IMPACT OF THE RECESSION ON U.S. EDP BUDGETS IN 1975 and 1976

FINAL REPORT
MARCH 26, 1975
VOL I

INPUT
701 Welch Road
Suite 1119
Palo Alto, Ca. 94304
(415) 854-3422

IMPACT OF THE RECESSION ON EDP BUDGETS IN 1975 AND 1976

TABLE OF CONTENTS

TABLE OF CONTENTS (CONT.)

LIST OF TABLES

CHAPTER VI

INTRODUCTION

This study has been carried out for the following sponsoring organizations:

GENERAL ELECTRIC COMPANY

IBM CORPORATION

McDONNELL DOUGLAS AUTOMATION COMPANY

TYMSHARE, INCORPORATED

BANKERS TRUST COMPANY

CHASE INVESTORS MANAGEMENT CORPORATION

CHEMICAL BANK

U.S. TRUST

The purpose of the study was to analyze the impact of the recession on expenditures for EDP in 1975 and 1976. The research was concentrated on the large and very large organizations (Fortune 500 size) in nine major industry segments:

- Insurance & Diversified Financial
- Banking
- Retail
- Discrete Manufacturing
- Process Manufacturing
- Transportation
- Utilities
- Federal Government
- State & Local Government

There were 119 interviews carried out with organizations in these sectors. Interviews were held with corporate financial managers as well as EDP managers.

This report presents the results and analysis of the interview research, and the projections by INPUT of the performance of the various EDP market segments. These projections are the interpretations of INPUT staff in view of their knowledge of the industry. They represent the best estimates that they can make from the data available.

Forecasts and analyses presented in this report are for the specific industry/organization size groups defined in Chapter II - 'Scope and Methodology'. These groups accounted for over 60% of total EDP expenditures in 1974, and 45% of computer services expenditures.

In order to provide the clients with the maximum benefit from the research, the report is accompanied by copies of the completed interview forms. These do not identify the respondent companies except in general terms. Because of the high penetration of the major companies in each industry sector (for some sectors this is over 20%) it is possible to identify respondents; we ask that the confidentiality of these interviews therefore be respected.

The percentage of companies refusing to participate in the survey was very low; in fact, less than 10%. The general receptivity to the research was very encouraging. The respondent group are open to follow-up research; also the scope of the coverage could be significantly expanded. The interest of the respondents in receiving an analysis of the responses obtained was the prime reason for participation. In addition, many of

them had requests for particular information which indicates a potential basis for a continuing information interchange at an unusually high management level.

I SCOPE AND METHODOLOGY

A. SCOPE OF THE STUDY

The report concentrated on those large organizations contained in the lists published annually by the FORTUNE magazine, commonly referred to as the 'FORTUNE 500' companies. The industry sectors covered are defined in TABLE I-1. Only the 500 largest industrial organizations are included in the survey universe, thus omitting those in the 'Second 500'.

In addition to the industrial and non-industrial companies listed in FORTUNE, this report includes coverage of the federal government, as a single entity, and the largest state and local government organizations. Industry sectors omitted from this study are:

Medical	Wholesale
Education	Services, including Hotels

These industry/size groups have been selected since the numbers are sufficiently small that an adequate sample can be obtained for in-depth interviews. This set of organizations controls over 60% of total EDP budgets. They purchase the large sale equipments which are the most profitable for the vendors. In addition, these companies are the major prospective purchasers of new equipments and services as they become available, particularly for products and services related to data communication

DEFINITION OF INDUSTRY SECTORS

- INSURANCE AND DIVERSIFIED FINANCIAL — 50 largest life insurance companies and the 50 largest diversified financial companies, in terms of assets. Included are brokerage, finance, and savings and loan companies, as well as non-life insurance companies.
- BANKING — 50 largest commercial banking companies in terms of assets.
- RETAILING — 50 largest retailers, in terms of sales.
- MANUFACTURING — 500 largest industrial corporations, in terms of sales.

DISCRETE MANUFACTURING	PROCESS MANUFACTURING
Shipbldg., Railroad Equip., Mobile Homes	Petroleum Refining
Apparel	Mining
Printing & Publishing	Rubber
Broadcasting & Motion Pictures	Textiles
Aircraft & Parts	Glass, Cement, Gypsum, Concrete
Appliances Electronics	Chemicals
Motor Vehicles & Parts	Soaps, Cosmetics
Office Machinery	Food
Metal Products	Beverages
Farm & Industrial Mach.	Pharmaceuticals
Measuring, Scientific & Photographic Equip.	Tobacco
Furniture	Paper and Wood Products
Jewelry & Silverware	Metal Manufacturing
Musical Instruments, Toys, Sporting Goods	Leather & Leather Products

- TRANSPORTATION — 50 largest transportation companies, in terms of operating revenues. Included are airlines, railroads, trucking, shipping and moving companies.
- UTILITIES — 50 largest utilities, in terms of assets, including telephone, electric power, gas, and natural gas companies.
- FEDERAL GOVERNMENT — All non-security related agencies and activities are included.
- STATE AND LOCAL GOVERNMENT — 10 largest states, in budgetary terms, plus equivalent size cities.

TABLE I-1

activities, including terminals, controllers, remote computing services and new network vendors. Their buying plans are therefore crucially important to almost all vendors.

B. SURVEY PROCEDURES

Two types of interview were planned: financial management interviews with corporate controllers or similar officials, and EDP management interviews with senior EDP managers in the organizations. The level of response attained was quite high; 38 of the persons spoken with were vice-presidents, controllers or other officers.

Interview candidates were selected from the lists and the interviews were carried out from New York and San Francisco. Almost all the interviews were by telephone. The general approach in the early stages was to go through the controller's office of the major corporations, obtaining a financial interview and possibly progressing to an EDP interview.

However, after about 20% of the interviews had been completed, more emphasis was placed on the EDP interviews, in order to obtain the detailed data necessary for forecasts, and so contacts were subsequently made directly with the EDP department.

The distribution of interviews by type and by industry sector is shown in Table I-2. Extra interviews were carried out in several industry sectors in order to check data or cover specific areas of interest to clients; an example of the latter is the number of petroleum companies addressed in process manufacturing.

An attempt was made to obtain coverage on the top organizations in

INTERVIEW SAMPLE BY TYPE

INDUSTRY	EDP MANAGER	FINANCIAL MANAGER	TOTAL
INSURANCE & DIVERSIFIED FINANCIAL	14	-	14
BANKING	13	2	15
RETAIL	12	1	13
DISCRETE MANUFACTURING	5	4	9
PROCESS MANUFACTURING	9	13	22
TRANSPORTATION	11	1	12
UTILITIES	12	-	12
FEDERAL GOVERNMENT	9	3	12
STATE & LOCAL GOVT.	8	2	10
TOTAL	93	26	119

TABLE I-2

each sector. As a result 20 of the top 35 companies were interviewed. The penetration of the industry sectors is represented by the interview distribution given in Table I-3.

After completion, the interviews were examined and, in approximately 30 cases, calls were made back to the respondent for clarifying or amplifying material. Particularly in the area of remote computing services (timesharing and remote batch) information was difficult to obtain or misleading.

The extent to which interview data can be misleading was demonstrated by two occasions in which two interviews were carried out independently with the same companies. In one case, there was general agreement but key differences, which were resolved in favor of the more detailed analysis. In the second case, the data was irreconcilable and a third, in-depth interview was required to determine the accurate data. Problems in the interviews in general can be traced to a variety of sources, including misinterpretation by the respondent or the interviewer, misleading information, errors of fact, and recording errors by the interviewer. The technique of examining interviews and calling back in questionable cases served to reduce these errors.

C. ANALYSIS

Interviews were grouped by industry sector and the results tabulated. Varying degrees of reliability were attached to the responses obtained, and in some cases the data was independently checked or discounted. For example, a number of respondents indicated 'no change' in dealing with

INTERVIEW SAMPLE BY INDUSTRY

INDUSTRY	NO. OF COs IN DIRECTORY	SIZE $ BILLIONS	NO. OF INTERVIEWS	SIZE $ BILLIONS	OTHER INTERVIEWS
INS. & DIV. FINANCIAL	100	329[1]	12	87[1]	2
BANKING	50	459[1]	15	270[1]	-
RETAIL	50	100[2]	13	32[2]	
DISCRETE MNFG.) PROCESS MNFG.)	500	667[2]	27	67[2]	4
TRANSPORTATION	50	30[3]	11	8[3]	1
UTILITIES	50	181[1]	12	105[1]	
FEDERAL GOVT.	N/A		12		
STATE & LOCAL GOVT.	N/A		2 CITIES 8 STATES		
TOTAL			112		7

1 - MEASURED IN ASSETS
2 - MEASURED IN SALES
3 - MEASURED IN OPERATING REVENUES

TABLE I-3

the question on increase in supplies budgets. On checking, it was found that some of the respondents obtained paper supplies from a central procurement office and were not charged with such items as invoices, checks and policy forms, so they were unable to give a full reply. Others had taken major precautions to reduce the cost of supplies, as described later, so that they planned for the cost to be held constant between 1974 and 1975 and the response was accurate. In other cases the cost of supplies was, in fact, increasing substantially, although usage was constant, but had not been properly reported.

Therefore, judgements were made on the changes by each segment of the EDP budgets examined for each industry sector. These changes were then applied to the corresponding itemized breakdowns of 1974 EDP budgets for the industry/size groups studied. These breakdowns were previously obtained by applying standard percentages to the prime industry statistic to get the total EDP expenditures (for example, 0.2% of assets for banks); these expenditures were, in turn, factored into component budget items.

From the application of the changes from 1974 to 1975 to each budget item, a composite picture of the total budget changes from 1974 to 1975 was established. This was then checked by taking the gross estimates of budget changes reported by the respondents, applying these figures to the assumed 1974 industry sector expenditures and comparing the results.

The results of the different methods of calculating EDP expenditure growth from 1974 to 1975 are shown in Table I-4. The range of growth or sensitivity of the results lies between 7.5% and 9.0% for total EDP budgets.

RANGE OF EDP EXPENDITURE GROWTHS FOR 1974 TO 1975

ASSUMED SEGMENT OF THE TOTAL EDP EXPENDITURES IN 1974 DUE TO THE INDUSTRIES/SIZE GROUPS COVERED IN THIS REPORT = $15,644 MILLION

A. BASED ON APPLYING CHANGES TO EACH BUDGET LINE ITEM AND CONSTRUCTING TOTAL 1975 EXPENDITURES:

1975 EXPENDITURES = $16,915 MILLION
GROWTH 1974/1975 = 8.1%

B. APPLYING AVERAGE GROSS EDP BUDGET CHANGES, EXACTLY AS REPORTED, TO TOTAL 1974 EXPENDITURES:

113 RESPONSES. EXPENDITURE GROWTH 1974/1975 = 8.3%
1975 EXPENDITURES = $16,942 MILLION

C. APPLYING AVERAGE GROSS EDP BUDGET CHANGES, WITH SELECTED ADJUSTMENTS, TO TOTAL 1974 EXPENDITURES:

110 RESPONSES. EXPENDITURE GROWTH 1974/1975 = 7.6%
1975 EXPENDITURES = $16,832 MILLION

D. APPLYING AVERAGE GROSS EDP BUDGET CHANGES, WITH SELECTED ADJUSTMENTS, TO 1974 EXPENDITURES IN EACH INDUSTRY SECTOR AND CONSTRUCTING TOTAL 1975 EXPENDITURES:

1975 EXPENDITURES = $17,016 MILLION
GROWTH 1974/1975 = 8.8%

TABLE I-4

D. DEFINITIONS AND ASSUMPTIONS

The EDP expenditure items covered by this report are as follows:

Equipment. Expenditures for the rental or lease of items of equipment from manufacturers or third parties. Expenditures for outright purchases are factored to convert to an equivalent rental basis. Maintenance charges are included in equipment costs.

Main Computer Processors. Central processing units, memories, channel controllers, consoles and other devices integral to computer processors which are used to process major business and scientific applications.

Secondary Computer Processors. Equipment similar to that included in Main Computer Processors, where the computers perform stand-alone processing or parts of applications processed on the main computers. It includes mostly smaller computers such as satellite computers, minicomputers used for control and special applications, and turnkey systems.

Peripherals. Includes all input, output, and storage devices other than main memory, which are locally connected to the main processor and are not normally included in other categories such as terminals.

Terminals. Input, output, storage and processing devices which have as their main function feeding data to and/or from main or secondary computer processors over communications lines. It includes intelligent terminals as well as CRTs, remote batch terminals, and teletypewriters.

Data Communications Equipment. Equipment used for the routing and controlling of data flow via telecommunications links, which does

not include that used by the carrier for its transmission and switching purposes. Primarily composed of communications controllers, minicomputers for network management, modems, and multiplexors.

Data Entry/Output. Equipment used for the transposition of data from various sources to computer readable media such as punched cards, magnetic tape, paper tape, magnetic disc or diskette. Includes equipment for processing of output data such as COM units.

Services. Expenditures to vendors for products and services which perform data processing functions or assist the user in the performance of such functions.

Facilities Management. (FM) The management of all or part of a user's data processing functions under a long term (not less than one year) contract. To qualify as facilities management, the contractor must directly plan and control, as well as operate, the data processing facility provided to the user on-site, through communications lines, or in mixed mode. Simply providing resources, even though under a long term contract and/or for all of a user's processing needs does not qualify as FM.

Remote Computing Services. (RCS) This includes general, problem solving interactive use of terminals (timesharing), use of remote batch devices for remote job entry or remote data entry, and data base services such as stock quotation and credit systems.

Professional Services. Management consulting related to EDP, systems consulting, systems design and programming, and other professional services provided on a daily rate or fixed price basis, are included here. Temporary help is included under 'Personnel' together with agency fees.

Software Products. Systems and applications packages which are sold by equipment manufacturers, independent vendors and others to computer users. The figures quoted are for user expenditures and include lease and purchase amounts. This category also includes fees for work performed by the vendor to implement the package at the user site. Fees for work performed by organizations other than the package vendor are counted in Professional Services.

Batch Services. Includes data processing performed at vendors' sites of user data which has been physically transported (as opposed to electronically by communications lines) to those sites. Data entry and data output services, such as COM processing, are also included.

Education Services. Expenditures by corporations and other organizations for EDP education and training courses offered by outside vendors. These include seminars and courses given through audio-visual and publication media. They do not include purchases of books, manuals and other publications not specifically part of a course of study.

Personnel. Expenditures for management, computer operations, systems analysis, and programming staff are contained in this category. Direct and indirect labor costs are included, as also are agency fees and temporary personnel.

Data Communications. Direct expenditures by organizations for use of data transmission links and share of combined voice/data communications costs appropriate to data transmission, whether or not charged directly to the EDP budget in any particular organization.

Other. These expenditures are primarily those for supplies, including discs, tapes, paper and punch cards, but also include utilities. Only those expenditures charged to EDP are included.

The main assumptions made for this report are the proportions of total 1974 EDP expenditures in each category in each industry sector. These assumptions are represented by the tables in Chapter IV - 'EDP Budgets and Plans Analysis'.

It is assumed that there will be no major price increases in 1975 beyond those already in place. For 1976 it is assumed that reduction in inflationary pressures and price/performance reductions in equipment will cause the impact of inflation on the EDP user to be about 5%.

II ACTION SUMMARY

GENERAL MARKET GROWTH

- Rate of growth of the $16 billion EDP market covered by this study will be 8.1% in 1975 rising to 11.1% in 1976.
- Mainframe processor and peripherals markets will grow at under 6% in 1975 and secondary processors at under 7%.
- Data communications equipment and terminals will have the fastest growth rates of 10% and 15% respectively; still well below recent years.
- Computer services expenditures will grow at 10% in 1975, this is half their normal growth rate. Recovery will push growth rate to 20% in 1976.
- Software products, with a rate of 16%, will be the fastest growing computer service followed by facilities management with 14%, mostly due to federal government activity.
- Movement of large timesharing contracts in-house will severely restrict growth of remote computing services, which will tumble to 14% or less after several years of growth rates around 30%.
- Industries with EDP expenditures growing the fastest are insurance, banking, federal government and process manufacturing.
- 'Take the blinders off' EDP managers are being told, when it comes to

looking at mainframes. Users are coming back to 360s.

- Development projects have been severely cut. EDP staff will hold steady. and personnel expenditures will grow at 6%, including inflation.
- Lead time for a resurgence in EDP budgets is 3 - 6 months for personnel, and from 9 - 18 months for equipment.

EQUIPMENT ACTIVITY

- Distributed processing networks are growing; together with standard network developments they account for terminals maintaining their position as the fastest growing EDP equipment expenditure item.
- Users are 'stretching-out' orders and deliveries of large mainframes and peripherals at least into 1976.
- There is an accelerated trend to consolidation which provides a market for very large computers, usually from IBM.
- Increased supplies costs are forcing users to on-line systems as well as COM processing
- IBM's 3850 mass memory has roused users' interest in other manufacturers' systems as well, such as Calcomp, Ampex and Grumman. Justification is purely operations costs saving.
- There is a definite trend to remote batch processing, both from internal sources and remote computing services companies.
- Users are replacing equipment on a cost/performance basis; there is a real mix of suppliers for terminals, peripherals, and memory.

SERVICES ACTIVITY

- The federal government and banking are the only sectors which will increase the use of professional EDP services this year. There will, at best, be no growth in this area.
- The federal government is the only sector providing major FM opportunities at this company size. It will increase by at least $20 million this year.

STRATEGIES AND MANAGEMENT ACTION

- Vendors must emphasize cost replacement not features in their products; costs can be displaced through network systems into departments other than EDP.
- Price/performance improvements must be stressed; price reductions, especially those based on new technology, will be the strongest competitive factor.
- Vendors should introduce 'stripped-down' versions of their products or services; users will trade 'bells and whistles' for cost.
- Products, particularly terminals, and services should be specialized by industry application or function to reduce cost to the user and make their use simpler.
- Vendors should emphasize products and services which make large EDP shops more efficient in systems development and operations.
- For recovery, vendors must address the decentralization of decision-making in sales involved with distributed processing systems.

- Computer services vendors should plan remote batch services to complement interactive timesharing. They should emphasize product sales, particularly for secondary applications.

III RESULTS OF THE SURVEY

A. LEVEL OF RECESSION ASSUMED BY RESPONDENTS

The first question in the survey was designed to identify the level of recession being assumed by respondent organizations for EDP planning purposes. As shown in Table III-1, 85% of respondents were looking for a business upturn in the second or third quarter of 1975 and a shallow recession. Those two respondents indicating a massive worsening of the recession were in organizations with major operating problems, and their negative response probably reflects their company's current situations. One respondent which was 'not affected' by the recession reported an increase of 200% in EDP budget this year, including the purchase of 2 IBM System/370 Model 168s.

The respondents were therefore on the optimistic side in terms of viewing the economy. However, several managers indicated that they were looking hard at head-counts and expenditure levels with the expectation of cutting should economic conditions get worse.

B. EDP BUDGET GROWTH 1974 TO 1975

In terms of their view of the recession and the plans for expansion of the EDP budget, respondents selecting a B, C, or A and B combination

RESPONDENT ASSUMPTIONS ON THE LEVEL OF RECESSION

Levels investigated:

A. RECESSION IS SHALLOW - Real Growth Starts Second or Third Quarter 1975.

B. RECESSION DEEPENS SIGNIFICANTLY With No Real Growth in 1975.

C. RECESSION DEEPENS TOWARDS DEPRESSION With Massive Unemployment and Economic Dislocation.

Question: Which level are you using for EDP planning and budget purposes?

Responses:

INDUSTRY SECTOR	INTERVIEW TYPE						TOTAL			OTHER
	EDP MANAGER			FINANCIAL MANAGER						
	A	B	C	A	B	C	A	B	C	
INS. & DIV. FINANCIAL	8			5			13			1
BANKING	10	1		2			12	1		2
RETAIL	11	1		1			12	1		
DISCRETE MNFG.	3	2		1	1		4	3		2
PROCESS MNFG.	8			9	1		17	1		4
TRANSPORTATION	9	1	1	1			10	1	1	
UTILITIES	10		1				10		1	1
FEDERAL GOVT.	9			2	1		11	1		
STATE & LOCAL GOVT.	6	1		1	1		7	2		1
TOTAL	74	6	2	22	4	0	96	10	2	11

OTHER BREAKDOWN:

NO RESPONSE	4
COMBINATION A & B	5
NONE ASSUMED/NOT AFFECTED	2

TABLE III-1

recession level reported an average growth rate of 1.0% compared with an average growth rate of 8.3% over all companies interviewed, as shown in Table III-2. Without these companies in the sample, however, the average growth rate of the 'optimists' and non-responsive companies would still be under 10%, at 9.5%.

Two thirds of the companies reporting had budget increases projected for 1975 of less than 9%. Only 7% projected increases of 20% or more. Of these, two were major life insurance companies and three were process manufacturers, one a major oil company. The other two process manufacturers in this group were a diversified natural resources company, where the projections given were for a small corporate staff EDP budget using time-sharing, and a mining company undertaking a multi-million dollar system expansion project, again at the corporate level, primarily using Arthur Andersen staff.

C. EDP BUDGET GROWTH 1975 TO 1976

In terms of the expected size of EDP budgets in 1975, there is a general lack of information due to the unsettled environment. Most users in this size range have plans for development and operation covering this period, but they are not certain how much these will cost due to wage and price increases, or how much their organizations will be willing to spend on EDP. Only one respondent in four was willing to put a figure on their company's 1975/76 EDP budget growth, as shown in Table III-3, and many of these estimates were quite rough; several respondents made statements such as '5% plus inflation'.

TABLE III-3

REPORTED EDP BUDGET GROWTH 1975/76

INDUSTRY SECTOR	NUMBERS OF RESPONDENTS REPORTING CHANGES IN TOTAL EDP BUDGET FOR 1975 TO 1976 OF:								% GROWTH AVERAGE	
	< 0%	0-9%	10-19%	> 19%	'DOWN'	'SAME'	'UP'	'SIGNIF UP'	REPT.	EST.*
INS. & DIV. FINANCE			2**	2	1	3	5	1	14	13
BANKING			4**	2		4	4		14	13
RETAIL		3	1			3	4	1	9	11
DISCRETE MNFG.			3**		1	3	2		12	8
PROCESS MNFG.		1	2	1	1	5	8	2	14	12
TRANSPORTATION			2			1	8		13	14
UTILITIES		1				6	4		7	9
FEDERAL GOVT.	1	1**	1		1	1	3	2	12	12
STATE & LOCAL GOVT.		1**	1		2	1	5		10	9
TOTAL	1	7	16	5	6	27	43	6	13	11.4

* ESTIMATED % GROWTH AVERAGE BASED ON 'DOWN' = -5%, 'SAME' = +5%, 'UP' = +15%,'SIGNIF.UP' = +25%
** INCLUDES ONE RESPONDENT QUOTING A FIGURE SUCH AS '5% + INFLATION'

INPUT

Responses by companies not quoting a figure were grouped as shown in the table and a percentage increase assumed for members of each group as shown. The estimated growth rate was then calculated and compared to the average growth predictions of those companies that gave actual percentage figures. From this it appears that a growth of about 12% is reasonable, about 4% higher than the 1975 growth.

One factor which bears on a possible EDP budget 'recovery' is the lead time between an economic upturn and 'freeing up' of EDP budgets. Except for state and federal government agencies, which uniformaly considered the lag to be one full budget year or more, the average lead time quoted was about 8 months. For reaction in terms of people budget, 3 - 6 months was quoted, but for hardware 9 - 18 months was referred to as the lead time for major changes. Several respondents indicated 'it will never be the same again'.

Given these figures, an economic upturn in the second half of this year would have development budgets expanded or back to normal by the beginning of 1976, with corresponding equipment increases scheduled for mid-1976. Like 1972, coming off the recession could lead to 1976 being a 'boom' year. Of course, it is also an election year so there should be plenty of government stimulus. Furthermore, these projections do not include allowance for the market stimuli of new vendor announcements.

D. INDUSTRY RESPONSES

The charts contained in Table III-4 give a summary of the responses obtained in each industry sector. The figures given are the averages of

INDUSTRY SECTOR. INSURANCE AND DIVERSIFIED FINANCIAL
LEVEL OF RECESSION ASSUMED FOR 1975. All respondents except one assumed the shallowest level of recession, with real growth starting in the second or third quarter of 1975.
GROWTH OF EDP BUDGETS FROM 1974 TO 1975. Range of responses in insurance from 0 to 200%. Larger insurance companies had fastest growth. Financial companies shrinking their budgets. Average growth 14%.
RESTRICTIONS ON EDP. Insurance companies generally no restrictions. Financial companies looking to get out from under them.
IMPACT OF DEEPENING OF THE RECESSION. Insurance companies relatively unaffected. Financial companies could not cut further and process work. Medicare/Medicaid buffer for some.
EQUIPMENT COST REDUCTION MEASURES. No new measures being taken. Most companies purchased mainframes. Smaller companies leased from manufacturer or rented, with little equipment substitution.
PURCHASE OF REMOTE COMPUTING SERVICES. Several users reported phasing out timesharing purchases; one user by converting to CMS in-house. Another had TSO up in-house, but still purchased program development.
USE OF FACILITIES MANAGEMENT OR 'COMPUTER UTILITY'. None of the respondents would consider FM. One commented 'EDS gave FM a bad name of Wall Street'.
PRELIMINARY VIEW ON 1976 BUDGETS. Most budgets in insurance were going up 'by inflation' and a little more. Some significant increases in financial companies. Average reported increase of 14%.
INFORMATION USEFUL FOR PLANNING PURPOSES. Software support by IBM in the future. Hardware and software forecasts over next 5 years.

TABLE III-4(a)

INSURANCE AND DIVERSIFIED FINANCIAL

EQUIPMENT	% GROWTH AVERAGE	
Main Computer Processors	25	Ins. range -3% to 200%. Financial Av. -13%. Several insurance companies obtaining large computers this year. Financial companies reduced equipment in 1974.
Secondary Comp. Processors	20	A lot of use in branches. Nixdorf, Olivetti, System 3, DEC mentioned.
Peripherals	10	Not much activity or substitution.
Terminals	20	Major activity in largest companies. Upgrades to 3270s. Sycor, other CRTs.
Data Comm. Equip.	10	Activity in concert with terminals.
Data Entry	8	No activity in financial; insurance switching to key tape, key disc, clustered.
Data Output	38	Two largest had significant COM increase.
SERVICES Remote Comp. Services	28	CMS in-house replaced National CSS. Another converting whole operation in-house. Data Base & Fin. Planning up.
Facilities Mnt.	No Use	One company sells it.
Software Pkgs.	3	Some reductions due to heavy use in 1974 Range -50% to +100%.
Software Services	-40	One respondent 'no use' or 'no change'.
Batch Services	12	COM coming in-house. Overflow up.
PERSONNEL Systems and Programming	8	All round increase.
Operations	2	Efficiencies, better, bigger hardware.
OTHER Data Comm.	17	Primarily Bell increases. Several looking at shared networks, packet, or other vendors.
Supplies	27	'Paper is terrible'. Driving force to 'in-house COM'. Range 23% to 100%.
Utilities	32	

INDUSTRY SECTOR. BANKING
LEVEL OF RECESSION ASSUMED FOR 1975. Shallow - All except one who forecast no real growth in 1975.
GROWTH OF EDP BUDGETS FROM 1974 TO 1975. Very largest banks higher than others. Average growth 5.5% One Bank decentralizing computer operations to profit centers.
RESTRICTIONS ON EDP. None generally. Unaffected by recession. 'Same volume of paper to process'.
IMPACT OF DEEPENING OF THE RECESSION. May squeeze profits resulting in operating pressures; particularly felt outside 'Top 10'. 'No way to decrease equipment' typical.
EQUIPMENT COST REDUCTION MEASURES. No 'stretch-outs' No payment method changes. No general pattern to method used - several still rent everything from IBM.
PURCHASE OF REMOTE COMPUTING SERVICES. Generally up across the board for using companies.
USE OF FACILITIES MANAGEMENT OR 'COMPUTER UTILITY'. Some activity in trust dept., FM of internal timesharing.
PRELIMINARY VIEW ON 1976 BUDGETS. Up 14% on average. Most companies report 'inflation +'.
INFORMATION USEFUL FOR PLANNING PURPOSES. Earlier releases on equipment technology. Status of networks.

TABLE III-4(b)

BANKING

	% GROWTH AVERAGE	
EQUIPMENT Main Computer Processors	8	Only one with major increase. Another going away from IBM to turnkey systems. One removed 168.
Secondary Comp. Processors	10	Some system 3 and PDP 11.
Peripherals	12	Several evaluating new mass storage equipment.
Terminals	35	Only 1 out of 13 said 'no change'. Range up from 10% to 100% CRTs.
Data Comm. Equip.	13	Range 10% to 30%. One using front end minis to reduce line costs 80%.
Data Entry	5	Key disc - key tape changes.
Data Output	68	Range 5% to 240% COM.
SERVICES Remote Comp. Services	35	Two respondents. Otherwise mostly 'increases'.
Facilities Mnt.	minor use	Trust dept./timesharing.
Software Pkgs.	- 3	Range -50% to +20%. Several large purchases in 1974.
Software Services	2	Range -10% to +20%.
Batch Services	- 5	1 respondent, otherwise 'no change'.
PERSONNEL Systems and Programming	7	Range from 2% to 35%. Bigger banks higher.
Operations	2	Most reported 'no change'.
OTHER Data Comm.	70	Range -80% to +375%. Bulk around 17%.
Supplies	20	
Utilities	16	

INDUSTRY SECTOR. RETAIL
LEVEL OF RECESSION ASSUMED FOR 1975. All respondents except one assumed shallowest level of recession with real growth starting in second or third quarter 1975.
GROWTH OF EDP BUDGETS FROM 1974 TO 1975. Average growth 6%. Range 0% to 20%. Five respondents indicated 'no change'.
RESTRICTIONS ON EDP. All activities restricted. 'Stretch-out' on equipment orders common. Expansion of networks and store conversions to POS still going on. Approximately 9 months lead time to remove restrictions.
IMPACT OF DEEPENING OF THE RECESSION. Most frequently mentioned was cancellation or deferment of development projects. Some personnel cuts and equipment consolidation. 'EDP removes significant labor costs'.
EQUIPMENT COST REDUCTION MEASURES. Some new consideration of third party leases. Slight increase in equipment substitution.
PURCHASE OF REMOTE COMPUTING SERVICES. Generally small usage and changes reported. Two users bringing up TSO to reduce purchases.
USE OF FACILITIES MANAGEMENT OR 'COMPUTER UTILITY'. None considered. 1 respondent sells FM.
PRELIMINARY VIEW ON 1976 BUDGETS. Average increase 9%. Several 'hoping' for increase - some flat.
INFORMATION USEFUL FOR PLANNING PURPOSES. 7 respondents wanted better information on technology changes.

TABLE III-4(c)

RETAIL

EQUIPMENT	% GROWTH AVERAGE	
Main Computer Processors	3	Mostly 'no change'. Some centralization.
Secondary Comp. Processors	4	Range -5% (converting to terminals) to 15%.
Peripherals	-	Some reductions in cost.
Terminals	3	Slight increases only. Not including POS devices
Data Comm. Equip.	3	Range 0% to 35%.
Data Entry	2	Keyplex/Inforex.
Data Output	7	6 respondents, range 4% to 10%.
SERVICES Remote Comp. Services	minor	3 in-house timesharing systems.
Facilities Mnt.	none	1 sold it.
Software Pkgs.	1	Small use and changes
Software Services	-25	1 respondent. Rest - little used.
Batch Services	1	Small outside use.
PERSONNEL Systems and Programming	1	Some reductions. Mostly holding constant.
Operations	1	
OTHER Data Comm.	11	Rate increases +.
Supplies	25	
Utilities	26	

INDUSTRY SECTOR. DISCRETE MANUFACTURING
LEVEL OF RECESSION ASSUMED FOR 1975. Most pessimistic of the industry sectors. The majority of respondents assume no real growth in 1975.
GROWTH OF EDP BUDGETS FROM 1974 TO 1975. Average growth 10%. Range -5% to 25%.
RESTRICTIONS ON EDP. No cuts, but personnel and equipment stabilized.
IMPACT OF DEEPENING OF THE RECESSION. Emphasis on consolidation. Cutbacks on personnel. Some 'stretch-out' of orders already. Possibly 'dump' a computer.
EQUIPMENT COST REDUCTION MEASURES. Some increased use of alternative vendors for peripherals and terminals.
PURCHASE OF REMOTE COMPUTING SERVICES. Engineering use increasing, also secondary applications and program development.
USE OF FACILITIES MANAGEMENT OR 'COMPUTER UTILITY'. One respondent 'Looking at continually to determine feasibility'. Another reported'Too sophisticated for FM'.
PRELIMINARY VIEW ON 1976 BUDGETS. Reported growth average 12%. More consolidation - emphasis on efficiency.
INFORMATION USEFUL FOR PLANNING PURPOSES. Technology developments. IBM hardware/software developments. Communications costs and developments

TABLE III-4(d)

DISCRETE MANUFACTURING

EQUIPMENT	% GROWTH AVERAGE	
Main Computer Processors	3	One large user could replace timesharing services by an in-house CDC unit.
Secondary Comp. Processors	2	
Peripherals	1	Some decreases from upgrades of equipment.
Terminals	20	Remote batch and CRTs.
Data Comm. Equip.	10	
Data Entry		
Data Output		Small increases - in-house COM
SERVICES Remote Comp. Services		Increasing use all round - may be major decrease if large user goes in-house.
Facilities Mnt.	0	Used by one company's subsidiary
Software Pkgs.	5	1 respondent 25%. Other responses 'no change'.
Software Services	5	Generally flat
Batch Services	1	Small increase
PERSONNEL Systems and Programming	0	'Freeze' common.
Operations	2	Freeze
OTHER Data Comm.	5	Tariff increases. 'Significant Expansion' possibilities.
Supplies	23	
Utilities		

INDUSTRY SECTOR. PROCESS MANUFACTURING
LEVEL OF RECESSION ASSUMED FOR 1975. 95% of respondents expected the recession to be shallow with real growth starting second or third quarter 1975.
GROWTH OF EDP BUDGETS FROM 1974 TO 1975. Average growth 11.8% fairly consistent across companies.
RESTRICTIONS ON EDP. Over 60% unaffected by recession in EDP. Others aiming for zero budget growth. Review activities underway in several companies. Some equipment upgrades delayed. Personnel restrictions.
IMPACT OF DEEPENING OF THE RECESSION. Oil companies virtually immune - some indication would use more EDP. Others would consolidate faster. Some would get rid of equipment.
EQUIPMENT COST REDUCTION MEASURES. Some substitution increase. Also increased third party leasing and purchasing. Latter affected by investment tax credit.
PURCHASE OF REMOTE COMPUTING SERVICES. 4 respondents expected these to decrease - bringing in-house, nothing to do with recession. Most users expected increases, especially in financial planning and marketing.
USE OF FACILITIES MANAGEMENT OR 'COMPUTER UTILITY'. One group studies the possibility. Others have not and would not consider it. Problems with security, control, and cost effectiveness raised.
PRELIMINARY VIEW ON 1976 BUDGETS. Average growth 14%. Several plan significant increases. Others tight or static. Legislation critically important to oil companies.
INFORMATION USEFUL FOR PLANNING PURPOSES. IBM's plans, communications developments. IBM software performance (VS 2.2, TSO). Technological Developments, EDP costs as % of sales.

TABLE III-4(e)

PROCESS MANUFACTURING

EQUIPMENT	% GROWTH AVERAGE	
Main Computer Processors	8	Several users have just acquired 168s, 138s or Honeywell equipment.
Secondary Comp. Processors	14	Primarily for process control. Mostly on a stand-alone basis
Peripherals	15	Range 'No change' to 25%. Double density discs.
Terminals	40	Range 5% to 60%. CRTs, RJE. Save replacement of RJE by intelligent terminals.
Data Comm. Equip.	15	Looking at network structure and control.
Data Entry		Keypuches replaced by CRTs and 3742.
Data Output		Increase. Problem with users giving up paper.
SERVICES		
Remote Comp. Services	-	Increases in most cases, except where user bringing it in-house. Some indication of use for networks.
Facilities Mnt.	-	none reported
Software Pkgs.	-	Almost all felt increase of some kind.
Software Services	-	Hold steady or slight increase.
Batch Services	-	Hold steady - COM increase.
PERSONNEL		
Systems and Programming	1	Range -13% to +25%. Cutbacks in food, chemical and publishing companies.
Operations	3	Smaller cutbacks than Sys. & Prog.
OTHER		
Data Comm.	19	Most users thinking about, or using alternatives to Bell in some areas.
Supplies	33	Appears to be surplus so might not be as high Development cuts reduce costs.
Utilities	15	

INDUSTRY SECTOR. TRANSPORTATION
LEVEL OF RECESSION ASSUMED FOR 1975. One respondent indicated severe recession, another no growth in 1975, and the remainder were fairly optimistic. The EDP budget of the most negative respondent was cut in half.
GROWTH OF EDP BUDGETS FROM 1974 TO 1975. This sector had the lowest average reported growth of all, 0%. Neglecting the worst case, it is 5%; still the lowest.
RESTRICTIONS ON EDP. Tight personnel - cuts and freeze. Hardly any activity on equipment front at all. Some equipment stretch-outs and cancellations.
IMPACT OF DEEPENING OF THE RECESSION. General impression of very tight EDP operations which could only be reduced if 'drastic depression'. 'Shorter hours' mentioned as well as direct cuts.
EQUIPMENT COST REDUCTION MEASURES. Not much equipment substitution in the past, especially in motor freight. Some more possible. Airlines already taking all reduction measures.
PURCHASE OF REMOTE COMPUTING SERVICES. No use by motor freight companies. Little by railroads with some decrease. Airlines up slightly.
USE OF FACILITIES MANAGEMENT OR 'COMPUTER UTILITY'. None used or considered.
PRELIMINARY VIEW ON 1976 BUDGETS. Most report up a small amount; for inflation, price increases only in some cases.
INFORMATION USEFUL FOR PLANNING PURPOSES. Technology changes. Possibility of price cuts as in circuits. Better I/O equipment.

TABLE III-4(f)

TRANSPORTATION

EQUIPMENT	% GROWTH AVERAGE	
Main Computer Processors	-4.5	Would be 0% if worst case (-50%) discounted.
Secondary Comp. Processors	1	Only one user reported increased use for control (Airline)
Peripherals	1	Slight increase. One user reducing because RJE has reduced requirement.
Terminals	4	Incoterm knocking out Sanders and others in airlines.
Data Comm. Equip.	7	Including use of minis as controllers. Range 0% to 30%.
Data Entry	0	Effectively no change.
Data Output	3	Range 0 to 10%.
SERVICES		
Remote Comp. Services	15	Some increases in airlines. Remote batch + 5%.
Facilities Mnt.	-	None.
Software Pkgs.	5	Applications & IBM packages.
Software Services	-	Virtually no change. Small.
Batch Services		Little use.
PERSONNEL		
Systems and Programming	-0.2	Finetuning/retrenching.
Operations	-1.5	
OTHER		
Data Comm.	3	One user separated mainframes 'because of communications problems'.
Supplies	16	
Utilities		

INDUSTRY SECTOR. UTILITIES
LEVEL OF RECESSION ASSUMED FOR 1975. With one exception who forecasted a deepening recession, respondents expected a shallow recession.
GROWTH OF EDP BUDGETS FROM 1974 TO 1975. Average growth 5.6%. Range 0% to 15%(Natural Gas Co.). Affected by PUC decisions, not directly recession.
RESTRICTIONS ON EDP. Stretch out on orders. Cancellations of equipment. Personnel restrictions.
IMPACT OF DEEPENING OF THE RECESSION. No major reduction possible. Some personnel cuts.
EQUIPMENT COST REDUCTION MEASURES. Some users considering lease/purchase options. Little equipment substitution - more will come.
PURCHASE OF REMOTE COMPUTING SERVICES. Remote batch increasing - timesharing decreasing, bringing up in-house systems.
USE OF FACILITIES MANAGEMENT OR 'COMPUTER UTILITY'. No use.
PRELIMINARY VIEW ON 1976 BUDGETS. Average growth 7%. Most constant with some inflation factor.
INFORMATION USEFUL FOR PLANNING PURPOSES. Physical size of machines. Information on Technology, price, software size.

TABLE III-4(g)

UTILITIES

EQUIPMENT	% GROWTH AVERAGE	
Main Computer Processors	-	Almost all respondents reported 'No changes'.
Secondary Comp. Processors	-	Slight increase. Range 0% to 5%.
Peripherals	3	Range 0% to 12%.
Terminals	7	CRTs. GTE.
Data Comm. Equip.	3	Various manufacturers used.
Data Entry	2	Reducing keypunch.
Data Output	3	COM
SERVICES Remote Comp. Services	-17	Remote batch unchanged or increasing. Used in Engineering. Timesharing reducing through in-house.
Facilities Mnt.	No use	
Software Pkgs.	0	Range -5% to +5%. Little use.
Software Services	-3	Range -10% to +8%.
Batch Services		Little. Some COM transferred in-house.
PERSONNEL Systems and Programming	3	Personnel restrictions. Range 0% to 15%.
Operations	1	Range -10% to 15%.
OTHER Data Comm.	5	Generally low base. Rate increase.
Supplies	25	Longer term contracts. Some working off inventory.
Utilities		

INDUSTRY SECTOR. FEDERAL GOVERNMENT
LEVEL OF RECESSION ASSUMED FOR 1975. All save one assume shallow recession. Most negative respondent had EDP budget growth of -25%.
GROWTH OF EDP BUDGETS FROM 1974 TO 1975. Average growth 5.7%. Social services agencies largest.
RESTRICTIONS ON EDP. Hiring freezes. No changes to plans for equipment.
IMPACT OF DEEPENING OF THE RECESSION. Cancel projects in some cases. In social agencies would be increase projected.
EQUIPMENT COST REDUCTION MEASURES. Equipment purchased or leased from manufacturer.
PURCHASE OF REMOTE COMPUTING SERVICES. Will increase fairly significantly. Some move to in-house on Univac or IBM equipment. Lot through Infonet.
USE OF FACILITIES MANAGEMENT OR 'COMPUTER UTILITY'. Only industry sector to provide encouragement for this. Two agencies issuing first contracts this year, one very large.
PRELIMINARY VIEW ON 1976 BUDGETS. Average growth 12%. Couple of agencies could 'double EDP' if legislation passes. Other agencies, whose budgets are squeezed, cutting back.
INFORMATION USEFUL FOR PLANNING PURPOSES. Information on new releases.

TABLE III-4(h)

FEDERAL GOVERNMENT

EQUIPMENT	% GROWTH AVERAGE	
Main Computer Processors	12	Major acquisitions planned. Range 0% to 50%.
Secondary Comp. Processors	6	Range 0% to 30%. Minis on project basis rather than function.
Peripherals	15	Range 0% to 50%
Terminals	17	Very active. One user going from 8 - 10,000 this year. RJE, interactive and intel.terminals
Data Comm. Equip.	15	Range 0% to 33%.
Data Entry	4	Range 0% to 20%. Key disc & tape. 'Changing last of the keypunches'.
Data Output	12	COM and interactive
SERVICES Remote Comp. Services	-10	Larger users increasing use. Others coming in-house.
Facilities Mnt.	Inc.	Two agencies starting FM contracts this year.
Software Pkgs.	9	Range 0% to 27%.
Software Services	2	Some reduction in one agency only.
Batch Services	- 7	Bringing in-house.
PERSONNEL Systems and Programming	0	Manpower freeze. Range -7% to +5%.
Operations	0	Range -7% to +3%.
OTHER Data Comm.	16	Range 0% to 33%
Supplies	6	
Utilities	10	

INDUSTRY SECTOR. STATE AND LOCAL GOVERNMENT
LEVEL OF RECESSION ASSUMED FOR 1975. 70% of respondents were assuming a shallow recession - not the most optimistic sector therefore.
GROWTH OF EDP BUDGETS FROM 1974 TO 1975. Average growth 5.0%. Range -12% to +15%. Two agencies in one state ran out of money and were cut off the system.
RESTRICTIONS ON EDP. Personnel restrictions and tight review of requests for equipment.
IMPACT OF DEEPENING OF THE RECESSION. More centralization. No cuts except perhaps in development. Major requirements in health/welfare area.
EQUIPMENT COST REDUCTION MEASURES. Only 40% of respondents substituting much equipment; expanding though. Virtually no third party lease.
PURCHASE OF REMOTE COMPUTING SERVICES. Very little used by or contracted through EDP agency.
USE OF FACILITIES MANAGEMENT OR 'COMPUTER UTILITY'. Not from centralized state EDP departments. They act as 'FM' suppliers to other agencies.
PRELIMINARY VIEW ON 1976 BUDGETS. Average growth 13%. Many report holding, or steady with 'up' from inflation.
INFORMATION USEFUL FOR PLANNING PURPOSES. Hardware/software change notifications.

TABLE III-4(i)

STATE & LOCAL GOVERNMENT

EQUIPMENT	% GROWTH AVERAGE	
Main Computer Processors	7	Range 0% to 25%. Centralization is driver to growth for both types in EDP department, not in state—overall.
Secondary Comp. Processors	2	
Peripherals	6	Range 0% to 15%
Terminals	5	Range -8% to +15%. Still teletypewriters.
Data Comm. Equip.	10	Range -8%(RJE cut offs) to +15%.
Data Entry	4	
Data Output	14	Mainly COM
SERVICES Remote Comp. Services	-	None reported in use except overload.
Facilities Mnt.	-	Not through this type of agency.
Software Pkgs.	10	Primarily systems software from IBM & others.
Software Services	-	'No change' or decrease of up to 50% on small base.
Batch Services	-	
PERSONNEL Systems and Programming	4	Range -5% to +20%. Particularly for state and health contracts.
Operations	1	Range -5% to +10%.
OTHER Data Comm.	7	Range -8% to +20%
Supplies	28	Usually procured centrally - not thru EDP.
Utilities	5	

actual reponses to the relative interview questions, without interpretation or adjustment. Key points from the interviews are brought out and will be discussed in the analysis chapters.

E. SENSITIVITY OF EDP USER PLANS TO LEVELS OF RECESSION

Although it is difficult to predict with any accuracy the impact of a deepening recession on EDP budgets, INPUT has attempted to do so based on the qualitative data obtained in the survey. No respondents gave quantitative data when questioned on the subject.

INPUT has tabulated the answers obtained, by industry sector, and type of impact projected, and then estimated the impact on each of the major EDP budget segments (equipment, personnel, etc.) within each industry sector. Some of the industry variations found are shown in the questionnaire response charts. The growth rates of the overall EDP budgets by industry sector were then calculated and are presented in Table III-5 for each of two recession levels worse than the shallow recession assumed by most respondents.

As shown, the sensitivity to a slight deepening of the recession is not that great with a slightly smaller overall growth of 7% compared to 8%. Because of the changes in the economy since the interview research began in January, the current level of growth probably lies between the two.

However, in a severe recession, with unemployment approaching 10%, there would be almost zero growth in EDP budgets in the non-government sector. Since wages and prices are assumed to stay at, or close to, their

IMPACT OF DEEPENING RECESSION ON EDP GROWTH RATES

INDUSTRY SECTOR	1975 % GROWTH FORECAST		
	CURRENT	ESTIMATED LEVEL B	ESTIMATED LEVEL C
INS. & DIV. FINANCIAL	11.0	10	4
BANKING	11.0	9	4
RETAIL	4.8	3	1
DISCRETE MNFG.	5.8	3	-2
PROCESS MNFG.	9.4	7	4
TRANSPORTATION	4.3	3	-2
UTILITIES	4.1	3	0
FEDERAL GOVT.	10.7	11	14
STATE & LOCAL GOVT.	7.3	9	11
TOTAL	8.1	6.9	4.4

LEVEL B - DEEPENING RECESSION
LEVEL C - SEVERE RECESSION

TABLE III-5

higher 1975 levels, even under these conditions, there would be an actual shrinkage of EDP effort.

The government sectors would take up much of the shrinkage due to the implementation of massive new or expanded programs, particularly in the health, welfare and labor areas.

IV EDP BUDGET AND PLANS ANALYSIS AND FORECASTS FOR 1975 AND 1976

The chapter on 1976 forecasts identified in the proposal has been included in this expanded section to avoid repetition and provide a clearer picture of the overall environment, prior to the detailed discussion of equipment and services forecasts in the next two chapters.

A. OVERVIEW

Other observers and analysts have recently reported* that EDP user expenditures will increase in 1975 in the range of 10 - 15%, and in 1976 by as much as double this rate.

INPUT's forecast for 1975 shows that the EDP expenditures increase for the sectors covered by this report will be only 8.1%, to $16.9 billion, and will reach $18.9 billion or an increase of 11.7% in 1976. (Table IV-1)

End users' EDP expenditure plans have been cut substantially in the early weeks of 1975 as the severity and length of the recession has been more accurately assessed. As a result, corporate financial managers have 'put the squeeze' on all corporate expenditures. The relatively fast growth of EDP related expenditures makes them a particularly visible target.

Since INPUT's end user survey was completed in the first quarter of

* December 1974 through March 1975.

EDP EXPENDITURES GROWTH FOR 1975 AND 1976 - INDUSTRY SECTOR

(FOR DEFINED COVERAGE ONLY)

INDUSTRY SECTOR	1974 ACTUAL	1975 FORECAST	% GROWTH	1976 FORECAST	% GROWTH
INSURANCE & DIV. FINANCIAL	1,163	1,291	11	1,459	13
BANKING	797	885	11	1,000	13
RETAIL	1,055	1,106	5	1,228	11
DISCRETE MNFG.	3,903	4,130	6	4,584	11
PROCESS MNFG.	3,090	3,380	9	3,786	12
TRANSPORTATION	673	702	4	800	14
UTILITIES	838	872	4	951	9
FEDERAL GOVT.	3,590	3,975	11	4,452	12
STATE & LOCAL GOVT.	535	574	7	626	9
TOTAL	15,644	16,915	8.1	18,886	11.7

($ MILLIONS)

TABLE IV-1

1975, we were able to identify the more recent management decisions for EDP.

B. INDUSTRY SUMMARY

Three industries share the top rank for expenditure growth in 1975: insurance, banking and federal government sectors will each grow at 11%. Next is process manufacturing which will grow at 9%. Each of these sectors has experienced less pressure from the recession than the other sectors, and they have been able to stay closer with traditional EDP expenditure growth patterns of 15 - 16% per year.

The slowest growth rank is shared by two industries - transportation and utilities. These two sectors have been the hardest hit economically by the current recession. The next slowest growth is in retail. While also hard hit by the recession, the expenditures would have been lower but for the fact that installations of systems to support POS are continuing in 1975, with only minor reductions from plans.

In 1976, transportation will resurge and have the highest growth rate of 14%, based on substantially increased computer service expenditures, and installation of new ticketing and boarding control systems. Banking and insurance will have the next highest growth rates at 13%, followed by process manufacturing and the federal government at 12%.

The lowest growth rates will be experienced in utilities and state and local government, where the increase will be 9%.

C. EDP EXPENDITURES CATEGORY ANALYSIS

The four top level EDP expenditures categories covered in this report show a wide divergence around the 8.1% average EDP expenditures growth for 1975 over 1974. See Table IV-2.

1. Summary

Equipment expenditures will grow at only 6.9%. This is less than half the 15% rate often quoted by IBM as 'normal' for its own and the industry year-to-year increase. Another factor helping to hold down equipment expenditures growth is the stretch-out of large development projects. This releases computer capacity for production processing that otherwise would have been used by development programming staffs. Thus, fewer new CPUs are required.

General cutbacks and delays in most equipment sub-categories are responsible for this reduction. Only terminal and data communications equipment expenditures will stay at a high rate of increase.

Computer services will grow at 10.1% in the portion of the market covered, as shown in Table IV-3, which is about half the normal growth rate for the past 10 years. The lower growth is caused by a major reduction in use of professional services and a general shift of large user interactive timesharing expenditures to in-house or to a remote batch basis. These alternatives are being chosen because they appear to offer substantial cost savings opportunities.

Personnel expenditures will be the hardest hit, growing at only 5.9%. Users' cutbacks in personnel were severe in several companies surveyed.

EDP EXPENDITURES GROWTH FOR 1975 AND 1976 - EXPENDITURE CATEGORY

(FOR DEFINED COVERAGE ONLY)

EXPENDITURE CATEGORY	1974 ACTUAL	1975 FORECAST	% GROWTH	1976 FORECAST	% GROWTH
EQUIPMENT	6,279	6,713	6.9	7,395	10.1
SERVICES	1,731	1,905	10.1	2,298	20.6
PERSONNEL	6,145	6,508	5.9	7,395	13.6
OTHER	1,489	1,789	20.1	1,898	6.1
TOTAL	15,644	16,915	8.1	18,886	11.7

($ MILLIONS)

TABLE IV-2

1974 COMPUTER SERVICES MARKETS:

COMPARISON OF TOTAL AND REPORTED SEGMENTS

COMPUTER SERVICE	COVERED BY THIS REPORT		OTHER		TOTAL
	$ MILLIONS	% OF TOTAL	$ MILLIONS	% OF TOTAL	
FACILITIES MANAGEMENT	276	48	304	52	580
REMOTE COMPUTING SERVICES	569	60	380	40	949
PROFESSIONAL SERVICES	430	49	455	51	885
SOFTWARE PRODUCTS	209	49	216	51	425
BATCH SERVICES	185	21	715	79	900
EDUCATIONAL SERVICES	62	54	53	46	115
TOTAL	1,731	45	2,123	55	3,854

TABLE IV-3

Some users thought the prior 3 or 4 years of prosperity had added considerable fat to development and systems staffs. Paring of this as well as stretch-out of major development projects which has reduced staff requirements, both contributed to the reductions.

The other expenditures category which covers supplies, data communications line charges, and miscellaneous will grow 20.1% to $1.8 billion in 1975, up from $1.5 billion in 1974. Most of this increase is due to higher data communications costs and inflation related increases in paper.

Detailed discussions of computer equipment and computer services markets are contained in Chapters V and VI.

2. Personnel Expenditures

Expenditures for systems, programming, and operations personnel, including administration, will decrease their share of total EDP expenditures from 39.3% in 1974 to 38.4% in 1975. This is the first time this has happened in recent years. It reflects the severe curtailment of personnel expenditures that is taking place. This is at all levels of EDP operations; one financial manager reported that they had a vacancy for an overall EDP manager, but doubted if they would fill it now.

- Actual reduction in numbers of personnel.

As shown in Table IV-4, range of personnel expenditures growths by industry sector is from 2.0% in transportation to 9.0% in insurance and diversified financial companies. Assuming that merit and cost of living increases account for a 5% differential between 1974 and 1975, INPUT

PERSONNEL EXPENDITURES GROWTH FOR 1975

(FOR DEFINED COVERAGE ONLY)

INDUSTRY SECTOR	1974 ACTUAL	1975 FORECAST	% GROWTH
INS. & DIV. FINANCIAL	411	448	9.0
BANKING	271	290	7.0
RETAIL	472	486	3.0
DISCRETE MNFG.	1,630	1,711	5.0
PROCESS MNFG.	1,266	1,355	7.0
TRANSPORTATION	196	200	2.0
UTILITIES	348	365	4.9
FEDERAL GOVT.	1,329	1,422	7.0
STATE & LOCAL	222	231	4.1
TOTAL	6,145	6,508	5.9

($ MILLIONS)

TABLE IV-4

projects an actual decrease in the number of employees in EDP in several industries this year, notably transportation and retail. In most cases, there will not be mass firings but simply cutbacks due to attrition.

Very few companies will have major hiring programs. According to the survey, however, the very largest companies, such as the top 10 banks, will continue with their development programs to a greater extent than the others and will have significant staff increases in certain areas.

- Operations less affected than systems and programming staff.

The range of increased growth for operations staff across industries is half that for systems and programming staffs. This also applies across all company responses.

In general INPUT forecasts a shrinking of operational staff in all industries due to a number of factors:

- use of large computers in consolidated centers which require relatively fewer operational staff than the decentralized, smaller computers replaced.

- changes to more efficient peripherals, in terms of operator requirements, such as double density disc drives and tape drives; mass storage devices, such as IBM 3850, will have a more significant effect in 1976.

- displacement of operations and data entry requirements from the computer center though the use of remote data entry, installation of network applications, and the movement towards distributed processing.

Paradoxically, the slow-down in development, represented by systems

and programming staff restrictions, will delay reductions in operations staffs because of the delay in implementation of the systems which will cause this.

- Development continues at reduced levels.

So far in the recession, EDP managers have been relatively successful in protecting their systems and programming staffs. Maintenance and systems programming staffs have been unaffected. Some future development projects have been cut, but systems on which there is current development activity are continuing. For the moment, at least, most major projects have gone 'beyond the point of no return'.

One factor in the continuation of the development efforts is the high importance of the data communications based applications currently under development to the overall operations of organizations such as banks, insurance companies, retailers, airlines, and health and welfare agencies. Also, since they are integrated into equipment purchases, such as POS terminals and cash disbursement units, as well as corporate personnel and training plans, cancellation or delay of these projects does not simply affect the EDP department; the impact is organization wide.

However, as projects finish and are turned over to maintenance, some personnel adjustments may be made. In the meantime, EDP departments are slashing all incidental expenses, such as training and reference materials, seminars, conference attendances, and other 'fringe'

benefits. By combining this with drastic cutbacks in the use of outside professional services, EDP managers have been able to hold on to the bulk of their staffs. The fact that these restrictions are corporate in nature as well, is illustrated by the very large retailer, where every outside EDP expenditure must be approved by the executive vice-president.

Another factor helping to reduce personnel growth in 1975, is the increased use of software products purchased from vendors or other users. This eliminates a major commitment of personnel to development. Several users reported a substantial impact as the result of product purchases. Systems packages such as data base systems also helped increase the effectiveness of current staff.

3. Other Expenditures

Although technically more interesting and more related to new developments in the use of computers, data communications developments are, by far the less important to EDP users than costs and availability of supplies particularly paper, which accounts for two thirds of 'other' expenditures shown in Table IV-5. Paper availability problems led to national contracts with suppliers and inventory growth. The average increase in supplies budgets from 1974 was 25%, after the introduction of massive campaigns to reduce paper usage. Estimates of paper costs increases since the beginning of 1974 were as high as 100%. Much of the impact was felt in the second and third quarters of 1974.

The availability of paper products was a problem in the first half of 1974. The problem was felt indirectly by many of these very large companies because of their use of central forms purchasing departments. Many users started to increase their supplies inventory in the early part of 1974, often increasing their number of days supply to 90 from 60 or less. However, they have gone back to lower levels of inventory because there now appears to be a surplus of paper available. One bank reported just working off a six month level of inventory.

The major consequence for forms suppliers has been the avidity with which some large EDP users have signed long-term contracts, as opposed to the spot purchase approach, which most companies used previously and which is still used by many. Typically, there will be a contract for a year with quarterly release terms.

OTHER EDP EXPENDITURES GROWTH FOR 1975

(FOR DEFINED COVERAGE ONLY)

INDUSTRY SECTOR	1974 ACTUAL	1975 FORECAST	% GROWTH
INS. & DIV. FINANCIAL	93	115	23.7
BANKING	90	112	24.4
RETAIL	130	156	20.0
DISCRETE MNFG.	378	449	18.8
PROCESS MNFG.	291	350	20.3
TRANSPORTATION	98	107	9.2
UTILITIES	52	62	19.2
FEDERAL GOVT.	306	377	23.2
STATE & LOCAL GOVT.	51	61	19.6
TOTAL	1,489	1,789	20.1

($ MILLIONS)

TABLE IV-5

A utility with 2.2 million bills a month signed an annual contract with St. Regis; it also increased inventory levels to 90 days for a while but now is back to 60. Cuts in development activity helped keep costs down. An oil company has gone to a national annual contract with Moore.

- Supplies problems foster growth in other areas as well as controls.

As well as reducing usage in all the standard ways, such as printing 8 lines to an inch instead of 6, printing both sides of the paper, and reducing the number of copies, many users have adopted new approaches to the problems of keeping supplies costs down. Six users specifically stated that supplies costs were a major factor in their going to on-line CRTs for data entry and information retrieval. Also, many users were increasing their use of COM either through in-house equipment or service bureaus. One user had made major costs reductions by going to Xerox printers, where the savings are greater the number of copies that have to be printed. He had saved $180,000 per year on report costs.

Another user commented that the paper shortage had been most useful in that it forced EDP users to only produce the reports and number of report copies that were absolutely necessary. Also it had encouraged the search for more useful ways of getting information in and out of the computer system.

- Utilities and data communications are other expenditure items.

For utilities expenditures an average growth of 17% was reported. This is dominated by supplies and communication expenditures in the 'Other' budget category.

Data communications expenditures trends are covered in the section on user plans for network usage.

4. 1976 Plans Show Release of Constraints

User plans show a substantial releasing of expenditure constraints in 1976. Computer services will grow at over 20%, returning to the historical rate for that category. Personnel will increase by almost 14% due to reinstatement of development projects and more attention to system maintenance.

Computer equipment expenditures will not be restored as quickly, rising by just over 10%, as users meet current needs and hold up some major commitments until IBM's new system plans are clear. Many large users expect some kind of IBM major announcement in 1976 or early 1977.

Other expenditures will take a substantial drop in growth, down to a 6.1% increase from 20.1% in 1975. This is due to the stabilization of supplies prices and lower data communications tariffs which will be widely available in 1976.

D. FUTURE IMPACT OF CURRENT ACTIVITIES

The budget restrictions and other factors which are present now in the EDP user environment will cause major changes from those forecast a year ago in the development of the industry.

- Equipment 'stretch-out' lengthens the life of current computer generation.

The delays in mainframe upgrades that users reported in the survey

will dramatically slow the shipment of new, large computers in 1975, and the first quarter of 1976. Users are finding that they can live with their current capacity which, in many cases, was increased considerably in 1974, with a view to rapid development of new applications and corresponding systems growth.

As a result, mainframe manufacturers will not meet their 'saturation' sales targets according to schedule. Consequently, announcements of new equipment series will be delayed. Manufacturers will upgrade existing series' equipment and make additions to upgrade the line.

- Consolidation favors large-scale IBM computers.

One paradox of the recession is that consolidation activities are being accelerated in order to save costs. Several users reported that deepening recession will accentuate this trend even further. Since these are very large EDP users they generally require multiple large scale machines in the 'supercenter'. Also, the equipment chosen is invariably IBM at this level, although special processors for scientific and engineering work such as Univac 1108 or CDC Cyber equipment may be installed. Several users reported consolidating centers and getting rid of other manufacturers' equipment, primarily Honeywell but some NCR.

The 370/168 computers, however, are 'strapped' for capacity to support these operations, particularly when included in distributed processing networks. One user mentioned previously, asked about a 168 accelerator. There is no doubt that there is a market for such a product.

Consequently, an upgrade to this end of the 370 line which has been forecast for some time now, will find a major market in those companies

going through consolidation.

- Development cut-backs slow equipment sales beyond 1976.

The immediate impact of development cut-backs is on personnel and computer services expenditures. However, the long term result is a slowing of equipment sales of all types, but particularly of terminals and host processors for major new systems.

Terminal growth at the moment is being fed by conversion of existing systems, and the implementation of internal timesharing through dedicated computers such as DEC 10s, and IBM software such as TSO and CMS. This internal timesharing growth allows some development activity to be put back to the user and also increases the efficiency of internal development staffs.

Development of the new systems which will require new types of terminals, expanded communications, and new host computers, is being pushed out 18 months and more, according to some respondents. This, of course, varies by industry with insurance, banking, some federal government agencies, and some process manufacturers being virtually unaffected. However, equipment growth in these sectors, even at slightly enhanced rates in some cases, will not raise the overall EDP expenditures growth to its usual level of 15% or more until 1977 or 1978. Furthermore, unless significant recovery starts within the next few months, major expansion in EDP may not occur until late 1977 and 1978.

- Recovery will be felt first in computer services.

As happened after the 1970 recession, computer services will be the first to feel the impact of the recovery, together with systems and programming personnel.

Particular services which will benefit will be remote computing services and professional services, as users turn on the development tap again. Also construction and engineering activities, traditional strongholds of timesharing will have a resurgence.

- Equipment changes have long delay times.

Users will be cautious in expanding in-house capabilities too suddenly in case there is a relapse in the economic recovery, or in case we are entering a period of rapid up-and-down movements in the economy, as some have predicted. Therefore, computer services of all kinds will benefit; as users expand their EDP activity, but avoid long-term commitments.

In the survey, many users outside of government quoted recovery times of 9 months or more in the equipment area, after recovery had been detected. The detection mechanisms used were very pragmatic: 'increase in sales orders', 'order backlog', were the parameters being used. Since these take time to build up, the impact on equipment purchases of a recovery will be up to 18 months or more.

- Deepening recession would benefit competitive equipment suppliers.

The recession has been of major benefit to PCM suppliers such as Memorex, Calcomp, and particularly Storage Technology, in that many large users have increased their search for economical and effective alternatives to IBM peripherals and memory. In the terminal area as well, there have been major purchases of independents' equipment reported, including Anderson-Jacobsen, Incoterm, Sanders and Data 100. However, many users have also stated that they prefer to implement new systems with IBM equipment first

and then subsequently replace it.

A deepening recession will accelerate this trend, as users become even more cost conscious. However, the acceleration will only be fairly small as most very large users are already very open to considering non-IBM equipment.

- Lifetime of the 360 is growing longer.

The lifetime of the 360 series is growing longer every day. Users are examining their batch processing needs and looking at the depressed prices of 360s. They don't need the advanced development and communications features of the 370 on all their units, so increasingly they are switching some 370s back to 360s. This particularly happens when a user has several large 158 and/or 168s and other smaller 370s such as 135, 145, or 155s.

- Software upgrades are being delayed.

There is a tendency to implement TSO in-house to improve programmer performance, and replace outside services in some cases. However, several respondents indicated they would not do so if the situation got worse.

Also, one of the necessary factors for IBM to migrate its users up towards FS is that users must generally be 'up to speed' in current IBM operating systems. Very obviously from the survey this is not the case; users were not going to move up to VS and particularly to VS2 Release 2.2 without compelling reason. In the current situation compelling reason means major price/performance improvements, not new features.

E. USERS PLANS FOR DATA COMMUNICATIONS NETWORK USE

It was apparent from the survey that 'distributed processing network' is interpreted in many ways by EDP users. Some considered that any remote batch or immediate access was included.

- Distributed processing networks are growing.

Nine users, or about 8% of the respondents, were 'looking into' distributed processing or carrying out feasibility studies. Several users indicated they had no current plans for it, but may do so in the furture, often after centralization was complete.

Several of the largest companies were in the process of developing networks to support distributed processing. One insurance company, which also sells computer services, was designing its own network for this purpose. A major retailer was developing a 'data communications utility' with NCR minicomputers at the low interface level to support POS terminals. A process manufacturer planned to be able to switch from 'dumb' terminals to a distributed processing system in 1976. Another was expanding its use of stand-alone, secondary processors and terminals and would put the processors on-line in the future.

In banking, several companies indicated decentralization of processing was now taking place through the implementation of distributed processing systems. One reason for this could be the need to establish separate processing of data bases in support of new banking activities in the retail, credit, and other fields because of security considerations and pending privacy legislation.

- Centralization comes before distributed processing.

Major distributed processing network developments are only just starting. Users wish to establish an initial network from a centralized system before moving back out with decentralization. It is a two stage process.

- Use of non-established carriers growing slightly.

Alternative sources of data communications to the established carrier offerings are being considered and used in several case.

The insurance company which was also a vendor of computer services, indicated a 20% chance that it would use a packet switching network in 1975, and an 80% chance of being in a shared network in 1976. A respondent from a brokerage company mentioned they had talked with GTE about a shared network and using a common data base. Another financial company was already using alternatives to the Bell system including MCI and a satellite vendor.

Of the companies interviewed, eight were using alternatives to established carriers, and one was using AT&Ts Direct Digital Dial service, on which they commented very favorably. Of the alternatives being used, microwave links were identified by five companies, three of them, predictably, being utilities and transportation companies with their own rights of way. Two companies were using satellite links; one very large aerospace company was 'testing' 12 American Satellite circuits.

Two other companies indicated they were considering or using remote computing services to provide some network capabilities. In addition, the oil company using GE for financial consolidation was primarily using the

network capability.

Of the remaining companies, five were carrying out feasibility studies, and several more indicated they would look at alternatives in the future. Another large retailer was going to look at shared networks at an unspecified future point.

- Distributed processing networks can impede 'data only' communications growth.

These major EDP users are primarily concerned with establishment of basic networks for remote access, particularly from consolidated operating centers. When these are established, they will consider upgrading to distributed processing networks, which entails a far higher level of cost and complexity, and the replacement of established carrier communication links.

One major consideration is that, as users go to distributed processing systems they become less likely to use data only communications links. The reason is, as one major retailer pointed out, that companies will use their links for voice communication during the day and data at night. The major candidates for use of data only links are those applications which are 'up' for all or most of the time, including reservation systems and world-wide order entry systems. In addition, any trend to graphics and video transmission over the same links will cause further problems for data only links.

- Data communications growth includes increased use and tariffs.

The extent of use and growth in 1975 of data communications by the organizations forecast by INPUT is shown in Table IV-6. These expenditures are those which are made for data only and represent those directly from

DATA COMMUNICATIONS EXPENDITURES GROWTH 1974 AND 1975

(FOR DEFINED COVERAGE ONLY)

INDUSTRY SECTOR	1974 ACTUAL	1975 FORECAST	% GROWTH	RESPONDENT % GROWTH AVERAGES
INS. & DIV. FINANCIAL	34	40	17	17
BANKING	16	24	50	70
RETAIL	50	56	11	11
DISCRETE MNFG.	113	123	9	5
PROCESS MNFG.	90	100	11	19
TRANSPORTATION	61	64	5	3
UTILITIES	16	17	5	5
FEDERAL GOVT.	140	162	16	16
STATE & LOCAL GOVT.	20	21	7	7
TOTAL	540	607	12.4	

($ MILLIONS)

TABLE IV-6

the EDP departments, and from the proportion of data/voice expenditures by corporate communications groups due to data. The Table also shows the average of the increases reported by respondents to the survey. The proportion covered by this report of the total data communications market of $1.4 billion in 1974, is 39% ($540 million).

The growth rate of 12.4% represents increased use and tariff increases. With the trend to remote batch and intelligent terminals in distributed processing networks, actual increase in use of communications is less than the increase in terminal expenditures of 10.1%. Tariff increases then force data communications expenditures growth to the forecast level.

F. ANALYSIS OF DATA AND MAJOR TRENDS

Several points are analyzed below which apply generally to all EDP expenditures or are not covered in other chapters.

- Inflationary effects included.

INPUT was careful to insure that user forecasts included the effect of inflation. The net effect considered by users was in the range of 3 - 5% for 1975 and 1976, as it affects EDP expenditures. Since many equipment expenditure categories consist of relatively fixed commitments (such as long term leases), the effect of inflation may not be felt until the commitment is terminated or renewed - if then.

Including inflation means that the real growth in 1975 is actually 3.1% - 5.1% rather than the total reported of 8.1% In 1976 the real growth is 6.7% - 8.7% instead of the total reported of 11.7%.

- Not all EDP expenditures reported.

INPUT has determined that control over total EDP expenditures has again begun to be dispersed. This happened in the late 1960s, when timesharing began to be purchased by operating departments instead of EDP departments. In the early 1970s corporation financial managers in large firms made a special effort to identify the timesharing expenditures and review them in the context of total EDP. Now, just as timesharing seems under control, remote computing technology and minicomputers seem to again be moving out ahead of accounting and control systems.

Distributed processing basically provides for remote intelligent terminals located in operating departments such as counter sales in retail, production shops in discrete manufacturing, teller windows in banking, and brokers/agents desks in insurance. As such, these operating departments often budget for and pick up the expenses for the terminals, part of the communication expense and operating personnel.

Thus, INPUT found that large retail chains do not report point of sale terminal expenditures in their corporate EDP budgets. These are considered 'store fixtures' and paid for through store set-up and operational budgets. As a result, POS terminal expenditures are not included in this report.

In the future INPUT will monitor this trend and establish interview procedures which cover the ultimate end user operating departments as well as central EDP and financial managers.

- EDP expense to revenue ratios hold steady.

EDP expenses account for a little less than 1% of corporate revenues across all sectors. (See Table IV-7). This has not changed much over the

RATIO OF COMPANY REVENUES TO EDP EXPENDITURES IN 1974,

BY INDUSTRY SECTOR

(FOR COMPANY SIZES COVERED)

INDUSTRY SECTOR	TOTAL REVENUES $ BILLIONS	TOTAL EDP EXPENDITURES $ MILLIONS	EDP AS % OF REVENUES
INS. & DIV. FINANCIAL*	65	1,163	1.8
BANKING**	459	797	0.2
RETAIL	100	1,055	1.1
DISCRETE MNFG.	379	3,903	1.0
PROCESS MNFG.	288	3,090	1.1
TRANSPORTATION	30	673	2.2
UTILITIES	56	838	1.5
FEDERAL GOVT.	N/A	3,590	
STATE & LOCAL GOVT.	N/A	535	

* MEASURED IN: PREMIUM REVENUES (INSURANCE).
REVENUES (DIVERSIFIED FINANCIAL).

** MEASURED IN ASSETS.

TABLE IV-7

past five years due to the inflationary spiral which has kept industry revenues growing in the 10 - 15% range or better. This is the same rate of increase as total EDP expenditures.

- Captive computer service expenditures excluded.

Captive computer service expenditures are those spent by a parent company to purchase services from its own computer service vendor subsidiary. Much of the business of McAuto and Boeing Computer Services fall into this category.

Those expenditures are not included in this report under computer services, but rather distributed throughout the other EDP expenditure categories, as if they were end user in-house expenditures.

- Purchased equipment control as equivalent annual rentals

Purchased and leased computer equipment is treated in this report as if it were rented from vendors - equivalent annual rental. Thus, equipment expenditure analysis is on an equivalent basis for all users, so that changes more accurately reflect changes in computing capacity rather than financing methods.

- Large users to continue leasing.

Large users reported they generally are large leasing customers already, and plan to continue leasing at a high rate. Increasing interest was also shown in purchasing used computer equipment and seeking out independents in all areas, especially add-on mainframe memory, terminals and communications equipment.

Purchase of new equipment is limited to those firms which have the

cash available and can optimally use the investment tax credits. Banks, and insurance carriers, and government agencies, are the most likely to purchase rather than lease from third parties.

All these trends bode well for leasing and used computer firms over the next few years.

- Large users sell services.

Many large users covered by INPUT reported that they earn some outside revenues by selling computer services. Most of this activity is limited to excess time or software product sales. However, some firms are actively planning to spinoff successful outside activities and form independent vendors.