

SOFTWARE SUPPORT REQUIREMENTS

SMALL - SCALE SYSTEMS

INPUT



INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions. Continuing services are provided to users and vendors of computers, communications, and office products and services.

The company carries out continuous and in-depth research. Working closely with clients on important issues, INPUT's staff members analyze and interpret the research data, then develop recommendations and innovative ideas to meet clients' needs.

Clients receive reports, presentations, access to data on which analyses are based, and continuous consulting.

Many of INPUT's professional staff members have nearly 20 years' experience in their areas of specialization. Most have held senior management positions in operations, marketing, or planning. This expertise enables INPUT to supply practical solutions to complex business problems.

Formed in 1974, INPUT has become a leading international planning services firm. Clients include over 100 of the world's largest and most technically advanced companies.

## Offices

### NORTH AMERICA

**Headquarters**  
1943 Landings Drive  
Mountain View, CA  
94043  
(415) 960-3990  
Telex 171407

**Detroit**  
220 East Huron  
Suite 209  
Ann Arbor, MI 48104  
(313) 971-0667

**New York**  
Park 80 Plaza West-1  
Saddle Brook, NJ 07662  
(201) 368-9471  
Telex 134630

**Washington, D.C.**  
11820 Parklawn Drive  
Suite 201  
Rockville, MD 20852  
(301) 231-7350

### EUROPE

**United Kingdom**  
INPUT, Ltd.  
Airwork House  
35 Piccadilly  
London, W1V 9PB  
England  
01-439-8985  
Telex 23116

**France**  
La Nacelle  
Procédure d'abonnement 1-74  
2, rue Campagne Première  
75014 Paris  
France  
322.56.46  
Telex 220064 X5533

**Italy**  
PGP Sistema SRL  
20127 Milano  
Via Soperga 36  
Italy  
Milan 284-2850  
Telex 310352

**Sweden**  
Athena Konsult  
P.O. Persson & Co. AB  
Box 22114  
S-104 22 Stockholm  
Sweden  
08-52 07 20  
Telex 17041

### ASIA/AUSTRALIA

**Japan**  
Overseas Data Service  
Company, Ltd.  
Shugetsu Building  
No. 12-7 Kita Aoyama  
3-Chome Minato-ku  
Tokyo, 107  
Japan  
(03) 400-7090  
Telex 26487

K.K. Ashisuto  
Daini-Suzumaru Bldg., 6th Floor  
8-1, Nishi Shimbashi  
3-Chome Minato-ku  
Tokyo, 105, Japan  
(03) 437-0654  
Telex 781 26196


**Singapore**  
Cyberware Consultants (PTE) Ltd.  
2902 Pangkor  
Ardmore Park  
Singapore 1025  
734-8142


# INPUT

Planning Services For Management

## SOFTWARE SUPPORT REQUIREMENTS SMALL-SCALE SYSTEMS

1984		C.I F-557
AUTHOR		Software Support Requirements
TITLE		Small Scale Systems
DATE LOANED	BORROWER'S NAME	
2/6/86	John E. Enloe	



 CAT. No. 23-108    PRINTED IN U. S. A.



**SOFTWARE SUPPORT REQUIREMENTS  
SMALL-SCALE SYSTEMS**

**CONTENTS**

	<u>Page</u>
I INTRODUCTION.....	1
A. Background	1
B. Methodology	3
II EXECUTIVE SUMMARY .....	5
A. Software Products Maintenance and Support	6
B. Benefits from Remote Support Are Unclear	8
C. The Error Correction Gap	10
D. The Problem Resolution Gap: Operating Systems	12
E. Customer Self-Support and Incentive Gap	14
F. Vendor Terms and Conditions Are Inefficiently Constructed	16
G. Pricing: An Opportunity Area	18
III THE SOFTWARE SUPPORT ENVIRONMENT .....	21
A. Extent of Software Support	21
B. Vendor Support Performance	30
1. Constituents of Software Support	30
2. Problem Response	35
C. Electronic Support	42
1. Current Situation	42
2. Vendor Initiatives	52
IV PRICING.....	57
A. Current Spending	57
B. Future Spending	62
C. Replacement versus Upgraded Products	66
V VENDOR-CUSTOMER RELATIONSHIPS.....	73
A. Terms and Conditions	73
B. Customers' Tracking of Terms and Conditions	85
VI SUPPORT ISSUES .....	93
APPENDIX A: RESPONDENT CHARACTERISTICS .....	101
APPENDIX B: REPRESENTATIVE RESPONDENT TITLES .....	103
APPENDIX C: SOFTWARE SUPPORT: CORPORATE QUESTIONNAIRE .....	105



Digitized by the Internet Archive  
in 2015

[https://archive.org/details/softwareupportr07unse\\_1](https://archive.org/details/softwareupportr07unse_1)



**SOFTWARE SUPPORT REQUIREMENTS  
SMALL-SCALE SYSTEMS**

**EXHIBITS**

			<u>Page</u>
II	-1	Software Products Maintenance and Support	7
	-2	Benefits from Remote Support Are Unclear	9
	-3	The Error Correction Gap	11
	-4	The Problem Resolution Gap: Operating Systems	13
	-5	Customer Self-Support and Incentive Gap	15
	-6	Vendor Terms and Conditions Are Inefficiently Constructed	17
	-7	Pricing: An Opportunity Area	19
III	-1	Proportion of Software Supported by Vendors as Reported by Customers: 1984	22
	-2	Proportion of Packaged Software Not Supported by Vendors as Reported by Customers	24
	-3	Percentages of Customer Self-Support	25
	-4	Trends in Customer Self-Support as Seen by Customers	28
	-5	Incentives Offered to Perform Self-Support Functions-- Current and Desired	29
	-6	Importance of and Satisfaction with Support Functions, as Reported by Customers	31
	-7	Extended Support Services Spending as a Percentage of Standard Support Service Contracts	33
	-8	Additional Vendor Services Offered	34
	-9	Customer Logs of Software Problems	36
	-10	Software Problem Logs Maintained, by Customer Size and Industry	37
	-11	Software Problem Occurrence	38
	-12	Problem Resolution Performance	40
	-13	Software Problem Resolution	41
	-14	Extent of Use of Remote Software Servicing	43
	-15	Use of Automatic Downloading, by Customer Size and Industry	45
	-16	Benefits Expected by Customers from Automatic Downloading	46
	-17	Use of Remote Diagnostics, by Customer Size and Industry	48
	-18	Benefits Expected by Customers from Remote Diagnostics	49
	-19	Use of Remote Fixes, by Customer Size and Industry	50
	-20	Benefits Expected by Customers from Remote Fixes	51

		<u>Page</u>
	-21 Electronic Support of the Future	54
	-22 Remote Support System: Investment Determinants	55
IV	-1 Software Support Costs as a Proportion of License Costs by Company Size and Industry	58
	-2 Proportion of Support Bundled into License Fee	60
	-3 Proportion of Software Support Costs Bundled into the License Fee, by Company Size and Industry	61
	-4 Customer Expectations of Software Support Cost Increases	63
	-5 Customer Perceptions of Reasons for Increase in Software Support Fees	64
	-6 Additional Software as a Reason for Software Support Costs Increasing, by Company Size and Industry	65
	-7 Assessment by Customers of Vendor Replacing Existing Product with a New Product	67
	-8 Pricing Experience Where a New Product Replaced an Existing Product	69
	-9 Customer Expectations of Vendors Replacing Rather than Upgrading Software Products	70
V	-1 Extent Contractual Terms Are Satisfactory, by Company Size and Industry	74
	-2 Perceived Reasons for Unsatisfactory Contractual Terms	76
	-3 Desired Changes by Customers in Contractual Terms	77
	-4 Extent to Which Customers Seek to Modify Contractual Terms	78
	-5 Customers that "Always" Seek to Modify Contractual Terms, by Company Size and Industry	80
	-6 Contractual Terms That Customers Try to Modify	81
	-7 Customer Success in Modifying Contractual Terms	83
	-8 Customer Perceptions of Contractual Changes Planned by Vendors	84
	-9 Central Customer Point for Tracking Contractual Terms	86
	-10 Central Customer Point for Tracking Contractual Terms, by Industry and Company Size	87
	-11 Benefits to Customer from Central Tracking of Contractual Terms, as Perceived by Customers	88
	-12 Central Tracking of Contractual Terms--Average Time Already in Use, by Company Size and Industry	90
	-13 Selected Benefits to Customers from Central Tracking of Contractual Terms--by Company Size	91
VI	-1 Customers' Perceived Control Over Software Support	94
	-2 Theoretical and Actual Steps to Influence Vendor Software Support as Reported by Customer	96
	-3 Important Software Support Issues to Customers	97
	-4 Changes Foreseen by Customers in Software Support	98



## I INTRODUCTION



## I INTRODUCTION

### A. BACKGROUND

- This report has been prepared for INPUT's 1984 Customer Service Program (CSP). Its contents are reserved for clients of this study and are protected by copyright.
- Small system software support is being focused on for two important reasons:
  - INPUT believes that software support will drive both vendor service profitability and user service expectations for at least the next five years.
  - Increasing vendor interest in software support has resulted from a high level of user dissatisfaction with software maintenance. Vendors fear an erosion of their customer base if current low satisfaction levels persist.
- This report has focused on the issues raised by CSP clients in a client poll conducted in Spring 1984. INPUT has also included issues of importance that have been brought to its attention:
  - Through custom consulting assignments for both vendors and customers.



- In the course of discussions with leading vendors and experts.
- By queries INPUT receives from its clients in the CSP, MAPS and ISP programs.
- This report is oriented toward small-system software support, although both large-system and office product software is discussed where applicable. "Small system" refers to traditional 16-bit multiuser minicomputers (with a minimum cost of \$25,000), as well as to the higher-level, 32-bit supermini-computer. Overall, the report identifies customer software support needs and satisfaction levels in addition to analyzing user planning procedures with regard to a variety of support techniques.
- The report is divided into four chapters:
  - The Software Support Environment--an analysis of the current software support market.
  - Pricing--discusses both current and future spending patterns as well as user attitudes about replacement versus upgraded products.
  - Vendor-Customer Relationships--focuses on software support contracts.
  - Support Issues--covers problems such as user expectations for support response time, remote support, etc.

## B. METHODOLOGY

- Information for the report was obtained principally by means of telephone interviews conducted in August and September, 1984, and has been supplemented by other INPUT studies and materials.
- Interviews were conducted with 106 small-system respondents in leading companies in the U.S., covering a range of company sizes and industries (see Appendix A for respondent characteristics).
- Respondents carry a wide variety of titles (see Appendix B), reflecting the fact that responsibilities for software support functions are not viewed in a uniform light, but are in fact often addressed quite differently from company to company.
- An extensive questionnaire was developed (Appendix C) to collect a range of material, both quantitative and qualitative, using both specific and open-ended questions.
  - Open-ended questions were classified and coded after completion of all interviews.
  - Questionnaires were computer-processed, with additional tabulations on key variables. (Note: where additional breakdowns--by, for example, respondent size or industry--are not provided, it is because such variations were not appreciably different from overall respondent data.)
- Throughout the text and exhibits there are references to company by size category. Category 1 refers to medium-sized companies having overall revenues of less than \$1 billion. Category 2 includes medium to large-sized companies having revenues of between \$1 billion and \$5 billion. Category 3 includes large companies having revenues of more than \$5 billion.





## II EXECUTIVE SUMMARY



## II EXECUTIVE SUMMARY

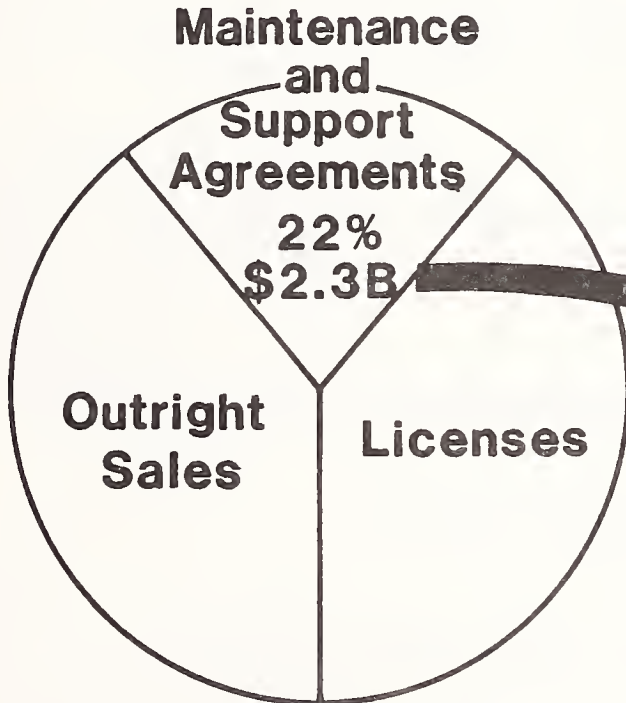
- This executive summary is designed in a presentation format in order to:
  - Help the busy reader quickly review key research findings.
  - Provide an executive presentation and script that facilitates group communications.
- The key points of the entire report are summarized in Exhibits II-1 through II-7. On the left-hand page facing each exhibit is a script explaining the exhibit's contents.



## A. SOFTWARE PRODUCTS MAINTENANCE AND SUPPORT

- Software products maintenance and support will be one of the fastest-growing service sectors between 1984 and 1989, registering a 30% average annual growth rate. Minicomputer and small business software maintenance will grow from \$500 million in 1984 to \$2.2 billion in 1989. Minicomputer software maintenance will be one of the fastest-growing segments in the industry, second only to office products.
- As Exhibit II-1 demonstrates, maintenance and support is just one component of software revenue. Support constitutes approximately 22% of 1984's \$10.6 billion in software revenue, and this percentage is expected to stay constant through 1989. The 22% contribution is fairly stable across different industries and different companies.
- Small-system software support and maintenance revenue figures include both application and systems software. INPUT expects dramatic growth for both of these software product types because:
  - The current move toward the high-end, 32-bit supermini will require much more complex operating systems and consequently, higher levels of support.
  - As small-system vendors move into new markets, such as office automation, they must be prepared to offer additional applications software support to users that do not have the technical background traditionally associated with minicomputer users.

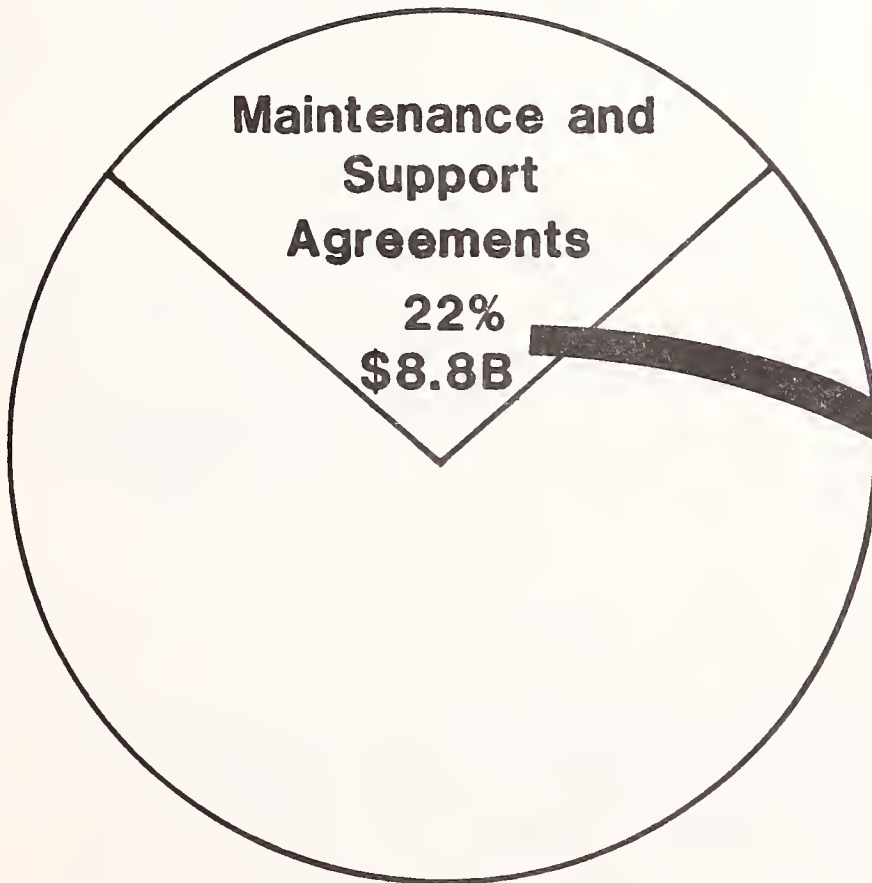
# SOFTWARE PRODUCTS MAINTENANCE AND SUPPORT



**Percentages of Total Maintenance and Support Agreements: 1984**

<b>Mainframes</b>	<b>36%</b>
<b>Minis/SBS</b>	<b>22%</b>
<b>Office Products</b>	<b>15%</b>
<b>Other</b>	<b>27%</b>

**1984: \$10.6 Billion Software Revenue**



**1989:**

<b>Mainframes</b>	<b>33%</b>
<b>Minis/SBS</b>	<b>25%</b>
<b>Office Products</b>	<b>19%</b>
<b>Other</b>	<b>23%</b>

**AAGR  
30%**

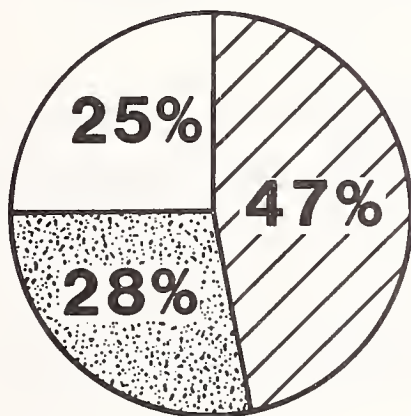
**1989: \$40.0 Billion Software Revenue**

## B. BENEFITS FROM REMOTE SUPPORT ARE UNCLEAR

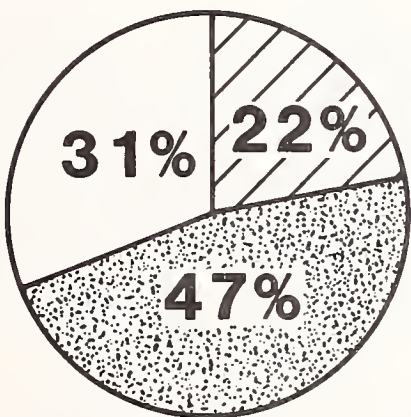
- There is considerable interest among small-system vendors in the use of electronic support, such as automatic downloading, remote diagnostics, and remote fixes. Vendors cite the following advantages of remote support services (RSS):
  - Reduced on-site software support calls as well as maximization of human resources.
  - Improved distribution of upgrades and fixes.
  - Improved response and repair times.
  - Increased user satisfaction with support.
- While vendors are clearly impressed with the increased efficiency of RSS, small-system users are much less enthusiastic. Exhibit II-2 shows that almost 50% of users reported no benefit from some remote support services, such as automatic downloading. Only one in three users sees a specific benefit in RSS.
- The use of remote support has clearly been limited, particularly at the low end of the small-system market, and users typically believe that RSS is designed to reduce vendor costs rather than improve software support. For this reason, many users resist paying any additional premium for these services despite vendor pressure to do so.
- Interestingly, the most commonly used RSS for software, remote diagnostics, is very popular among selected small-system users. INPUT found that once the user perceives the benefit of RSS, satisfaction levels increase and users are much more willing to pay a premium for selected remote electronic services.



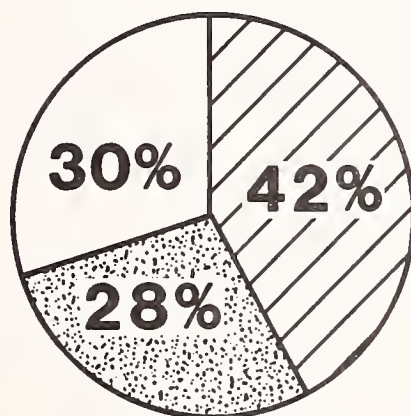
# BENEFITS FROM REMOTE SUPPORT ARE UNCLEAR






**Automatic Downloading**



**Remote Diagnostics**



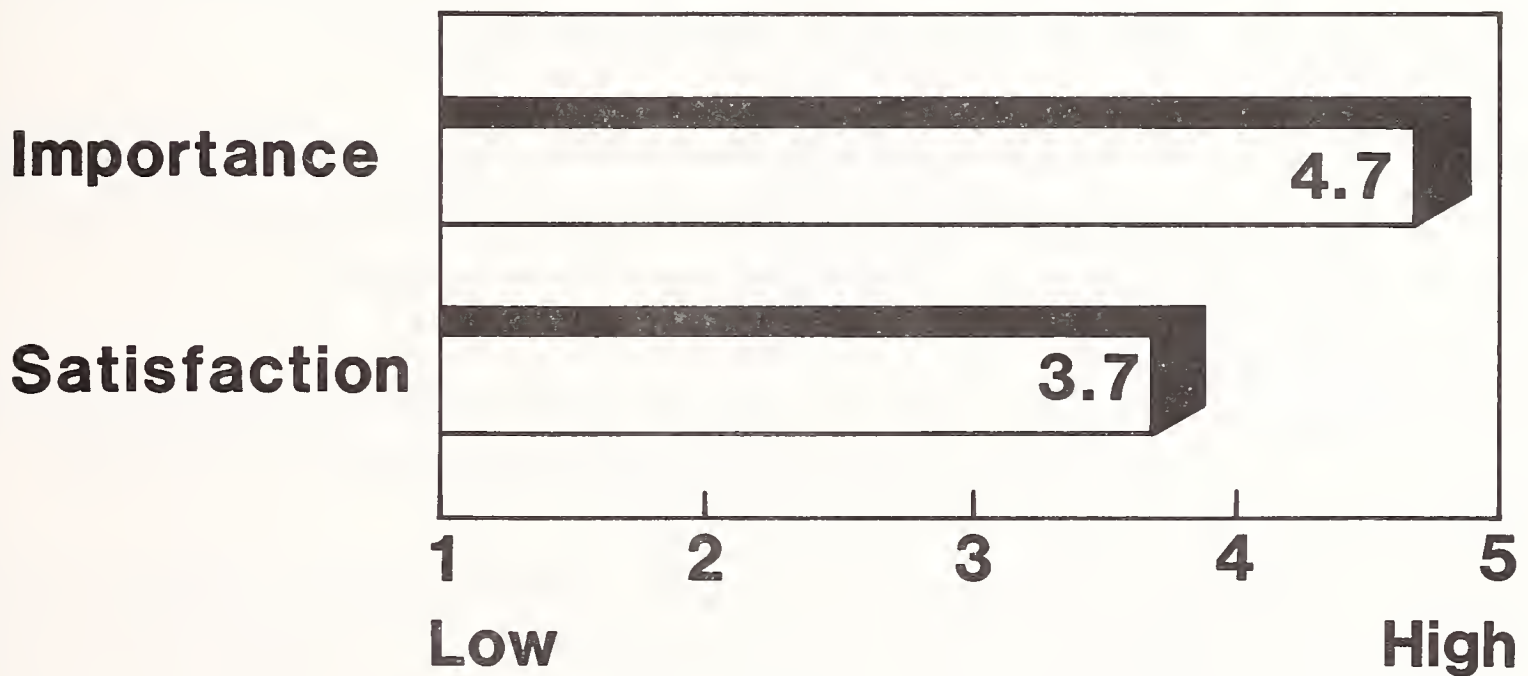
**Remote Fixes**

-  **Percent of Customers Seeing Few or No Benefits to Themselves**
-  **Seeing General Benefits**
-  **Seeing Specific Benefits**

### C. THE ERROR CORRECTION GAP

- The core of the software support service is fixing errors (software maintenance narrowly defined). This function is the one which customers perceive as far and away the most important component of software support.
  - The error correction function is the one in which customers express the most satisfaction, although somewhat narrowly, over other components (which include enhancements, new features, consulting, training, etc.). As Exhibit II-3 demonstrates, small-system users ranked as the most important software support feature one which vendors are not performing well on at all.
- The second most important software support function, according to small-system users, are enhancements, which improve, add, or extend features of software packages. Users indicated that vendor performance in enhancements is quite good, and that by and large they were satisfied with the revised products they received.
  - Interestingly, despite user satisfaction with enhancements, most small-system users said that they did not have enough input into the vendor's decision to enhance software. A surprisingly large number of users said that they did not know the small-system software vendor was going to introduce enhancement, indicating that there is a serious communication problem.
- There is a high level of user dissatisfaction with software training, particularly in the area of applications software. Small-system users ranked training as 3.5 in importance but only 2.9 in satisfaction.

# THE ERROR CORRECTION GAP



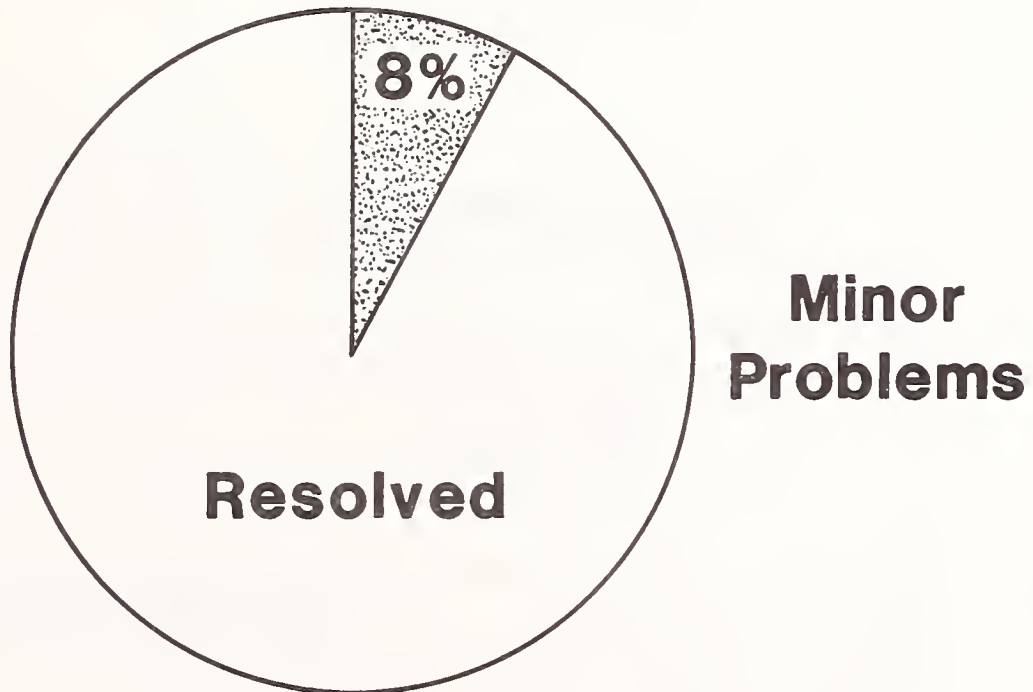
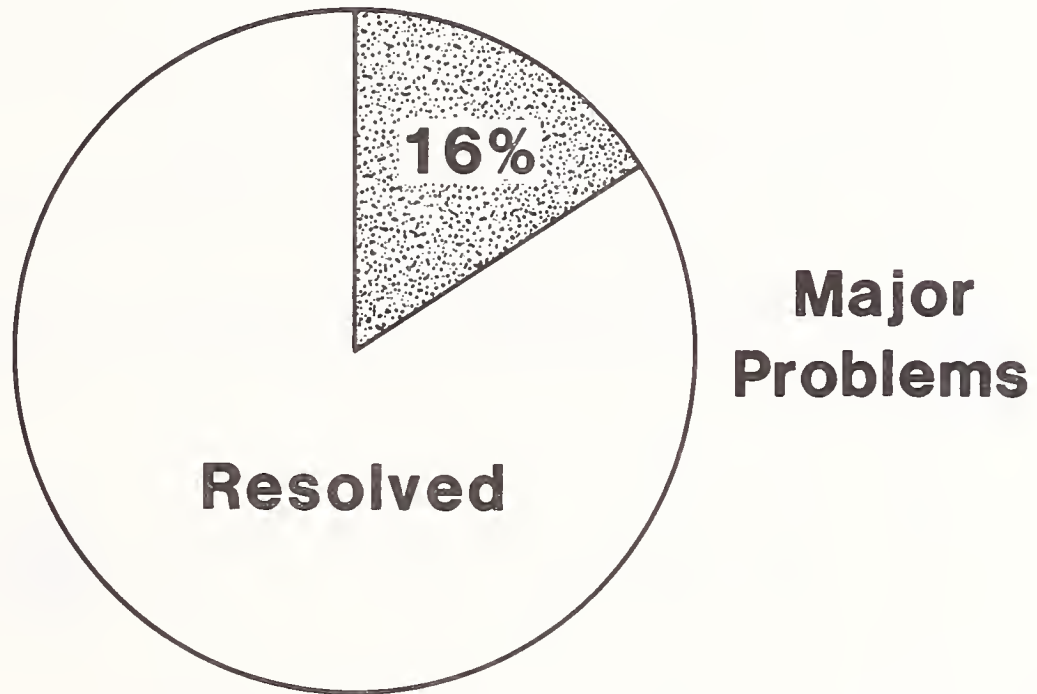
- **Error Correction: Core of Support**
- **Performance Lags Behind Importance**

#### D. THE PROBLEM RESOLUTION GAP: OPERATING SYSTEMS

- Small-system operating problems are particularly serious because:
  - Operating system problems can affect the performance of hardware as well as other systems software and applications.
  - The complexity of operating systems makes self-maintenance difficult, if not impossible. Unlike large-system users, small-system users rarely have access to in-house systems software support.
  - Generally, there are few alternatives to the current operating system, and even where there are, the conversion problems are daunting.
- This gives operating system vendors (generally hardware vendors) a lock on the market, which they have been exploiting via unbundling and/or increased changes. On the other hand, a number of small-system users have indicated a high level of satisfaction with vendor policies of maintaining operating system compatibility between systems.
- Exhibit II-4 demonstrates that there is a serious gap in the resolution of major operating system problems. Some users have suggested that the vendors are taking advantage of their dominance of this market to skimp on maintenance. Vendors should appreciate that users are willing to pay a substantial premium for improved systems software support.
- Operating systems support, particularly when dealing with major problems, may provide a particularly lucrative opportunity for small-system hardware manufacturers.



# THE PROBLEM RESOLUTION GAP: OPERATING SYSTEMS

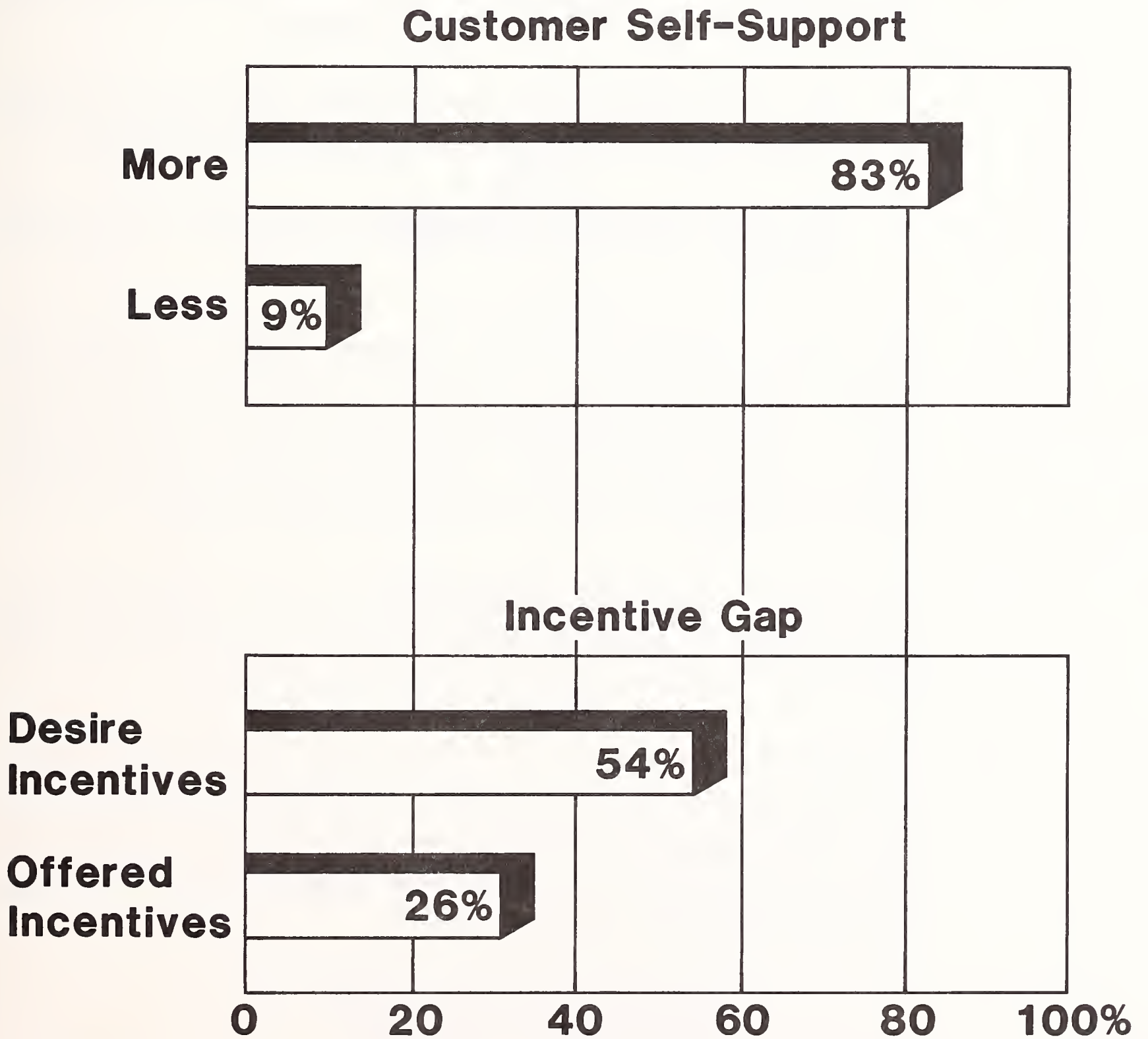


 **Unresolved Problems**

## E. CUSTOMER SELF-SUPPORT AND INCENTIVE GAP

- Over 80% of small-system customers see more self-support occurring in the future. Already, customers are very active in performing functions that they see as self-support. This is significant, because users are taking on these support functions not just to save money, but because they cannot get the level of support they want and expect from their vendor. For example:
  - Four out of five usually install initial releases, and even more install subsequent releases.
  - Two-thirds at least sometimes modify packages or fix errors.
  - About half of customers currently have internal "help desks" for handling internal queries and potential problems.
- Fifty-four percent of the customers interviewed would like to be offered more incentives to perform more self support; but currently, only 26% are being offered incentives (see Exhibit II-5).
  - The incentives most often mentioned are in the pricing area; however, INPUT believes that other types of incentives would prove equally, or even more, compelling. Pricing is mentioned to compensate users for support activities they currently perform. However, there is no indication that the majority of small-system users would perform self-support functions if the vendor offered adequate service.
- It is certainly in the interest of vendors to have customers take over as much of the semi-skilled but time-consuming support work as is feasible. However, vendors should appreciate that by encouraging this trend they risk losing valuable revenue. Selected back-up services, improved documentation, and training are all areas which would benefit from increased levels of user self-support.

# CUSTOMER SELF-SUPPORT AND INCENTIVE GAP

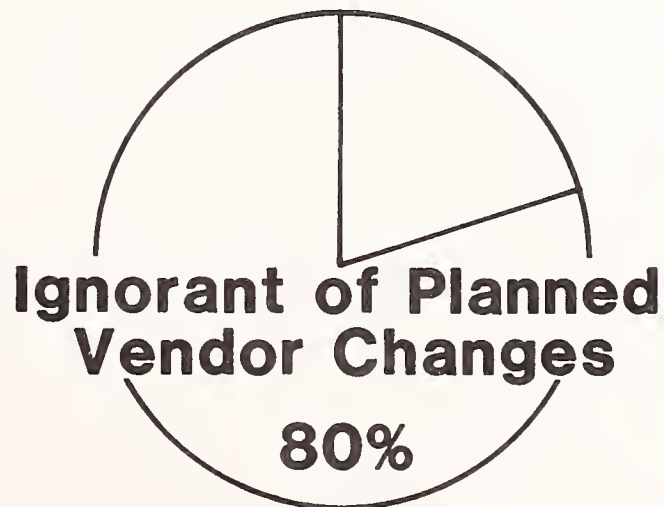
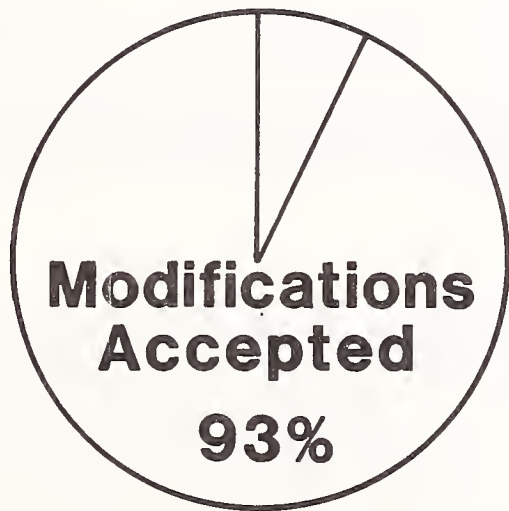


## F. VENDOR TERMS AND CONDITIONS ARE INEFFICIENTLY CONSTRUCTED

- Many vendors spend a great deal of time constructing lengthy and complex terms and conditions, but these conditions are perceived as being too rigid to meet the needs of most small-system users.
- Most customers are generally satisfied with overall terms and conditions; however, four out of five still seek to modify contracts:
  - Over 50% of small-system users report that they "always" or "often" attempt to modify maintenance contract terms (see Exhibit II-6).
  - Over 90% report that their proposed modifications are generally accepted.
- This record of extensive, generally successful, changes in standard terms strongly suggests that something is wrong or at least misdirected in the way terms and conditions are designed. If the terms are meant to protect vendor interests, they are not succeeding, and at the very least, they are consuming vendor (and customer) time that could be better spent elsewhere.
- One symptom of the problem is that customers are almost totally ignorant of planned vendor changes. This lack of communication certainly hinders vendor attempts to balance their own needs with customer needs.
- Simplified contracts, perhaps in combination with a limited "menu" approach, could better meet the needs of both sides. In addition, small-system users are a diversified group that requires increased contract flexibility. Vendors that provide this flexibility will be better able to maximize profitability by pricing menu options according to user requirements.



# VENDOR TERMS AND CONDITIONS ARE INEFFICIENTLY CONSTRUCTED





## G. PRICING: AN OPPORTUNITY AREA

- While INPUT has uncovered several problem areas, pricing of software support does not appear to be one of them (see Exhibit II-7).
- First of all, pricing is largely invisible.
  - Sixty percent of software support is included (or some might say, buried) in the license fee.
  - Few small-system respondents volunteered pricing as an important issue or a significant future trend, indicating that this was not of primary concern to users.
- In the extensive changes attempted in terms and conditions, pricing is only an issue about a fifth of the time.
- About two-thirds of customers expect continued increases in software support pricing. The reasons for these increases are not seen as just price increases, but increases caused by a greater volume of software products and technical changes in products.
- Customers largely accept the fact that more and more products will be brought out in a new version for which they will have to pay again, and they are reasonably satisfied with vendor pricing practices in this area--even though half the time they receive no credit or discount for the new version.
- Finally, customers do not seem to expect significant price breaks as a result of electronic distribution; however, this must be balanced against customer ignorance in this area.
- The overall picture is one of concern for technical and service standards and of lack of concern for price.

## **PRICING: AN OPPORTUNITY AREA**

- **Largely Invisible**
- **Only One-Fifth of Users Seek Pricing Changes**
- **Continued Increases Expected**
- **Reissued Products Acceptable**
- **Price Breaks Not Expected for Electronic Distribution**



### III THE SOFTWARE SUPPORT ENVIRONMENT





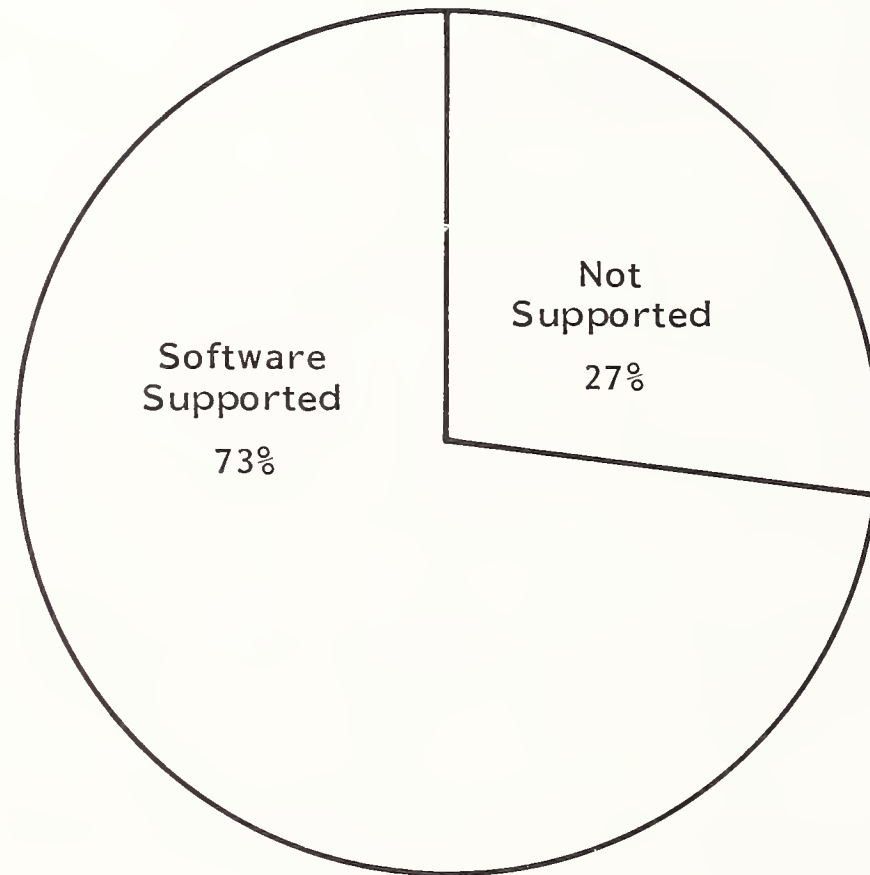
### III THE SOFTWARE SUPPORT ENVIRONMENT

#### A. EXTENT OF SOFTWARE SUPPORT

- Although the vast majority of small-system packaged software is supported by vendors (as shown in Exhibit III-1), a substantial number of users reported that their software was not supported. Both large-system and office product users reported a much higher level of software support (86% and 83%, respectively) than small-system vendors (73%).
- The high percentage of unsupported small-system software packages is the result of several factors:
  - In comparison to users of large-system packages, small-system users demand relatively less support.
  - Micro software is, on average, much more recently written than small-system software, and therefore more likely to have support available.
- As small system software packages continue to age, the proportion of unsupported software will increase. Vendors realize that support of older packages can be both an opportunity and a burden. The burden comes because support of an older product with a small user base is marginally more expensive than for newer products, where costs can be distributed over a larger base. There is, however, an excellent opportunity in supporting older packages; these

EXHIBIT III-1

PROPORTION OF SOFTWARE SUPPORTED BY VENDORS  
AS REPORTED BY CUSTOMERS: 1984



- Unsupported Software Will Gradually Increase, as Packages Age.

products frequently require fewer actual fixes, and consequently result in higher overall service profitability.

- Exhibit III-2 demonstrates that the proportion of software that is supported by the vendor does not vary significantly, either by user's company size or industry. The one notable exception is in the services/distribution industry, where close to 40% of the software packages are reported as not being supported. There are several reasons for this variation:
  - The services industry is typically less dependent upon vendor support and relies more on in-house self-support of software packages.
  - Both service and distribution users indicated the need to frequently modify software--with the permission of the vendor--and this will naturally reduce the expected level of vendor support.
- However, Exhibit III-3 shows that there is a great deal of self support by customers.
  - Almost all customers (79%) install their own release updates.
  - Four out of five usually install initial releases as well.
  - As would be expected, a much lower percentage modify packages or fix errors themselves.
- INPUT believes that the high level of acceptance of self-support among users is an indication of two important factors:
  - Users are not currently receiving adequate support from their vendors.
  - Software support is important enough that the users feel they must take on the responsibility for service.

EXHIBIT III-2

PROPORTION OF PACKAGED SOFTWARE NOT SUPPORTED BY VENDORS  
AS REPORTED BY CUSTOMERS (BY COMPANY SIZE AND INDUSTRY)

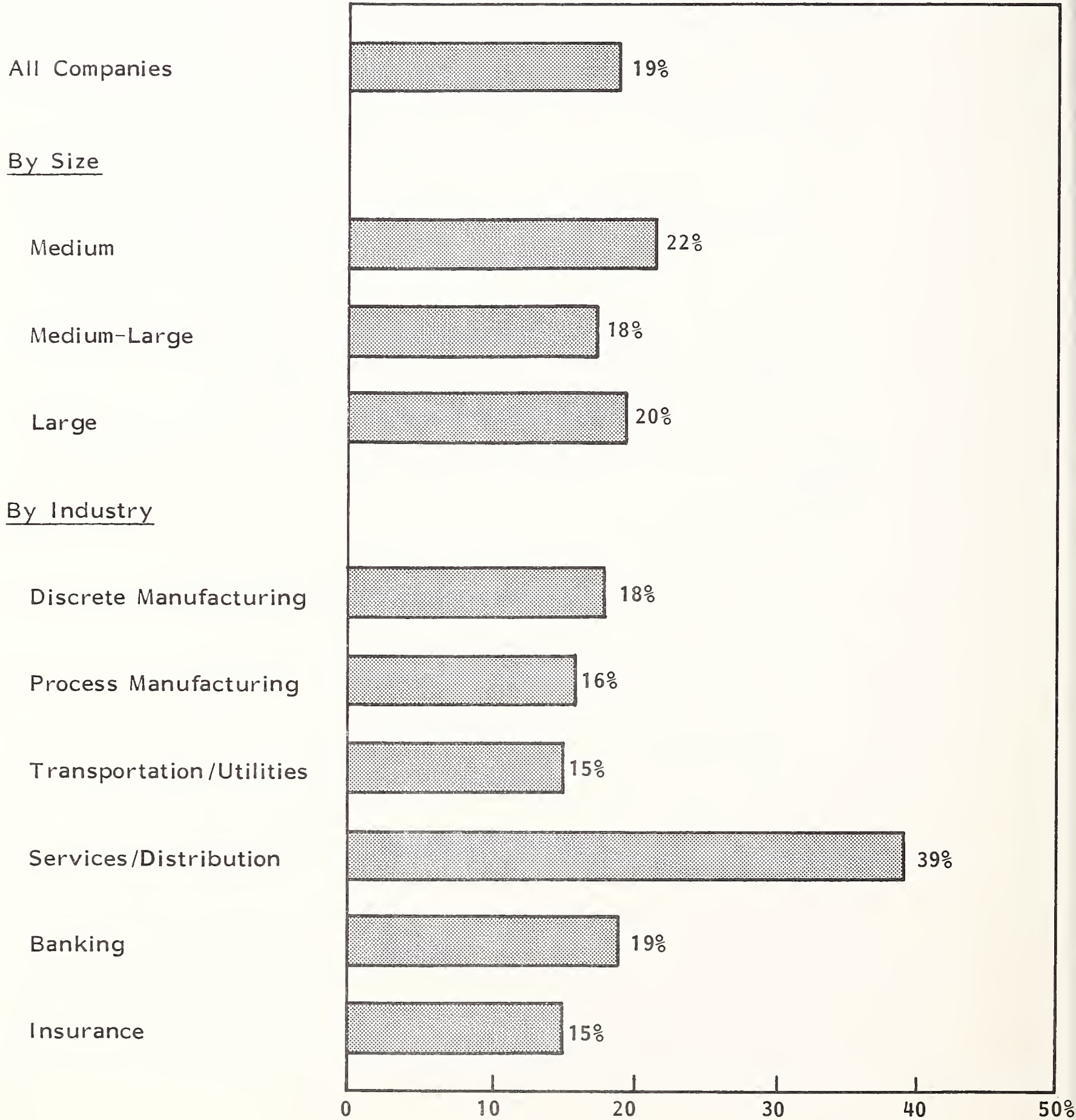
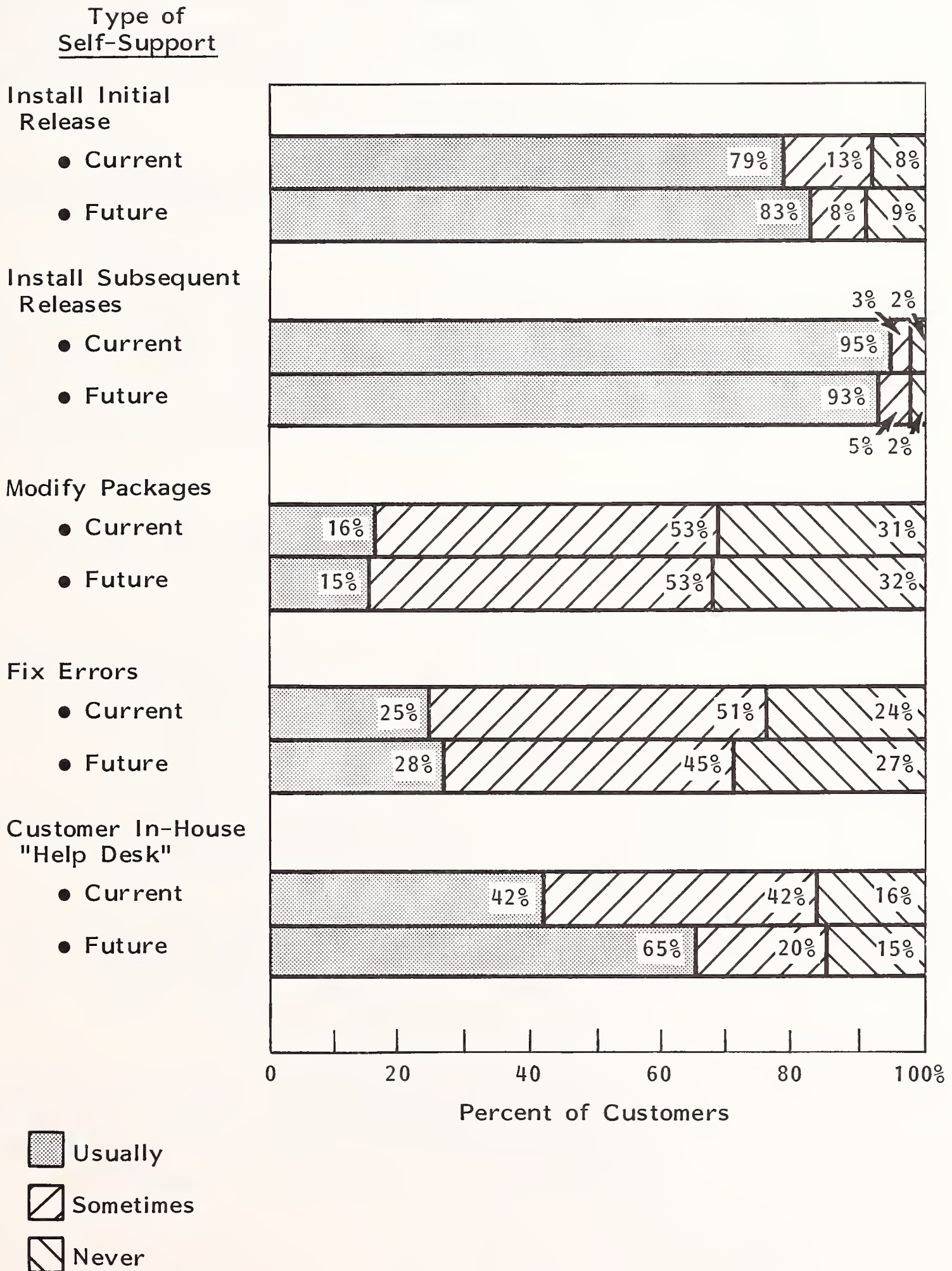




EXHIBIT III-3

PERCENTAGES OF CUSTOMER SELF-SUPPORT



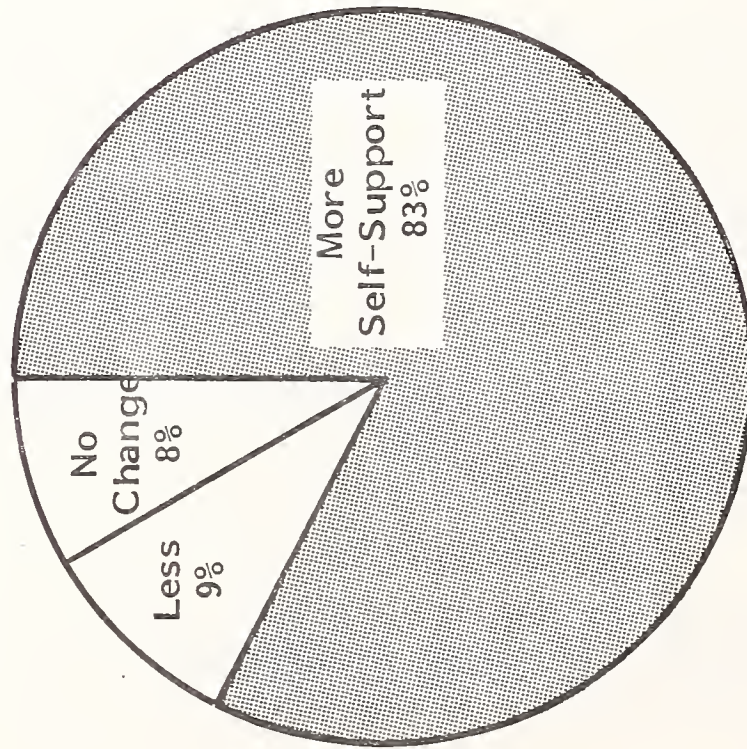
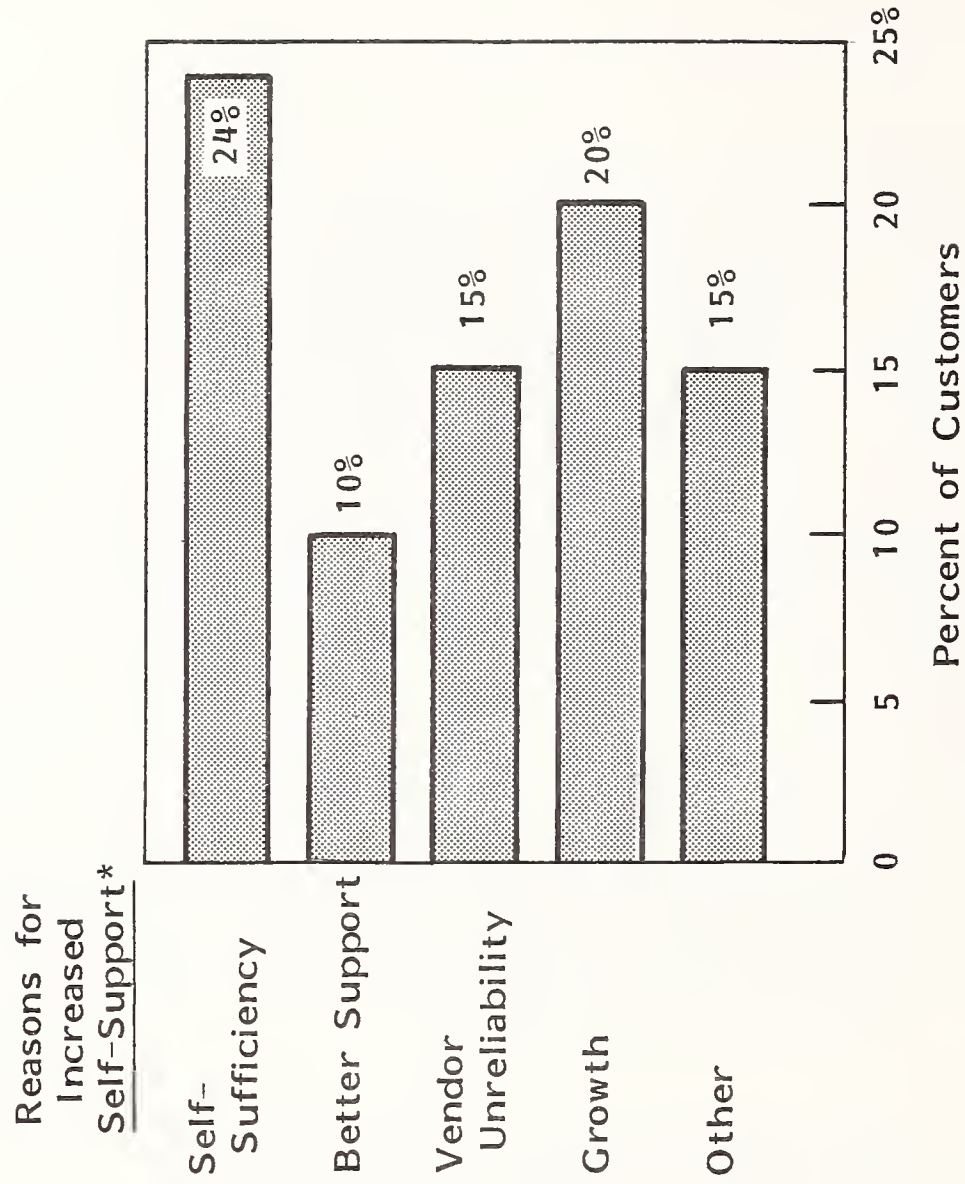


- In the much more technical areas of software package modification and error fixing, users are clearly not prepared to take on any extensive self-support functions. It is impressive, however, that up to 71% of users feel that they will be involved both in error fixing and package modification in the future. This acceptance of self-support (or at least participation in support) by users will be crucial in future software support plans.
- "Help desks" are a very important form of self support to customers and vendors alike.
  - Prior INPUT studies have shown that about half of support to customers consists in supplying answers already contained in documentation or in the software itself. Consequently, the customer's own help desk is a critical component of improving service and reducing vendor costs.
  - Almost half of the customers surveyed usually use in-house help desks, and over 80% sometimes use them.
    - This issue should be one of vital concern to all vendors that sell, or hope to sell, significant quantities of software to large, diverse organizations.
  - The percentages for installation, modification, and fixes should remain reasonably stable in the future, as shown in Exhibit III-3:
    - The proportion of firms that usually modify packages will stay about the same, while those performing their own fixes will increase about five percentage points.
    - On the other hand, the proportion of those customers that never modify software will remain about the same, while those that never fix software errors will actually go up slightly.

- . This argues that fixing errors is an activity for which more commitment is necessary: as software becomes both more complex, customers will be forced to choose whether they will (and can) make that commitment.
- Users definitely expect an increase in self-support of software, as demonstrated in Exhibit III-4. Eighty-three percent of the customers interviewed reported that higher levels of user involvement in software support was expected. It is important to recognize that these user expectations are being fueled in large part by dissatisfaction with current vendor support.
  - Ten percent of the users cited the need for better support, and 15% reported unreliable vendors as the cause for increasing user involvement in software support.
  - Forty-four percent of the users reported that the need for self-sufficiency and internal growth led to self-support. This, too, is a variation of dissatisfaction with the vendor, in that users believed that they were better qualified to support the product than the vendor was.
  - Customer growth is less important than one might initially think; however, it should be kept in mind that a software sales increase often does not correlate with business or even hardware growth, since it often grows at a disproportionate rate.
- There is a significant gap between incentives currently offered for customers to take over some of their software support and what is desired, as shown in Exhibit III-5.
  - Almost three-quarters of respondents receive no incentives; over half of these respondents desire some type of incentive.

EXHIBIT III-4

TRENDS IN CUSTOMER SELF-SUPPORT AS SEEN BY CUSTOMERS

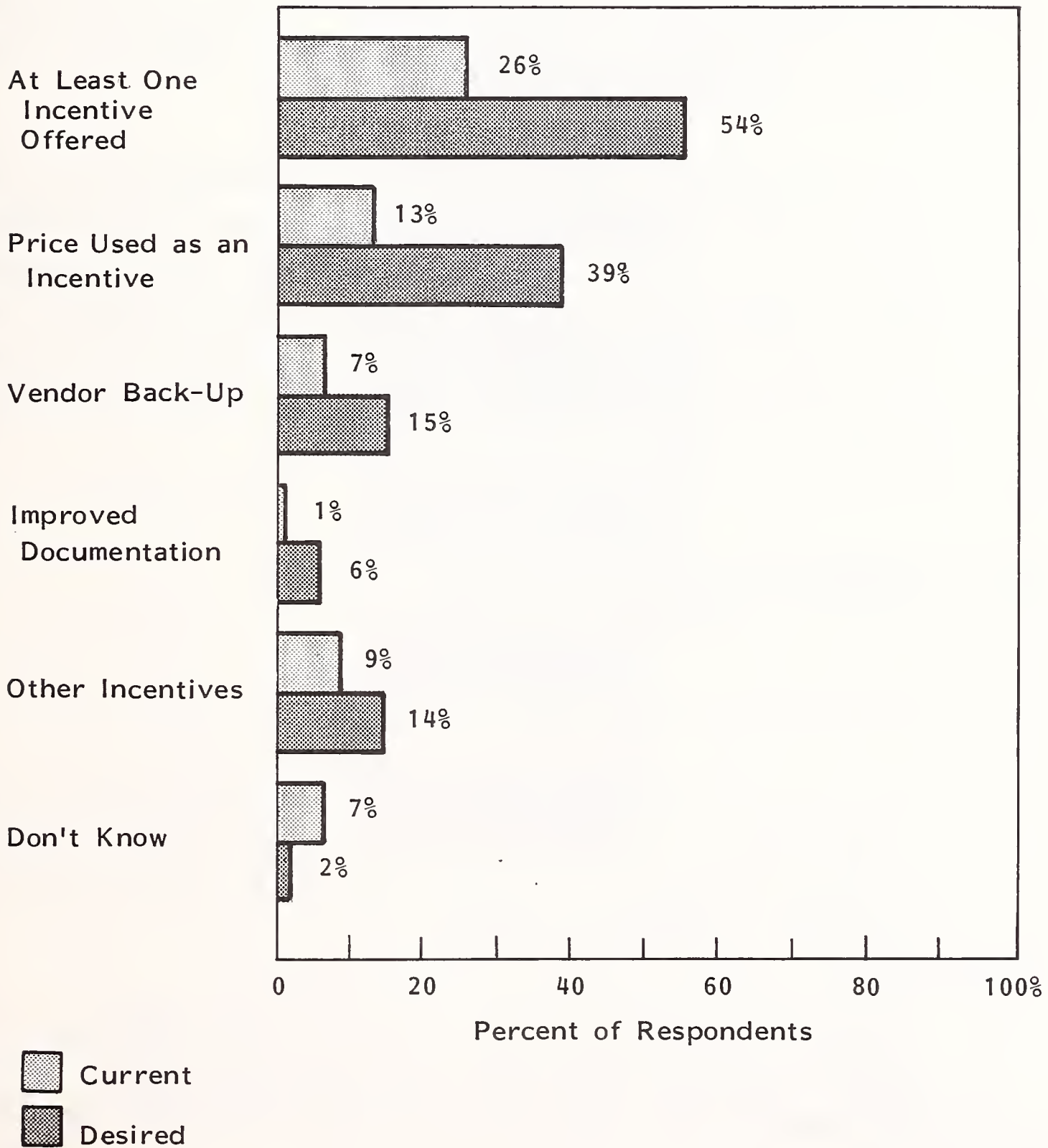


\* Open-ended, coded question.



EXHIBIT III-5

INCENTIVES OFFERED TO PERFORM SELF-SUPPORT FUNCTIONS -  
CURRENT AND DESIRED (Customer Perceptions)



Note: Totals more than 100% are due to multiple responses.



- Price is currently the most frequently offered incentive, but is only offered to one in eight customers; three times this number would like price incentives.
- Vendor back-up and documentation are distant seconds as a means of providing self-support incentives.
- Two important messages are being sent by users: first, the users want the vendors to provide incentives for increased customer involvement in software support; second, the incentive most asked for is price.
- Users of small-system software are likely to remain somewhat more support price-sensitive than other industry segments; however, vendors should not regard this as a problem. Small-system users are willing to participate in software support, and this can be used to the vendor's advantage by reallocating software support resources to more profitable areas, such as increasing support for users unconcerned with price and not wanting to be involved in support.

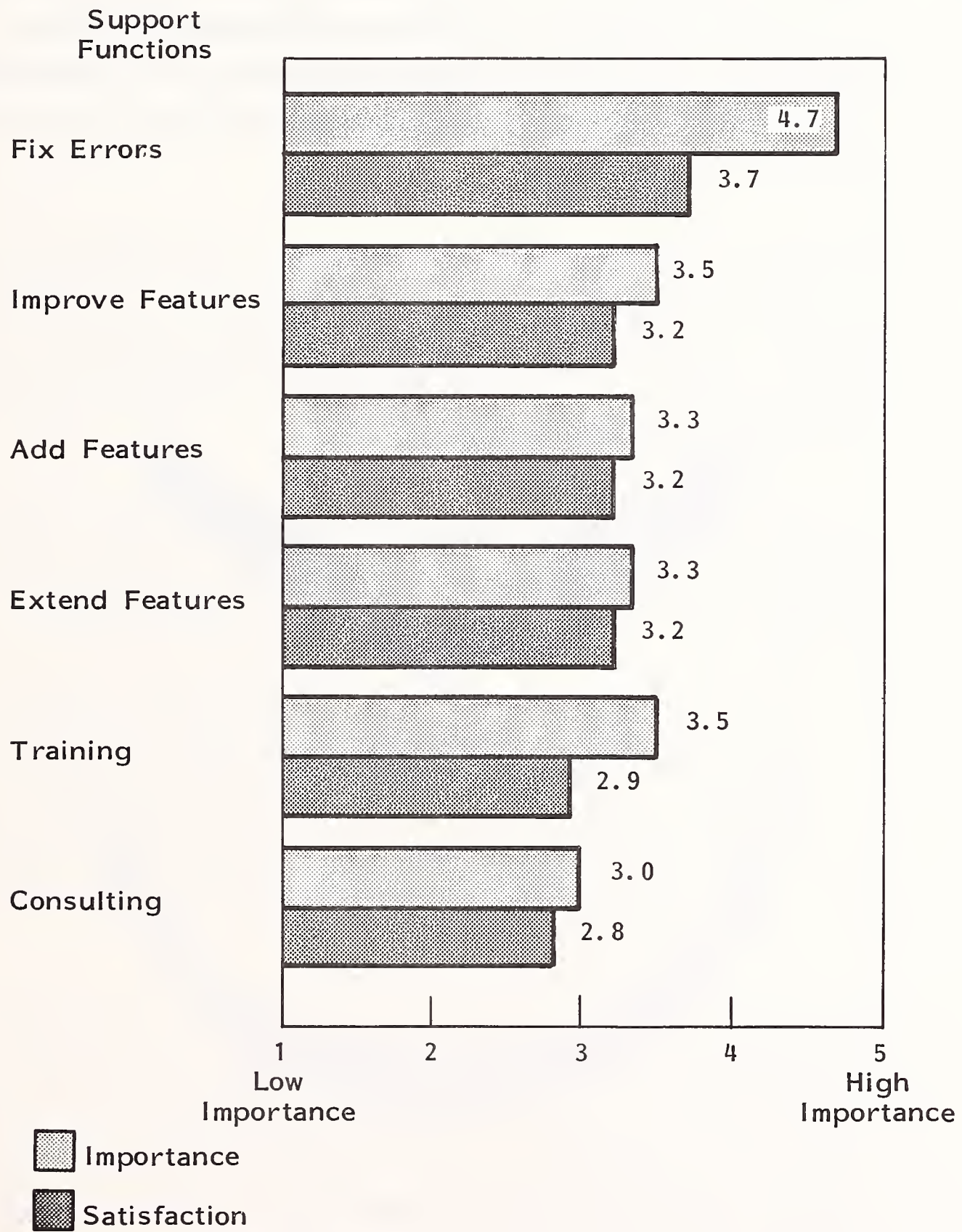
## B. VENDOR SUPPORT PERFORMANCE

### I. CONSTITUENTS OF SOFTWARE SUPPORT

- The most important software support function by far is fixing errors, as shown in Exhibit III-6. Feature modification (improving, adding, extending) and training are all viewed as important, but much less so than fixing errors. Consulting is somewhat less important.
- Although the numbers are slightly different, small-system users show a pattern of software support satisfaction similar to that of large-system and office product users: they are not satisfied. Dissatisfaction ranges from

EXHIBIT III-6

IMPORTANCE OF AND SATISFACTION WITH SUPPORT FUNCTIONS,  
AS REPORTED BY CUSTOMERS



minor (with support of extended features) to substantial (with fixing errors). Unfortunately for most vendors, users have indicated the more important a support function is, the greater the discrepancy in satisfaction.

- Despite the fact that users are dissatisfied, there is a one-to-one correlation between the importance of a function and customer satisfaction: the most important functions have the highest satisfaction rate. However, satisfaction with error correction is not nearly so high as its importance would indicate. Exhibit III-6 shows this gap.
- The gap between importance and satisfaction will be difficult to close, since error identification is out of the control of the vendor. Unfortunately, identification of errors affects a customer's work and, consequently, needs to be fixed immediately. Section C of this chapter analyzes this and related issues at greater length.
- Customer dissatisfaction with software support is not a minor problem. Exhibit III-7 shows that users typically spend 26% over and above the standard software support contract amount for extended support service.
  - As demonstrated earlier, users of small-system software are price-sensitive, and the fact that they are almost required to pay for extended service is not likely to improve their satisfaction level; the important point, however, is that users are willing to pay these added premiums--a clear indication of the importance of software support to small-system users.
- Exhibit III-8 lists some of the more important "extended" services that users are paying for. The two most important areas are training and consulting, both of which help the user to become more self-sufficient. For many vendors these additional services represent not only an untapped source of revenue, but also an excellent method of improving user satisfaction. Vendors should avoid providing such services for a nominal charge.



EXHIBIT III-7

EXTENDED SUPPORT SERVICES SPENDING AS A  
PERCENTAGE OF STANDARD SUPPORT SERVICE CONTRACTS  
(AS REPORTED BY CUSTOMERS)

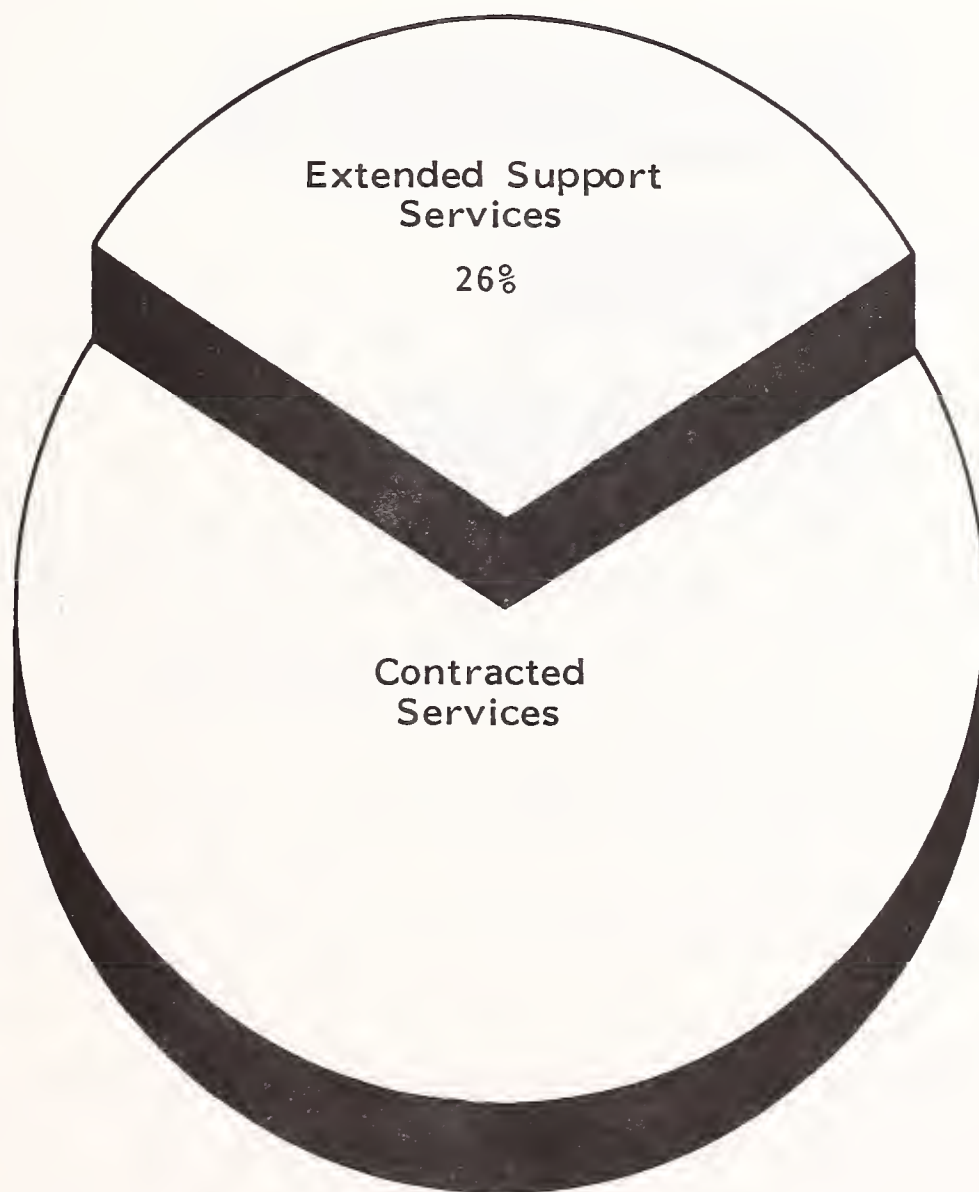
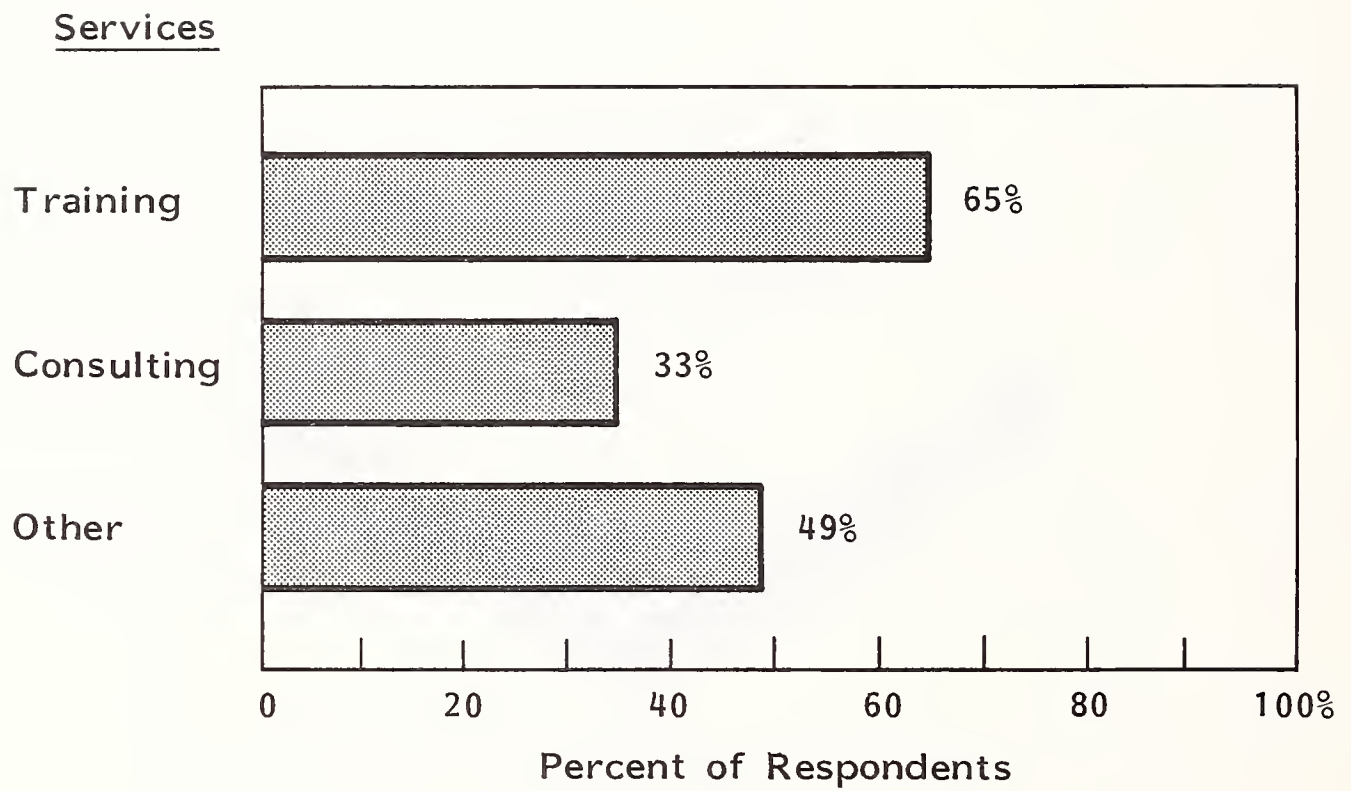


EXHIBIT III-8

ADDITIONAL VENDOR SERVICES OFFERED



Note: Total is more than 100% due to multiple responses



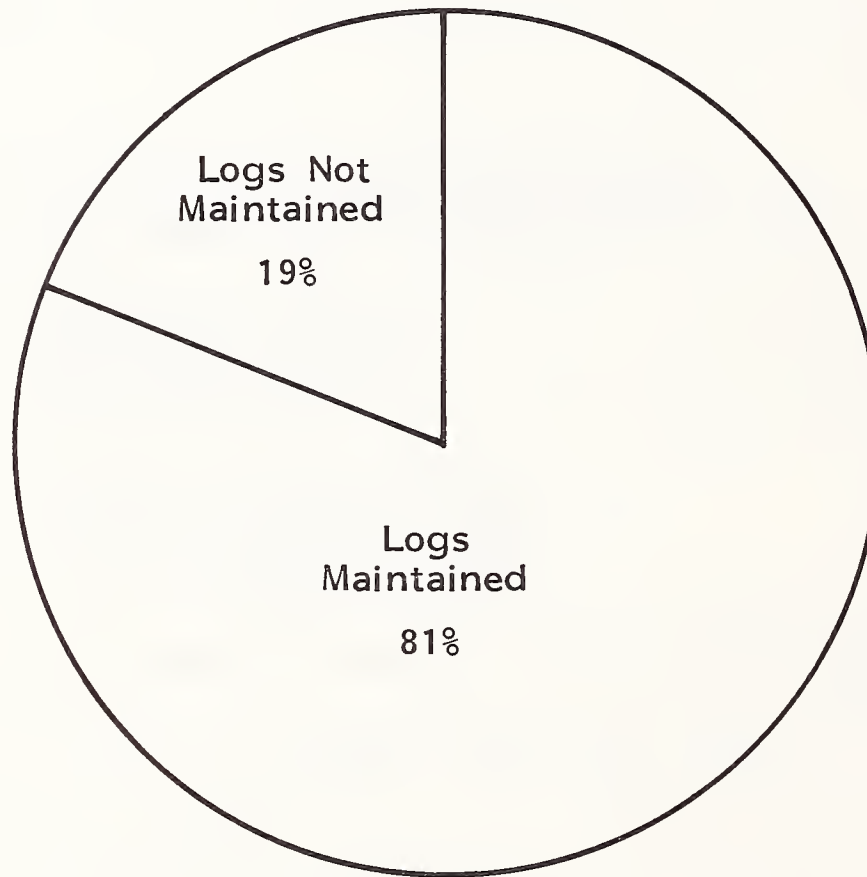
- "Other" services in Exhibit III-8 refers to customized programming, documentation, and other support designed exclusively for a single user.

## 2. PROBLEM RESPONSE

- Since error correction is important but falls short of customer requirements, it is important to understand the issue of problem response. Customers do, since most keep logs of software problems, as shown in Exhibit III-9.
- Vendors must not underestimate the small-system user, particularly in the level and sophistication of their record keeping. INPUT has found that a higher percentage of small-system users maintain logs of software problems (81%) than do large-system users (74%). As Exhibit III-10 shows, the percentage of companies maintaining logs does not vary significantly by company size.
- Exhibit III-10 illustrates that some industries are much more likely to maintain detailed logs than other industries. Ninety-five percent of services/distribution markets, for example, keep logs, as opposed to only 68% of process manufacturing companies. Not surprisingly, service industries have one of the highest proportions of software not supported by the vendor (39%), whereas process manufacturing has one of the lowest (16%). This indicates that industries (and companies) that tend to be self-sufficient in software support are much more likely to keep detailed logs.
- Among the users that did maintain logs, about one problem in four was classified as a major problem, with major problems fairly equally divided among operating systems, other systems software, and applications, as shown in Exhibit III-11.

EXHIBIT III-9

CUSTOMER LOGS OF SOFTWARE PROBLEMS  
(AS REPORTED BY CUSTOMERS)



- Customers Increasingly View Logs as a Valuable Vendor Management Tool.

SOFTWARE PROBLEM LOGS MAINTAINED,  
BY CUSTOMER SIZE AND INDUSTRY

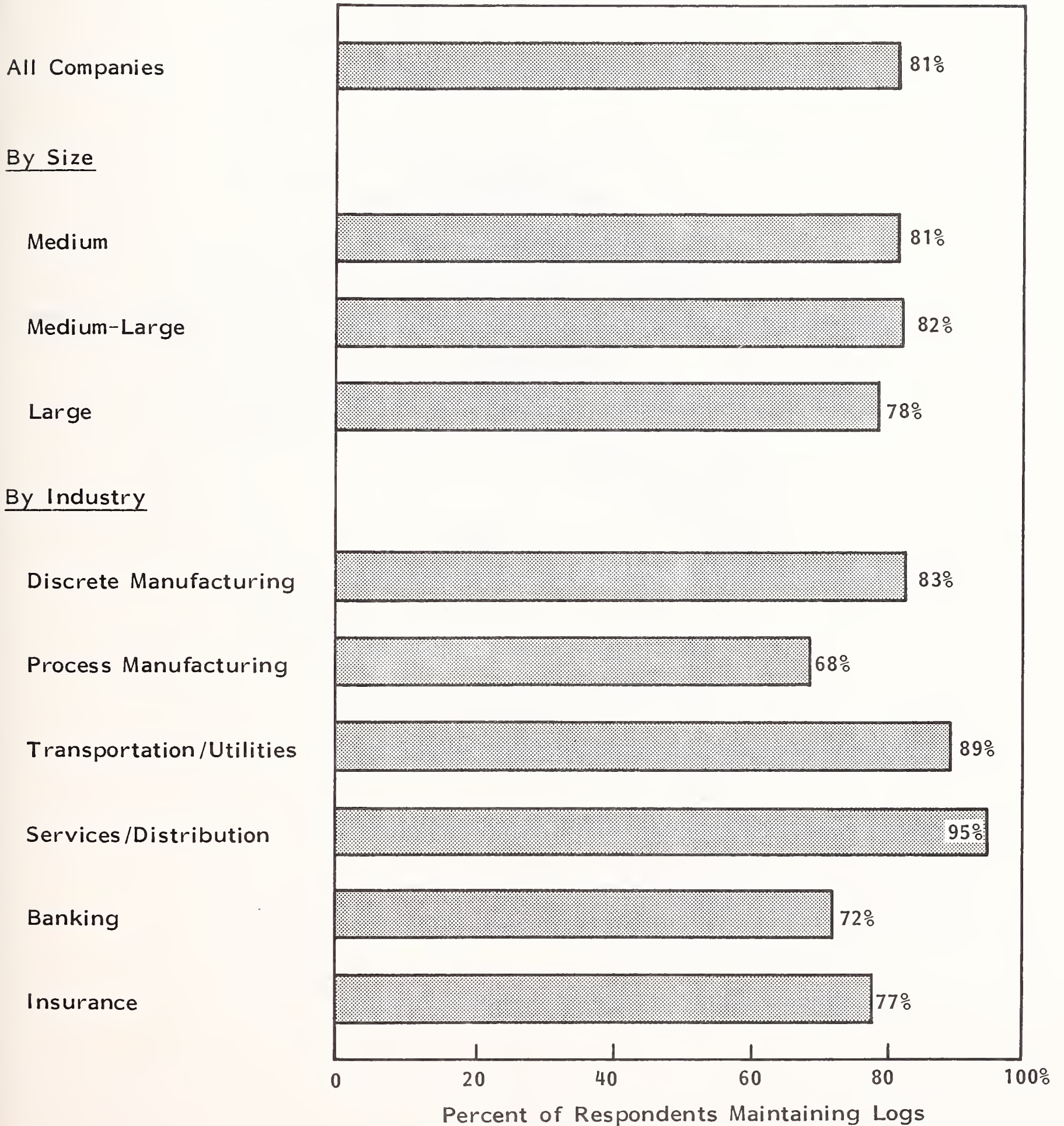
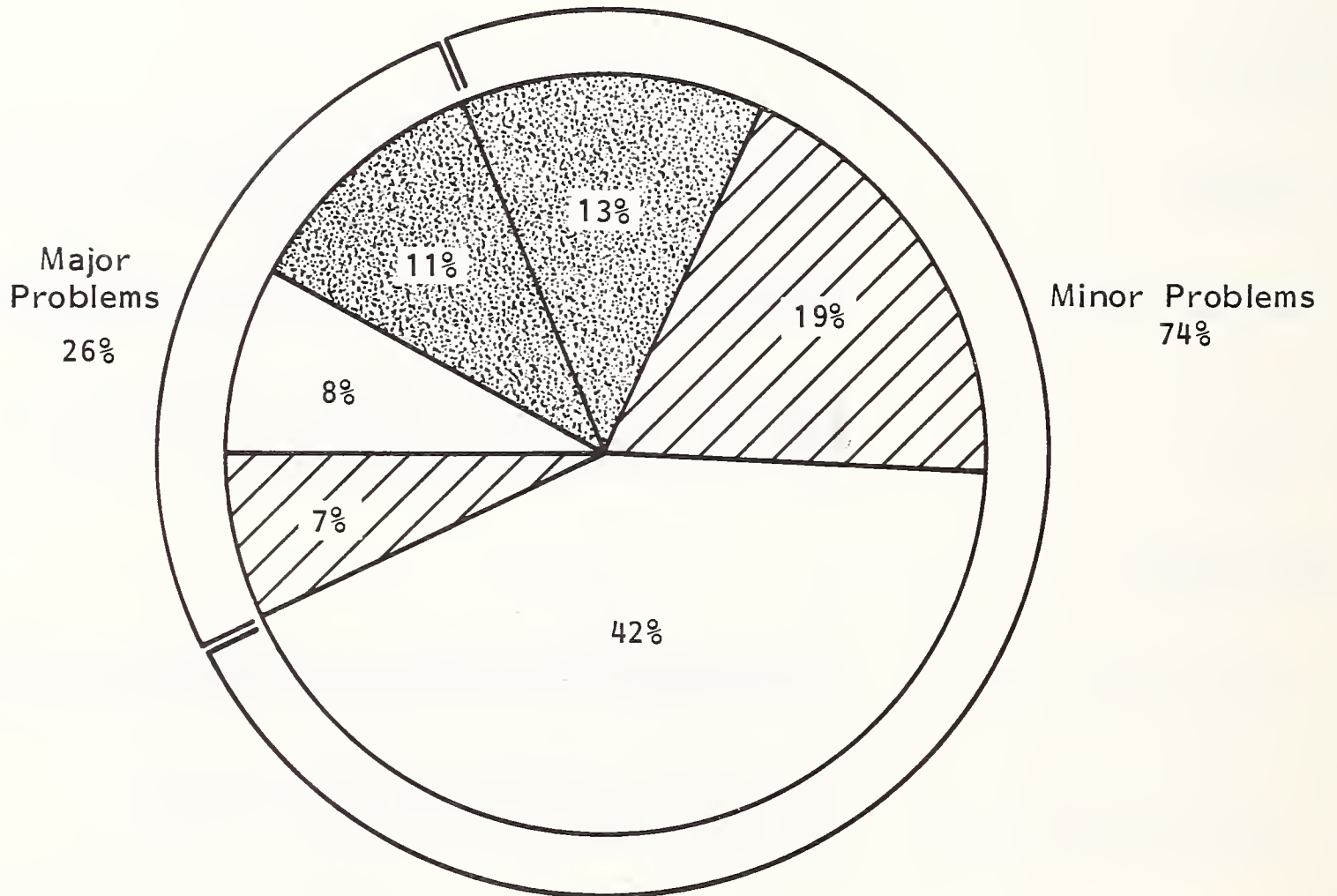




EXHIBIT III-11

SOFTWARE PROBLEM OCCURRENCE  
(As Reported by Customers)



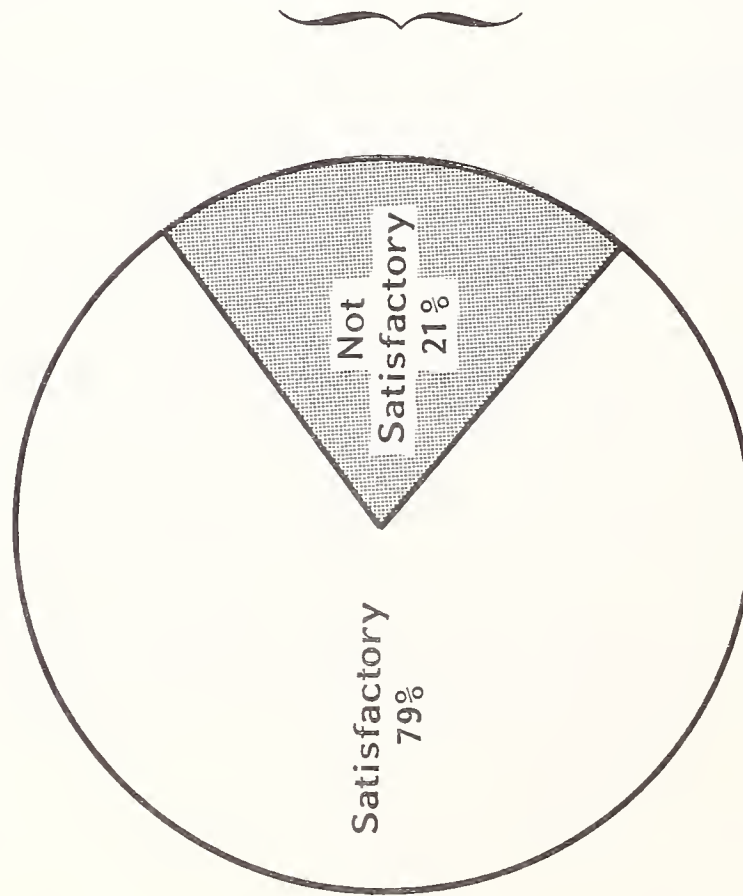
- Operating Systems
- Other Systems Software
- Application

- The picture is different for minor problems:
  - Operating system problems account for more than the other two categories combined.
  - Application software accounts for a very small proportion of this category of problem. This is due to the ability of customers to "work around" such problems--e.g., writing a special module or report program to deal with a problem. "Working around" systems software problems is much more difficult.
- Users reported a surprisingly high level of satisfaction with resolution once a problem is identified and logged, as shown in Exhibit III-12. Almost 80% of small-system users said they were satisfied with problem resolution. Users who were not satisfied (just 21%) cited the need for faster response time and improvements in the quality of support as their primary requirement.
- The actual quantified performance, as reported by customers, is spotty.
  - Applications software has both the best and the worst performance, with virtually all major problems resolved, but only about two-thirds of minor problems, shown in Exhibit III-13.
    - The minor-problem performance is due in large part to the open-ended qualities of application software "problems"--many of these are really requests for enhancements that may not be acted on for several releases, if ever.
    - There is often less pressure on vendors to solve these minor problems since users can often take care of the problem themselves.

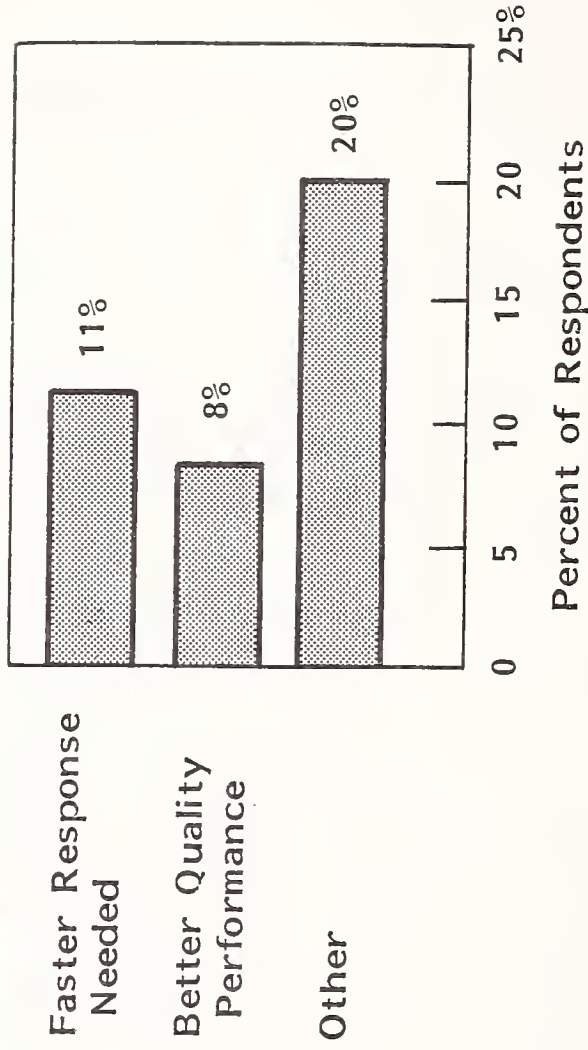


EXHIBIT III-12

PROBLEM RESOLUTION PERFORMANCE (As Reported by Customers)



Reasons for  
Dissatisfaction\*

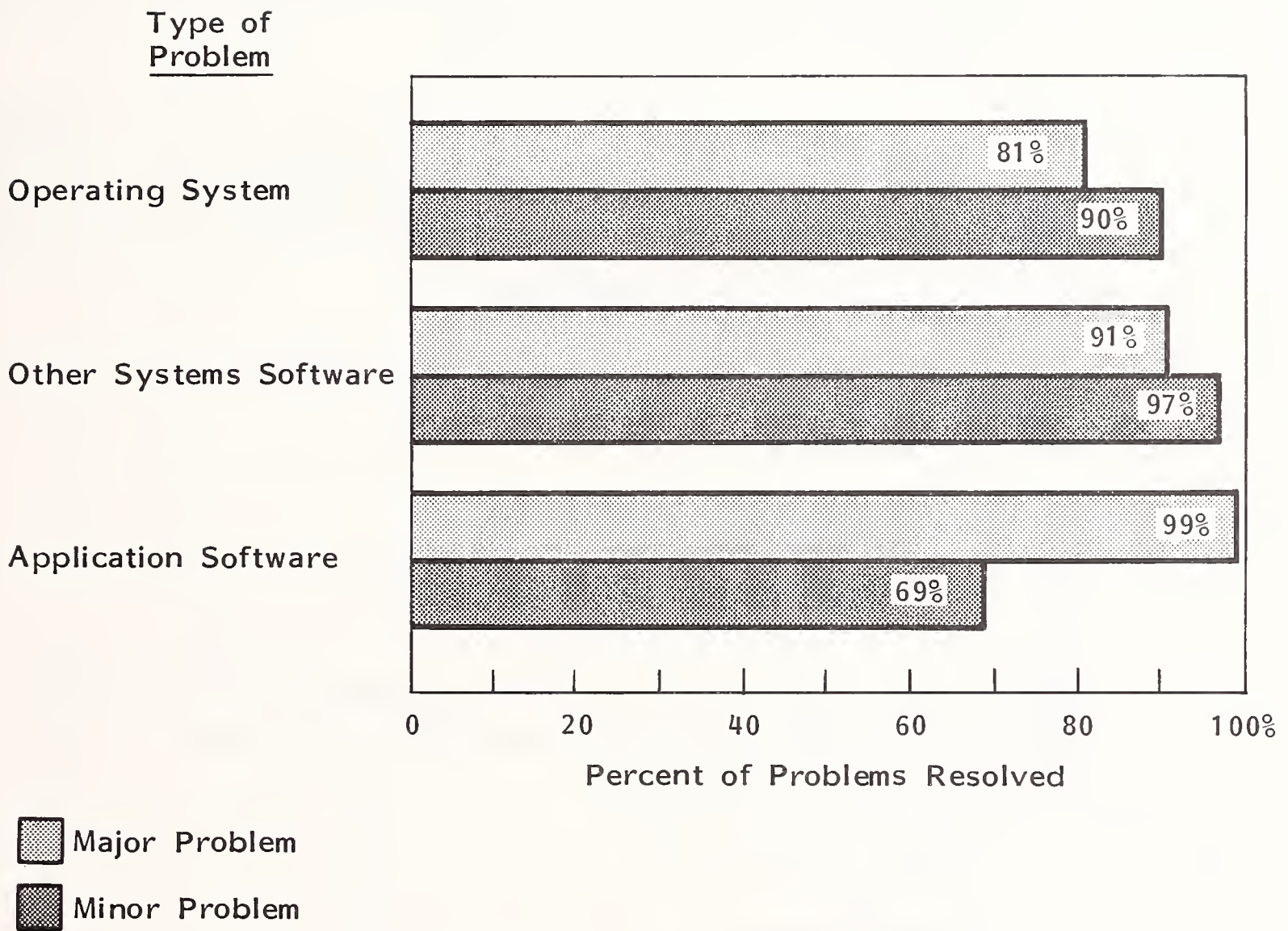


Note: Responses total more than 21% due to multiple responses.

\* Open-ended, coded question.

EXHIBIT III-13

SOFTWARE PROBLEM RESOLUTION



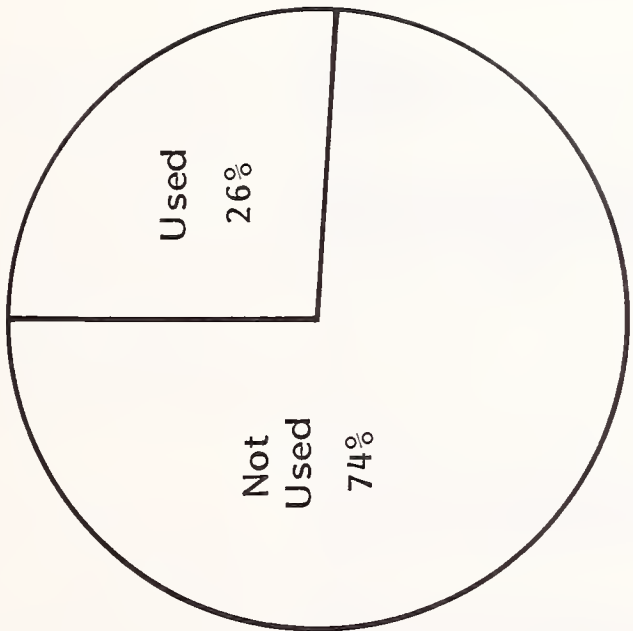
- Operating system problem resolution is not good at all for major problems, and not much better for minor problems. For customers who are at a vendor's mercy this is a very uncomfortable position to be in.
- Problem resolution for other systems software is much better, although even here one in ten major problems is not resolved.
- It is understandable that the major systems software problems would be harder to resolve than minor problems.
- The only answers are quality assurance and improvement. This is a situation that customers have learned to live with since their options are extremely limited, are usually not feasible (change hardware and/or operating system), or are not guaranteed to be an improvement.

## C. ELECTRONIC SUPPORT

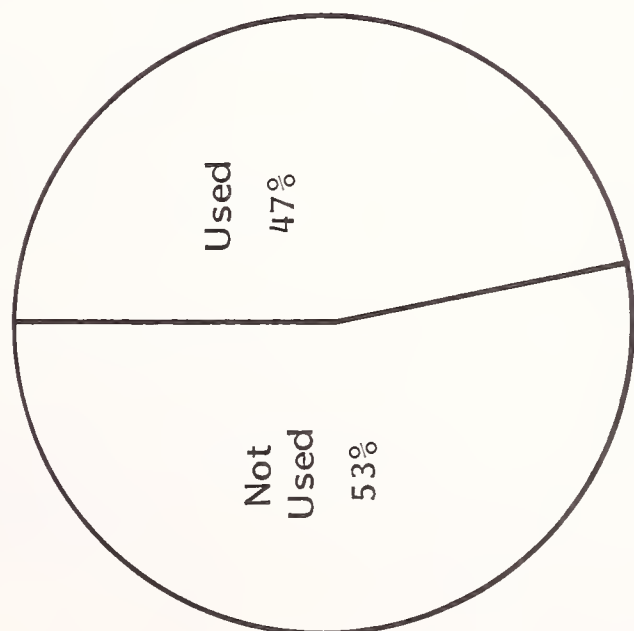
### I. CURRENT SITUATION

- There has been much discussion by vendors about the advantages likely to accrue from electronic support. The major advantages include:
  - Automatic downloading.
  - Remote diagnostics.
  - Remote fixes.
- While the use of electronic support has been heralded as the solution to escalating costs in software maintenance, the actual use of remote software servicing is limited. Exhibit III-14 demonstrates that only about one-third of

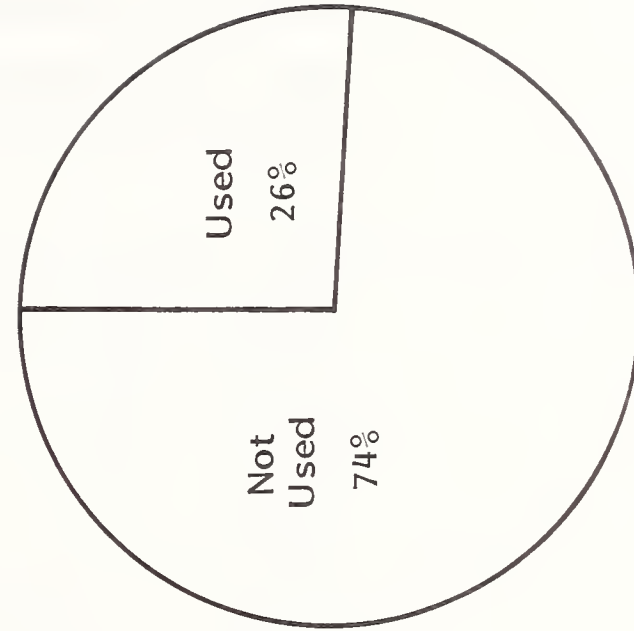
EXTENT OF USE OF REMOTE SOFTWARE SERVICING (As Reported by Customers)



Automatic Downloading



Remote Diagnostics



Remote Fixes



small-system customers currently use remote support, even on a superficial basis. Where actual day to day applications are considered, the percentage of remote support users (in the small-system environment) drops to nearly 5%.

- User experience with automatic downloading and remote fixes is limited, though almost half (47%) of all small-system customers reported use of remote diagnostics. Satisfaction with remote diagnostics varied tremendously, but there was one important central point: users that understood the benefits of remote diagnostics strongly favored most other remote support techniques. On the other hand, users that perceived remote diagnostics only in terms of benefits to the vendor typically would not favor other remote support techniques.
  - The use of automatic downloading does vary significantly by company size, although process manufacturing and insurance are somewhat more likely to use it, and there is little evidence of its use in transportation/utilities, as shown in Exhibit III-15. The high percentage of large companies using automatic downloading is evidence that companies with extensive remote support experience (and requirements) are likely to access new remote support techniques.
  - The striking conclusion regarding automatic downloading is that almost half of respondents see little improvement occurring because of automatic downloading, as shown in Exhibit III-16. This lack of customer confidence in automatic downloading is not surprising. Most users typically feel that the vendor offers this service simply to reduce on-site software engineer expenditures. Consequently, users believe that they derive little or no benefit from this service.
  - The low percentage of users that report faster problem resolution as the result of automatic downloading (just under 12%) is a clear statement about the average vendor's marketing of this service. Vendors usually offer this service specifically to improve response/repair time;

EXHIBIT III-15

USE OF AUTOMATIC DOWNLOADING,  
BY CUSTOMER SIZE AND INDUSTRY

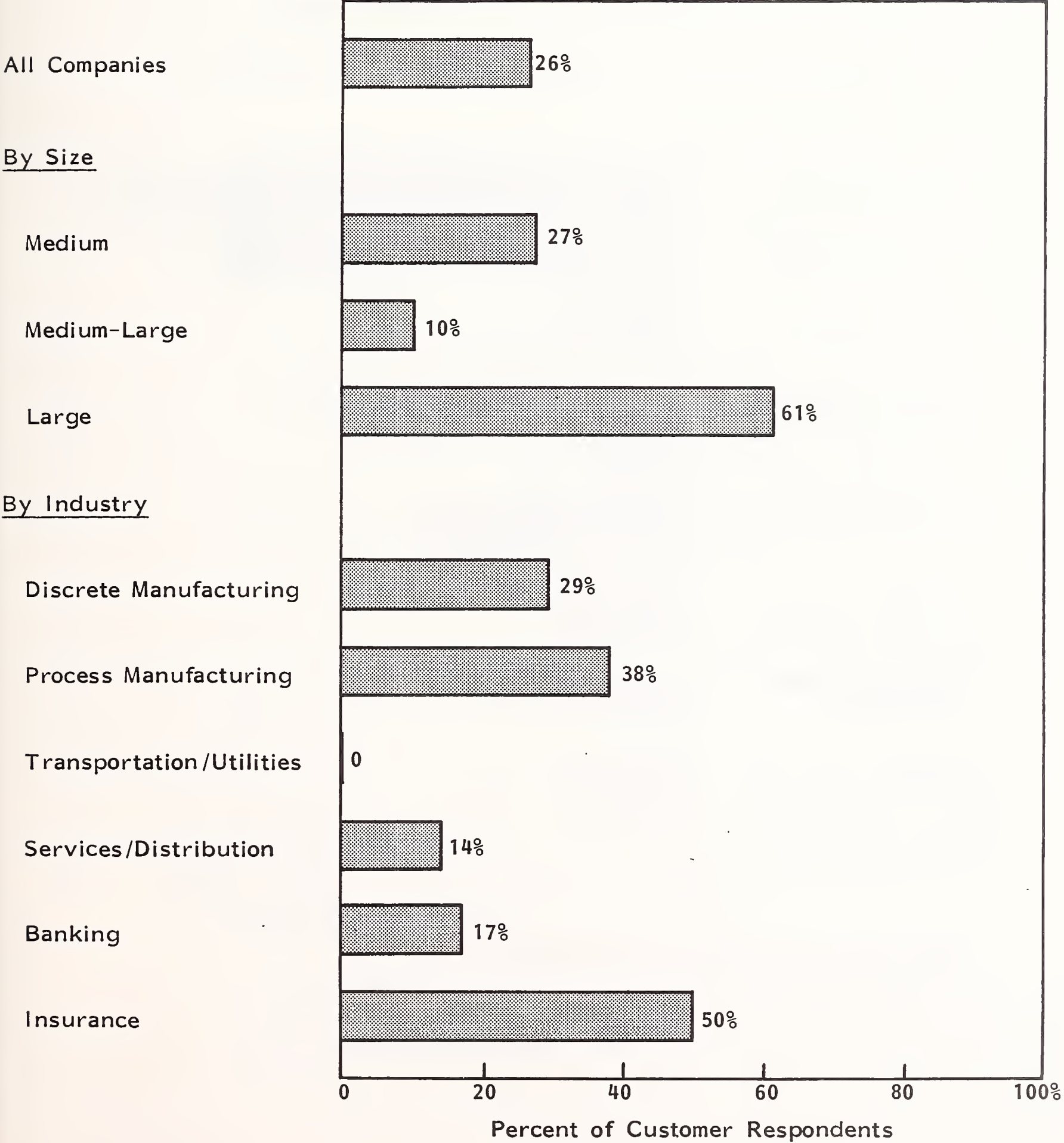
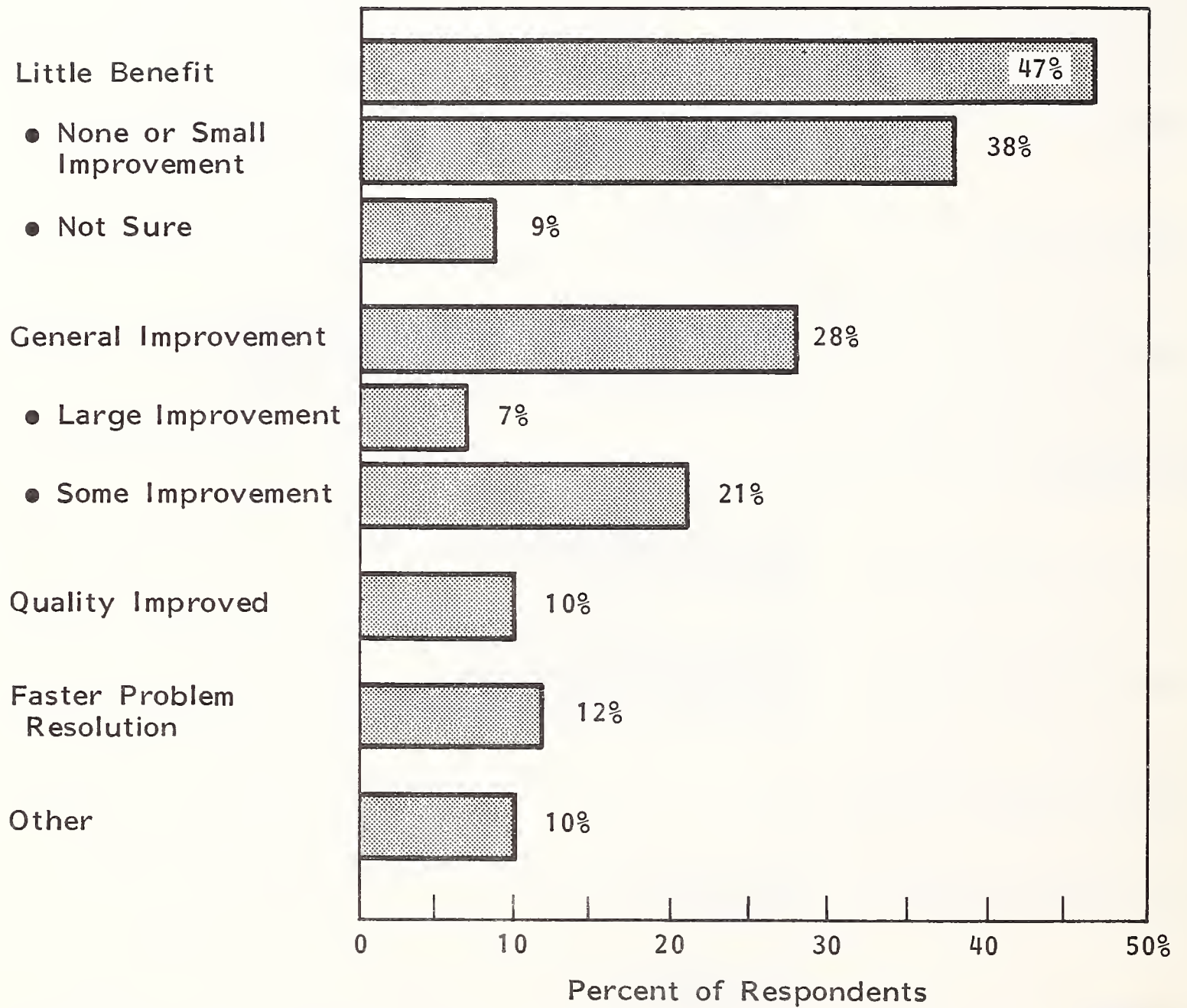


EXHIBIT III-16

BENEFITS EXPECTED BY CUSTOMERS  
FROM AUTOMATIC DOWNLOADING\*



Note: Total is more than 100% due to multiple responses.

\* Open-ended coded question.



the fact that almost 90% of the users do not perceive this benefit is a problem the vendors must confront immediately.

- Use of remote diagnostics by customer size and industry is shown in Exhibit III-17. Although the results in this exhibit differ somewhat according to size and industry type, the overall variance is not great. Approximately one-half of small-system users now employ some sort of remote diagnostics.
  - INPUT believes that this number will increase dramatically in the next three to five years. This increase will result as service technology is designed into the newer small system to help vendors reduce on-site repair costs.
  - A second reason that INPUT expects the use of remote diagnostics to increase is the growing demand for this services, as shown in Exhibit III-18. In contrast to automatic downloading, where 47% of the respondents expected little or no effect when they used the service, remote diagnostics users were much more optimistic. Forty percent of the respondents expected a general improvement when using remote diagnostics, while 16% cited faster problem resolution.
  - This is a clear indication that a large percentage of small-system users have identified the benefits of using remote diagnostics, and this is likely to increase demand for this service.
- The extent of use of remote fixes is similar to that of downloading, with about one quarter of companies using them, as shown in Exhibit III-19. Company size is a moderate factor in use, while discrete manufacturing and services/distribution show somewhat less use.
  - The benefits expected from the use of remote fixes are similar to those of automatic downloading, with more than one out of four of companies seeing small benefits accruing to themselves, as shown in Exhibit III-20.



EXHIBIT III-17

USE OF REMOTE DIAGNOSTICS,  
BY CUSTOMER SIZE AND INDUSTRY

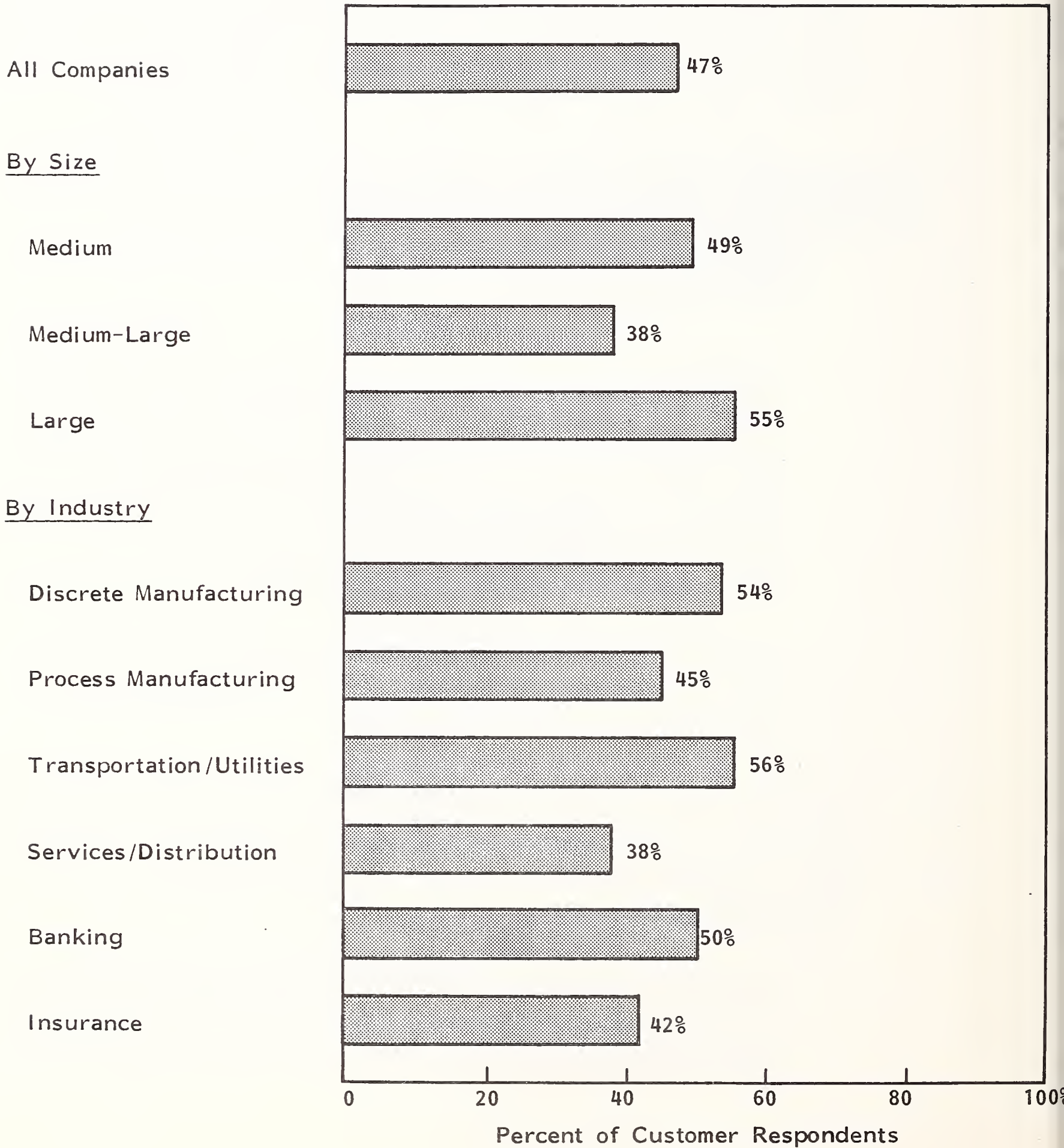
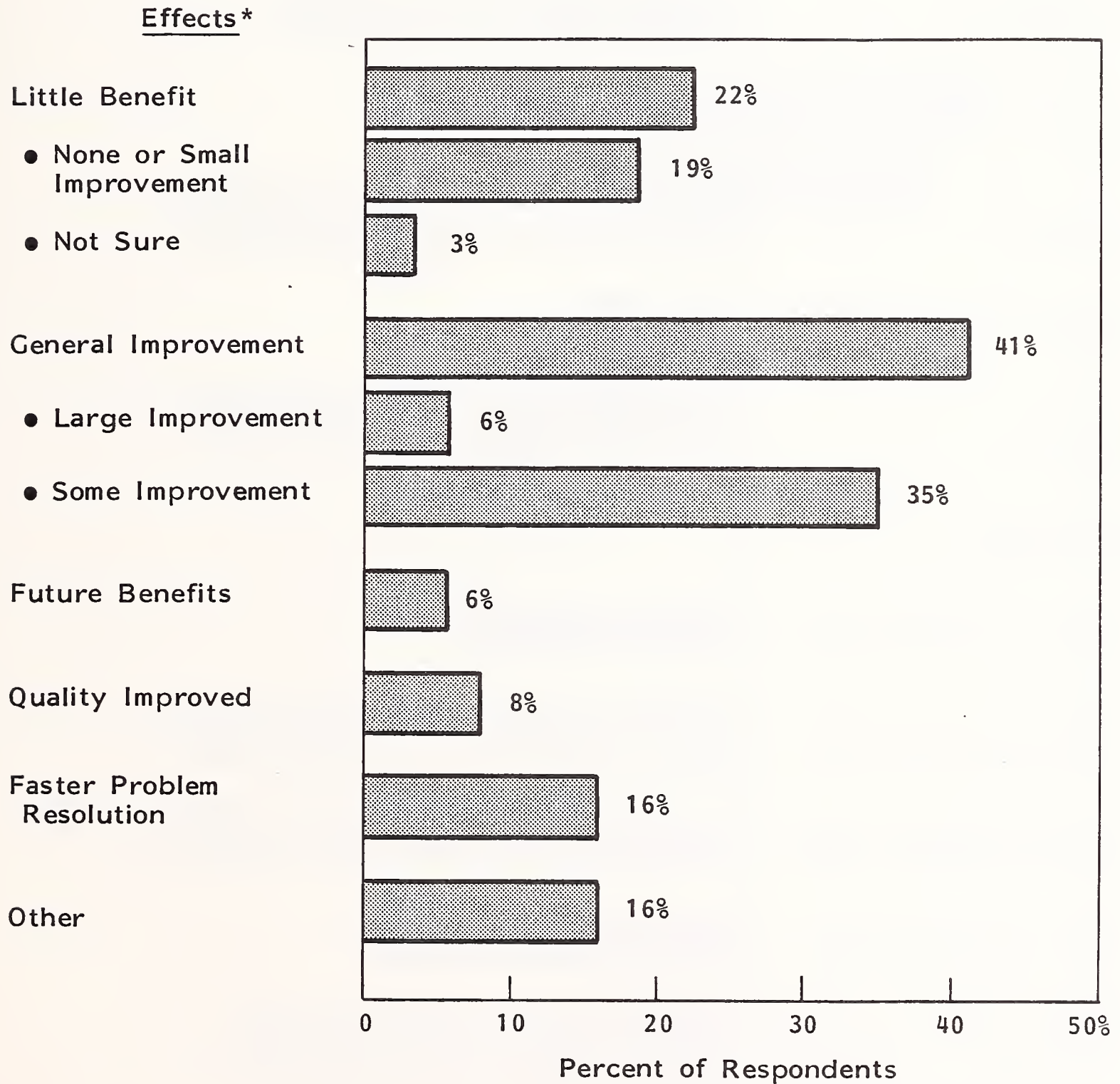


EXHIBIT III-18

BENEFITS EXPECTED BY CUSTOMERS FROM REMOTE DIAGNOSTICS



Note: Total is more than 100% due to multiple responses.

\* Open-ended coded question.



EXHIBIT III-19

USE OF REMOTE FIXES,  
BY CUSTOMER SIZE AND INDUSTRY

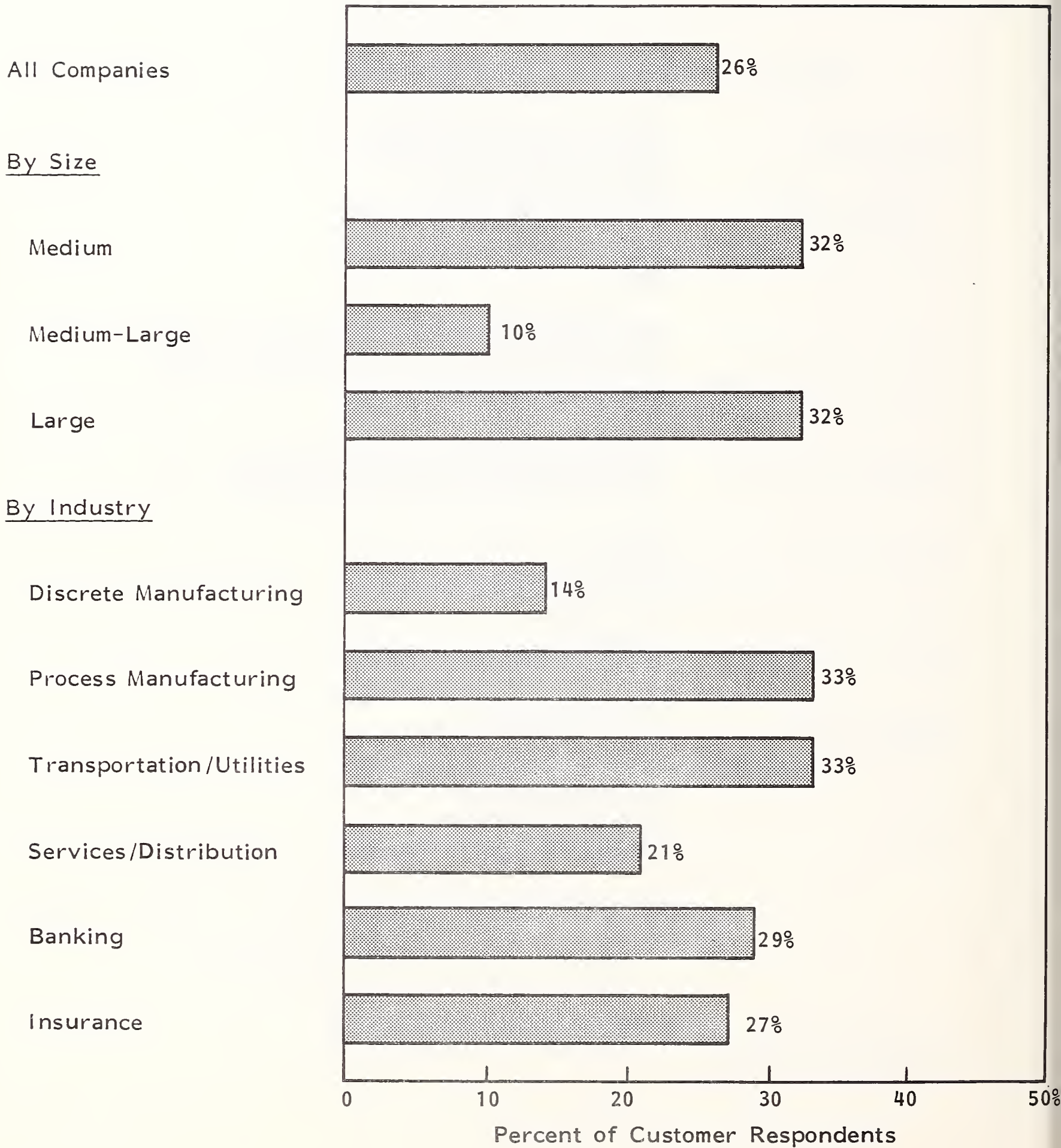
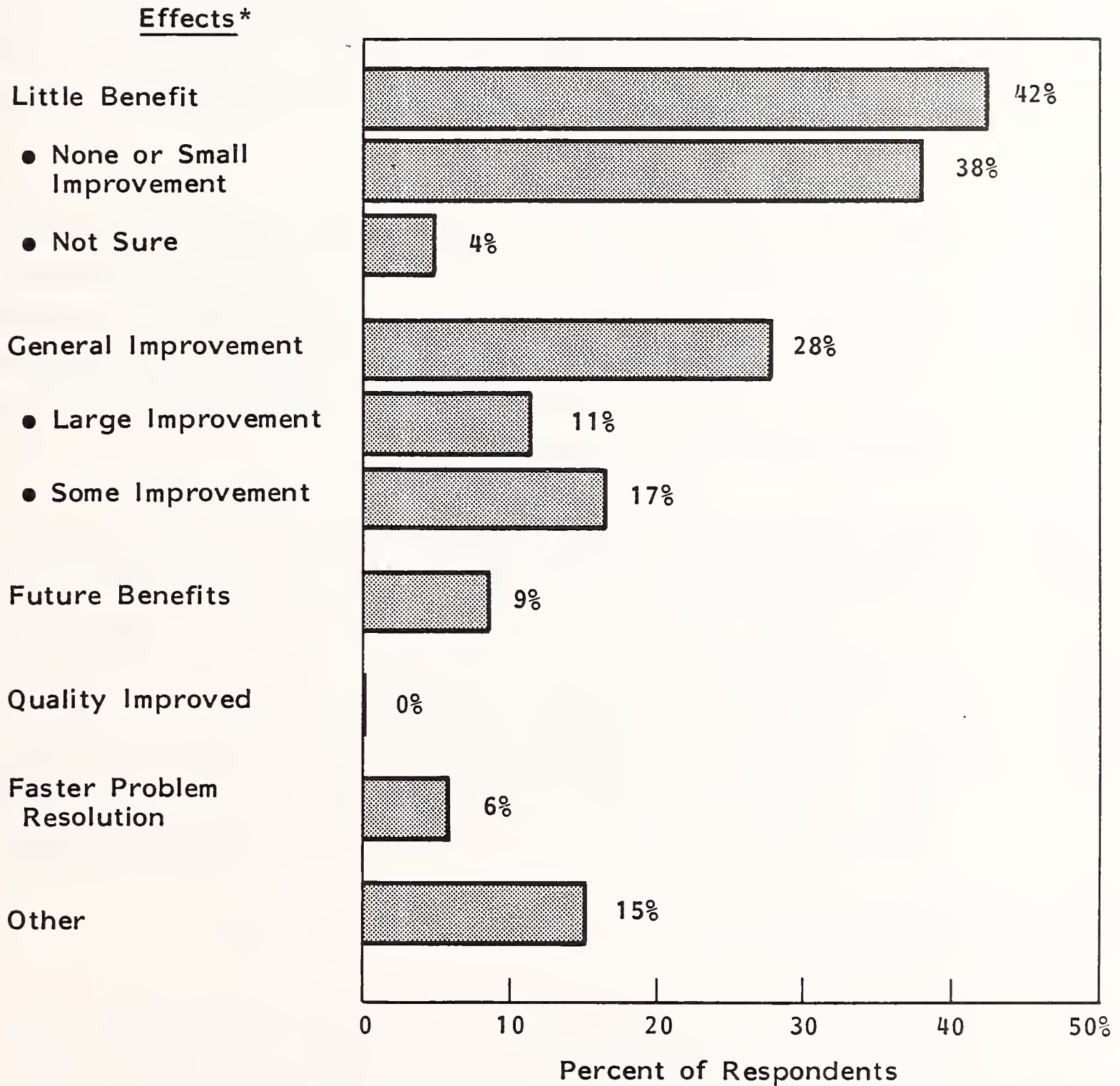


EXHIBIT III-20

BENEFITS EXPECTED BY CUSTOMERS FROM REMOTE FIXES



\* Open-ended coded question



- Small-system vendors must be particularly concerned when they realize that such a high percentage (42%) of small-system users expect little or no effect from the use of remote fixes, and none of the users expect the quality of service to improve.
  - This is significant because it demonstrates that users really do not see any benefits from using remote fixes. Without the user's support, it will be very difficult for small-system vendors to introduce this service successfully.
- Small-system user attitudes regarding electronic support can be described only as lukewarm, particularly in the areas of automatic downloading and remote fixes. One interesting and potentially useful finding is the absence of user concern for costs or pricing of electronic support. This lack of concern could be very beneficial to vendors, who can realize significant cost savings using electronic support techniques.
- Before small-system vendors will be able to fully realize the profit potential of remote and electronic support, they must demonstrate to users the benefits of this service. Currently, most users perceive electronic support as a tool designed by the vendor to lower the vendor's costs. While this is certainly true, the users must understand that they too will share in the benefits. Vendors can overcome user objections to electronic support by stressing the effect of remote services on important service issues such as improved response and repair time, and higher level of software engineer expertise.

## 2. VENDOR INITIATIVES

- Of concern to vendors should be the relatively low and diffuse value that customers place on electronic distribution. There are two dangers here:
  - Use levels remaining low.

- Perceived benefits remaining nebulous and, consequently, application of more pressure to receive some tangible benefit, e.g., a price reduction.
- Part of this problem arises from the fact that most vendors have not gotten beyond seeing electronic distribution as a replacement for human intervention or hard copy documentation. Often, electronic support is nothing more than a transmission medium.
- Ironically, software vendors have made the same implicit mistake in this case as have software developers generally: they have been content to automate a manual system rather than to use computers in breaking new ground. It is doubtful under these circumstances that support systems can provide much, if any, benefit in most situations.
- Exhibit III-21 shows a conceptual view of an electronic support system of the future. To the best of INPUT's knowledge, no vendor is yet taking this comprehensive a view toward support, although some parts of it have been implemented in a few instances (e.g., problem data base, electronic response.)
  - The natural language interface/expert system front end is only feasible for products where a significant investment is warranted. Exhibit III-22 shows the factors involved and the need to have most of these determinants close to the high end of the scale.
  - While it might not always be cost-effective to have a computer-driven expert system, the natural language interface can assist customers in putting their problems into commonly understood terms.
  - This would alleviate one of the problems of electronic mail: ambiguity and misunderstanding. This would make customers far more likely to use the "electronic mailbox" aspects of an electronic support system.

EXHIBIT III-21

ELECTRONIC SUPPORT OF THE FUTURE

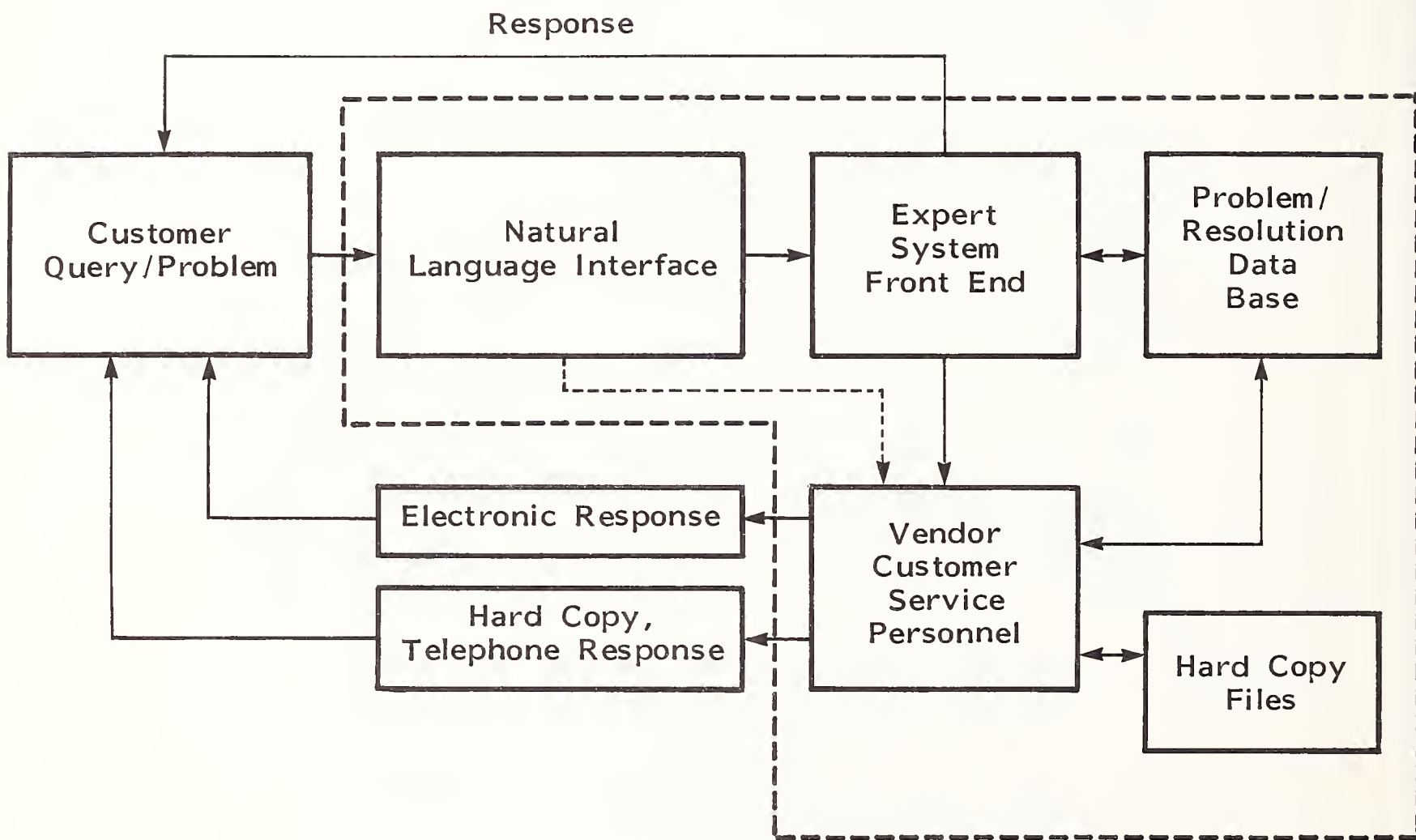
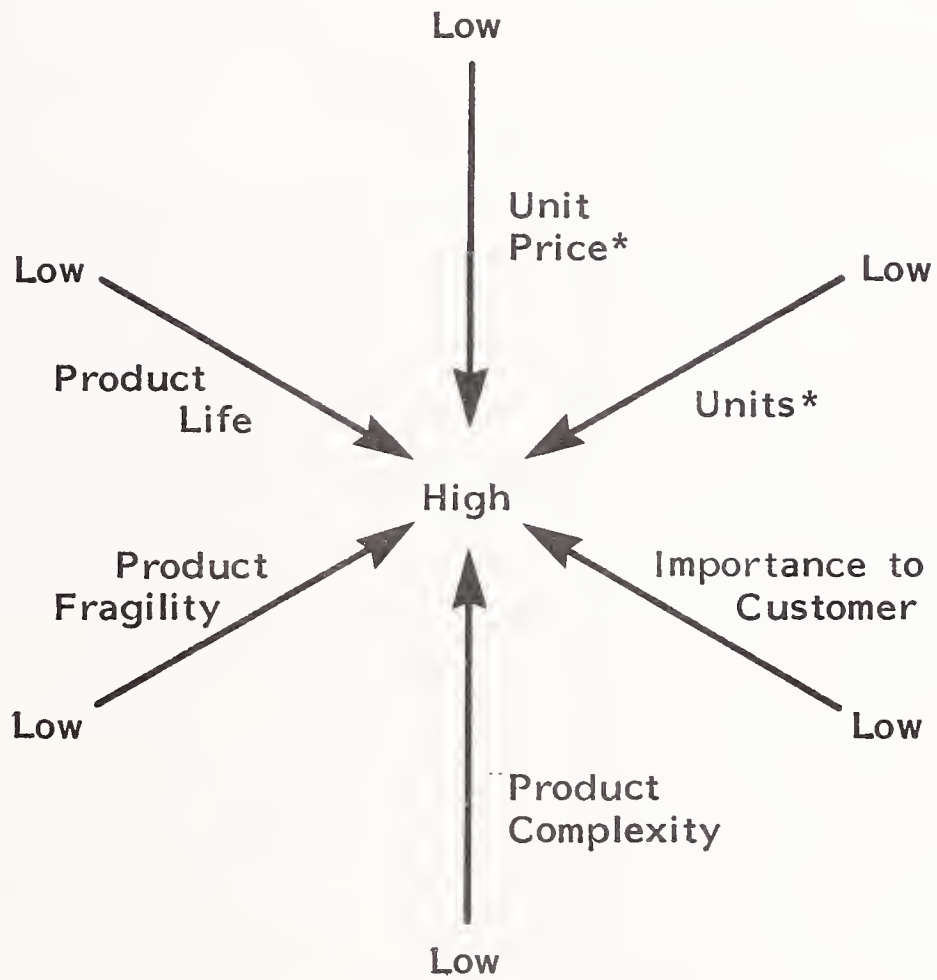


EXHIBIT III-22

REMOTE SUPPORT SYSTEM: INVESTMENT DETERMINANTS



\* Critical



- Eliminating initial person-to-person contact would help vendor support operations in several ways:
  - Smoothing time-of-day/week peaks.
  - Ranking problems and assigning them to the correct specialist.
  - Documentation.
- The perceived benefits would include:
  - Much faster response to known problems, especially if the expert system interface were used.
  - Much less vendor involvement in problems and queries that turn out to already be in customer documentation.
- These two benefits taken together could then allow support organizations to focus on major operating system problems.

## IV PRICING



## IV PRICING

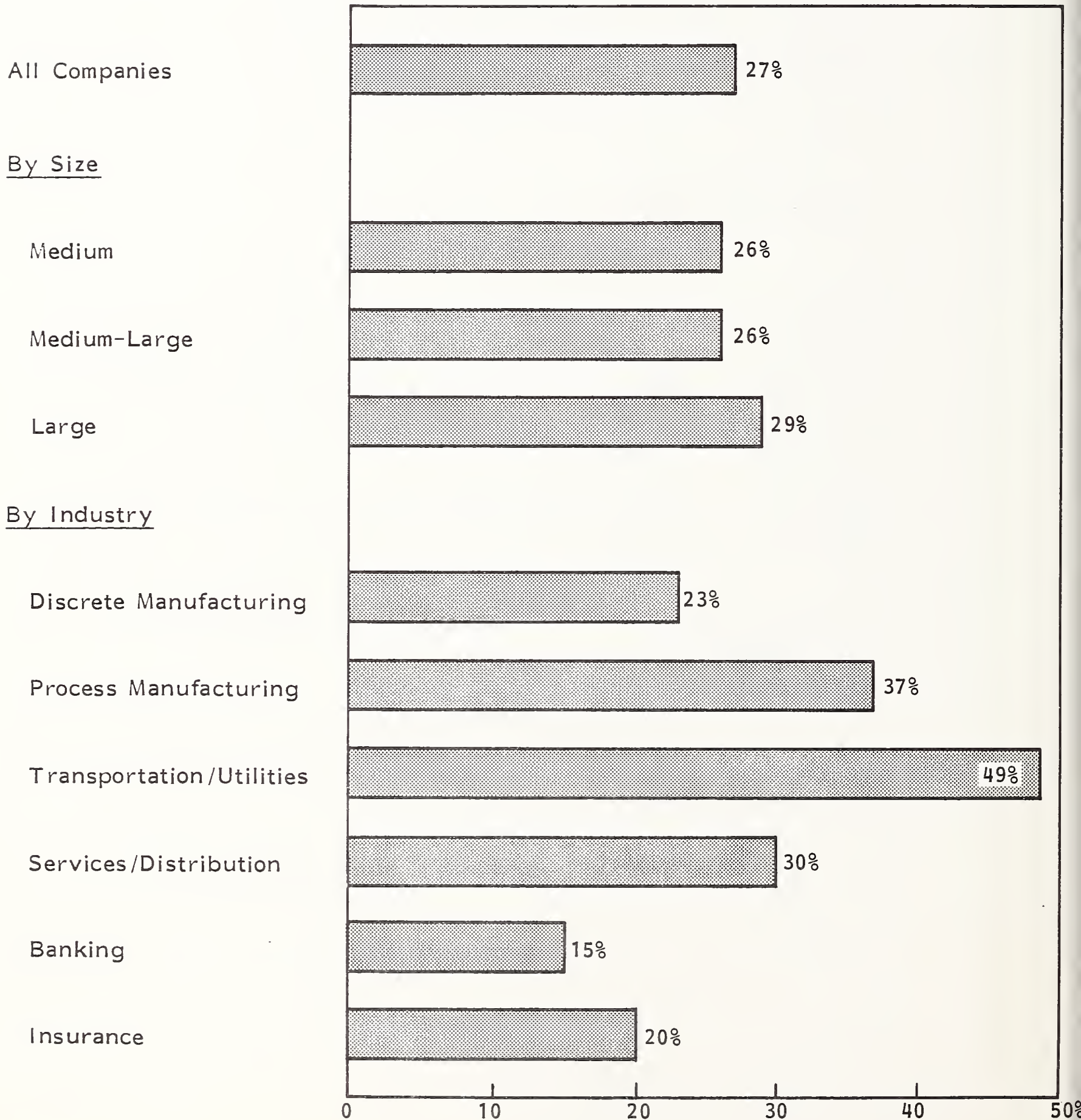
### A. CURRENT SPENDING

- As noted in the previous chapter, small-system users are typically price sensitive, but their demand for improved software support far outweighs this price sensitivity. Software support has the potential to contribute much more than the current 15-17% of total service revenue.
- Exhibit IV-1 demonstrates that software support currently accounts for 27% of software license costs.
  - This proportion does not vary greatly by customer size, but does show significant variation by industry.
  - These industry differences include support outlays, as well as the amount of ongoing software license expense, and can be affected by such practices as
    - A one-time license fee with ongoing support costs.
    - Purchasing a package to use as a "shell," with no support planned.



EXHIBIT IV-1

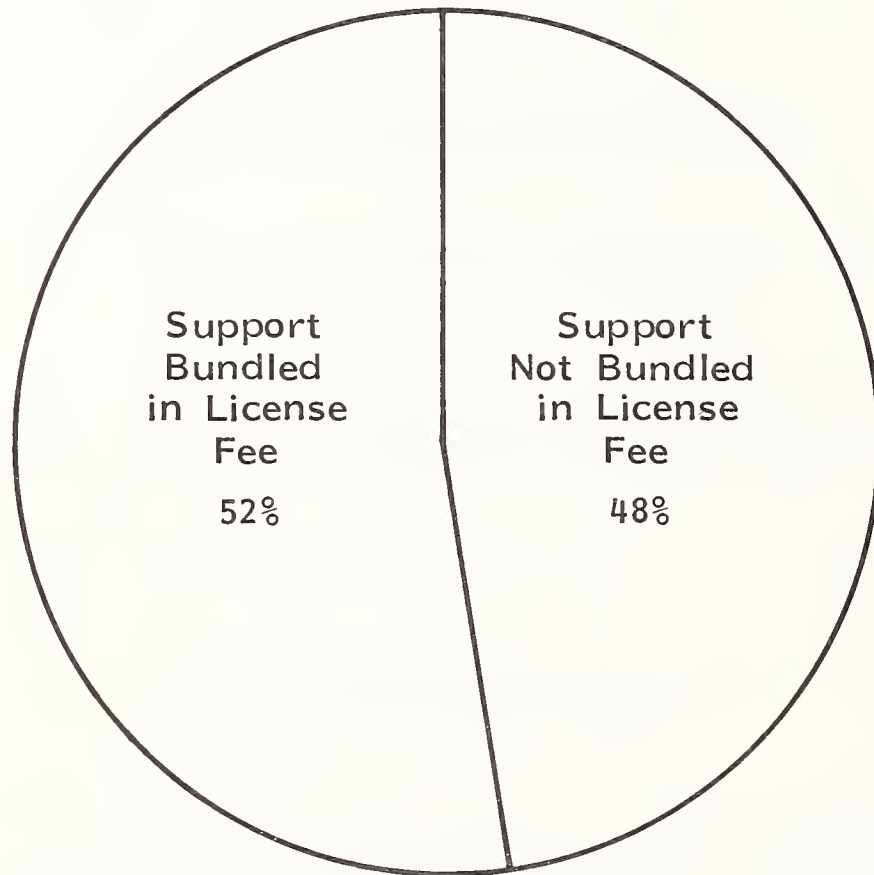
SOFTWARE SUPPORT COSTS AS A PROPORTION OF LICENSE COSTS  
BY COMPANY SIZE AND INDUSTRY



- A package purchased from the end user's budget, with support costs from MIS (or vice versa).
- Because small-system users are typically unconcerned with the price of software support, INPUT believes that vendors are missing an opportunity to increase service profitability by maximizing software support.
  - Exhibit IV-1, for example, demonstrates that the transportation industry reports a much higher proportion of support to license costs than the banking industry. Part of the reason for this higher proportion is that transportation software vendors are more likely to bundle support costs into the license fee, thereby making it more difficult for the user to identify specific support fees (although support fees are usually separately quoted).
- Exhibit IV-2 demonstrates that just over 50% of small-system users reported that software support was bundled into their license fee. Bundling of support and license fees is typically provided by the software vendor as a convenience to the user. As Exhibit IV-3 shows, the pattern of bundling software support costs is consistent by company size and industry.
- Small system software vendors must react to basic changes in the software marketplace. These changes will have a long-lasting impact on both support and support pricing. Today's minicomputer is fast becoming a powerful interacting system that is placing a much greater burden on software than ever before. The opportunity lies in the fact that small-system users are willing to pay a substantial premium to get the support they require.

EXHIBIT IV-2

PROPORTION OF SUPPORT BUNDLED INTO  
LICENSE FEE (AS REPORTED BY CUSTOMERS)

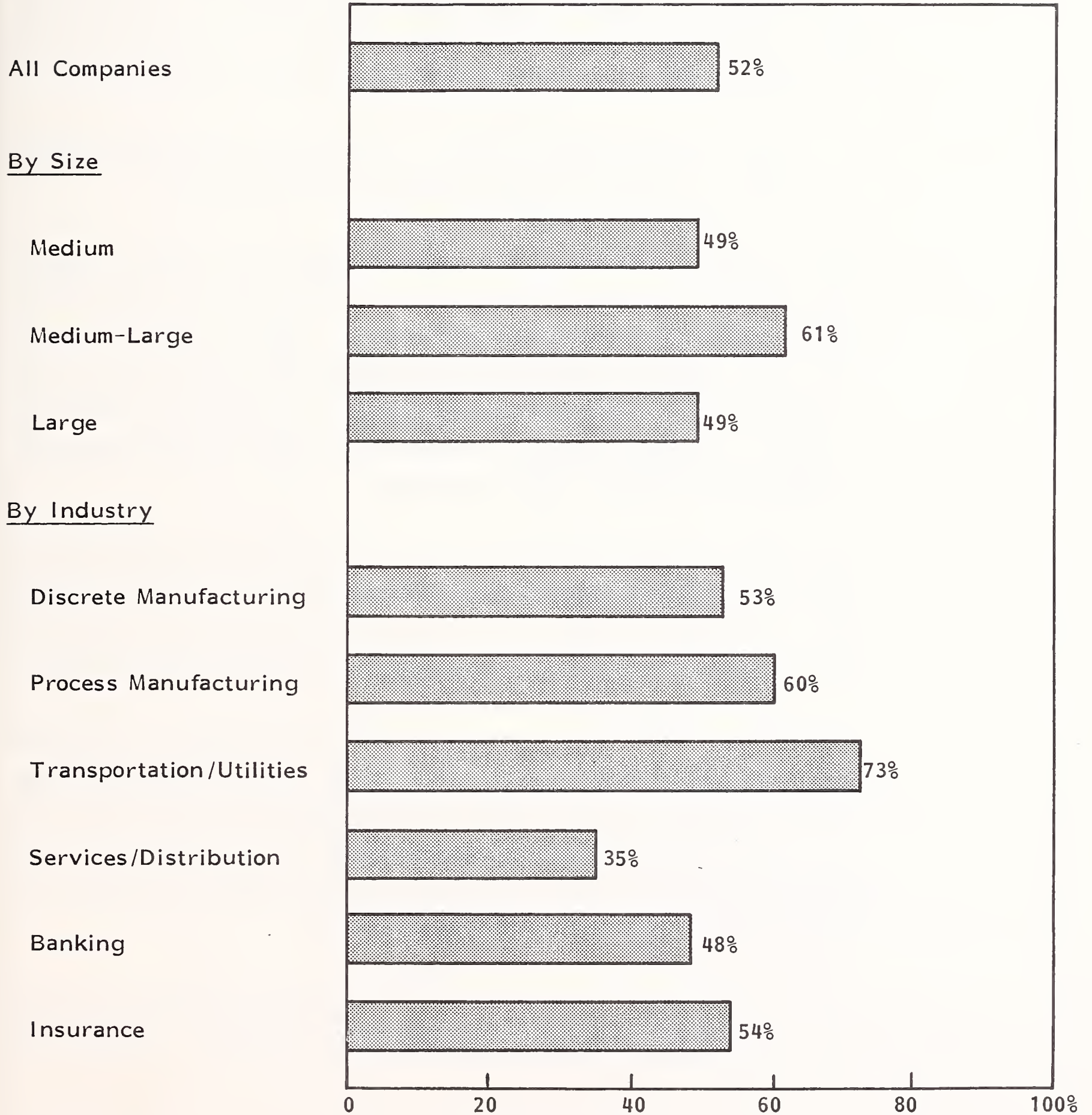


- Support Usually Is Separately Quoted.
- "Bundled" in License Fee for Administrative Convenience.



EXHIBIT IV-3

PROPORTION OF SOFTWARE SUPPORT COSTS BUNDLED INTO  
THE LICENSE FEE, BY COMPANY SIZE AND INDUSTRY



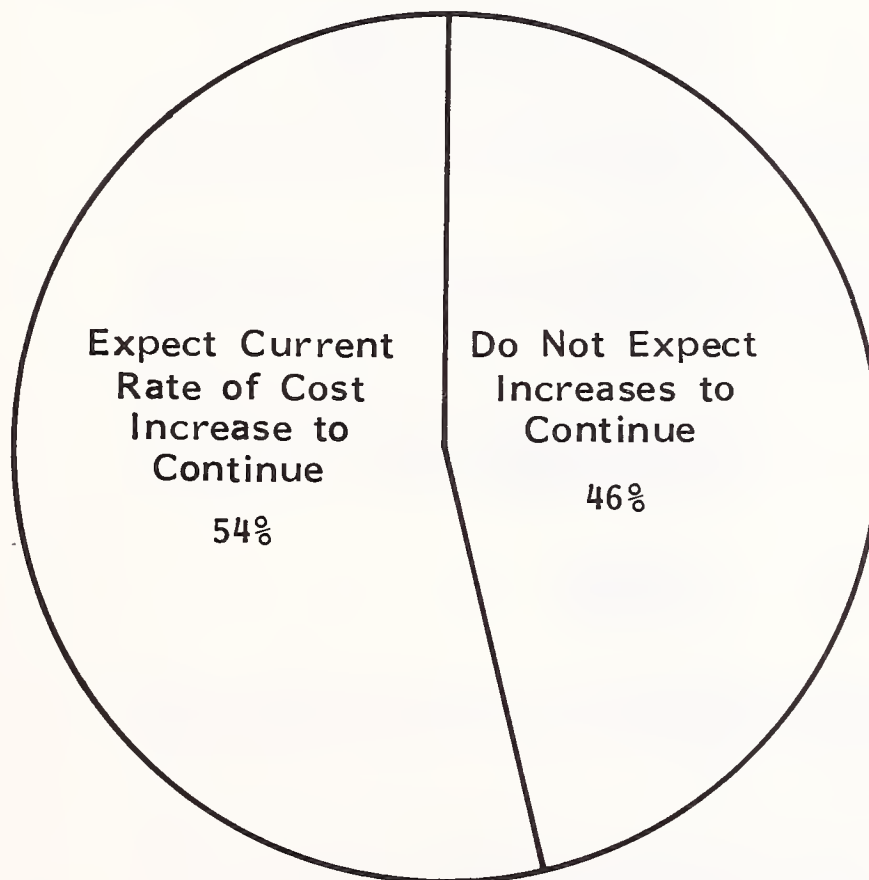


## B. FUTURE SPENDING

- Most users not only expect software support costs to increase, but they also expect to purchase additional software, which will result in substantially higher software support costs in the future. Exhibit IV-4 indicates that 46% of small-system users reported they did not expect support costs to increase.
  - INPUT believes, however, that up to 75% of small-system users expect and are prepared for a support price increase to continue.
- The driving force behind user expectations regarding future software support spending will be the need to increase support of increasingly complex small-system software products. As noted above, a substantial group of users expect that support of their stable products will not increase in price. However, INPUT believes that this is a shrinking market and that more users will be forced to purchase additional products (and support), and this will cause sharply increased software support spending.
- Sixty-five percent of small-system users cited the need for additional software as the primary reason for increases in software fees, as shown in Exhibit IV-5. New hardware growth was the second most important reason given for price increases, with general price increases the third most important reason.
- The planned acquisition of new software for current products is important because it stresses the importance users place on their installed hardware. Although 27% of small-system users indicated that new hardware growth was going to fuel increased software support expenditures, over 65% believed that expenditures would be increased by the purchase of additional software for their current installed base.
- The breakdown of companies that expect to be purchasing additional software and software support for their current equipment is shown in Exhibit IV-6.

EXHIBIT IV-4

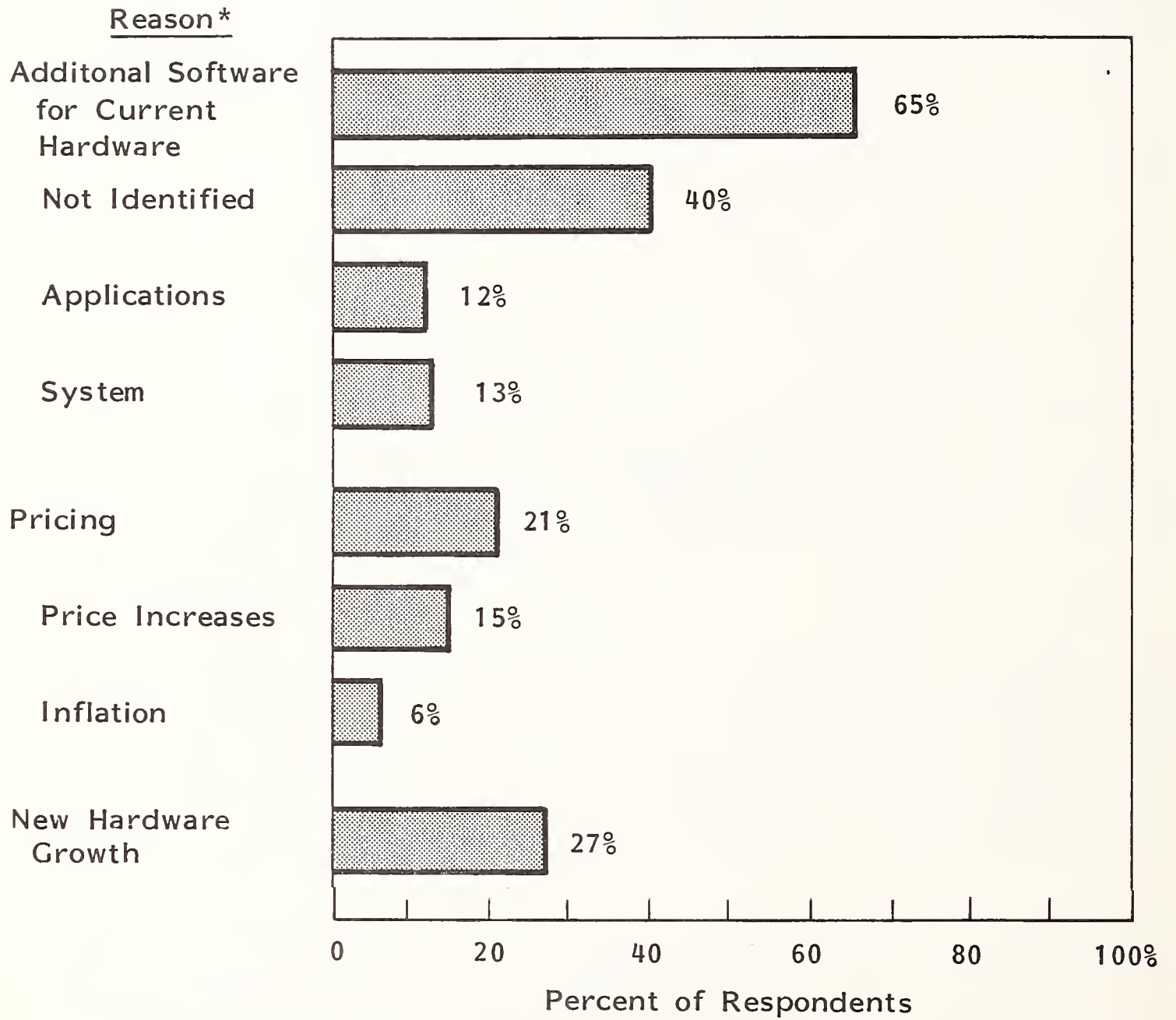
CUSTOMER EXPECTATIONS OF SOFTWARE  
SUPPORT COST INCREASES



- The user-driven demand for increased support will lead to higher prices -- most users acknowledge and expect this.
- Stable software requires less support -- and consequently fewer price increases. This, however, is a shrinking market.

EXHIBIT IV-5

CUSTOMER PERCEPTIONS OF REASONS FOR  
INCREASE IN SOFTWARE SUPPORT FEES



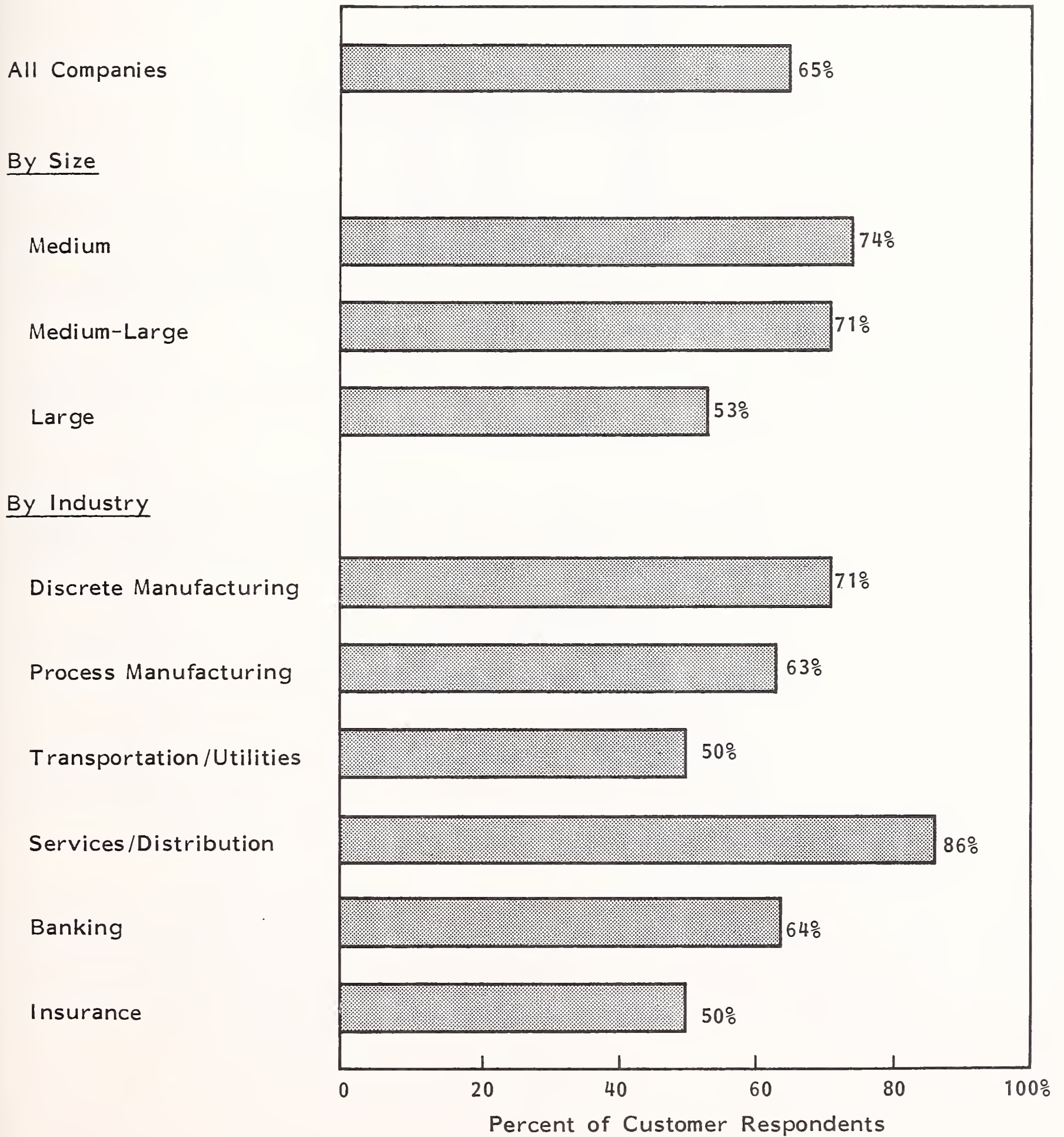
Note: Total is more than 100% due to multiple responses.

\* Open-ended coded question



EXHIBIT IV-6

ADDITIONAL SOFTWARE AS A REASON FOR SOFTWARE SUPPORT COSTS INCREASING, BY COMPANY SIZE AND INDUSTRY





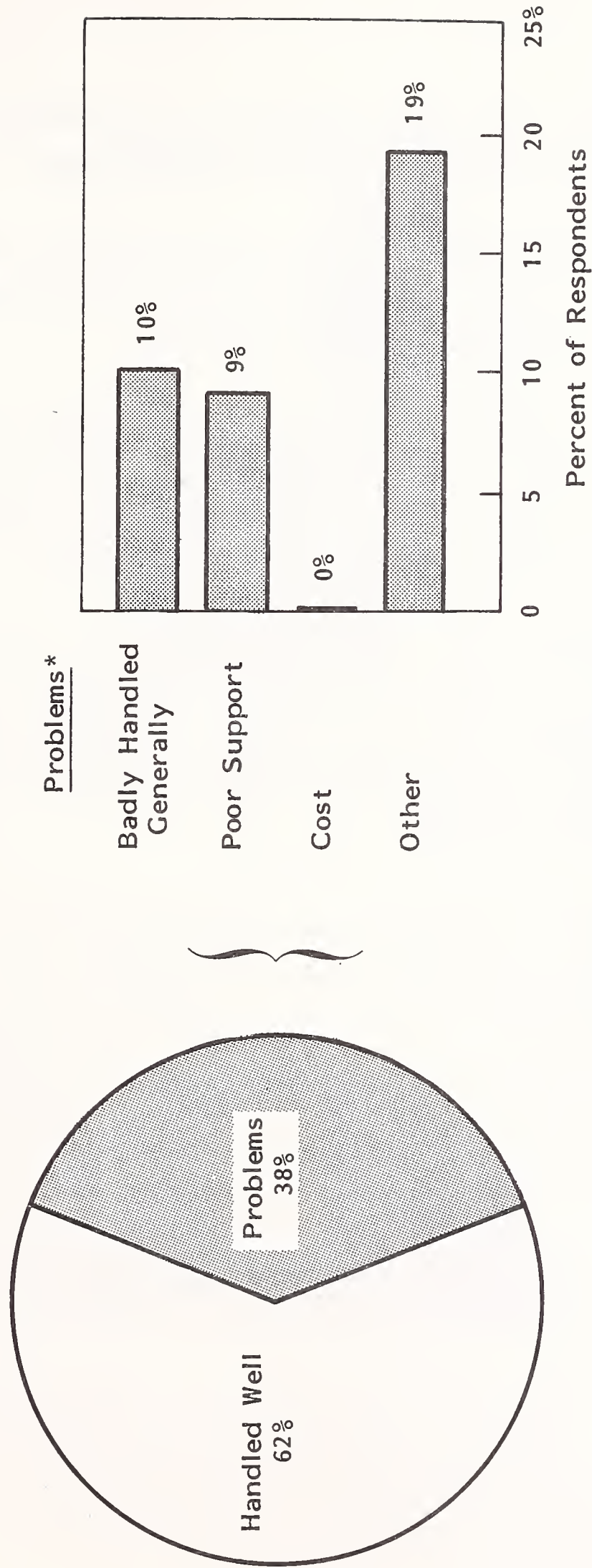
Large companies (over \$5 billion in revenue) are the ones most likely to be purchasing new equipment, and therefore have a relatively low additional software expectation. Both medium and medium-to-large companies indicated a greater dependence on their present systems and expect to be purchasing additional software and support.

### C. REPLACEMENT VERSUS UPGRADED PRODUCTS

- The issue of enhancement versus upgrade is of continuing importance to most small-system vendors. These vendors have found that they can maximize user satisfaction through enhancements or support revenue through upgrades. This choice was delineated in the following way:
  - Upgraded software typically is more attractive to new customers, and thus can potentially increase revenues.
  - Little, if any, revenue can be obtained from an enhancement aimed primarily at current users who have already paid substantial support fees.
  - Where most units of an existing product have been purchased, an upgrade represents an additional revenue opportunity.
  - On the other hand, an upgrade that is badly managed can create significant problems within the customer base, in that customers believe they are being forced to pay for the same software twice.
- Approximately 56% of the companies using small systems had a recent experience of being offered a "new" product rather than an upgrade. Sixty-two percent of these companies felt that the vendors handled the situation well, as shown in Exhibit IV-7. Of the 38% of small-system customers that had a

EXHIBIT IV-7

ASSESSMENT BY CUSTOMERS OF VENDOR REPLACING  
EXISTING PRODUCT WITH A NEW PRODUCT



\* Open-ended, coded question.

problem, most cited generally poor communication between the vendor and the user as the primary reason for dissatisfaction:

- Ten percent of the users cited general problems in the conversion process. These included delays in getting the new program running, and inadequate conversion and testing.
- Nineteen percent of the users indicated that they had a variety of other problems with the replacement of existing products by new products. Most of the 19% involved a misunderstanding by the user about the capabilities of the new package.
- Interestingly, none of the dissatisfied users cited cost as a problem in the conversion process. As with most other software-related issues, customers are clearly saying that they want and need improved software and support-- and they are willing to pay additional premiums to get the level of software quality they require.
- Exhibit IV-8 shows the lack of importance most small-system users place on software costs (both license and support). This exhibit demonstrates that almost half of the respondents reported that they received no discount for switching to a new software product. The majority of users reported that they received an acceptable discount. The important point is that discounts seem to have little or no impact on user satisfaction with the new product or with service.
- Two out of three customers see replacements becoming more common in the future, as shown in Exhibit IV-9.
- Technical changes and general trends in software development are seen as the most important motivating forces for an increase in replacement, not upgrades of software packages.



EXHIBIT IV-8

PRICING EXPERIENCE WHERE A NEW PRODUCT REPLACED AN EXISTING PRODUCT  
(As Reported by Customers)

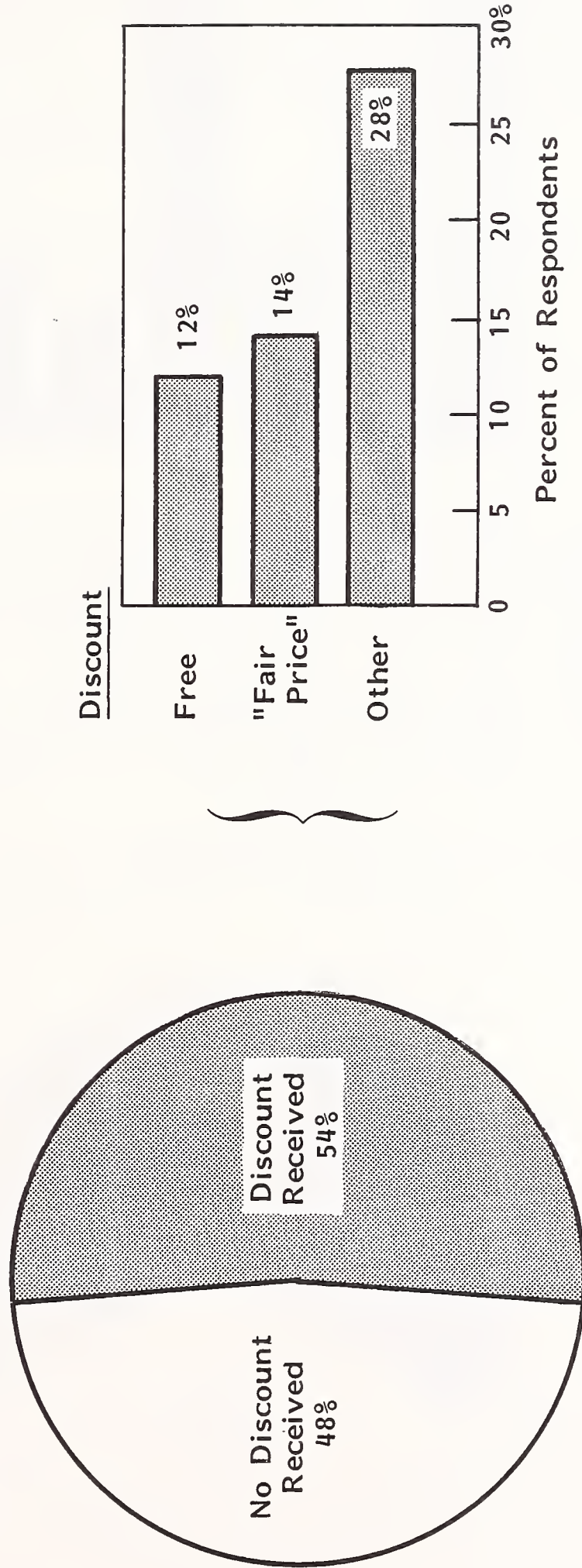
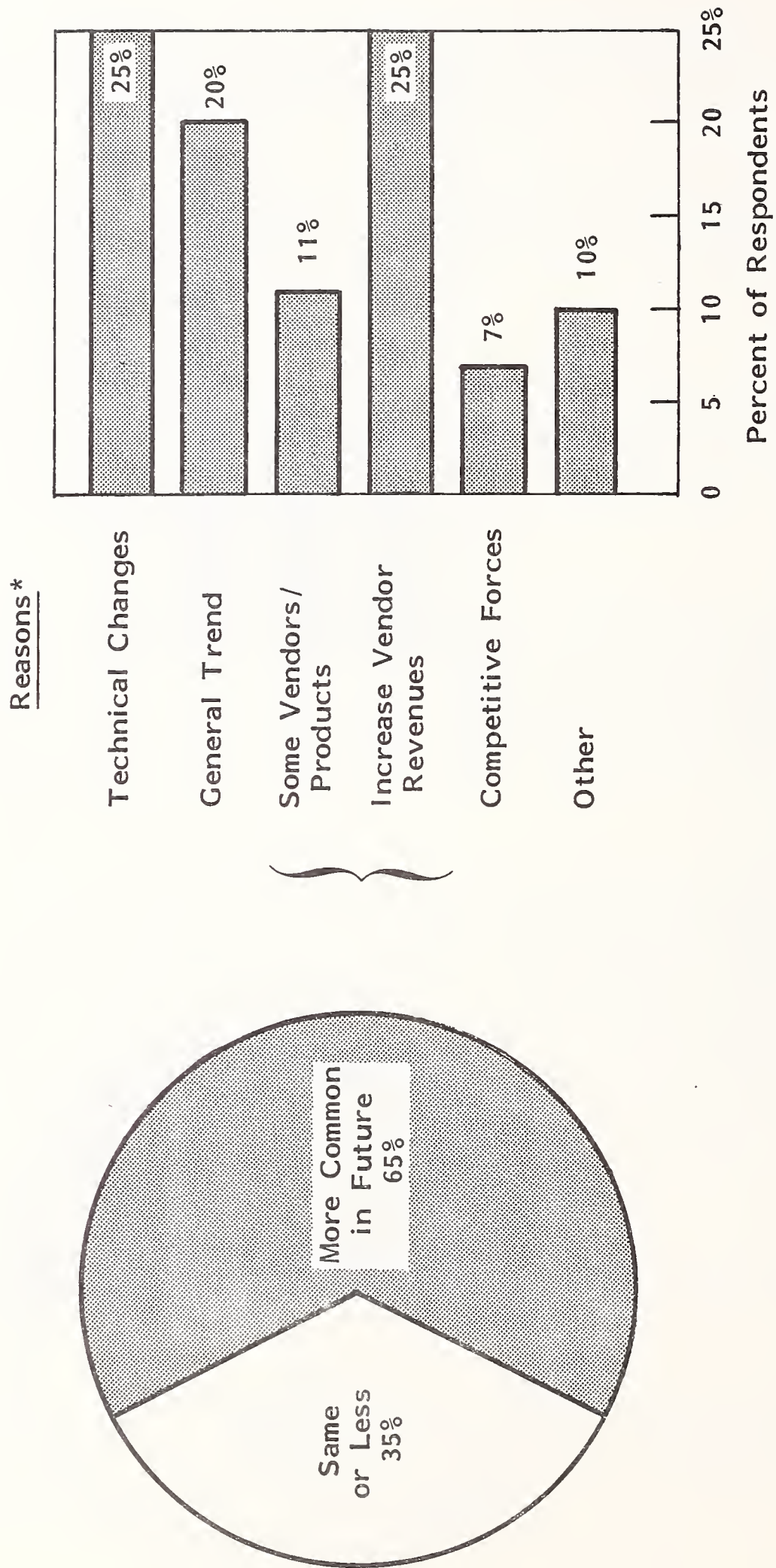




EXHIBIT IV-9  
 CUSTOMER EXPECTATIONS OF VENDORS REPLACING  
 RATHER THAN UPGRADING SOFTWARE PRODUCTS



Note: Total is more than 65% due to multiple responses.

\* Open-ended, coded question.

- Increased revenues are also given weight, but by only one quarter of respondents. Users clearly feel that vendors are not motivated entirely by the need to increase revenues, but rather that this is a byproduct of the changing market.
- INPUT sees replacement products as having considerable scope for revenue enhancement, given several key assumptions:
  - The replacement product delivers additional, needed functionality (the "needed" as a user perception is important).
  - The replacement product required nontrivial development resources. Otherwise, users believe they paid for a replacement, but received an enhancement.
  - Some, but not extensive, conversion is needed between the two products.
  - The technical transition is handled well. Communication is a key to this transition process.



V VENDOR-CUSTOMER RELATIONSHIPS





## V VENDOR-CUSTOMER RELATIONSHIPS

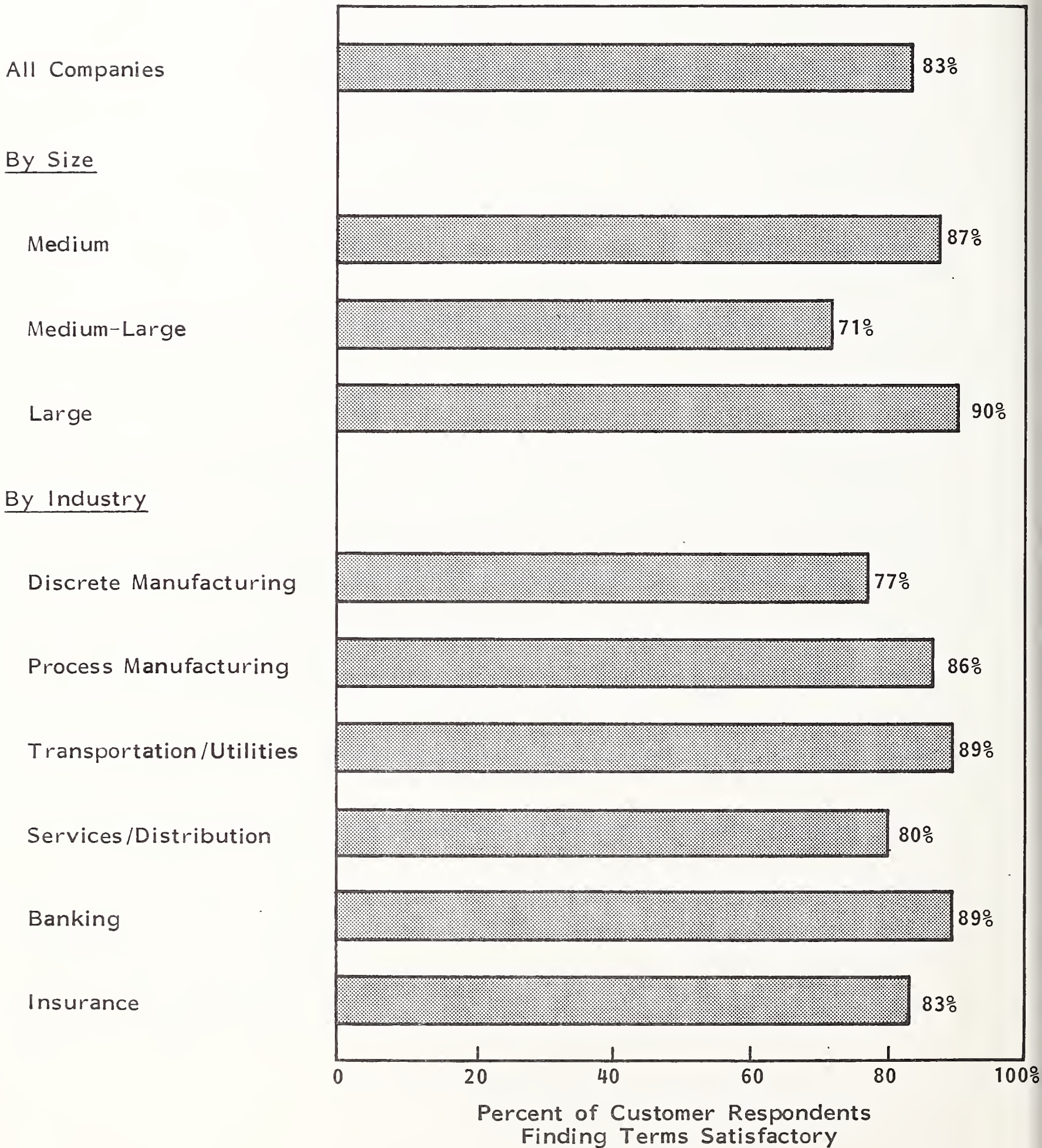
- This chapter examines two of the key areas concerning vendor-customer software support relationships:
  - Terms and conditions generally used by small-system vendors.
  - Customer tracking of terms and conditions.
- INPUT believes that the increase in customer tracking of support contract terms and conditions is significant because it is a symptom of future changes. The customer is becoming much more assertive and knowledgeable about market conditions and standards. As competition in the small-system software support market increases, customers will have the power to deal with the vendors on a more equal footing. In some cases, users will be able to obtain special leverage against vendors, particularly on older products with a large installed base.

### A. TERMS AND CONDITIONS

- As Exhibit V-1 demonstrates, customer satisfaction with contract terms does not vary a great deal either by size of the user's company or by industry category. Typically, large corporations are the most satisfied with contract terms and conditions because, as is shown below, these companies can exert the most influence on the software vendor.

EXHIBIT V-1

EXTENT CONTRACTUAL TERMS ARE SATISFACTORY,  
BY COMPANY SIZE AND INDUSTRY



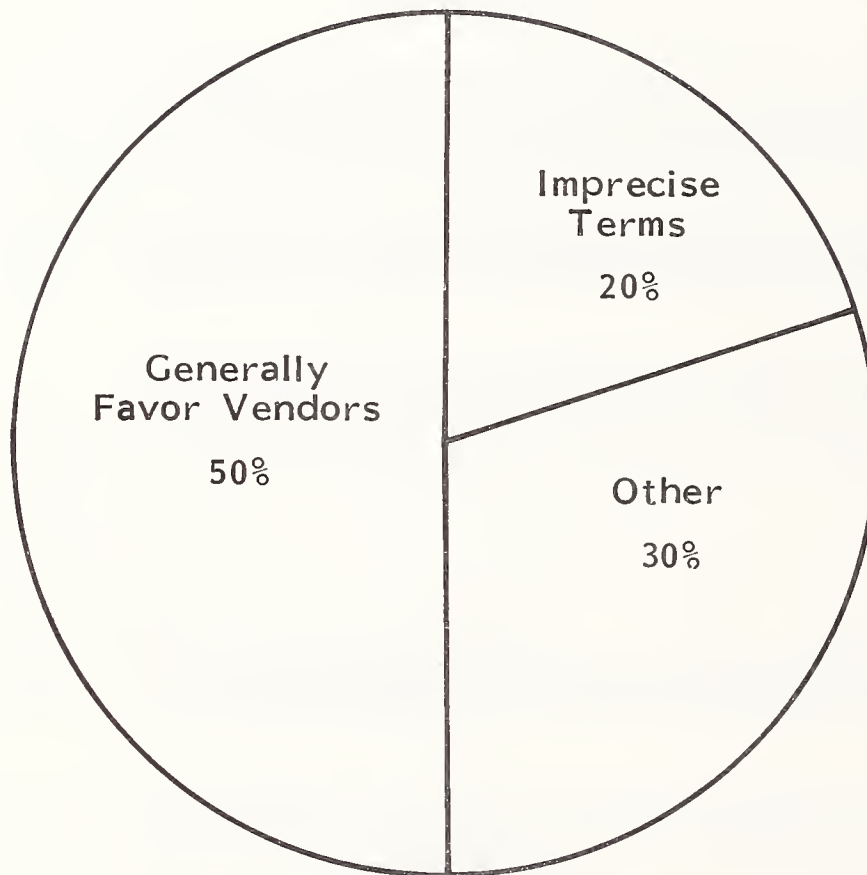


- Of the 17% of small-system users that were dissatisfied with contract terms, the majority indicated the basic problem was that the contracts generally favored the vendor, as shown in Exhibit V-2. The real surprise was:
  - Only 17% of the users said they were dissatisfied with contract terms.
  - Of those that were dissatisfied, very few reported support costs as a cause of their dissatisfaction.
- Medium-to-large companies (with revenues of \$1 billion to \$5 billion) were the most dissatisfied (29%), and large companies (over \$5 billion) were the least dissatisfied (10%). There was not a significant variation in dissatisfaction by industry.
- Exhibit V-3 lists the contract changes desired by small system users. Most of the changes mentioned by respondents related to improved software support; for example, more maintenance, improved quality, and guaranteed response/repair times. There was a certain amount of dissatisfaction with imprecise contract terms and a desire for tighter warranty coverage.
- Lower contract prices is the single most important change in contract terms, according to Exhibit V-3, and this appears to contradict earlier statements INPUT has made about service price insensitivity by users. However, the reader should remember that only 17% of all small-system users are dissatisfied, and of that 17%, only 22% are concerned about price. In reality, less than 4% of small-system users expressed dissatisfaction with software contract prices.
- Although only 17% of small-system users are dissatisfied with their support contracts, almost all users reported that they seek to modify the terms of the contract, usually with excellent results. Exhibit V-4 shows that a majority (56%) of users frequently attempt to modify contract terms, and 85% attempt modifications occasionally.



EXHIBIT V-2

PERCEIVED REASONS FOR  
UNSATISFACTORY CONTRACTUAL TERMS

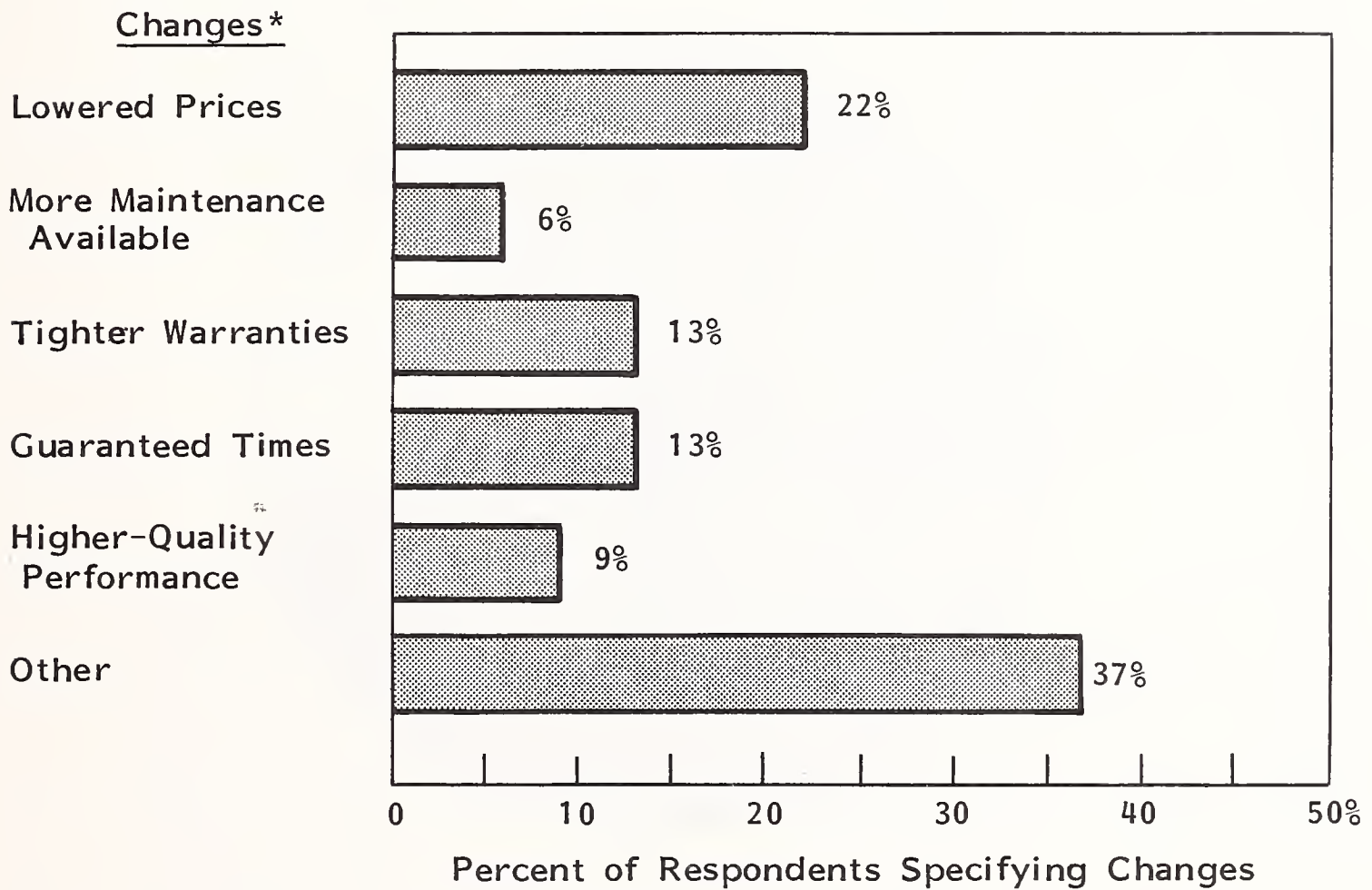


Percent of Customer Respondents  
Providing Reasons

Note: Open-ended, coded question

EXHIBIT V-3

DESIRED CHANGES BY CUSTOMERS IN CONTRACTUAL TERMS

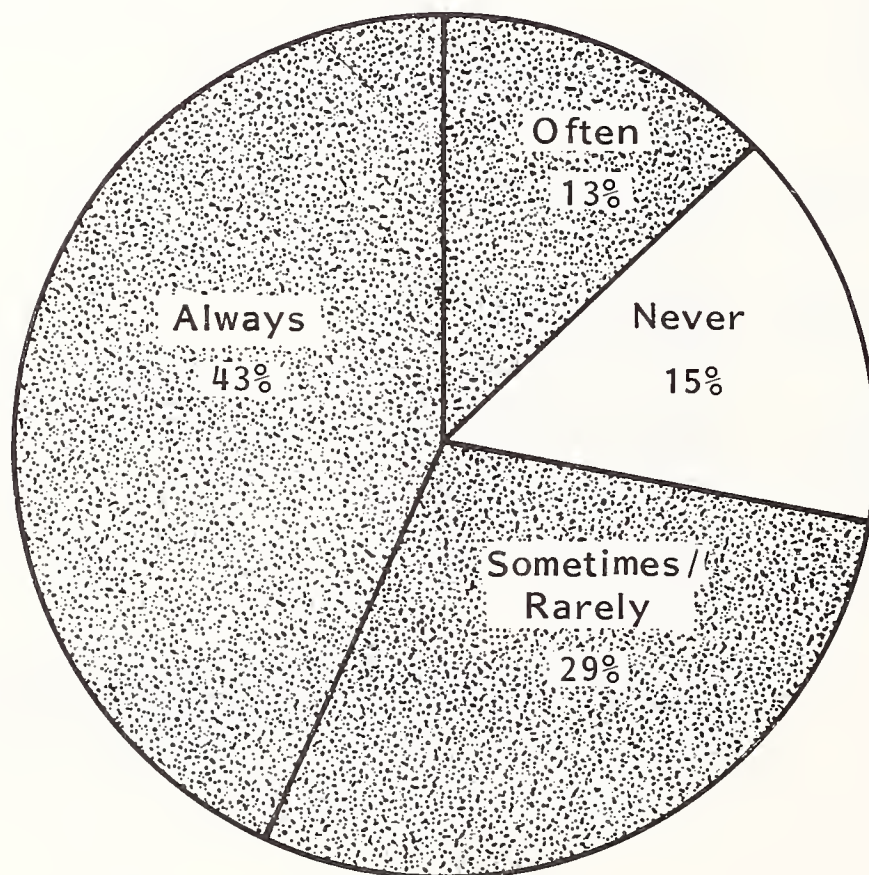


Note: May total more than 100% due to multiple responses.

\* Open-ended, responses coded.

EXHIBIT V-4

EXTENT TO WHICH CUSTOMERS SEEK TO  
MODIFY CONTRACTUAL TERMS



 Users that Attempt to Modify Contracts

- Almost all users occasionally try to modify contracts
- Service and insurance industries attempt the most frequent changes

- Characteristics of companies that always attempt to modify contract terms are displayed in Exhibit V-5. As the exhibit shows, modification of terms does not vary substantially by company size, but there are some large variations by industry:
  - The service/distribution industry has the highest percentage of customers that always attempt to modify contracts. It should be remembered that this industry has one of the lowest proportions of vendor supported software (61%) of all small-system users. Service/distribution users can effectively bargain over support with the software vendor because of the implied understanding that the users can perform their own support.
  - Transportation/utilities has the lowest proportion of users that always seek to modify contracts (17%). Conversely, these users are least likely to perform their own software support.
- As might be expected, there is a positive correlation between the amount of software support competition and user requirements for contract renegotiation. Support competition includes vendors as well as users. (The services industry, as noted above, is an excellent example of how user self-maintenance can have a substantial impact on vendor-supplied service.) Vendors wishing to enter or expand their share of this market must plan for this effect of competition, which INPUT predicts will increase dramatically in the next three to five years.
- Typically, when users attempt to modify contract terms, they select from the list shown in Exhibit V-6. As was shown in previous exhibits (and in Exhibit V-6 as well) the predominant goal among small-system users when they renegotiate contracts is to improve service. A small but growing percentage of users (8%) modify contracts in order to get software source code.



EXHIBIT V-5

CUSTOMERS THAT "ALWAYS" SEEK TO MODIFY CONTRACTUAL TERMS,  
BY COMPANY SIZE AND INDUSTRY

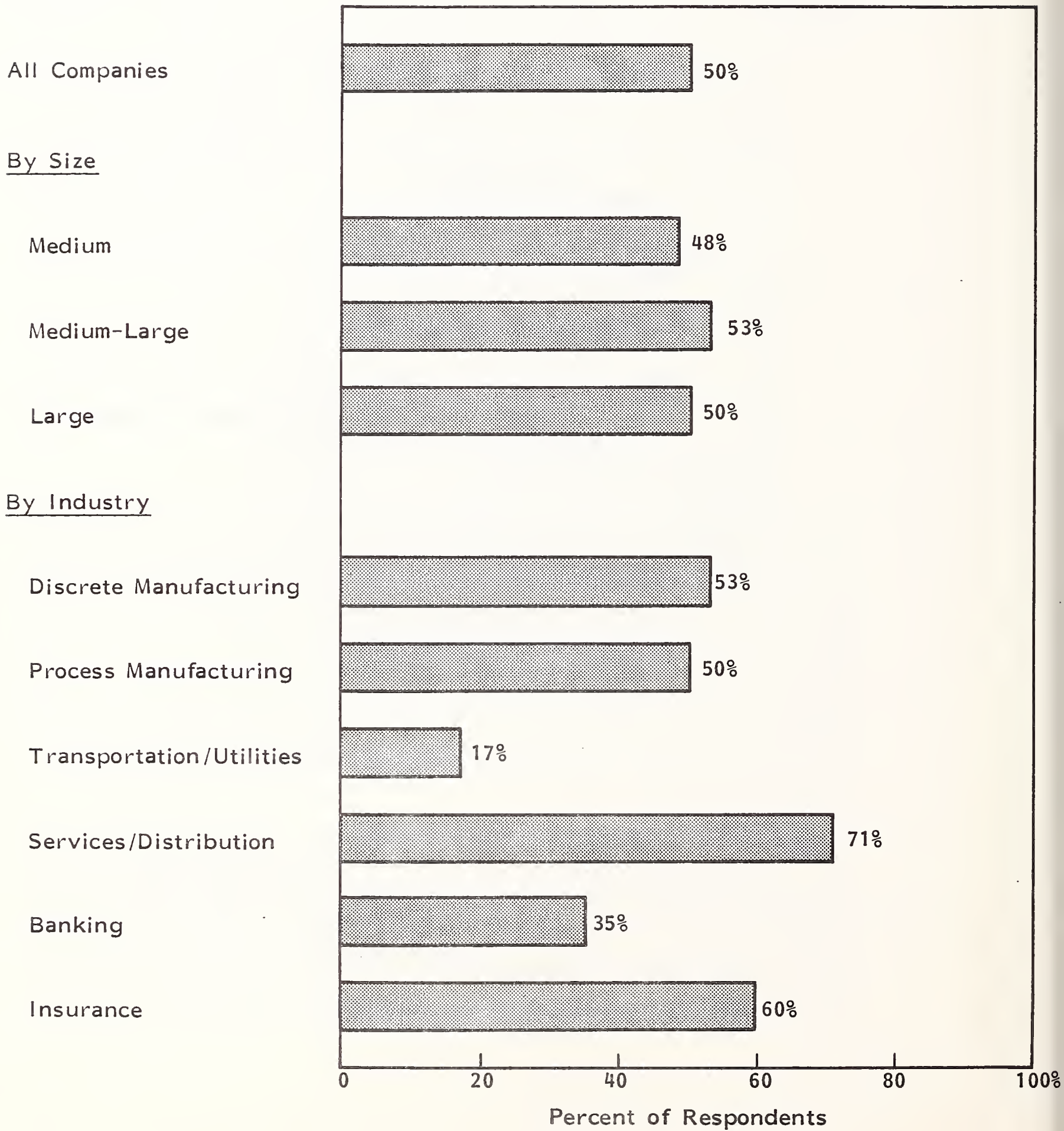
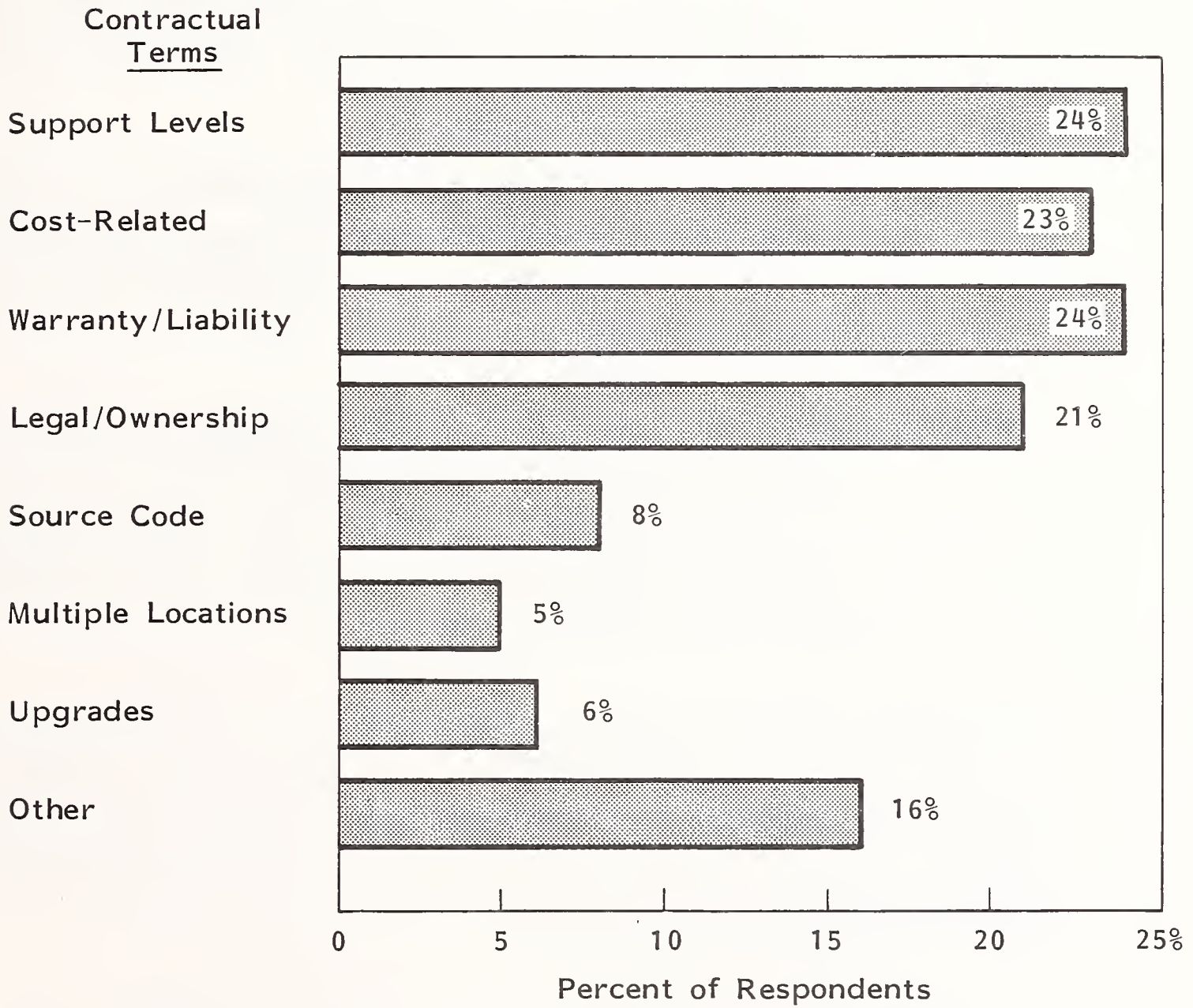


EXHIBIT V-6

CONTRACTUAL TERMS THAT CUSTOMERS TRY TO MODIFY

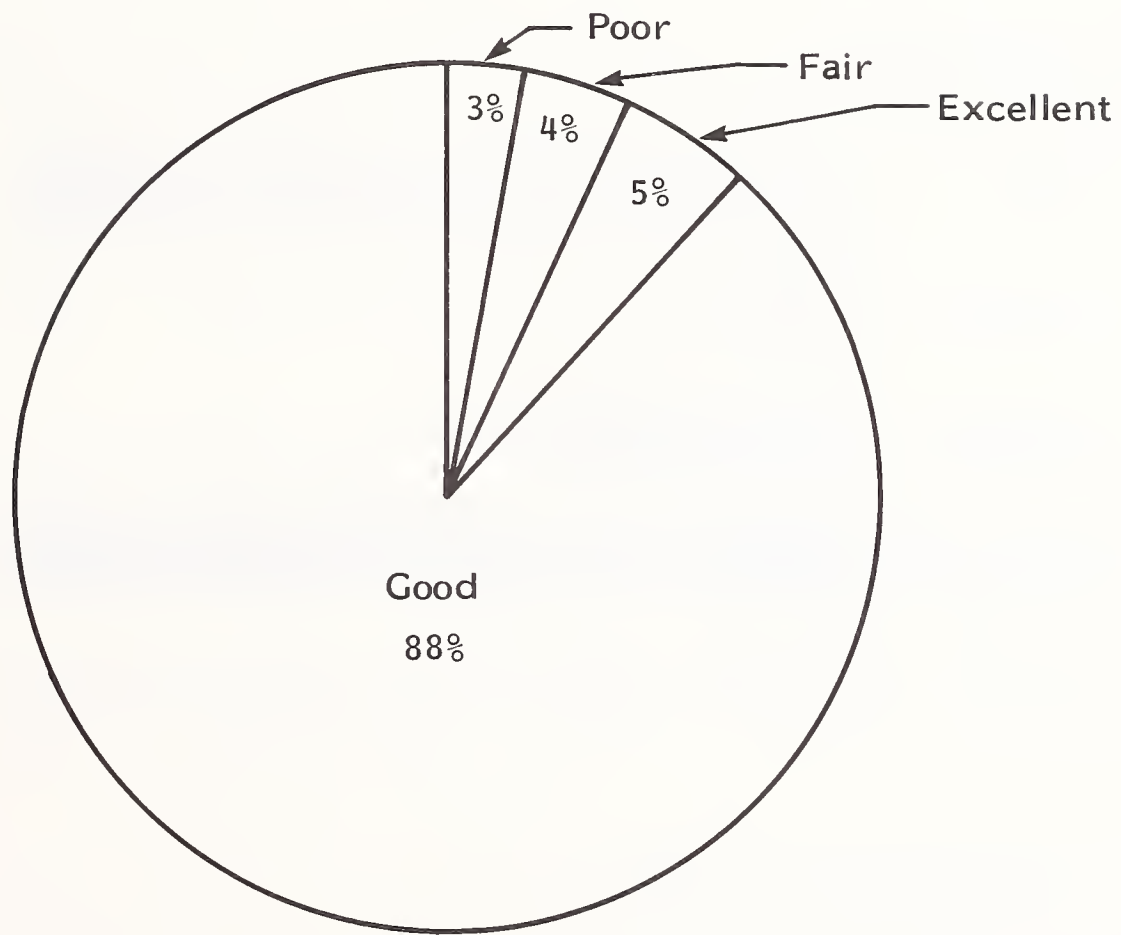


- INPUT expects user demand for source code to increase as user self-maintenance of software becomes more common. This increase will not be dramatic, but may be profitable to vendors that price their code according to user demand.
- Another reason INPUT anticipates a substantial growth in customer attempts to renegotiate contracts is the users' past success in contract modification. Exhibit V-7 demonstrates that over 90% of small-system users reported good or excellent success in modifying contractual terms. Only 3% said they had poor success in modifying contractual terms.
  - User success in modifying contract terms and conditions was consistent across different size and industry groupings, although it should be noted that many of the modifications involved extending services, thus increasing vendor service revenues.
    - Vendors are not likely to impede modification that leads to increased revenues, but they should be prepared to confront more determined customers in the future--customers requiring additional contract terms that will not be as easy to satisfy as today's requirements.
- One disturbing fact that vendors must address is the customer's perceived lack of understanding of contract changes planned by the vendor. Exhibit V-8 shows that 80% of small-system users have no understanding of planned changes in software products. This lack of information on the user's part can have several important consequences:
  - Prior consultation would probably result in a reduced number of changes in contract terms and conditions as the vendor and user cooperate in the development of realistic use requirements and vendor modification schedules.



EXHIBIT V-7

CUSTOMER SUCCESS IN  
MODIFYING CONTRACTUAL TERMS

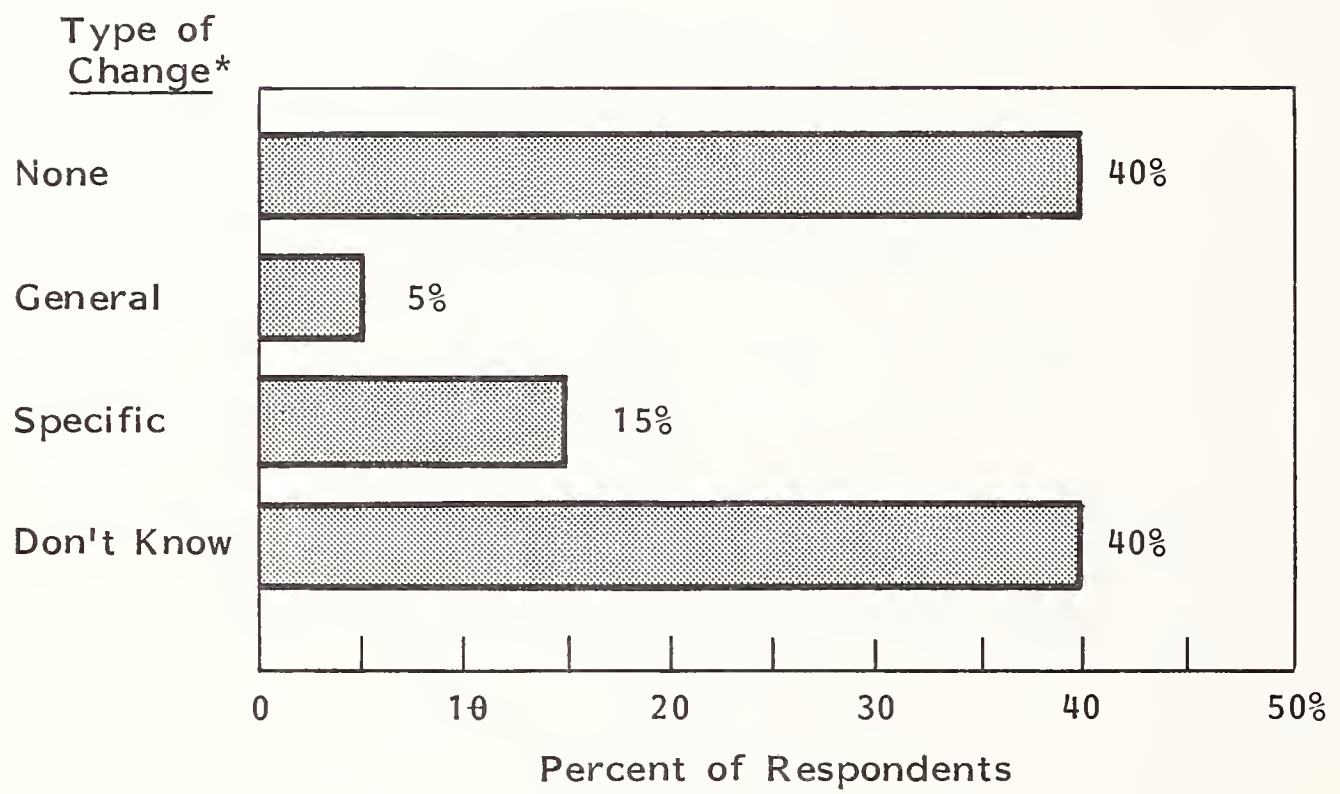


Percent of Customers



EXHIBIT V-8

CUSTOMER PERCEPTIONS OF  
CONTRACTUAL CHANGES PLANNED BY VENDORS



\* Open-Ended Question Coded

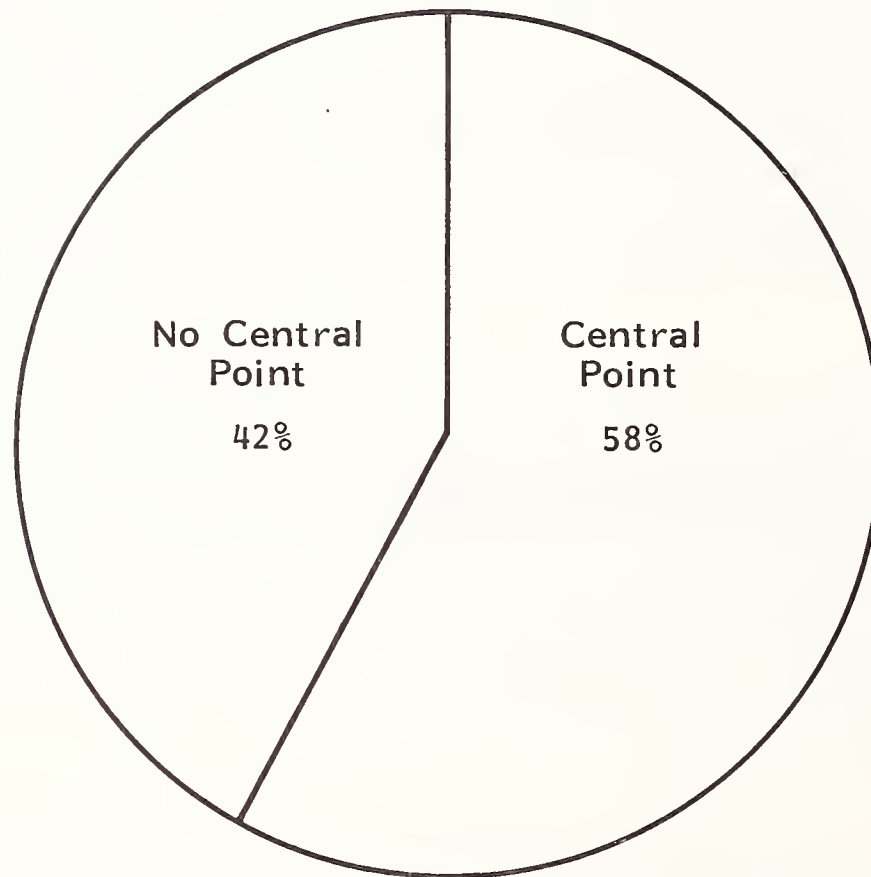
- Users typically feel that software service is very poor due to the fact that minor (and sometimes major) problems are "lost" in the vendor's software service group. The user has no idea when, as if, a fix will be forthcoming. Prior consultation could result in a specific schedule of fixes and contribute substantially to a higher level of user satisfaction with software support.
- Up to 40% of small-system users believing that the software vendor is planning no changes and this misperception could expose the vendor's installed base to aggressive competition in support and new products.

## B. CUSTOMERS' TRACKING OF TERMS AND CONDITIONS

- A high percentage of small-system users reported that they have a central point for tracking contract terms, as shown in Exhibit V-9. This is consistent with earlier exhibits that demonstrate the importance small-system users place on software support. Interestingly, a greater percentage of small-system users (58%) say they need a central tracking point than large system users (55%).
- Exhibit V-10 illustrates that central tracking is now employed by a majority of small-system users in all size and industry categories except the services/distribution industry. It is significant that central tracking is growing faster in smaller companies--i.e., those with less than \$5 billion in annual revenues. Vendors can expect a much more demanding user base as these smaller companies become more sophisticated in tracking license features and support.
- Users are employing central tracking for a number of benefits, as is shown in Exhibit V-11. By far the most common benefit perceived by the users of central tracking is cost control. This refers primarily to internal cost control

EXHIBIT V-9

CENTRAL CUSTOMER POINT FOR  
TRACKING CONTRACTUAL TERMS



Percent of Customer Respondents



EXHIBIT V-10

CENTRAL CUSTOMER POINT FOR TRACKING CONTRACTUAL TERMS,  
BY INDUSTRY AND COMPANY SIZE

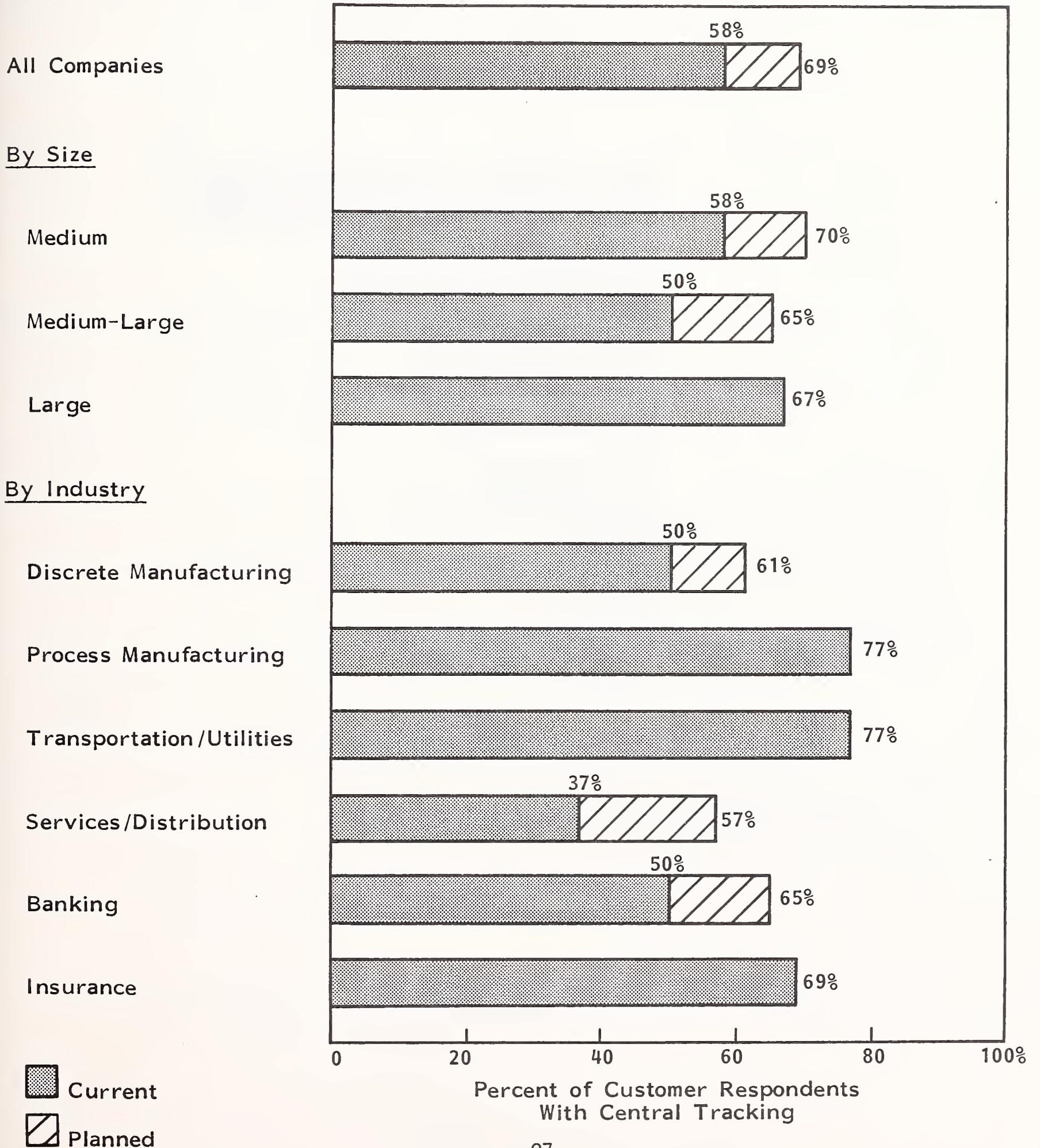
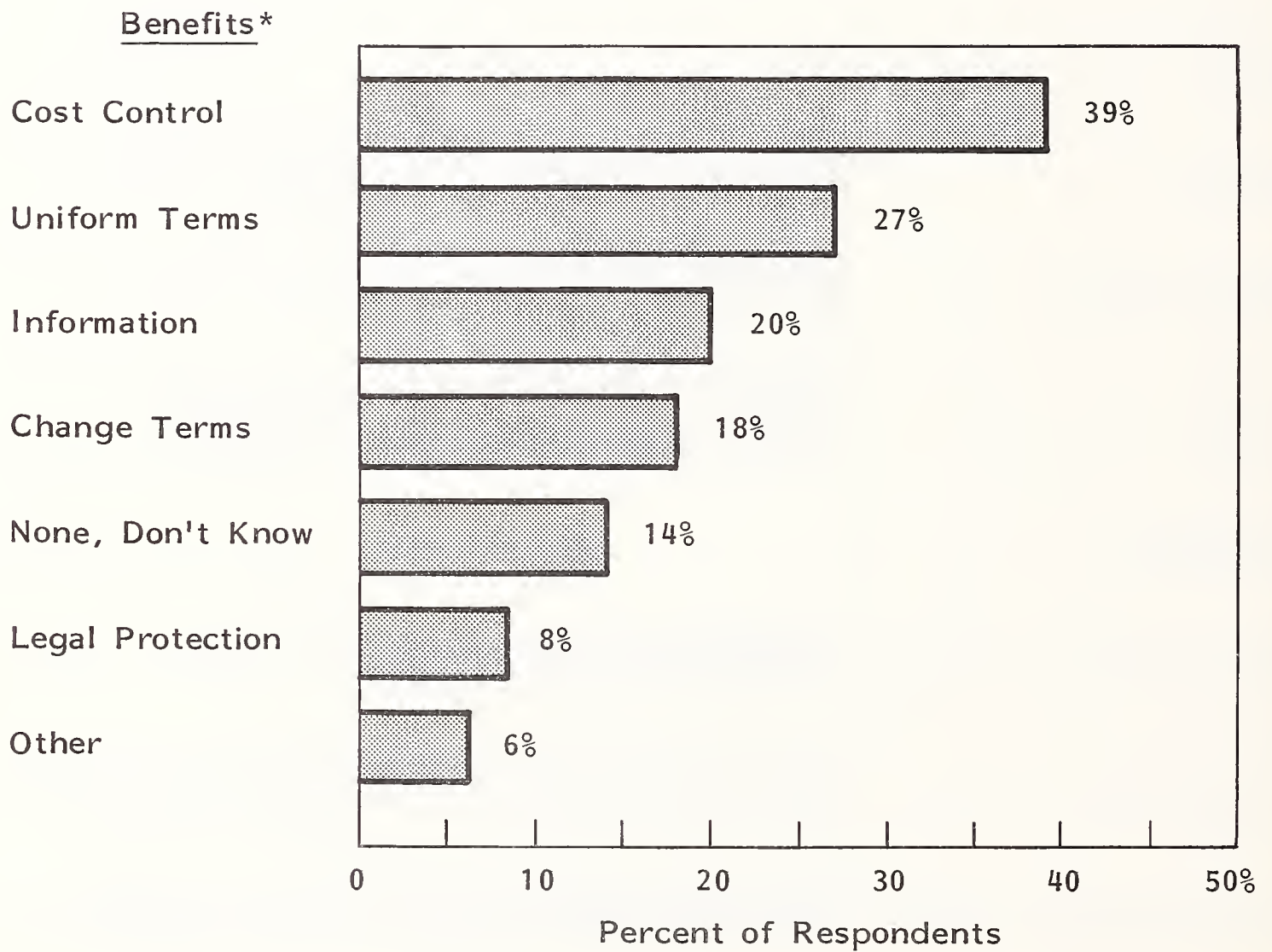




EXHIBIT V-11

BENEFITS TO CUSTOMER FROM CENTRAL TRACKING OF CONTRACTUAL TERMS,  
AS PERCEIVED BY CUSTOMERS



\* Open-Ended, question coded.

(e.g., elimination of duplicate support, improved communication) rather than to reduced costs from the vendor. Some vendors, however, do offer discounts in order to compensate their users for the maintenance of a central site for support coordination.

- Another important reason for central tracking of support contracts is that it helps the user to negotiate uniform terms, which are usually beneficial to the user. This benefit is particularly important to large companies (over \$5 billion annual revenue) that maintain distributed networks of small systems. A central tracking and billing site provides the user with increased leverage in evaluating support contracts.
- The ability to change specific terms or extend the customer's legal rights is valued by about 26% of small-system users. INPUT expects this percentage to grow, particularly as smaller users begin to assert themselves by demanding improved software support.
- Central tracking of contractual terms has been a common practice among small-system users for a number of years, as is shown in Exhibit V-12. Transportation companies have the highest proportions of software under contracts, and users in this industry report application of central tracking, on average, since the late 1970. The average time central tracking has been in use for all companies is five years, indicating a high level of experience with contractual tracking.
- Vendors must appreciate that as small-system user sophistication in tracking support grows, so will their understanding of and requirements for service. Exhibit V-13 suggests that as companies grow, they increasingly realize the benefits of central tracking. Many smaller companies track terms without fully appreciating the benefits.
- While this is not a significant problem today, vendors should seize the opportunity to improve user satisfaction by emphasizing the benefits of central

EXHIBIT V-12

CENTRAL TRACKING OF CONTRACTUAL TERMS - AVERAGE  
TIME ALREADY IN USE, BY COMPANY SIZE AND INDUSTRY

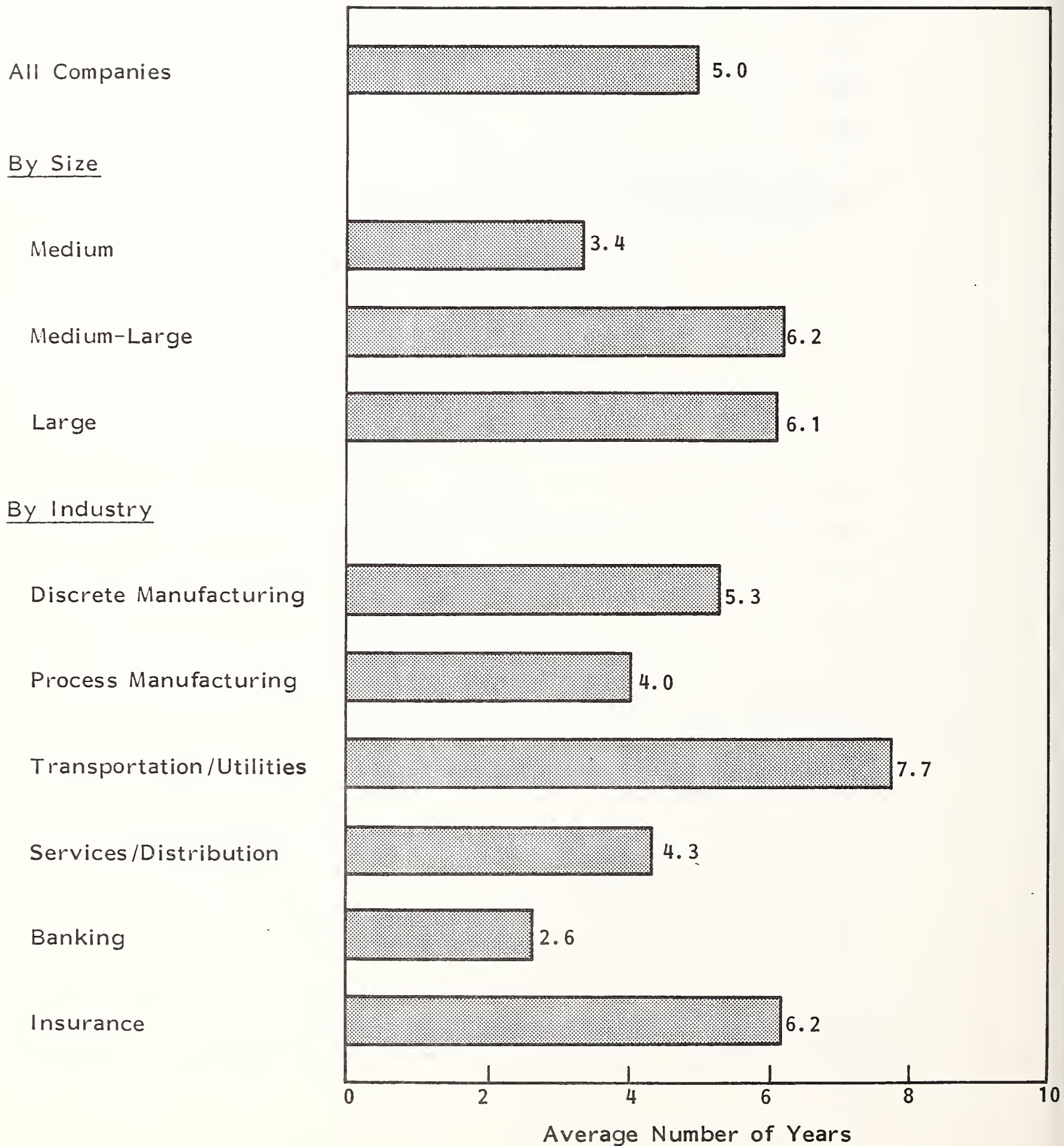
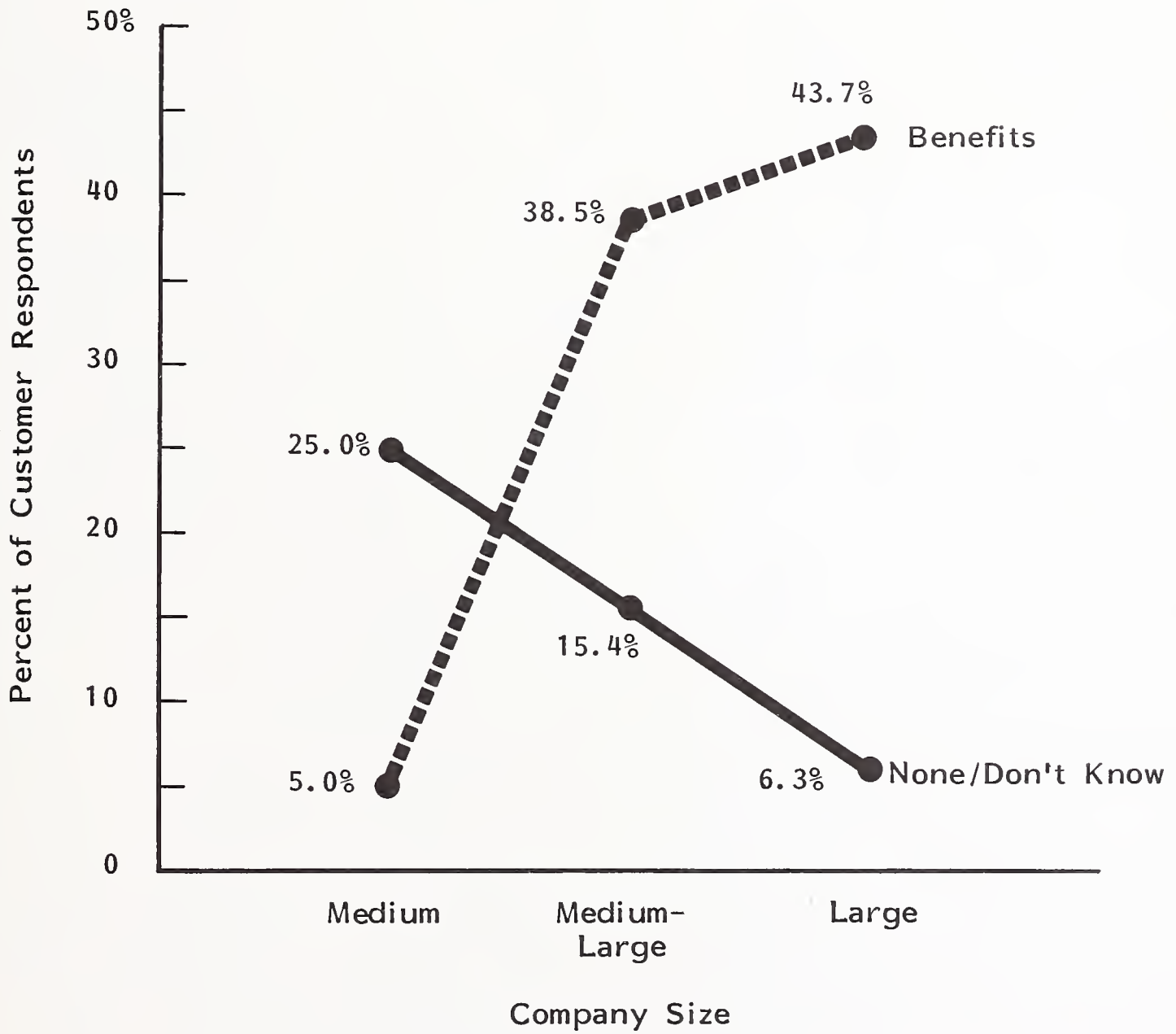




EXHIBIT V-13

SELECTED BENEFITS TO CUSTOMERS FROM  
CENTRAL TRACKING OF CONTRACTUAL TERMS -  
BY COMPANY SIZE





tracking, such as cost containment and the development of uniform terms. By taking this defensive step, vendors will protect their user base and leverage their market much more successfully.

VI SUPPORT ISSUES



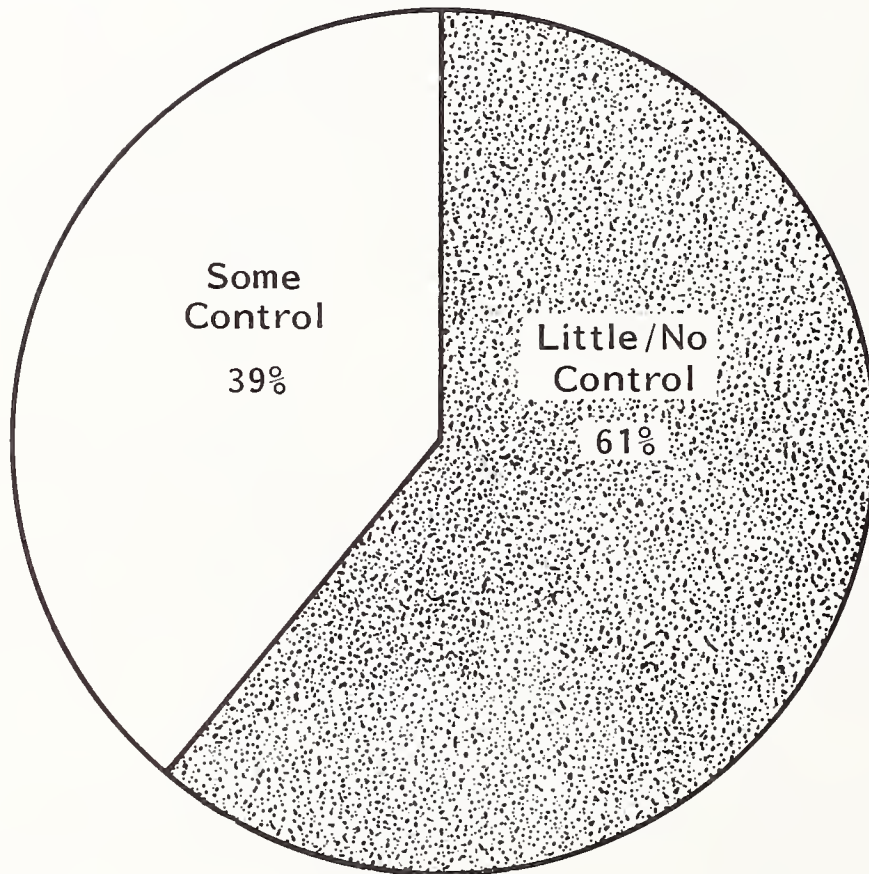
## VI SUPPORT ISSUES

- This chapter discusses the larger issues raised in the course of the research. Specifically, these issues relate to general service trends identified by the small-system respondents who participated in the survey. (INPUT's findings and recommendations have been made in the course of the report and are highlighted in Chapter II.)
- Six out of ten of the companies interviewed feel they have little or no control over software support provided by vendors, as shown in Exhibit VI-1. This is consistent with earlier findings that showed that firms have little knowledge of what changes vendors were planning, and that customers were being offered far fewer incentives than they desired.
- The significance of such a high percentage of users that feel they have no control over software support should not be lost on vendors. Users frequently expressed the belief that their service requests, particularly for minor problems, went unfulfilled for unreasonable amounts of time. In reaction to questions about response time, a number of frustrated users answered "I'm still waiting--it's been months."
  - INPUT believes that this user frustration translates directly into dissatisfaction and ultimately to an erosion of the user base. Vendors must correct the perception by customers that the customers have no control over software support, in order to reverse this trend of dissatisfaction.



EXHIBIT VI-1

CUSTOMERS' PERCEIVED CONTROL  
OVER SOFTWARE SUPPORT



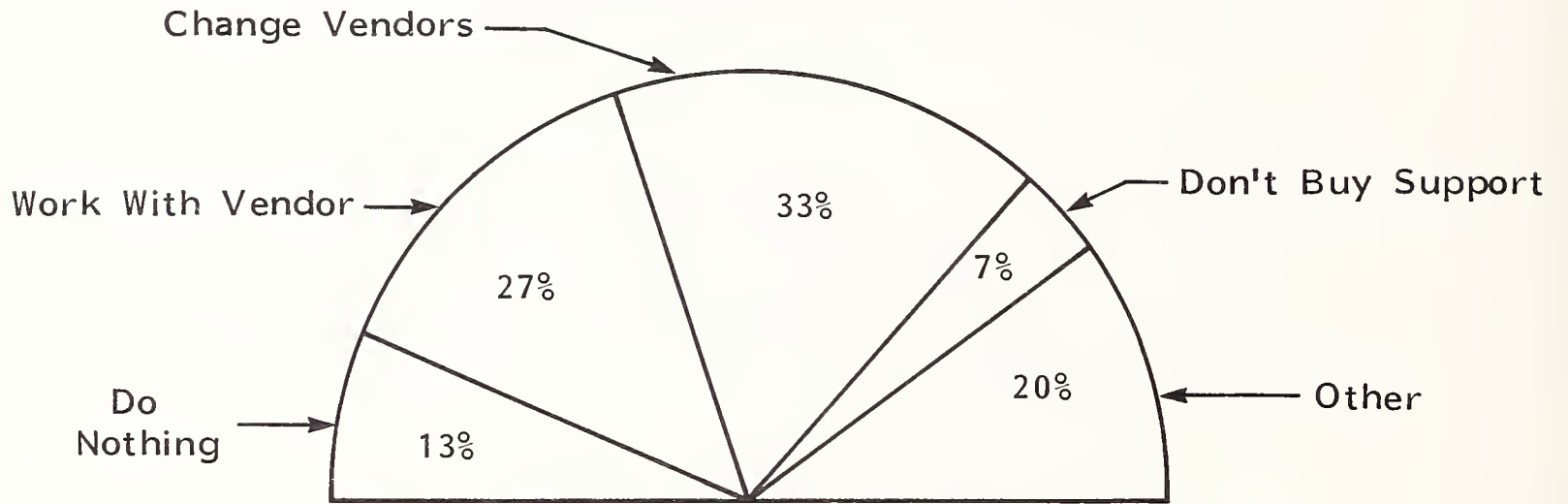
Percent of Customer Respondents

- As a result of a perceived lack of control over software support, almost two-thirds of small-system customers said that, in principle, they would work with or change vendors, but only about half that number actually do so, as shown in Exhibit VI-2. The exhibit demonstrates that in reality, users are forced to depend on "other" support options (e.g., user self-maintenance) twice as often as they should--at least in theory.
- The primary reason users must depend on "other" support is their inability to work with their current vendor or to change vendors. The users are indicating that in the best of all possible worlds, they would be much less loyal to any one support vendor, and 33% of the time would prefer to change vendors in order to influence support.
- Respondents were asked to volunteer the issues that they saw as being important support issues; these were then classified into major categories, as shown in Exhibit VI-3. Quality emerged clearly as the single most important support issue, cited in a variety of ways by almost all small-system respondents.
- Costs and pricing were volunteered by a very small proportion of respondents. Since this question was raised after respondents had been made sensitive to cost issues, INPUT believes that this is a significant omission, and one that presents opportunities to product planners.
- It is interesting to contrast the issues of importance to customers, as shown in Exhibit VI-3, with the changes that customers see occurring, as shown in Exhibit VI-4:
  - A sizable group simply doesn't know what will be happening; in contrast, virtually all customers have views on what they consider to be important.

EXHIBIT VI-2

THEORETICAL AND ACTUAL STEPS TO INFLUENCE  
VENDOR SOFTWARE SUPPORT AS REPORTED BY CUSTOMER  
(Percent of Customer Respondents)

THEORETICAL STEPS



ACTUAL STEPS

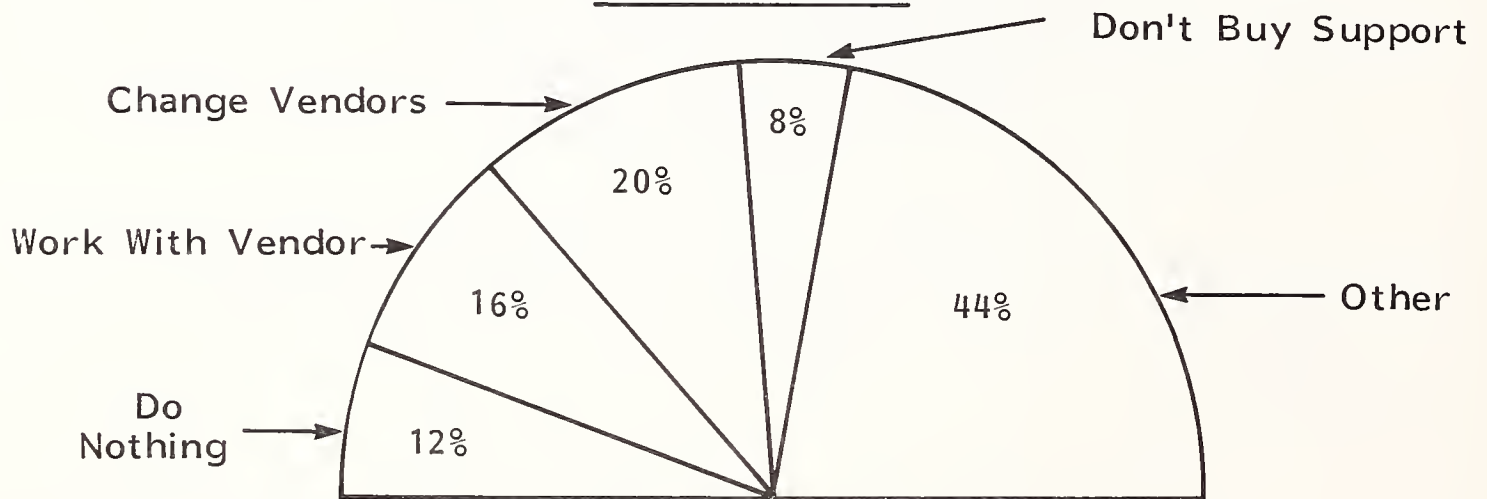
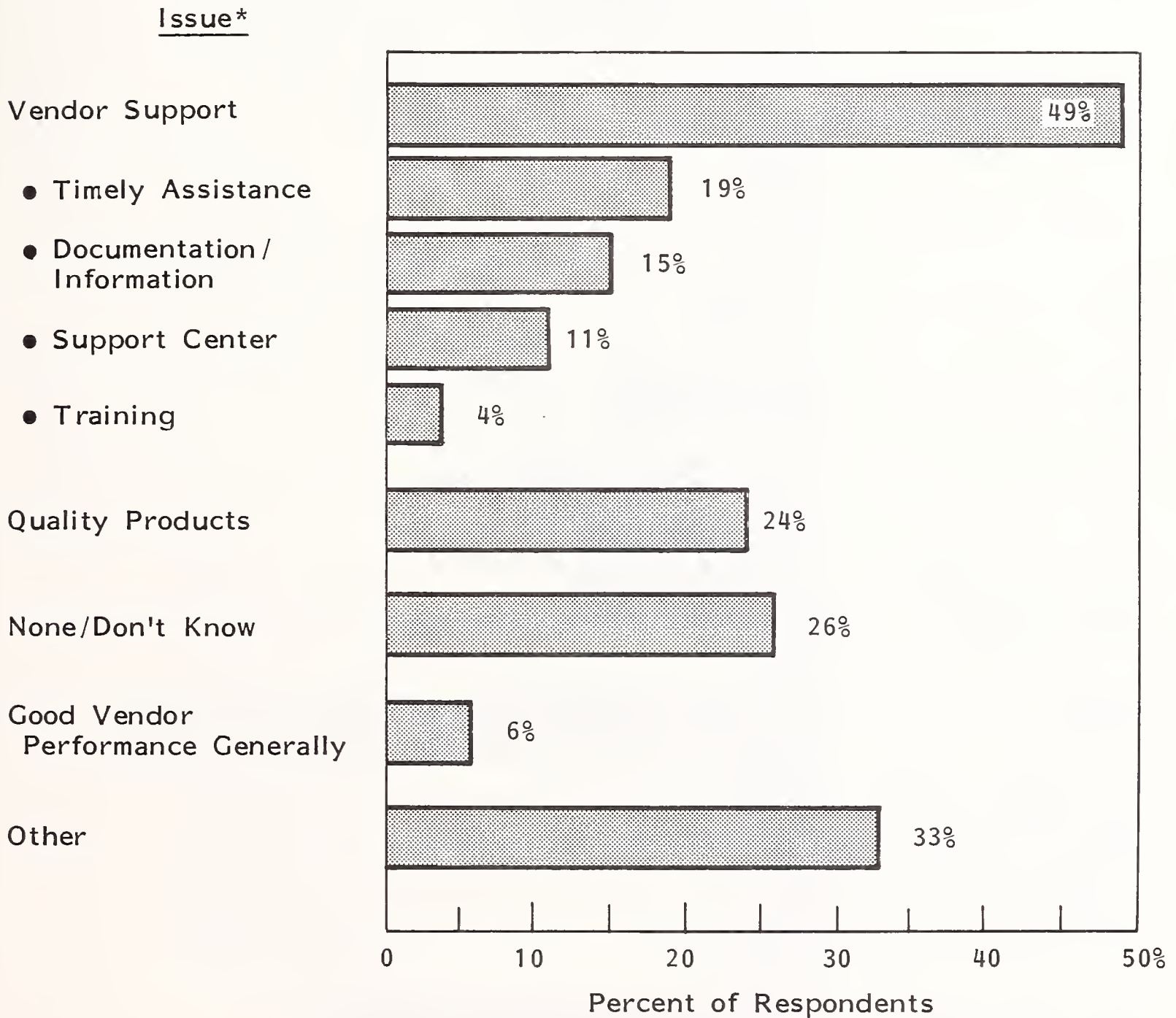


EXHIBIT VI-3

IMPORTANT SOFTWARE SUPPORT ISSUES TO CUSTOMERS



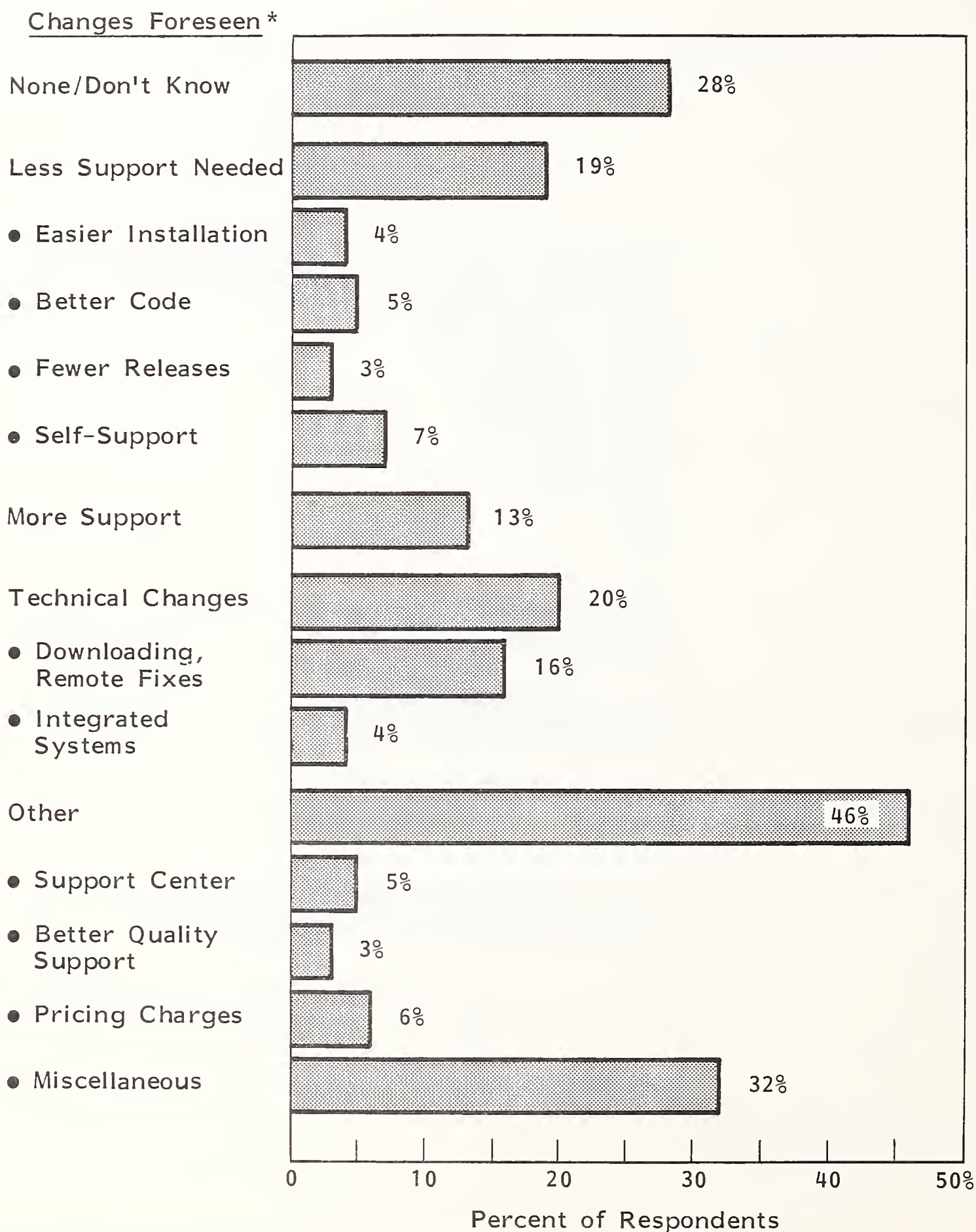
Note: May total more than 100% due to multiple responses.

\* Open-Ended Question Coded.



EXHIBIT VI-4

CHANGES FORESEEN BY CUSTOMERS IN SOFTWARE SUPPORT



Note: May total more than 100% due to multiple responses.

\* Open-Ended, Responses Coded.

- Nineteen percent of small-system users see less support needed (as opposed to less support being offered). This group will tend also to see less reason to pay at existing pricing levels unless vendor support improves. Note, though, that only 3% of customers spontaneously assert that support quality will be improving.
- Small-system users clearly expect a significant increase in the amount of self-support made available to and required of them. In addition, almost one-fifth of the users indicated that technical changes, particularly in the increased use of electronic support, were expected.
- On balance, it is obvious that user requirements for software support are expected to keep growing. In a sense, user expectations regarding service are ahead of the current vendor support strategies. Users are willing to pay additional premiums, but they require improved support--and vendors are perceived by users as being unresponsive. This is caused mainly by the vendors' dominance of the software support market, and the resulting feeling of helplessness by users.
- Vendors can and must overcome user perceptions of inadequate service. The potential benefits for correcting these perceptions are increased user satisfaction with support; growth in the use of high-profit, extended services; and, ultimately, increased software support profitability. For those vendors that choose not to address user concerns about small-system software support, the long-term picture does not look good. User requirements for software service will grow dramatically and, as dissatisfaction increases, users will be more susceptible to competitive software vendors, and the installed base will be adversely affected.



## APPENDIX A: RESPONDENT CHARACTERISTICS





## APPENDIX A

### RESPONDENT CHARACTERISTICS

All Companies	106
<u>By Size*</u>	
Medium (Under \$1 Billion)	42
Medium-Large (\$1-5 Billion)	33
Large (Over \$5 Billion)	31
<u>By Industry</u>	
Discrete Manufacturing	24
Process Manufacturing	22
Transportation/Utilities	9
Services/Distribution	20
Banking	18
Insurance	13

\* Industrial companies; analogous sizing for non-industrials



**APPENDIX B: REPRESENTATIVE RESPONDENT TITLES**





## APPENDIX B: REPRESENTATIVE RESPONDENT TITLES

- Manager, Information Technology.
- Manager, Technical Center.
- Systems Manager.
- Director, Software Services.
- Director, Systems Planning.
- Director, Administration.
- Technical Support Manager.
- Assistant Vice President.
- Director, Corporate IS.
- DP Manager.
- Director, MIS.
- Planning Analyst.

- Technical Specialist.
- Senior Support Systems Analyst.
- Corporate Vice President.
- Manager, Systems and Programming.
- Director, Information Center.

APPENDIX C: SOFTWARE SUPPORT CORPORATE  
QUESTIONNAIRE





**SOFTWARE SUPPORT  
CORPORATE QUESTIONNAIRE**

**Introduction:**

INPUT is a research and consulting firm. We are conducting a study on issues and trends in packaged software support and maintenance from the corporate customer's standpoint. We will make recommendations on how corporations can best deal with these issues in the coming years. We would like your organization to take part in this study by describing what you are doing now, what your plans are, and what problems you see. This information will be used by IS departments in their planning and will also be used by a wide variety of information service vendors to offer more useful products and services.

None of the information that you provide will be associated with your company. In return for your taking part in this study, we will send you a summary of the study on its completion and will also send you a summary of INPUT's report PC Software Support in Large Corporations.

1. a) Are you responsible for all significant packaged software support matters in your organization?

Yes     No

If No to 1.a)

b) Are you knowledgeable about all significant packaged software support matters in your organization?

Yes     No

If No to 1.b)

Which of the following are you Responsible for or Knowledgeable about:  
(Note with "R" or "K")

	Operating System(s)	Other Systems Software	Application Software
Mainframe			
Minicomputer Software			
Microcomputer Software			

(NOTE: get names of other people to complete the matrix).

For the rest of this interview I would like to discuss with you your support requirements for \_\_\_\_\_ software. (If respondent is responsible for one area select that; if responsible/knowledgeable in more than one, follow instructions.)

2. Who are the suppliers of your major software packages, categorized by software type (operating systems, other systems software, and applications software) and hardware type? (Use following matrix.)

**Software Suppliers**

Software Type			
	Operating System(s)	Other Systems Software	Application Software
Hardware Type			
Mainframe			
Minicomputer - IBM Sys 38, - Series 1, - 8100			
DEC Minicomputer			
Prime Minicomputer			
Data General Minicomputer			
Other Mini _____			
Office/PC - IBM PC Family - Other			

3. a) Using these same categories, about how much did you spend in 1983 on:
- Software licenses, fees, lease or rental payments, etc? \$ \_\_\_\_\_
  - Software support or maintenance fees, either in dollars or as a percent of License fees? \$ \_\_\_\_\_  
\_\_\_\_\_ % of license fees.

b) For what percent of your software is support included in the license fee? \_\_\_\_\_ %

c) What percentage of your software is not supported by the vendor? \_\_\_\_\_ %

d) Overall, how much do you expect these to change in 1984 and 1985? (\$ or percent change)

Changes in:

	Total License Fees	Total Support Fees
1984		
1985		

e) If any of the changes in 3d were significant (i.e., 10% or more):

- What is the reason for this? \_\_\_\_\_  
\_\_\_\_\_

Do you expect this amount of change to continue? \_\_\_\_\_  
\_\_\_\_\_



4. a) I will read a list of functions or services that are sometimes or usually included as part of standard software support services. Please tell me how important each is to your organization generally and whether there are exceptions, depending on the type of package. Please be specific about the exception (e.g., from a particular vendor, for a particular application, at a particular location, for a particular type of machine). Please rate them in importance on a scale of 1 to 5, with 1 being low importance and 5 representing high importance.

**SOFTWARE SUPPORT FUNCTIONS  
IMPORTANCE**

Functions	Generally	Exceptions
Fix Errors		
Improve Features of Functionality		
Add Features or Functionality		
Extend Features or Functionality		
Training		
Consulting		
Other (Describe) _____		

4. b) How well have your software vendors generally met these support requirements? Have certain vendors performed much better or worse? (Note: Specific vendor names are preferred, but generic descriptions are acceptable; please rate your satisfaction by the same functional areas (on a scale of 1 to 5).

Satisfaction with Software Support

Functions	Generally	Exceptions
Fix Errors		
Improve Features or Functionality		
Add Features or Functionality		
Extend Features or Functionality		
Training		
Consulting		
Other (describe) _____		

5. a) What kinds of services do your software vendors offer in addition to those contained in the standard support contract (e.g., additional training, consulting)? How extensive are they?

---



---

5. b) About how much do you spend annually on these additional services?

\$ \_\_\_\_\_

c) What additional services do you expect to purchase from your packaged software vendors?

● When: \_\_\_\_\_

\_\_\_\_\_

● Why?: \_\_\_\_\_

\_\_\_\_\_

● How would this translate into dollars? \$ \_\_\_\_\_

6. a) Have you experienced situations recently where a software vendor has brought out a new product rather than enhancing or modifying an existing product?

Yes     No

● If Yes:

- Which product(s) was it? \_\_\_\_\_

- Do you feel this was justified?  Yes     No

Explain: \_\_\_\_\_

\_\_\_\_\_

- Did licensees of the old product receive a discount on the new product?  Yes     No

If Yes, how much was it and was it fair in your opinion?

\_\_\_\_\_

\_\_\_\_\_

- Overall, do you feel the vendor(s) handled the situation well from your standpoint?  Yes     No

Why? \_\_\_\_\_

\_\_\_\_\_

6. b) Do you think that bringing out new products in this way will be a more common situation in the future?

Yes     No

Why? \_\_\_\_\_  
\_\_\_\_\_

If yes, will this be common for:

Mainframe Software

Mini Software

Micro Software

7. a) Does your organization keep logs or other records of major and minor bugs or other problems in packaged software?

Yes     No

● If Yes:

- How many major and minor problems are reported annually for operating systems software, other systems software and application software packages? How many are resolved? What is the average time to resolve these problems? (Use attached matrix.)



7. a) Problem Reporting or Resolution

Problems	Package Type		
	Operating System(s)	Other Systems Software	Application Software
<u>Major</u>			
Number Reported			
Number Resolved			
Average Time to Resolve			
<u>Minor</u>			
Number Reported			
Number Resolved			
Average Time to Resolve			

7. b) Overall, is this problem resolution performance satisfactory?

Yes  No

If No:

How should it be improved? \_\_\_\_\_

To what extent do you expect it to be improved? \_\_\_\_\_

7. c) How much do you expect automatic downloading and installation of new releases, remote diagnostics, and remote fixes to improve problem resolution and other services? Are these being done now at your installation? If so, what is your experience?

	Being Done Now (Yes/No)	Expected Improvements	Experience
Automatic Downloading and Installation of New Releases			
Remote Diagnostics			

8. a) Is there one person in your company who tracks and analyzes software support contractual terms and conditions for all software products?

Yes  No

• If Yes:

- How long has this been done? \_\_\_\_\_

- How many products are covered? \_\_\_\_\_

- What benefits has your company received? \_\_\_\_\_

• If No:

• Do you plan to?  Yes  No

8. b) Do you feel that current contractual terms and conditions applying to software support and maintenance are satisfactory?

Yes  No

Why: \_\_\_\_\_  
 \_\_\_\_\_

- What sort of changes would you like? \_\_\_\_\_  
 \_\_\_\_\_

- What kind of changes do you believe vendors are planning?  
 \_\_\_\_\_  
 \_\_\_\_\_

c) Does your firm ever seek to modify standard terms and conditions concerning software support?

Yes  No

Why? \_\_\_\_\_  
 \_\_\_\_\_

If Yes:

- How often is this attempted? \_\_\_\_\_  
 \_\_\_\_\_

- What terms do you try to modify? \_\_\_\_\_  
 \_\_\_\_\_

- What success have you had? \_\_\_\_\_  
 \_\_\_\_\_

9. To what extent do you feel you have little or no choice in the type or amount of software support you will be receiving?

---

---

---

● What can you do about this? \_\_\_\_\_

---

● What are you going to do about it? \_\_\_\_\_

---

10. a) How much and what kind of self-support of packaged software is your organization currently doing?

---

---

Why? \_\_\_\_\_

---



10. b) Do you usually, sometimes, or never perform the following types of self-support? What are your future plans? (fill in matrix below)

Type of Self-Support	Current			Future		
	Usu.	Some	Never	Usu.	Some	Never
Install Initial Release						
Install Subsequent Releases						
Modify Packages						
Fix Errors						
Set up a Single Point in your Organization to Funnel Questions to a Vendor						

c) Do you expect to do more in the future?  Yes  No

Why? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

If yes:  
 What kind of self-support? \_\_\_\_\_  
 \_\_\_\_\_

d) What kind of incentives do software vendors now give you to perform self-support functions?

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

10. e) What additional incentives would you find attractive? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

11. What other software support issues are important to you or your organization?  
\_\_\_\_\_  
\_\_\_\_\_

12. Overall, what changes do you see occurring in the way in which packaged software support is delivered?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_







