DISCRETE MANUFACTURING IN SMALL ESTABLISHMENTS

INPUT

ABOUT INPUT

INPUT provides planning information, analysis, and recommendations to companies 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 c ...king closely with clients on important is ...e research data, then develop recomme ... needs. Clients receive reports, prese ... are based, and continuous consulting.

Professional staff hav ... the information processing industry. ... in operations, marketing, or planning ...ical solutions to complex business prob ...

Formed in 1974, INPU ...g firm. Clients include over 100 of th ... companies.

S
MFR

SES

AUTHOR

Discrete Manuf. In Small Est.

TITLE

OFFICES

UNITED STATES

2180 Sand Hill Roa ...npany, Ltd.
Menlo Park, CA 94 ... Kita-Aoyama
(415) 854-3422

Park 80 Plaza Wes
Saddle Brook, NJ 0
(201) 368-9471

EUROPE

INPUT Europe
500 Chesham House
150 Regent Street
London, W1R 5FA
England
London 439-6288
Telex 261426

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

AUSTRALIA

Infocom Australia
Highland Centre,7-9 Merriwa Street
P.O. Box 110, Gordon N.S.W. 2072
(02) 498-8199

DISCRETE MANUFACTURING IN SMALL ESTABLISHMENTS

AN INDUSTRY SECTOR REPORT

SEPTEMBER 1978

DISCRETE MANUFACTURING IN SMALL ESTABLISHMENTS

TABLE OF CONTENTS

DISCRETE MANUFACTURING IN SMALL ESTABLISHMENTS

LIST OF EXHIBITS

1 INTRODUCTION

I INTRODUCTION

- This report is produced by INPUT as part of the Small Establishment Service (SES). The report covers the selection and use of information processing products, services, and supplies by small establishments in the discrete manufacturing sector. These products and services include:

  - EDP Equipment.
  - EDP Services.
  - Office Equipment.
  - Office Services.
  - Communications Equipment.
  - Communications Services.
  - Supplies.

- Both independent small establishments and branches of Fortune 500 companies were analyzed and were reported upon separately.

- Fabricated metal products firms (SIC 34) were interviewed exclusively for this study.

- Small establishments were analyzed and were reported upon by size categories of from 1 to 19, 20 to 99, and 100 to 499 employees. These size categories match federal statistics.

- This report emphasizes the present use of information processing products and services and the desire for increased automation by small establishments.

- A special analysis was performed to determine the buying points used in small establishments. Branches of major corporations were analyzed separately from independent enterprises, and both corporate headquarters and branches of Fortune 500 companies were interviewed to determine how the buying process is shared between corporate headquarters and the branch (as a function of which equipment or service is required).

- This topic for research was chosen because of high client interest. The discrete manufacturing sector is of major importance because of its size and willingness to automate information processing.

- Research carried out for this report included a series of interviews as specified in Appendix B.

- Separate questionnaires were used for interviewing:

  - Small establishments (branches of Fortune 500 corporations, and independent enterprises).

  - Headquarters of Fortune 500 companies.

  Sample copies of those questionnaires are included in Appendix D.

- A bibliography of sources of information is included in Appendix A.

- Inquiries and comments on the information presented in this report are invited from clients.

II EXECUTIVE SUMMARY

II EXECUTIVE SUMMARY

A. SCOPE AND KEY CONCLUSIONS

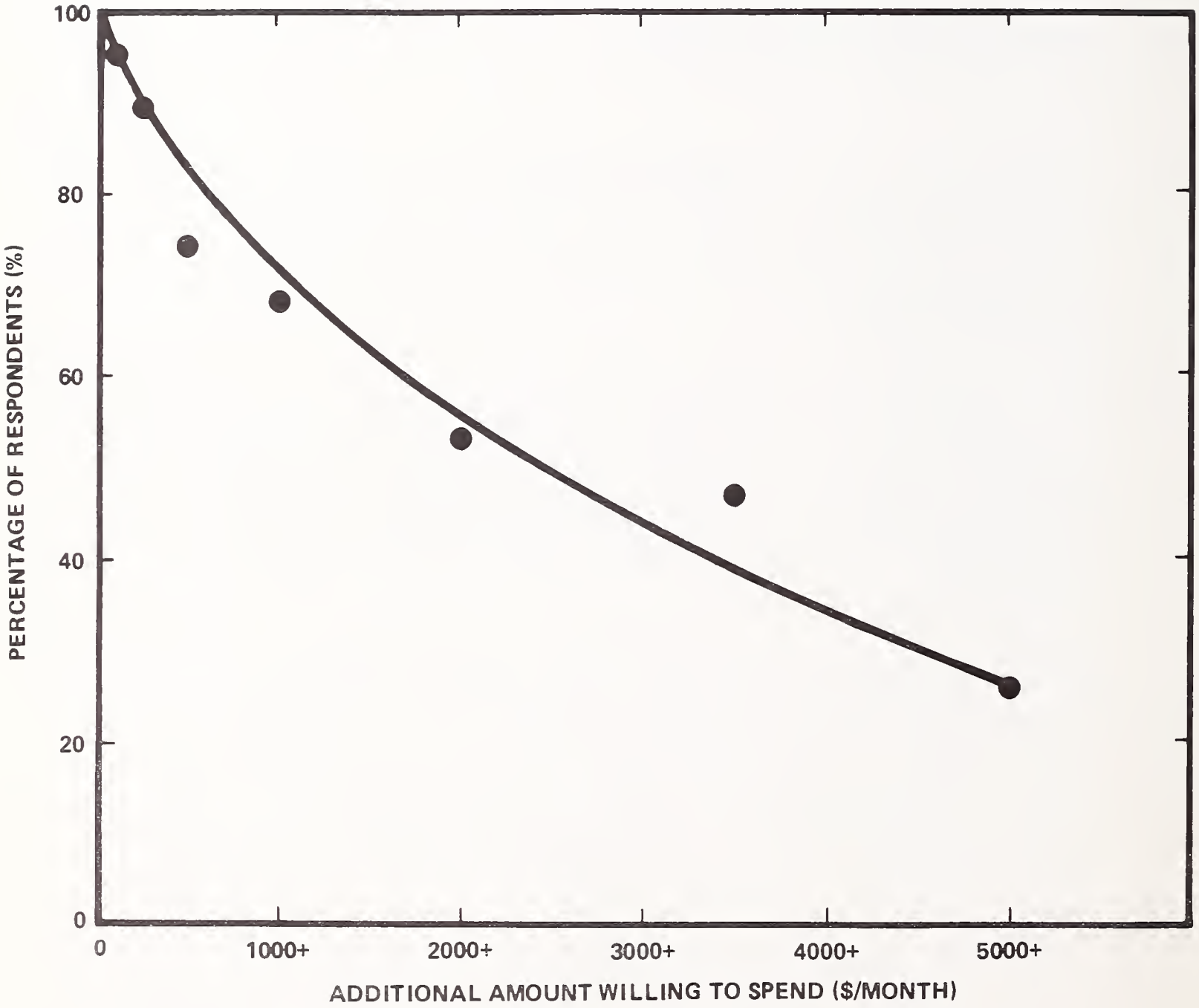
- There are a total of 188,000 establishments in the United States in the discrete manufacturing sector having less than 500 employees. In 1976 these firms were responsible for shipments of $238 billion and had a total of 6,000,000 employees.

- A total of $7.2 billion was spent in 1977 on information processing equipment and services (including the EDP staff) by these establishments of under 500 employees. However, despite this large expenditure, small discrete manufacturing establishments are relatively unpenetrated by information automation equipment.

- Small establishments (particularly independents) do not use a rigorous budget for purchasing information processing equipment and services. In addition, the top executive of the firm is involved in this decision process in practically all cases. Thus the small firm is willing and able to spend money if a good case can be made for it. This is demonstrated in Exhibit II-1 which shows how much money small establishments are willing to spend for improvements in information processing equipment and services. Note that 45% of respondents report that they would consider spending an additional $2,500 monthly, which is equivalent to $90,000 for equipment amortized in three years (not including carrying charges and maintenance).

EXHIBIT II–1

WILLINGNESS OF COMPANIES TO SPEND
ADDITIONAL MONEY FOR IMPROVEMENTS



- Branches of the Fortune 500 companies have a considerable voice in the selection of equipment and services, including EDP equipment and services. Even in the "most controlled" area, which is EDP equipment, the corporate headquarters makes decisions that are independent of the branch preferences in no more than one third of the cases.

- Almost half of the respondents stated that they have specific immediate information processing automation needs in the areas of EDP, office automation, or communications. Exhibits II-2 and II-3 show that these needs for more information processing automation exist both in branches of Fortune 500 companies and independent enterprises and that all sizes of small establishments have these needs.

B. DISCRETE MANUFACTURING INDUSTRY SECTOR STRUCTURE

- Of the total of 188,000 small enterprises (under 500 employees) in the discrete manufacturing sector in the United States in 1972:

  - 127,940 of them had 1 - 19 employees. (68%)

  - 44,692 of them had 20 - 99 employees. (23%)

  - 15,637 of them had 100 - 499 employees. (8%)

  - 3,265 of them had over 500 employees. (2%)

- This represented 13.2% of the United States work force.

- Of the 6,000,000 people employed in small establishments within the discrete manufacturing sector:

  - 700 thousand were in firms of 1 - 19 employees.

EXHIBIT II – 2

EDP, OFFICE AND COMMUNICATION NEEDS AS REPORTED BY RESPONDENTS (BY BRANCHES/INDEPENDENTS)

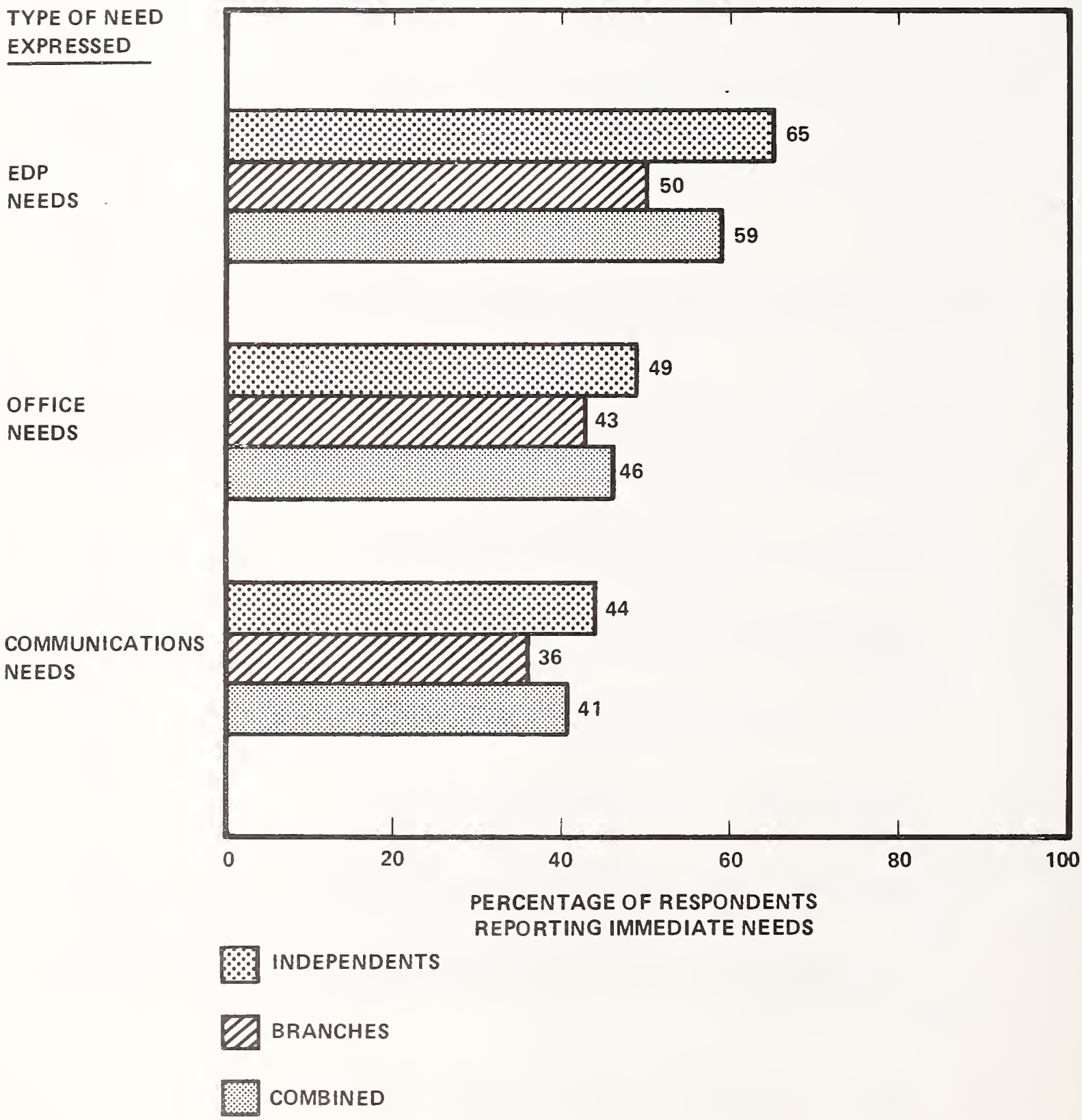
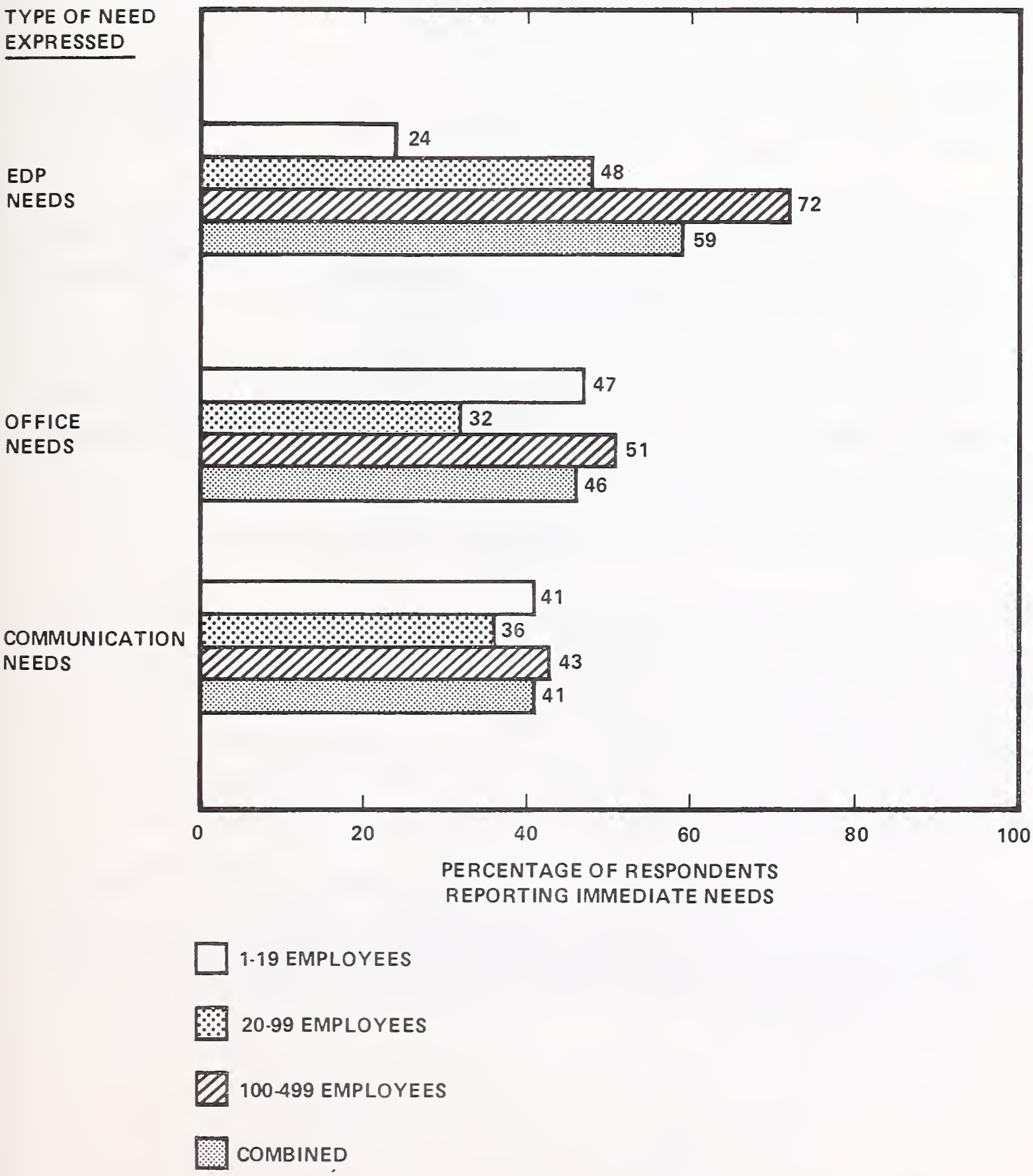


EXHIBIT II–3

EDP, OFFICE AND COMMUNICATION NEEDS AS REPORTED BY RESPONDENTS (BY SIZE OF ESTABLISHMENTS)



- 1.9 million were in firms of 20 - 99 employees.

- 3.3 million were in firms of 100 - 499 employees.

- The total discrete manufacturing sector was responsible for $536 billion in gross sales in 1976 and this is growing at 11% per year.

  - Gross sales in 1977 were $47,775 per employee.

- Discrete manufacturing firms are primarily located in the Northeast, the Midwest, and California.

- In the Fortune 500 group of manufacturing companies, 200 firms have their prime (SIC) classification as discrete manufacturing, and 23 of these are primarily classified as fabricated metal products.

- Examination of the corporate structure profile of four major, typical Fortune 500 companies showed that these companies are not monolithic or rigorously and uniformly structured, and that by SIC classification:

  - 28% of the branches were wholesale.

  - 7% of the branches were retail.

  - 12% of the branches were finance.

  - 6% of the branches were service.

- The 200 Fortune 500 companies in discrete manufacturing have a total of 44,000 branches, and the 23 Fortune 500 companies classified as metalworking have about 5,000 branches. Thus, there is an average of 220 branches for each Fortune 500 company.

C. EQUIPMENT AND SERVICES MARKETS

- The growth in the use of EDP equipment and services and office automation equipment in the discrete manufacturing sector is driven by the reduction in size and cost and the increase in the price/performance ratio of information processing equipment. This allows the introduction of this equipment into very large numbers of small firms in the sector. This growth will be (in current dollars) 33% per year for EDP equipment, 20% a year for EDP services, and 20% a year for office automation equipment.

- Communications services will grow in branches of Fortune 500 companies at the same rate as the overall use of communications, 7% a year for voice, 20% a year for data communications and 9% overall. Independents will grow faster because of their new use of communications equipment. Thus their rate of growth was increased from 9% per year to 11% per year to include the addition of data/message traffic.

  - Communications equipment such as PABX and facsimile was assumed to grow by the same percentage as the office automation equipment.

- The present penetration of information processing equipment and services is shown in Exhibit II-4 by type of establishment and in Exhibit II-5 and Exhibit II-6 by size of establishment, for branches and independents. The penetration of computer services is shown in Exhibit II-7 and II-8. Branches and independents are about equally penetrated for EDP, but independents are twice as receptive to office and communication interconnect equipment as branches.

- The total market for information processing equipment and supplies in the United States in 1977 for small establishments in the discrete manufacturing sector is:

EXHIBIT II – 4

PENETRATION OF EDP, OFFICE AND COMMUNICATION AUTOMATION AS REPORTED BY RESPONDENTS (TOTALS)

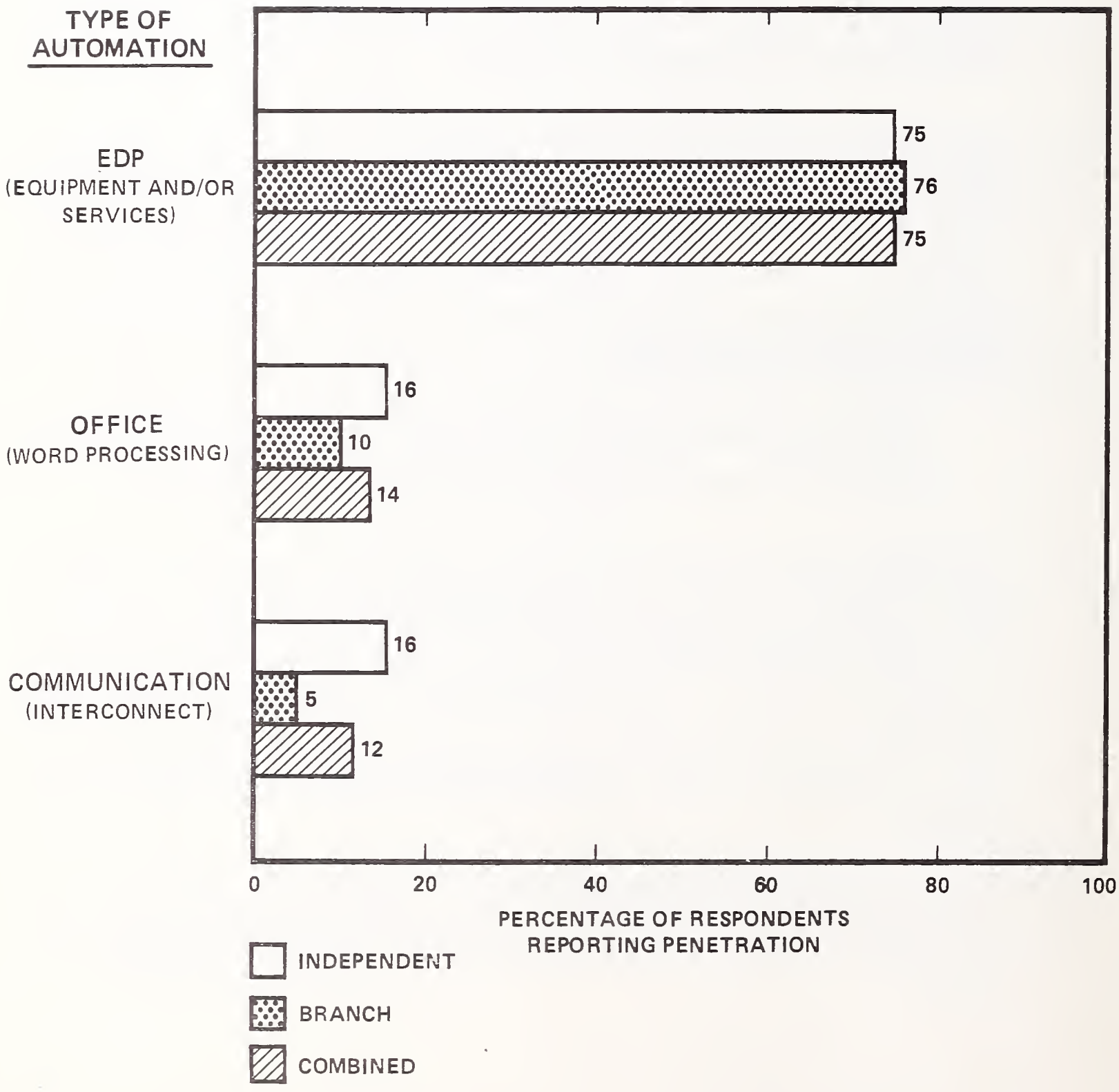


EXHIBIT II – 5

PENETRATION OF EDP, OFFICE AND COMMUNICATION AUTOMATION AS REPORTED BY RESPONDENTS (BRANCHES)

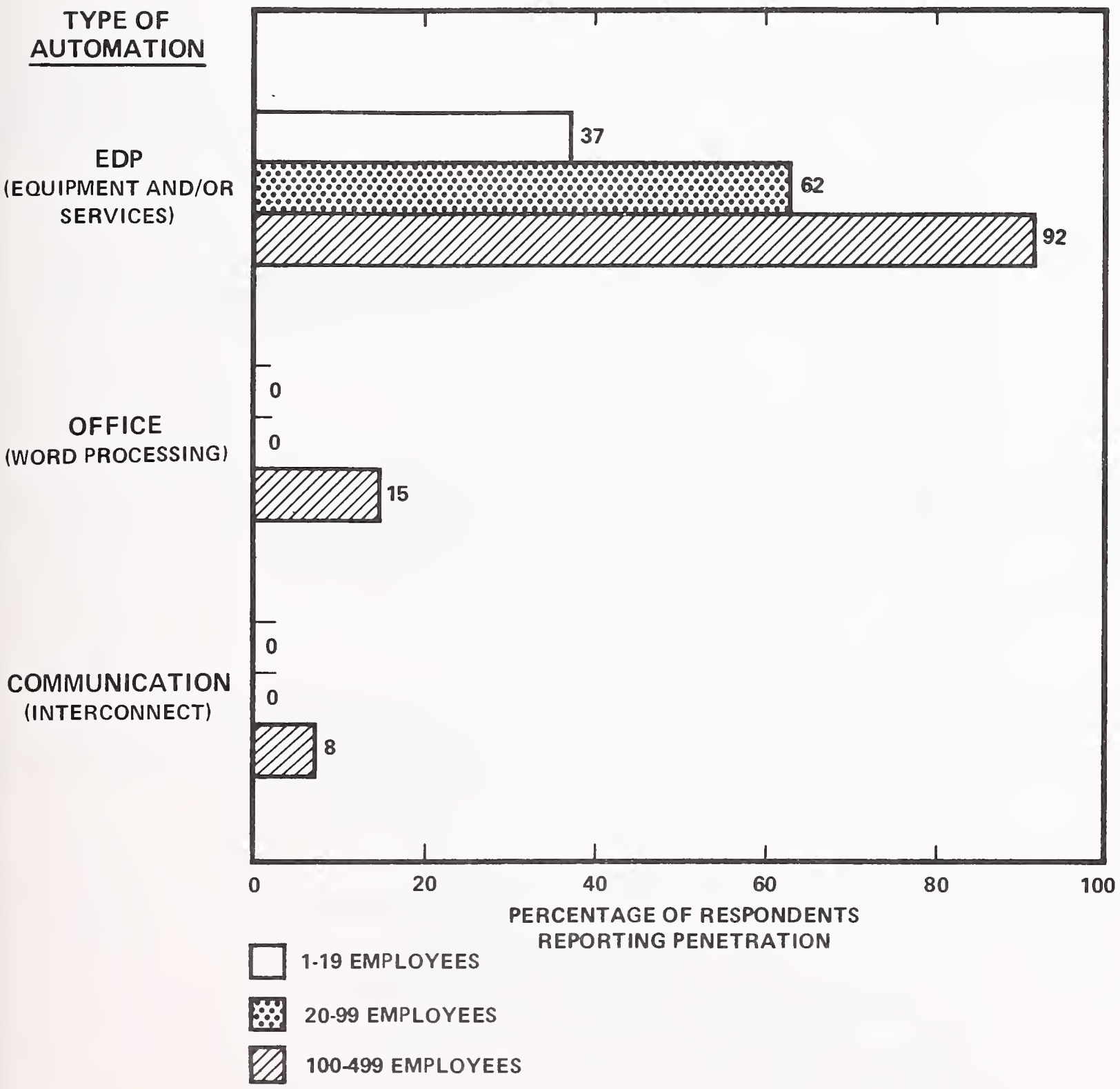


EXHIBIT II–6

PENETRATION OF EDP, OFFICE AND
COMMUNICATION AUTOMATION
AS REPORTED BY RESPONDENTS
(INDEPENDENTS)

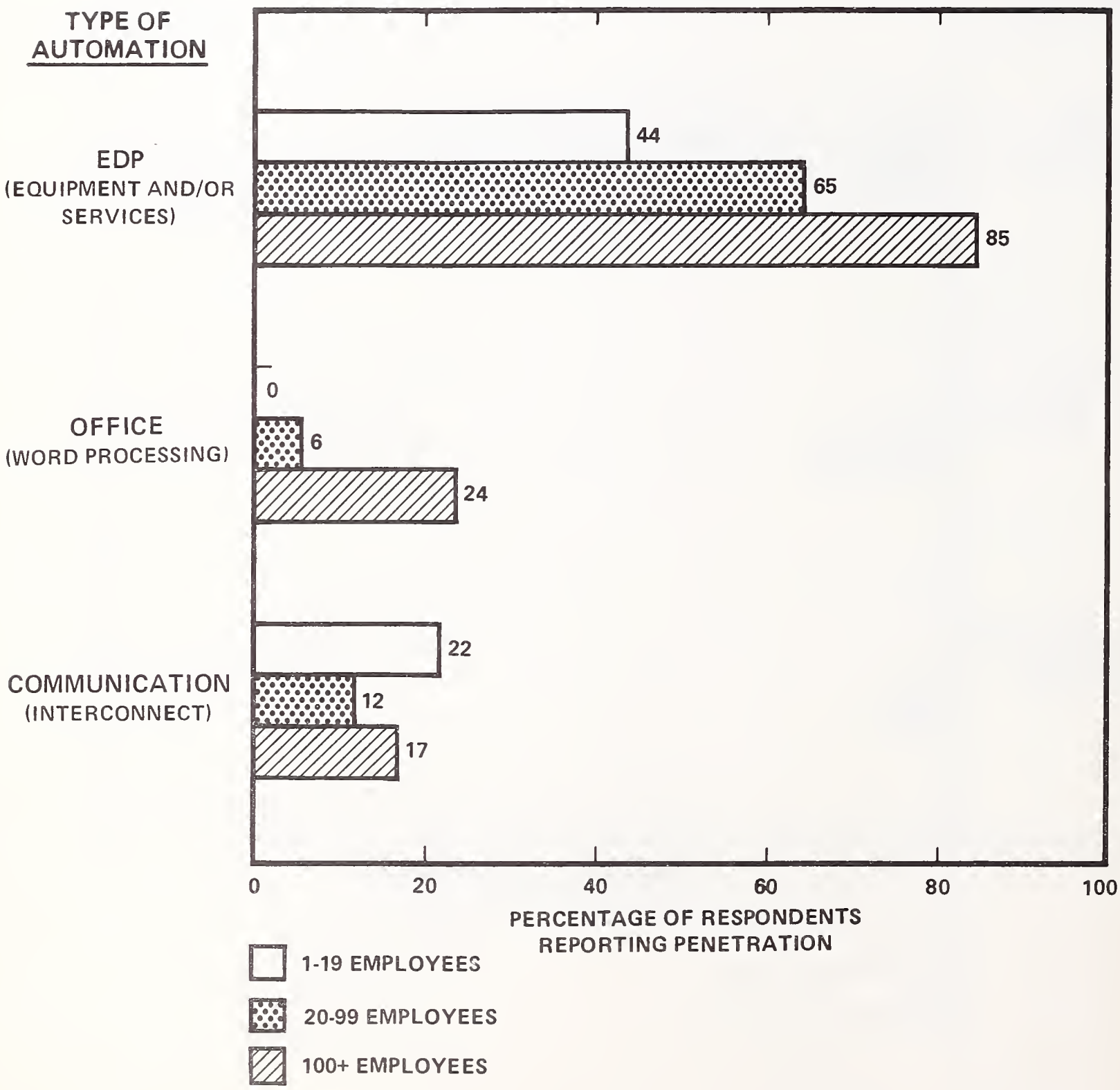


EXHIBIT II – 7

PENETRATION OF COMPUTER SERVICES AS REPORTED BY RESPONDENTS (BRANCHES)

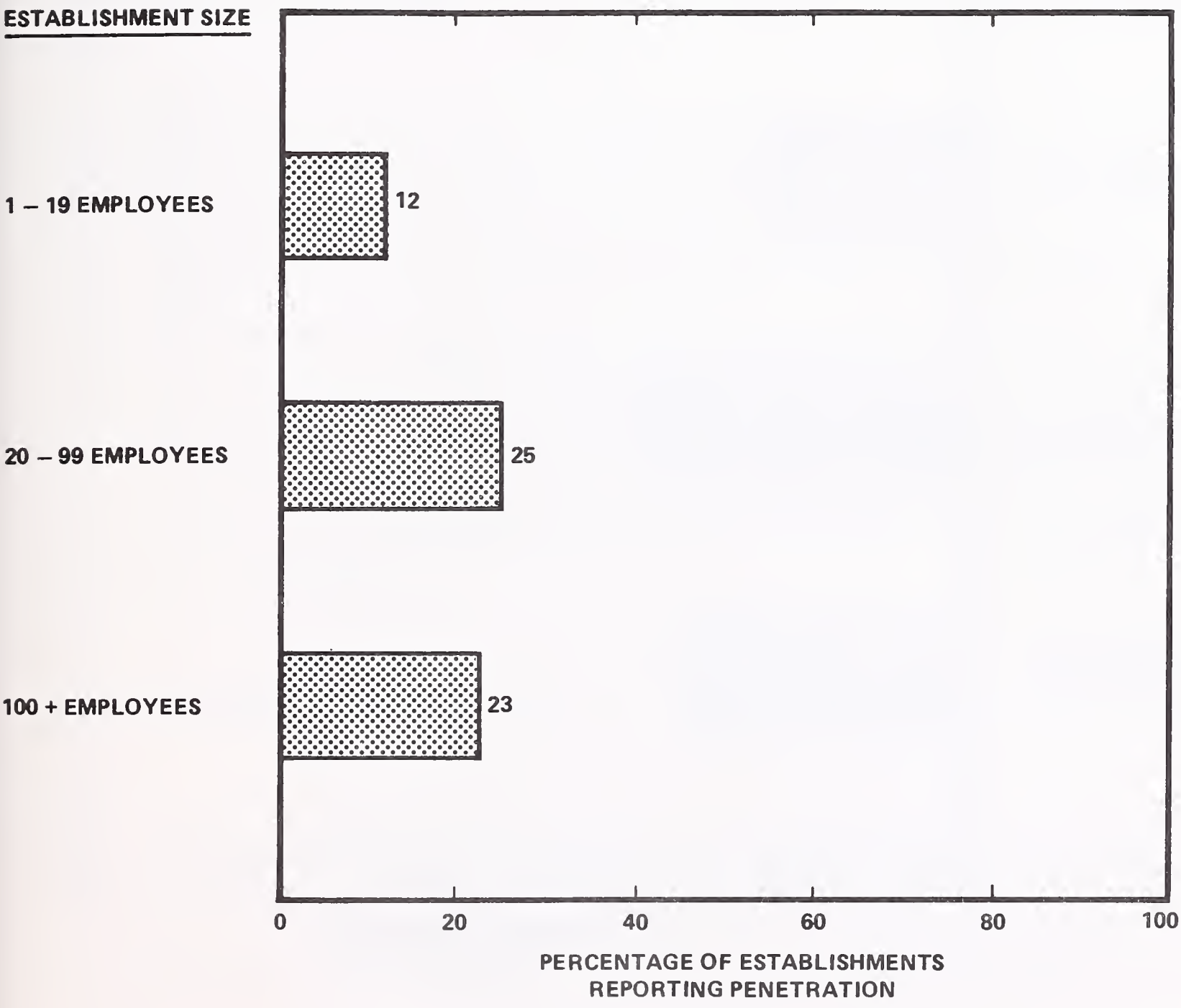
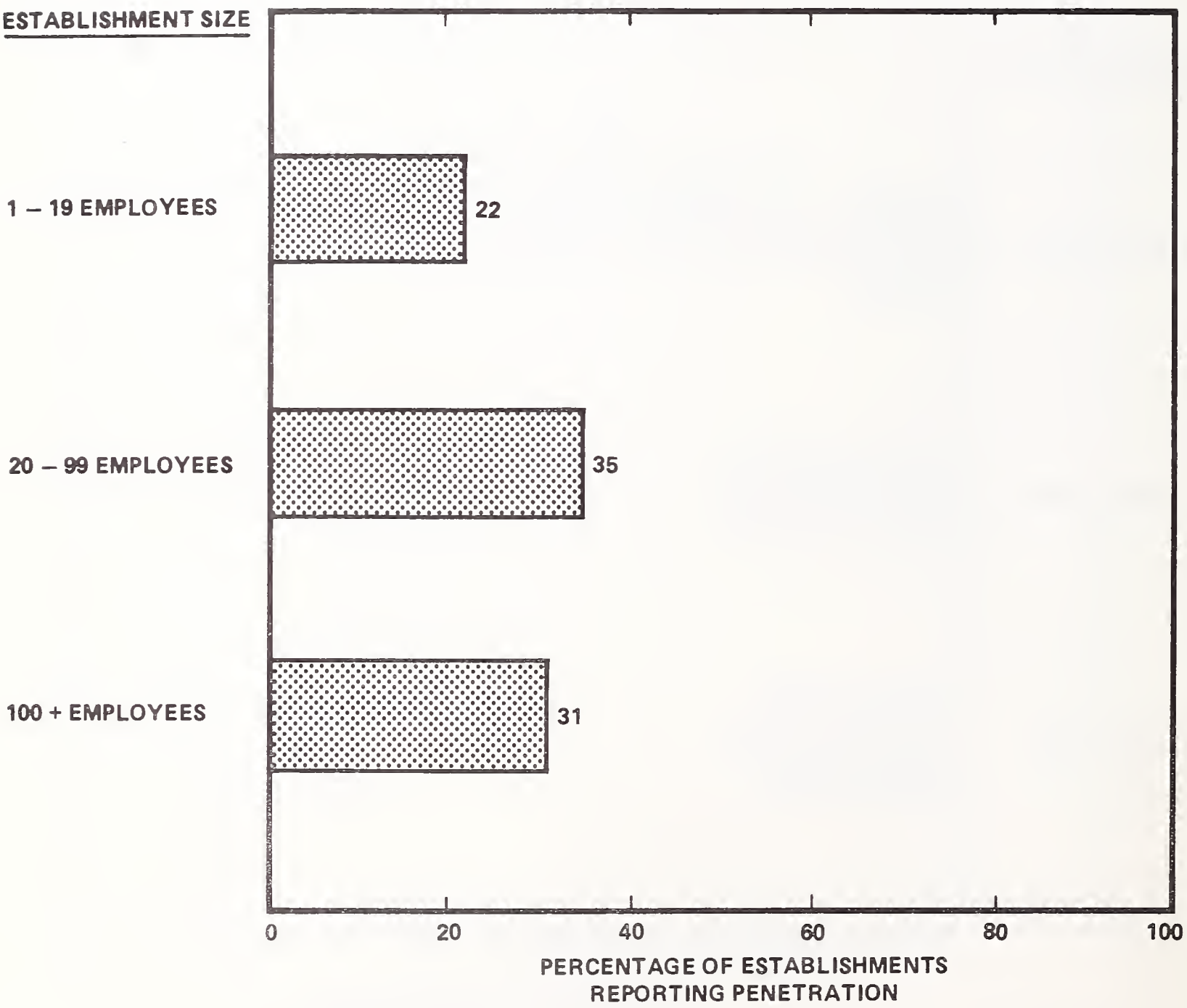


EXHIBIT II – 8

PENETRATION OF COMPUTER SERVICES
AS REPORTED BY RESPONDENTS
(INDEPENDENTS)



EDP Equipment and EDP Services	$1,072 million
Office Equipment	$ 936 million
Communications Services and Equipment	$2,437 million
Supplies	$1,001 million
Total	$5,446 million

This total averages to about $1,000 per employee.

D. APPLICATION NEEDS

- EDP equipment and services are used for administrative applications in 78% of the branches (of Fortune 500 companies) and 79% of the independents, for sales functions in 64% of the branches and 56% of the independents, and for production applications in 64% of the branches and 46% of the independents.
  - By 1983, in establishments of over 100 employees in size, 96% of the branches and 81% of independents will have production functions automated; 81% of the branches and 76% of the independents will have sales/marketing functions automated; and almost 100% of both branches and independents will have financial/administration functions automated.

E. MARKETING REQUIREMENTS

- Selling to independent small establishments usually requires convincing top management to buy the equipment or service. This is especially true for EDP equipment. Office or EDP Management is the next most important group to which selling must be directed. Line Management is third in importance.

- When marketing equipment or service for branches of major corporations, the branch is a strong participant throughout the sales cycle, especially in identifying and quantifying needs and identifying specific equipment and services and suppliers.

  - EDP equipment requires the most corporate involvement in the purchase cycle.

  - The purchase order will often be issued from corporate headquarters, although the selection process, including product evaluation and negotiations, may take place at the branch.

F. RECOMMENDATIONS

- Vendors with products and services suitable for the small businessman should strongly consider marketing to the discrete manufacturing sector.

  - The initial target for EDP and office automation equipment should be establishments with 100 to 500 employees.

  - Both branches of large companies and independent establishments should be targeted for EDP equipment and services.

  - Independent enterprises should be targeted before branches for communications equipment and office equipment.

- Emphasize sales (to the fabricated metal sector) in the states of Indiana, Illinois, Michagan, Ohio, Pennsylvania, New Jersey, New York, Connecticut, and Massachusetts.

- When selling to small establishments, top management must be reached for the sale. However, the introduction may have to be made through EDP or office management.

  - Be prepared to supply information to aid in financial analysis and committee approval.

  - Consider that trial installations may be required in firms over 20 employees in size.

- Equipment sold to small establishments should be familiar not formidable.

- Do not sell equipment to small establishments on the basis of replacing personnel.

- When selling EDP equipment or services to small establishments which are independent enterprises:

  - Sell production, sales/marketing, financial/administrative functions to all sizes of independent companies.

  - Sell production and sales/marketing functions to companies under 20 employees in size.

- Branches of Fortune 500 companies should be approached as well as independent enterprises, since they usually have a considerable say in equipment justification and selection. However, the company should be qualified as rapidly as possible concerning the corporate control requirements.

  - National account marketing including interaction with corporate staff is important in dealing with branches of large companies.

- It is important to realize that Fortune 500 companies are not monolithic and that a wholesale branch of a manufacturing enterprise is quite different from a manufacturing branch of the same enterprise.

- To initiate a sale of information processing equipment or services to a branch of a Fortune 500 company, a vendor should:

  - Determine the function of the branch (wholesaling, manufacturing, sales, etc.) and insure that the offering is compatible with that function.

  - Qualify the characteristics of the Fortune 500 company as to how much of a say the branch has in purchasing equipment or services.

    . If the branch has this freedom (as most of them do), proceed with the sale effort.

    . If the branch does not have this freedom, visit corporate headquarters to find out how to sell to the company.

  - For sales of EDP equipment or services, look toward branches of 75 employees and up.

  - For sales of office automation and interconnect equipment, look for branches of over 100 employees, the larger the better.

- System houses should be used as a distribution channel for their industry expertise. (See INPUT report 1978, "Distribution Channels.")

III INDUSTRY STRUCTURE

III INDUSTRY STRUCTURE

A. FUNCTIONAL DESCRIPTION

- Manufacturing has two sectors: discrete manufacturing and process manufacturing:

  - Discrete manufacturing involves fabrication and assembly of products measurable in units, such as gears, shoes, or automobiles.

  - Process manufacturing involves continuous operations that ultimately yield products measurable in volumes, such as gasoline, cloth, or chemicals.

- Discrete manufacturing had 11 million employees and gross sales of $536 billion in 1977.

  - Discrete manufacturing produced 31.6% of the United States GNP, and it included 12.7% of the total work force in the United States.

  - Small establishments represented 55% of the employees and 45% of the gross sales of all the discrete manufacturing establishments.

  - Because of this large contribution to the United States economy, discrete manufacturing is a very important business sector.

- The industry sub-sector that is the focus of this study is fabricated metal products, part of discrete manufacturing. The industry sector of discrete manufacturing (Exhibit III-1 and III-2)is composed of:

  - Apparel Manufacture (SIC 23).
  - Furniture Manufacture (SIC 25).
  - Printing and Publishing (SIC 27).
  - Leather Manufacture (SIC 31).
  - Fabricated Metal (SIC 34).
  - Non-Electric Machinery (SIC 35).
  - Electrical Equipment (SIC 36).
  - Transportation Equipment (SIC 37).
  - Scientific and Control Instruments (SIC 38).
  - Miscellaneous Manufacture (SIC 49).

- The fabricated metal products industry expenditures follow the general trends found in the discrete manufacturing sector, except that it has much higher capital expenditures and a higher value of shipments at the small end of the market.

  - Fabricated metal products comprise 14% of gross sales of the discrete manufacturing sector and include 13.9% of its total employees (see Exhibit III-2).

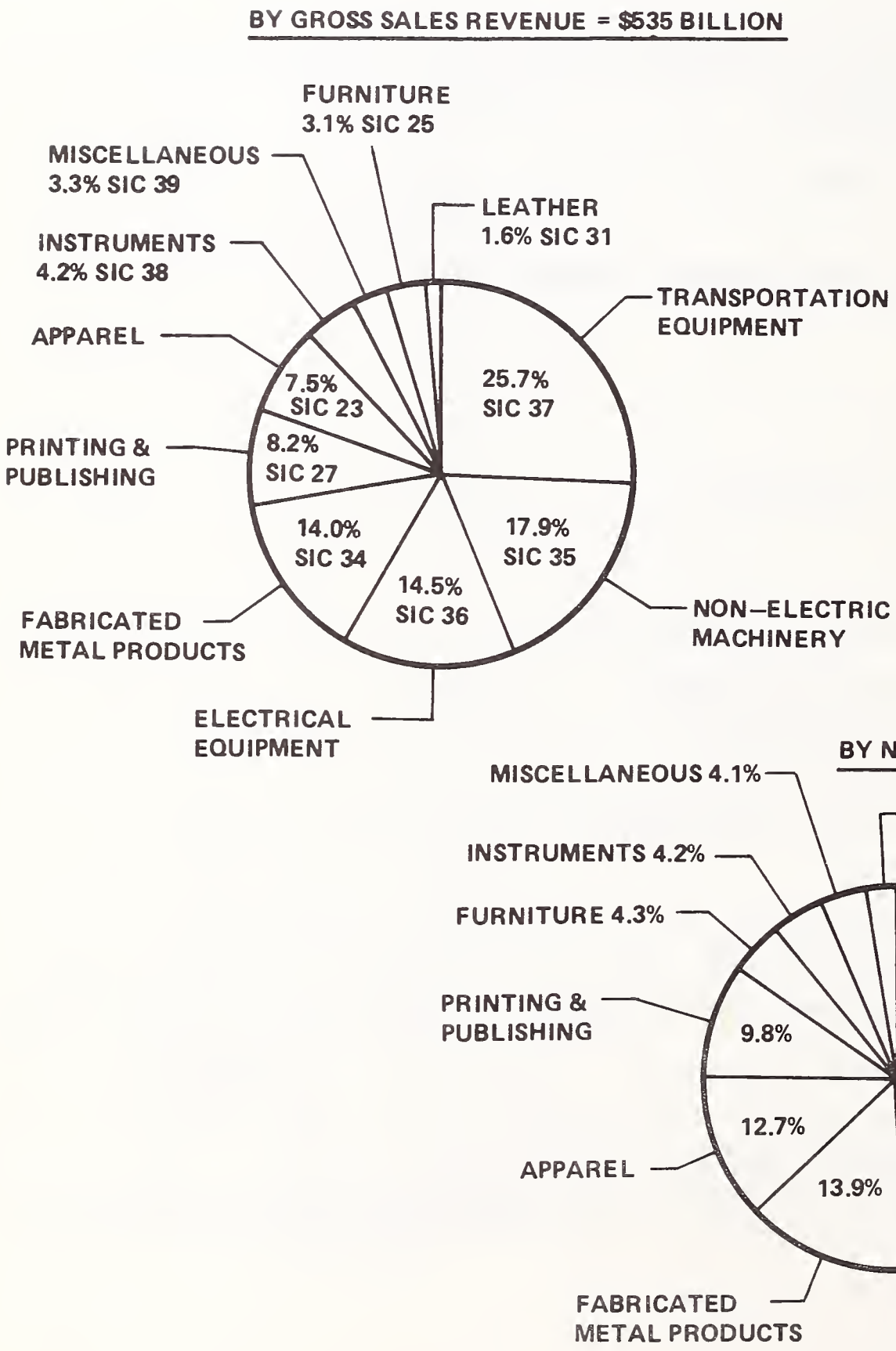
EXHIBIT III-1

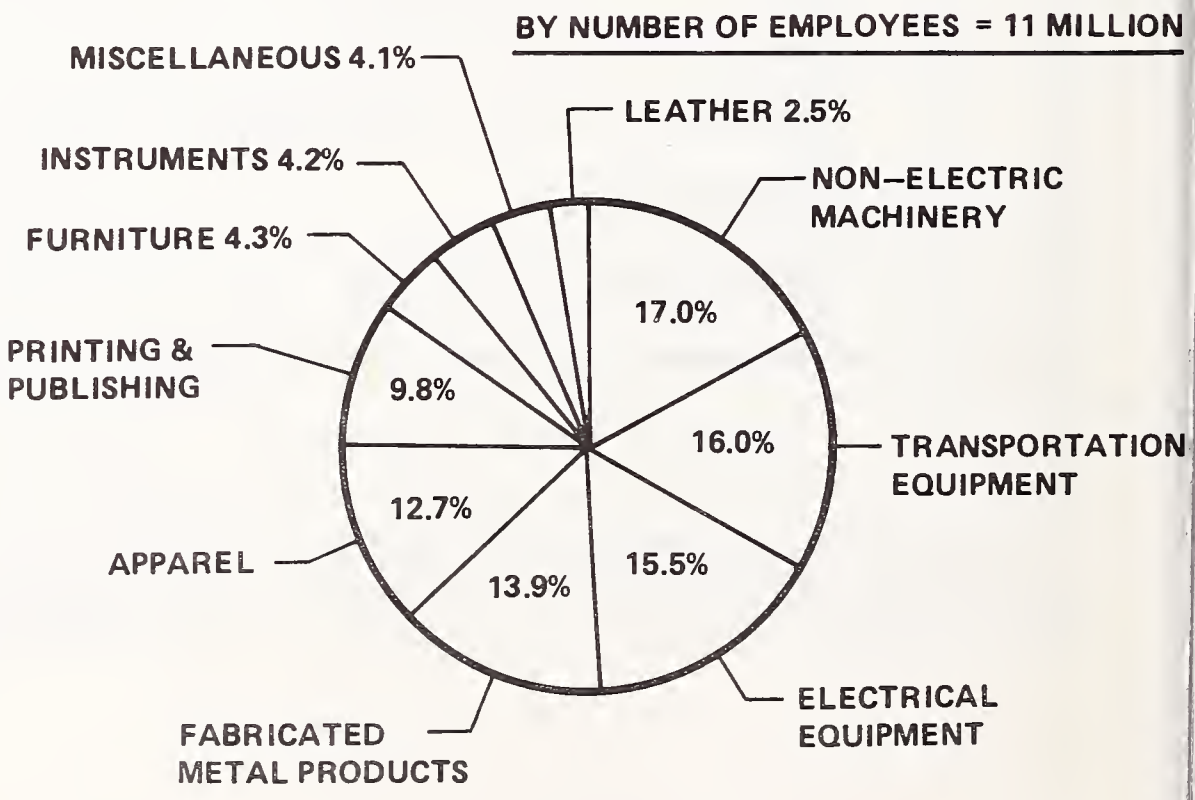
DISCRETE MANUFACTURING
INDUSTRY DEMOGRAPHICS - ALL FIRMS

INDUSTRY SIC	INDUSTRY NAME	EMPLOYEES (1,000)		GROSS SALES ($ MILLION)	
		1972	1976	1972	1976
23	APPAREL	1,368	1,299	$27,809	$38,186
25	FURNITURE	462	490	11,320	14,600
27	PRINTING & PUBLISHING	1,056	1,080	30,146	42,325
31	LEATHER	273	272	5,769	6,900
34	FABRICATED METAL PRODUCTS	1,493	1,387	51,739	79,659
35	NON-ELECTRIC MACHINERY	1,828	2,074	65,821	109,845
36	ELECTRICAL EQUIPMENT	1,661	1,832	53,394	72,039
37	TRANSPORTATION EQUIPMENT	1,719	1,733	94,705	135,222
38	INSTRUMENTS	453	509	15,527	24,905
39	MISC. MANUFACTURING	446	421	12,173	12,000
TOTAL	DISCRETE MANUFACTURING	10,759	11,097	$368,403	$535,681
TOTAL BY ESTABLISHMENTS WITH LESS THAN 500 EMPLOYEES		5,958	6,137	$164,016	$238,378

EXHIBIT III–2

DISTRIBUTION OF DISCRETE MANUFACTURING FIRMS





- The fabricated metal products industry sales are dominated by small firms, with 68% of gross sales from establishments with under 500 employees (see Exhibit III-3).

- The discrete manufacturing industry structure is dominated by small establishments. (Exhibit III-4).

  - In 1972, over 65% of all establishments had fewer than 20 employees, and over 98% of all establishments had fewer than 500 employees.

  - Establishments with fewer than 500 employees had 45.9% of industry sales.

  - 1.9% of the establishments in the discrete manufacturing sub-sector had 54.1% of total industry sales.

- The fabricated metal industry follows the identical pattern noticed in the discrete manufacturing sector. In 1972, over 98% of all establishments had fewer than 500 employees and had 67.9% of total industry sales.

- There are significant regional concentrations in the locations of United States fabricated metal establishments (see Exhibit III-5). Four Midwestern states--Illinois, Indiana, Michigan, and Ohio--comprise 26.1% of the total industry. When the neighboring states of Pennsylvania, New Jersey, New York, Connecticut, and Massachusetts are added, the total rises to over half (52.1%).

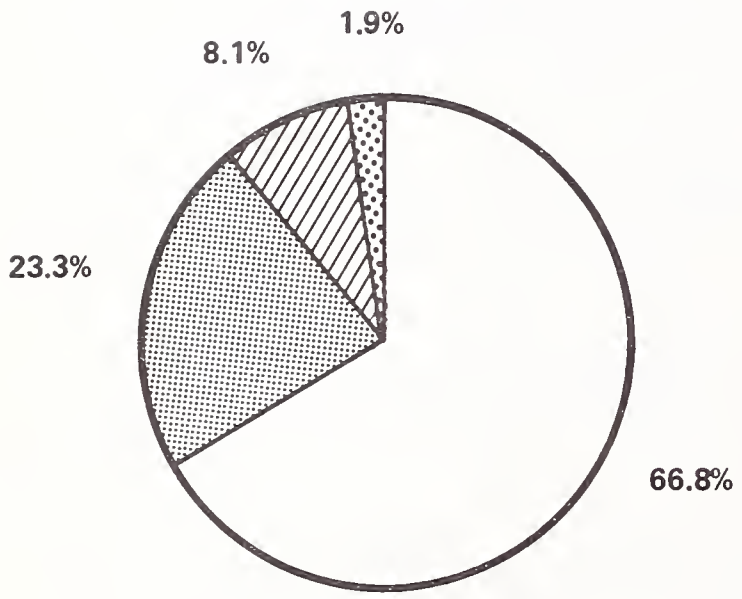
B. REVENUE AND GROWTH FORECASTS

- Discrete manufacturing has had relatively stable employment and increasing gross sales in recent years.

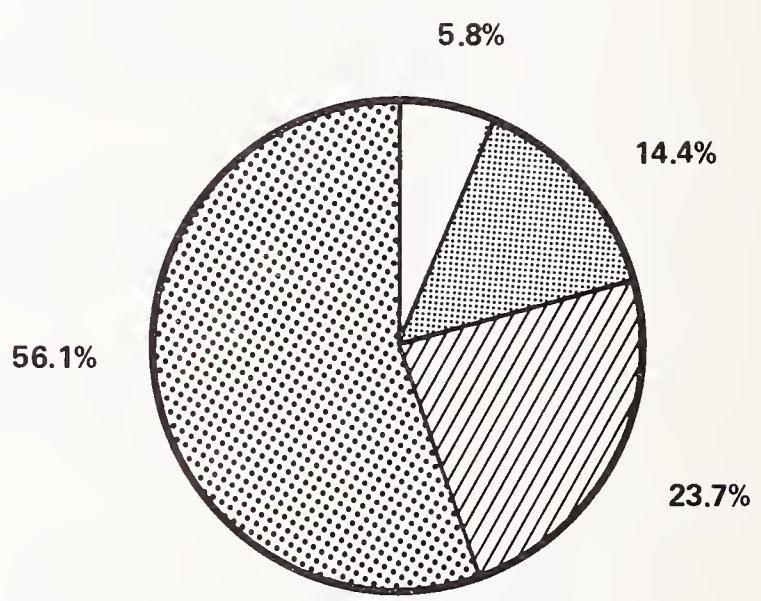
EXHIBIT III–3

STRUCTURE OF DISCRETE MANUFACTURING & FABRICATED METAL PRODUCTS INDUSTRIES (BY SIZE OF ESTABLISHMENT)

DISCRETE MANUFACTURING

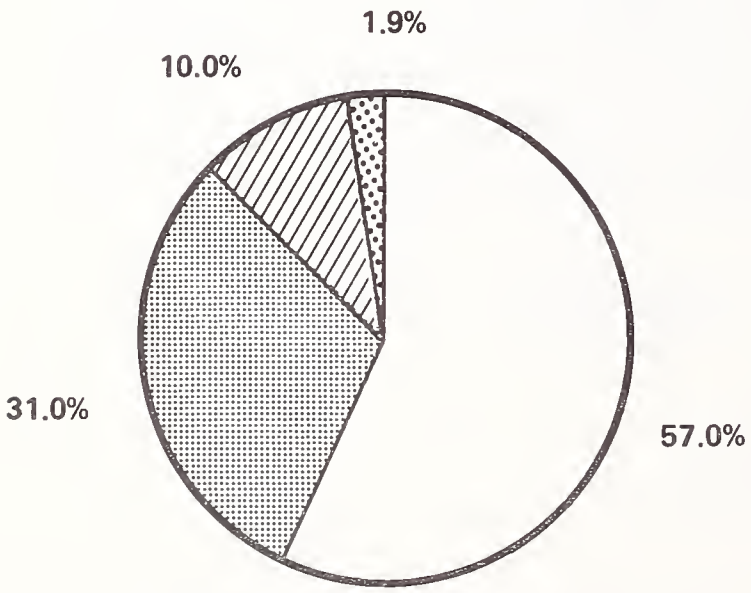


NO. OF ESTABLISHMENTS

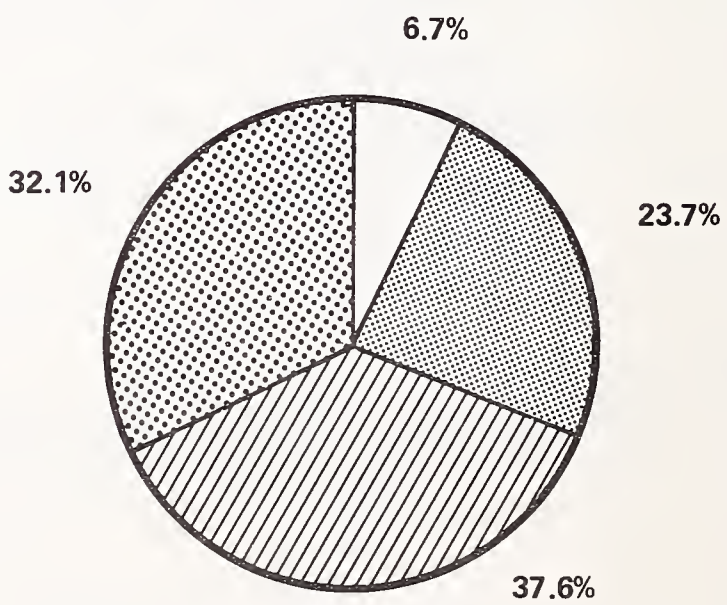


GROSS SALES

FABRICATED METAL PRODUCTS



NO. OF ESTABLISHMENTS



GROSS SALES

KEY

- 1-19 EMPLOYEES
- 20-99 EMPLOYEES
- 100-499 EMPLOYEES
- 500+ EMPLOYEES

EXHIBIT III–4

PERCENTAGE OF TOTAL INDUSTRY SALES ACCOUNTED FOR BY SMALL ESTABLISHMENTS

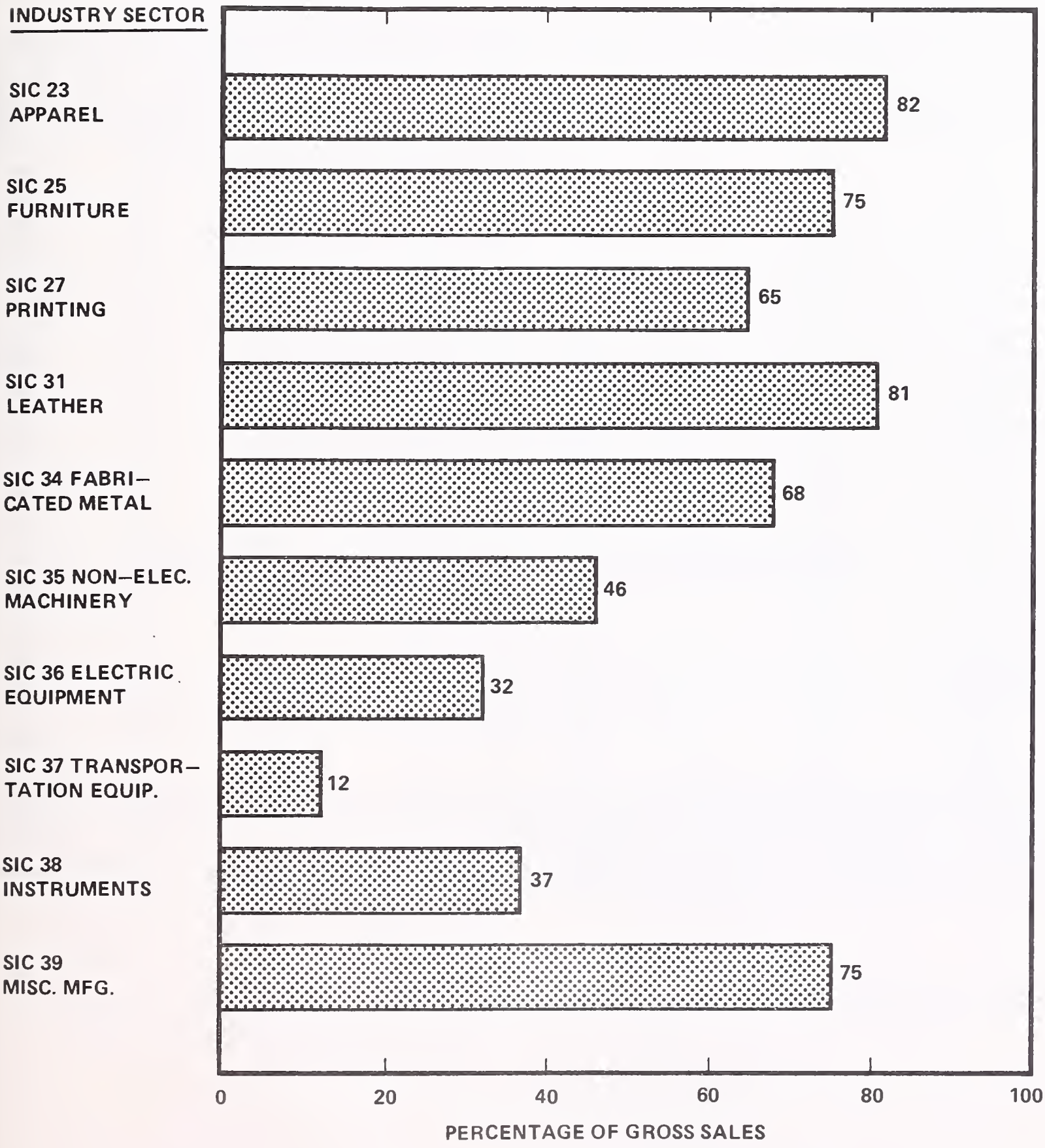


EXHIBIT III-5

DISTRIBUTION OF FABRICATED METAL PRODUCTS

(ESTABLISHMENTS BY STATE)

STATE	NUMBER OF ESTABLISHMENTS	% < 500 EMPLOYEES	STATE	NUMBER OF ESTABLISHMENTS	% < 500 EMPLOYEES
AL	342	1.2 %	MT	33	0.1 %
AK	10	0.04	NE	101	0.4
AZ	194	0.7	NV	27	0.1
AR	182	0.6	NH	99	0.4
CA	3,592	12.6	NJ	1,406	4.9
CO	247	0.9	NM	41	0.1
CT	864	3.0	NY	2,312	8.1
DE	37	0.1	NC	376	1.3
FL	775	2.7	ND	23	0.09
GA	381	1.3	OH	2,090	7.4
HI	27	0.1	OK	362	1.3
ID	50	0.2	OR	279	1.0
IL	2,384	8.4	PA	1,736	6.1
IN	797	2.8	RI	361	1.3
IA	246	0.9	SC	175	0.6
KS	228	0.8	SD	32	0.1
KY	252	0.9	TN	404	1.4
LA	220	0.8	TX	1,432	5.0
ME	67	0.2	UT	130	0.5
MD	270	1.0	VT	32	0.1
MA	1,099	3.9	VA	241	0.8
MI	2,145	7.5	WA	357	1.3
MN	482	1.7	WV	108	0.4
MS	119	0.4	WI	714	2.5
MO	542	1.9	WY	18	0.07
TOTAL NUMBER OF ESTABLISHMENTS				28,441	100.0%

- From 1972 to 1976, total industry employment increased at an AAGR of 0.7% and sales increased at an AAGR of 9.5%.

- During the same period, fabricated metal employment decreased at an AAGR of 1.8% while sales increased at an AAGR of 11%.

- Fabricated metal products value of shipments has grown from $36 billion in 1966 to $77 billion in 1976 for an AAGR of 7.5% over ten years (Exhibit III-6). In the years 1972 to 1977, the value of shipments has increased from $51 billion to $85 billion for an AAGR of 11% over five years. Exhibit III-7 extrapolates the growth to 1983.

  - Assuming an 11% AAGR, industry value of shipments will be $159 billion in 1983. Assuming that the percentage of gross sales by firms with less than 500 employees continues at 68% (see Exhibit III-4), the small establishments market in the fabricated metal industry will have shipments valued at $108 billion in 1983. This will be greater than the entire shipments of the fabricated metals industry in 1977 ($85 billion).

C. STRUCTURE OF THE DISCRETE MANUFACTURING SECTOR

- The discrete manufacturing sector was analyzed to determine the relationships between the branches and headquarters of firms.

- Single unit enterprises dominate the industry as shown in Exhibit III-8.

  - Eighty-five percent of all discrete manufacturing establishments are single unit enterprises.

  - Eighty-one percent of all fabricated metal products establishments are single unit enterprises.

EXHIBIT III–6

VALUE OF SHIPMENTS GROWTH FOR
FABRICATED METAL PRODUCTS, 1966–1976

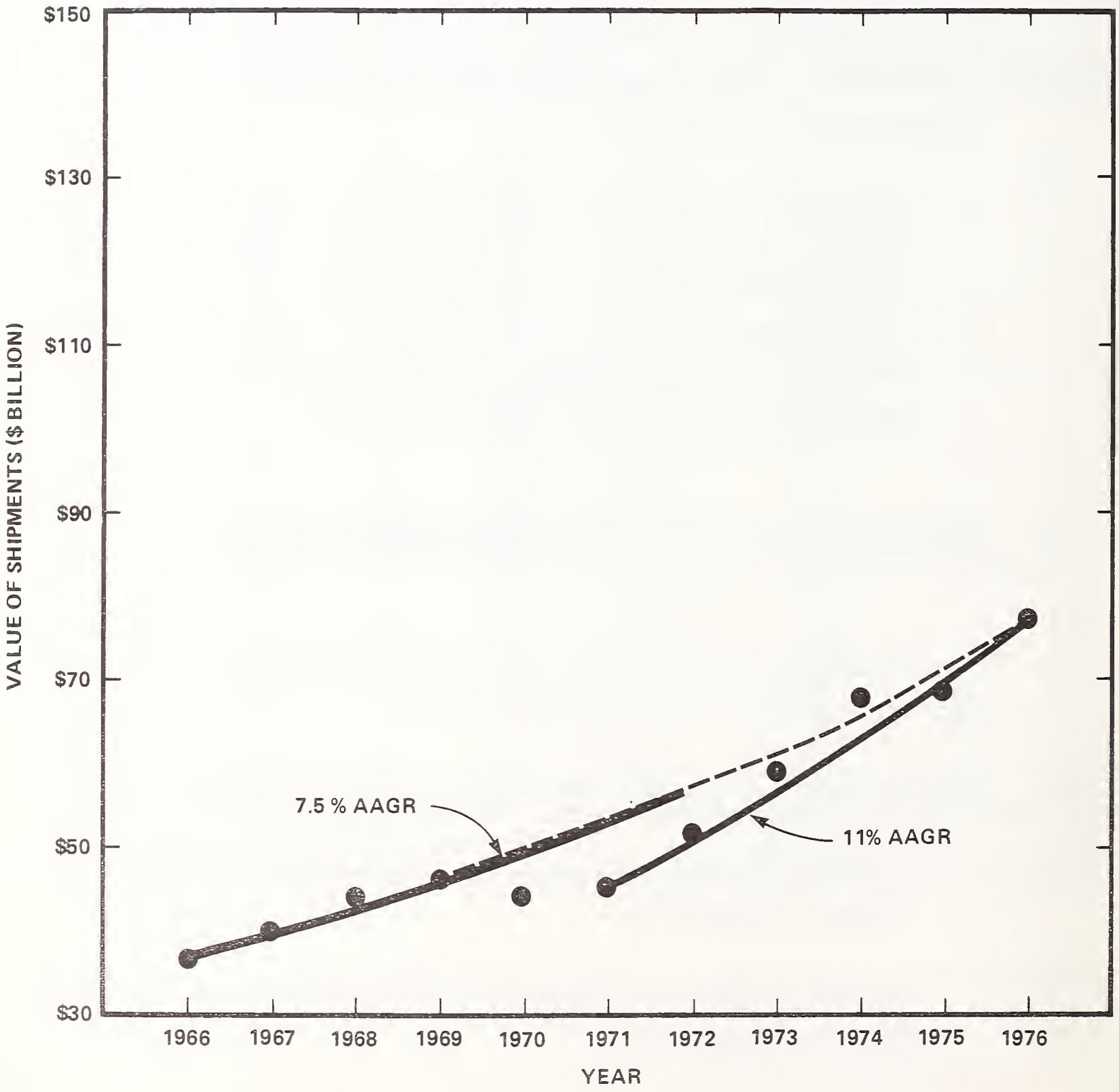


EXHIBIT III–7

PROJECTED GROWTH IN VALUE OF SHIPMENTS FOR FABRICATED METAL PRODUCTS, 1978 – 1983

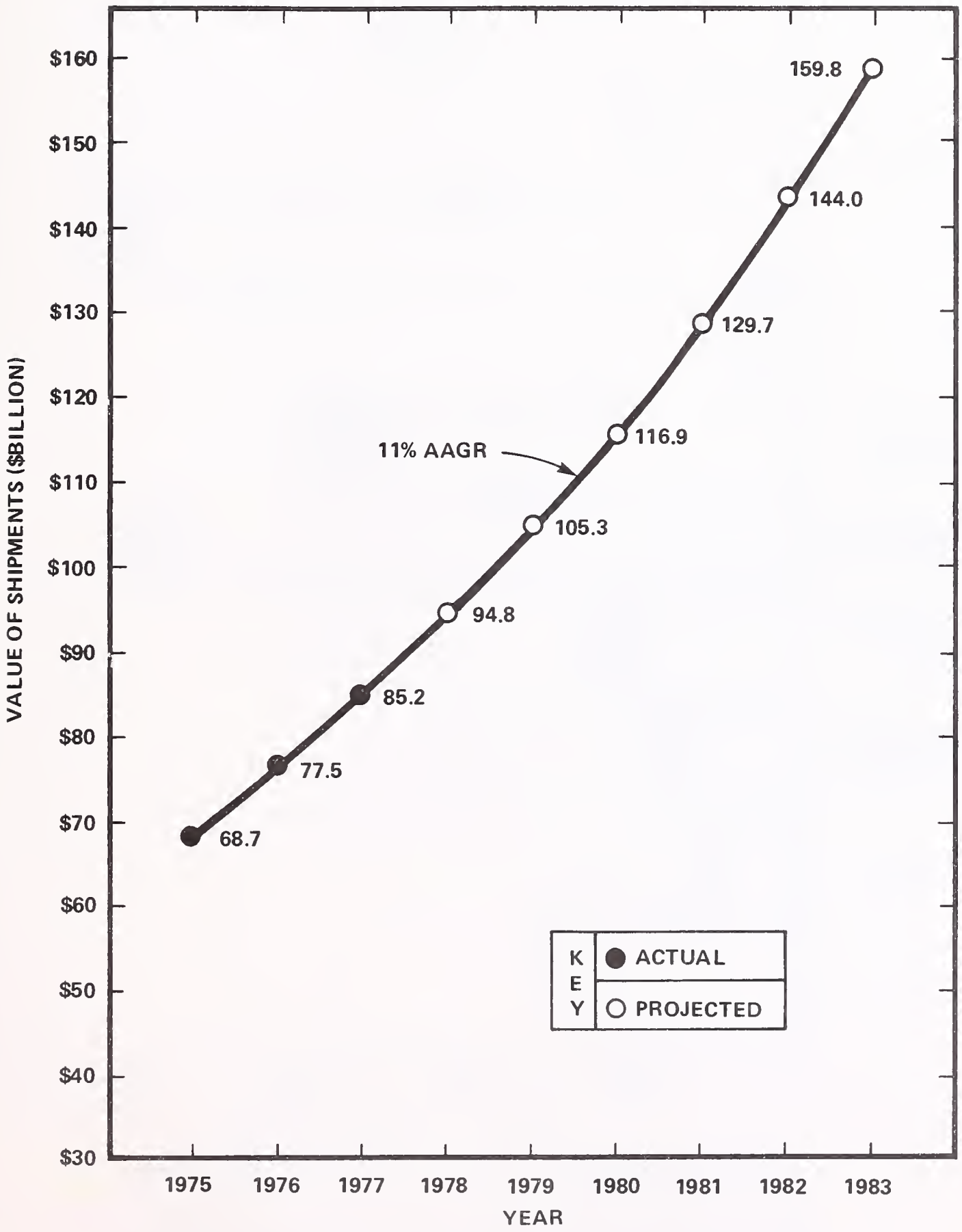
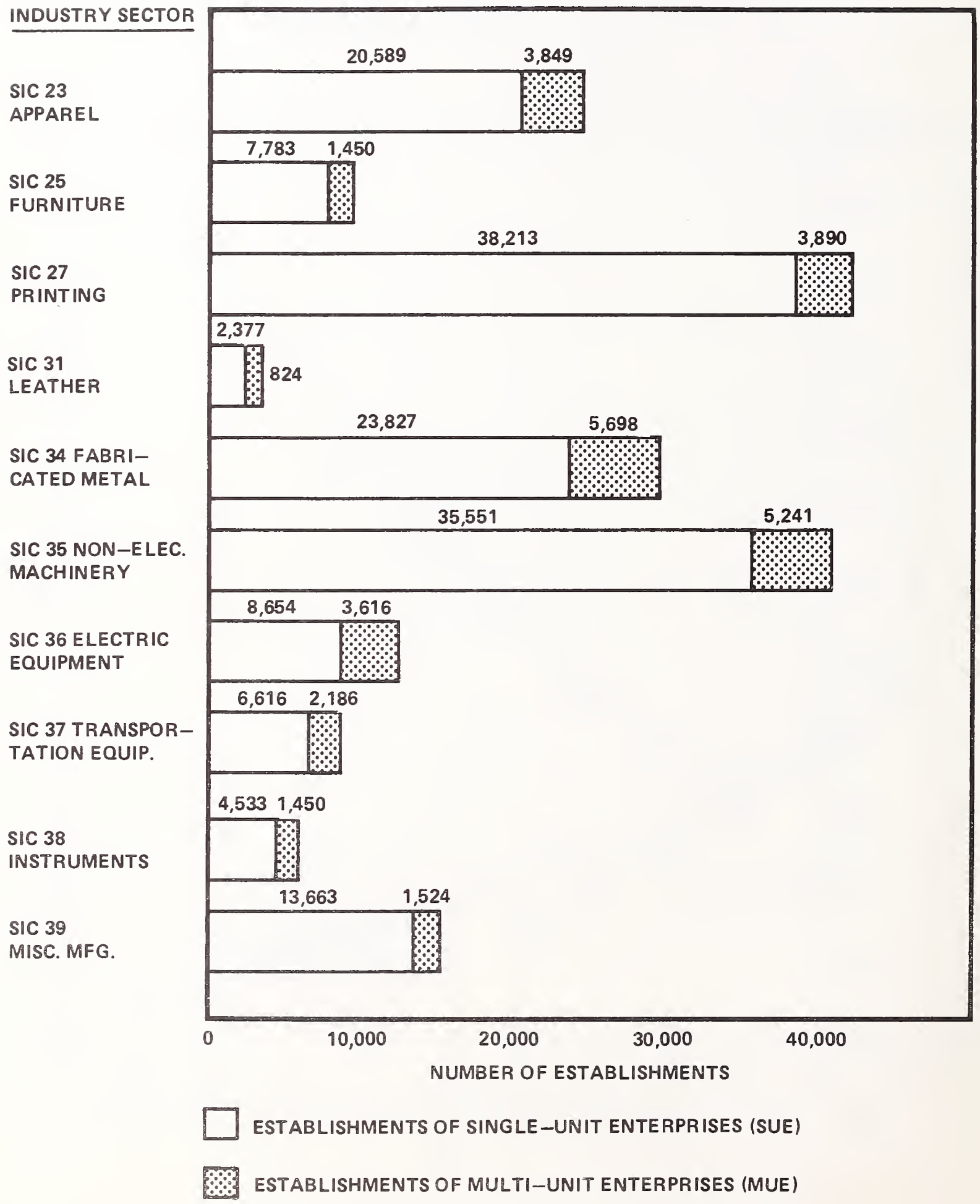


EXHIBIT III– 8

RATIO OF SUE's TO MUE's FOR
DISCRETE MANUFACTURING INDUSTRIES



- There are 200 firms among the Fortune 500 corporations whose primary activity is discrete manufacture. 11.5% of these firms have fabricated metal products as their primary activity (Exhibit III-9).

- Four Fortune 500 firms whose primary activity is discrete manufacture were analyzed. Exhibit III-10 shows the composite structure for the 900 branches (total) of these four firms. Exhibits III-11, 12, 13, and 14 show individual companies.

- It is important to note that the primary function of over 50% of the Fortune 500 companies' branches having the parent company primary function listed as discrete manufacturing is not manufacturing.

  - The average number of branches per Fortune 500 company is 220.

  - Of the firms examined, only 41% of all branch locations had their primary activity in manufacturing.

  - Locations have specific functions. Thirty-five percent of all locations have sales as their primary activity, 12% have financial functions as their primary activity, and the primary activity of 3% of the branch locations is transportation.

  - The companies are different from one another. However, wholesale trade is of key importance in all companies, followed by retail sales, finance, and services.

EXHIBIT III–9

PRIMARY CLASSIFICATION AS DISCRETE MANUFACTURING
AMONG 'FORTUNE 500' COMPANIES

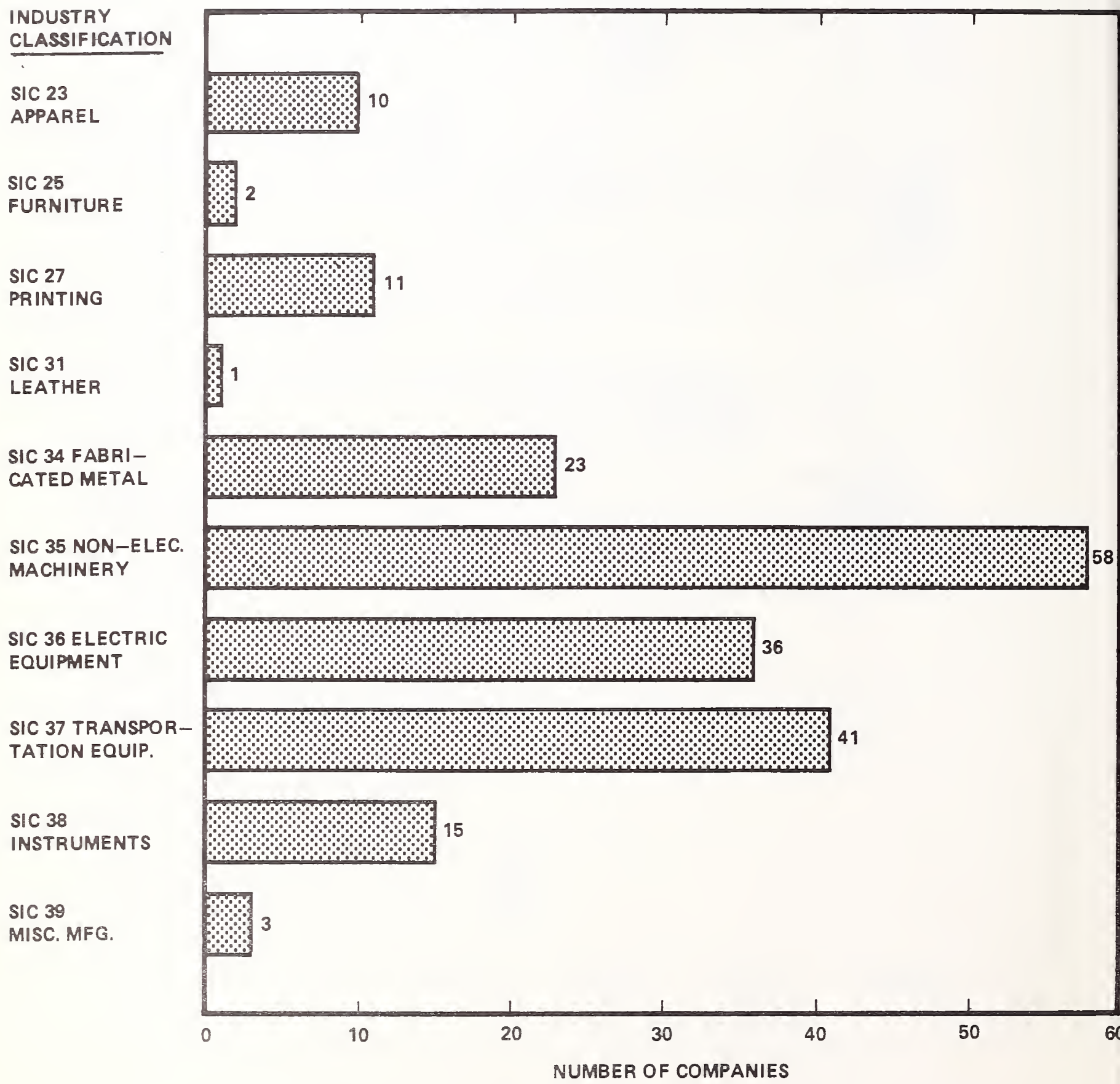


EXHIBIT III – 10

COMPOSITE CORPORATE STRUCTURE PROFILE

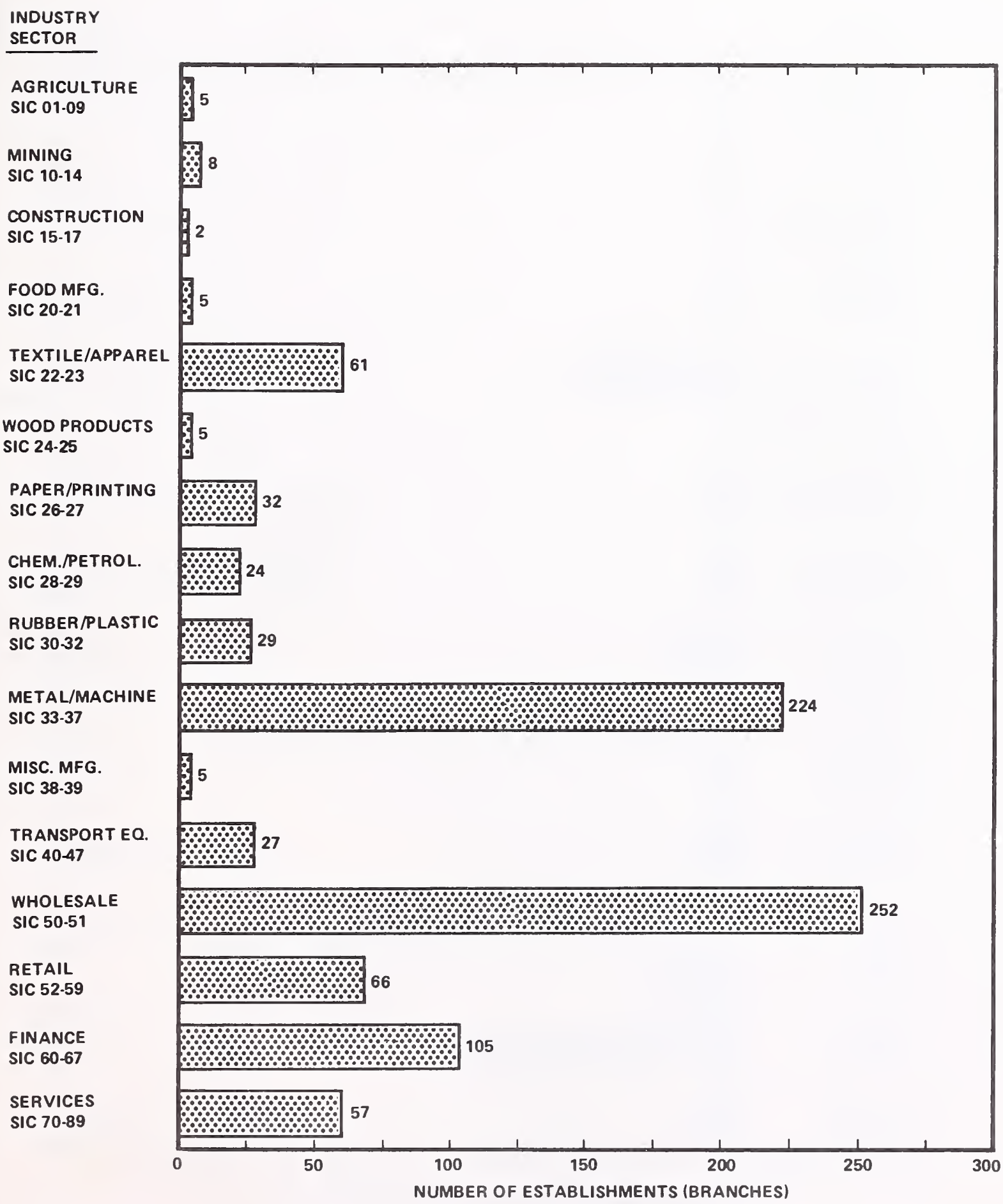


EXHIBIT III – 11

"COMPANY A" CORPORATE STRUCTURE PROFILE

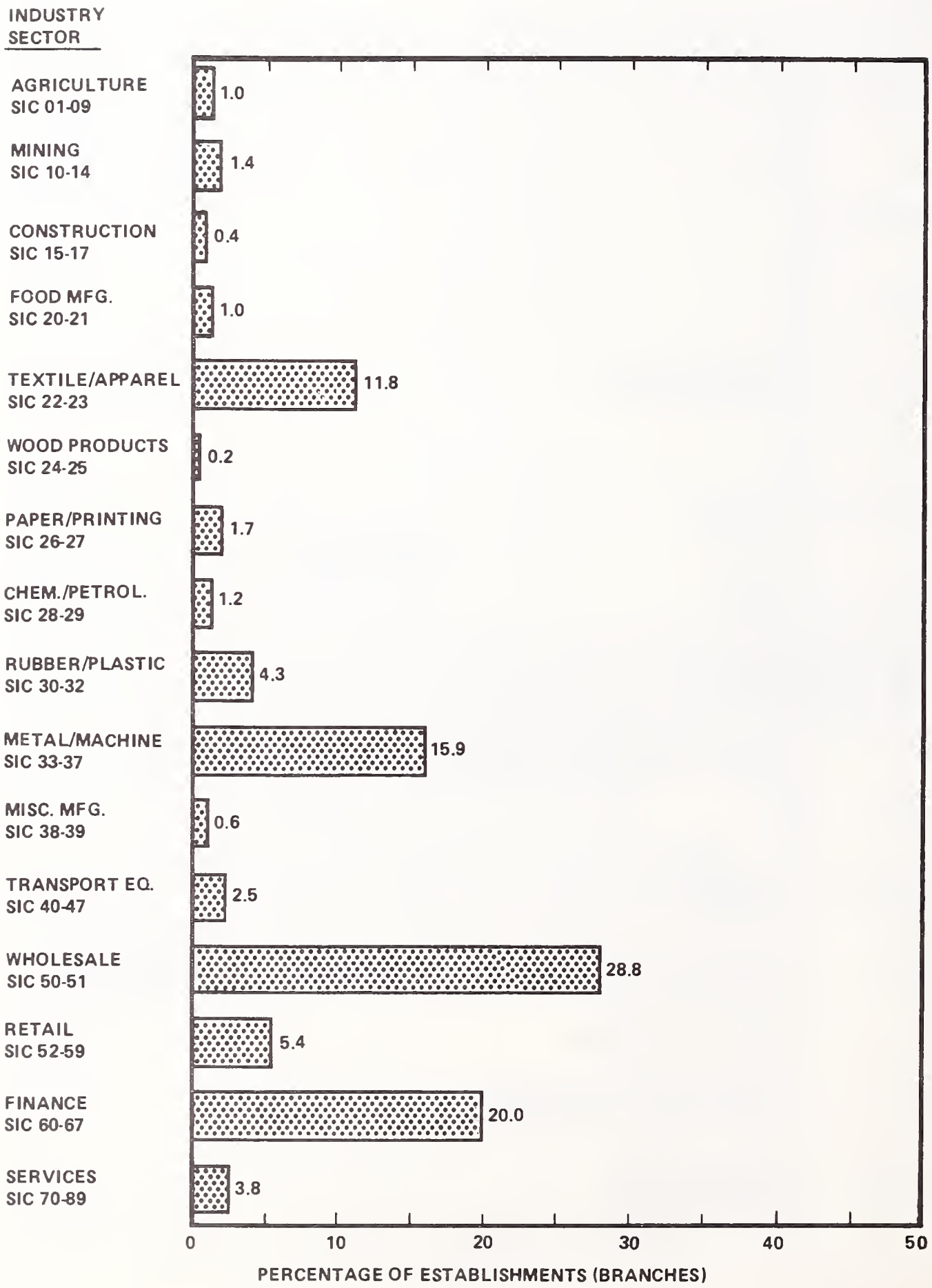


EXHIBIT III – 12

"COMPANY B" CORPORATE STRUCTURE PROFILE

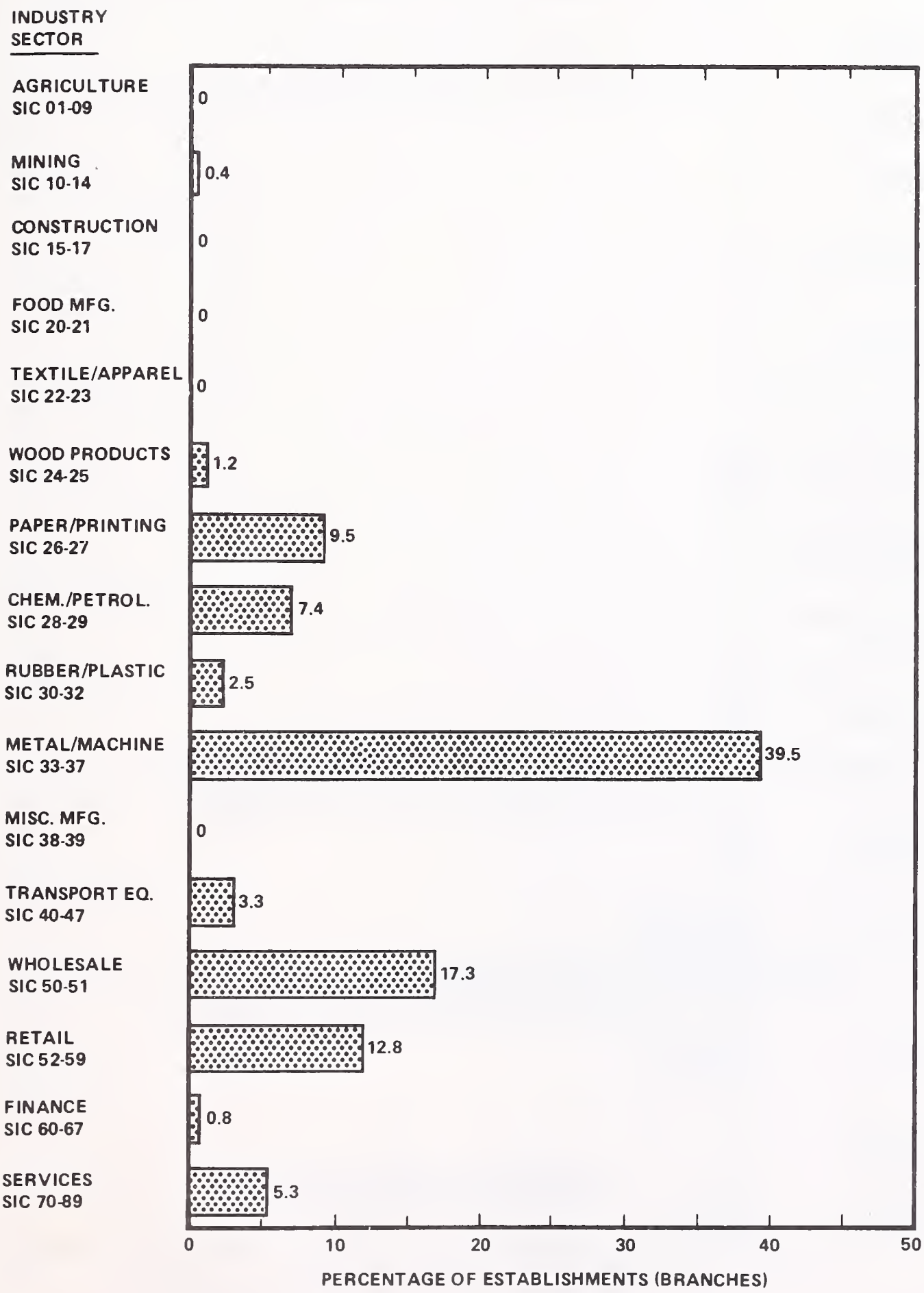


EXHIBIT III – 13

"COMPANY C" CORPORATE STRUCTURE PROFILE

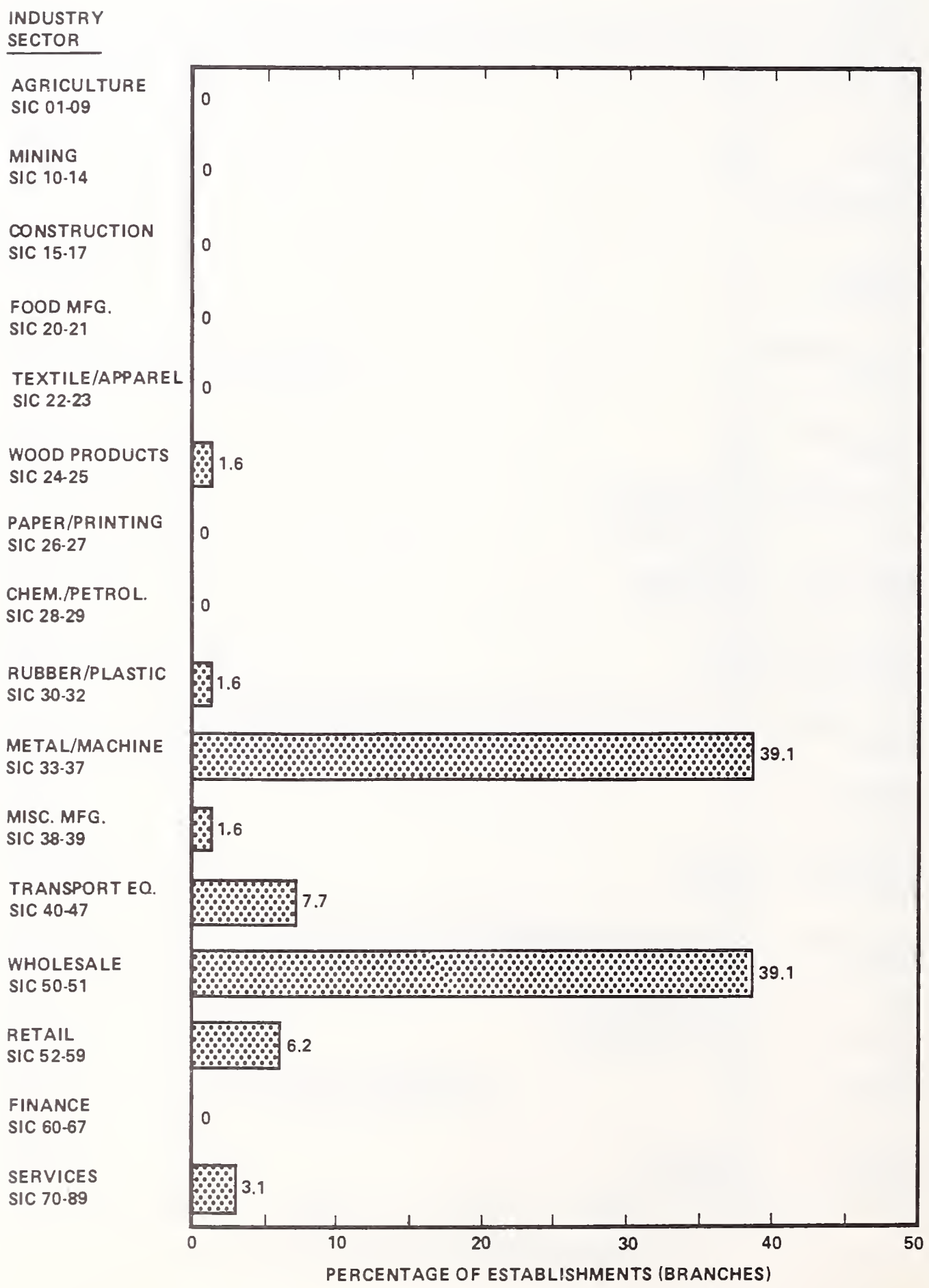
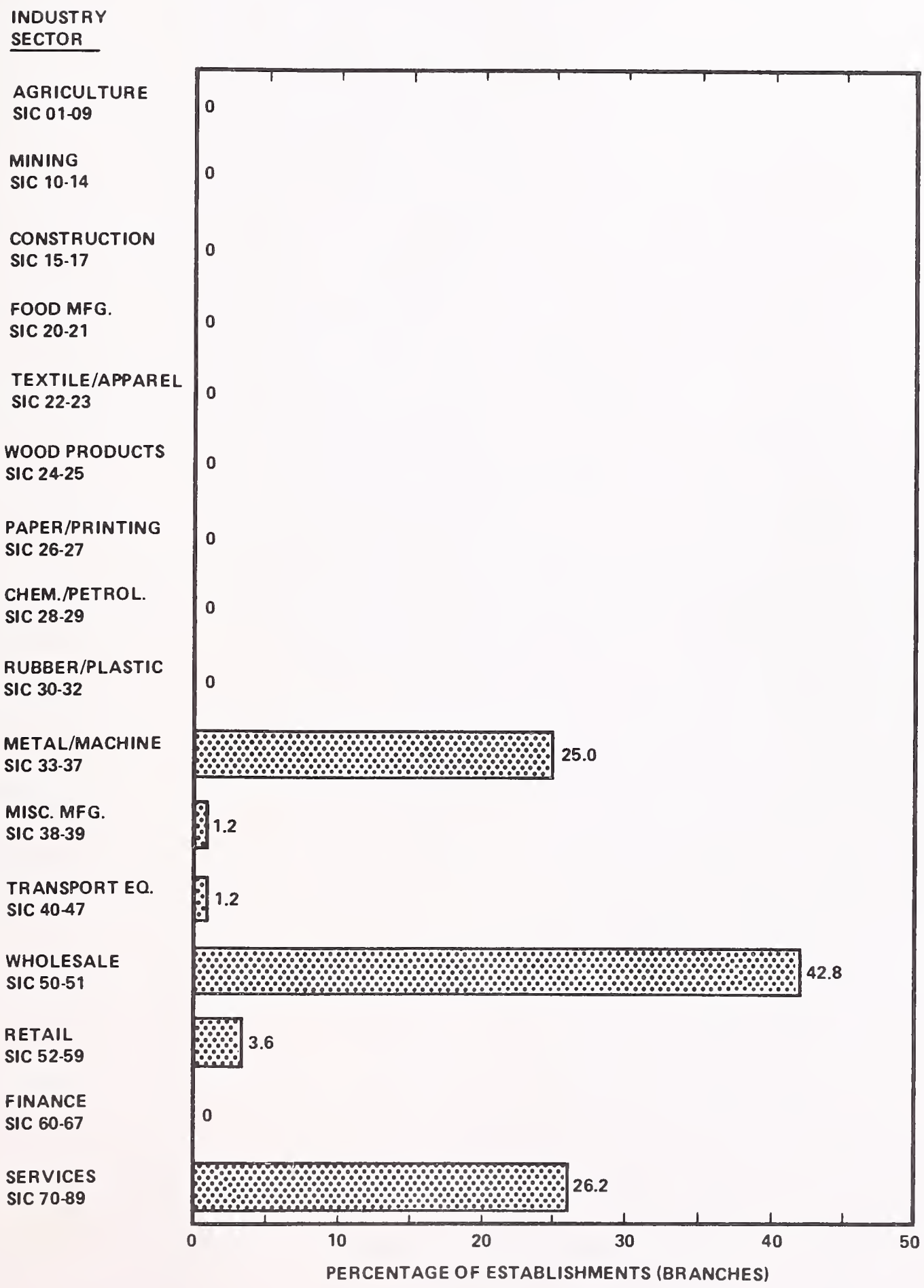


EXHIBIT III – 14

"COMPANY D" CORPORATE STRUCTURE PROFILE



IV PURCHASE POINTS AND DECISION PROCESS

IV PURCHASE POINTS AND DECISION PROCESS

A. TYPICAL SCENARIOS

- Small establishments choose information processing equipment and services in an "informal" manner. This does not imply that the decision process is poorly executed or that an evaluation of equipment or services does not take place. However, the small firm does not have the large dedicated staff to manage the EDP, office, and communications activities that the Fortune 500 companies have.

- The choice of vendors to be investigated as suppliers of equipment or services is made on the basis of familiarity with the vendors. Exhibits IV-1 and IV-2 show the sources used to find these vendors by branches and independents.

- Exhibit IV-3 reports typical respondent comments as to their preferred information sources and the absense of using vendor analysis sources; e.g, Datapro.

EXHIBIT IV – 1

PREFERRED INFORMATION SOURCES
AS REPORTED BY RESPONDENTS
(BRANCHES)

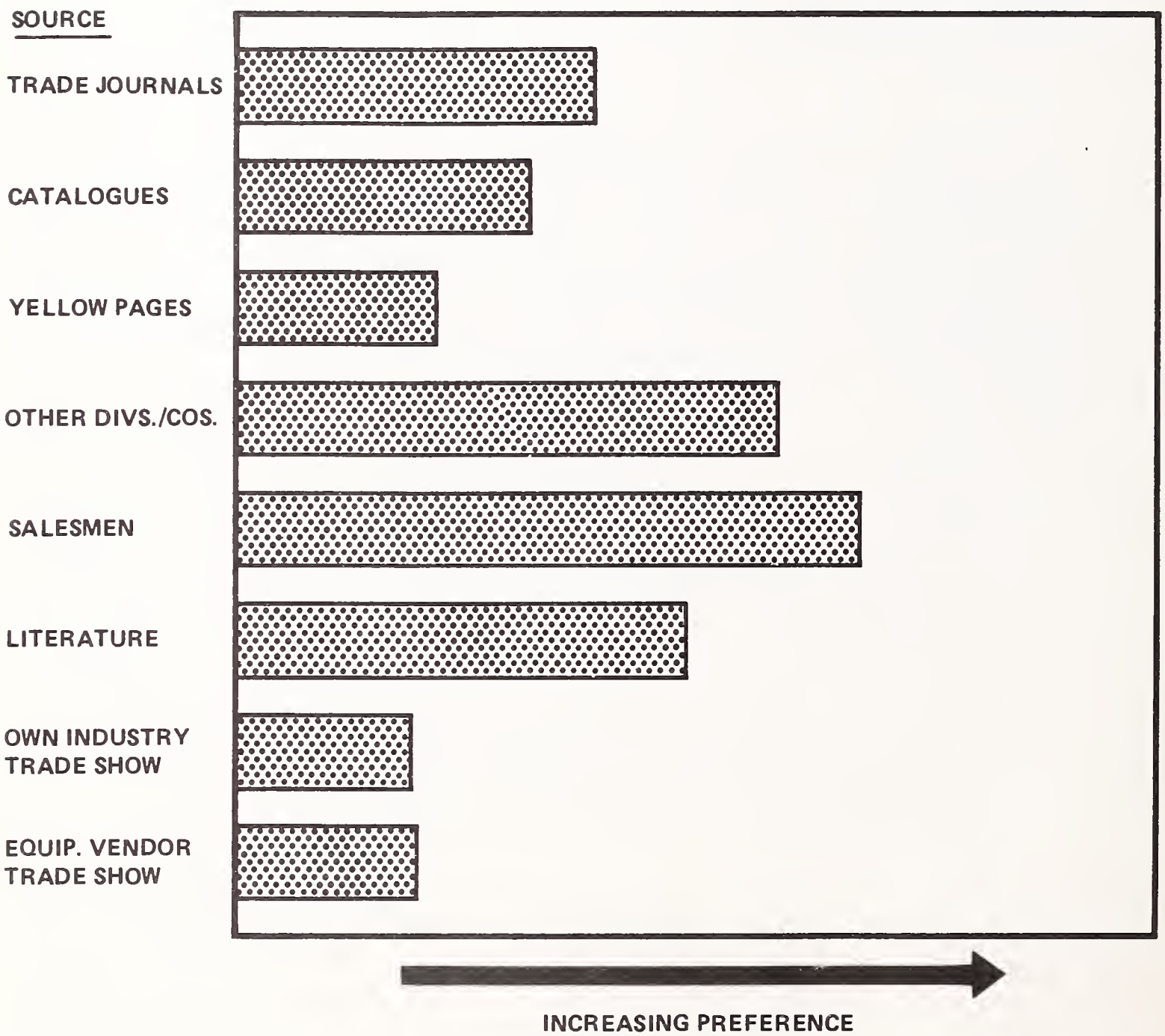


EXHIBIT IV – 2

PREFERRED INFORMATION SOURCES AS REPORTED BY RESPONDENTS (INDEPENDENTS)

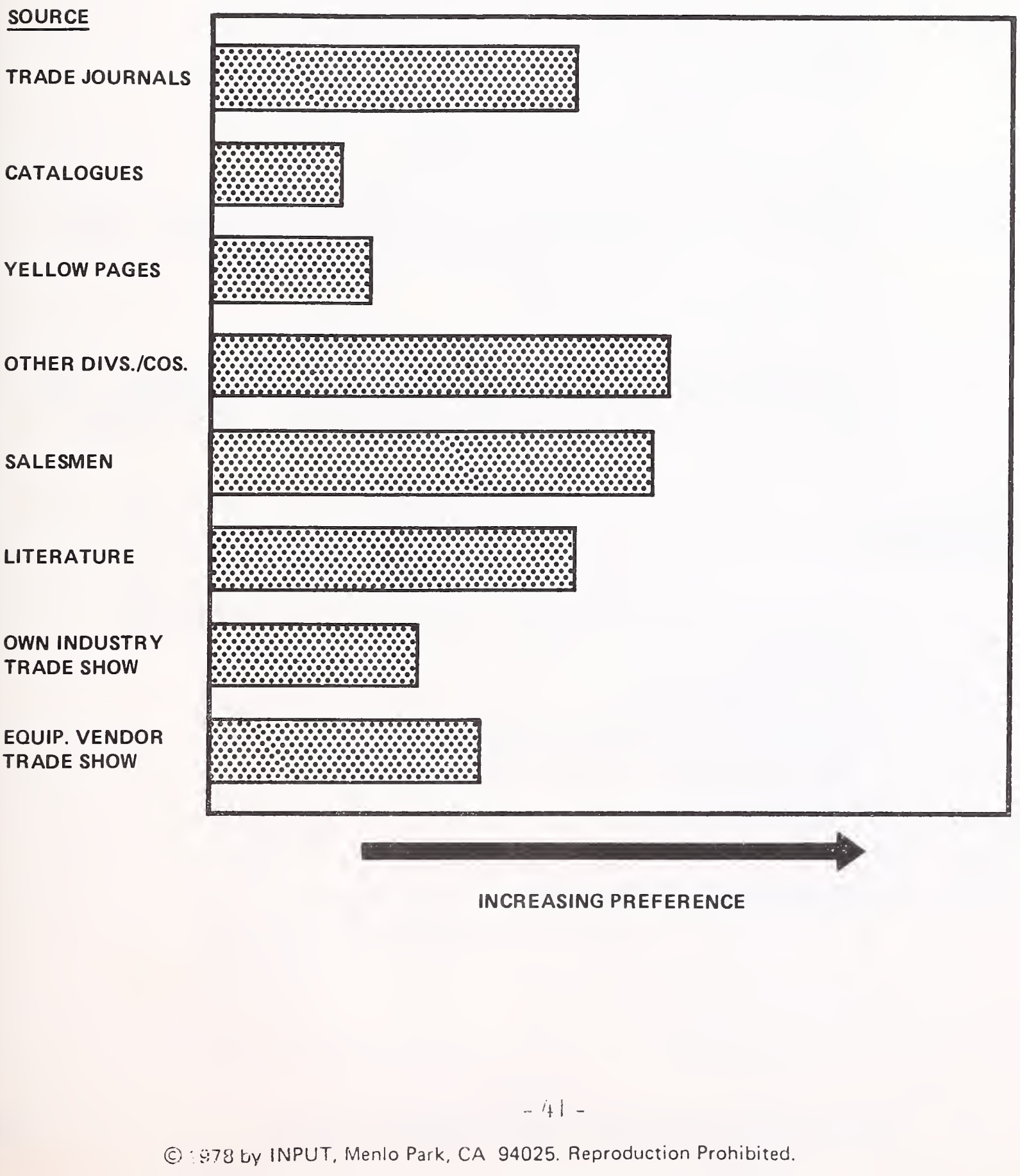


EXHIBIT IV-3

PREFERRED INFORMATION SOURCES - COMMENTS

INDEPENDENTS

- "THOMAS REGISTER"
- "TALK TO SALES REPS FROM PREVIOUS PURCHASES"
- "SALESPEOPLE LIST FROM PAST DEALINGS"
- "ROOFING ASSOCIATION"
- "BUSINESS WEEK, FORTUNE, ETC."
- "OFFICE MAGAZINE"
- "INSTALL EQUIPMENT ON TRIAL BASIS"
- "NO PREFERENCE"
- "CONSTANTLY DELUGED WITH CALLS FROM SALESPEOPLE - WISH THEY WOULD LEAVE ME ALONE"
- "KEEP AN INFORMATION FILE"
- "STICK TO OLD SUPPLIERS"
- "CALL IBM"
- "RATHER DEAL WITH PEOPLE WHO HAVE SYSTEMS THAN THOSE SELLING THEM"

BRANCHES

- "WE HAVE NO CONTROL OVER A PAPER CLIP - NO PURCHASE AUTHORITY"
- "USE A DISTRIBUTOR"
- "CORPORATE RECOMMENDATIONS"
- "TALK TO FRIENDS AND SEE THEIR EQUIPMENT"
- "CURRENT SUPPLIERS"
- "THOMAS REGISTER NOT MUCH USE"
- "YELLOW PAGES INVALUABLE"

- Top management is heavily involved in the decision process, although formal five year plans for acquisition of information processing equipment are not used. Thus the initiation of a purchase decision process depends upon the discovery of a need through some event such as a salesman's call, a trade show visit, or a conversation with another user firm.

- Factors involved in the final purchase decision process are shown in Exhibits IV-4 and IV-5. Note that branches and independents both follow the same pattern and that committees and financial analysis are usually required for a decision. (The role of the corporation in a branch purchase process is discussed in Section III-C)

- The time required for the purchase decision is from one to six months; however, if a national corporate account is involved (for a branch), a year or more is not uncommon.

B. DECISION MAKERS AT THE SMALL ESTABLISHMENT SITE

- Who is involved in purchase decisions, and which approval levels are required, varies depending upon the type of equipment or service purchased, as can be seen from the series of Exhibits IV-6 through IV-12.

  - While these exhibits show generally that top management is involved in the decision more than half the time for independents, top management involvement is required less than half the time for branches.

  - On the other hand, branch purchase decisions require corporate level involvement to a much higher degree than for independents, varying from 71% of the time for EDP equipment (Exhibit IV-6) to only 19% of the time for supplies (Exhibit IV-12).

EXHIBIT IV – 4

FACTORS IN FINAL DECISION
(BY SIZE OF ESTABLISHMENT)

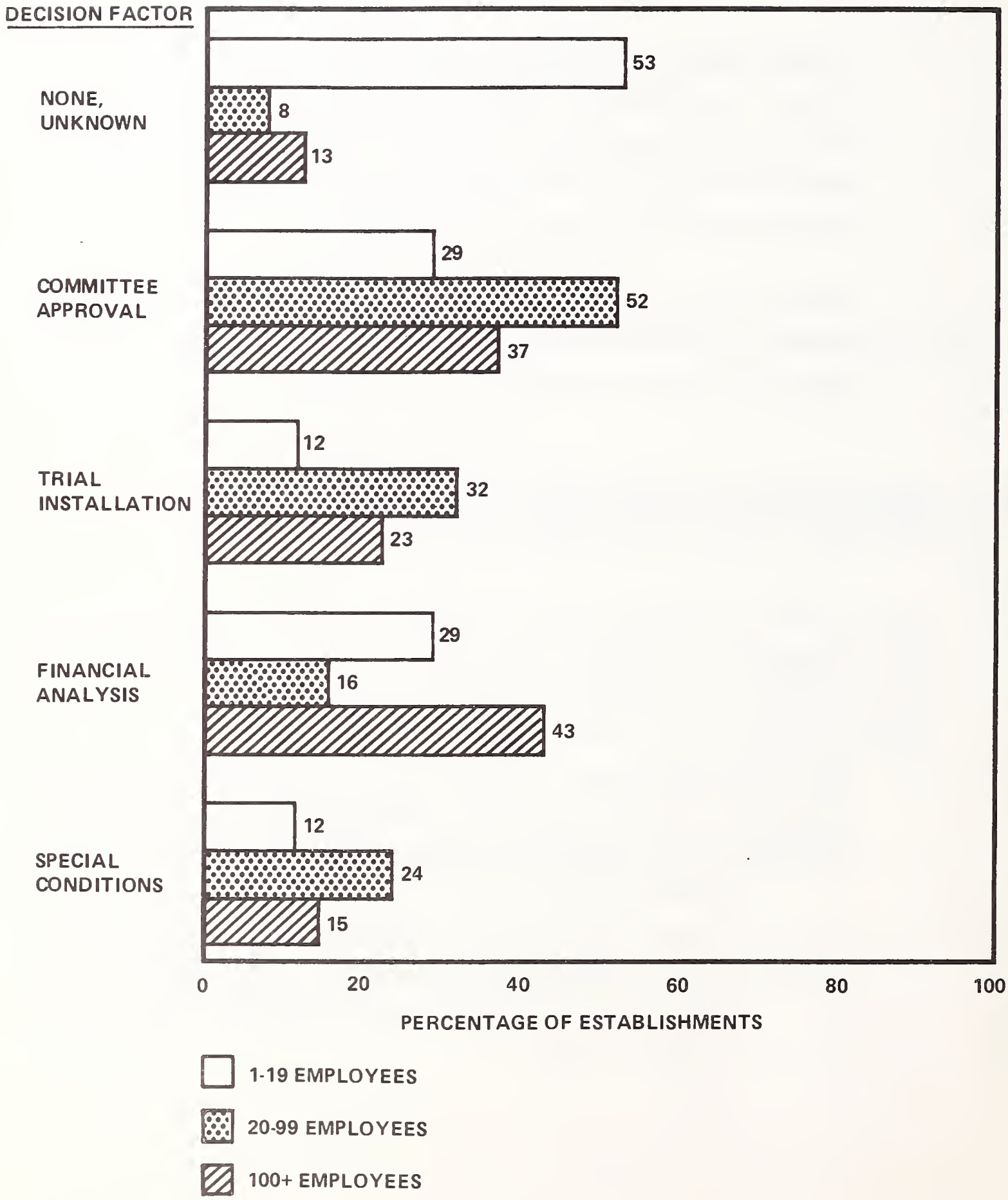


EXHIBIT IV – 5

FACTORS IN FINAL DECISION
(BY TYPE OF ESTABLISHMENT)

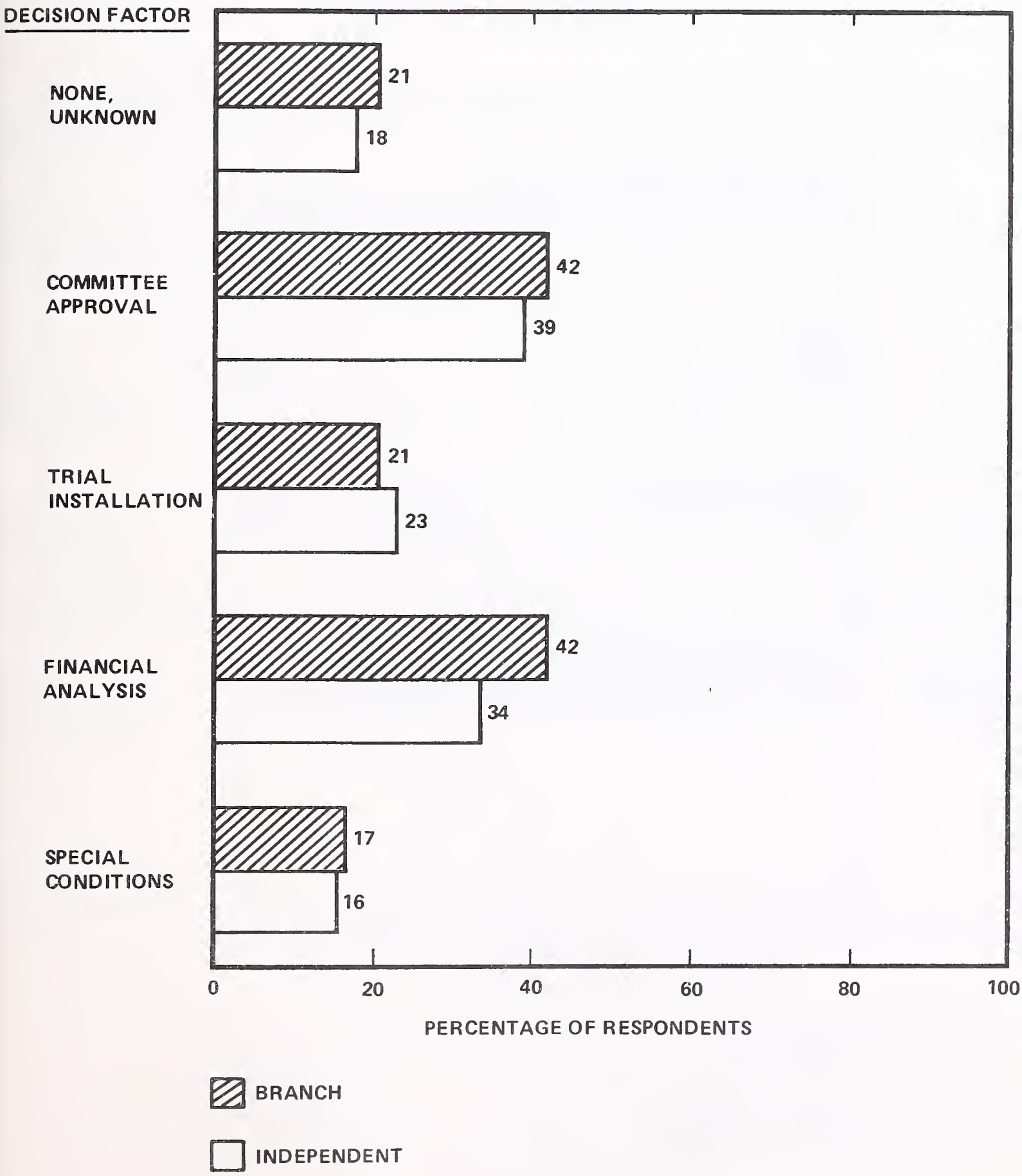


EXHIBIT IV – 6

USER LOCATION APPROVALS REQUIRED
TO OBTAIN EDP EQUIPMENT

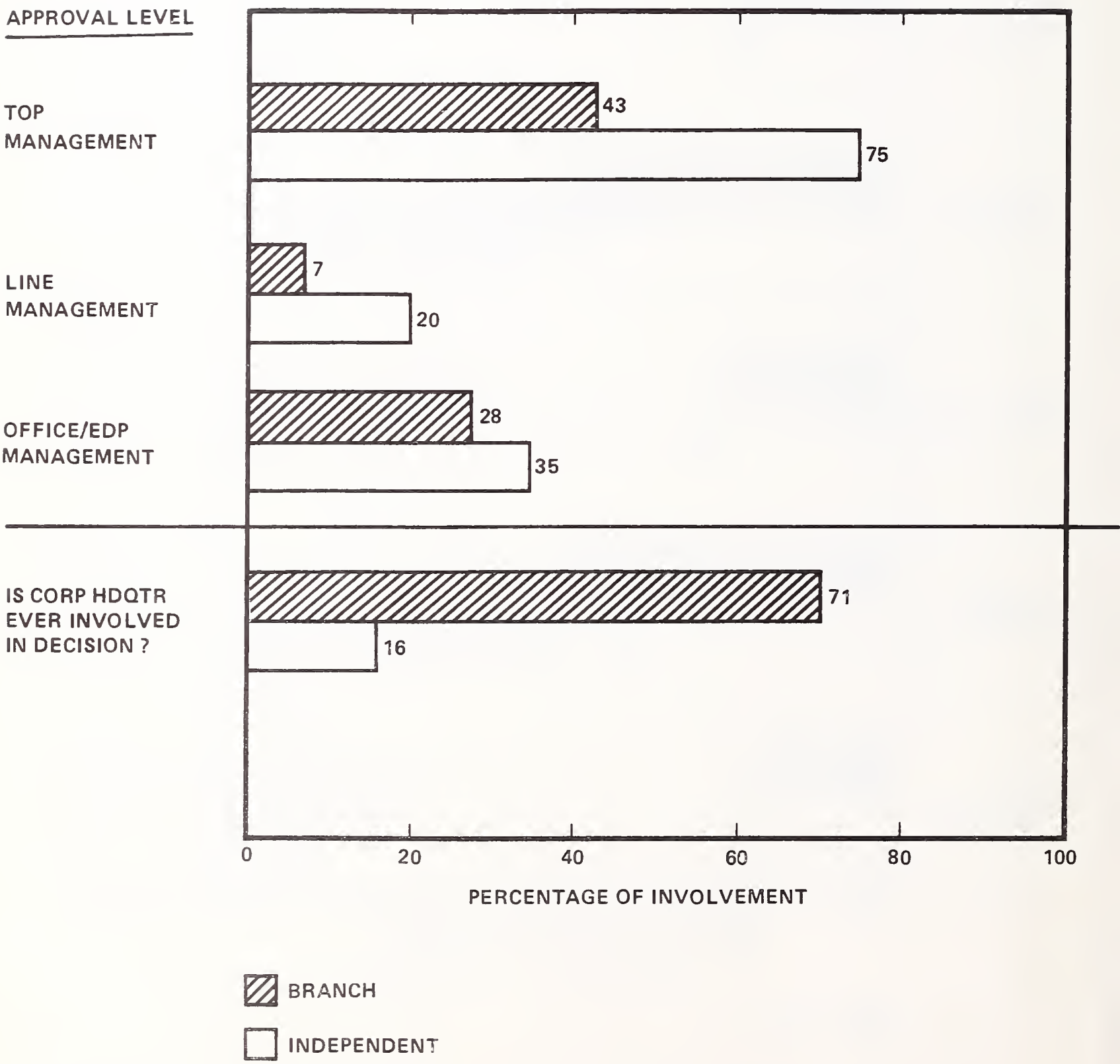


EXHIBIT IV – 7

USER LOCATION APPROVALS REQUIRED TO OBTAIN EDP SERVICES

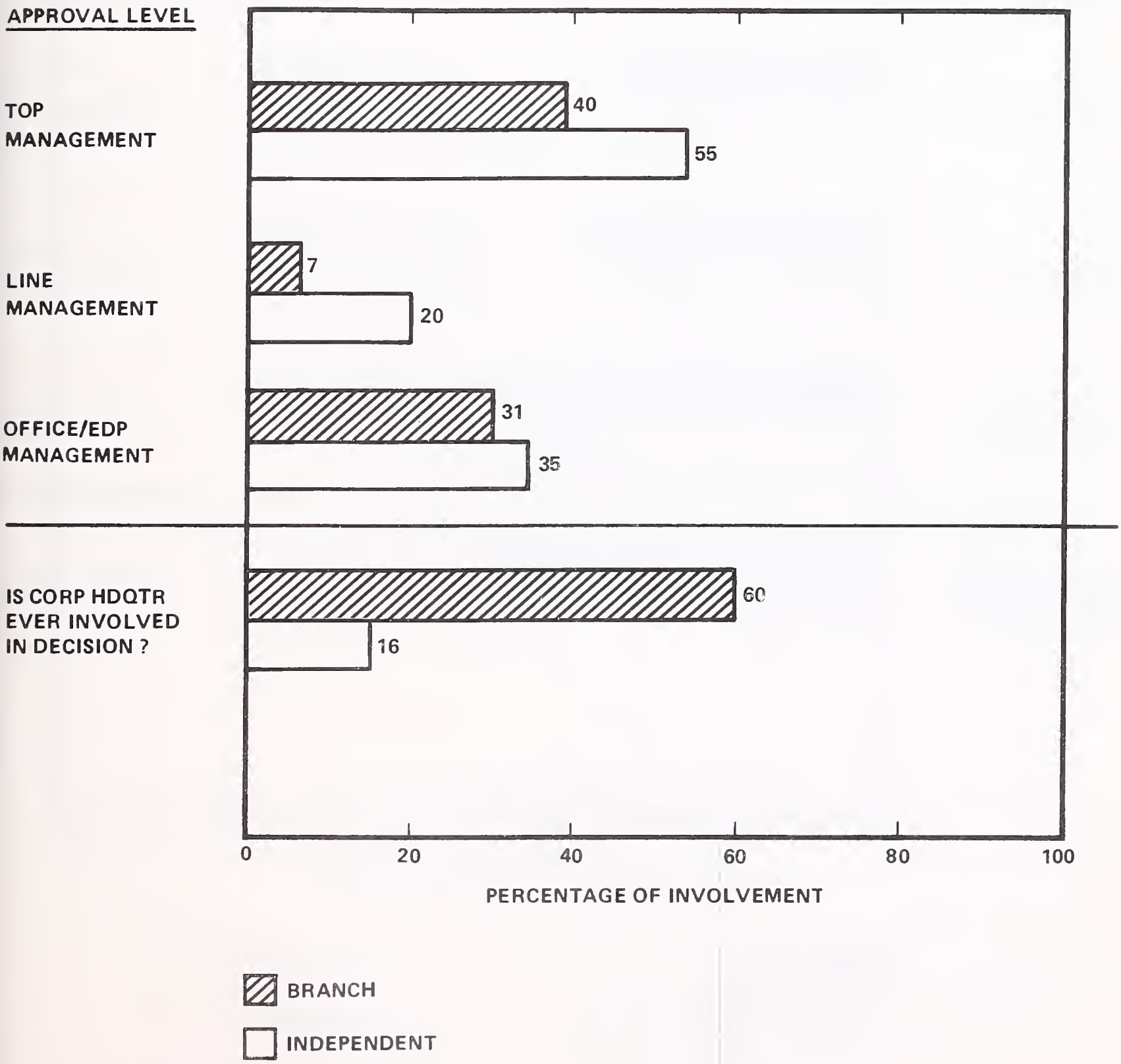


EXHIBIT IV – 8

USER LOCATION APPROVALS REQUIRED
TO OBTAIN OFFICE EQUIPMENT

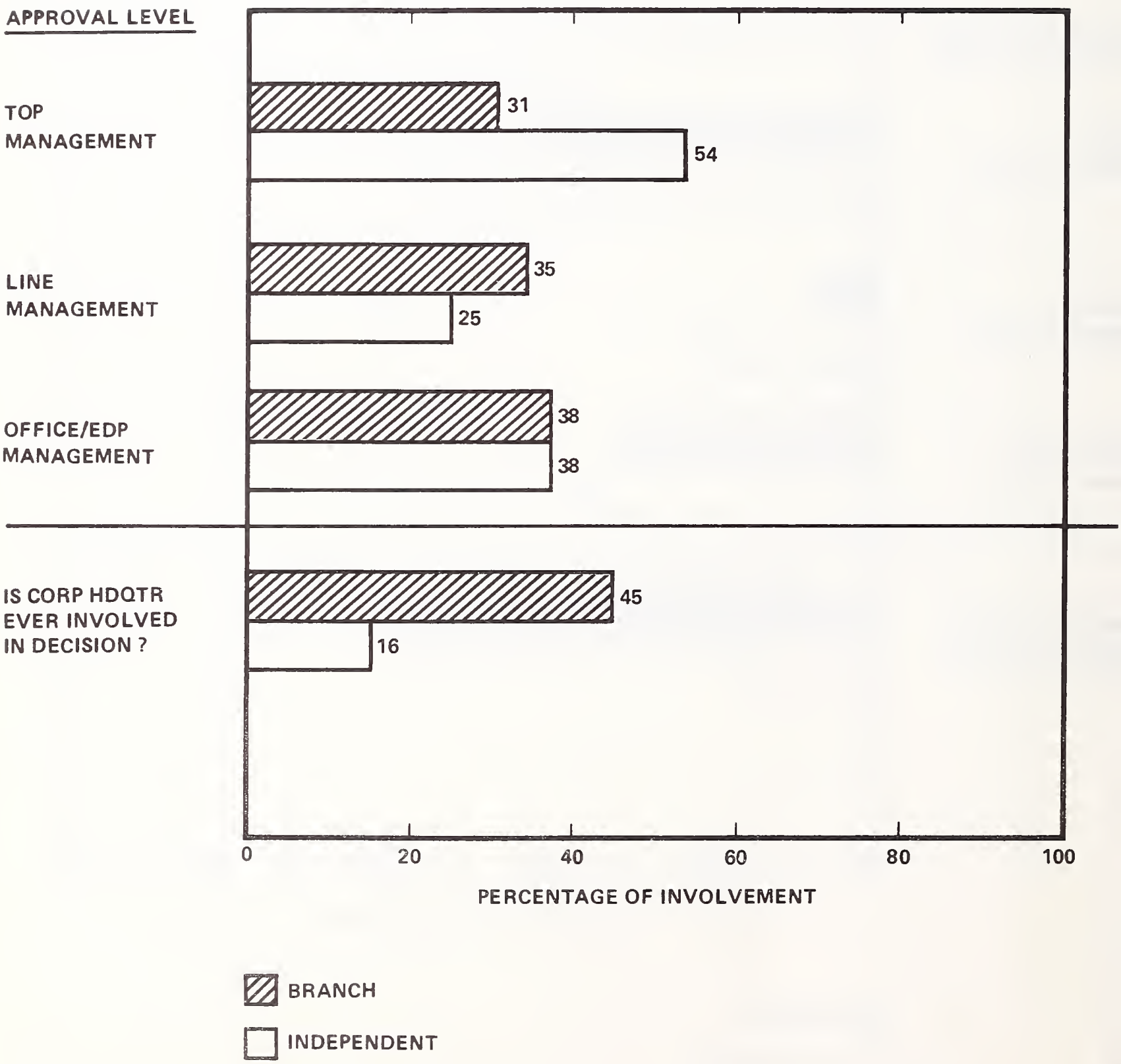


EXHIBIT IV – 9

USER LOCATION APPROVALS REQUIRED
TO OBTAIN OFFICE SERVICES

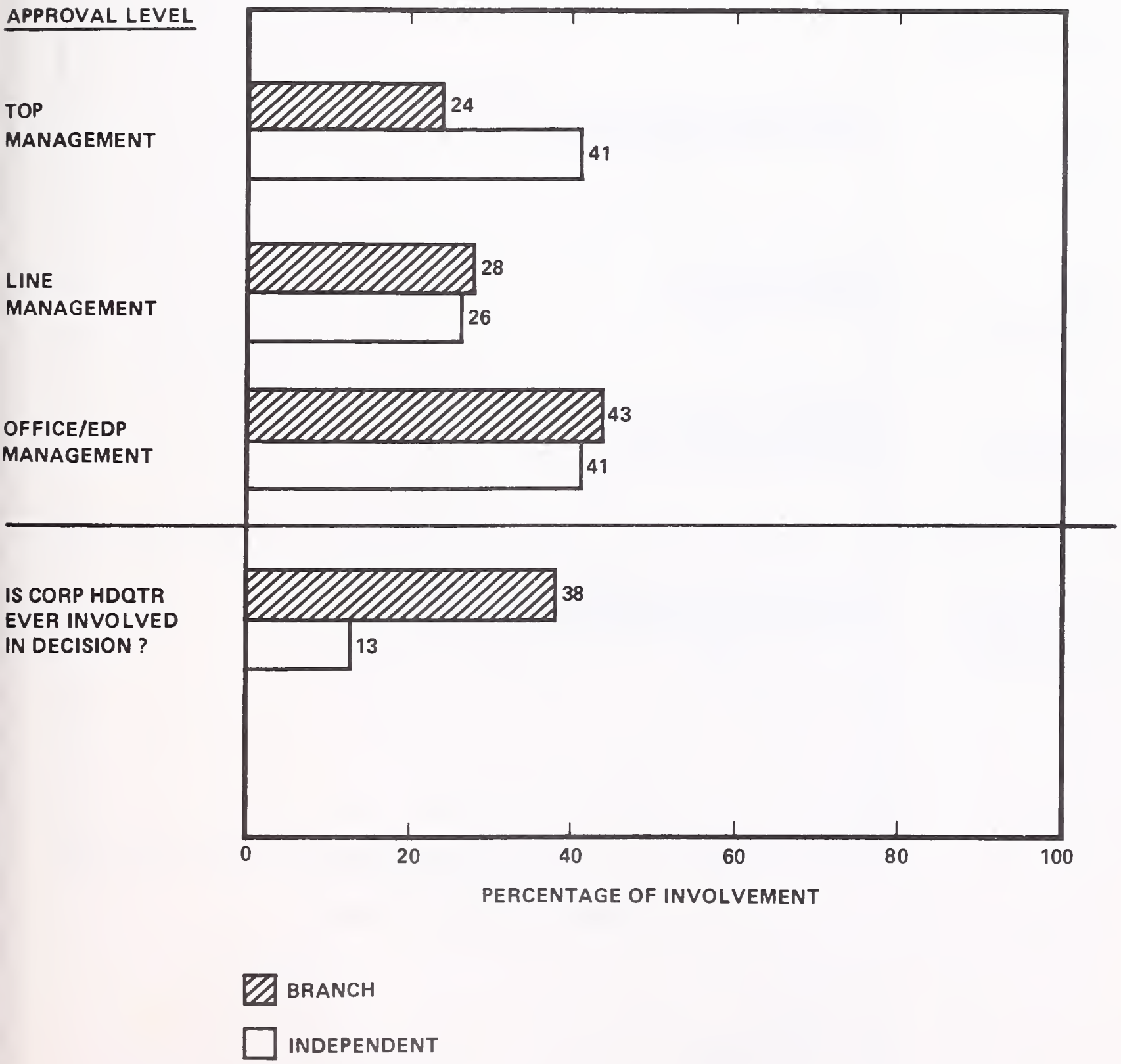
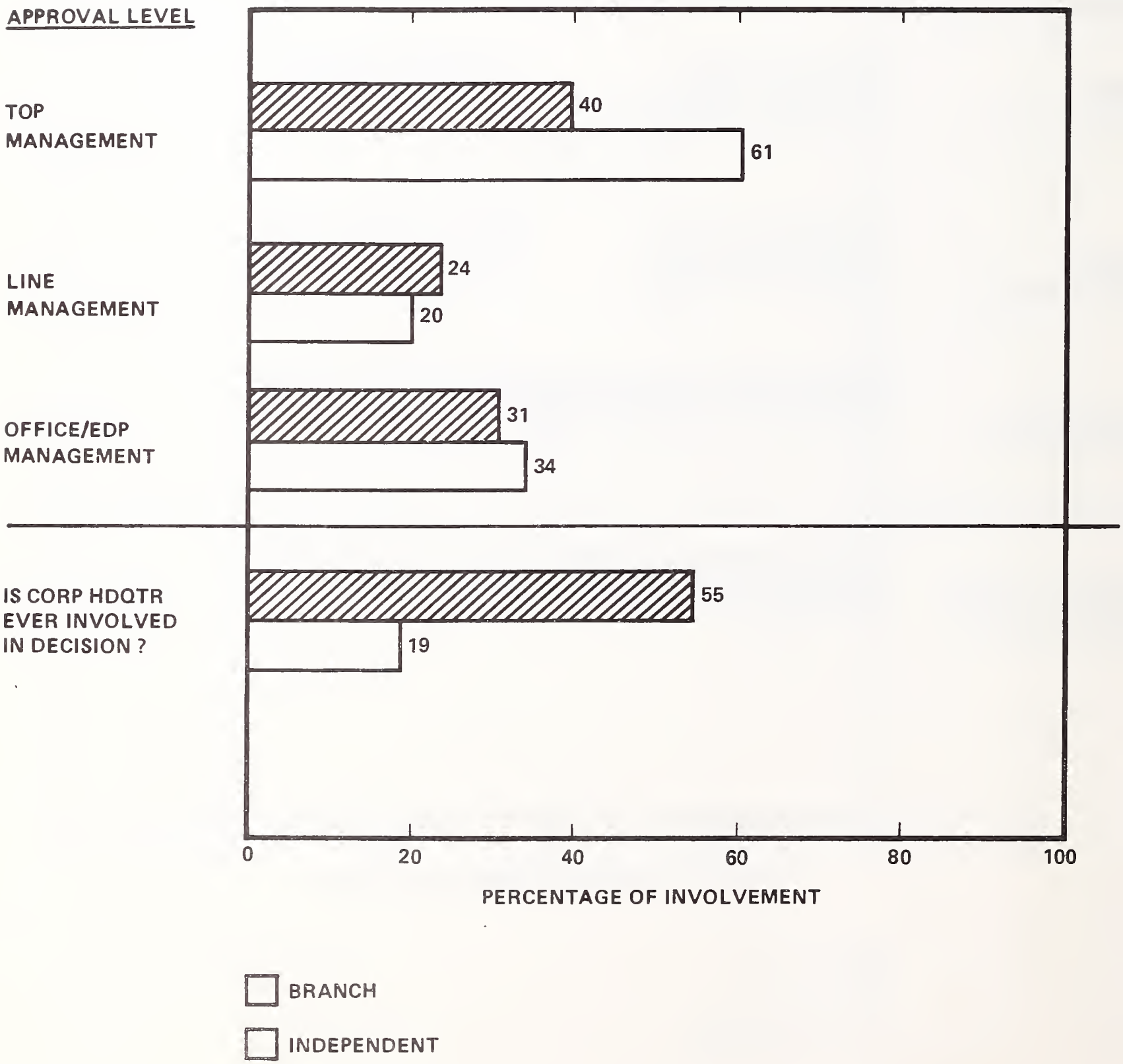


EXHIBIT IV – 10

USER LOCATION APPROVALS REQUIRED
TO OBTAIN COMMUNICATION EQUIPMENT



IN

EXHIBIT IV – 11

USER LOCATION APPROVALS REQUIRED
TO OBTAIN COMMUNICATION SERVICES

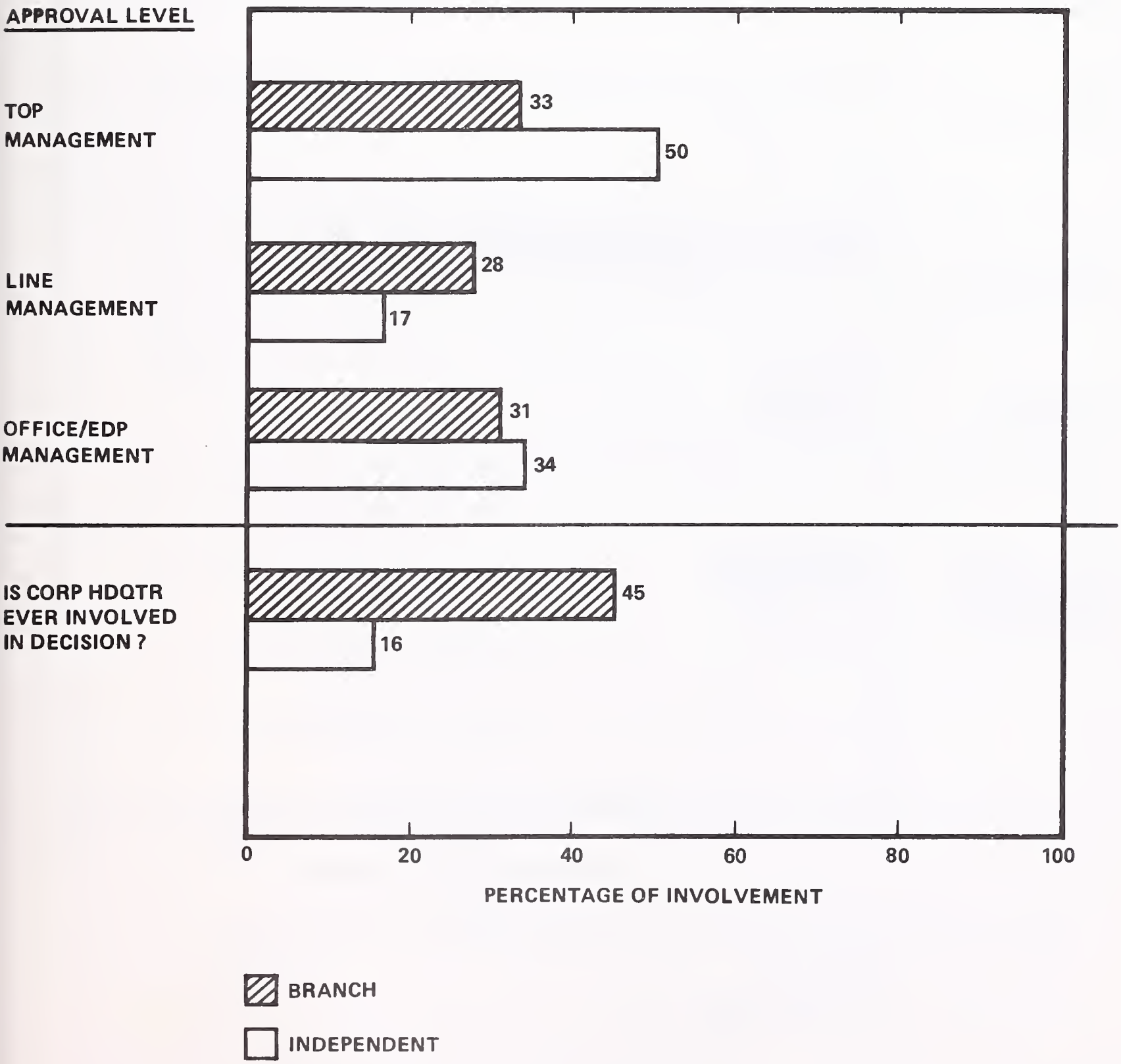
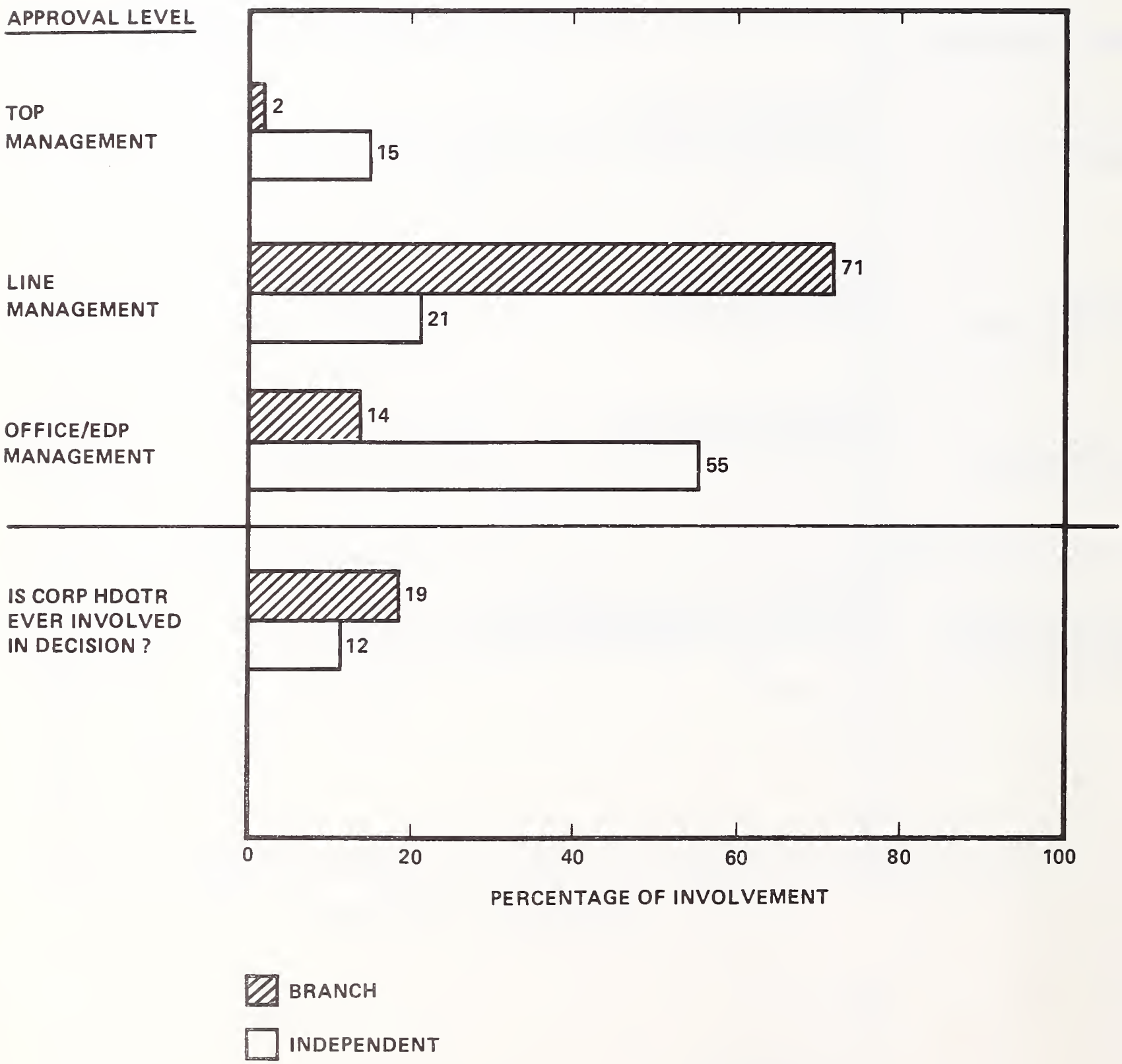


EXHIBIT IV – 12

USER LOCATION APPROVALS REQUIRED
TO OBTAIN SUPPLIES



- However, many times the corporate involvement is only in setting standards or advisory, and the actual decision is made at a branch. See the next section on the corporate point of view (IV-C).

- These percentages of involvement are as reported by the respondents (users), who also reported that the critical factor in two-thirds of the cases was the dollar amount of the purchase (see Exhibit IV-13), but that the type of device made a difference in almost half (44%) of the cases.

C. THE ROLE OF CORPORATE IN THE DECISION PROCESS

- The decision process is actually a series of actions which range from identification of a need to the issuance of a purchase order. The actions can be taken by different people. For example, a department head can identify a need, the EDP staff can evaluate solutions to the need, an executive can authorize the purchase, and a purchasing agent can place the order.

  - Any or all of these people can be located at branches or at corporate headquarters, or at both.

- The steps in the purchase process are:

  - Identification of the need.

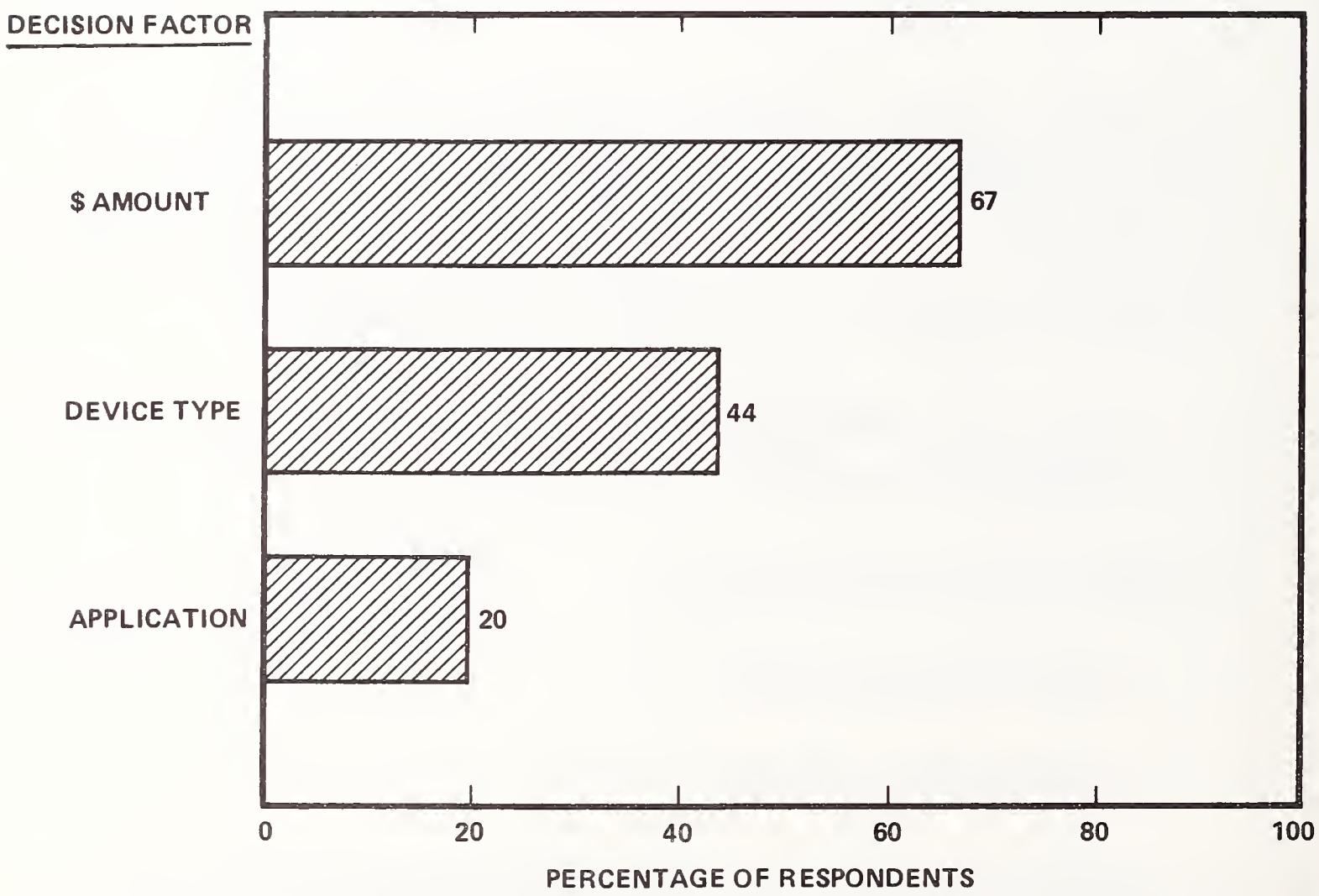
  - Quantification of the need.

  - Identification of a class of equipment or service that can solve the need.

  - Identification of specific equipment or services and vendors for evaluation.

EXHIBIT IV – 13

DECISION FACTORS REQUIRING CORPORATE PARTICIPATION – USER POINT OF VIEW



- Writing technical specifications.

- Handling bidding negotiations.

- Issuing the contract.

- In order to confirm the results of the previous section, INPUT conducted a special study of the corporate headquarters of the firms whose branches were interviewed. Results of the special study are shown in the series of Exhibits IV-14 through 18.

- These exhibits show generally that the corporate participation becomes progressively more important at the later stages of the purchase process, so that for EDP hardware (Exhibit IV-14) corporate headquarters is responsible for identifying needs in only 16% of the cases. However, for issuing purchase orders or contracts, corporate headquarters has sole responsibility in 53% of the cases and acts jointly with the branch an additional 21% of the time for a total involvement of 74%.

- This level of involvement tapers off depending on the type of device and/or the dollar amount involved, so that for purchase of supplies corporate headquarters is involved only 40% of the time even at the purchase order or contract issuance stage.

- The interview results very definitely show that equipment and services for use at the branches is not the sole province of the corporate staff and that in most cases the branch has a greater say than the corporate staff.

- Careful study of these shifting roles, as well as of the capsule descriptions of typical corporate purchasing policies shown in Exhibit IV-19, reveal many opportunities for sales to be made directly at the branch locations of Fortune 500 firms without any outside involvement or additional approvals required from headquarters.

EXHIBIT IV – 14

CORPORATE ROLE IN DECISION-MAKING FOR EDP HARDWARE – CORPORATE POINT OF VIEW

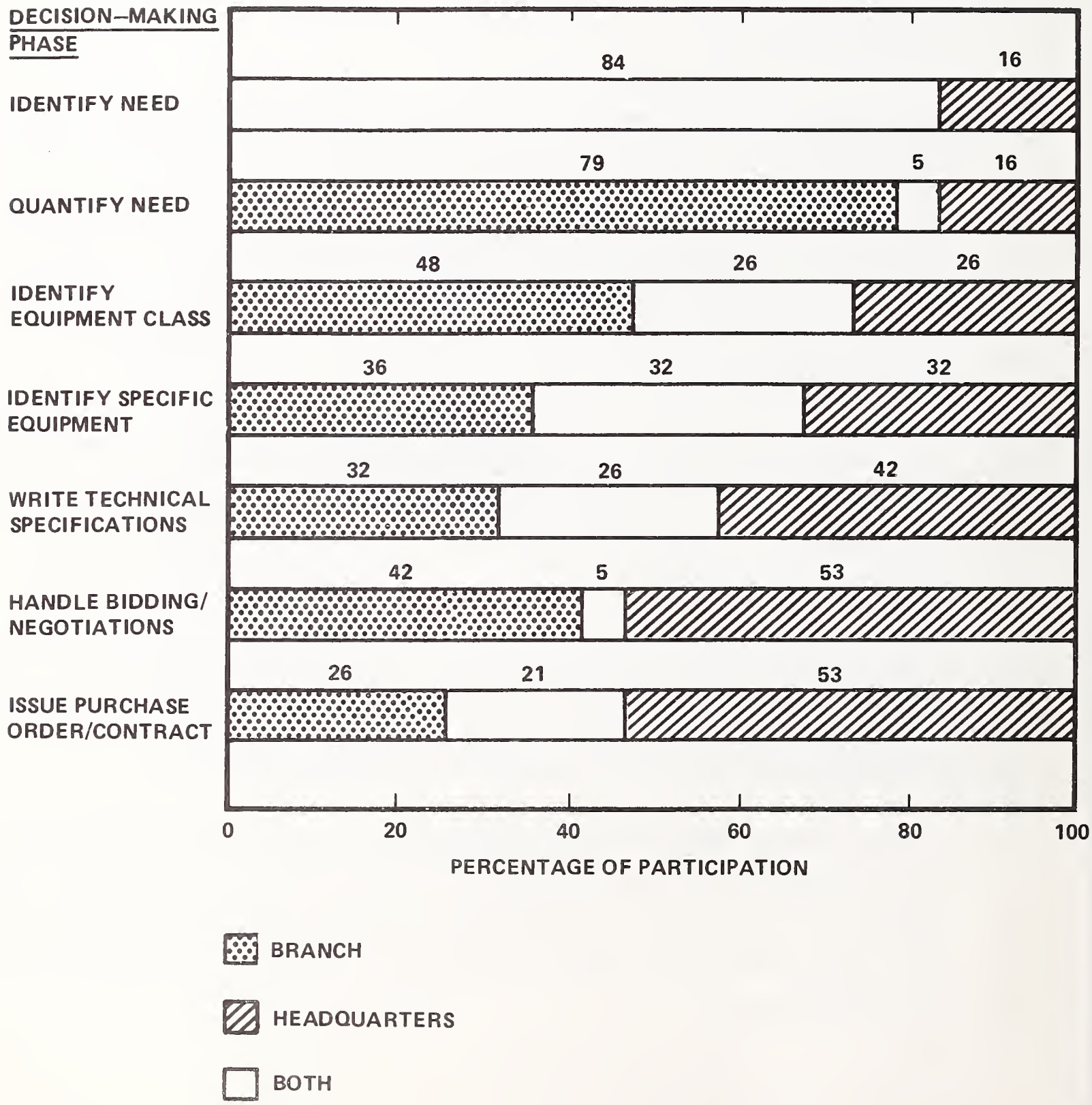


EXHIBIT IV – 15

CORPORATE ROLE IN DECISION-MAKING FOR EDP SERVICES – CORPORATE POINT OF VIEW

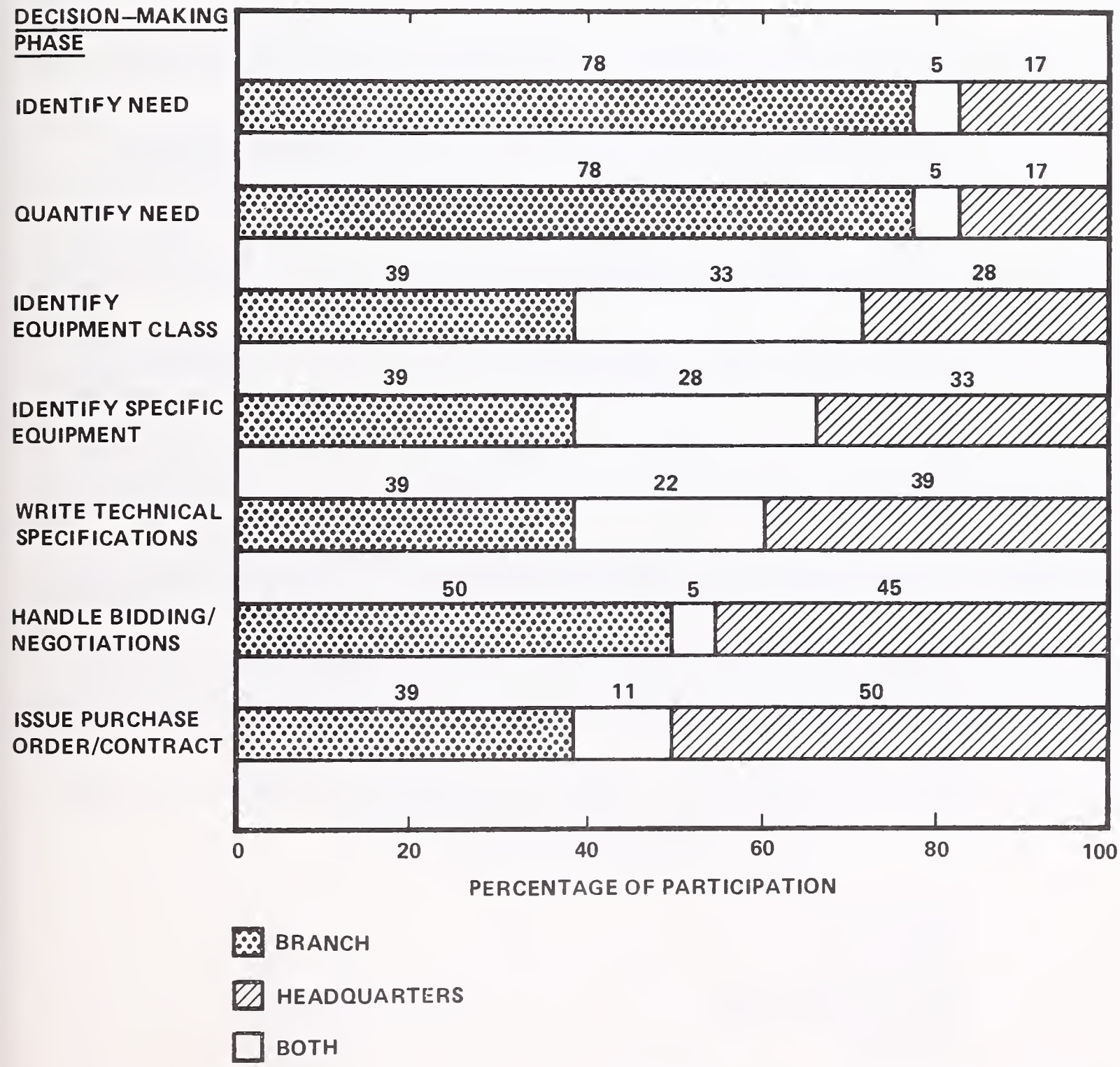
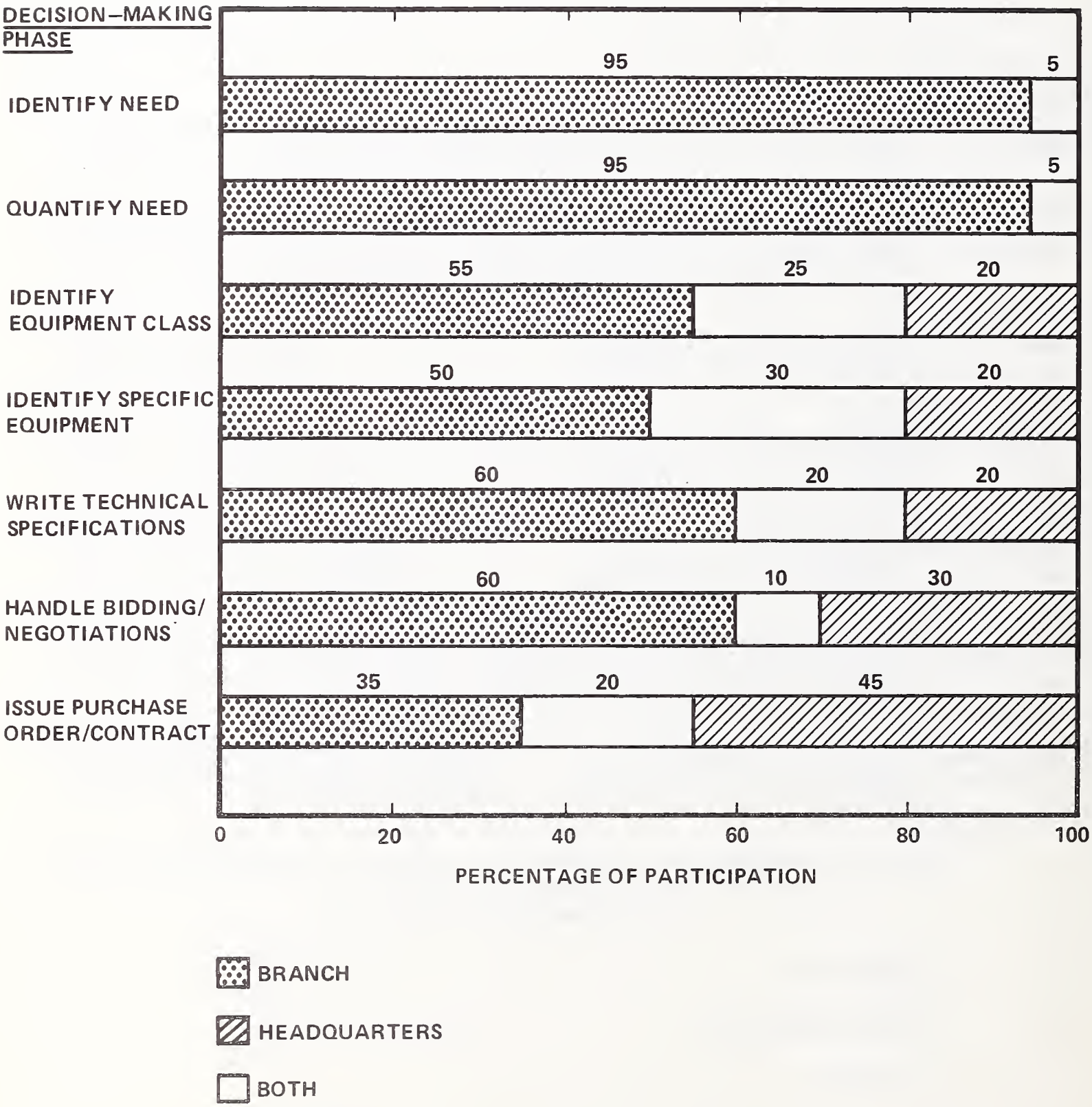


EXHIBIT IV – 16

CORPORATE ROLE IN DECISION-MAKING FOR OFFICE EQUIPMENT – CORPORATE POINT OF VIEW



IN

EXHIBIT IV-17

CORPORATE ROLE IN DECISION-MAKING FOR COMMUNICATIONS – CORPORATE POINT OF VIEW

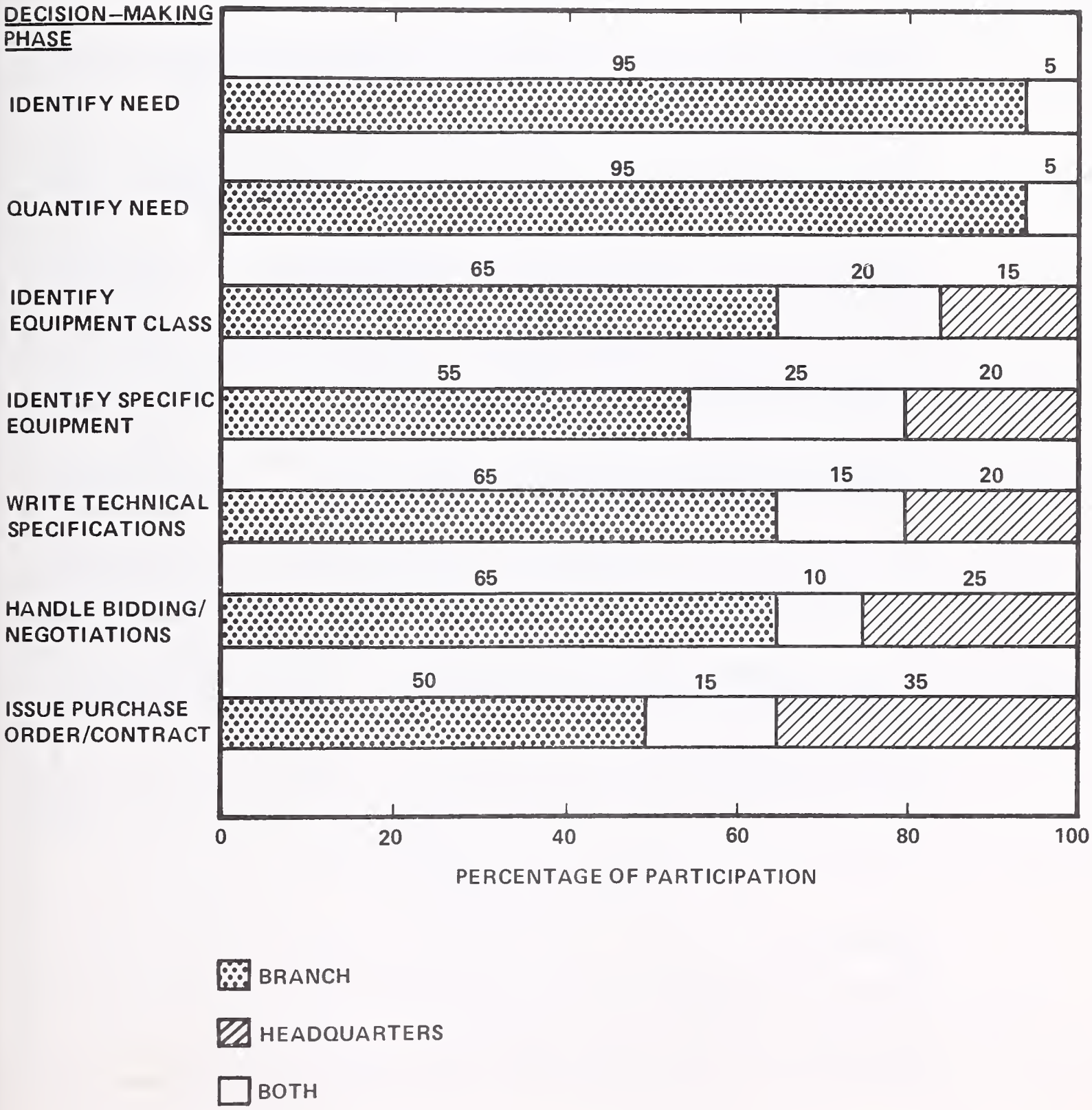


EXHIBIT IV – 18

CORPORATE ROLE IN DECISION-MAKING FOR SUPPLIES – CORPORATE POINT OF VIEW

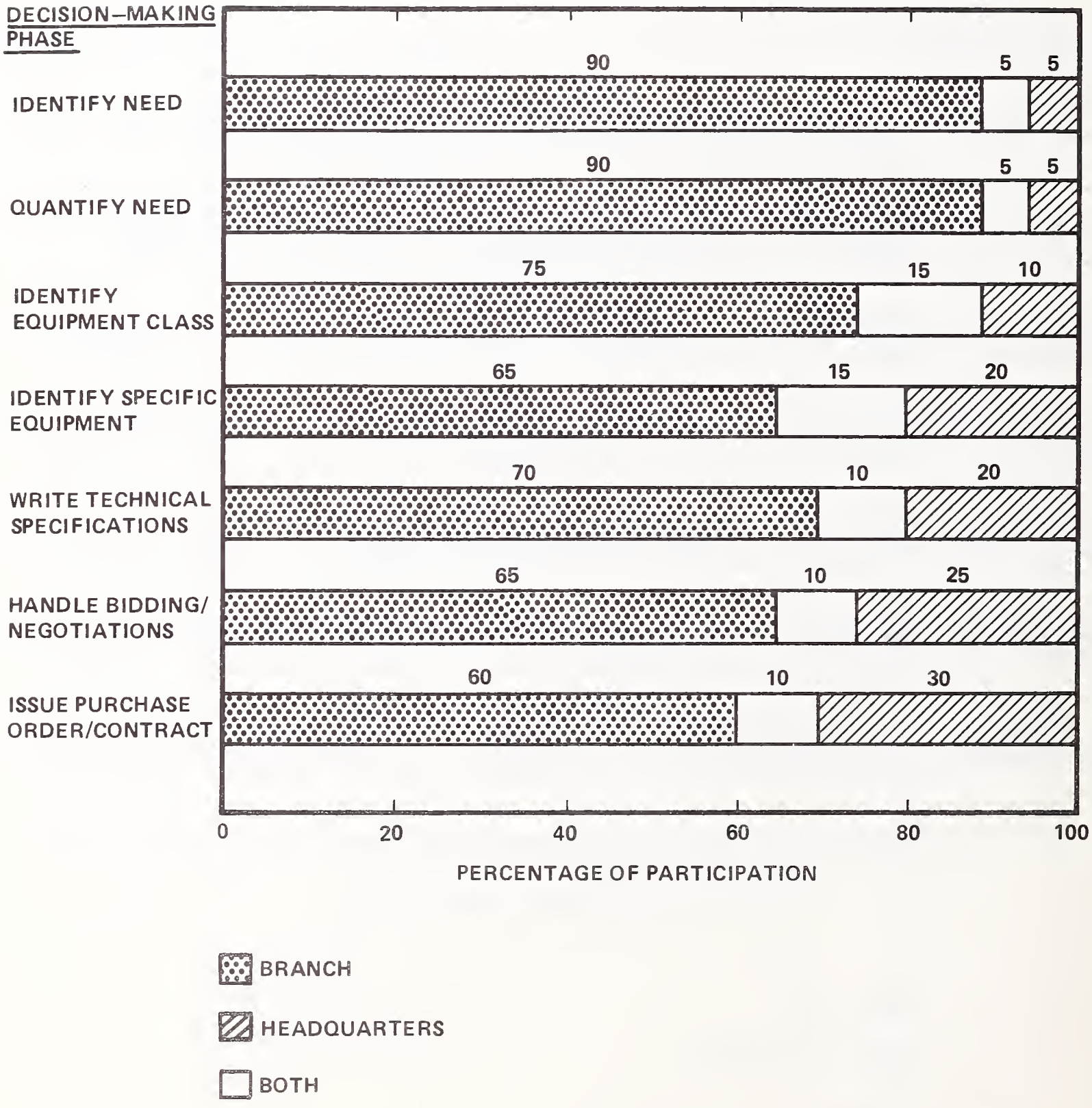


EXHIBIT IV-19

DECISION FACTORS REQUIRING CORPORATE PARTICIPATION -

CORPORATE POINT OF VIEW

COMPANY	LOCATIONS	DESCRIPTION
A	40	All "automated-related" equipment goes through Equipment Planning to coordinate efforts. All other equipment can be individual purchases by divisions/branches, or can use national accounts.
B	68	Branches decide what they want and act independently, except purchases over $25,000 require approval.
C	190	All purchase plans sent to Corporate for approval - all applicable purchases come through Corporate-owned sources.
D	49	Decentralized - affiliates are autonomous.
E	139	Divisions purchase equipment independently, except some items are chosen or furnished by Corporate.
F	134	Branches presently are on their own for all equipment and services except those related to EDP, which is Corporate controlled.
G	244	EDP is centrally controlled, other capital expenditures require committee approval; otherwise decisions are up to local establishments.
H	17	Purchase orders are sent to Corporate where they are always approved if they are within budget.
I	1028	EDP exclusively controlled by Corporate Planning; all other equipment decisions are decentralized.
J	56	EDP and communications equipment exclusively controlled by Corporate MIS, office equipment controlled by Office Planning.
K	131	Totally decentralized.
L	280	All approvals are at branch level except capital expenditures, which require Corporate approval.

EXHIBIT IV-19 (contd.)

M	438	Company is divided into sub-corporations, each acting differently. After this level is reached, goods are obtained through Services Department or Purchasing Department.
N	205	Each division is autonomous.
O	497	Depends on size of expenditure, with Corporate input required on very high expenditures.
P	270	Approval required both from Corporate responsibility area and from Corporate finance staff.
Q	305	Corporate approval required on all purchases except general supplies; purchases are made collectively from a single vendor.
R	36	Approval made at area responsibility, then to Corporate Purchasing for expediting.
S	213	Divisions are decentralized but must meet standards in EDP area.

- The role of the corporate staff in setting standards for EDP, office, and communications equipment and EDP services is shown in Exhibits IV-20 and 21. These figures show that in the majority of cases restrictive standards are not set.

  - However, the freedom for a branch to act depends upon the individual user corporation, and vendors must learn the characteristics of each major corporation they intend to do business with to determine the best approach.

EXHIBIT IV – 20

CORPORATE STANDARDS FOR EDP, OFFICE AND COMMUNICATIONS EQUIPMENT FROM THE CORPORATE POINT OF VIEW

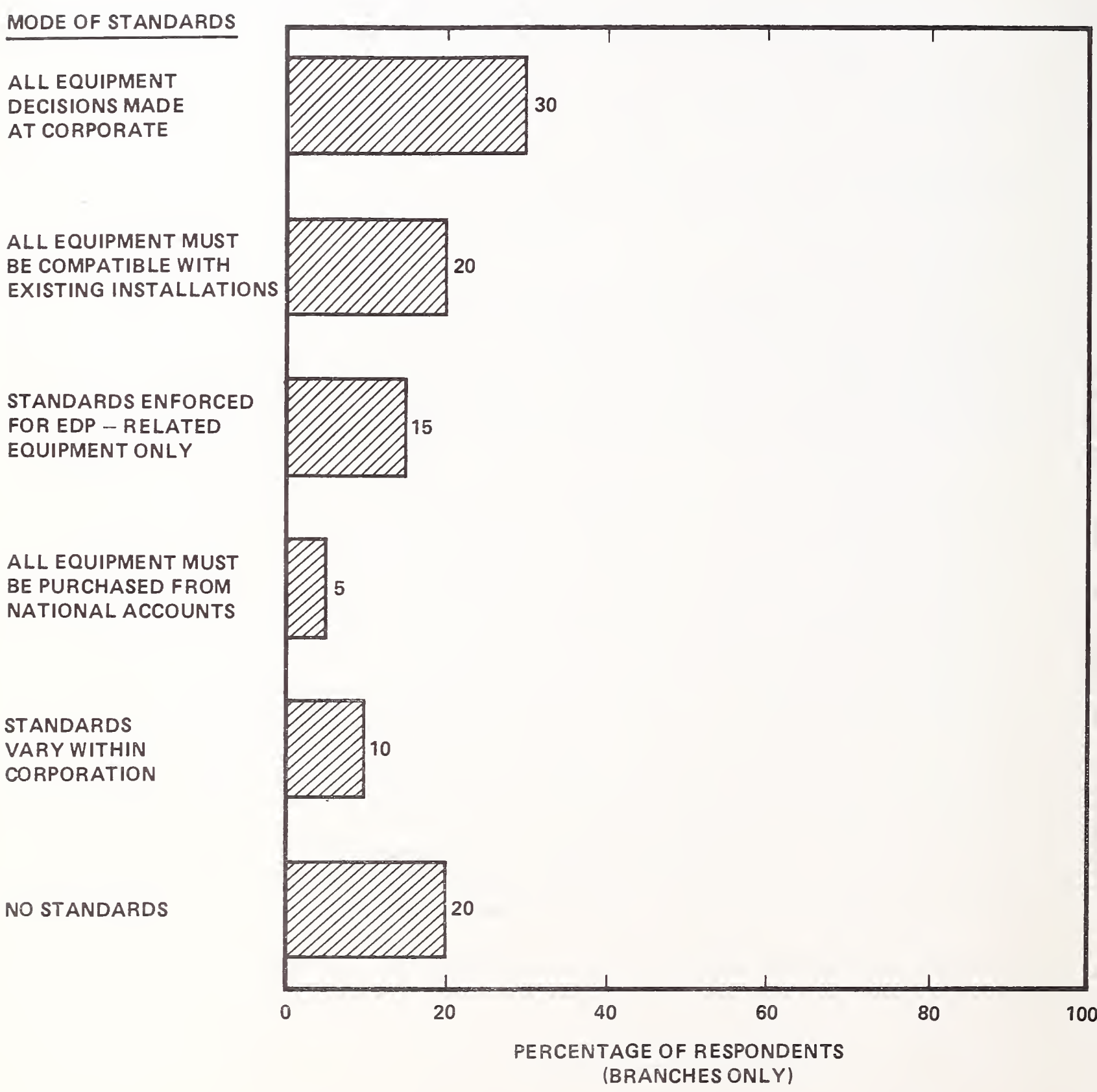
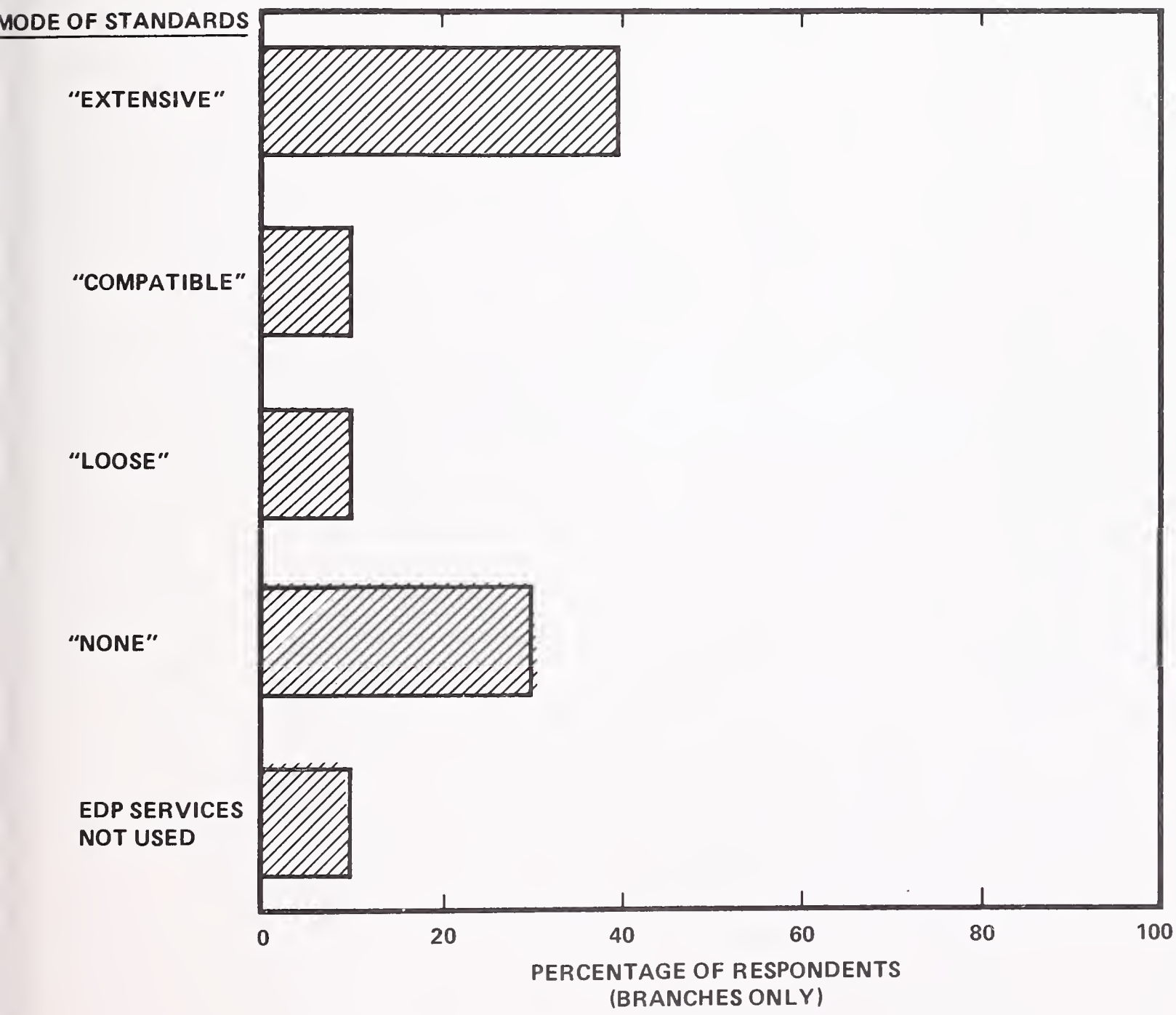


EXHIBIT IV – 21

CORPORATE STANDARDS FOR EDP SERVICES FROM THE CORPORATE POINT OF VIEW



V USE OF INFORMATION PROCESSING AND COMMUNICATIONS EQUIPMENT AND SERVICES

V USE OF INFORMATION PROCESSING AND COMMUNICATIONS EQUIPMENT AND SERVICES

A. PENETRATION OF EQUIPMENT AND SERVICES

- Information processing equipment and services of all kinds are used throughout small establishments that are either branches or independent enterprises. Exhibits V-1, 2, and 3 show that EDP equipment and services are extensively used throughout small establishments. Office automation and interconnect communications equipment is now beginning to be used with small but significant penetration.

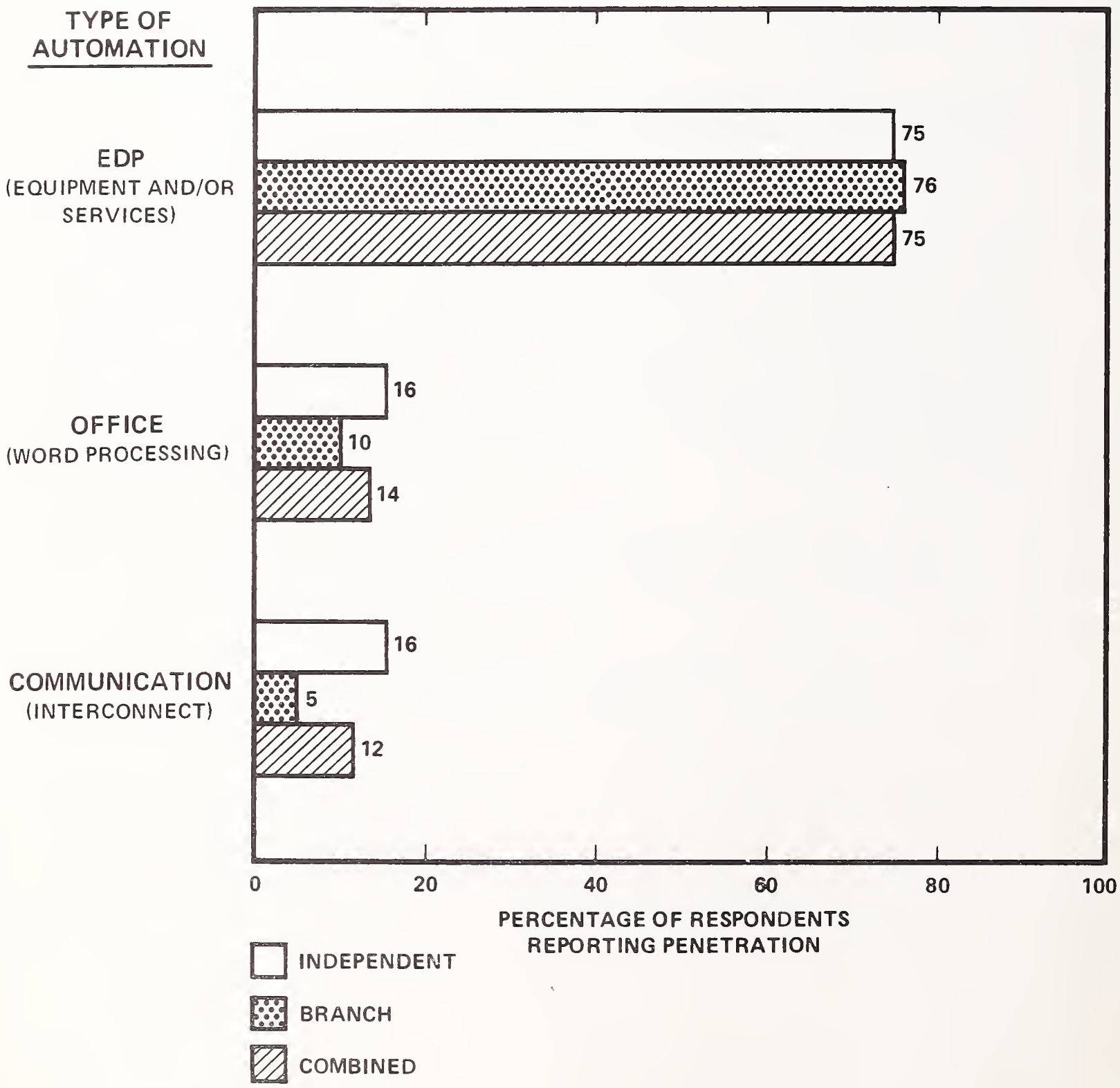
  - The penetration by EDP equipment and services of branches and independents are equal and are a function of establishment size.

  - There is use of EDP equipment and services in the smallest establishments. However, the "automation line" is about 100 to 150 employees.

  - Office automation (word processing) and communications (interconnect) equipment are used more extensively in independent enterprises than in branches. In this case, the establishments with over 100 employees are the best sales prospects.

EXHIBIT V -- 1

PENETRATION OF EDP, OFFICE AND COMMUNICATION AUTOMATION AS REPORTED BY RESPONDENTS (TOTALS)



IN

EXHIBIT V – 2

PENETRATION OF EDP, OFFICE AND COMMUNICATION AUTOMATION AS REPORTED BY RESPONDENTS (BRANCHES)

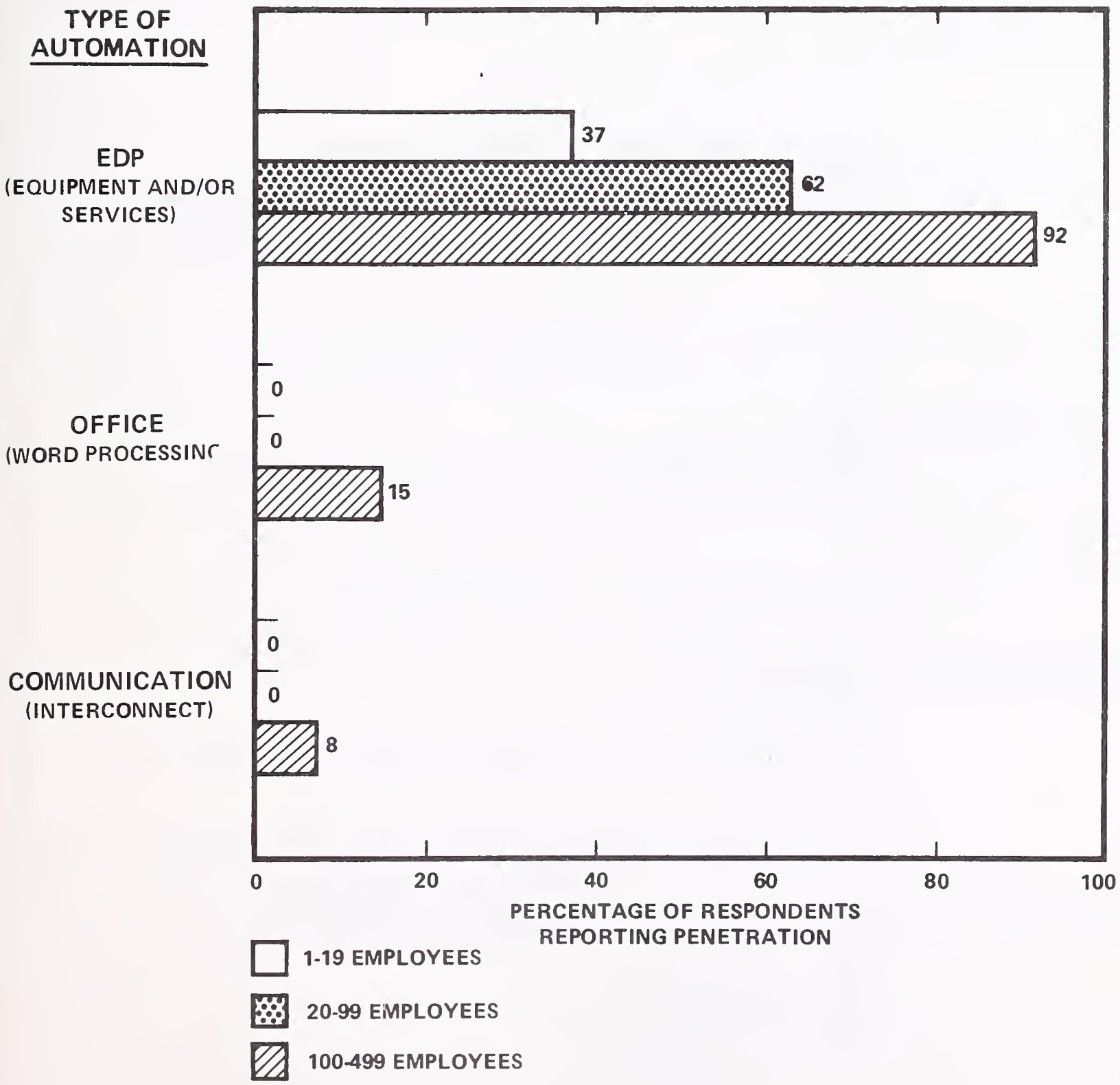
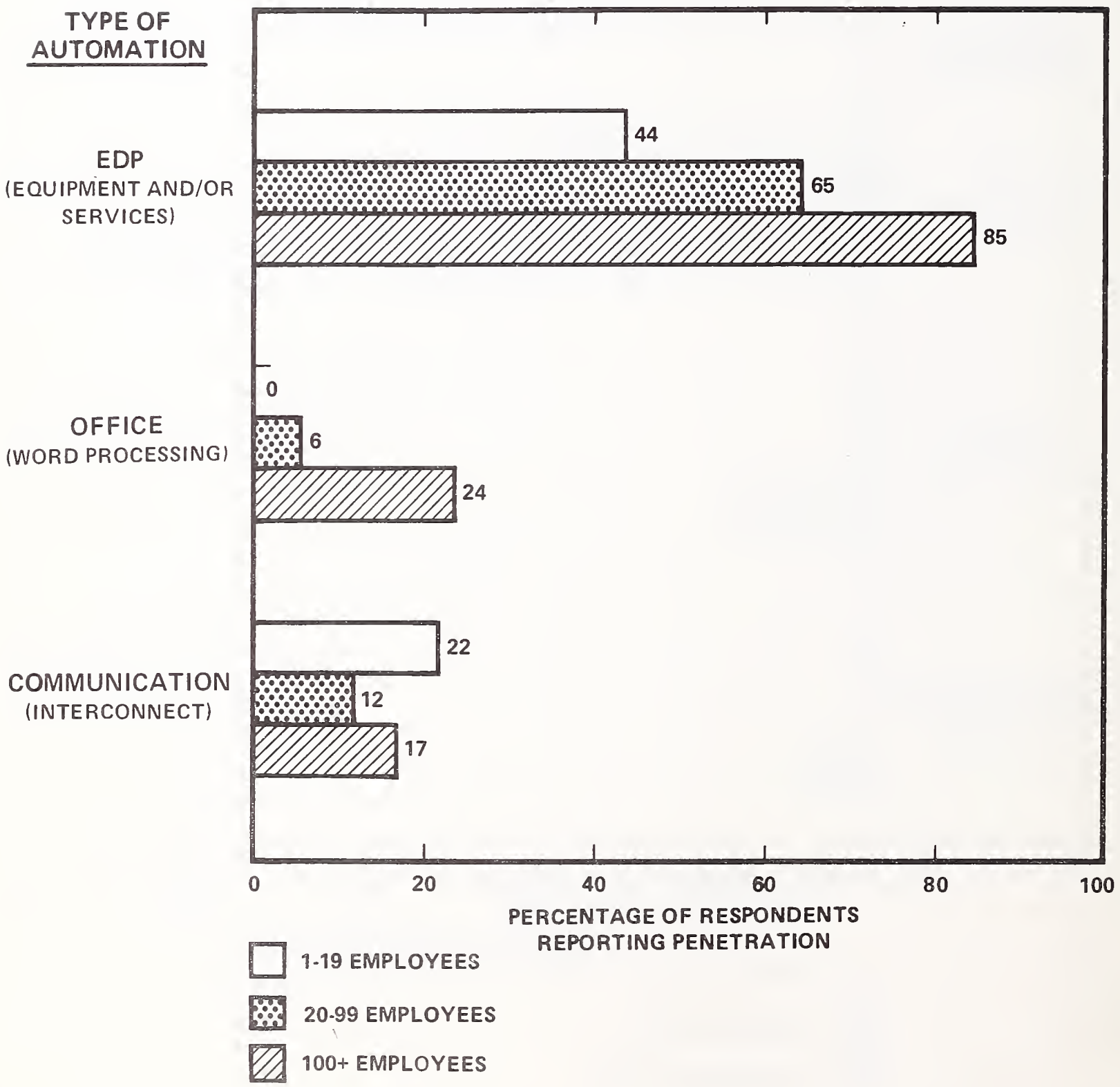


EXHIBIT V – 3

PENETRATION OF EDP, OFFICE AND COMMUNICATION AUTOMATION AS REPORTED BY RESPONDENTS (INDEPENDENTS)



B. FACTORS AFFECTING USE OF EDP EQUIPMENT

- The use of EDP varies directly with size of establishment. Exhibit V-4 shows that 88% of branch locations and 74% of independent establishments interviewed, having more than 100 employees, had EDP equipment installed. Sixty-three percent of branch locations and 56% of independent establishments interviewed with fewer than 20 employees used no EDP equipment or services.

  - Exhibit V-5 shows that a large range of equipment is in use at these establishments.

  - The existence of a permanent EDP staff in all sizes of establishments shows the dedication to EDP automation and is proportional to the establishment size (see Exhibit V-6).

  - Production, sales, and administration functions (Exhibit V-7) are all automated in both branches and independents.

  - Discrete manufacturing is dominated by firms using EDP equipment or services for administrative functions. Seventy-eight percent of all respondents used EDP for administrative applications. Many establishments considering automation have administrative application as their top priority.

C. FACTORS AFFECTING THE USE OF EDP SERVICES

- Exhibits V-8 and V-9 show that about one third of both branches and independents with over 100 employees are using or would use computer services.

EXHIBIT V – 4

EDP EQUIPMENT INSTALLED (BY TYPE AND SIZE OF ESTABLISHMENT)

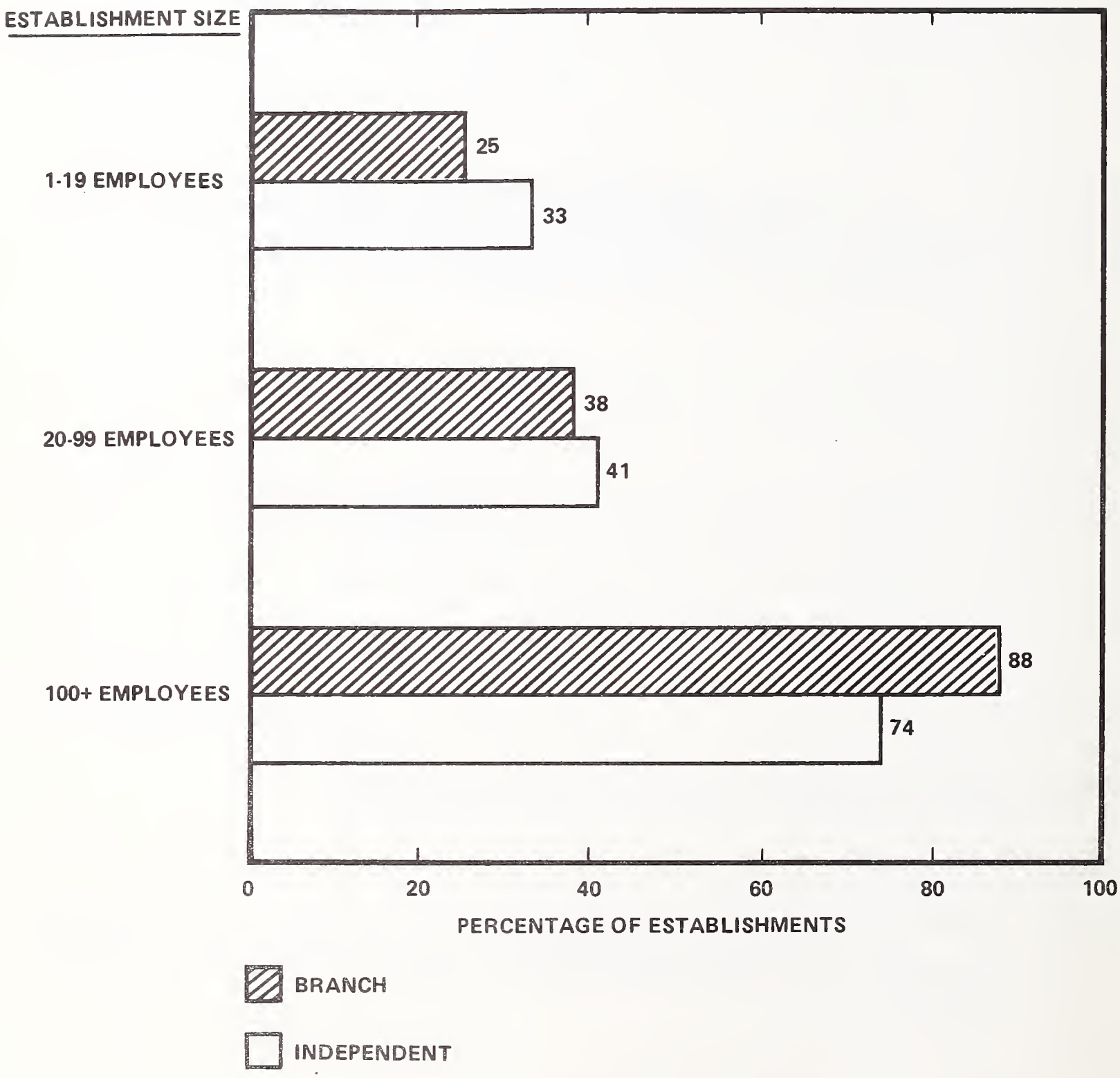


EXHIBIT V-5

MAKES AND MODELS OF EDP EQUIPMENT INSTALLED BY RESPONDENTS

- Burroughs L5000
- Cascade Data Concept II
- Data General
- Data 100
- Datapoint 1100, 2200, 5500
- Digital Equipment Corporation PDP 11/34, PDP 11/35
- Hewlett-Packard HP-3000
- Honeywell H1200, 62/40
- IBM System 3/10, 12, 15
- IBM System 32
- IBM System 34
- IBM System 360/30
- IBM System 370/138
- Microdata
- NCR 399
- NCR 8250
- Nixdorf/Entrex
- Olivetti P6060
- Prime Computer 300
- QI
- SEL 32/55
- Univac 9200, 9300
- Univac 90/30
- Wang

EXHIBIT V – 6

FULL TIME EDP STAFF (BRANCHES AND INDEPENDENTS)

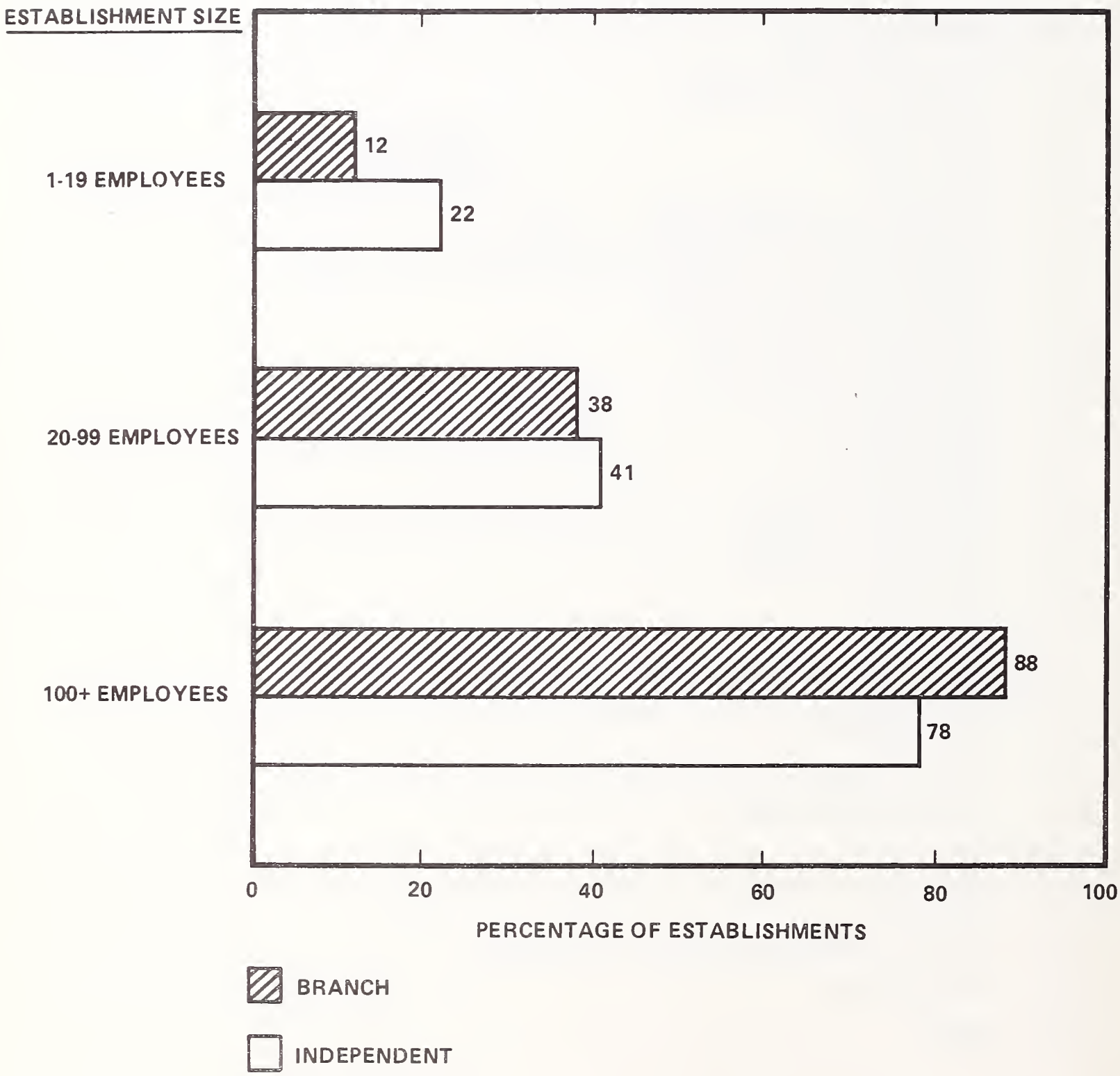


EXHIBIT V – 7

DEGREE OF AUTOMATION – PRODUCTION, SALES, ADMINISTRATION

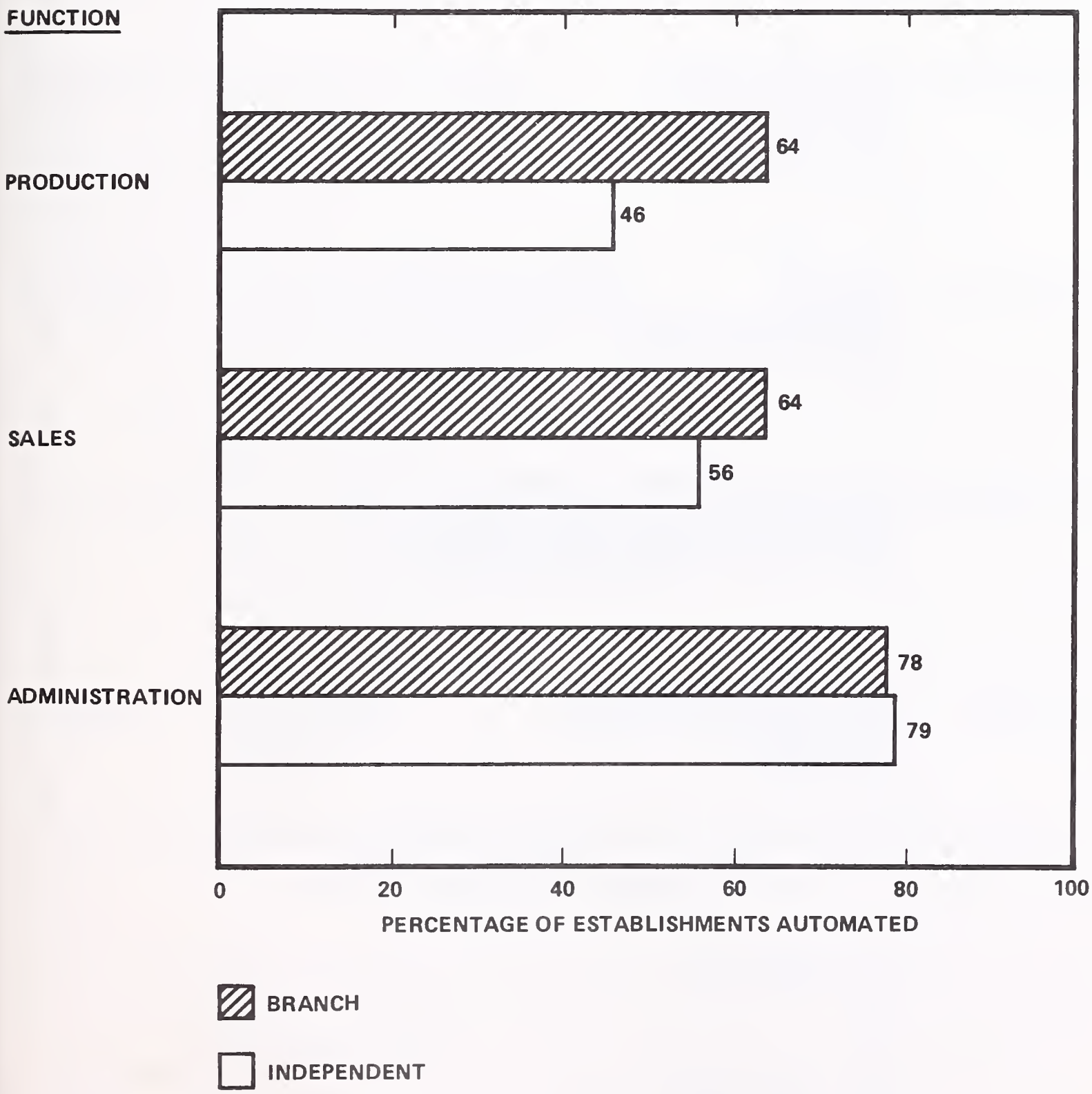


EXHIBIT V-8

ATTITUDE TOWARD COMPUTER SERVICES (BRANCHES)

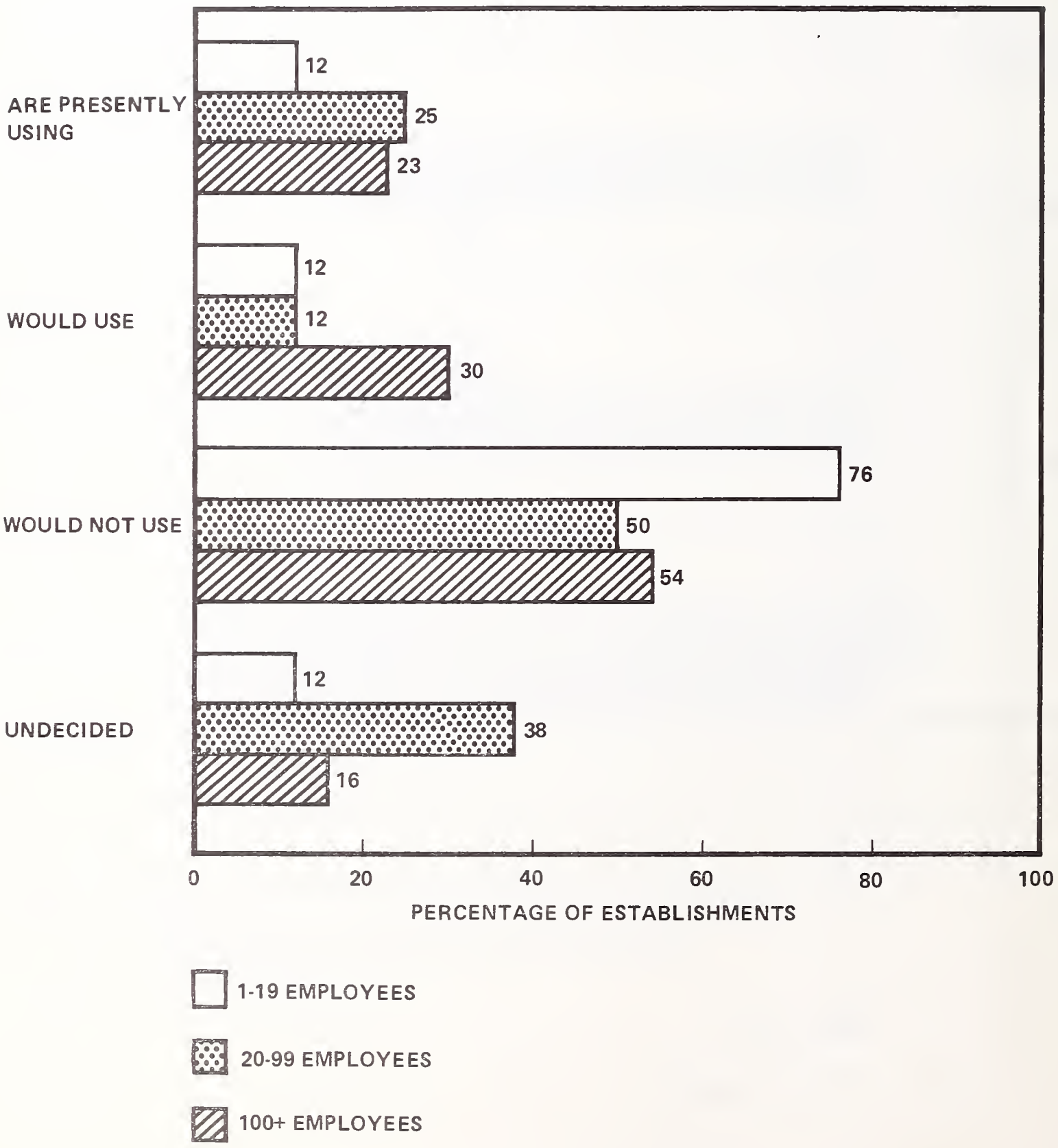
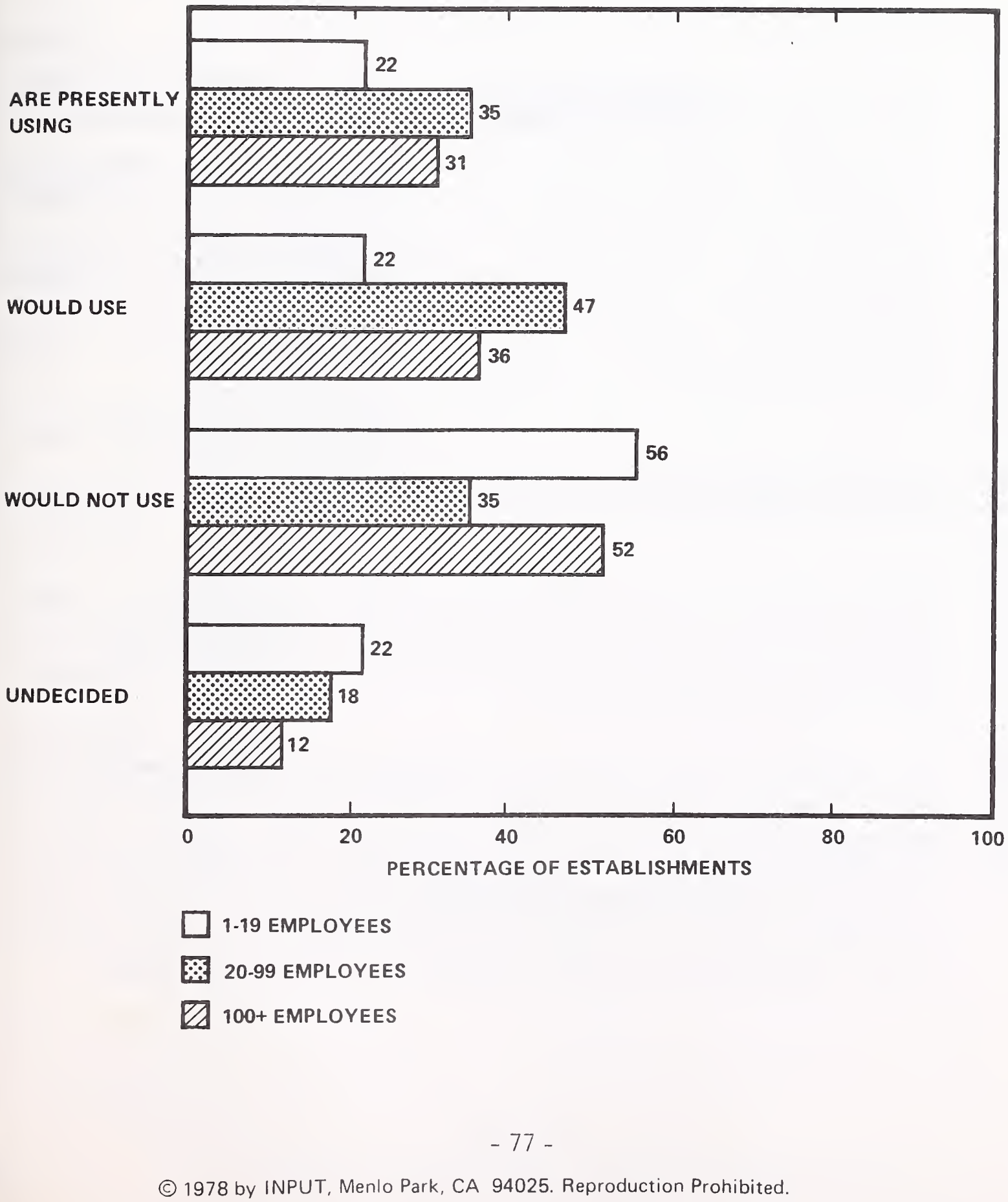


EXHIBIT V – 9

ATTITUDE TOWARD COMPUTER SERVICES (INDEPENDENTS)



- However, a relatively large percentage of respondents were negative towards computer services.

- Independent locations interviewed use computer services more than branches of Fortune 500 companies.

- Computer services are being used for payroll and other administrative functions. Many small establishments interviewed were using ADP or another computer services vendor for administrative functions.

- Barriers to the use of computer services (Exhibits V-10 and 11) vary greatly between branches and independents. Almost half of the branches (44%) not using computer services stated corporate dictates as the primary determinant. Independent locations interviewed that were not using computer services expressed either lack of pressing need or prohibitive costs as reasons. Computer services vendors should consider these perceptions of common barriers, because a sizable portion of the discrete manufacturing sector firms are willing to use computer services or are still not committed.

D. FACTORS AFFECTING USE OF OFFICE EQUIPMENT

- Office automation is defined in this study as text or word processing. Memory typewriters and multi-function equipment used for word processing are considered word processing equipment.

- The majority of firms in the discrete manufacturing sector are presently not office automated. (Exhibits V-2, 3). No branches with less than 100 employees and only 15% of branches with more than 100 employees have text or word processing. This compares to independent firms; with 24% of those over 100 in size and 6% of those 20 to 99 in size automated. Office equipment used in most locations are Selectric typewriters and plain paper copiers.

EXHIBIT V – 10

PERCEIVED BARRIERS TO THE USE OF COMPUTER SERVICES (BRANCHES)

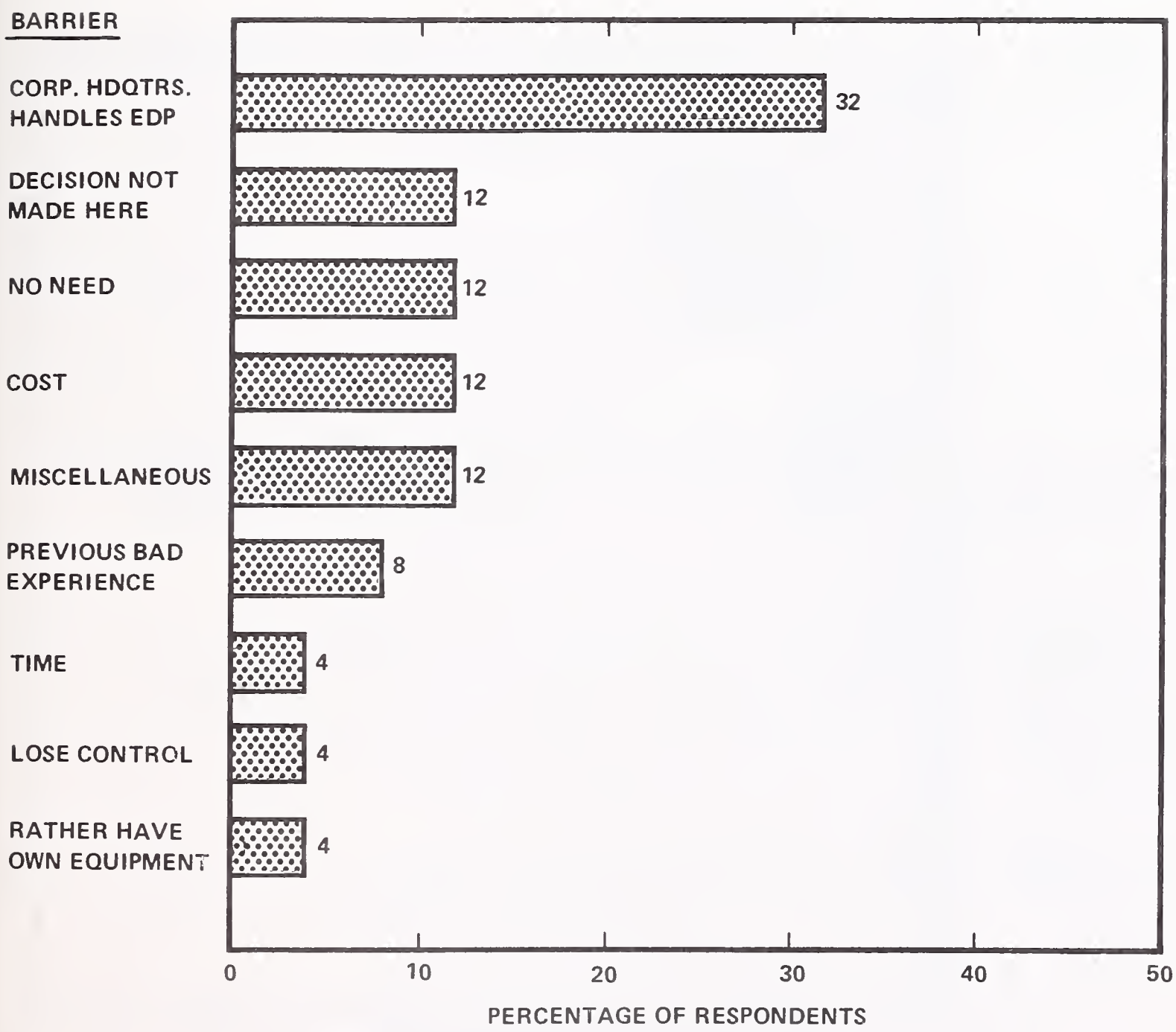
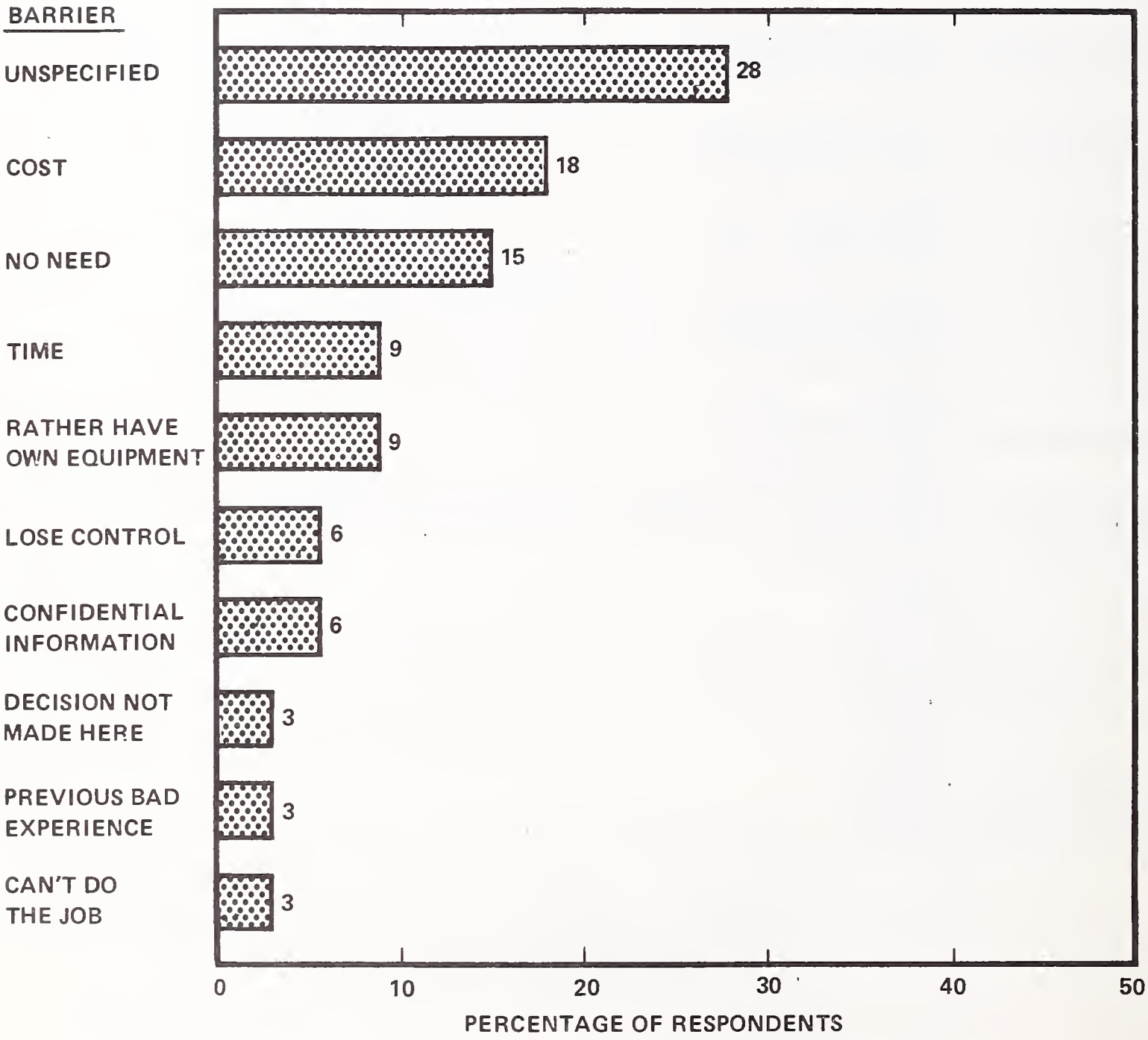


EXHIBIT V – 11

PERCEIVED BARRIERS TO THE USE
OF COMPUTER SERVICES (INDEPENDENTS)



- Almost half (46%) of the respondents expressed needs that could be met with office automated equipment. Some equipment features desired are:

  - Professional looking output.

  - Something to handle all functions.

  - Something to handle secretarial and administrative functions.

- Few respondents (3.6%) had any planned improvements. This further exemplifies the lack of familiarity with office automated equipment. Education of potential users and sales people is a critical consideration in market strategies.

- Almost all of the establishments interviewed had copiers installed, and a large variety of makes and models are in use (see Exhibits V-12, 13).

E. FACTORS AFFECTING THE USE OF COMMUNICATIONS EQUIPMENT AND SERVICES

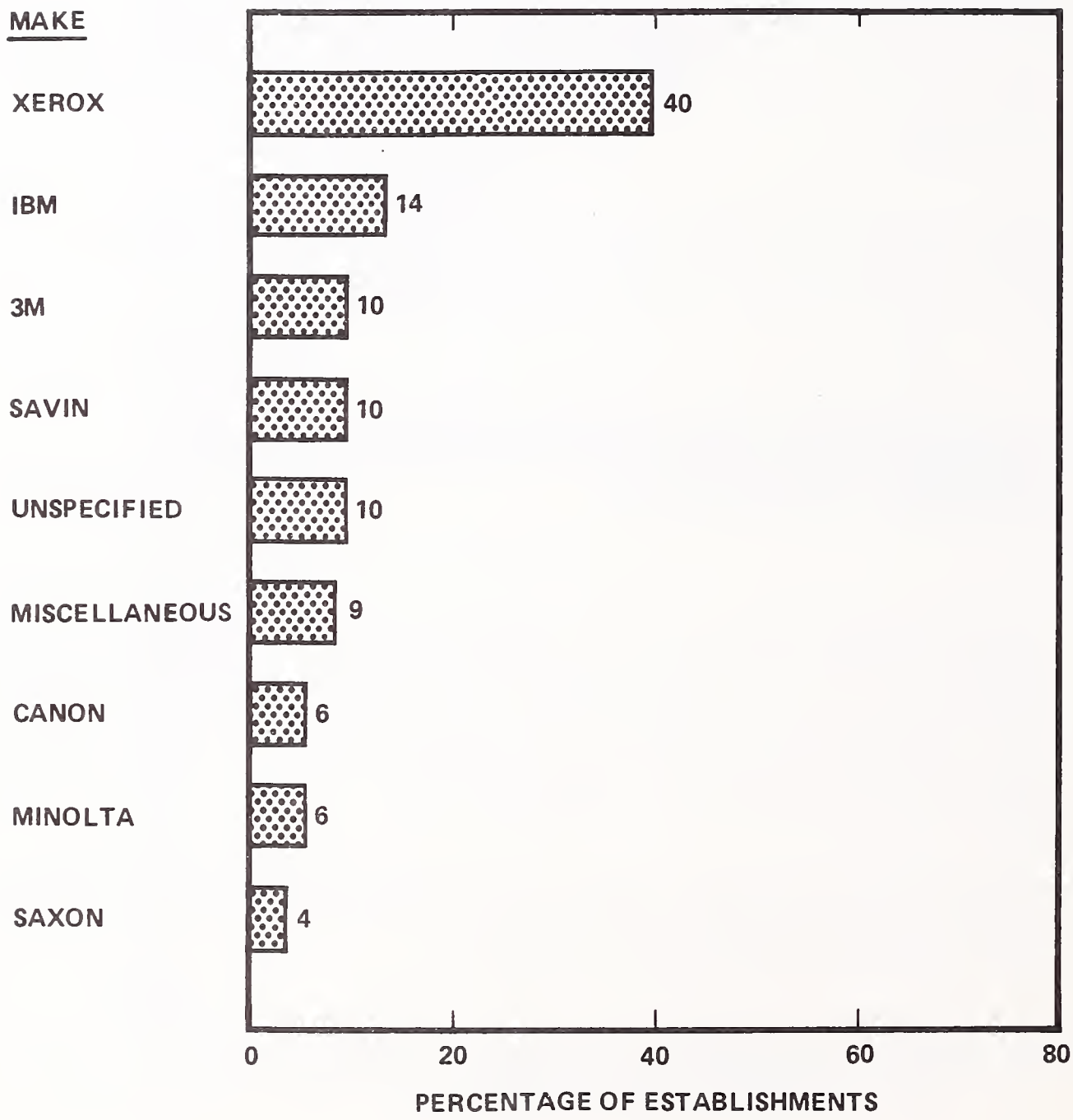
- Since all respondents use AT&T services and some form of communications equipment, it is more meaningful to ask which respondents are using non-AT&T communications equipment (interconnect) and which communications services other than direct dialing are in use.

- Exhibits V-1, 2, 3, and 14 show that interconnect equipment is used in both branches and independent establishments.

  - However, independent establishments use interconnect equipment to a much greater extent than branches of Fortune 500 companies.

EXHIBIT V – 12

COPIER EQUIPMENT INSTALLED



TOTAL EXCEEDS 100% DUE TO MULTIPLE BRANDS AT SAME LOCATION

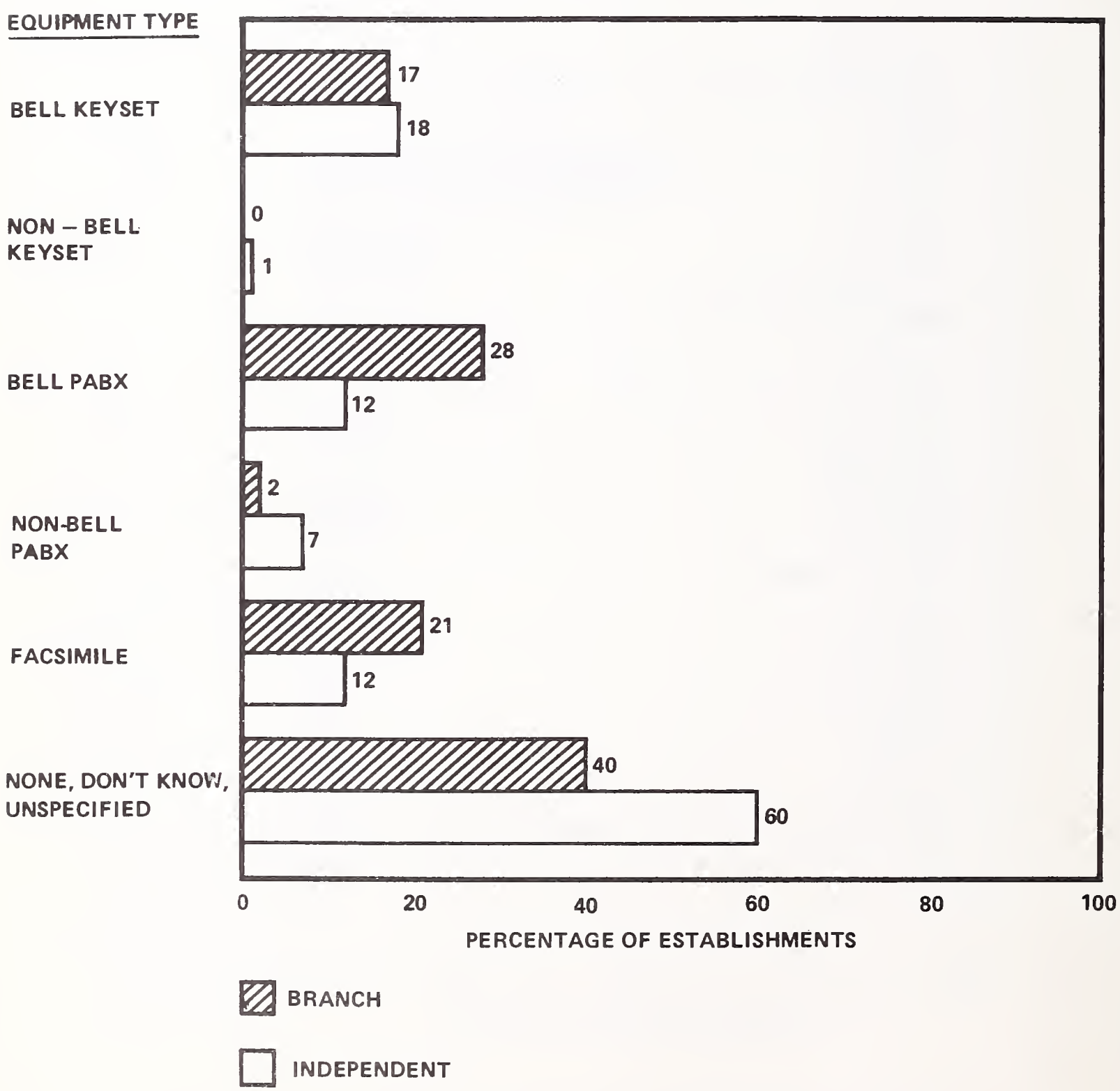
EXHIBIT V-13

MAKES AND MODELS OF COPIER EQUIPMENT INSTALLED

- A. B. DICK
- ADDRESSOGRAPH MULTIGRAPH 5000
- APECO
- CANNON L7, 3100 LDC
- DENISON
- EASTMAN KODAK
- IBM COPIER II, SERIES III
- LITTON
- 3M SECRETARY II, VQC III
- MINOLTA
- OCE 1600
- OCENCO
- PITNEY BOWES
- ROYAL
- SAVIN 750
- SAXON 3
- SHARP
- UPI 8000
- XEROX 3000, 3100, 3107, 3500, 4000, 6400, 7000, 8000, 9200

EXHIBIT V-14

COMMUNICATIONS EQUIPMENT INSTALLED (BRANCHES AND INDEPENDENTS)



- Independent establishments of all sizes use interconnect equipment to a significant extent (over 100 employees 17%, 20 to 99 employees 12%, and 1 to 19 employees 22%).

- Facsimile equipment is used in both branches and independent enterprises. As expected, branches use facsimile equipment almost twice as much (21%) as independent enterprises. However, there is a significant use of facsimile in independent enterprises (12%).

- A large range of communications services other than direct dial are used by both branches and independents (Exhibit V-15).

  - As expected, branches utilize more varied communications services than independents because of corporate involvement.

  - Independents use WATS and TELEX/TWX services to a significant extent.

F. NEEDS FOR ADDITIONAL/IMPROVED EQUIPMENT AND SERVICES

- Almost half of respondents indicated (Exhibits V-16, 17) that they have needs for improvements in the areas of EDP, office, and communications and are willing to pay for these improvements.

  - Immediate needs were expressed by all sizes of small establishments and by both branches and independents.

- Barriers to obtaining improved equipment are shown in Exhibits V-18 and V-19 for branches and independents. They include:

  - Problems in obtaining timely information about available equipment.

EXHIBIT V-15

COMMUNICATIONS SERVICES INSTALLED (OTHER THAN DDD) (BRANCHES AND INDEPENDENTS)

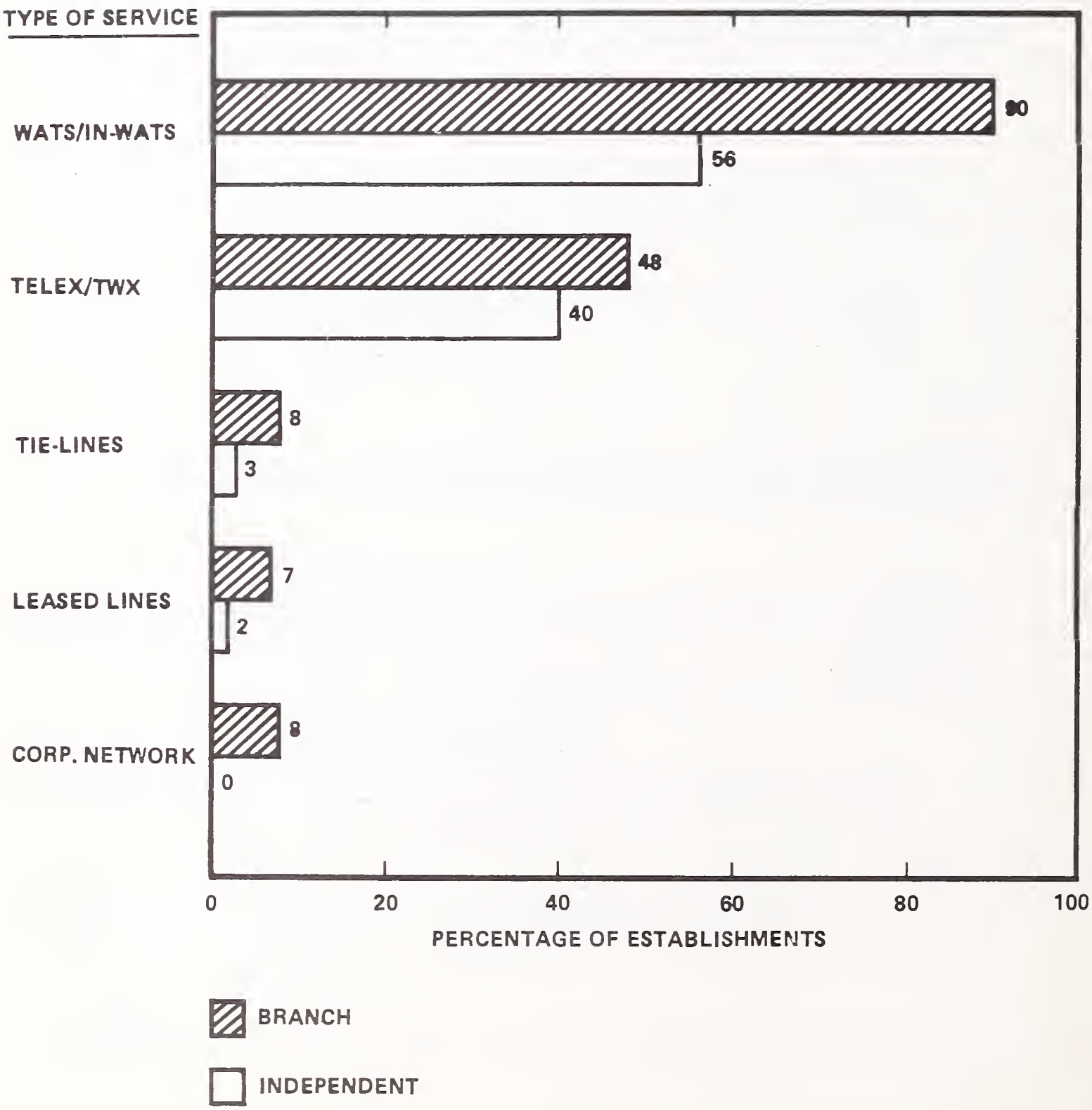


EXHIBIT V – 16

EDP, OFFICE AND COMMUNICATION NEEDS AS REPORTED BY RESPONDENTS (BY BRANCHES/INDEPENDENTS)

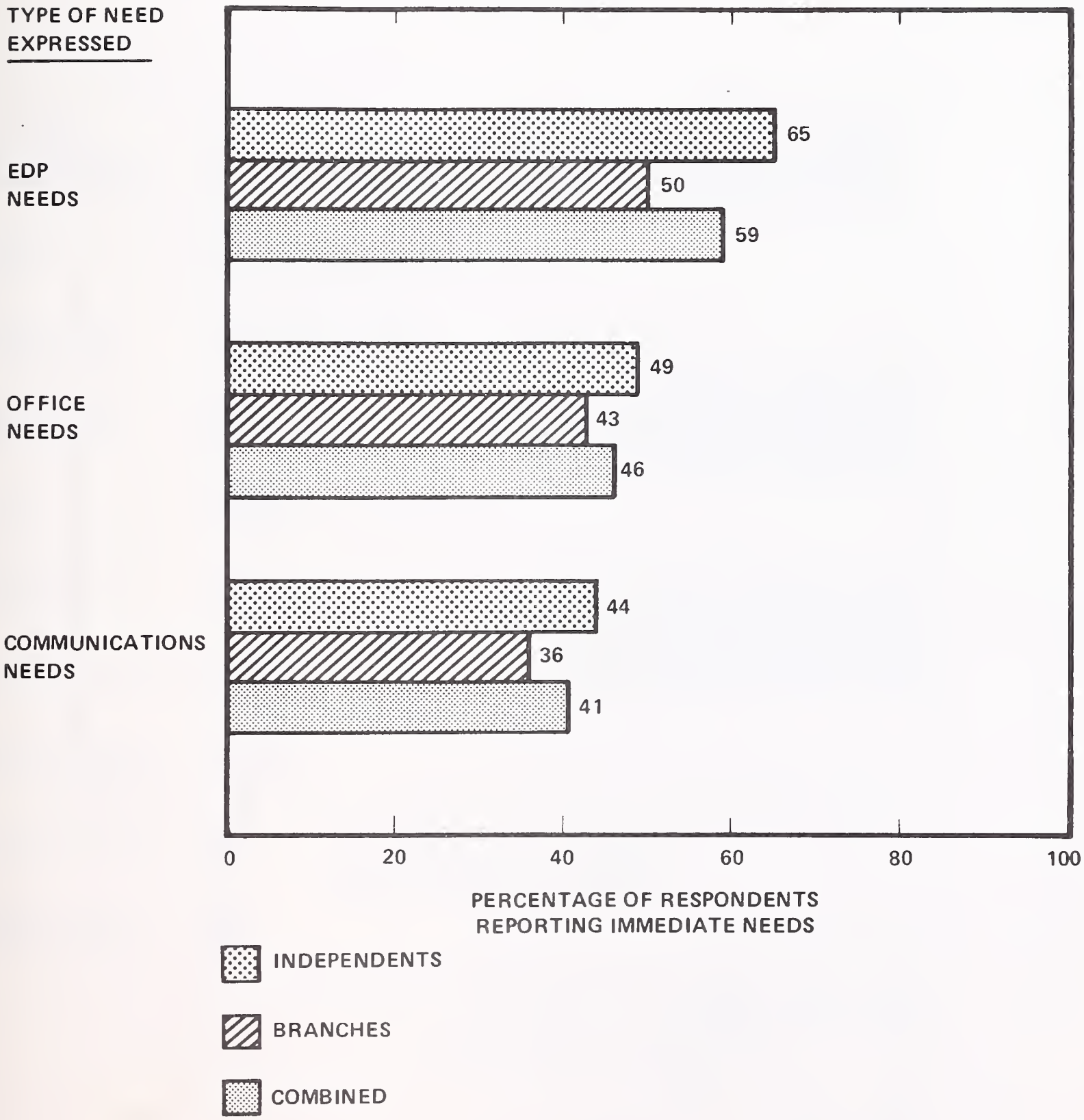


EXHIBIT V – 17

EDP, OFFICE AND COMMUNICATION NEEDS AS REPORTED BY RESPONDENTS (BY SIZE OF ESTABLISHMENTS)

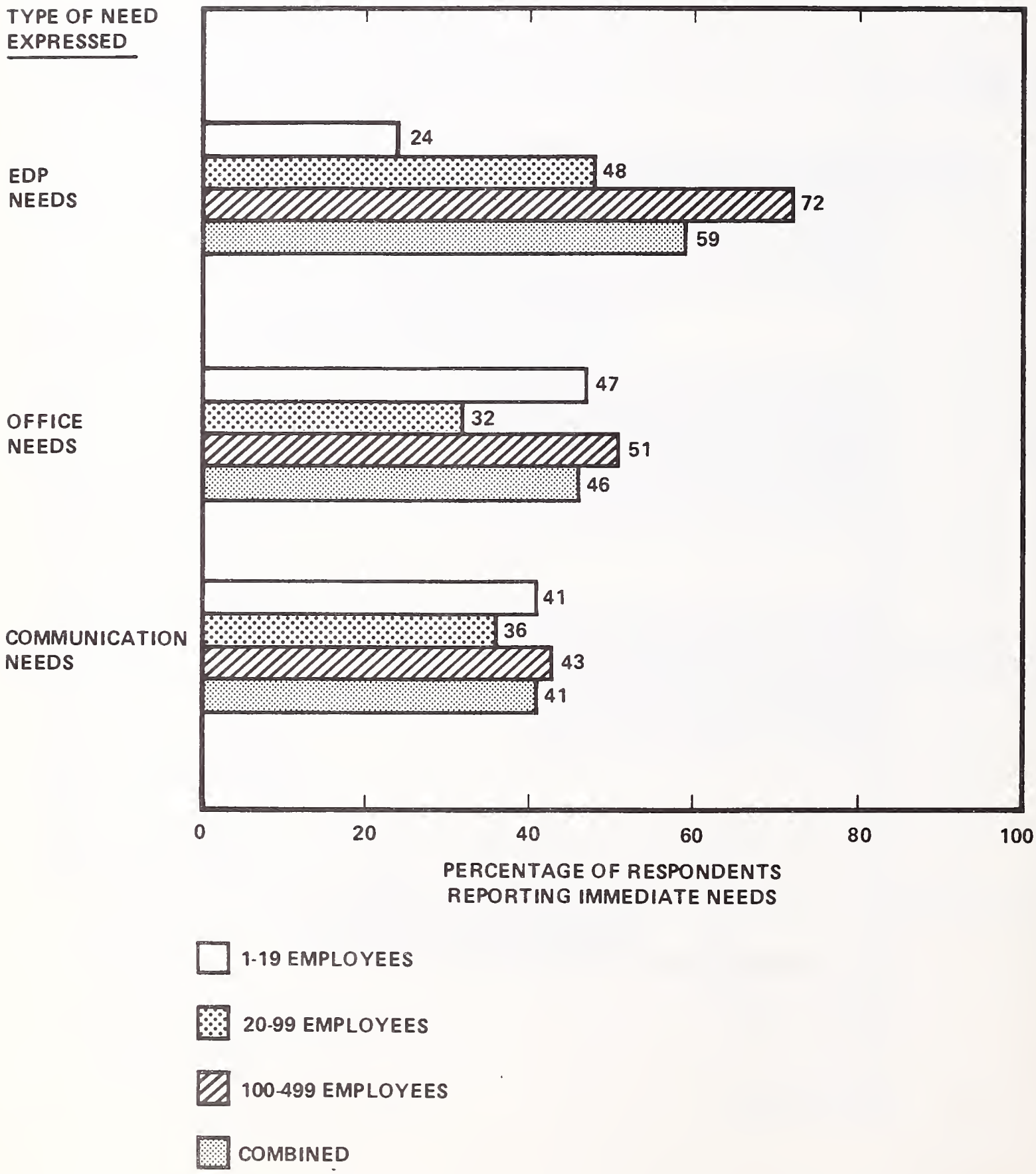


EXHIBIT V – 18

PERCEIVED BARRIERS TO EQUIPMENT IMPROVEMENT
(BRANCHES)

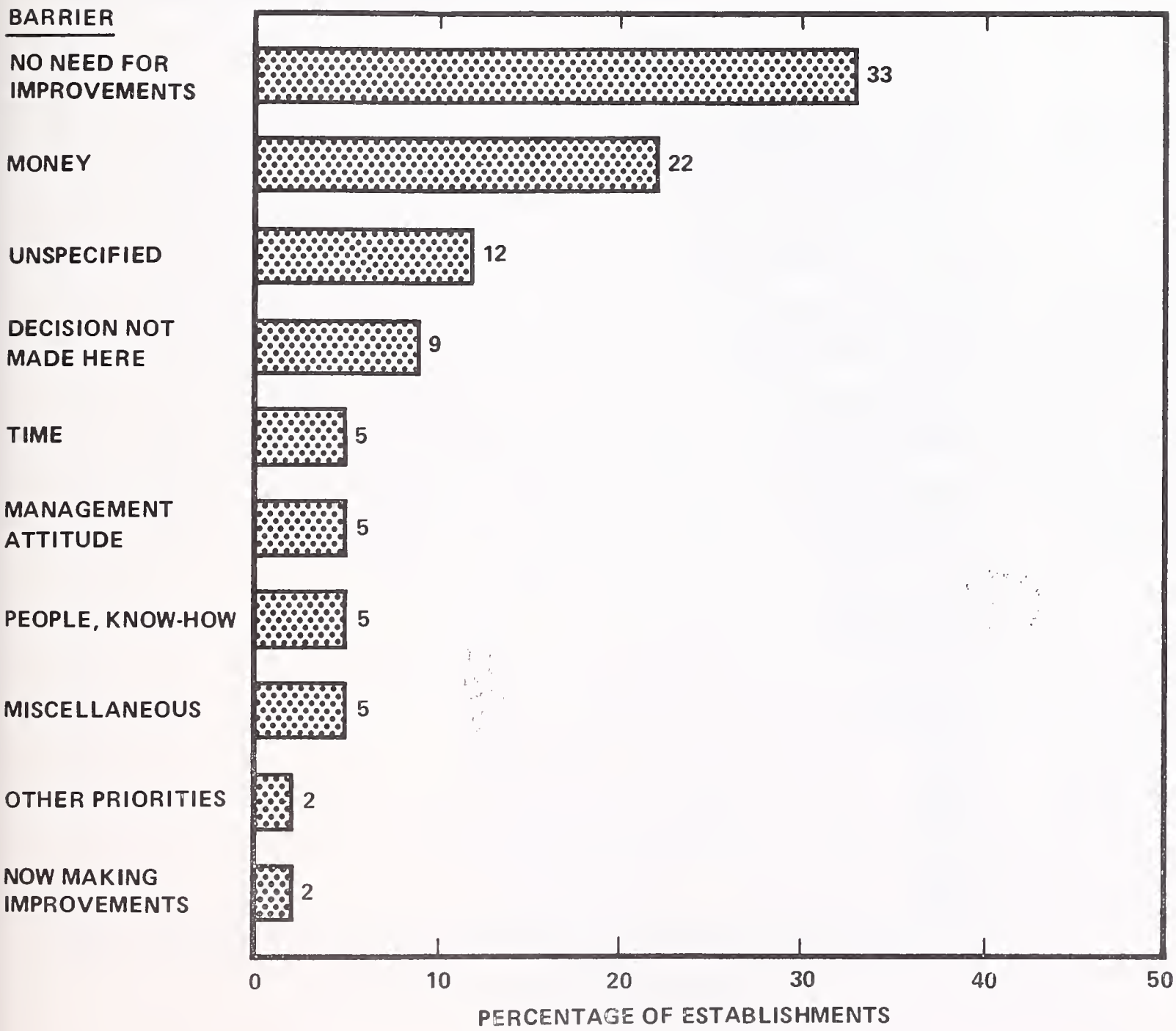
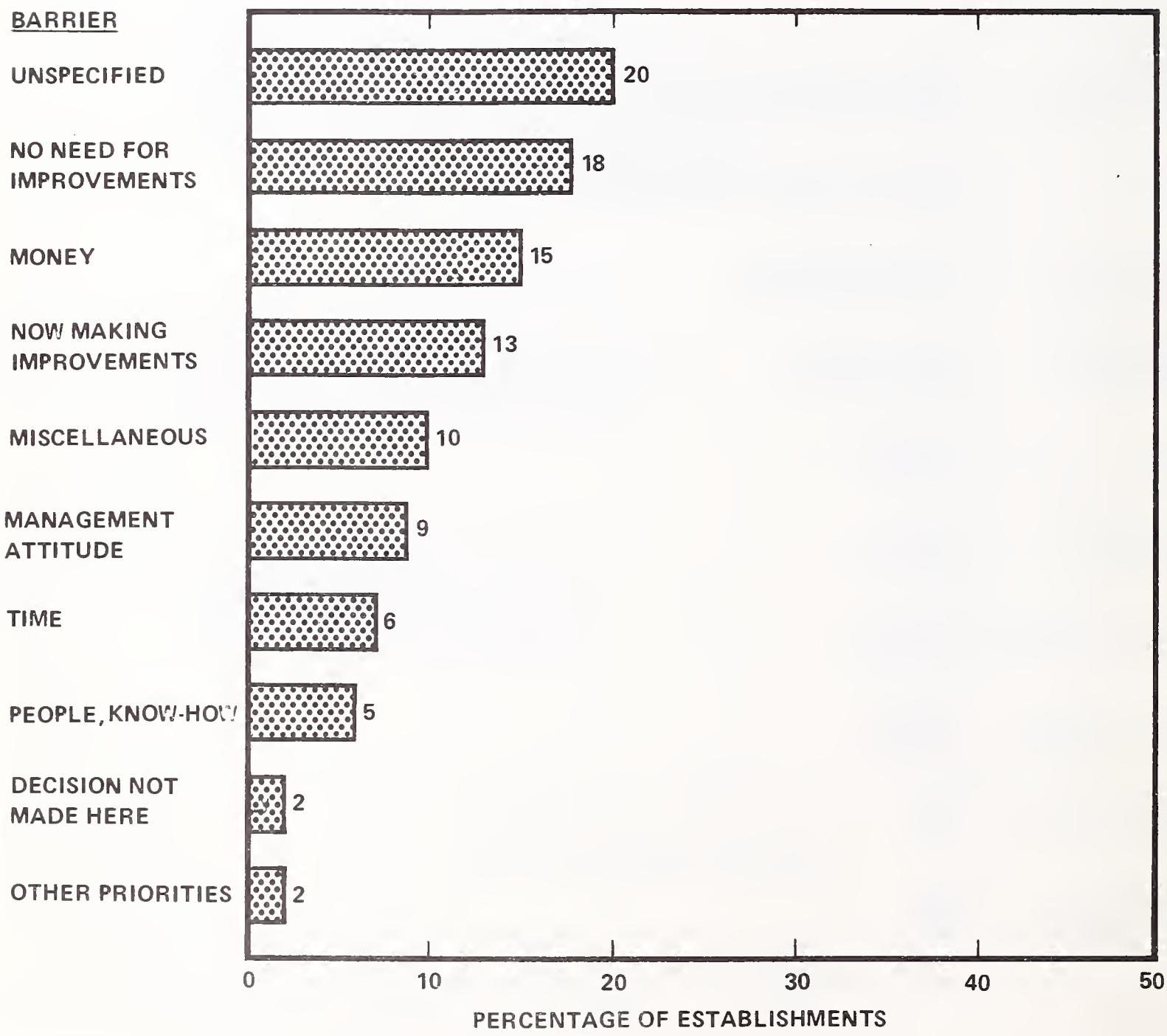


EXHIBIT V-19

PERCEIVED BARRIERS TO EQUIPMENT IMPROVEMENT
(INDEPENDENTS)



- Sales people with insufficient knowledge about their equipment.

- The most urgent EDP needs reported by respondents are shown in Exhibit V-20. Over half of the respondents believe there will be EDP improvements by 1980 (see Exhibits V-21, 22). Communications needs are shown in Exhibit V-23. Office needs were often expressed in the areas of multi-function equipment. (Exhibit V-27)

G. MULTI-FUNCTION EQUIPMENT

- The majority of establishments would consider multi-function equipment. (Exhibits V-24, 25, 26, and 27) Only 15% of respondents would refuse multi-function equipment. Respondents familiar with multi-function equipment expressed interest in equipment capable of handling word processing and some computing from a terminal. Most respondents were not familiar with multi-function equipment but expressed interest in multi-function equipment after it was described. Vendors must educate potential users of multi-function equipment. For an in-depth examination of small establishment markets for multi-function equipment, see the Multi-Function Equipment And Services Report of this program, to be released shortly.

EXHIBIT V-20

MOST URGENT EDP NEEDS

- "NEED TO MAKE INFORMATION AVAILABLE MORE QUICKLY-NOW LEARN AFTER THE FACT" (11 EMPLOYEES, INDIANA)
- "COST ANALYSIS AND INVENTORY CONTROL" (200 EMPLOYEES, OHIO)
- MORE BOOKKEEPING ON THE COMPUTER" (15 EMPLOYEES, NEW YORK)
- "INFO TRANSFER BETWEEN FACILITIES MUST BE IMPROVED (I.E., MATERIAL AND LABOR REPORTING, TIMELY RECEIPT OF PROCESSING INFO NEEDED, ETC. ETC. ETC. ETC." (70 EMPLOYEES, 2 LOCATIONS)
- "TRY AND KEEP THE USER INFORMED AS TO WHAT'S AVAILABLE TO HIM" (FORTUNE 500 BRANCH, 400 EMPLOYEES)
- "ONLY USEFUL APPLICATION WOULD HAVE TO COVER ALL PHASES FROM DESIGN AND SPECIFICATION THRU PRODUCTION. NOTHING IN ADMINISTRATION; TOO SMALL" (75 EMPLOYEES, 2 LOCATIONS)
- "REDUCE OVERSIZED ADMINISTRATIVE STAFF" (70 EMPLOYEES, HALF CLERICAL)
- "SYSTEMS SUPPORT SUCH AS IBM HAS" (FORTUNE 500 BRANCH, 185 EMPLOYEES)
- "STORAGE CAPACITY TOO LOW" (80 EMPLOYEES, 4 LOCATIONS)
- "LATE AND OFTEN NOT USABLE DATA" (60 EMPLOYEES, 5 LOCATIONS)
- "LOWER COSTS, SERVING THE SMALL GUY - WE HAVE TO BE ALBE TO USE IT" (NEW JERSEY, $6 MILLION SALES)
- "GRAPHICS" (FORTUNE 500 BRANCH, 110 EMPLOYEES)
- "TOO MANY PRODUCTS, TOO HARD TO TELL WHAT CAN AND CANNOT DO THE JOB; TOO HARD TO COMPARE" (NEW JERSEY, 170 EMPLOYEES)
- "MARKETING PEOPLE WHO SELL COMPUTERS MUST HAVE GREATER KNOWLEDGE OF THEIR EQUIPMENT AND SMALL BUSINESS ADMINISTRATION AND OPERATIONS" (100 EMPLOYEES, $4 MILLION SALES)
- "LOWER PRICES, MAKE SPECIFIC EQUIPMENT AND APPLICATIONS INSTEAD OF GENERAL TYPE NOW ON MARKET" (PENNSYLVANIA, 125 EMPLOYEES)

EXHIBIT V – 21

EDP IMPROVEMENTS EXPECTED BY 1980

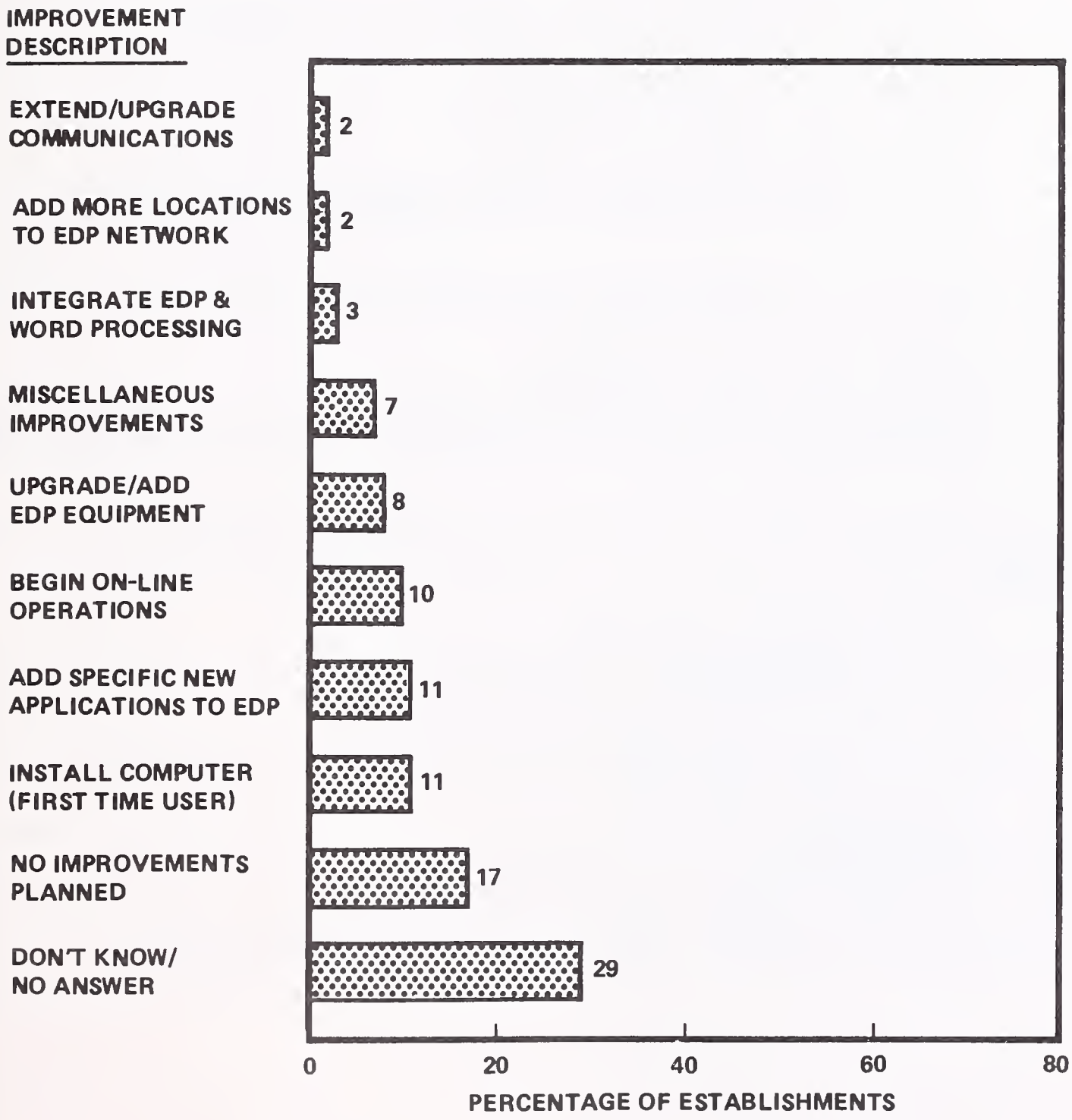


EXHIBIT V-22

EDP IMPROVEMENTS EXPECTED BY 1983

INDEPENDENTS

- "POSSIBLY COMPUTER"
- "EQUIPMENT UPGRADE"
- "CHEAPER CORE REPLACING PERIPHERAL STORAGE"
- "DEPENDS ON STAFF ADJUSTMENT"
- "ESTIMATING MATERIAL COSTS"
- "REFINE (2 - YEAR) IMPROVEMENTS"
- "TOTAL CORPORATE DATA BASE"
- "IMPLEMENT ADDITIONAL APPLICATIONS FOR NEW SYSTEM"
- "ONLY PERHAPS NEW REPLACEMENT UNITS"
- "ON-LINE"
- "THE ELECTRONIC OFFICE"
- "REFINE MANUFACTURING APPLICATIONS"
- "TAPE STORAGE, CRT INPUT"
- "ADD PURCHASING FUNCTION"
- "MRP, CAPACITY PLANNING"
- "TERMINAL APPROACH TO AUTOMATED MANUFACTURING AND ACCOUNTING SYSTEM"

BRANCHES

- "ORDER ENTRY, INVOICING"
- "ACCOUNTING MAY BE DONE LOCALLY"
- "OWN IN-HOUSE COMPUTER"
- "TERMINAL TIE-IN TO MASTER COMPUTER"
- "TIE SYSTEMS INTO MIS"
- "DATA BASE FOR FINANCIAL SYSTEM"
- "EQUIPMENT UPGRADE"
- "ADD SOME MORE PHONE LINES"
- "SATELLITE"
- "GENERAL LEDGER AND ACCOUNTING"
- "ON-LINE ORDER ENTRY AND ACCOUNTS RECEIVABLE"

EXHIBIT V-23

MOST URGENT COMMUNICATION NEEDS

- "COMPUTER INTERCONNECTION OR OTHER MEANS OF DATA TRANSFER THAN TELEPHONE" (5 LOCATIONS)
- "VISUAL DATA FEED = INSTANT RELAX" (NEW JERSEY, $2 MILLION SALES)
- "BETTER SERVICE" (NEW JERSEY, 7 EMPLOYEES)
- "PLANT INTERCOMMUNICATIONS - INSUFFICIENT IMMEDIATELY AVAILABLE BACK-UP DATA FOR PRESENT OPERATIONS" (50 EMPLOYEES, 1 LOCATION)
- "WATS OR IN-WATS AND BETTER COMMUNICATION WITHIN PLANT" (63 EMPLOYEES, 1 LOCATION)
- "NEW SYSTEM WILL ACCOMMODATE NEEDED TEXT/WORD PROCESSING" (13 LOCATIONS)
- "QUALITY PHONE LINES AND MODEMS" (MISSOURI, 60 EMPLOYEES)
- "STANDARDIZATION" (FORTUNE 500 BRANCH, 110 EMPLOYEES)
- "MAKE TELECOMMUNICATIONS SERVICES SIMPLER SO THEY CAN BE INCORPORATED MORE EASILY INTO ROUTINE OF RAPIDLY CHANGING COMPANY, WITHOUT SO MUCH KNOWLEDGE NECESSARY" (ALABAMA, 200 EMPLOYEES)
- "ADAPT AND EXTEND SYSTEM FOR TELECOMMUNICATIONS, ON-LINE SYSTEM" (TEXAS, 90 LOCATIONS, $25 MILLION SALES)
- "INCREASED CAPACITY FOR SWITCHING (I.E. KEYSET TO PABX/CABX)" (200 EMPLOYEES, 1 LOCATION)
- "WORK WITH DIVISION OFFICE AS TO HOW TO STREAMLINE DATA AND COMMUNICATION PROBLEMS" (FORTUNE 500 BRANCH, 34 EMPLOYEES)
- "BETTER CONTROL ON WATS LINES" (FORTUNE 500 BRANCH, 600 EMPLOYEES)

EXHIBIT V – 24

WOULD MULTI–FUNCTION EQUIPMENT BE DESIRABLE?

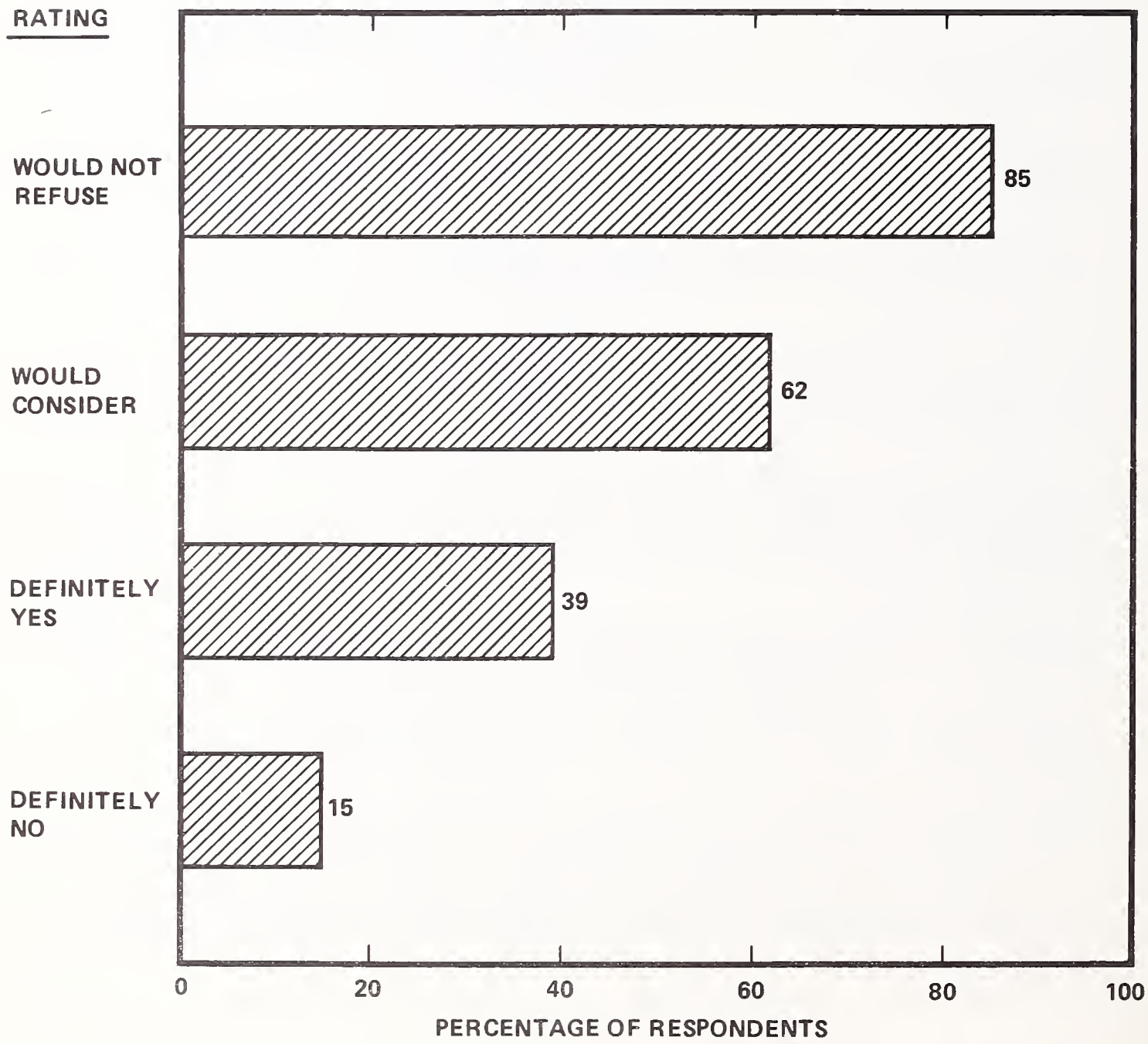


EXHIBIT V – 25

ATTRACTIVENESS OF MULTI–FUNCTION EQUIPMENT (BY SIZE OF ESTABLISHMENT)

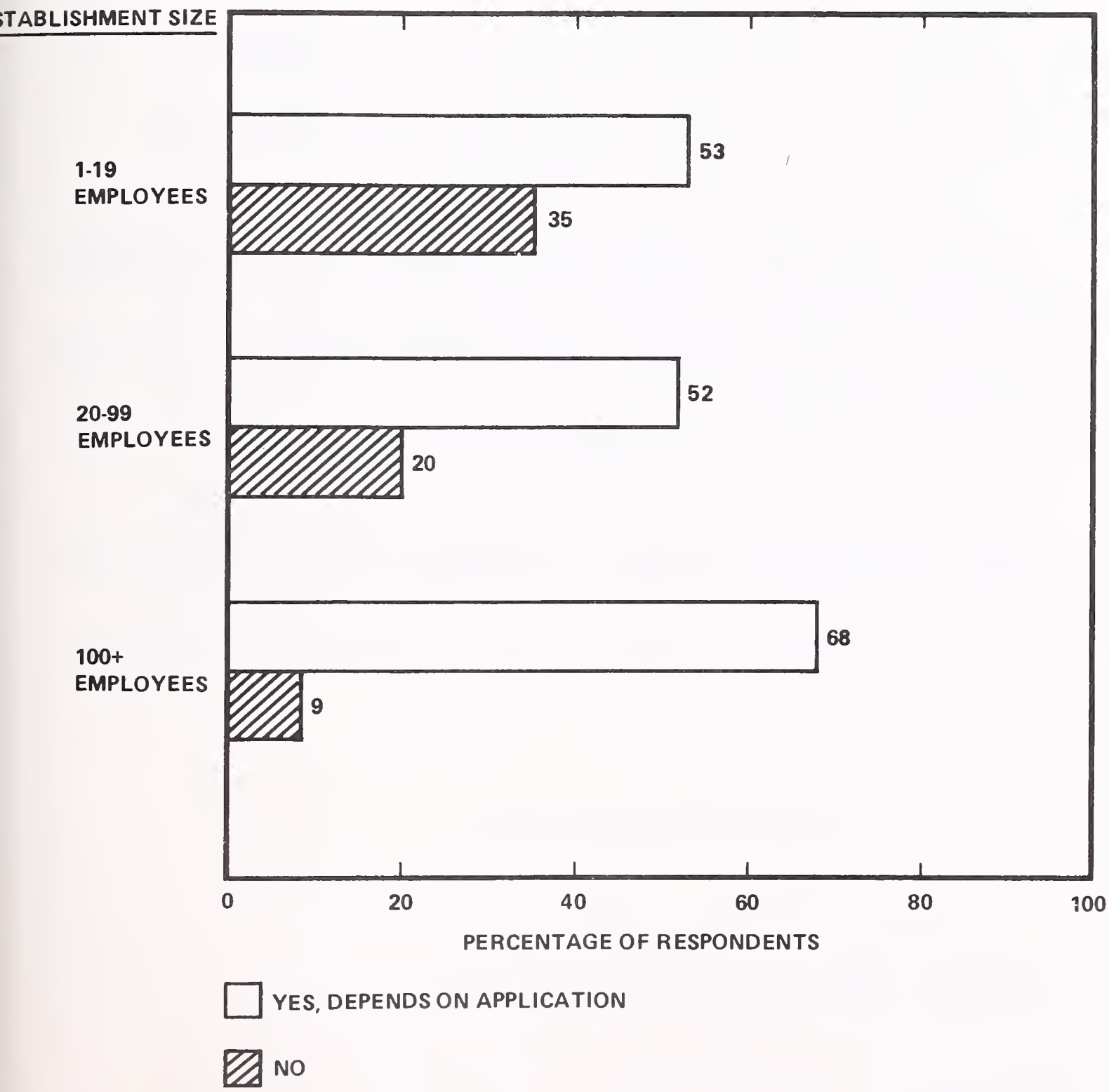


EXHIBIT V-26

DESIRABLE FEATURES FOR MULTI-FUNCTION EQUIPMENT

- "COMMUNICATING WORD PROCESSOR WITH PROFESSIONAL-LOOKING OUTPUT"
- "DIRECT ACCESS TO MASTER COMPUTER WITH PRINT-OUT FEATURE"
- "TERMINAL AND TEXT PROCESSOR"
- "HANDLE SECRETARIAL AND ADMINISTRATIVE FUNCTIONS"
- "WOULD DEPEND ON COMBINATION OF COST AND CONVENIENCE"
- "FOR DATA-ENTRY AND WORD PROCESSING"
- "TO DO EVERYTHING FROM INVOICING THRU A/R, A/P, INVENTORY CONTROL, REPORTS, SALES AND PURCHASE ANALYSIS, GENERAL LEDGER, P & L"
- "TYPEWRITER-TYPE TERMINAL FOR PROGRAMMING, TYPING, FORMS PRINTING AND COMPLETION"
- "CURRENTLY LOOKING FOR SOMETHING TO HANDLE ALL FUNCTIONS"
- "WILL LOOK INTO IT, DIDN'T KNOW SUCH A THING EXISTED"
- "LABOR REPORTING, MATERIAL RECEIVED AND ISSUED, DRAWING FILE ACCESS, PRODUCTION SCHEDULING, PAYROLL"
- "PARTS EXPLOSION, INVENTORY CONTROL, A/P, A/R, ORDER WRITING"
- "PRODUCTION CONTROL"
- "ESTIMATING"
- "MARKETING-CONTRACTS-ACCOUNTING"
- "AS MANY AS POSSIBLE"
- "EXPANDABLE AS THE COMPANY EXPANDS"
- "WE ARE GOING FOR THE ELECTRONIC OFFICE"

EXHIBIT V-27

PERCEIVED DRAWBACKS TO MULTI-FUNCTION EQUIPMENT

- "NOT NEEDED HERE, HAVE AT CORPORATE HEADQUATERS"
- "MANY CLAIMS FOR EXTRA FUNCTIONS ARE ONLY USED ONCE A YEAR OR LESS"
- "ONLY ACCOUNTING IS DONE HERE"
- "CAN'T THINK OF ANY APPLICATIONS"
- "DON'T FEEL IT IS NEEDED, CASSETTE CAPACITY IS TOO SMALL FOR THE NUMBER OF PARTS WE HAVE IN INVENTORY"
- "NO NEED"
- "NOW HAVE COMBINATION SYSTEMS"
- "NO REAL PROBLEMS"
- "ONLY NEED IS FOR MARKETING AND ACCOUNTING - BIGGER MACHINE IS A WASTE OF TIME AND MONEY"

VI APPLICATIONS ANALYSIS

VI APPLICATIONS ANALYSIS

A. FUNCTIONAL USE OF EDP AND OTHER AUTOMATION

- In order to determine the overall progress of EDP automation among small establishments, INPUT analyzed interview results to determine respondents' use of EDP for production functions (Exhibits VI-1, 2), for sales/marketing functions (Exhibits VI-3, 4), and for financial/administrative functions (Exhibits VI-5, 6).

- The exhibits show the percentage of respondents who replied affirmatively to the question of whether any of the included applications are presently automated, or if manually performed, whether they expect to be automated by 1983.

- Production functions are defined to include any of the following applications:

  - Bill of Materials.

  - Shop Floor Control.

  - Order Tracking.

  - Material Requirements Planning.

- Scheduling.
- Estimating.
- Numerical Control.
- Job Costing.
- Engineering Analysis/Design.
- Order Allocation.
- Shipping.
- Stock Replenishment.
- Inventory Control.
- Receiving.
- Purchasing.

- Sales/marketing functions are defined to include any of the following applications:
  - Order entry.
  - Sales analysis.
  - Credit authorization.
  - Other marketing applications.

EXHIBIT VI – 1

USE OF EDP FOR PRODUCTION
FUNCTIONS 1978/1983 (BRANCHES)

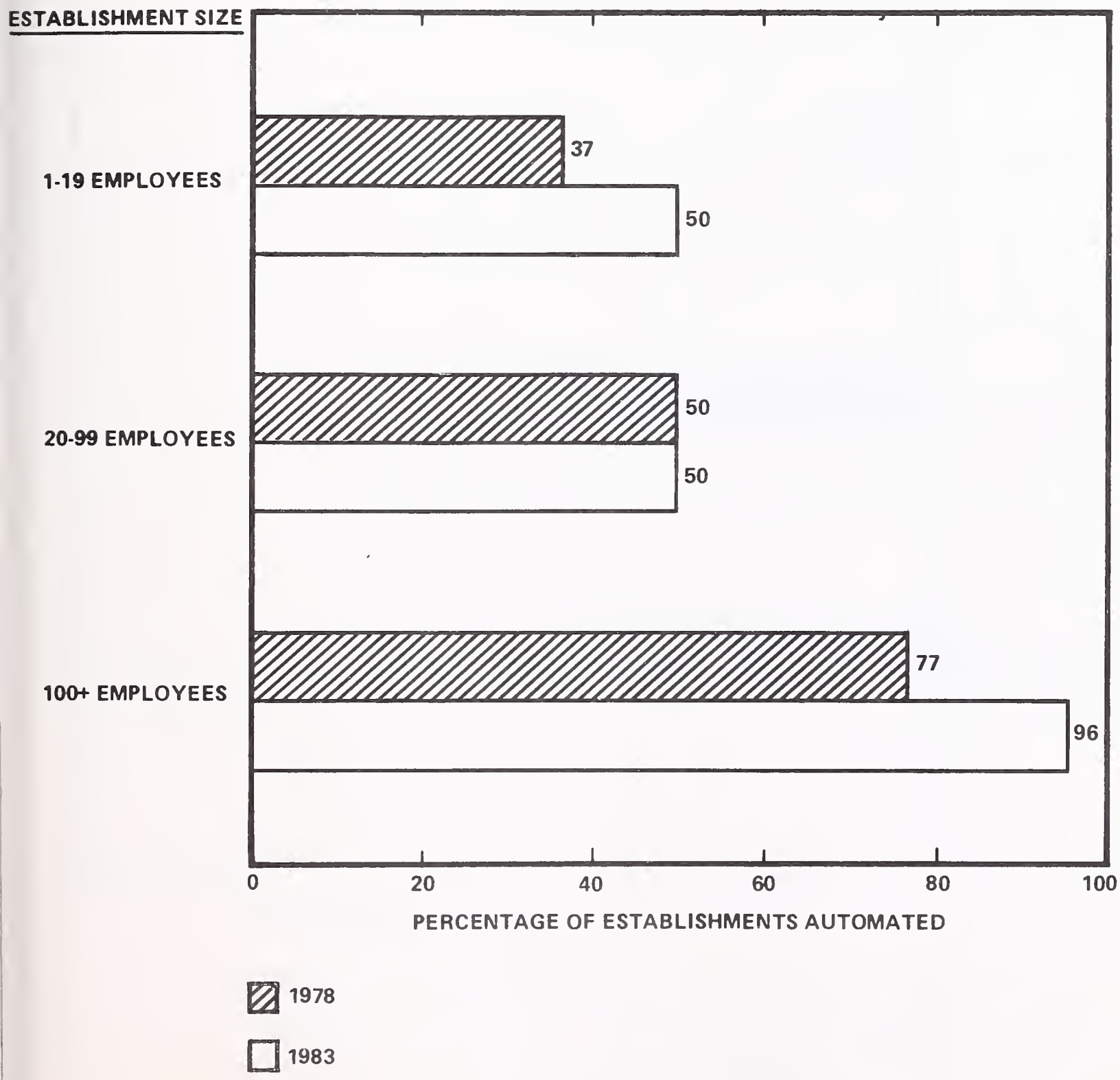


EXHIBIT VI – 2

USE OF EDP FOR PRODUCTION FUNCTIONS 1978/1983 (INDEPENDENTS)

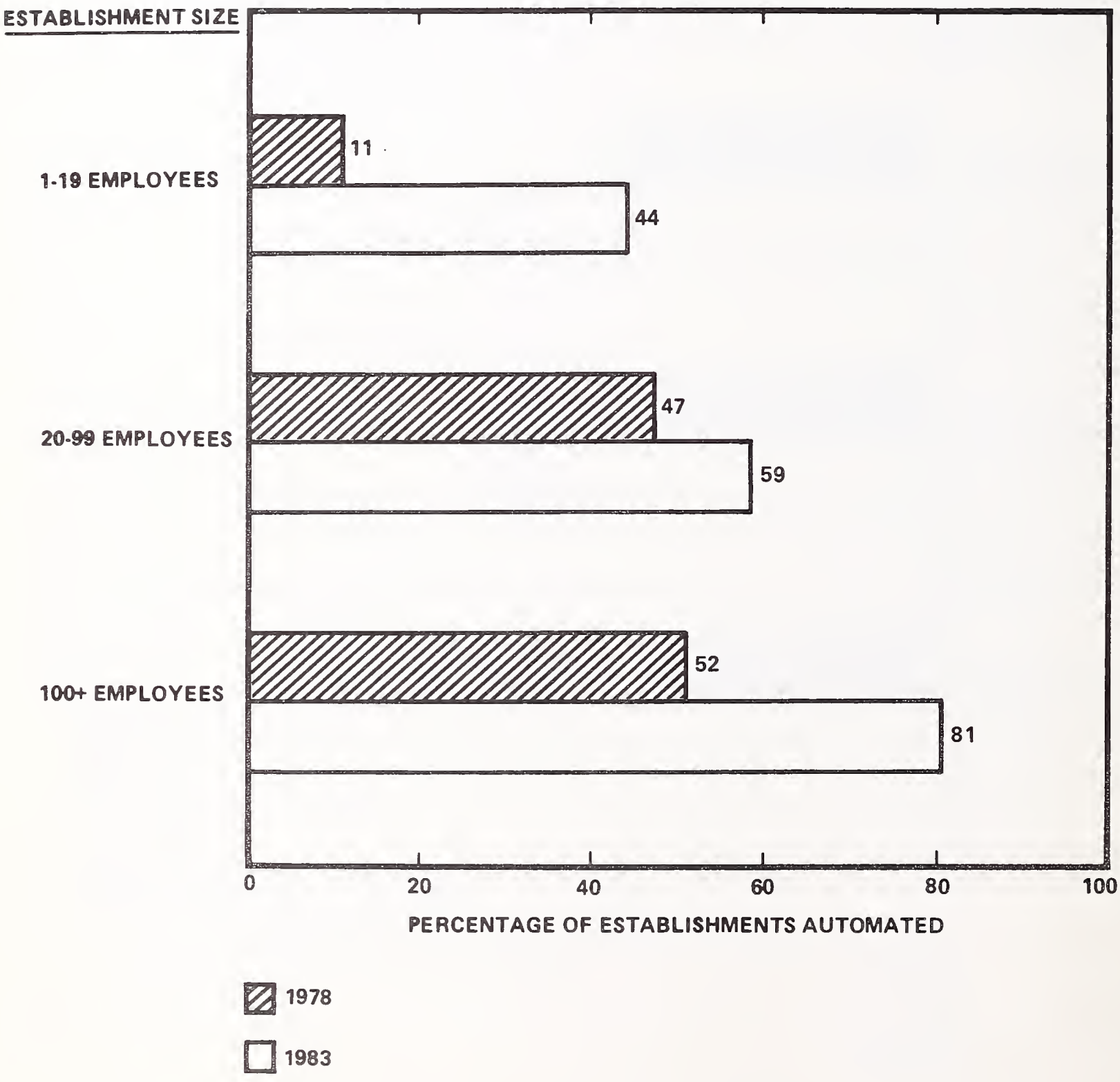


EXHIBIT VI – 3

USE OF EDP FOR SALES/MARKETING
FUNCTIONS 1978/1983 (BRANCHES)

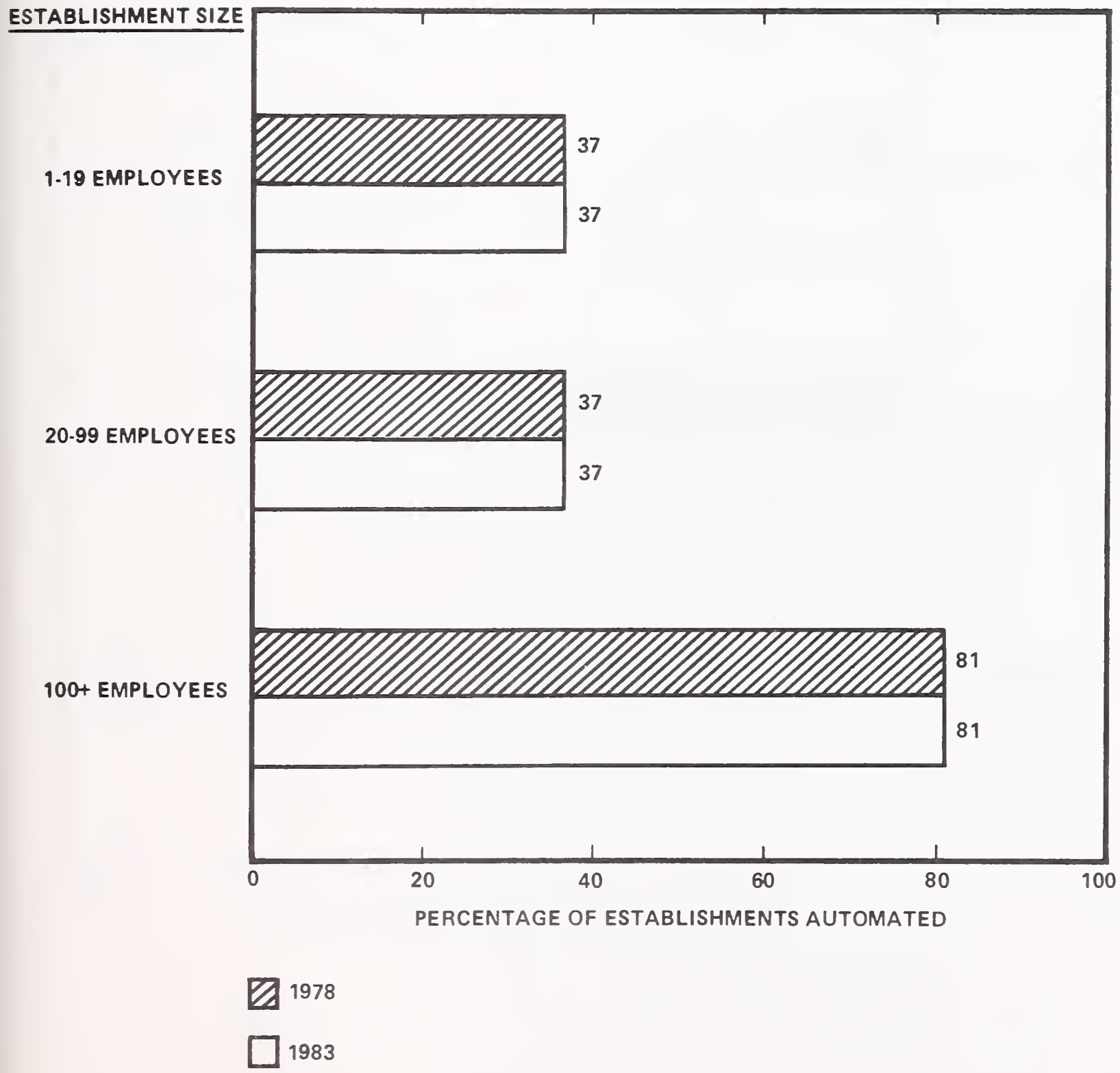


EXHIBIT VI – 4

USE OF EDP FOR SALES/MARKETING
FUNCTIONS 1978/1983 (INDEPENDENTS)

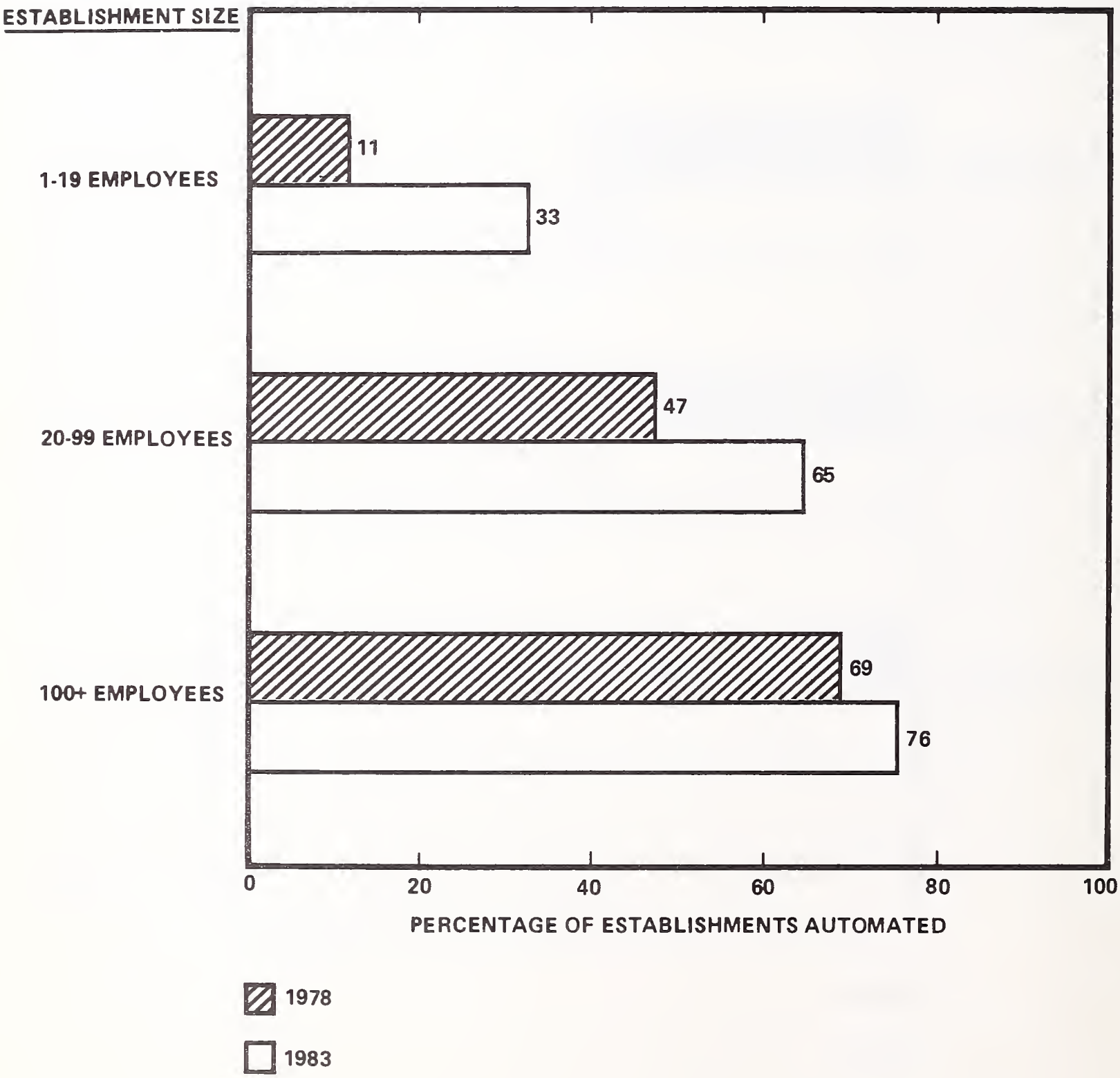


EXHIBIT VI – 5

USE OF EDP FOR FINANCIAL/ADMINISTRATIVE
FUNCTIONS 1978/1983 (BRANCHES)

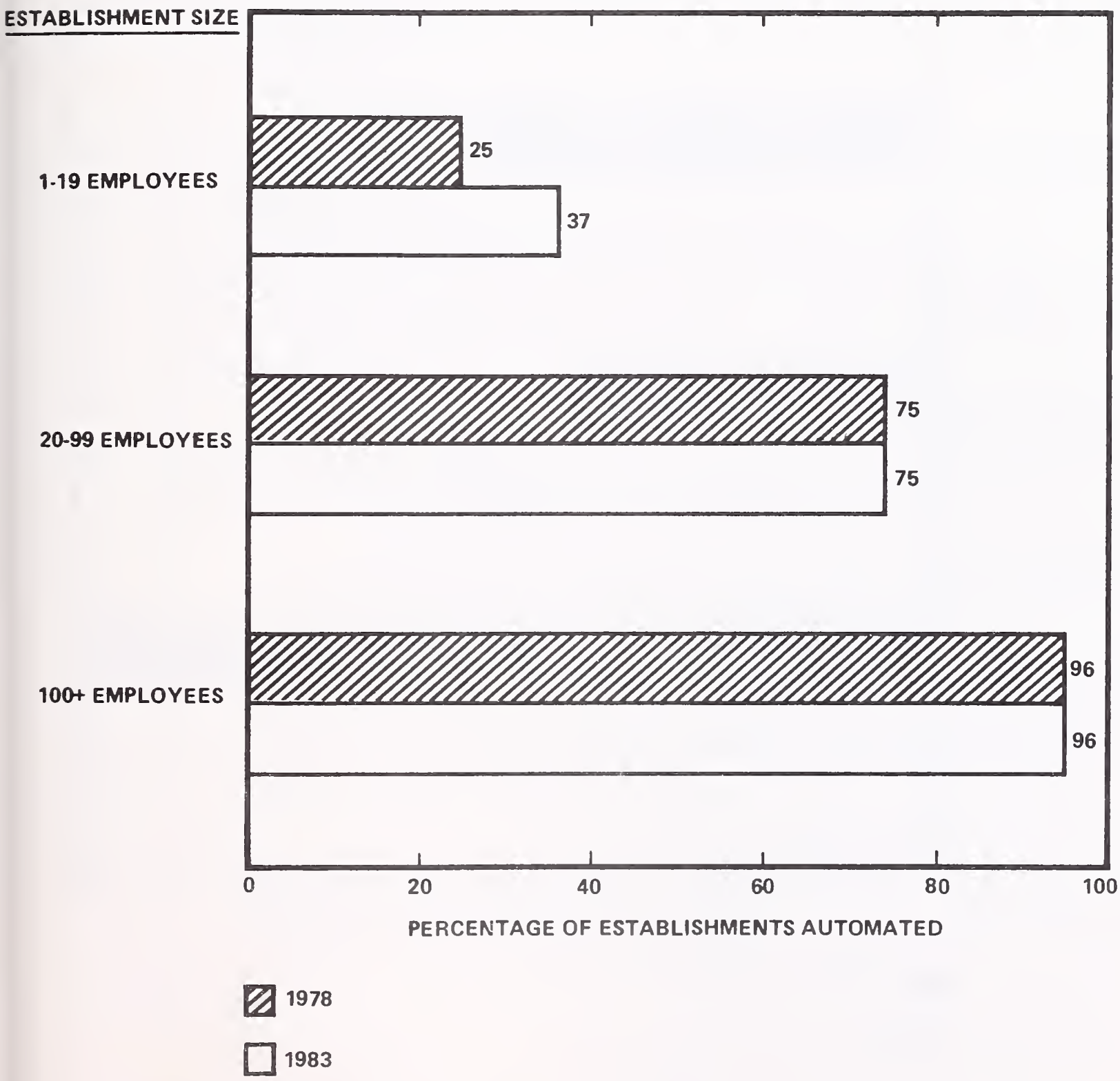
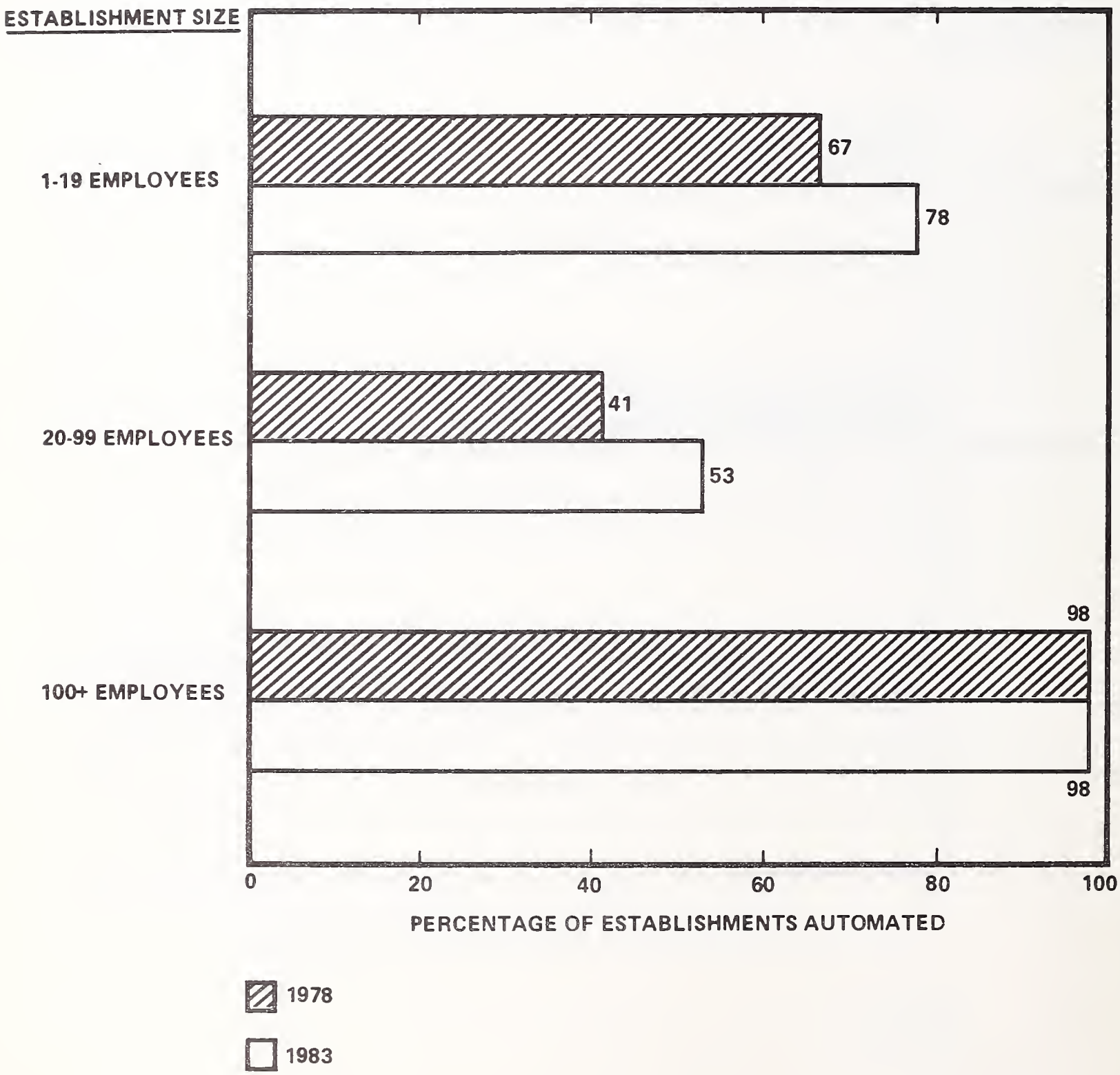


EXHIBIT VI – 6

USE OF EDP FOR FINANCIAL/ADMINISTRATIVE FUNCTIONS 1978/1983 (INDEPENDENTS)



- Financial/administrative functions are defined to include any of the following applications:

  - Payroll.
  - Billing.
  - Accounts receivable.
  - Accounts payable.
  - General ledger.
  - Other related applications.

- These exhibits show that the automation line is roughly at 100 employees and that independent establishments are somewhat ahead of branches in their automation.

- The largest potential impact for small establishments will come from automating the production functions (see Exhibits VI-1, 2).

  - Reductions in inventory holding costs and organized labor costs offer much greater potential savings than reduction in office costs.
  - Forty-four percent of small independents and 50% of small branches expect at least some production functions to be automated within five years, compared to 11% and 37% now.
  - Among the group with 100 to 499 employees, 81% of independents and 96% of branches expect some production functions to be automated within five years, compared to 52% and 77% now.

- Financial and administrative applications are most widely automated, often using services rather than in-house computers (see Exhibits VI-5, 6).

- Only among the smallest group of Fortune 500 branches is there a lag in automation of financial and administrative functions.

  - This size corporate branch tends to be functionally specialized and does not have the need for financial/administrative automation.

  - Payroll and any other financial applications for this branch are often handled by another corporate location.

  - While 78% of the group of independents with one to nineteen employees expect their administrative functions to be automated within five years (67% are now), only 37% of this size corporate branches expect to be automated in five years (25% are now). (See Exhibits VI-5 and VI-6.)

- Specific EDP applications performed by small establishments, either on their own equipment or by use of computer services, have been grouped in classifications of administrative and sales applications, Exhibits VI-7 through VI-9, and production and distribution applications in Exhibits VI-10 through VI-12.

- Figures cited represent the percentage of respondents who responded affirmatively to the question of whether they were performing a specific function in a manual or automated way, and if manually, whether they expected the function to be automated within five years. Since some respondents were uncertain or declined to answer, or do not perform the function at their establishment, the sum of "manual" plus "automated now" does not necessarily equal 100%.

EXHIBIT VI-7

ADMINISTRATIVE/SALES APPLICATION ANALYSIS (TOTALS)

APPLICATION	PERCENTAGE OF RESPONDENTS REPLYING AFFIRMATIVELY					
	INDEPENDENTS			BRANCHES		
	Manual Now	Automated Now	Automated In 5 Yrs. (Addl.)	Manual Now	Automated Now	Automated In 5 Yrs. (Addl.)
MARKETING & SALES						
Order Entry	32	47	16	17	38	10
Sales Analysis	15	49	10	7	52	
Credit Authorization	30	16	16	19	24	5
Other Marketing					5	
FINANCE & ACCTG.						
Payroll	12	72	15	5	69	7
Billing	16	54	21	14	55	10
Accts. Receivable	12	60	19	10	60	10
Accts. Payable	15	57	22	12	64	7
General Ledger	21	53	29	7	55	14
Other Finance	2	4	3		5	

*NOTE: Non-respondents among interviewees resulted in the sum of "Manual Now" plus "Automated Now" totalling less than 100%.

EXHIBIT VI – 8

ADMINISTRATIVE/SALES APPLICATION ANALYSIS (BRANCHES)

APPLICATIONS	PERCENTAGE OF RESPONDENTS								
	1 – 19 EMPLOYEES			20 – 99 EMPLOYEES			100 + EMPLOYEES		
	Manual	Automated Now	Automated In 5 Yrs. (Addl.)	Manual	Automated Now	Automated In 5 Yrs. (Addl.)	Manual	Automated Now	Automated In 5 Yrs. (Addl.)
MARKETING & SALES									
Order Entry	38	13	25	25	13		8	54	8
Sales Analysis	13	25		25	25			69	
Credit Authorization	38	13		38	13	13	8	31	4
Other Marketing					13			4	
FINANCE & ACCOUNTING									
Payroll	13	25	13	13	50	13		88	4
Billing	25	13	13	13	63		12	65	12
Accts. Receivable	13	25	13	25	50	13	4	73	8
Accts. Payable	25	13	13	25	50		4	85	8
General Ledger	13	13	13	13	50	13	4	69	15
Other Finance								8	

NOTE: Non-respondents among interviewees resulted in the sum of "Manual Now" plus "Automated Now" totalling less than 100%.

EXHIBIT VI-9

ADMINISTRATIVE/SALES APPLICATION ANALYSIS (INDEPENDENTS)

APPLICATIONS	PERCENTAGE OF RESPONDENTS								
	1 - 19 EMPLOYEES			20 - 99 EMPLOYEES			100 + EMPLOYEES		
	Manual	Automated Now	Automated In 5 Yrs. (Addl.)	Manual	Automated Now	Automated In 5 Yrs. (Addl.)	Manual	Automated Now	Automated In 5 Yrs. (Addl.)
MARKETING & SALES									
Order Entry	67	11	33	6	41	12	36	57	14
Sales Analysis	33	11	11	6	35	12	14	62	10
Credit Authorization	44		11	12		18	33	26	17
Other Marketing									
FINANCE & ACCOUNTING									
Payroll	55	33	22	6	47	24	5	91	10
Billing	44	22	44		30	30	17	71	12
Accts. Receivable	44	33	33		35	24	10	76	14
Accts. Payable	44	22	44	6	35	24	12	74	17
General Ledger	44	44	44		41	18	24	60	31
Other Finance	11	11	11					5	2

NOTE: Non-respondents among interviewees resulted in the sum of "Manual Now" plus "Automated Now" totalling less than 100%.

EXHIBIT VI-10

PRODUCTION/DISTRIBUTION APPLICATION ANALYSIS (TOTALS)

APPLICATION	PERCENTAGE OF RESPONDENTS					
	INDEPENDENTS			BRANCHES		
	Manual	Automated Now	Automated In 5 Yrs. (Addl.)	Manual	Automated Now	Automated In 5 Yrs. (Addl.)
WAREHOUSING - DISTRIBUTION						
Order Allocation	34	16	19	17	24	12
Shipping	44	10	22	24	21	17
Stock Replenishment	34	19	25	19	29	12
Other Warehousing	2	2	2			
Inventory Control	35	37	31	21	52	17
Receiving	43	24	19	29	26	17
Purchasing	2	2	2			
MANUFACTURING						
Bill of Materials	32	21	24	19	36	19
Shop Floor Control	40	15	24	31	12	26
Order Tracking	31	16	18	24	14	26
Material Requirements Planning	34	15	25	21	29	29
Scheduling	32	19	21	21	19	26
Estimating	31	21	29	21	29	10
Numerical Control	16	24	12	21	19	10
Job Costing	2	4	6	10	12	7
Analysis/Design	21	9	4	12	10	5
Other R & D	2	2		2		

NOTE: Non-respondents among interviewees resulted in the sum of "Manual Now" plus "Automated Now" totalling less than 100%.

EXHIBIT VI-11

PRODUCTION/DISTRIBUTION APPLICATION ANALYSIS (BRANCHES)

APPLICATION	PERCENTAGE OF RESPONDENTS								
	1 - 19 EMPLOYEES			20 - 99 EMPLOYEES			100 + EMPLOYEES		
	Manual	Automated Now	Automated In 5 Yrs. (Addl.)	Manual	Automated Now	Automated In 5 Yrs. (Addl.)	Manual	Automated Now	Automated In 5 Yrs. (Addl.)
WAREHOUSING - DISTRIBUTION									
Order Allocation	25	13	25	25	38	13	12	23	8
Shipping	38		25	38	13	13	15	31	15
Stock Replenishment	25	25	13	25	25	13	15	31	12
Other Warehousing									
Inventory Control	13	13	25	25	50		23	65	19
Receiving	25		25	38	25	13	27	35	15
MANUFACTURING									
Bill of Materials		25	25	38	25	13	19	42	19
Shop Floor Control	38		13	38		13	27	19	31
Order Tracking	13	13	13	38		13	23	19	35
Material Requirements Planning	25	13	13	25	13	13	19	38	38
Scheduling	25		13	25	13	13	19	27	38
Estimating	25		13	25	13		19	42	12
Numerical Control	13		13	38	13	13	19	27	8
Job Costing	25		13	13	25		4	12	8
Analysis/Design	13		13	13	13		12	12	4
Other R & D	13								

NOTE: Non-respondents among interviewees resulted in the sum of "Manual Now" plus "Automated Now" totalling less than 100%.

EXHIBIT VI-12

PRODUCTION/DISTRIBUTION APPLICATION ANALYSIS (INDEPENDENTS)

APPLICATION	PERCENTAGE OF RESPONDENTS								
	1 - 19 EMPLOYEES			20 - 99 EMPLOYEES			100 + EMPLOYEES		
	Manual	Automated Now	Automated In 5 Yrs. (Addl.)	Manual	Automated Now	Automated In 5 Yrs. (Addl.)	Manual	Automated Now	Automated In 5 Yrs. (Addl.)
WAREHOUSING - DISTRIBUTION									
Order Allocation	33		33	24	18	6	38	19	21
Shipping	44		22	30	12	12	50	12	26
Stock Replenishment	33	11	22	18	18	6	40	21	33
Other Warehousing	11		11					2	
Inventory Control	55	11	44	18	41	12	38	40	36
Receiving	66		22	24	24		45	29	26
Purchasing	11		11					2	
MANUFACTURING									
Bill of Materials	44	11	33	12	12		38	26	31
Shop Floor Control	66		11	24	12		40	19	36
Order Tracking	44		11	18	6		33	24	26
Material Requirements Planning	44	11	33	18	6	6	38	19	33
Scheduling	44	11	33	18	6	6	36	29	26
Estimating	55	11	44	12	18	18	33	24	31
Numerical Control	22	11	11	18	18	6	14	29	14
Job Costing	11		22			12		7	
Analysis/Design	22			6	6		26	12	7
Other R & D				6	6				

NOTE: Non-respondents among interviewees resulted in the sum of "Manual Now" plus "Automated Now" totalling less than 100%.

- Sales and marketing applications for branches are apparently almost as automated as they are going to be, since very few expected new applications are reported by these respondents (see Exhibit VI-8).

- Independents in all size ranges expect to devote more attention to the automation of marketing and sales applications, equivalent to the effort they will be spending on production applications (see Exhibit VI-9).

  - Specific applications desired are order entry and credit authorization.

  - These applications are most attractive to those establishments that are in a rapid growth phase and present an obvious marketing target for vendors of equipment and services.

  - Even branches that have already automated some sales applications are expecting to need order entry applications within five years.

  - A possible tie-in to distributed data processing is recommended as a marketing strategy for vendors.

- Inventory control leads the list of desirable applications to be automated, both now and in the next five years (see Exhibits VI-10 through 12).

- Also highly desirable as applications to be automated are bill of materials for both branches and independents, followed by material requirements planning for branches, and estimating for independents.

- Automated shop floor control and scheduling applications have not yet had a major impact on small establishments, but are expected to grow more rapidly in the next five years.

B. TECHNICAL RESOURCE REQUIREMENTS

- Users at the small end of the small establishment spectrum, both branches and independents, are not technically sophisticated.
  - Many are, or have yet to become, first-time users of any type of information automation.
  - They are unaware of what is available, as well as how to judge what capabilities are suitable for their organization.
  - Information processing skills, particularly among family-owned establishments outside the urban centers, may be very low.
  - Replacement of long-time personnel by any kind of automation is not desirable.
- Implications for vendors of equipment are that the piece of equipment to be sold should appear familiar, not formidable, as well as:
  - Easy to use.
  - With training built-in.
  - "Fool-proof."
- Environmental requirements for small establishments may be critical.
  - Space is often at a premium.
  - Low noise levels may be required because of the space problem.

- Offices of the small establishments may be located in a building separate from the plant, even though it is a single-unit establishment. Difficult cabling and power requirements may be a negative decision factor.

- Small establishments think of their requirements as unique whether they are or not. Vendors should offer products that may be easily customized by the user or should have arrangements with system houses to implement this customization. For EDP this includes:

  - Number of parts in inventory.

  - Coding structures employed.

  - Order and billing forms used.

  - Production, ordering, and billing cycles.

- Many users will require consulting or other types of assistance to get "over the hump" with their new automated mode of operation. If the vendor cannot provide it directly, local sources of help must be developed.

  - Failure to provide this level of support accounts for most cancellations and removals of equipment from small establishments, which do not usually have training allowances in their budget or production schedule.

C. CASE STUDIES

- COMPANY A, a branch of a Fortune 500 company with 190 employees.

  - Functions performed at the branch:

. Manufacturing.

- EDP equipment used at site:

  . Used for order entry, sales analysis, payroll and inventory control.

  . Harris intelligent terminal communicating to an IBM System/370 over leased lines.

  . The Harris terminal is temporary until existing Honeywell programs are translated into IBM languages. At that time an IBM terminal will be installed.

- EDP services used at site:

  . None.

- Office equipment used at site:

  . One Xerox copier used just below minimum monthly billing (4,000 to 5,000 copies per month).

  . Recently the entire secretarial staff was fired because this was considered a "frivolous luxury."

- Communications equipment used at site:

  . All equipment at location is from AT&T.

  . Equipment currently used is modems, a PABX with ten outgoing trunks, an incoming WATS line for salesmen, and a teletype machine.

- Purchase methods:

  . The branch has absolutely no say in what goes on in the data processing and communications areas.

  . Office equipment and supplies are purchased by a corporate purchasing agent at the user location.

  . The last piece of office equipment purchased was a Xerox copier purchased five years ago.

- COMPANY B, a single unit enterprise with 75 employees.

  - Functions performed at the location:

    . Full range of business functions.

    . Equipment is used for inventory and cost control.

  - EDP equipment used at site:

    . An IBM System 32, purchased recently, is phasing out a mechanical NCR machine.

    . The computer was purchased to control inventory stock. The initial analysis showed that $200,000 per year could be saved in inventory, which would make the system cost effective. Cost savings to date are mediocre.

    . The cost of the system is $25,000 per year, which includes $10,000 per year for the lease and supplies and $15,000 per year for an operator.

  - EDP services used at site:

. None.

- Wants from equipment/services:

  . Equipment must be simple.

  . "Systems ten times faster serve no necessity."

  . "Small businesses generally do not know what type of equipment they want, otherwise they would tell manufacturers exactly what they wanted." "Manufacturers need a better way of communicating applicability of equipment." --according to the respondent.

- Office equipment used at site:

  . Have no needs for office automation. There is no return on investment.

- COMPANY C, a branch of a Fortune 500 company with approximately 700 employees.

  - Functions performed at location:

    . Full range of business functions.

  - EDP equipment on site:

    . IBM System 3/15D, including (4) IBM 3340 disc drives, and awaiting delivery on two IBM 3344 disc drives.

    . Six Memorex 1377 CRT terminals.

    . Four Decision Data keypunches.

- Currently have sales analysis, inventory control, production control, order entry, demand forecasting, materials requirement planning, materials routing, customer files on-line and accounting will be on-line shortly.

- EDP services used on site:

  - None.

- Office equipment used on site:

  - Six Xerox 3000 series copiers.

  - Addressograph-Multigraph duplicators.

  - IBM Selectric II Typewriters.

- Communications Equipment used at site:

  - Bell "Dimension-Plus" PABX, with Bell "Dimension Touch-A-Matic" station with 120 trunks.

  - Telex machine.

  - RCA private line services.

- Purchase methods:

  - All purchasing is done through the purchasing agent at location. Certain companies are always used for certain types of equipment; the corporate edict is to purchase from big companies.

- COMPANY D, a single unit enterprise with 100 employees.

- Functions performed at location:

  . Manufacturing, sales, accounting.

- EDP equipment used at site:

  . In 1972 an IBM System/360 Model 20 was installed with a staff of 15 to operate the system. Rental was $5,000 per month for a system utilized two to three hours a day. However, the computer lease was later cancelled and the department eliminated.

  . In 1978 an NCR minicomputer was leased to handle accounting functions.

- EDP services used at site:

  . ADP is currently used for payroll and will be discontinued as soon as a payroll function on the new computer becomes operational.

- Office equipment used at site:

  . In 1972 a Xerox 7000 was obtained; it was never used to capacity and there were other problems with it. The copier was shipped back to Xerox primarily because it was costing more than it was utilized.

  . An in-house print shop was never utilized and consequently no longer exists.

- . In 1978 a Minolta roll-fed coated paper copier was obtained. No one is really satisfied with this copier because it is slower than the Xerox 7000 and it does not deliver copies of equal quality. High on the complaint list is the feel of the coated paper.

  . Typewriters/word processing.

  . The firm had 3 IBM Mag Card I's, but they were returned because they were not utilized.

  . Currently have IBM Selectric and Correcting Selectric typewriters.

  . Currently have 12 Texas Instrument 1200's and 2 NCR printing calculators.

- Communications equipment at location:

  . Have a WATS line for 20 hours per month.

  . Currently using Telex.

  . Currently using a Bell 757A PABX with an expansion board. Phones are used primarily to contact dealers and salesmen.

  . Communications expenditures are roughly $6,000 per month.

- Purchase methods:

  . Will install as much equipment as possible on a trial basis and choose from the installed equipment.

  . Decision makers on all equipment are normally the comptroller and the president.

. In the old purchasing philosophy in 1972 cost was secondary and having the best was important. This philosophy has been altered by necessity.

- COMPANY E, a branch of a Fortune 500 company with 350 employees.

  - Functions performed at branch:

    . Full range of business functions.

  - EDP equipment used on site:

    . Various computer terminals and keypunches.

    . Expenditures are approximately one to five percent of production value.

  - Office equipment used on site:

    . Xerox copier.

    . Ditto duplicator.

    . Olympia typewriters.

    . Expenditures are approximately three percent of production value ($50,000 to $60,000 per year).

  - Communications equipment:

    . Bell Comkey (keyset) phones.

    . One modem for data communications.

- Purchase methods:

  . For EDP, a proposal is written that defines the type of equipment needed and suggests a vendor. Corporate headquarters must give approval. The long term plan is to have all locations exclusively on terminals to headquarters.

  . For office equipment, a proposal is written that defines the type of equipment needed and suggests a vendor. The manager at location must approve the proposal.

  . All non-EDP supplies are purchased from a local supplier by a purchasing agent.

• COMPANY F, a branch of a Fortune 500 company with five employees.

- Functions performed at the branch:

  . Sales only.

- EDP equipment used on site:

  . GE terminal hooked to headquarters for communications and order entry.

- Office equipment used on site:

  . Typewriter is an IBM Correcting Selectric, because corporate has a national account with IBM.

  . Xerox 3100 copier. Usage is 2,500 copies per month.

- Communications:

. TWX machine to send messages to corporate and to customers.

. GE terminal used for memos and messages.

. WATS line at corporate is not used frequently, because it is usually busy.

- Purchase methods:

. All information is gathered by calling a vendor's salesman.

. All major purchasing is through corporate via national accounts.

• COMPANY G, a multi-location company with 600 employees.

- Functions performed at location:

. Full range of business functions.

- EDP equipment used at site:

. All IBM equipment.

. Satisfied with IBM; current data processing manager is "going to" IBM.

- Office equipment used at site:

. Xerox 9200 - used for sales literature and general typing. They bought the 9200 to save money.

. Looking into IBM memory typewriters.

. Multi-function equipment is not a desirable alternative.

. "To go multi-function, you must change people, which isn't easy. Gathering information that is essential is very time consuming."

- Communications equipment used at site:

. Burroughs/Graphics Sciences DEX 4100, facsimile equipment.

- Purchase methods:

. The data processing or office manager decides what to purchase, but he must acquire approval on all purchases over $100.

. Information on available equipment is gathered by calling salesmen, reading industry journals, and word of mouth.

• COMPANY H, a Canadian MUE with $300 million in sales.

- Functions performed at the location:

. Full range of business functions.

- EDP equipment at site:

. IBM System/370 Model 115.

. Equipment at other locations includes, IBM System/3, IBM System/32, IBM System/34, Datapoint minicomputers, Burroughs microcomputers.

- Office equipment:

. Entire company uses Xerox copiers and IBM Selectric typewriters.

- Will purchase a combination of word processing and text editing equipment (non-communicating equipment with CRT display and printer).

- Purchase methods:

  - Company is very decentralized. Branches decide what they want and act independently on purchases under $25,000.

  - Purchases over $25,000 require corporate approval.

  - Equipment is located almost exclusively through salesmen.

VII EQUIPMENT AND SERVICES MARKETS

VII EQUIPMENT AND SERVICES MARKETS

A. BUDGET CONTROL

- Budgets for small establishments (particularly independents) are best described as "informal." (Exhibit VII-1)

  - Many companies do not know what dollar amount or percentage of sales are spent on administration or office expenses.

  - Because many establishments in this size range are still family-owned or family controlled, expenditure decisions are made on an ad hoc basis, governed more by cash flow and investment tax credit factors than by equipment costs.

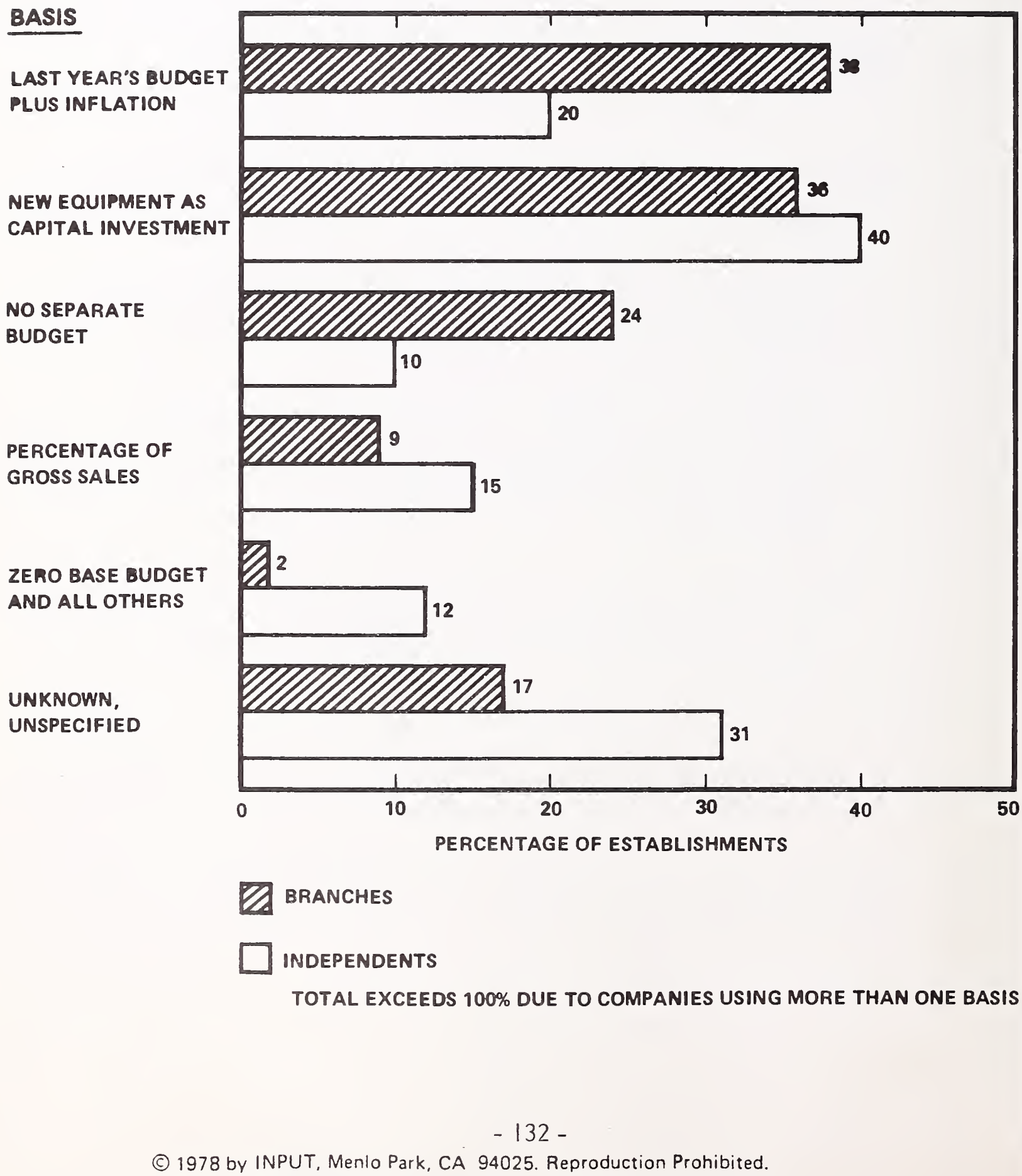
  - 24% of branches have no control at all over their budget, or at least do not have specific EDP, office, or communications budgets for their location.

  - 38% of branches and 20% of independents use only the simple technique of tacking on inflation to last year's budget.

- Companies are nevertheless willing to spend significant additional amounts to obtain improvements (Exhibit VII-2).

EXHIBIT VII – 1

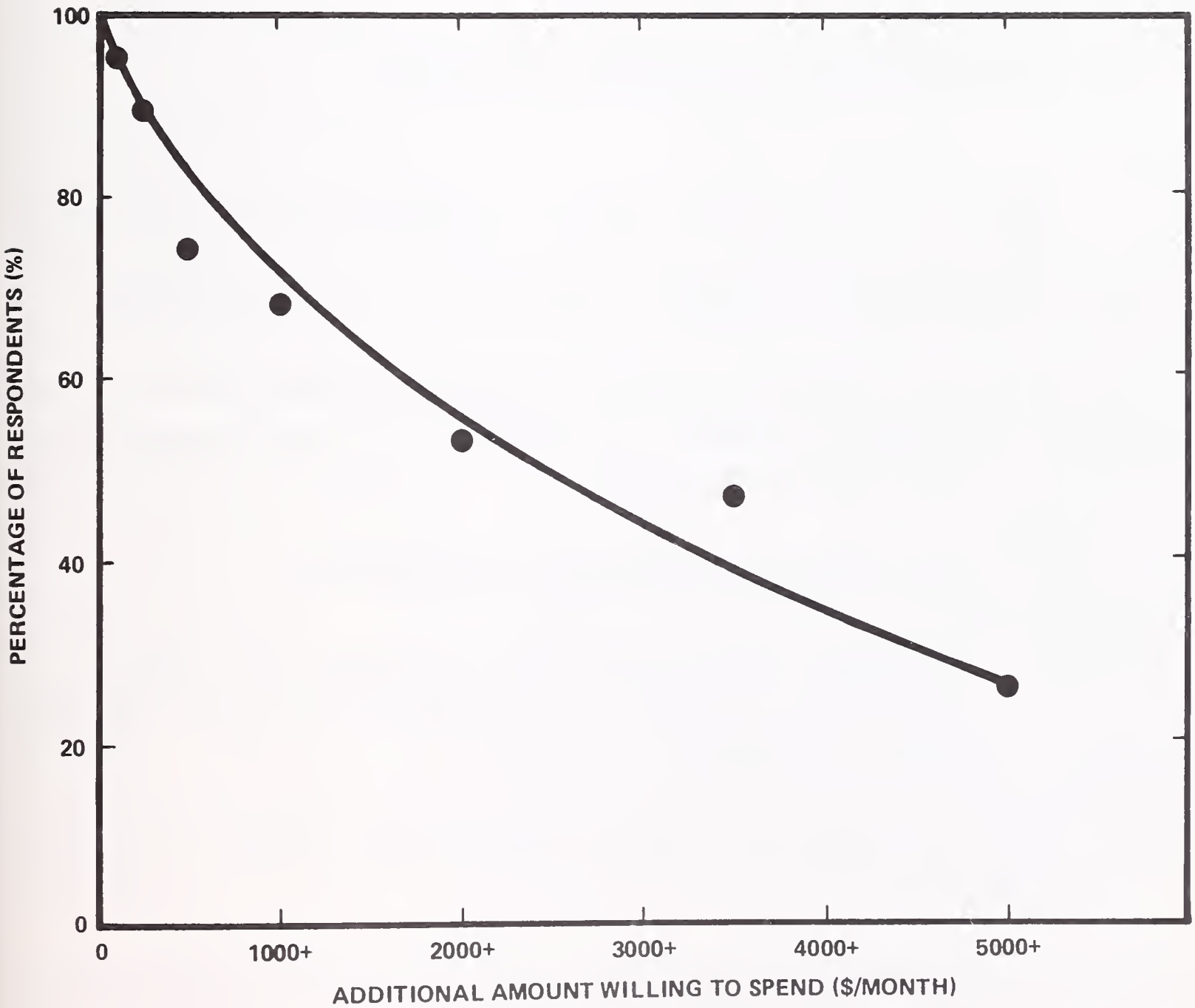
BASIS FOR BUDGETING



TOTAL EXCEEDS 100% DUE TO COMPANIES USING MORE THAN ONE BASIS

EXHIBIT VII – 2

WILLINGNESS OF COMPANIES TO SPEND ADDITIONAL MONEY FOR IMPROVEMENTS



- The additional amount that an establishment is willing to spend does not appear to be related to the size or gross sales of the establishment or to the size of its current budget or expenditures.

- Expenditure of $2,500 per month is equivalent to $90,000 for equipment amortized in three years (not including carrying charges and maintenance). Up to 45% of the respondents who were able to put a dollar amount on additional expenditures said they would be willing to spend this amount.

B. EXPENDITURES FOR EQUIPMENT AND SERVICES

- Expenditures for information processing equipment and services are shown in Exhibit VII-3 as industry totals and in Exhibit VII-4 as percentages of gross sales and dollars per employee. These figures were for penetrated firms.

  - Note that office automation equipment is just entering the small establishment market, which accounts for the lower expenditure per employee on this equipment.

  - The figures are for expenditures on an annual basis.

  - Expenditure information provided by respondents was verified by examining the cost of the installed equipment listed by the respondents during interviews.

- These figures compared to those in previous INPUT analyses of large companies show that:

  - Communications expenditures per employee is greater for small establishments than for Fortune 500 companies.

EXHIBIT VII-3

TOTAL CURRENT EXPENDITURES OF THE DISCRETE MANUFACTURING SECTOR - SMALL ESTABLISHMENTS

EXPENDITURE CLASSIFICATION	1 - 19 EMPLOYEES	20 - 99 EMPLOYEES	100 - 499 EMPLOYEES	TOTAL
EDP EQUIPMENT, SVCS., SUPPLIES & PERSONNEL	$135.7M	$642.6M	$2145.1M	$2923.4M
OFFICE EQUIPMENT	$110.6M	$307.6M	$517.3M	$935.5M
COMMUNICATIONS EQUIPMENT & SERVICES	$288.1M	$801.4M	$1347.5M	$2437.0M
OFFICE SUPPLIES	$118.3M	$329.2M	$553.5M	$1001.0M
TOTAL	$652.7M	$2080.8M	$4563.4M	$7296.9M

EXHIBIT VII-4

AVERAGE CURRENT EXPENDITURES OF THE DISCRETE MANUFACTURING SECTOR - SMALL ESTABLISHMENTS

(BY EMPLOYEE AND BY SALES PERCENTAGE)

EXPENDITURE CLASS	$/EMPLOYEE	% GROSS SALES
EDP EQUIPMENT, SERVICES & SUPPLIES	220	0.455
EDP PERSONNEL	400	0.828
TOTAL EDP	620	1.283
OFFICE EQUIPMENT	157	0.325
COMMUNICATIONS EQUIPMENT & SERVICES	409	0.847
OFFICE SUPPLIES	168	0.348

- EDP equipment and services expenditures per employee in small establishments is equivalent to expenditures per employee in Fortune 500 companies.

C. POTENTIAL USE OF INFORMATION PROCESSING EQUIPMENT

- The prime factor which determines how many small establishments utilize EDP or office automation equipment is the cost of this equipment. This cost is compared to the expense of performing the same function manually. For functions not presently being performed by the user, a judgement is made which balances the cost of the equipment against the value of the new functions. This section of the report will show how many small establishments will use EDP or office automation equipment as the price of this equipment drops and will explain how this information was calculated.

- The number of potential users of EDP equipment, as a function of the cost of this equipment, is shown for small establishments within the discrete manufacturing sector in Exhibit VII-5. This curve shows that the potential number of computer systems in use will increase from about 6,000 systems if the cost is $165,000 per system to over 250,000 systems if the cost drops to $13,200 per system. (Although $75,000 is the average cost of presently installed systems, $165,000 was chosen at the top end of the scale to permit a curve to be drawn.)

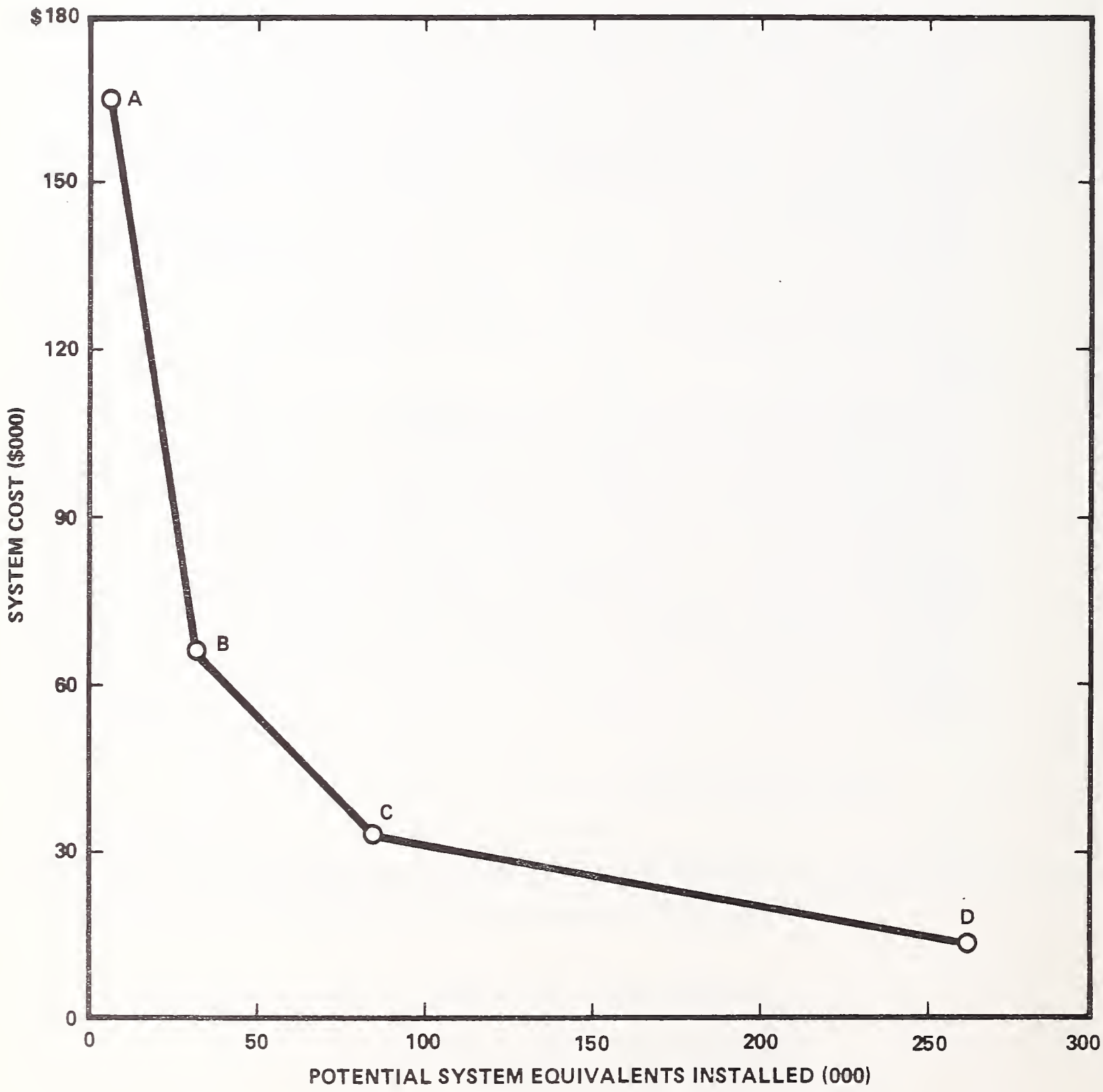
  - This curve shows that:

    . A decrease in system cost by a factor of 12.5 results in an increase in the potential use of equipment by a factor of 41.5.

    . The rapid growth in the number of small establishments using EDP equipment is due to the fact that there are many more companies of 20 employees in size than there are companies of

EXHIBIT VII – 5

POTENTIAL FOR COMPUTER INSTALLATION AMONG SMALL ESTABLISHMENTS WITHIN DISCRETE MANUFACTURING



POTENTIAL MARKET VALUE FOR COMPUTER INSTALLATIONS AMONG SMALL ESTABLISHMENTS WITHIN DISCRETE MANUFACTURING

REFERENCE POINT	MINIMUM NUMBER OF EMPLOYEE/ESTAB. SIZE GROUP	SYSTEM COST ($ 000)	MARKET VALUE ($ MIL)	SYSTEM EQUIVALENTS
A	250	165.0	980.9	5,945
B	100	66.0	2,174.5	32,947
C	50	33.0	2,807.2	85,066
D	20	13.2	3,467.7	262,705

LEGEND:

(1) Size Groups: 20 – 49, 50 – 99, 100 – 249, 250 – 499.

(2) System Cost = Minimum number of Employees/Establishment (1) x $220/employee (average annual EDP expenditure/employee) x 3 (number of years amortization) (eg: 250 x 220 x 3 = 165).

(3) Average System Cost = $220 x 3 x number of employees in each establishment size category and all larger categories. (eg: "A": $660 x 1486K = $980.9; "B": $660 x 3295K = $2174.5)

(4) System Equivalents = Market Value (3) ÷ System Cost (2) (eg: $2174.5M ÷ 66,000 = 32,947)

250 employees in size. As the cost of EDP equipment drops, the threshold of its affordability by small companies is crossed, and more firms become potential users.

- Larger companies (250 employees in size) will use larger computer systems than small companies (50 employees in size). Since a measure of the EDP equipment potential is required, it was assumed that a large or small establishment will spend the same amount per employee as a smaller firm. Thus, the curve in Exhibit VII-5 was drawn in computer equivalents, resulting in a small establishment of 250 employees using the equivalent of several smaller computers and a smaller firm using only one computer. This type of presentation more accurately portrays the expenditure of EDP dollars by the user. The derivation is described below.

- Exhibit VII-5 shows the potential use of EDP equipment as a function of system price, and Exhibit VII-6 shows the same information in tabular form derived in the following manner:

  - An average annual expenditure of $220 per employee on EDP equipment was used. (Section VII-B.)

  - The purchase price of a computer system was divided over three years to determine its annual cost; e.g., a $66,000 computer system has an annual cost of $22,000.

  - The number of employees in the establishment was multiplied by $220 per employee to calculate the potential establishment expenditures for EDP equipment. If this amount was more than one-third of the potential computer cost the establishment was a potential user.

  - The potential market value for EDP equipment divided by the cost of the computer was the number of computer equivalents for the

establishment size. This number when multiplied by the number of establishments (as a function of size) becomes the total number of computer equivalents installed.

- Note that no allowance was made for firms of under 20 employees, which makes the estimate conservative at the low end of the scale.

- The potential curve for EDP equipment agrees with INPUT's current penetration estimates, which show 49% or 30,000 establishments of 20-499 employees having on-site mainframes or minicomputers at a system equivalent price of $75,000.

- The same methodology has been applied to office automation (word processing) and the results are shown in Exhibit VII-7 as a graph and VII-8 as a table. Assumptions are:

  - One-third of the $157 current annual expenditures per employee on office equipment is available for word processing.

  - A three-year payout, not adjusted for a growth in the work force, maintenance, or carrying charges, makes the basis a conservative estimate.

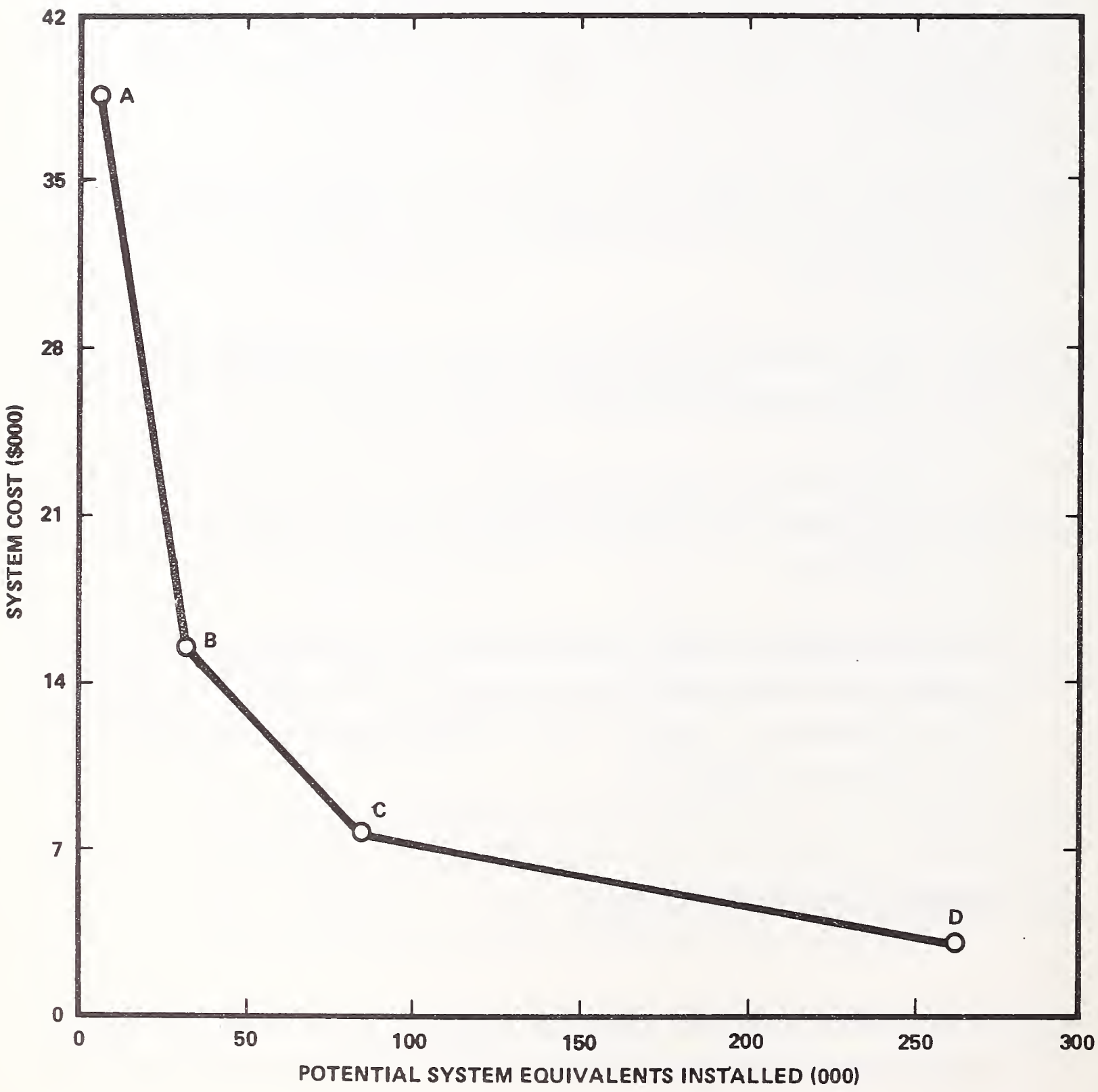
- The office automation curve agrees with INPUT's current penetration estimate of 16%, or 9,677 system equivalents installed at an average cost of $35,000 per using establishment. (Present users are using multiple systems which cost from $10,000 to $15,000 each.)

D. MARKET GROWTH FORECASTS

- On the other hand the market for information processing automation is growing rapidly due to the introduction of smaller, cheaper, and more cost

EXHIBIT VII – 7

POTENTIAL FOR OFFICE AUTOMATION AMONG SMALL ESTABLISHMENTS WITHIN DISCRETE MANUFACTURING



POTENTIAL MARKET VALUE FOR OFFICE AUTOMATION AMONG SMALL ESTABLISHMENTS WITHIN DISCRETE MANUFACTURING

REFERENCE POINT	MINIMUM NUMBER OF EMPLOYEE/ESTAB.	SYSTEM COST ($)	MARKET VALUE ($ MIL)	SYSTEM EQUIVALENTS
A	250	39,000	231.8	5,944
B	100	15,600	514.0	32,947
C	50	7,800	663.5	85,066
D	20	3,120	819.6	262,705

LEGEND:

(1) Size Groups: 20 – 49, 50 – 99, 100 – 249, 250 – 499.

(2) System Cost = Minimum number of Employees/Establishment (1) x $220/employee (average annual EDP expenditure/employee) x 3 (number of years amortization) (eg: 250 x 220 x 3 = 165).

(3) Average System Cost = $220 x 3 x number of employees in each establishment size category and all larger categories. (eg: "A": $660 x 1486K = $980.9; "B": $660 x 3295K = $2174.5)

(4) System Equivalents = Market Value (3) ÷ System Cost (2) (eg: $2174.5M ÷ 66,000 = 32,947)

effective products. Thus, a forecast made on the basis of industry sector growth would be too low.

- The best way to forecast the market for EDP and office automation equipment is to examine the effect of the introduction of equipment which is improving its price/performance ratio by 15% per year for EDP and 10% per year for text editing equipment. (Note: These improvements are smaller than in the large mainframe area because of the large component of mechanical peripherals). Then the future potential market penetration as a function of the price/performance improvement is calculated and converted to a growth percentage per year.

- The 15% annual improvement in the price/performance ratio for EDP equipment results in a cost decrease of a factor of 2.0 between 1978 and 1983. For office automation equipment, the 10% annual improvement in the price/performance ratio results in a cost decrease of 1.6 by 1983. The average small business system now sells for $50,000 (which is the average of the price of the IBM S-32 and S-34), and the average text editing unit sells for $15,000. Using the price/performance ratios of 2.0 and 1.6, by 1983 these equivalent prices will be $25,000 and $9,500. Note that this is an equivalent price/performance change, since the actual prices will not drop as much as the equipment functions will improve.

- Using these figures and the maximum theoretical market penetration charts, Exhibits VII-5 and VII-7, it can be seen that the growth in the maximum theoretical penetration over five years is 35% per year for EDP equipment and is 20% per year for office automation equipment. Assuming that the same ratio of actual versus possible penetration holds true in 1983, these percentages become the market growth figures.

- The potential for growth in the sale of computer services to small establishments in the discrete manufacturing sector is the same as the potential for growth in the sale of small business computers to these firms. However, with few exceptions this market (small establishments) is not being aggressively

exploited by the computer services industry. The growth rate of computer services to small establishments in the discrete manufacturing sector will be 20% per year. This is the growth forecasted by processing services firms of under $2 million in revenues (ADAPSO July, 1978). (These firms have small discrete manufacturing firms and wholesale firms as their major customers.)

- Communications services will grow in branches of Fortune 500 companies at the same rate as the overall corporate use of communications will grow. This is 7% per year for voice, 20% per year for data communications and 9% overall. Independents will grow faster because of their new use of automation equipment. Thus their rate of growth was increased from 9% per year to 11% per year to include the addition of data/message traffic.

- Communications equipment such as PABX and facsimile was assumed to grow by the same percentage per year as the office automation equipment to which it is similar.

- The growth in use of supplies will follow that of the equipment which uses the supplies.

APPENDIX A: SOURCES USED

APPENDIX A: SOURCES USED

1976 Annual Survey of Manufacturing - U. S. Department of Commerce

Manufacturers Shipments - 1958-1977, Survey of Manufacturers - U.S. Department of Commerce

1972 Census of Manufacturers and Mineral Industries

Current Industrial Reports - U.S. Bureau of Census

1972 Census of Manufacturers - Volume I Subject and Summary Statistics - U.S. Department of Commerce, 1975

1977 Statistical Abstract of The United States

County Business Patterns - U.S. Department of Census - 1975, Exhibits 1B, 2B

Survey of Current Business - July 1977

Historical Statistics - Colonial Times to 1970

Fortune Magazine -- May 8, 1978

APPENDIX B: INTERVIEW PROGRAM FOR DISCRETE MANUFACTURING

APPENDIX B: INTERVIEW PROGRAM FOR DISCRETE MANUFACTURING

ESTABLISHMENT SIZE	INDEPENDENT FIRMS			"FORTUNE 500" BRANCHES			TOTAL
	ON SITE	PHONE	HYBRID*	ON SITE	PHONE	HYBRID*	
1-19 EMPLOYEES	0	2	7	0	3	5	17
20-99 EMPLOYEES	4	7	6	0	5	3	25
100+ EMPLOYEES	7	9	26	7	7	12	68
ESTABLISHMENT SUB-TOTAL	11	18	39	7	15	20	110
		68			42		
CORPORATE HEADQUARTERS				2	18	0	20
TOTAL		68			62		130

* Combination of phone/mail interview.

APPENDIX C: DEFINITIONS

APPENDIX C: DEFINITIONS

- An establishment is a physical location or street address and can be:
  - An independent enterprise.
  - A branch of a major enterprise.
- A small establishment is a street address (or separate location) with less than 500 employees.
- An establishment can be a single unit enterprise (SUE) or part of a multi-unit enterprise (MUE).
  - A single unit enterprise is an establishment having all operations consisting of activities not distinctly separable.
  - A multi-unit enterprise is a business organization consisting of more than one establishment or an establishment having distinctly separable activities.
- A branch is a single location of a Fortune 500 corporation.
- An independent establishment is a SUE or MUE whose total employment is less than 500 employees.

- Computer services are provided by vendors which perform data processing functions using vendor computers, or assist users to perform such functions on their own computers, including Remote Computing Services (RCS), Batch Services, Facilities Management, Professional Services, and Software Products.

- Computer equipment includes any locally installed terminal, minicomputer or mainframe. For the purpose of forecasting only, the term is defined as locally processing intelligence--not including desk top calculators or accounting machines.

- Communications equipment includes keyset or PABX. Communications automation is defined as interconnect, which is the attachment and use of non-Bell equipment together with Bell equipment or services.

- Communications services includes long-distance, WATS leased line, tie-lines, Telex/TWX, or other regulated transmission of voice or data.

- Office automation is defined as the use of word processing/text editing equipment, either single station or multi-station.

  Office equipment includes word processors, photocopiers, duplication machines and facsimile equipment.

APPENDIX D: QUESTIONNAIRES

Catalog No. _____

ONFIDENTIAL SMALL ESTABLISHMENT SURVEY

We have been retained by a group of clients in the office products, computer, and communications industries to determine how they can better serve the needs of small and medium sized locations in your line of business. We are especially interested in the factors that influence how you obtain goods and services. All information will be kept strictly confidential and used for statistical purposes only.

SECTION I - GENERAL INFORMATION ABOUT YOUR COMPANY

1a. Is this location: headquarters of an independent enterprise ( )
part of a larger company ( )

1b. How many other locations are there? _____

2. What is the PRIMARY line of business at this location?

Description of Product or Service	Regional or National

3. What is the SECONDARY line of business at this location (if any)?

Description of Product of Service	Regional or National

4. What functions are performed here? ( )Sales ( )Accounting ( )R & D ( )Warehousing ( )Manufacturing ( )Other_____

5. What are the annual gross sales at this location (if applicable) $_____ per yr.

6. How many employees at this location?
_____ production _____ office _____ management

SECTION II - IMPROVEMENT PLANS

1. What are the most significant administrative or information-related problems in your organization that you would like to see resolved?

_____

_____

2. Would a piece of office equipment that can accommodate several administrative functions be more attractive to you than single-function equipment? ( )Yes ( )No ( )Depends on application. Which administrative functions would it have to handle?_____

_____

3. What do you consider your primary data processing needs?_____

_____

INPUT
PARK 80 PLAZA WEST-I • SADDLEBROOK, NEW JERSEY 07662 • (201) 368-9471

4. What are the most important improvements that are needed in the telephone/communications area?_____

_____

5. What is currently preventing you from automating more of your office operations?_____

_____

6. In order of priority, what improvements do you expect to make in any of these areas in the next two years?_____

_____

In the next 3-5 years?_____

7. Would you consider (or have you considered) using an outside service for any of these improvements?

( )Yes. Which functions?_____

( )No. Why?_____

8. How can office, communications, data processing equipment manufacturers better meet your needs?_____

_____

SECTION III - OFFICE AND COMMUNICATION REQUIREMENTS

1. Please check all of the following that apply to your location.

Office Function	Doing Now	Will Do Within 5 Yrs.
Copying	( )	( )
Duplication/Printing (using ink)	( )	( )
Text/Word Processing (automatic equipment)	( )	( )
Photocomposition	( )	( )
Other_____	( )	( )

2. If you are doing or planning to do any of the following over phone lines, please check all that apply.

Communication Function	Using Now		Will Be Using In 5 Yrs.	
	Inside Parent Organization	To Other Companies	Inside Parent Organization	To Other Companies
WATS or private lines	( )	( )	( )	( )
Telex/TWX	( )	( )	( )	( )
Sending data by phone to or from computers	( )	( )	( )	( )
Text editing by phone to or from another location	( )	( )	( )	( )
Facsimile transmission	( )	( )	( )	( )
Other_____	( )	( )	( )	( )

3. What major changes do you foresee for your company in either of these areas?_____

_____

_____

4. What other problems do you have in these areas that you would like to see resolved?_____

_____

SECTION IV - EDP FUNCTIONAL REQUIREMENTS

1. If you are presently performing the following functions by hand at your location, or if you are using a computer, terminal, or outside computer services firm, or if you expect to automate any of these functions within 5 years, please check all that apply. Otherwise, check this box ( ) and skip to the next section.

	DONE BY HAND NOW	AUTOMATED NOW	AUTOMATED WITHIN 5 YEARS
Marketing & Sales			
Order Entry	( )	( )	( )
Sales Analysis	( )	( )	( )
Credit Authorization	( )	( )	( )
Other_____	( )	( )	( )
Finance-Accounting			
Payroll	( )	( )	( )
Billing	( )	( )	( )
Accts. Receivable	( )	( )	( )
Accts. Payable	( )	( )	( )
General Ledger	( )	( )	( )
Other_____	( )	( )	( )
Warehousing-Distribution			
Order Allocation	( )	( )	( )
Shipping	( )	( )	( )
Stock Replenishment	( )	( )	( )
Other_____	( )	( )	( )
Purchasing			
Inventory Control	( )	( )	( )
Receiving	( )	( )	( )
Other_____	( )	( )	( )
Manufacturing			
Bill of Materials	( )	( )	( )
Shop Floor Control	( )	( )	( )
Order Tracking	( )	( )	( )
Material Requirements Planning	( )	( )	( )
Scheduling	( )	( )	( )
Job Costing	( )	( )	( )
Estimating	( )	( )	( )
Numerical Control	( )	( )	( )
Other_____	( )	( )	( )
R & D			
Analysis/Design	( )	( )	( )
Other_____	( )	( )	( )

2. What major changes in EDP do you foresee for your company in the next 5 years?_____

3. What other EDP problems do you have that you would like to see resolved?

_____

SECTION V - DECISION PROCESS

1. How do you usually go about finding a solution to any of these problems? Please mark 1st, 2nd, and 3rd choice.

	1st	2nd	3rd
Look at trade journals	( )	( )	( )
Look at catalogues	( )	( )	( )
Look in the Yellow Pages	( )	( )	( )
Talk to other companies/divisions	( )	( )	( )
Salesmen call on you	( )	( )	( )
Send for literature	( )	( )	( )
Attend a trade show by your industry	( )	( )	( )
Demonstration or show by their company	( )	( )	( )
Other _____	( )	( )	( )

2. Which journals and publications are most useful to you?_____

_____

_____

3. Which trade shows are most useful to you?_____

_____

_____

4. Who is involved in the decision to obtain equipment or services? (please check all that apply)

	AT THIS LOCATION			AT CORP. HDQTRS.		
	Top Mgmt.	Dept. Head, Line Mgr.	Ofc. Mgr., EDP Mgr.	V-P or above	Purch. Dept.	Tech. Staff
EDP Equipment	( )	( )	( )	( )	( )	( )
EDP Services	( )	( )	( )	( )	( )	( )
Office Equipment	( )	( )	( )	( )	( )	( )
Office Services	( )	( )	( )	( )	( )	( )
Communications Eqpt.	( )	( )	( )	( )	( )	( )
Communications Svcs.	( )	( )	( )	( )	( )	( )
Supplies	( )	( )	( )	( )	( )	( )

5. Does the final decision require:
( ) committee approval
( ) trial installation
( ) financial/payback analysis
( ) special conditions: _____

IF YOU ARE AN INDEPENDENT ENTERPRISE SKIP TO SECTION VI

6. Describe any significant differences in decision techniques depending on product/services listed in question 4.

7. How does corporate get involved? (Please check all that apply)
( )Initiate ( )Advise ( )Approve ( )Dictate ( ) Set Standards

8. If corporate involvement varies, does it depend upon:
( )$ Amount ( )Type of device/service ( )Application
( ) Other (specify)_____

CTION VI - WHAT IS PRESENTLY IN USE AT YOUR LOCATION?

A - Equipment

	Company Make/Model	Number In Use	Approx. Cost
1. Computer Related			
a. Accounting Machine	_____	_____	_____
b. Desk Top Calculator	_____	_____	_____
c. Terminal	_____	_____	_____
d. Small business Computer	_____	_____	_____

If d, is it connected to headquarters? ( )Yes ( )No

2. Copiers	Company Make/Model	Number In Use	No. Copies/Month
a. Coated Paper Copier	_____	_____	_____
b. Plain Paper Copier	_____	_____	_____
c. Duplicator (ink process, uses a master)	_____	_____	_____

3. Text Editing/Word Processing	Company Make/Model	Number In Use	No. Pages/Month
a. Single station	_____	_____	_____
b. Multi-station	_____	_____	_____
c. Other_____	_____	_____	_____

4. Communications Related	Company Make/Model	Number In Use	No. Trunks
a. Keyset	_____	_____	_____
b. PABX	_____	_____	_____
c. Facsimile	_____	_____	_____
d. Other_____	_____	_____	_____

B - Outside Services

5. EDP Services	Service Type	% Of Total EDP Function Performed By Services
	_____	_____
	_____	_____

6. Office Services	Service Type	% Of Total Office Function Performed By Services
a. Text Processing	_____	_____
b. Composition	_____	_____

7. Communications Services	Service Type	% To Your Co.	% To Other Companies
a. From phone company	_____	_____%	_____%
b. From independent supplier of services not equipment mfg. (ie. Western Union, MCI)	_____	_____%	_____%

SECTION VII - SIZE OF STAFF

1. How many full-time equivalent employees do you have at your location in these classifications?

	Now	Changes expected in next 5 years
EDP RELATED		
a. Data Entry (only)	_____	_____
b. Operators (only)	_____	_____
c. Programmers	_____	_____
d. Analysts	_____	_____
OFFICE RELATED		
e. Secretaries/Typists	_____	_____
f. Clerks	_____	_____
g. Other_____	_____	_____
COMMUNICATIONS RELATED		
h. Switchboard Operators	_____	_____
i. Technicians/Professionals	_____	_____
2. Total Employees this location	_____	_____

SECTION VIII - EXPENDITURES

1. How do you normally budget for administrative expenses?

____percentage of gross sales ( )

last year's personnel and consumable costs plus allowance for inflation ( )

treat new office equipment as capital investment and handle on individual basis ( )

no separate location budget; included in corporate budget ( )

other (describe)_____( )

2. How large an expense could you consider for improvements in any one year, assuming benefits justify the expenditure?

Less than $100/monthly	( )	$1001 - $2000/monthly	( )
$100 - $250/monthly	( )	$2001 - $3500/monthly	( )
$251 - $500/monthly	( )	$3500 - $5000/monthly	( )
$501 - $1000/monthly	( )	More than $5000/monthly	( )

3. Do you have a separate budget for communications?____ If so, how much is it? $_____/year. How is it determined?

_____

4. Do you have a separate budget for data processing?____ If so, how much is it? $_____/year. How is it determined?

5. Do you have a separate budget for office equipment?____If so, how much is it? $_____/year. How is it determined?

_____

6. Do you have a separate budget for office supplies?____ if so, how much is it? $_____/year. How is it determined?

_____

L INFORMATION IN THIS QUESTIONNAIRE WILL BE KEPT STRICTLY CONFIDENTIAL AND USED FOR

ATISTICAL PURPOSES ONLY.

MANUFACTURING
CORPORATE
NEED IDENTIFICATION/DECISION PROCESS

INSTRUCTIONS

- Call EDP Manager or designee at corporate HQ of branches we have interviewed
- Call Communications Manager also, if appropriate
- Discuss the purchasing process as it is done at the branches/subsidiaries of their organization, including:
    a) Determining needs
    b) Relating these needs to equipment or outside services solutions
    c) Investigating specific equipment or services solutions
    d) Implementing a purchase
- Areas of questions to be discussed are divided into:
    a) EDP - computational equipment and services
    b) Office - text processing and copying
    c) Communications - Facsimile
        - PABX/Keyset
        - Teleprinters for messages
        - Services
    d) Supplies - for people
        - for machines (paper; magnetic media)

QUESTIONNAIRE

1. Please describe in general how branches/subsidiaries of your organization obtain such items as Office Equipment, EDP Equipment, EDP Services, Communications Equipment/Services, and Supplies to operate these categories of equipment.

2. IN THE EDP HARDWARE AREA (which includes small business computers, terminals of all kinds, and minicomputers:

PLEASE CHECK WHICH AREAS OF YOUR COMPANY
ARE INVOLVED AT EACH STAGE OF THE PURCHASE DECISION

		Branch/Subsidiary only	Corporate only	Joint Corporate and Branch/Subsidiary
a)	Identify need	( )	( )	( )
b)	Quantify need, develop cost justification	( )	( )	( )
c)	Identify a class of equipment for solution	( )	( )	( )
d)	Identify specific equipment by literature or salesmen	( )	( )	( )
e)	Write technical specifications	( )	( )	( )
f)	Handle negotiations or bidding	( )	( )	( )
g)	Issue Purchase/Contract	( )	( )	( )

h) How long is the typical cycle from a) to g)? ( ) 1-3 months, ( ) 3-6 months, ( ) 6-12 months, ( ) 12-24 months.

3. How is the decision made whether to use EDP equipment or EDP services?

4. IN THE EDP SERVICES AREA (which includes service bureau, timesharing, contract programming):

PLEASE CHECK WHICH AREAS OF YOUR COMPANY
ARE INVOLVED AT EACH STAGE OF THE PURCHASE DECISION

		Branch/Subsidiary only	Corporate only	Joint Corporate and Branch/Subsidiary
a)	Identify need	( )	( )	( )
b)	Quantify need, develop cost justification	( )	( )	( )
c)	Identify a class of equipment for solution	( )	( )	( )
d)	Identify specific companies by literature or salesmen	( )	( )	( )
e)	Write technical specifications	( )	( )	( )
f)	Handle negotiations or bidding	( )	( )	( )
g)	Issue Purchase/Contract	( )	( )	( )

h) How long is the typical cycle from a) to g)? ( ) 1-3 months, ( ) 3-6 months, ( ) 6-12 months, ( ) 12-24 months.

5. IN THE AREA OF OFFICE EQUIPMENT (which includes text/word processing, copiers, typewriters, etc):

PLEASE CHECK WHICH AREAS OF YOUR COMPANY ARE INVOLVED AT EACH STAGE OF THE PURCHASE DECISION

		Branch/Subsidiary only	Corporate only	Joint Corporate and Branch/Subsidiary
a)	Identify need	( )	( )	( )
b)	Quantify need, develop cost justification	( )	( )	( )
c)	Identify a class of equipment for solution	( )	( )	( )
d)	Identify specific equipment by literature or salesmen	( )	( )	( )
e)	Write technical specifications	( )	( )	( )
f)	Handle negotiations or bidding	( )	( )	( )
g)	Issue Purchase/Contract	( )	( )	( )

h) How long is the typical cycle from a) to g)? ( ) 1-3 months, ( ) 3-6 months, ( ) 6-12 months, ( ) 12-24 months.

6. Are there any corporate controls on expenditures for this type of equipment? Describe, if possible.

7. IN THE AREA OF COMMUNICATIONS (which includes equipment and services):

PLEASE CHECK WHICH AREAS OF YOUR COMPANY ARE INVOLVED AT EACH STAGE OF THE PURCHASE DECISION

		Branch/Subsidiary only	Corporate only	Joint Corporate and Branch/Subsidiary
a)	Identify need	( )	( )	( )
b)	Quantify need, develop cost justification	( )	( )	( )
c)	Identify a class of equipment for solution	( )	( )	( )
d)	Identify specific equipment by literature or salesmen	( )	( )	( )
e)	Write technical specifications	( )	( )	( )
f)	Handle negotiations or bidding	( )	( )	( )
g)	Issue Purchase/Contract	( )	( )	( )

h) How long is the typical cycle from a) to g)? ( ) 1-3 months, ( ) 3-6 months, ( ) 6-12 months, ( ) 12-24 months.

8. Are there corporate standards for EDP, Office, or Communications Equipment? To what level of detail?

9. Are there corporate standards for EDP services? Describe.

10. IN THE AREA OF SUPPLIES (which includes media for people and media for machines):

PLEASE CHECK WHICH AREAS OF YOUR COMPANY ARE INVOLVED AT EACH STAGE OF THE PURCHASE DECISION

		Branch/Subsidiary only	Corporate only	Joint Corporate and Branch/Subsidiary
a)	Identify need	( )	( )	( )
b)	Quantify need, develop cost justification	( )	( )	( )
c)	Identify a class of equipment for solution	( )	( )	( )
d)	Identify specific equipment by literature or salesmen	( )	( )	( )
e)	Write technical specifications	( )	( )	( )
f)	Handle negotiations or bidding	( )	( )	( )
g)	Issue Purchase/Contract	( )	( )	( )

h) How long is the typical cycle from a) to g)? ( ) 1-3 months, ( ) 3-6 months, ( ) 6-12 months, ( ) 12-24 months.

11. Describe any differences which may apply within the general category of Supplies:

12. Are there any general differences between branches and subsidiaries in how the need identification/purchase process operates? If so, describe.

13. Describe any differences in how the need identification/purchase process operates based on size of the branch/subsidiary. Is size determined by number of employees, revenue generated, or other factors?

14. Are there any differences in how the need identification/purchase process operates based on functions of the branch/subsidiary? Discuss each type separately, if applicable; i.e., Sales, Manufacturing, R & D, Warehousing, Retail Outlet, etc.

15. Are there differences by dollar amount of purchase? (what $ level?)

16. Are there differences by type of purchase? (purchase; rent by month; lease for 1 year or more)

THANK YOU VERY MUCH. TO WHOM SHOULD WE SEND THE SUMMARY OF OUR RESULTS? (Fill in cover sheet, or verify if done previously)