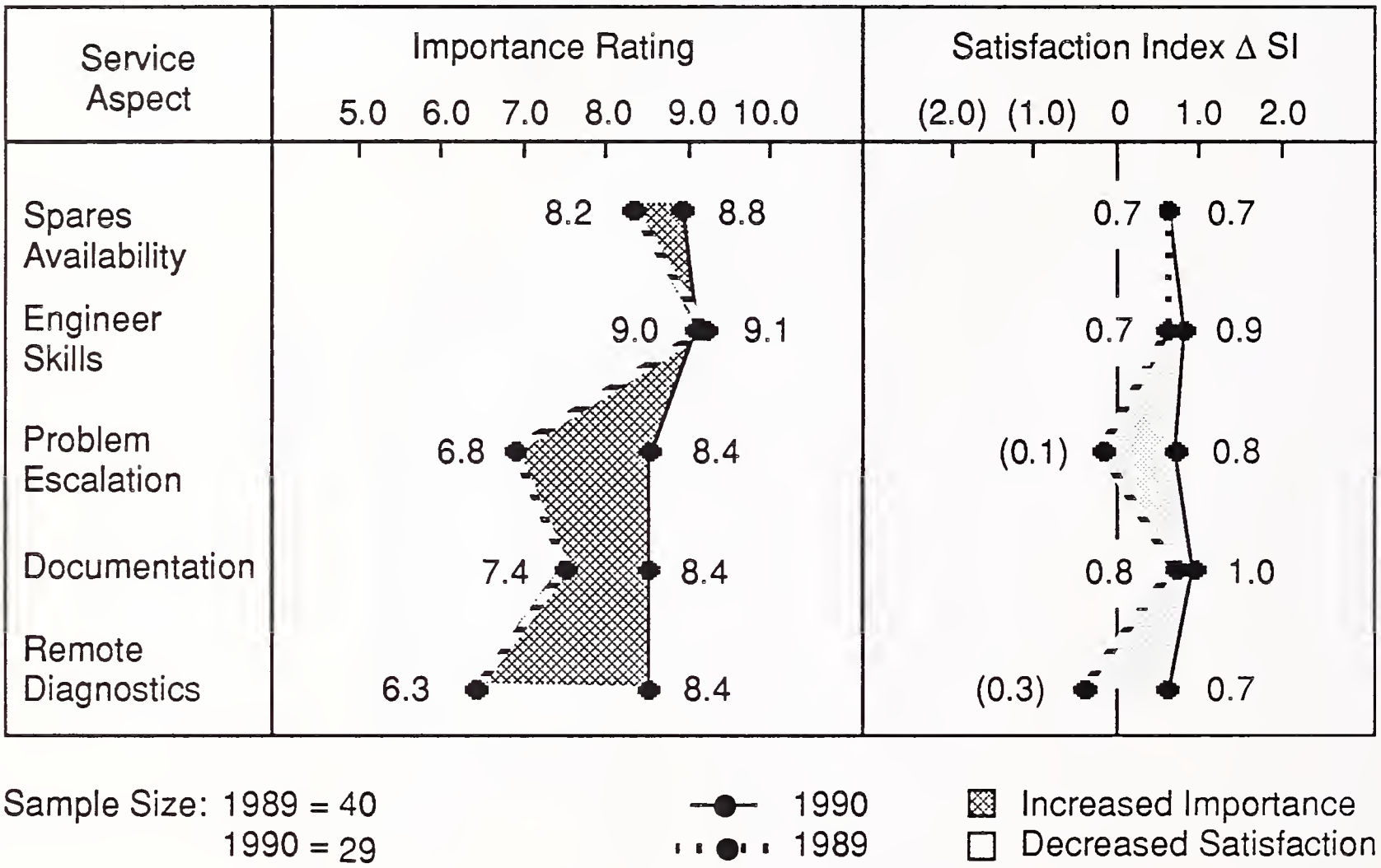


EXHIBIT VI-67

Systems Software Support Trends 1989-1990
Digital—Small Systems

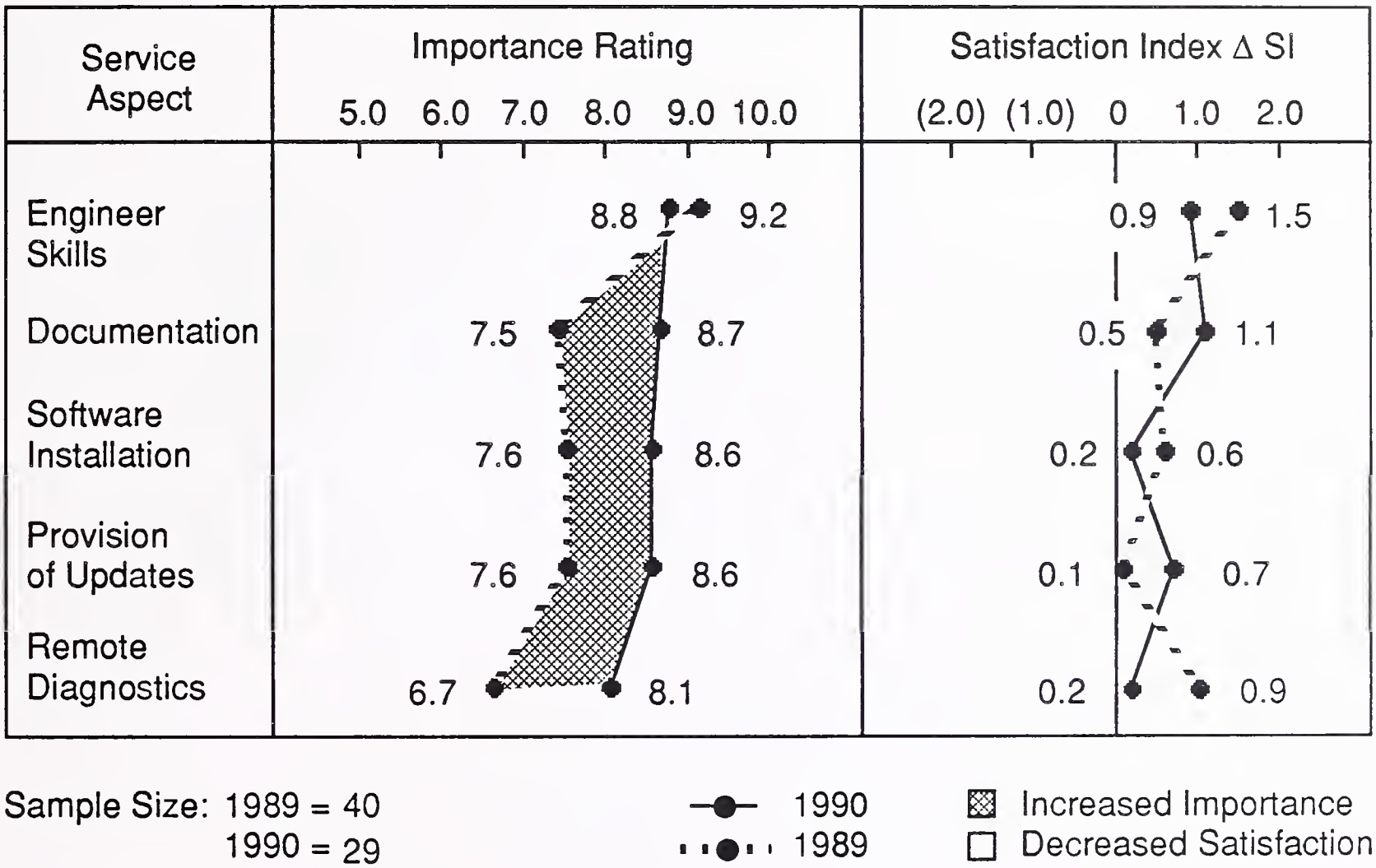


EXHIBIT VI-68

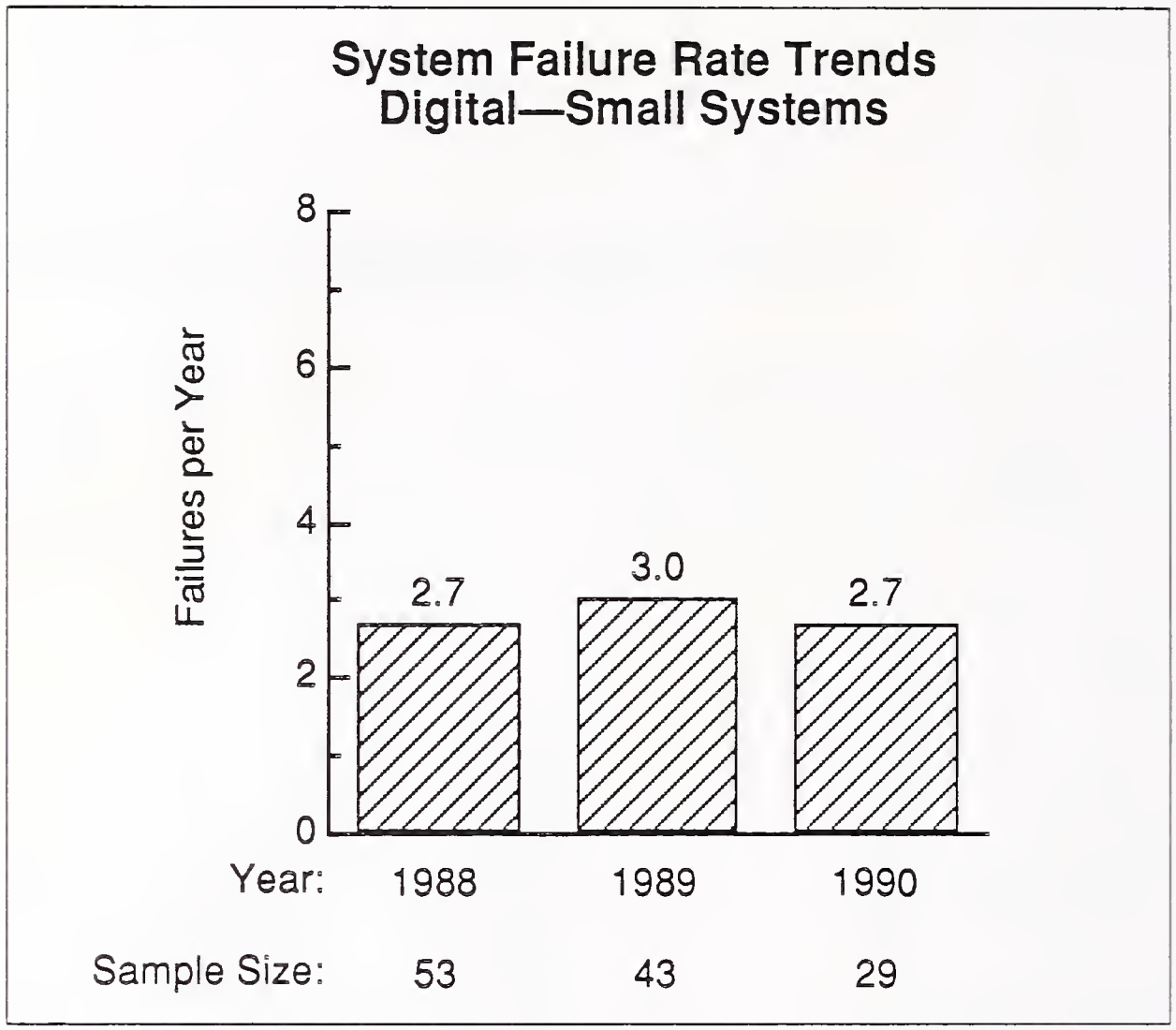
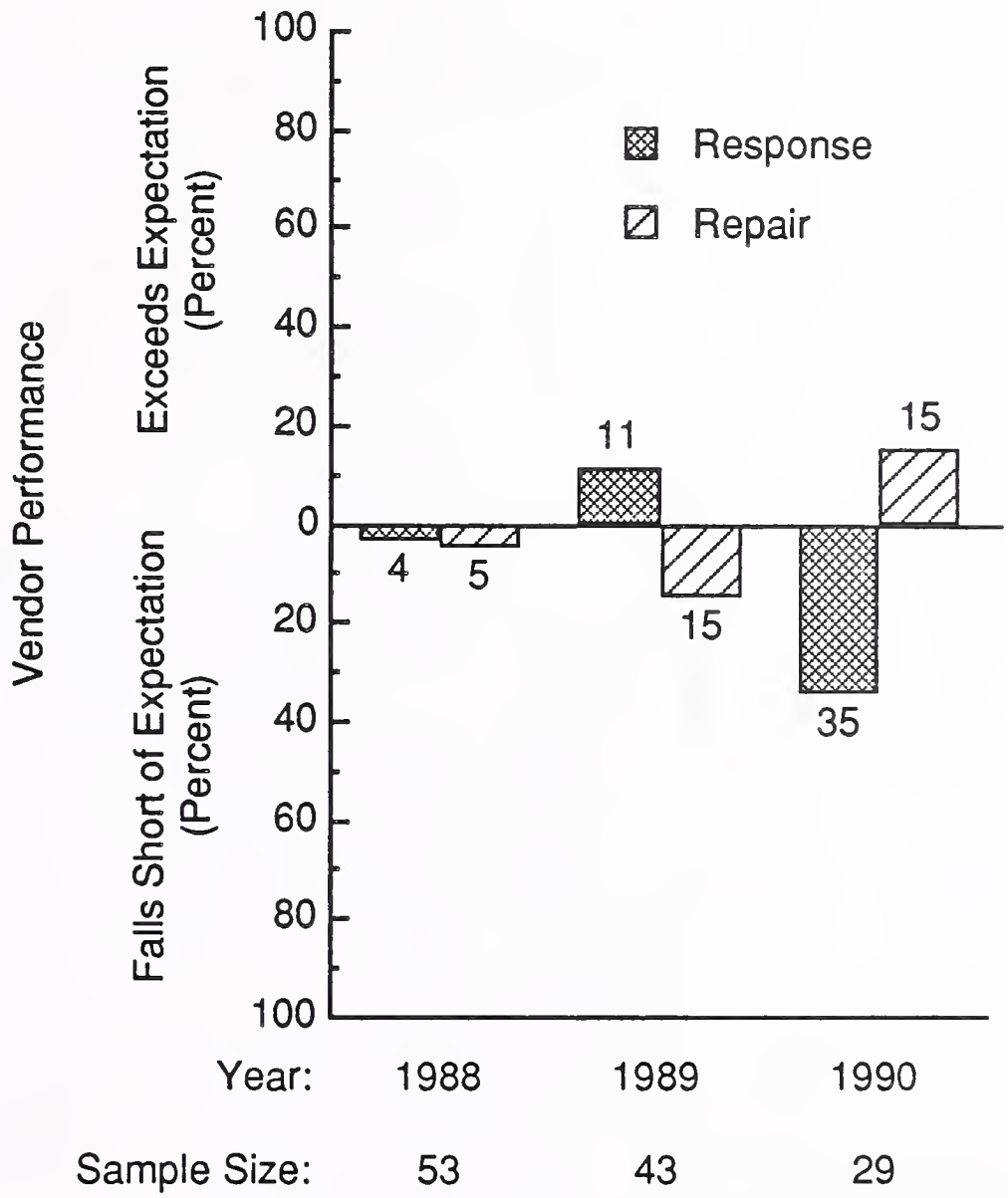


EXHIBIT VI-69

Hardware Service Response/Repair Time Trends
Digital—Small Systems



	1988	1989	1990
Year:			
Sample Size:	53	43	29

EXHIBIT VI-70

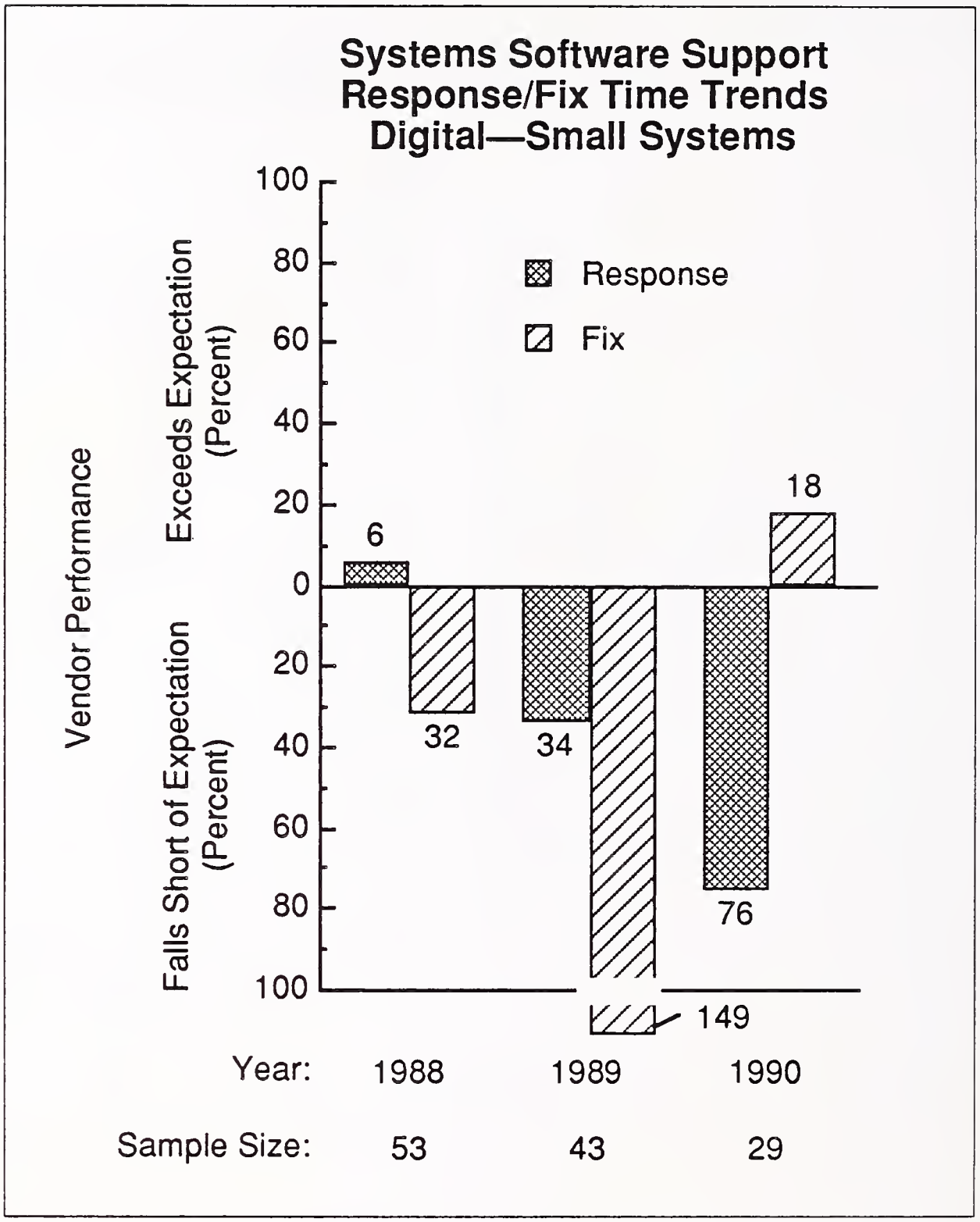


EXHIBIT VI-71

Hardware Service Trends 1989-1990
IBM—Small Systems

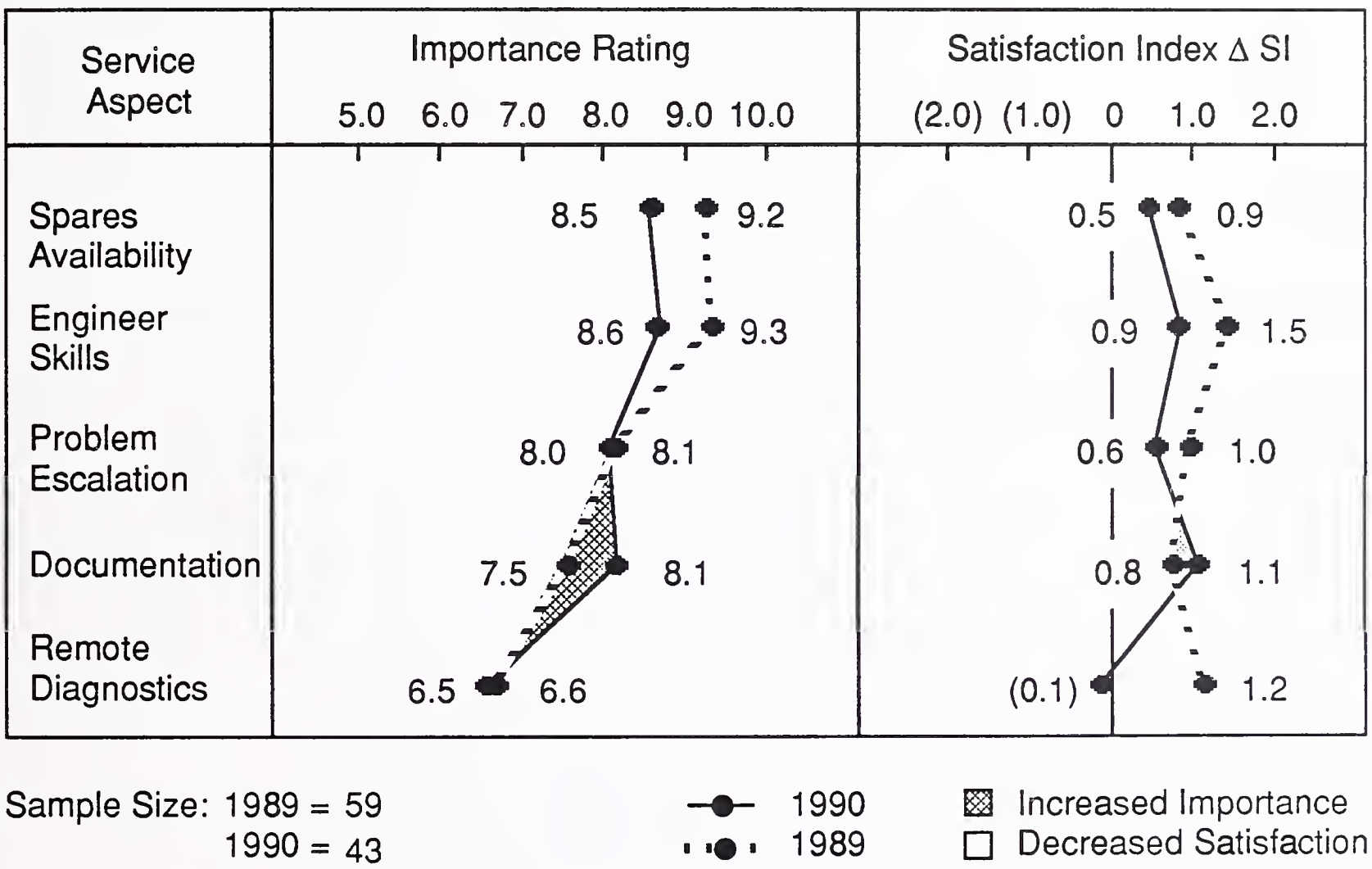


EXHIBIT VI-72

Systems Software Support Trends 1989-1990
IBM—Small Systems

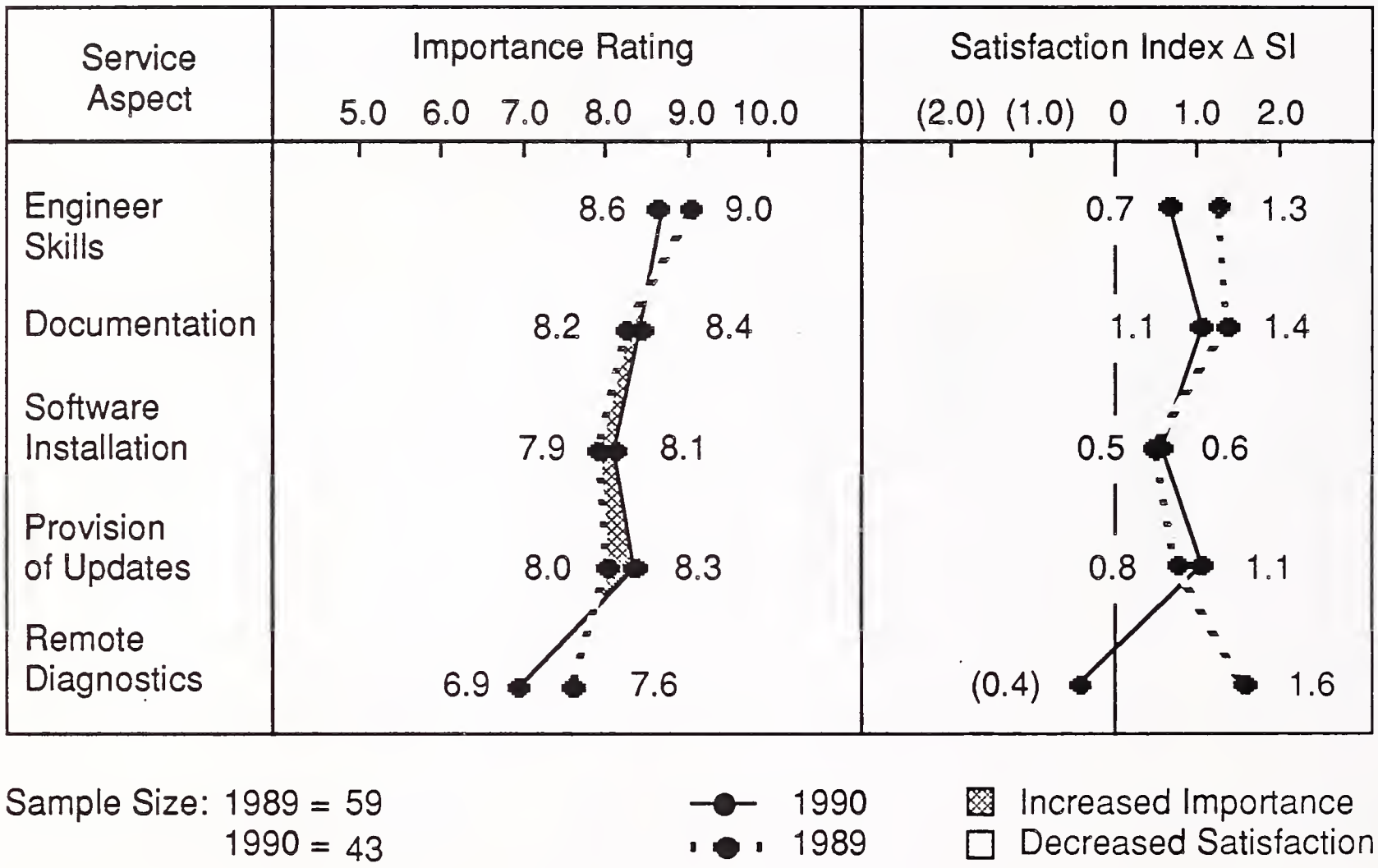


EXHIBIT VI-73

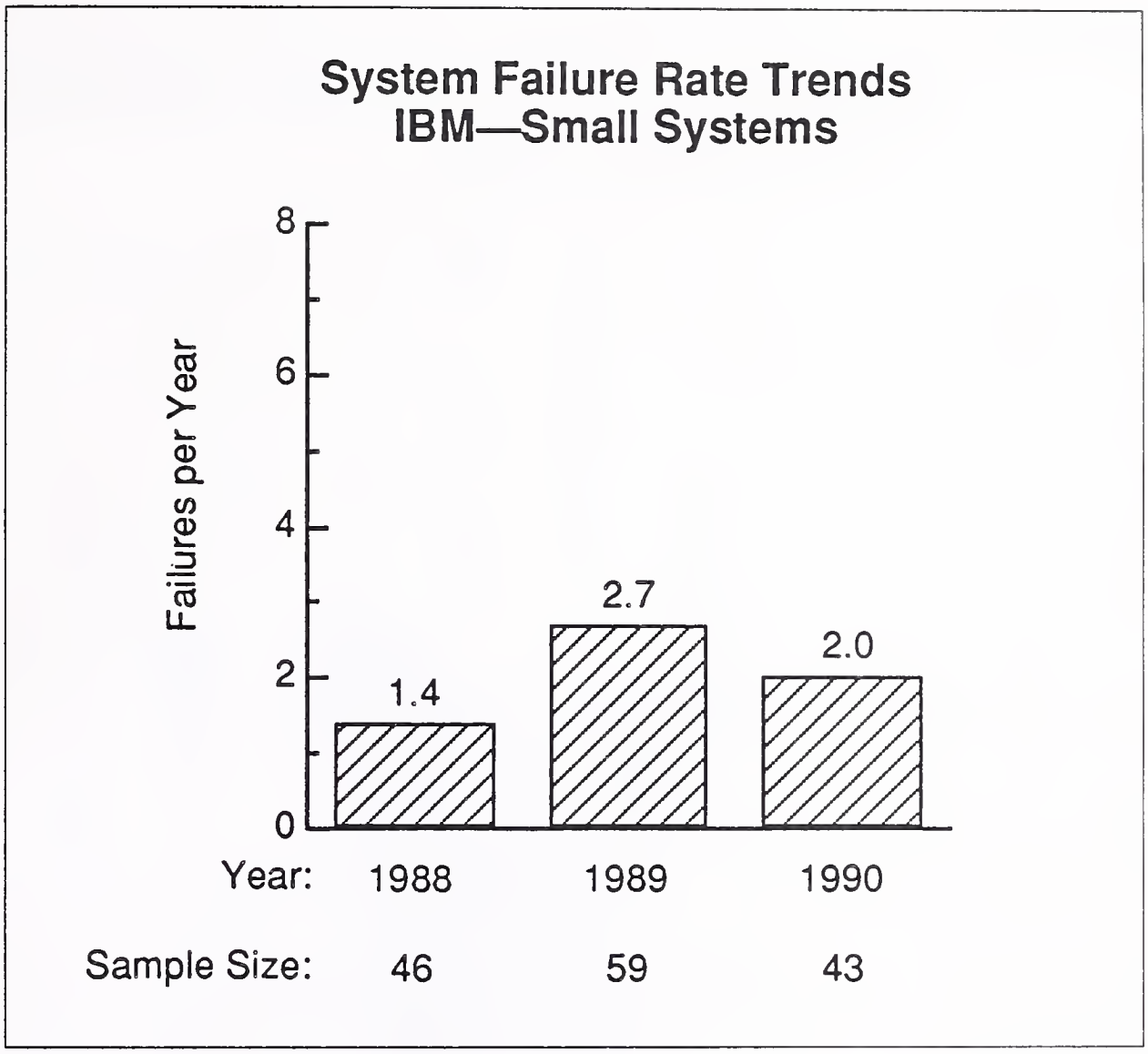
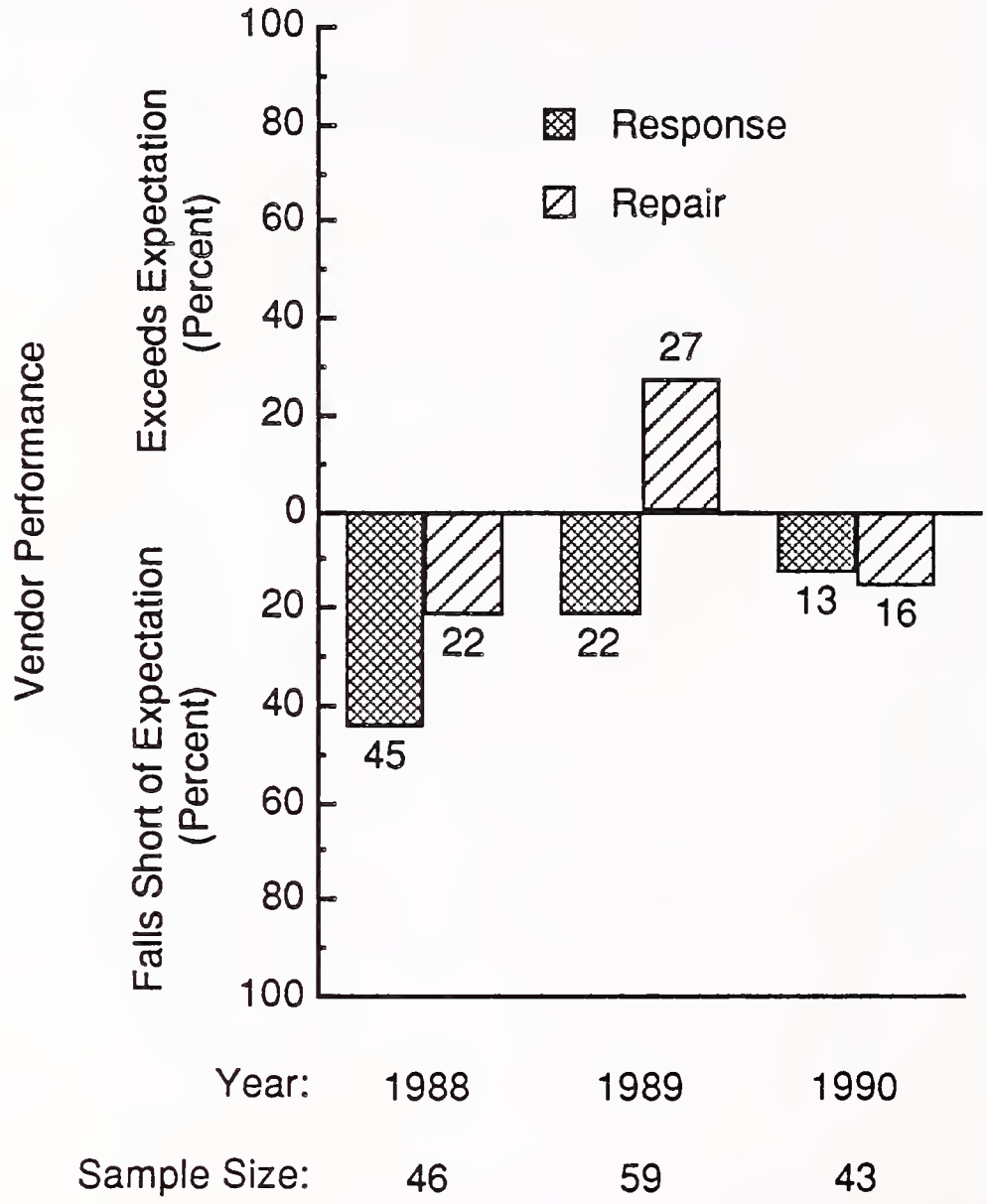


EXHIBIT VI-74

Hardware Service Response/Repair Time Trends
IBM—Small Systems



	1988	1989	1990
Year:			
Sample Size:	46	59	43

EXHIBIT VI-75

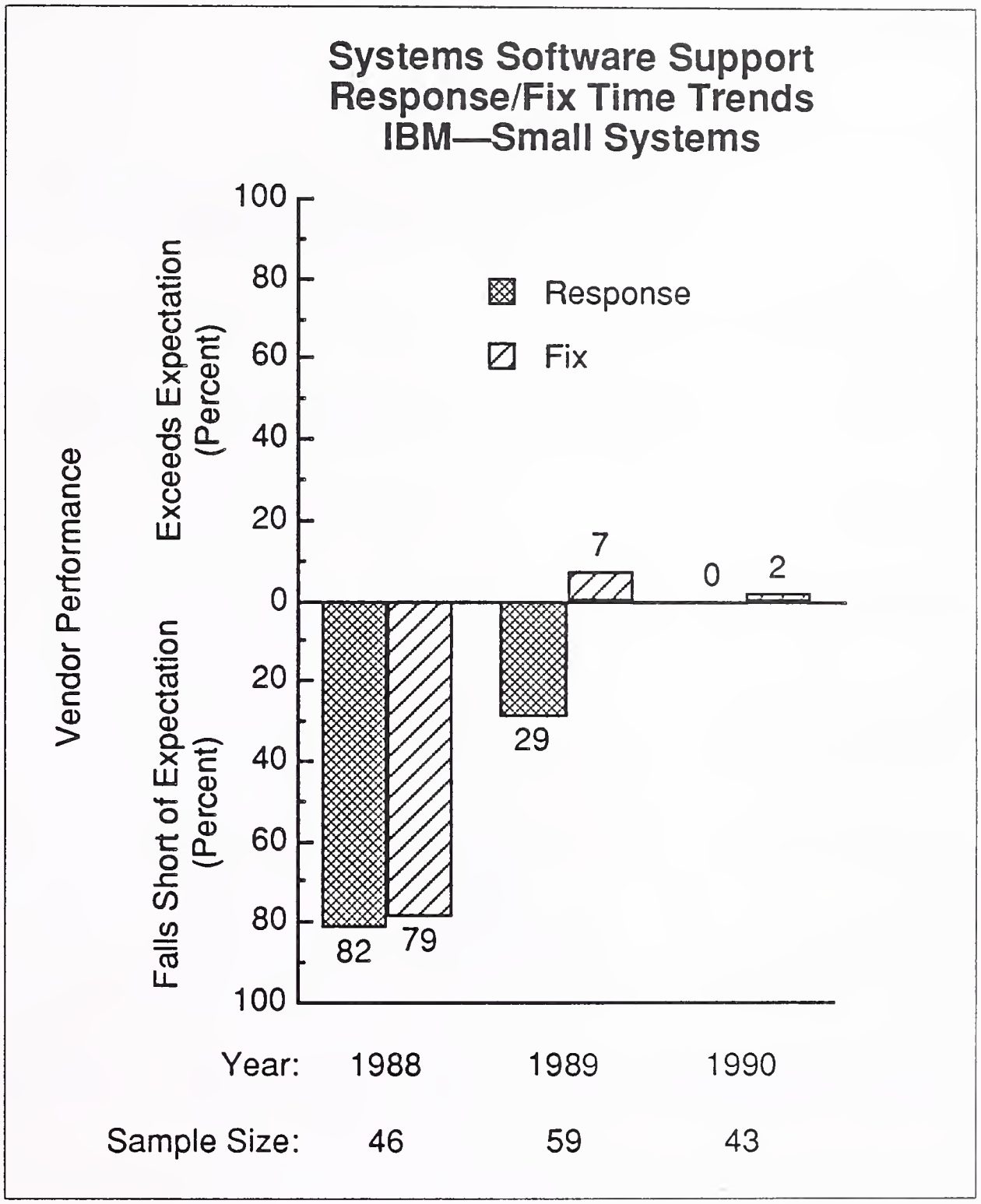


EXHIBIT VI-76

Hardware Service Trends 1989-1990
ICL—Small Systems

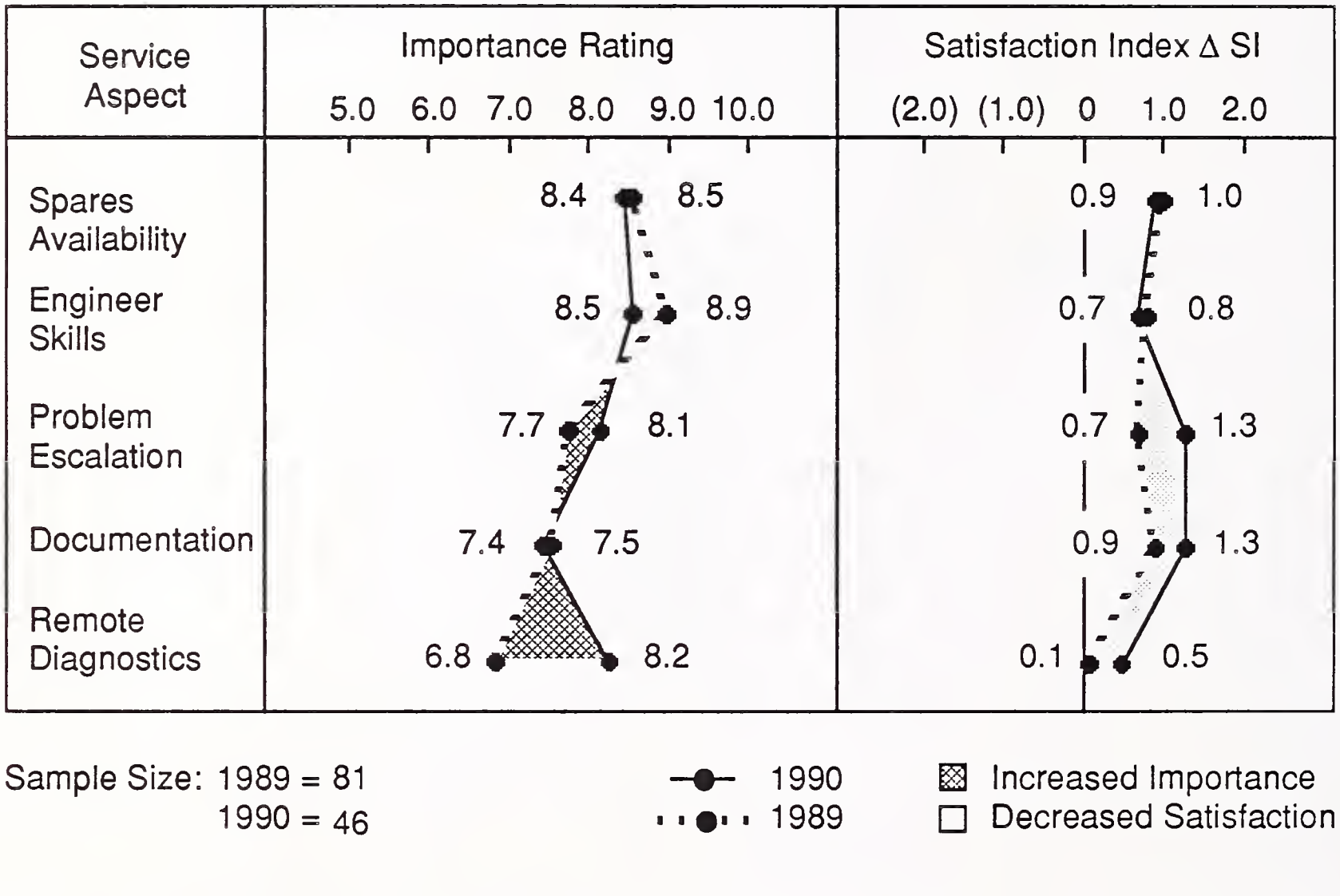


EXHIBIT VI-77

Systems Software Support Trends 1989-1990
ICL—Small Systems

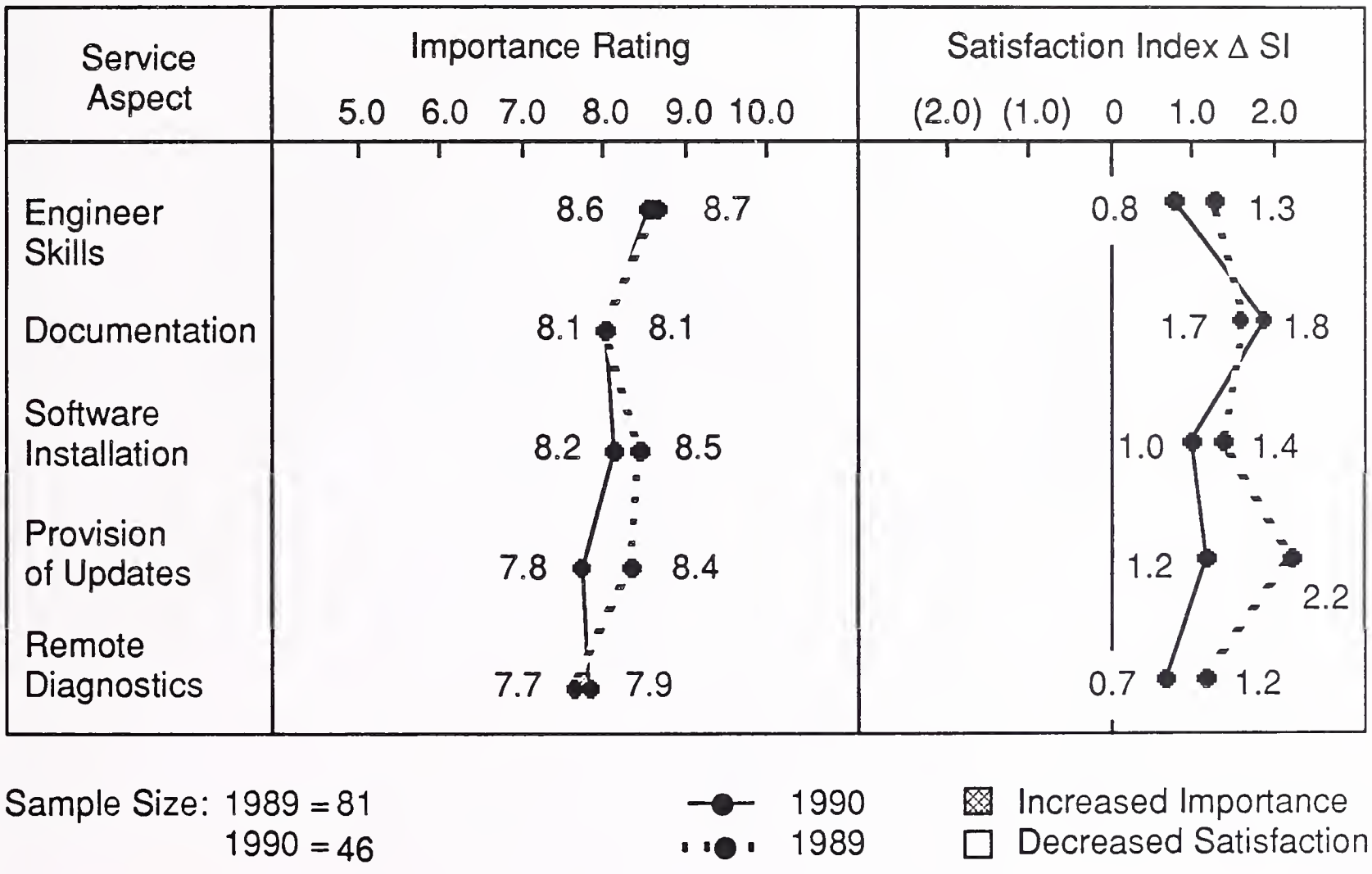


EXHIBIT VI-78

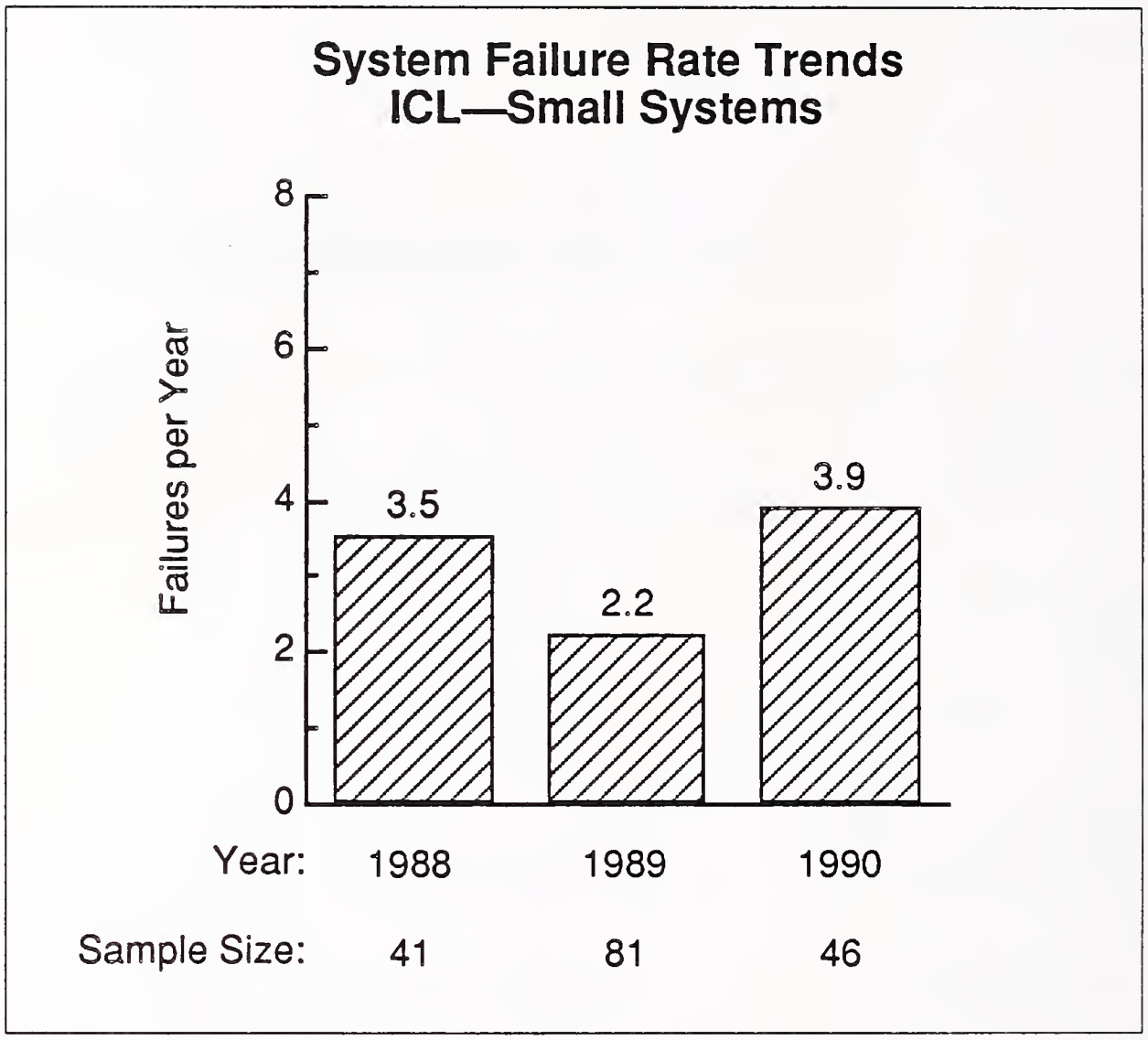


EXHIBIT VI-79

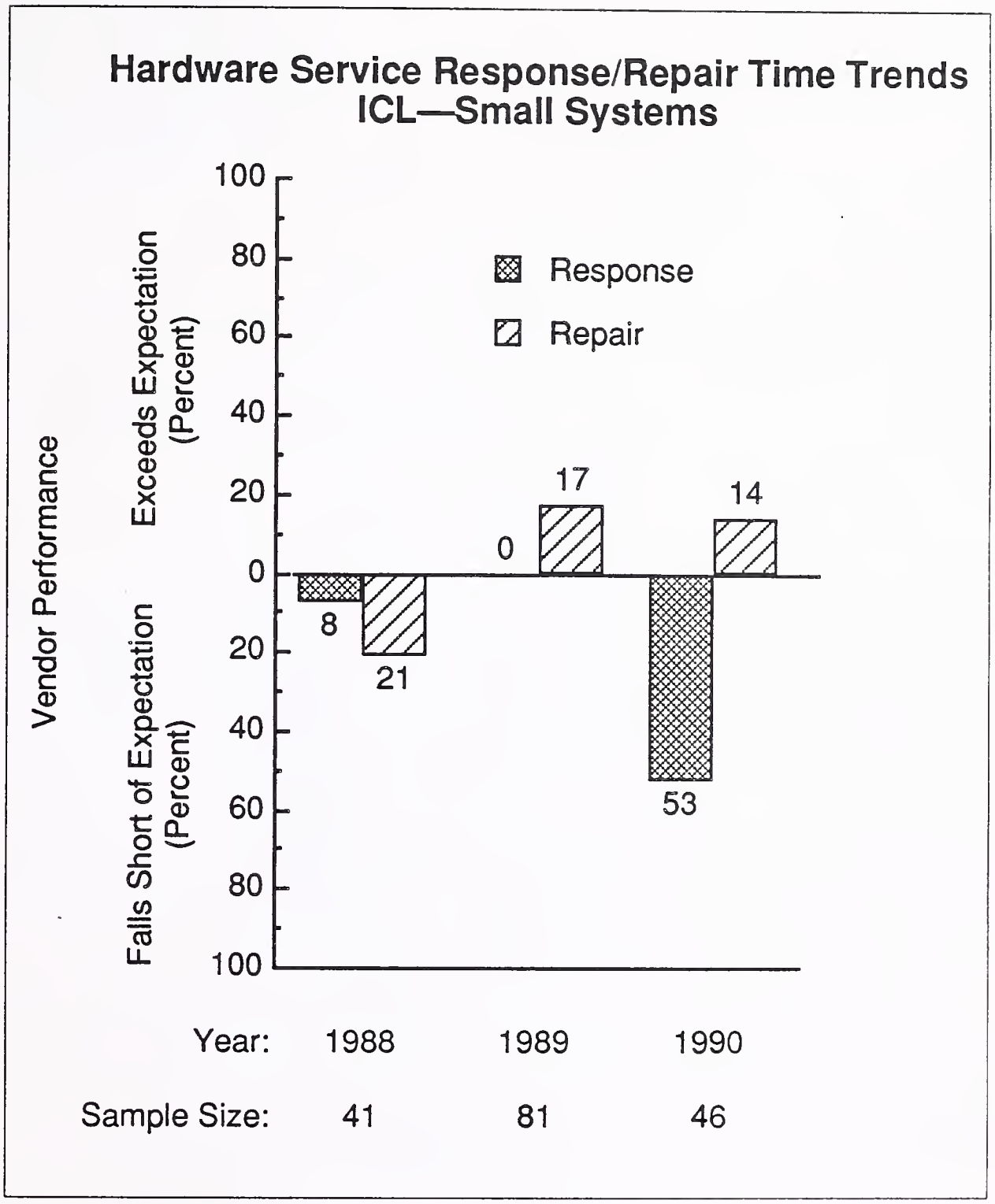
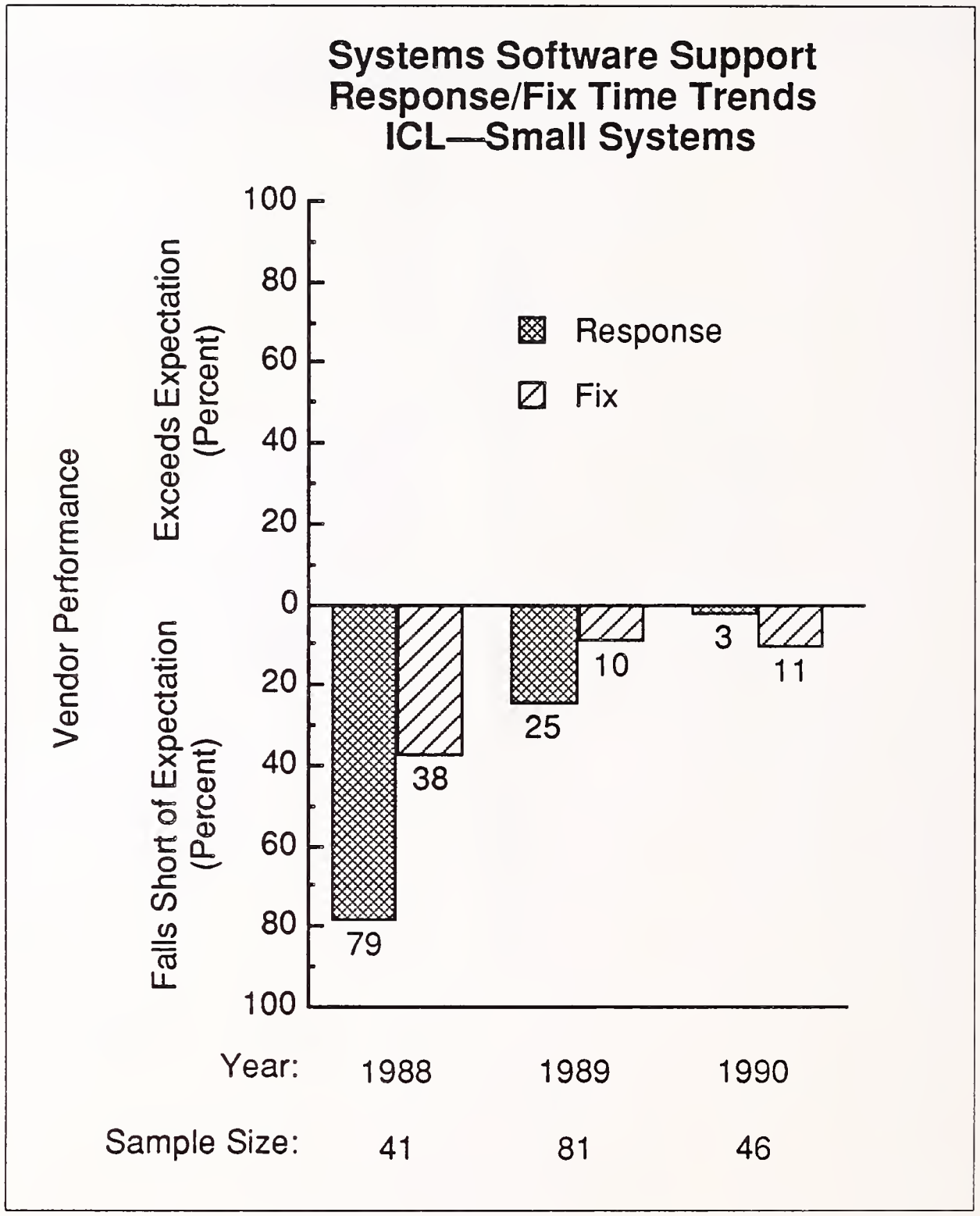
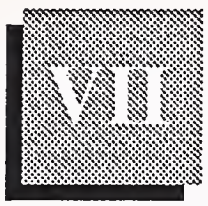


EXHIBIT VI-80



1990 Service Performance Comparisons



1990 Service Performance Comparisons

This chapter of the report is structured to allow comparison of user satisfaction ratings for service performance. Data presented relates to both vendors and key country markets in Western Europe and covers the following specific aspects of service:

- Hardware service
  - Spares availability
  - Engineer skills
  - Problem escalation
  - Documentation
  - Remote diagnostics
- Systems Software Support
  - Engineer skills
  - Documentation
  - Software installation
  - Provision of updates
  - Remote diagnostics

A

Vendor Comparisons

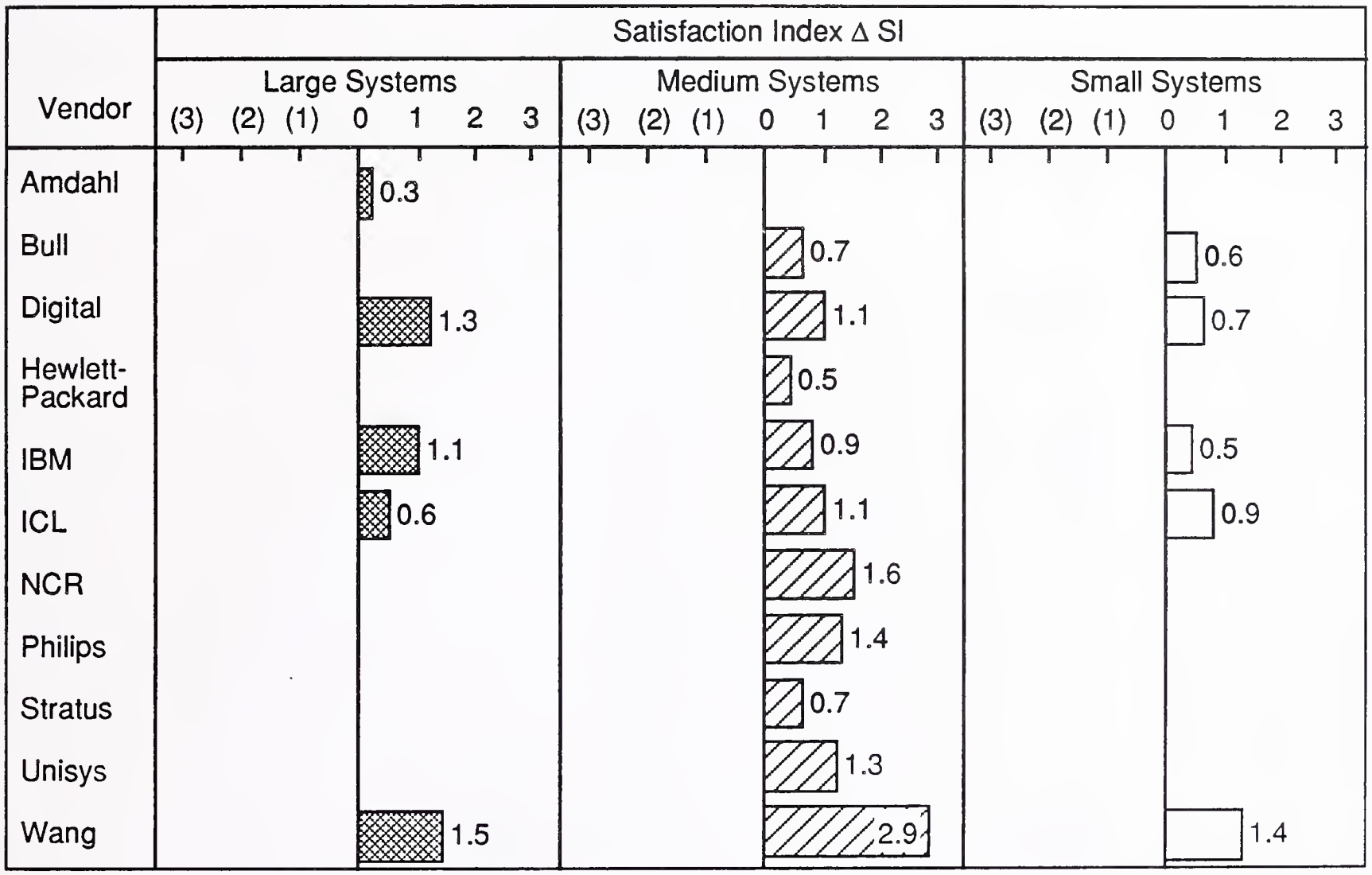
Exhibits VII-1 to VII-10 provide data allowing comparison between user perception of a number of vendors' service performance achievements in five specific aspects of hardware service and systems software support. Data included in these exhibits is restricted to those vendors for which the user sample is considered by INPUT to be sufficiently large to provide a valid statistical result (i.e., a user sample larger than 20).

Comparative data is presented for the following vendors:

- Large systems
  - Amdahl
  - Digital
  - IBM
  - ICL
  - Wang
- Medium systems
  - Bull
  - Digital
  - Hewlett-Packard
  - IBM
  - ICL
  - NCR
  - Philips
  - Stratus
  - Unisys
  - Wang
- Small systems
  - Bull
  - Digital
  - IBM
  - ICL
  - Wang

EXHIBIT VII-1

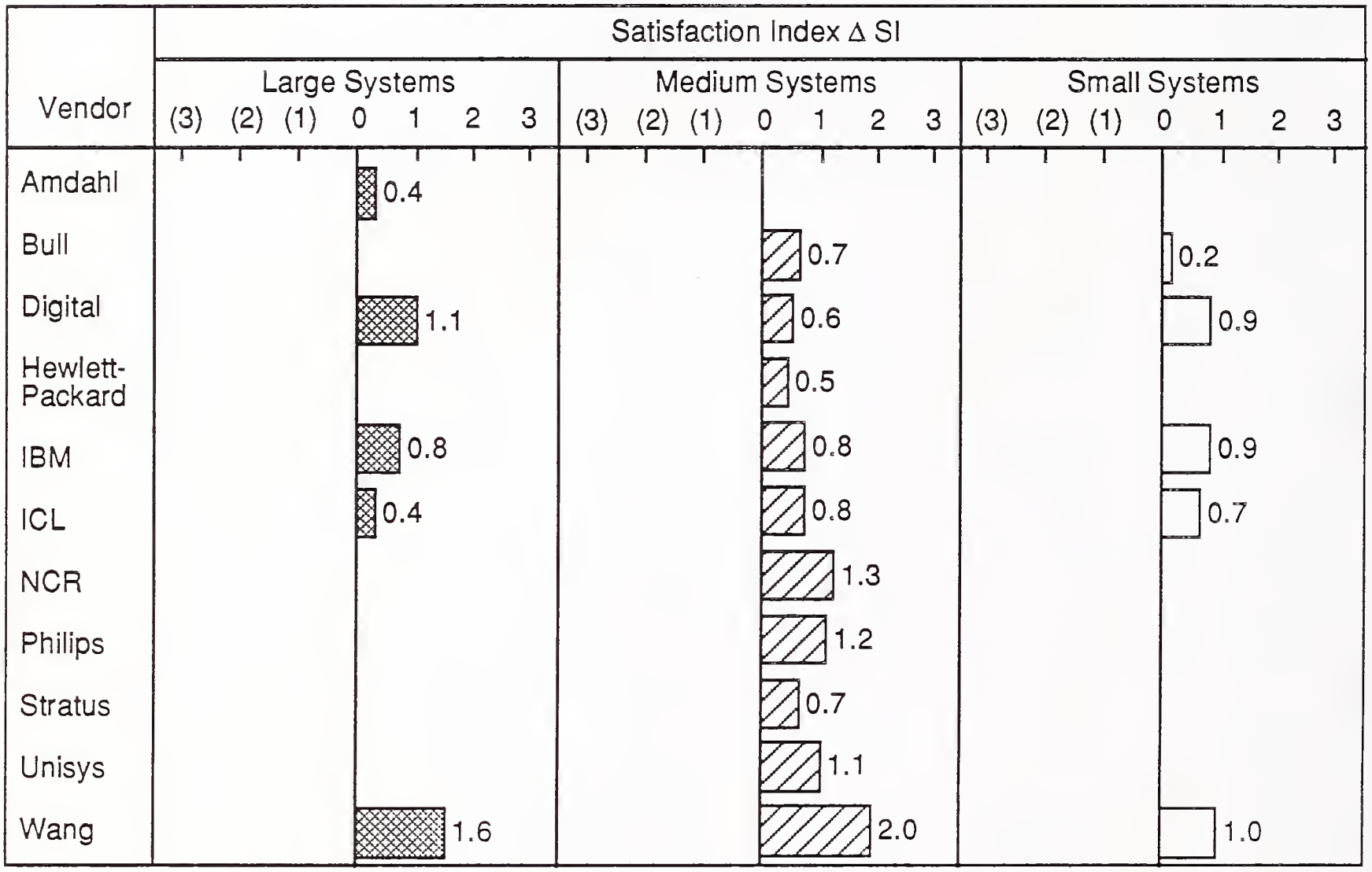
Vendor Performance Comparisons
Hardware Service—Spares Availability



Sample Size: Large Systems: 324 Medium Systems: 638 Small Systems: 249

EXHIBIT VII-2

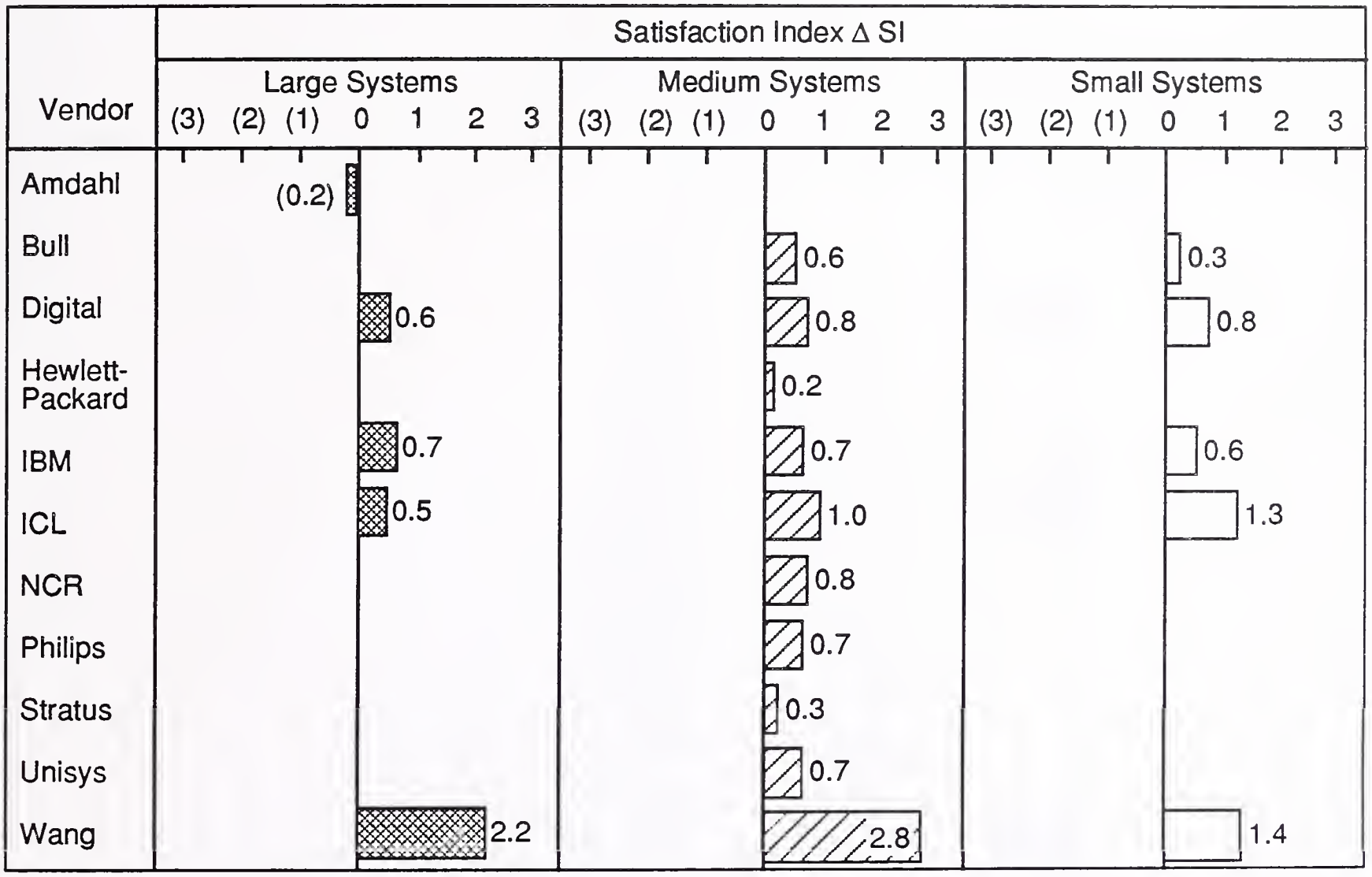
Vendor Performance Comparisons
Hardware Service—Engineer Skills



Sample Size: Large Systems: 324 Medium Systems: 638 Small Systems: 249

EXHIBIT VII-3

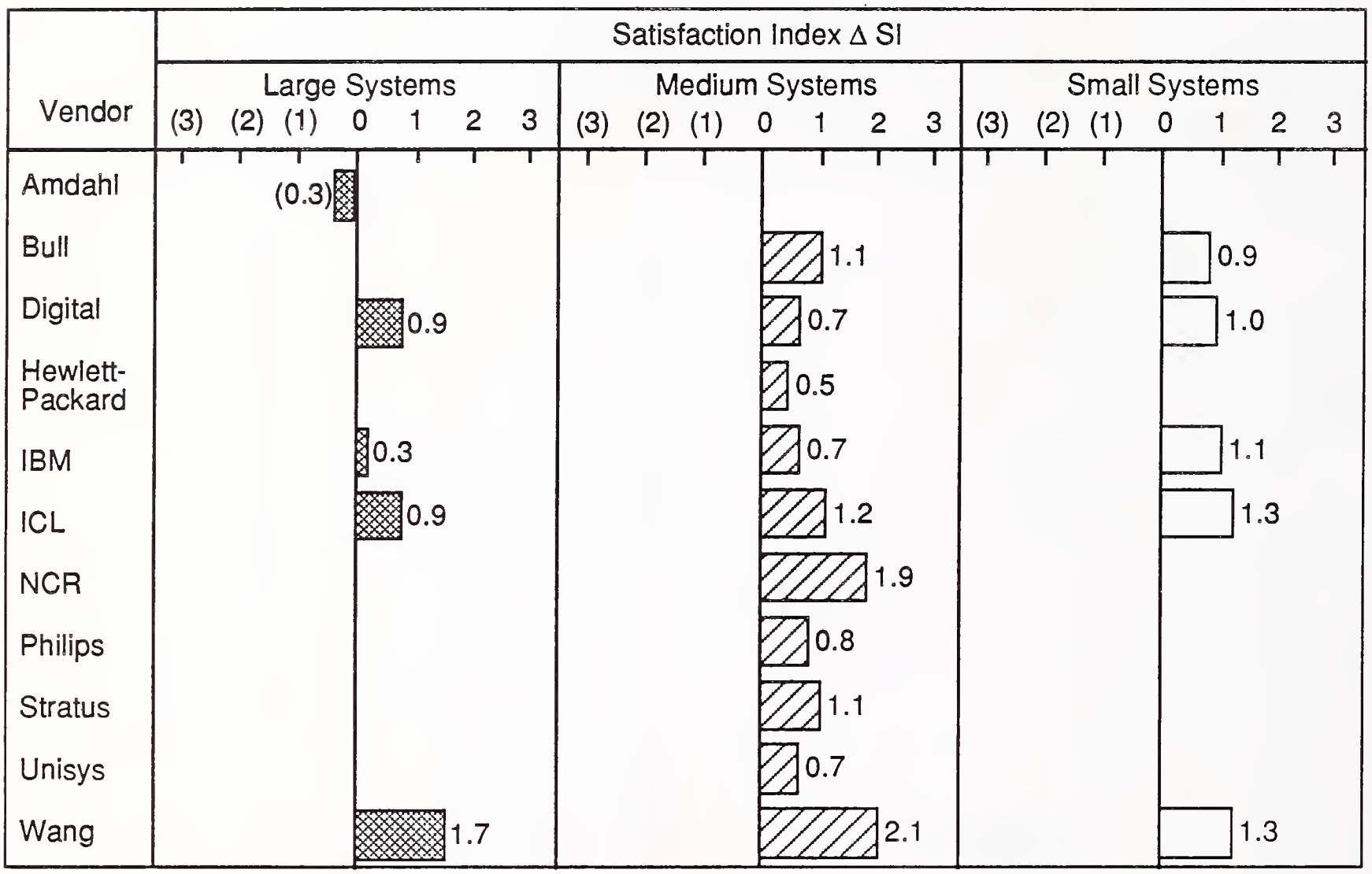
Vendor Performance Comparisons
Hardware Service—Problem Escalation



Sample Size: Large Systems: 324 Medium Systems: 638 Small Systems: 249

EXHIBIT VII-4

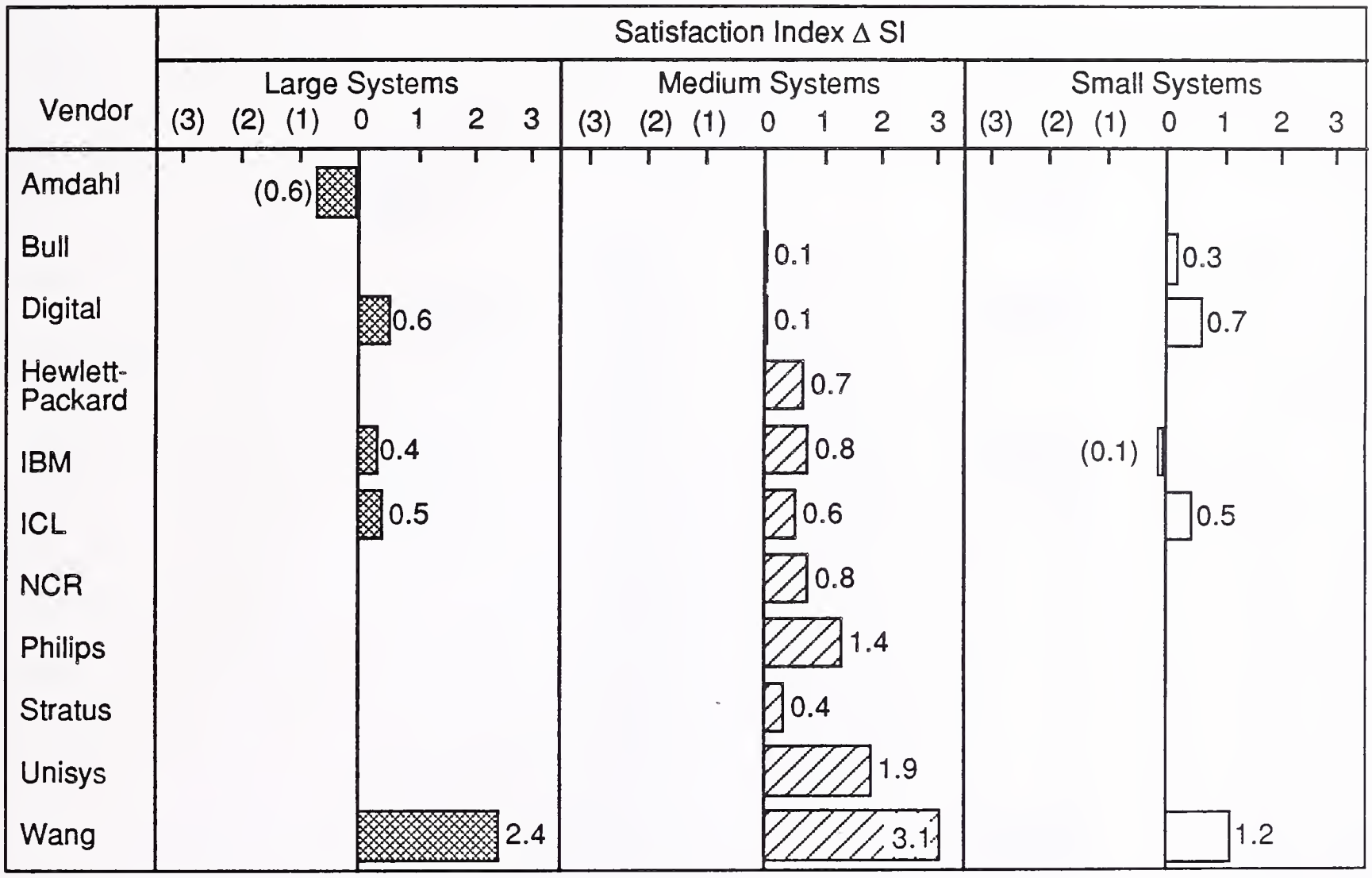
Vendor Performance Comparisons
Hardware Service—Documentation



Sample Size: Large Systems: 324 Medium Systems: 638 Small Systems: 249

EXHIBIT VII-5

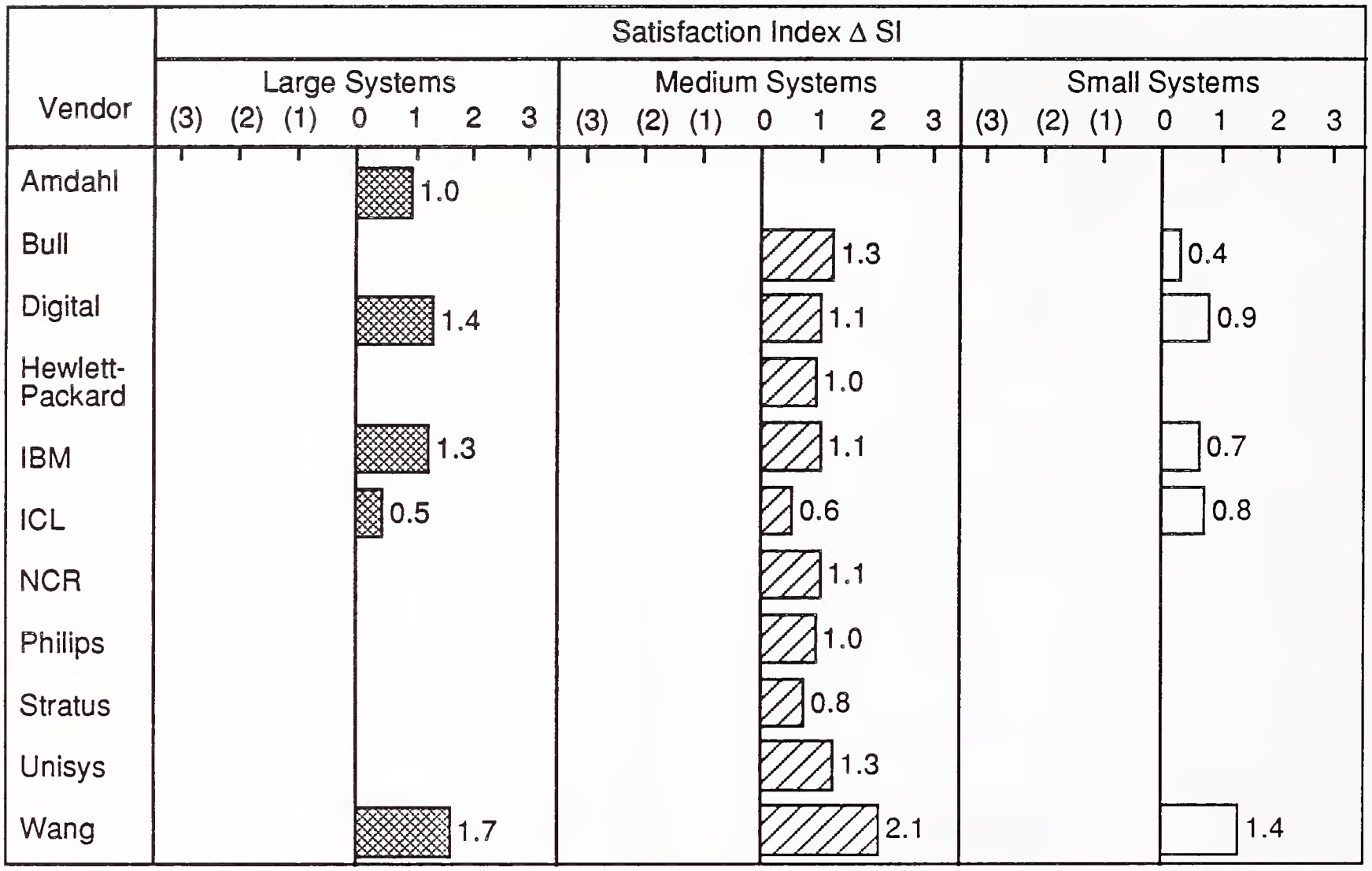
Vendor Performance Comparisons
Hardware Service—Remote Diagnostics



Sample Size: Large Systems: 324 Medium Systems: 638 Small Systems: 249

EXHIBIT VII-6

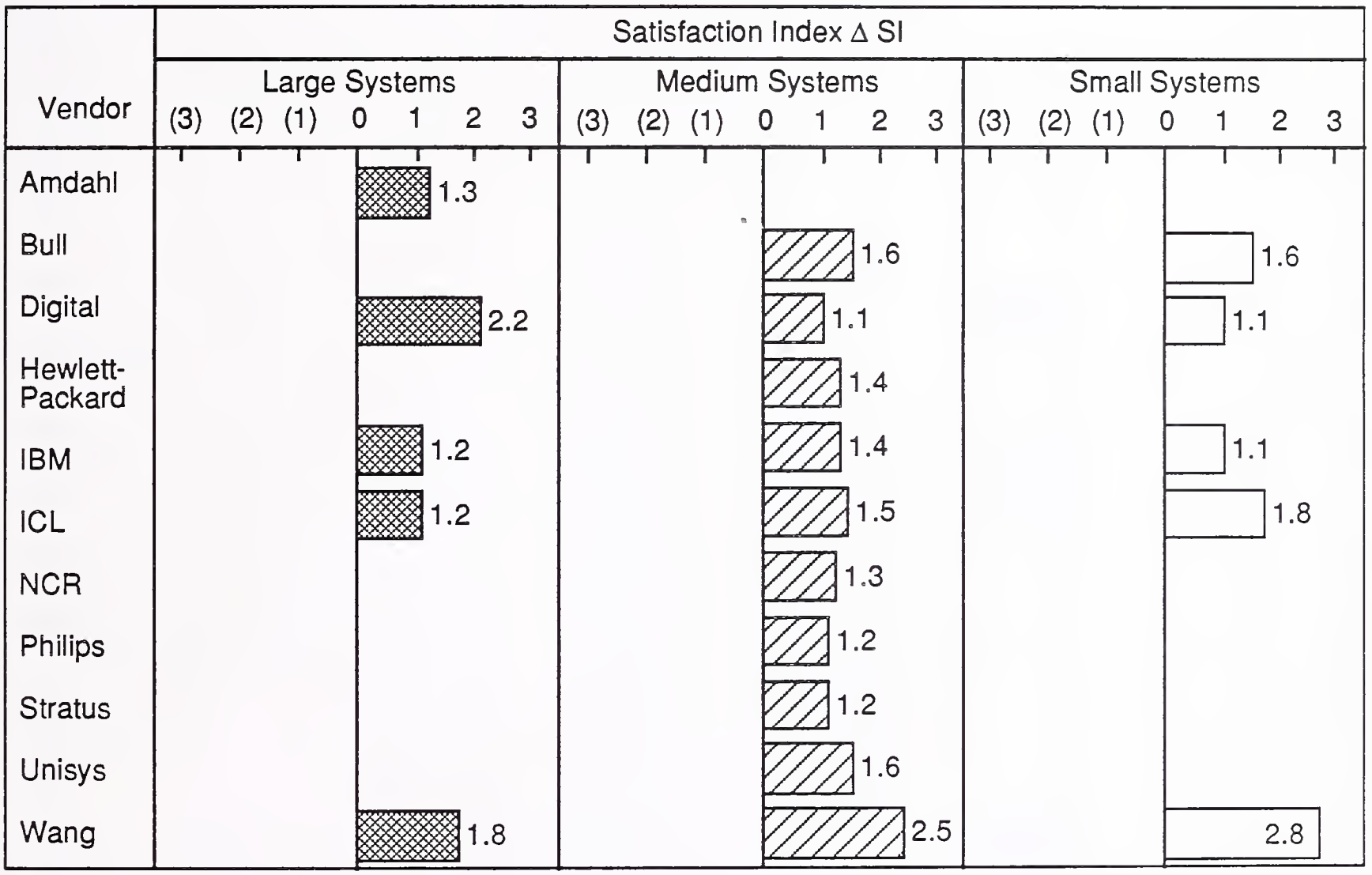
Vendor Performance Comparisons
Systems Software Support—Engineer Skills



Sample Size: Large Systems: 324 Medium Systems: 638 Small Systems: 249

EXHIBIT VII-7

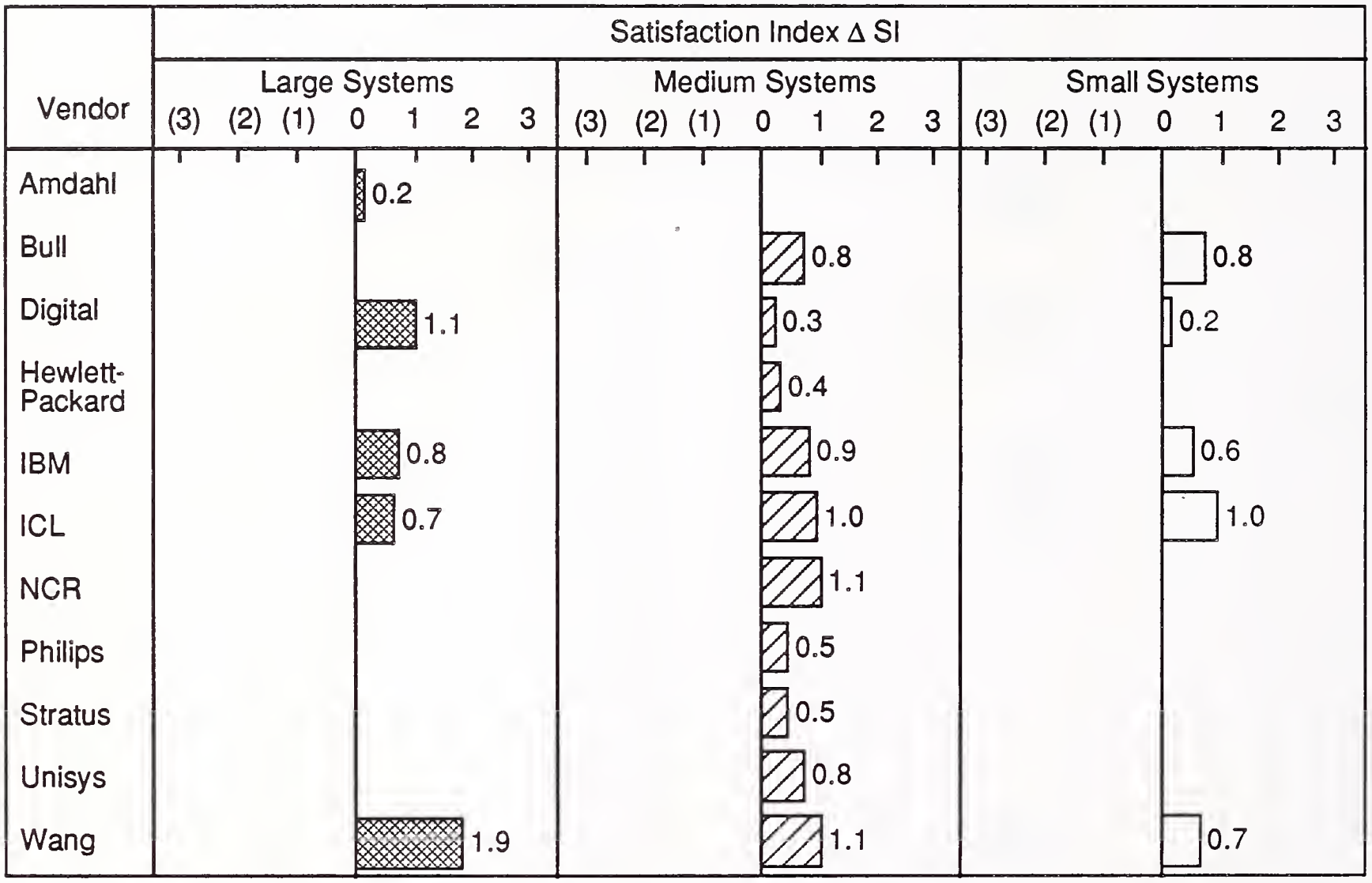
Vendor Performance Comparisons
Systems Software Support—Documentation



Sample Size: Large Systems: 324 Medium Systems: 638 Small Systems: 249

EXHIBIT VII-8

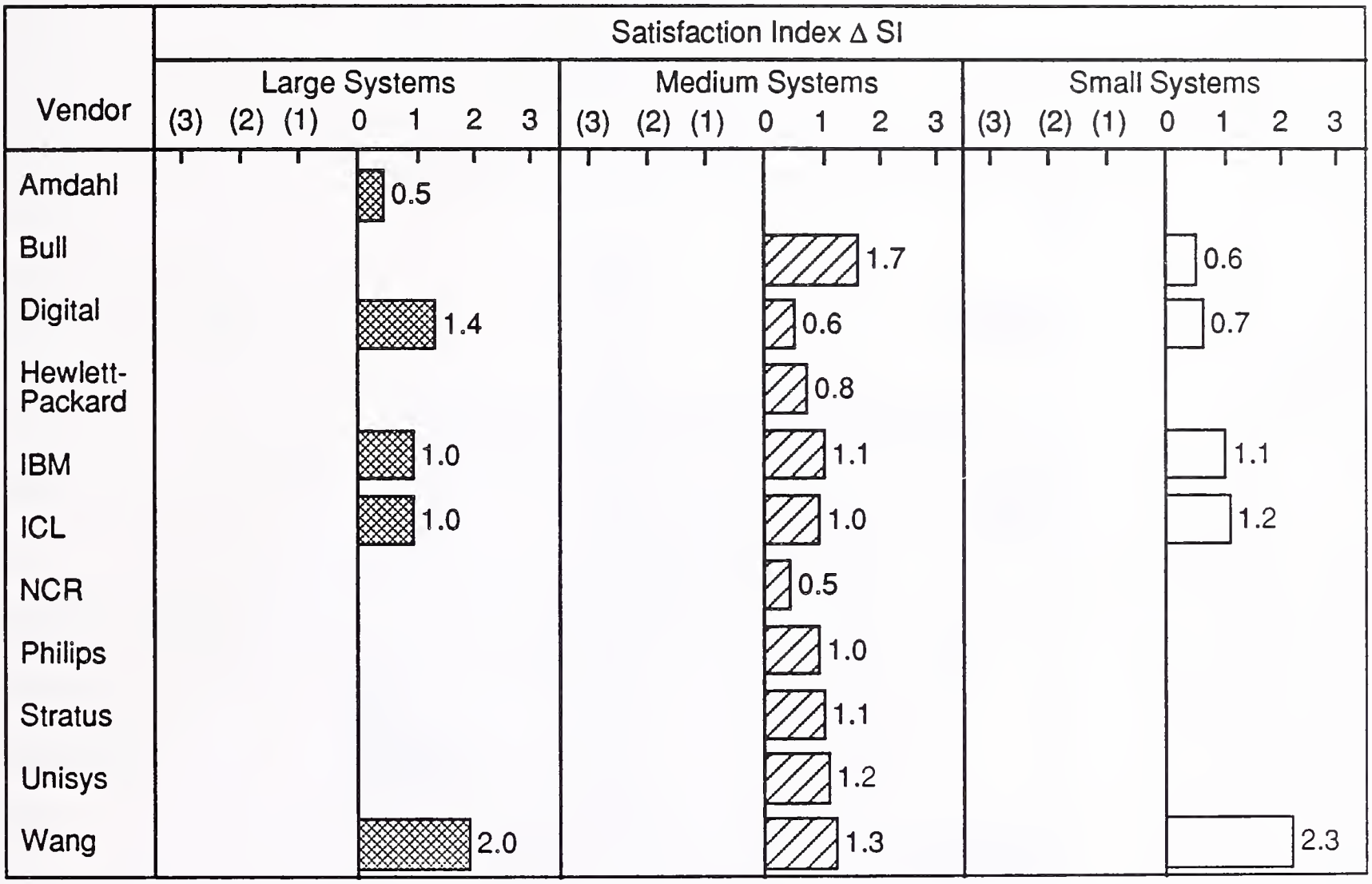
Vendor Performance Comparisons
Systems Software Support—Software Installation



Sample Size: Large Systems: 324 Medium Systems: 638 Small Systems: 249

EXHIBIT VII-9

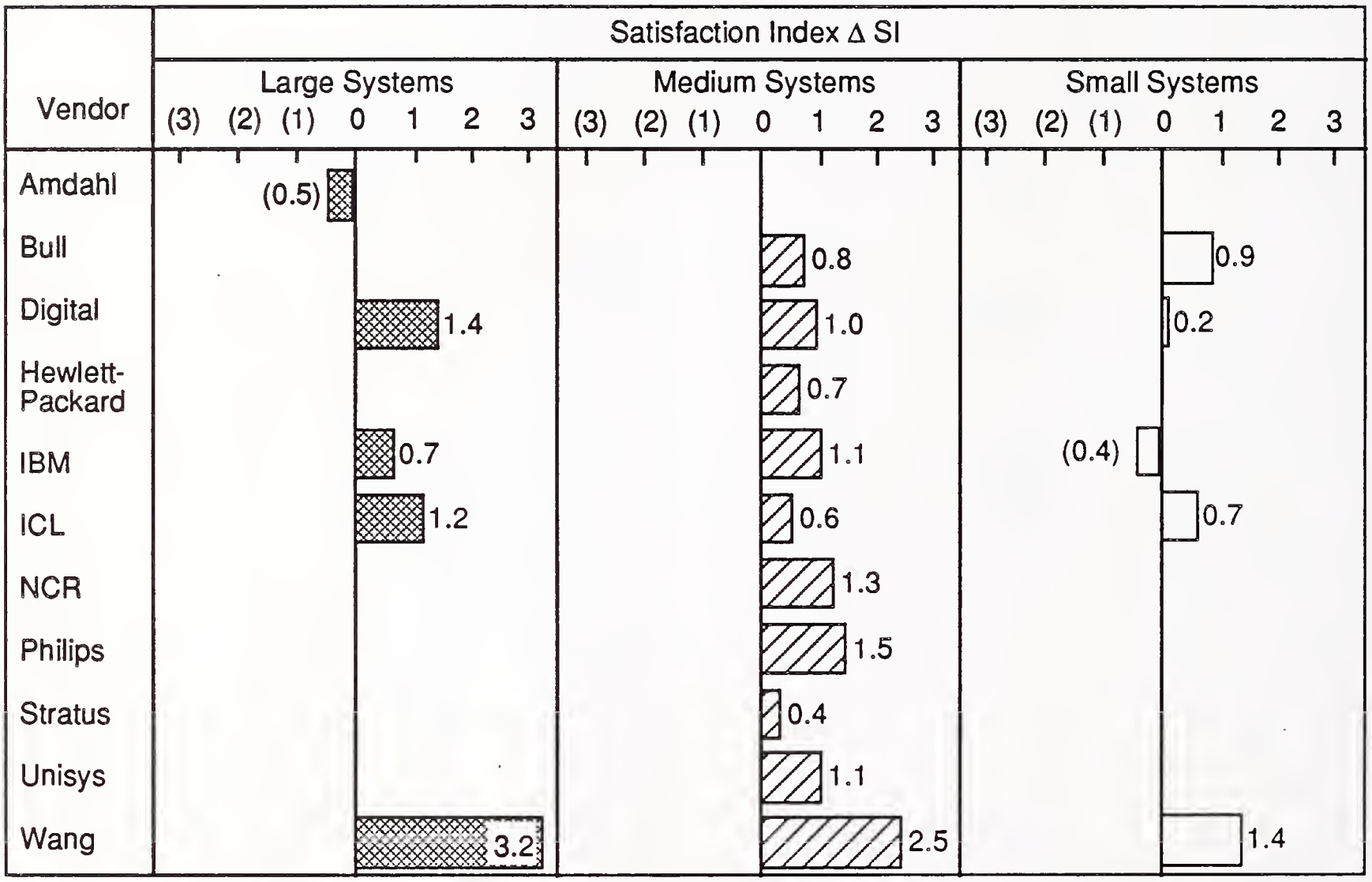
Vendor Performance Comparisons
Systems Software Support—Provision of Updates



Sample Size: Large Systems: 324 Medium Systems: 638 Small Systems: 249

EXHIBIT VII-10

Vendor Performance Comparisons
Systems Software Support—Remote Diagnostics



Sample Size: Large Systems: 324 Medium Systems: 638 Small Systems: 249

B

Key Country Market Comparisons

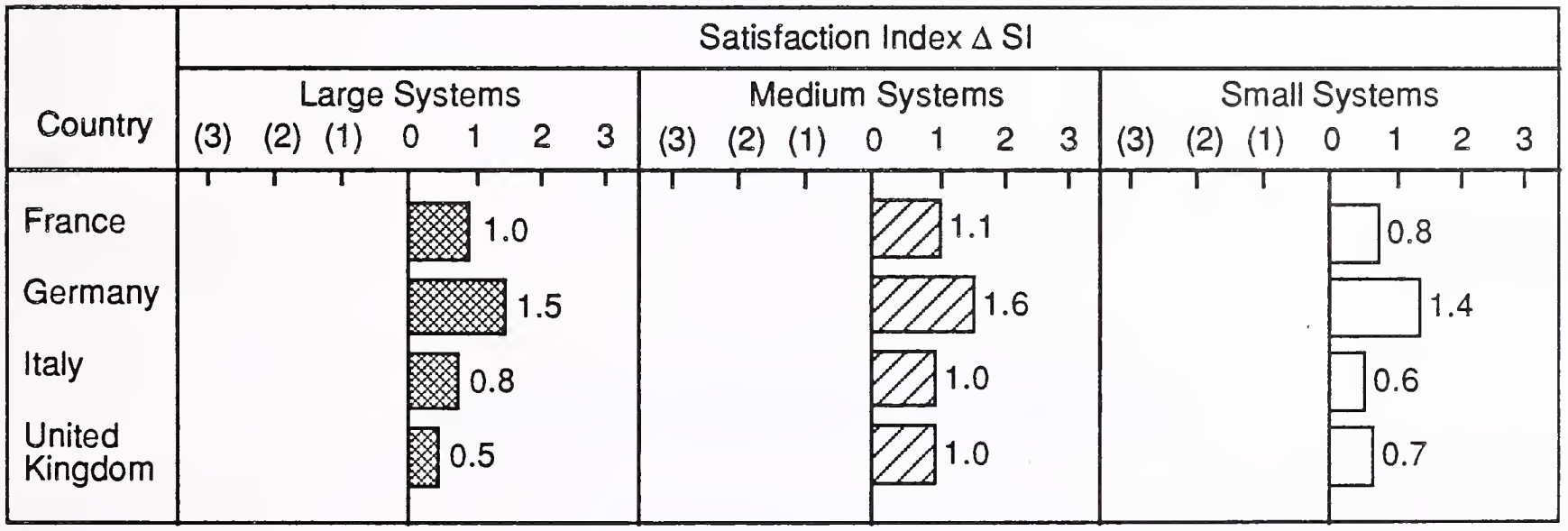
Exhibit VII-11 to VII-20 provide data allowing comparison between user perception of vendor service performance achievements in four major Western European country markets:

- France
- Germany
- Italy
- United Kingdom

Data presented in these exhibits relates to five aspects of hardware service and five aspects of systems software support.

EXHIBIT VII-11

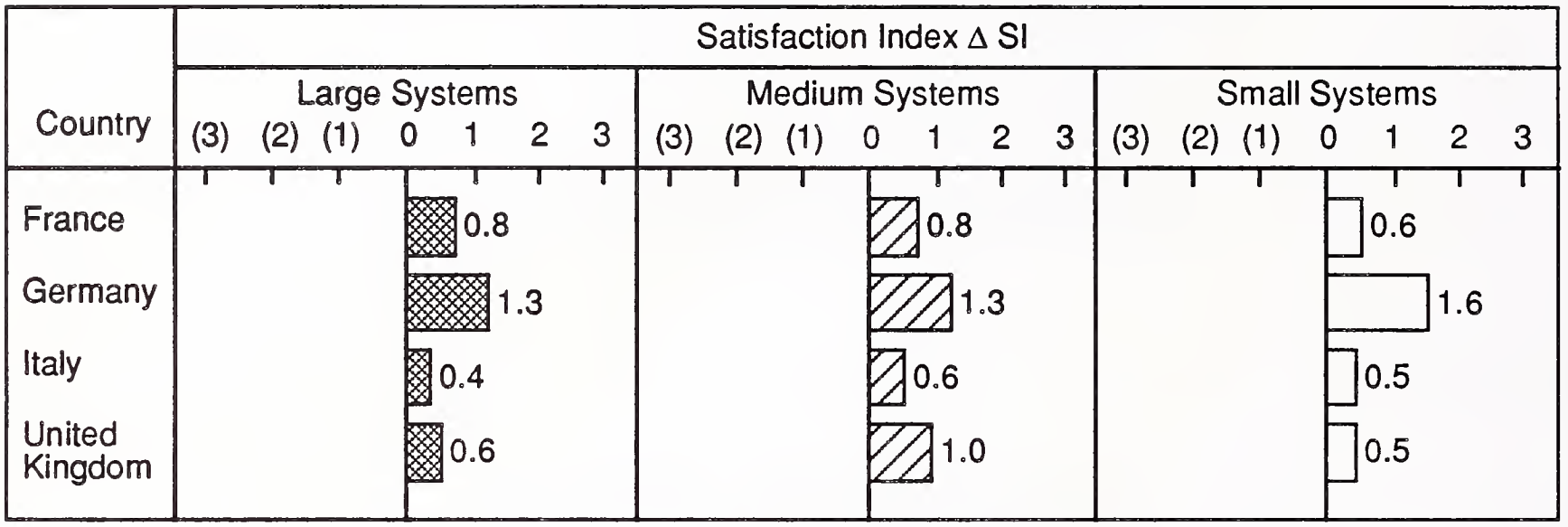
Country Performance Comparisons
Hardware Service—Spares Availability



Sample Size: Large Systems: 324 Medium Systems: 638 Small Systems: 249

EXHIBIT VII-12

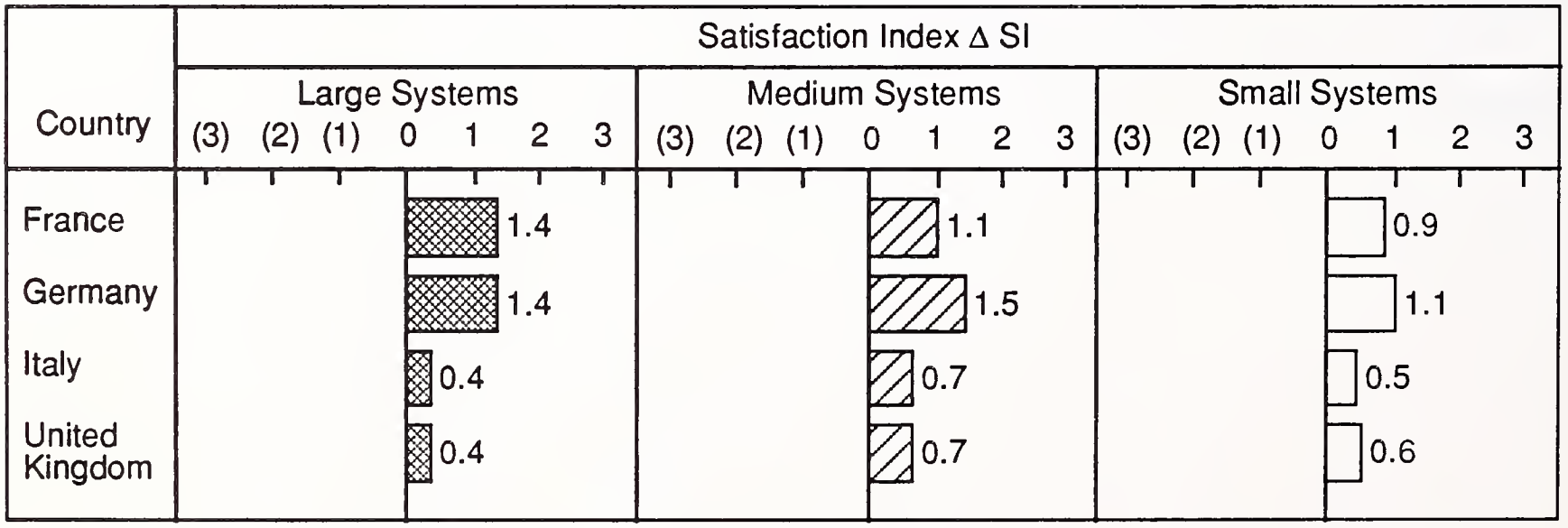
Country Performance Comparisons
Hardware Service—Engineer Skills



Sample Size: Large Systems: 324 Medium Systems: 638 Small Systems: 249

EXHIBIT VII-13

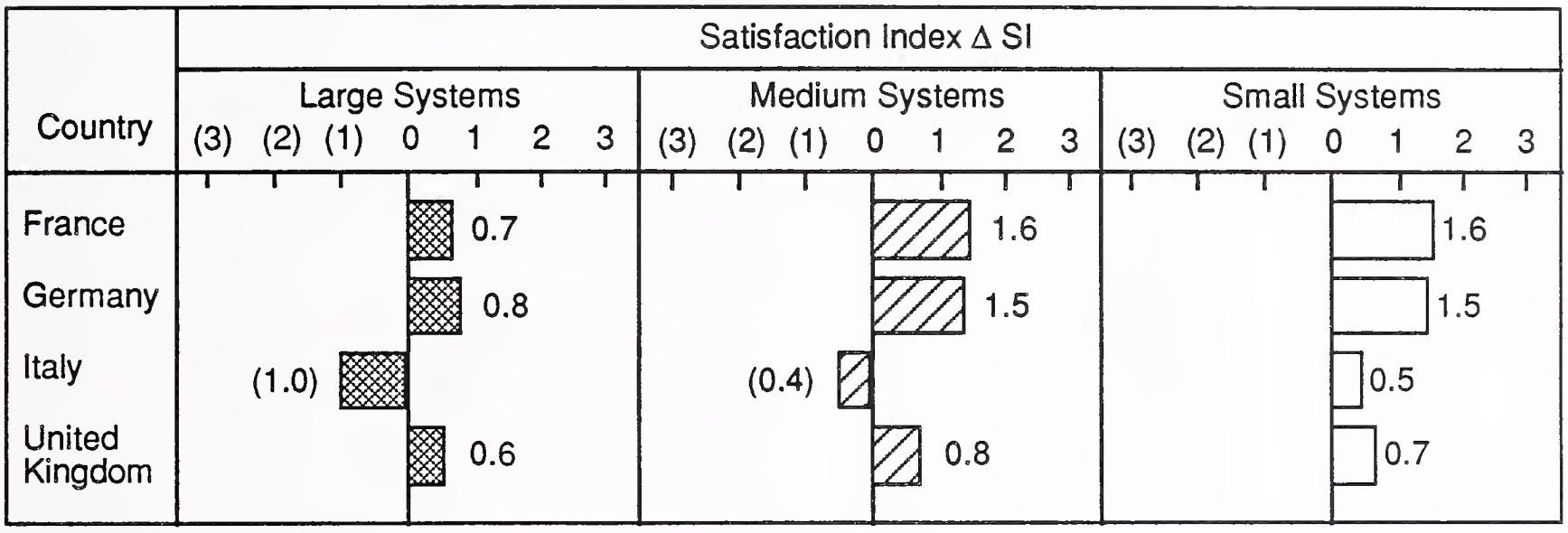
Country Performance Comparisons
Hardware Service—Problem Escalation



Sample Size: Large Systems: 324 Medium Systems: 638 Small Systems: 249

EXHIBIT VII-14

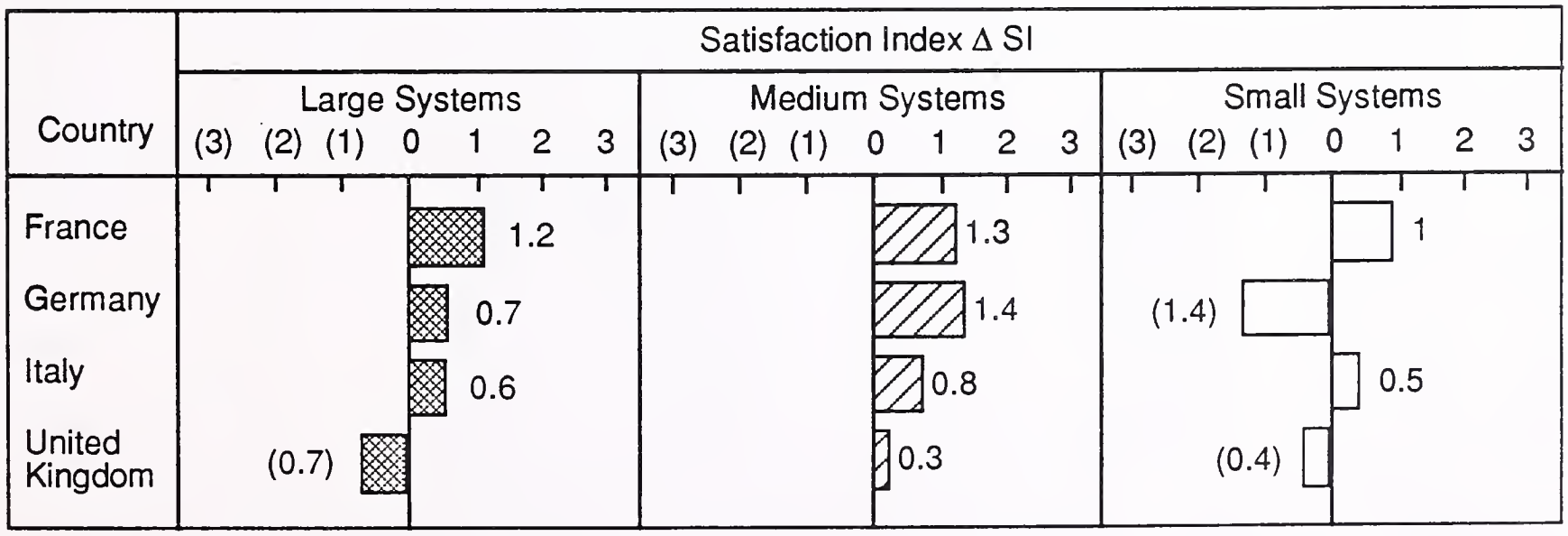
Country Performance Comparisons
Hardware Service—Documentation



Sample Size: Large Systems: 324 Medium Systems: 638 Small Systems: 249

EXHIBIT VII-15

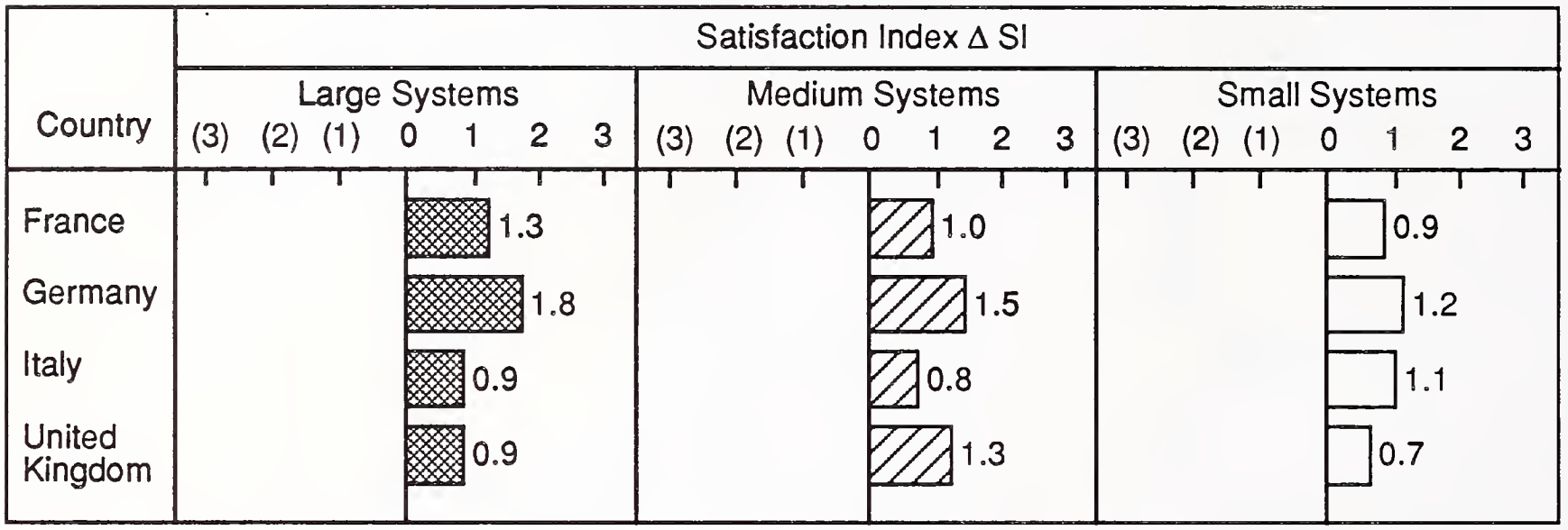
Country Performance Comparisons
Hardware Service—Remote Diagnostics



Sample Size: Large Systems: 324 Medium Systems: 638 Small Systems: 249

EXHIBIT VII-16

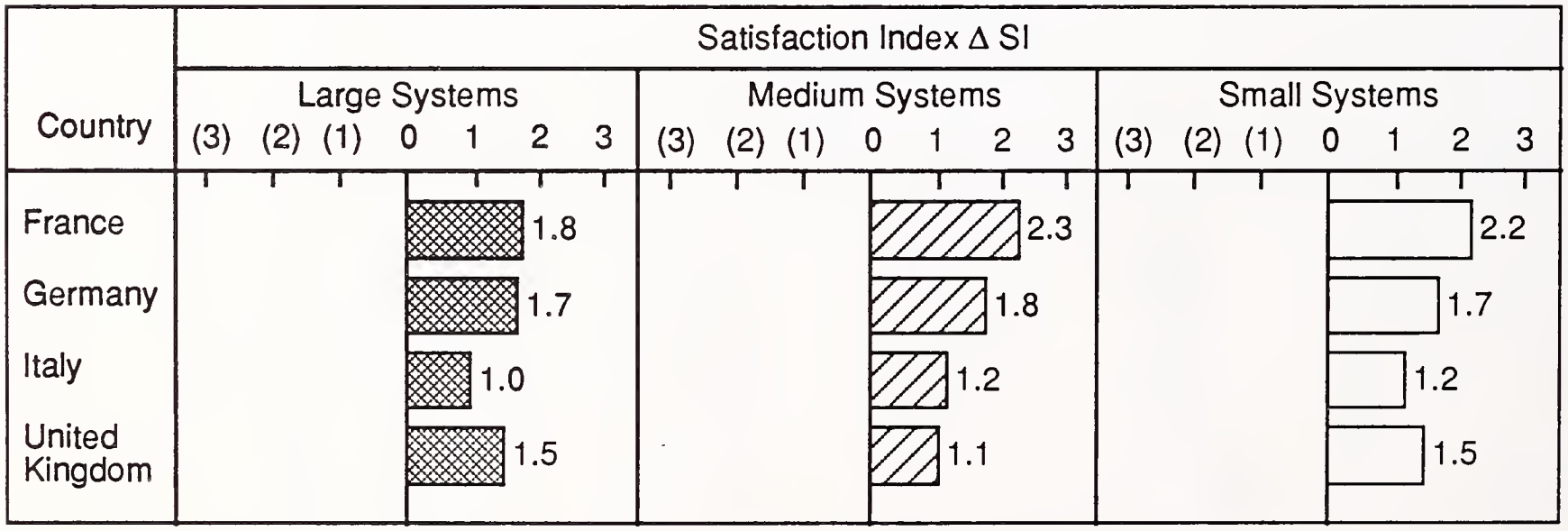
Country Performance Comparisons
Systems Software Support—Engineer Skills



Sample Size: Large Systems: 324 Medium Systems: 638 Small Systems: 249

EXHIBIT VII-17

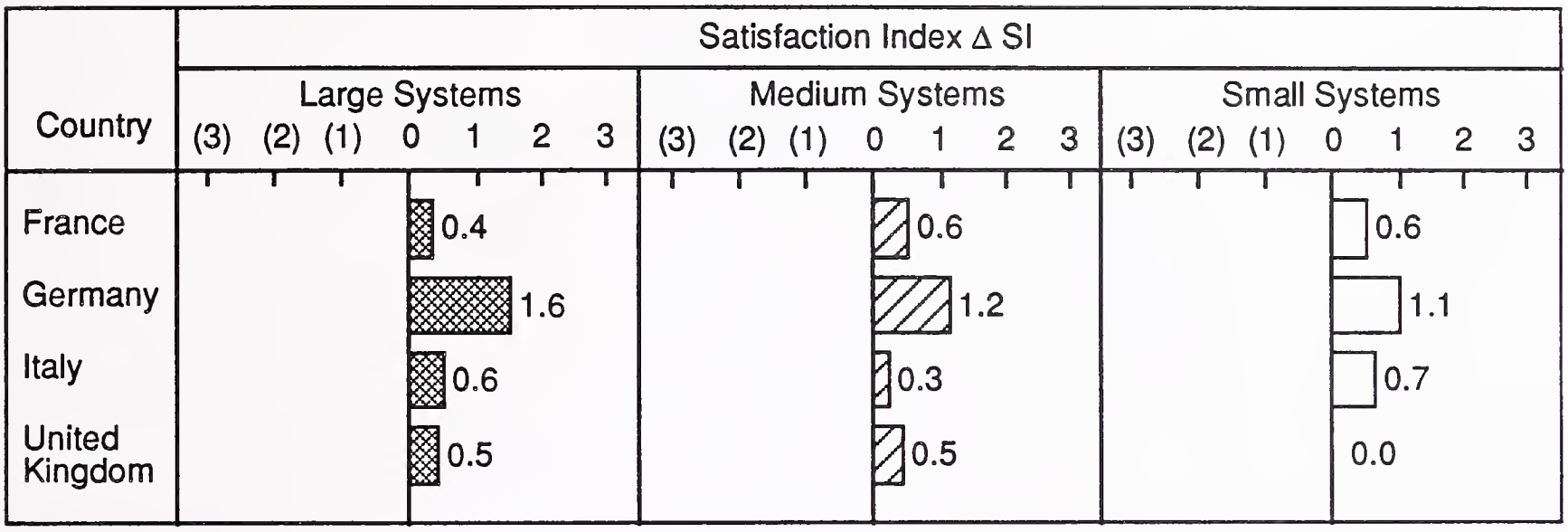
Country Performance Comparisons
Systems Software Support—Documentation



Sample Size: Large Systems: 324 Medium Systems: 638 Small Systems: 249

EXHIBIT VII-18

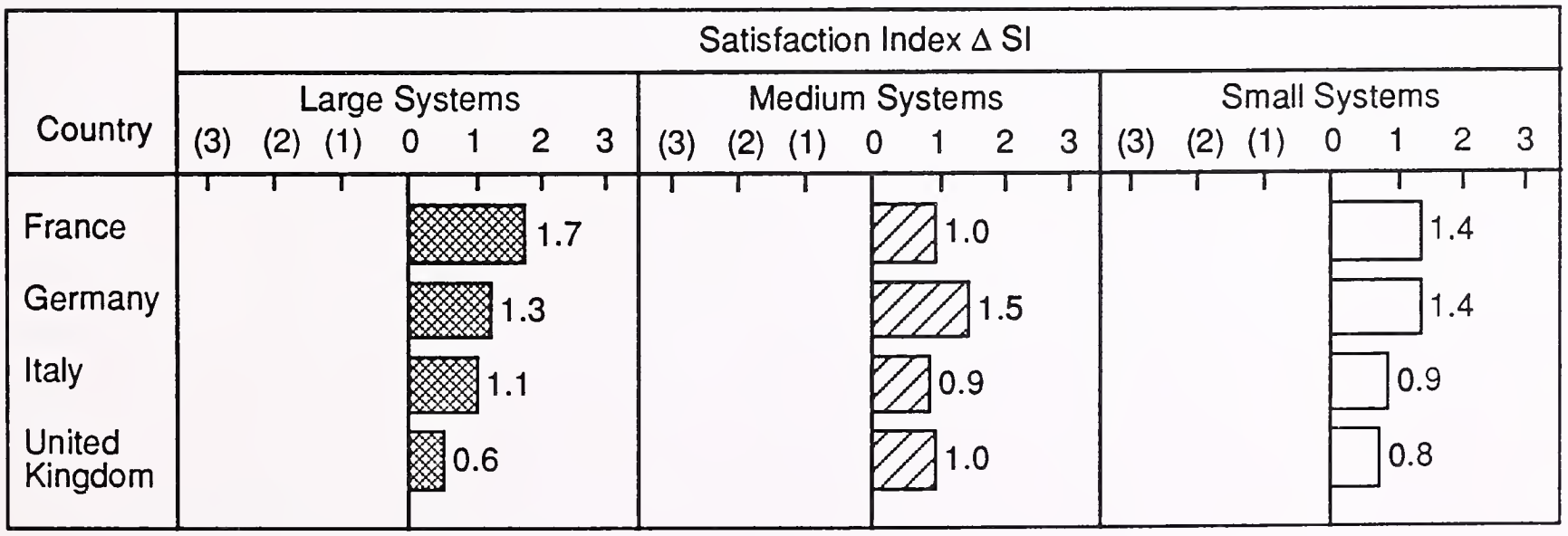
Country Performance Comparisons
Systems Software Support—Software Installation



Sample Size: Large Systems: 324 Medium Systems: 638 Small Systems: 249

EXHIBIT VII-19

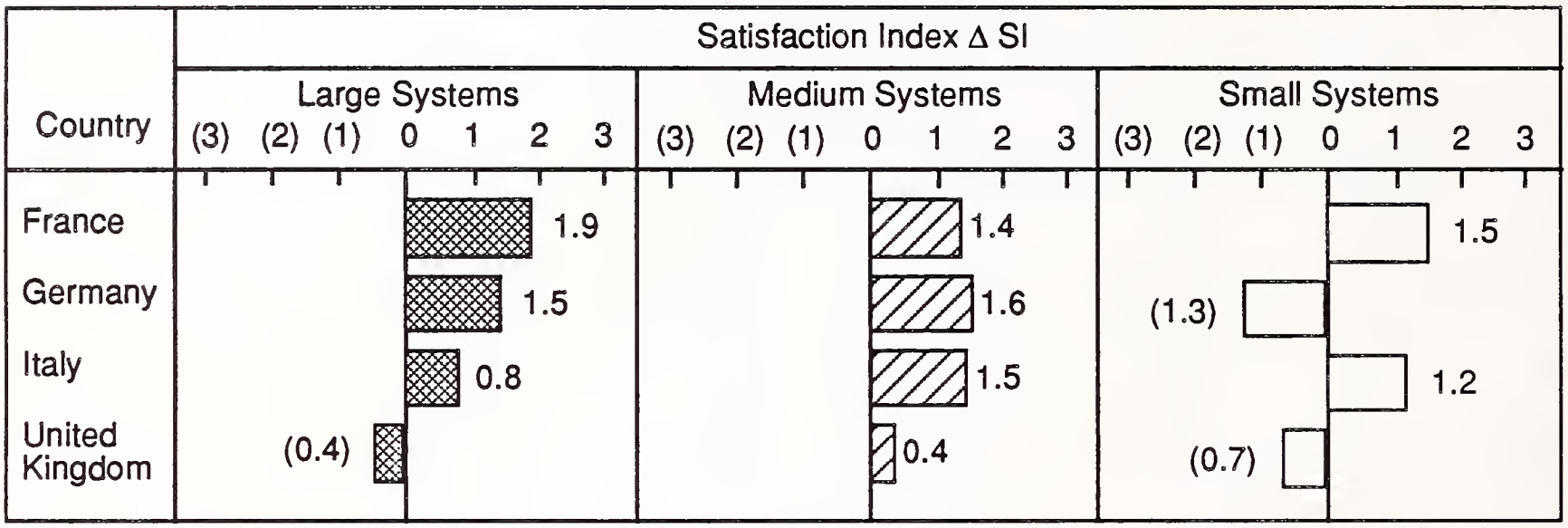
Country Performance Comparisons
Systems Software Support—Provision of Updates



Sample Size: Large Systems: 324 Medium Systems: 638 Small Systems: 249

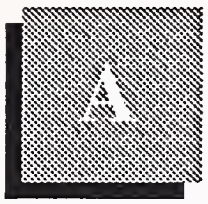
EXHIBIT VII-20

Country Performance Comparisons
Systems Software Support—Remote Diagnostics



Sample Size: Large Systems: 324 Medium Systems: 638 Small Systems: 249

Appendixes



General User Questionnaire

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

   Make _____

   Model _____ (CRITICAL INFORMATION)

   Units _____

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

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

   Name of person responsible: _____

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

   Make _____

   Model _____ (CRITICAL INFORMATION)

   Units _____

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

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

4. So that we can ensure that we get a proper cross-section of industry and commerce, can you tell me what is the main business sector of your company? (Read out the list to allow for best choice. Then circle appropriate answer.)

Business sector	
• Manufacturing	1
• Distribution	2
• Transportation	3
• Utilities	4
• Banking and Finance	5
• Insurance	6
• Government	7
• Services	8
• Other/Don't Know	9

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

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

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

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

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

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

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

6b. I notice that your system, or part of it, is serviced by a third-party maintenance company. Could you tell me the reason why you use third-party maintenance?

(Please circle appropriate answer; multiple answers allowed.)

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

7a. I notice that you *do not* use a third-party maintenance company; is there a reason for this?

(Please circle appropriate answer; multiple answers allowed.)

Satisfied with manufacturer 1
Manufacturer has an advantage 1
TPM cannot support software 1
Tied to manufacturer with contract 1
Fear of system supplier response 1
Considered and rejected TPM 1
TPM financial weakness 1
Unaware of TPM 1
Other/Don't know 9

7b. Assuming you were approached by a TPM company, at what level of price reduction would you consider using a TPM vendor to service your computer hardware?

(Please circle appropriate answer. Only <u>one</u> answer allowed.)

- 1% - 10% 1
- 11% - 20% 1
- 21% - 30% 1
- 31% - 40% 1
- 41% - 50% 1
- 50%+ 1
- Unwilling at any price 1
- Other/Don't know 9

8. How important is it that your service vendor communicates with you regularly and effectively to advise you of, for example:

___ The status of your system	>	
____ Possible problems	>	
____ Repair plans	>	INTERVIEWER
____ Availability of spare parts	>	PROMPTS
____ Routine visits	>	
____ Hardware and software changes	>	

Could you please provide an importance and satisfaction rating on a scale of 0 to 10, where 0 is of no importance or indicates total dissatisfaction, and 10 is at top importance or indicates that you are fully satisfied.

- Importance _____
- Satisfaction _____

9a. Would you prefer all hardware maintenance and software support to be provided by one service vendor at each site? If yes, what would your interest level be?

Level of interest: (please circle)

Low Medium High

(Circle answer.)

Yes	1
No	1
Don't know	9

(If the respondent answered YES, ask:)

9b. Who would you prefer that vendor to be?

(Please circle appropriate answer; multiple answers allowed.)

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

Note: VAR is a value-added reseller.

I would now like to ask you some questions about the hardware maintenance of your computer system. (Reaffirm the system type _____)

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

10. What is your rating for the importance of hardware maintenance to your business and how satisfied are you with your service vendor's performance?

- Importance rating _____
- Satisfaction rating _____

11. If we define **systems availability** as the percentage of your normal working hours that the system is operational (disregarding non-critical peripheral breaks), what percentage has that been for your system over the last twelve months?

- Percentage _____%

12. How many times each year does your system fail completely for a period of greater than one hour?

- Per year _____

And what percentage of these system failures are due to:

Hardware _____%
Systems software _____%
Applications software _____%
Other (i.e., power failure) _____%

(Please check that percentages add up to 100.)

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

- Importance rating _____
- Satisfaction rating _____

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

- Acceptable _____ Hours
- Experienced _____ Hours

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

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

- Acceptable _____ Hours
- Experienced _____ Hours

16. I would now like to go through a list of five aspects of hardware maintenance and ask you to give an importance and satisfaction rating for each (scale 0 - 10).

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

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

- Importance _____
- Satisfaction _____

18. If possible, I would like you to provide some information on hardware maintenance pricing.

a. What percentage price increase or decrease did you pay for hardware maintenance in the year 1989?

- Increase _____%
- Decrease _____%

- No change 1 (circle)

b. What do you expect the price changes for **hardware maintenance** to be in the future, in percentage terms per annum?

- Increase _____%
- Decrease _____%

- No change 1 (circle)

c. How important do you rate hardware maintenance pricing and how satisfied are you with the price you currently pay? (Scale 0 - 10)

- Importance rating _____
- Satisfaction rating _____

19. Which type of hardware maintenance contract do you currently have on the main part of your system?

(Please circle appropriate answer; only one answer allowed.)

- Warranty 1
- Three-year 1
- One-year 1
- Time and materials 1
- None 1

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

These questions relate to systems software—not **applications.**

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

20. Who supports your systems software?

(Please circle appropriate answer; multiple answers allowed.)

- Hardware manufacturer 1
- Software house 1
- Software product vendor 1
- Value-added reseller (VAR) 1
- In-house 1
- Other/Don't know 9

21. What is your rating for the importance of systems software support to your business and what is your satisfaction with your vendor's systems support activities? (Scale 0 - 10)

- Importance rating _____
- Satisfaction rating _____

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

- Solved by phone _____%
- Elapsed time _____ Hours

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

- Acceptable _____ Hours
- Experienced _____ Hours

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

- Acceptable _____ Hours
- Experienced _____ Hours

25. I would like to go through a list of five aspects of **systems software support** and ask you to give an importance and a satisfaction rating for each. (Scale 0 - 10)

	Importance	Satisfaction
• Engineer skills	_____	_____
• Documentation	_____	_____
• Software installation	_____	_____
• Provision of updates	_____	_____
• Remote diagnostics	_____	_____

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

- Importance rating _____
- Satisfaction rating _____

27. If possible I would like you to provide some information on **systems software support pricing.**

a. What percentage price increase or decrease did you pay for systems software support in the year 1989?

- Increase _____%
- Decrease _____%

- No change 1 (circle)

b. What do you expect the price changes for systems software support to be in the future, in percentage terms per annum?

- Increase _____%
- Decrease _____%

- No change 1 (circle)

c. How important do you rate systems software support pricing and how satisfied are you with the price you currently pay? (Scale 0 - 10)

- Importance rating _____
- Satisfaction rating _____

28. Which type of systems software support contract do you currently have?

(Please circle appropriate answer. Only <u>one</u> answer allowed.)

- Support included in software license fee 1
- Three-year contract 1
- One-year contract 1
- Ad hoc 1
- None 1

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

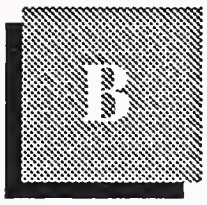
Could you say which of the following services your service vendor is currently contracted to supply and which you would like your service vendor to provide? Also, could you give a level of interest rating against each in the range 0 to 10, where 0 = no interest, 5 = average interest and 10 = must have?

(Please circle appropriate answer and give LOI rating.)

	Currently Contracted	Require	LOI
• Configuration planning	1	1	_____
• Capacity planning	1	1	_____
• Environmental planning	1	1	_____
• Cabling	1	1	_____
• Software evaluation	1	1	_____
• Consultancy	1	1	_____
• Network planning	1	1	_____
• Network management	1	1	_____
• Disaster recovery	1	1	_____
• Facilities management	1	1	_____
• Problems management	1	1	_____
• Applications software support	1	1	_____

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

Again, thank you for your time.



In-depth User Questionnaire

1. What do you consider to be the major contentions or issues related to the service you receive on your computer system?

Hardware Service

System Software Support

2. What do you consider to be the major strengths and weaknesses of your service vendor?

3. Has the level of service you receive improved or degraded over, say, the last three years?

4. What are your comments related to your service vendor's capability in the following aspects of service performance?

A. Hardware Service

Spares Availability

Engineer Skills

Problem Escalation

Documentation

Remote Diagnostics

B. Systems Software Support

Engineer Skills

Documentation

Software Installation

Provision of Systems Software Updates

Remote Diagnostics

5. Do you feel that your service vendor provides the quality of service you require? What comments would you make related to quality of service and the responsiveness of your service vendor to your specific needs?

_____

_____

_____

6. How would you prefer your service vendor's approach to providing a wider range of services (other than maintenance systems software support) to be developed, and would you welcome the availability of a wider range of services?

_____

_____

_____

_____