

INFORMATION SERVICES INDUSTRY

1981 ANNUAL PRESENTATION

INPUT

ABOUT INPUT

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

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

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

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**INFORMATION SERVICES INDUSTRY
PROGRAM**

**ANNUAL CLIENT PRESENTATION
1981**

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INFORMATION SERVICES MCP
INDUSTRY PROGRAM 1981
ANNUAL CLIENT PRESENTATION Copy 1

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INPUT



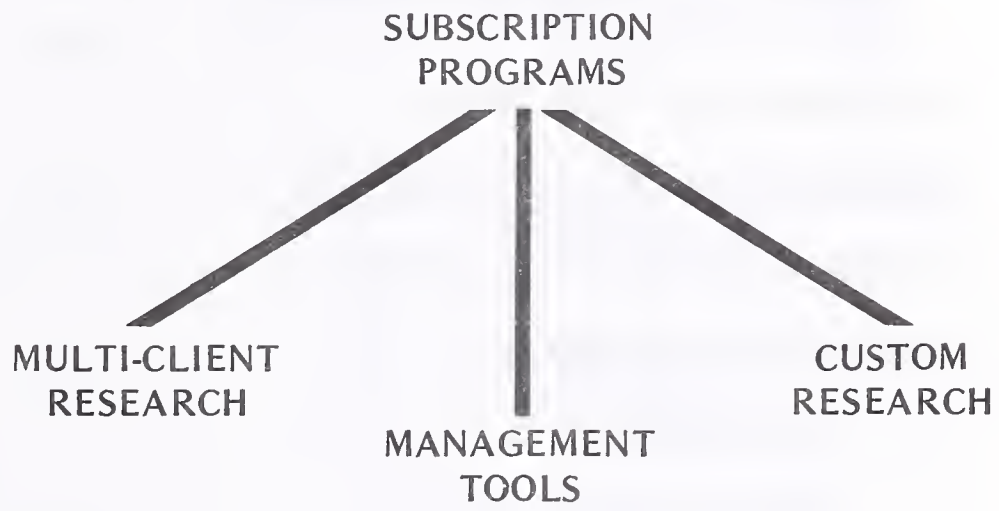
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I. INTRODUCTION

INPUT

INPUT SERVICES



INPUT

1981 ACHIEVEMENTS

- REVENUE INCREASE OF 40%
- IMPROVED PROFIT PERFORMANCE
- STREAMLINED ORGANIZATION
- STRENGTHENED STAFF
 - MANAGEMENT
 - PROFESSIONAL
- IMPROVED PRODUCT DELIVERY PERFORMANCE
- FIRST ACQUISITION

INPUT

PROGRAMS

<u>YEAR</u>	<u>NUMBER OF CLIENTS</u>	
1976	36	INFORMATION SERVICES INDUSTRY
1976	40	COMPANY ANALYSIS AND MONITORING
1978	60	INFORMATION SYSTEMS PLANNING
1980	40	FIELD SERVICE- U.S./EUROPE
1981	4	ON-TARGET MARKETING

INPUT

INFORMATION SYSTEMS PROGRAM

- PLANNING FOR COMPUTER/COMMUNICATIONS BUYERS
- VENDOR WATCH REPORTS
- RESIDUAL VALUES
- MANAGEMENT ISSUES
- TECHNOLOGY IMPACTS
- EXTENSIONS
 - OFFICE COMMUNICATIONS
 - SOFTWARE DEVELOPMENT

INPUT

FIELD SERVICE PROGRAM

- SOFTWARE AND HARDWARE MAINTENANCE
- BUSINESS/MANAGEMENT ISSUES
- NEW METHODS AND PROCESSES
- PERSONNEL FACTORS
- CUSTOMER/MARKETING/PRICING
- CUSTOMER CONSIDERATIONS
- EXTENSION - CUSTOMER SATISFACTION SURVEY

INPUT

COMPANY ANALYSIS AND MONITORING PROGRAM

- DESCRIPTIONS/DIRECTORY/INQUIRY SERVICE
- INFORMATION SERVICES COMPANIES:
 - PROCESSING
 - SOFTWARE
 - PROFESSIONAL SERVICES
 - TURNKEY SYSTEMS
- 2500 SUMMARY/400 DETAIL DESCRIPTIONS
- COMPETITIVE/PRODUCT ANALYSIS
- ACQUISITION ACTIVITY

INPUT

ON-TARGET MARKETING

- **MARKETING METHODOLOGY – “HOW TO DO IT.”**
- **PRACTICAL TOOLS FOR:**
 - **MARKET SEGMENTATION**
 - **COMPETITIVE ANALYSIS**
 - **COMPANY “POSITIONING”**
 - **INTELLIGENCE GATHERING**
- **PROCEDURES, GUIDELINES, FORMS, EXAMPLES**
- **WORKSHOPS/CONSULTING**

INPUT

MULTI-CLIENT STUDIES

- IMPROVING SOFTWARE DEVELOPMENT PRODUCTIVITY
- INTERNATIONAL ON-LINE DATA BASE SERVICES
- CAD/CAM SYSTEM AND SERVICE APPLICATIONS AND MARKETS
- COMPUTER OUTPUT SERVICES MARKETS
- PERSONAL COMPUTERS IN LARGE ORGANIZATIONS

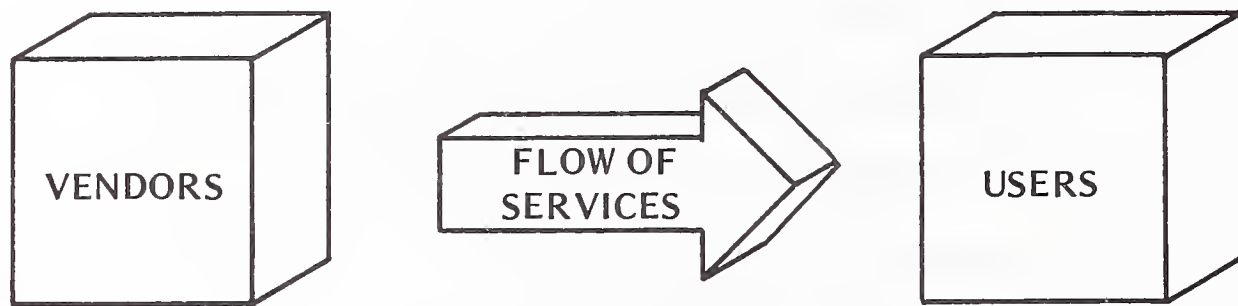
INPUT

RECENT CUSTOM PROJECTS

- BUSINESS PLAN DEVELOPMENT
- PROFESSIONAL SERVICES BUYING PATTERNS
- RCS COMPANY EXPENSE DISTRIBUTION
- OFFICE COMMUNICATIONS
- DOMESTIC NETWORK SERVICES
- CANADIAN COMPUTER SERVICES MARKET

INPUT

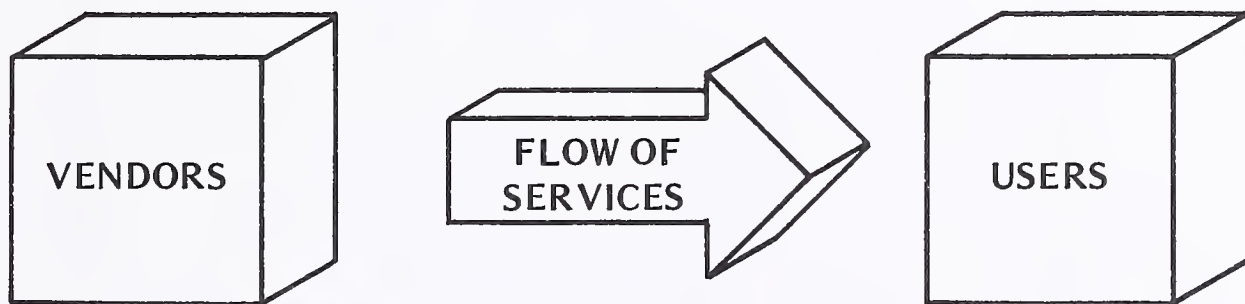
TRANSITION



- TYPES OF SERVICE
- MODES OF DELIVERY
- NEW COMPETITION

INPUT

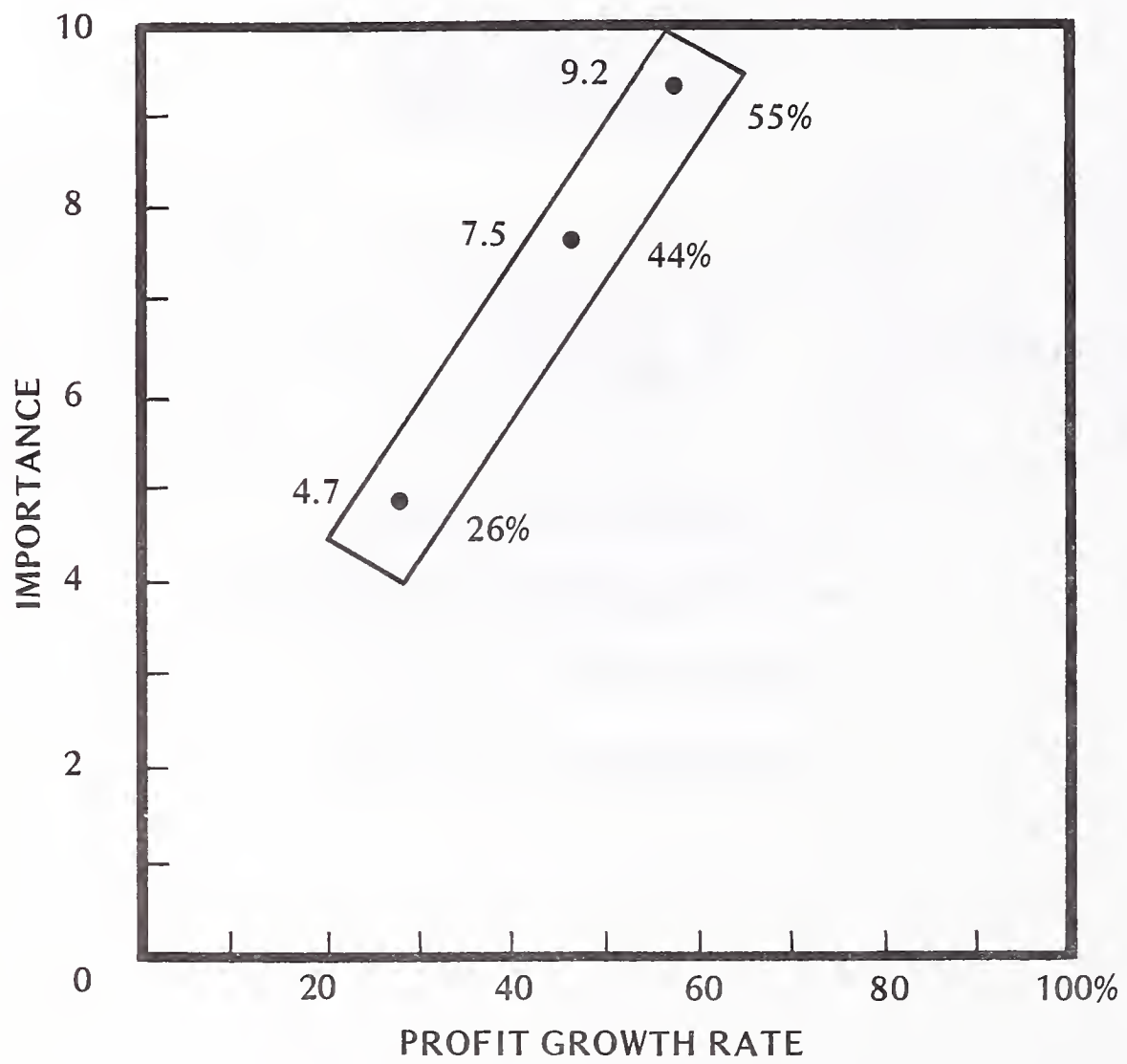
CHALLENGES



- CHANGING TECHNOLOGY
- VIABLE MARKETING PROGRAMS
- SCARCITY OF RESOURCES
- INCREASING COMPETITION

INPUT

IMPORTANCE OF CORPORATE PLANNING



INPUT

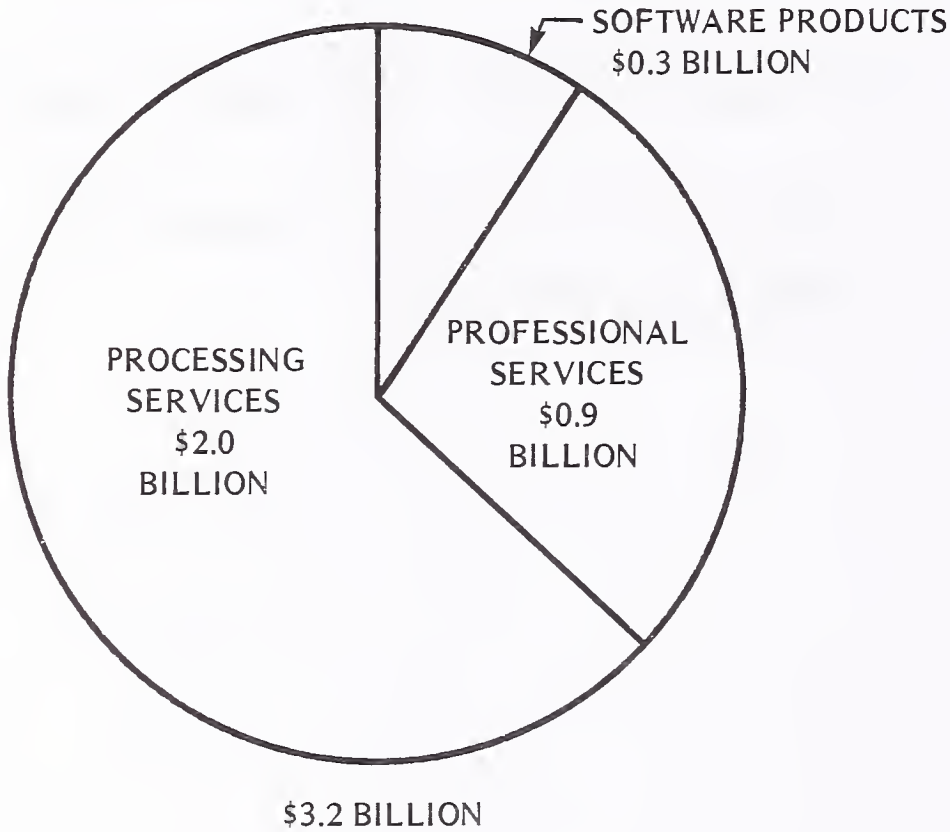
II. EXECUTIVE SUMMARY

INPUT

INFORMATION SERVICES INDUSTRY
- GROWING AND CHANGING
DRAMATICALLY

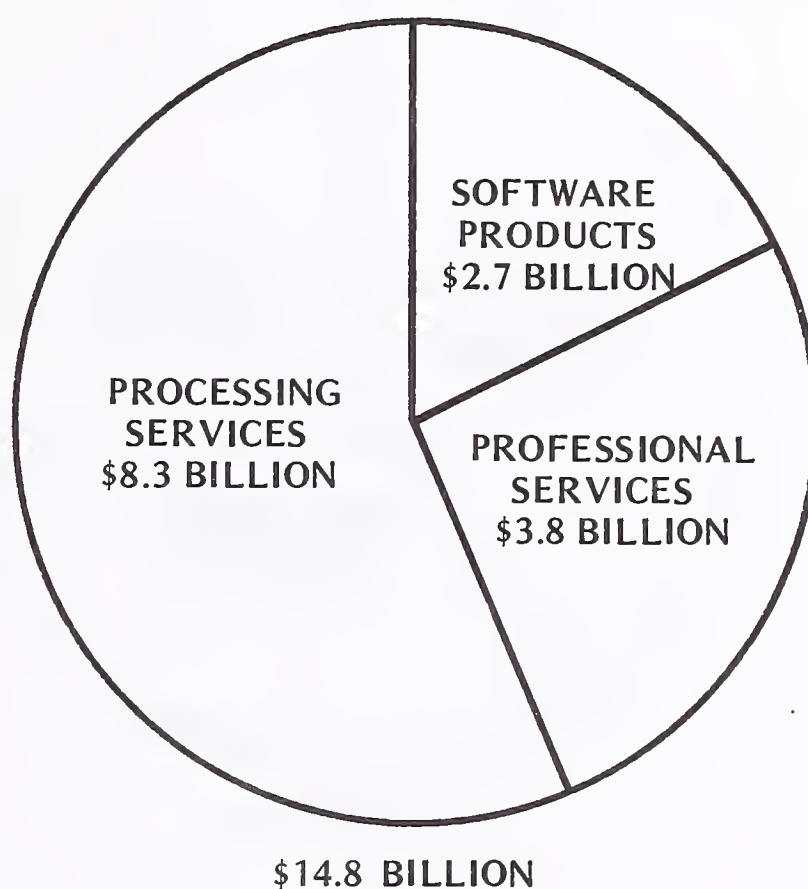
INPUT

U.S. COMPUTER SERVICES MARKET - 1970 (CURRENT DOLLARS)



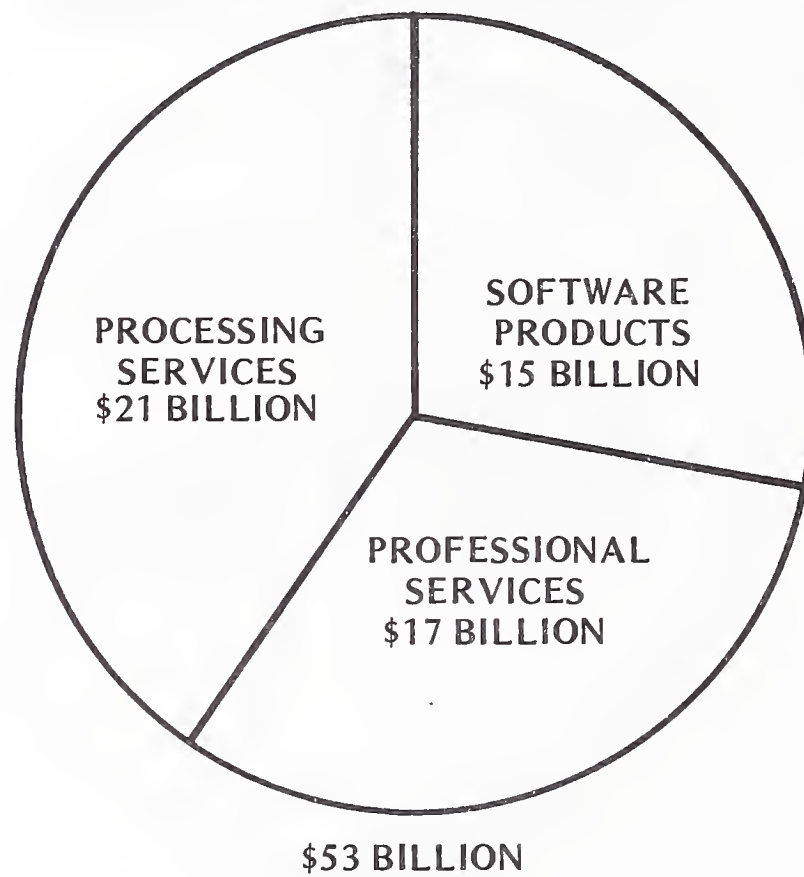
INPUT

U.S. INFORMATION SERVICES MARKET - 1980 (CURRENT DOLLARS)



INPUT

U.S. INFORMATION SERVICES MARKET - 1986 (CURRENT DOLLARS)



INPUT

OPPORTUNITIES

- **BUSINESS GRAPHICS**
- **USER SITE HARDWARE SERVICES**
- **ENERGY RELATED MARKETS**
- **PROFESSIONAL SERVICES**
- **PERSONAL SYSTEMS**

INPUT

FURTHER OPPORTUNITIES

- APPLICATION - SPECIFIC TURNKEY SYSTEMS/
SERVICES
- NETWORK SERVICES
- SYSTEMS IMPLEMENTATION/FACILITIES MANAGEMENT
- DATA BASES AND ASSOCIATED APPLICATIONS
- SOFTWARE "MANUFACTURING"/"PUBLISHING"

INPUT

OVERALL ISSUES

- ECONOMY
- CHANGING BUYER ENVIRONMENT
- SOFTWARE DEVELOPMENT
 - APPLICATIONS IMPLEMENTATION PROCESS
- OFFICE/TELECOMMUNICATIONS TARGETS
- CONTINUING HARDWARE CHANGES
- FUTURE LIMITS OF SERVICE

INPUT

1982 PROCESSING SERVICES ISSUES

- SHORTAGE OF PEOPLE
- IN-HOUSE ALTERNATIVES
- RE-INVESTMENT IN SYSTEMS AND NETWORKS
 - HARDWARE
 - SOFTWARE
- MIGRATION TO NEW AREAS
- NEW COMPETITION

INPUT

1982 SOFTWARE ISSUES

- NEW ENTRIES
- "HIT PARADE" SYNDROME
- INTEGRATION OF GRAPHICS
- DISTRIBUTED PROCESSING
- CHANGING SOFTWARE ECONOMICS
- PEOPLE LIMITATIONS
- INTEGRATION OF HARDWARE

INPUT

III. STATE OF THE INDUSTRY

- PERFORMANCE OF LEADING FIRMS
- ACQUISITION ACTIVITY

INPUT

PERFORMANCE OF LEADING FIRMS

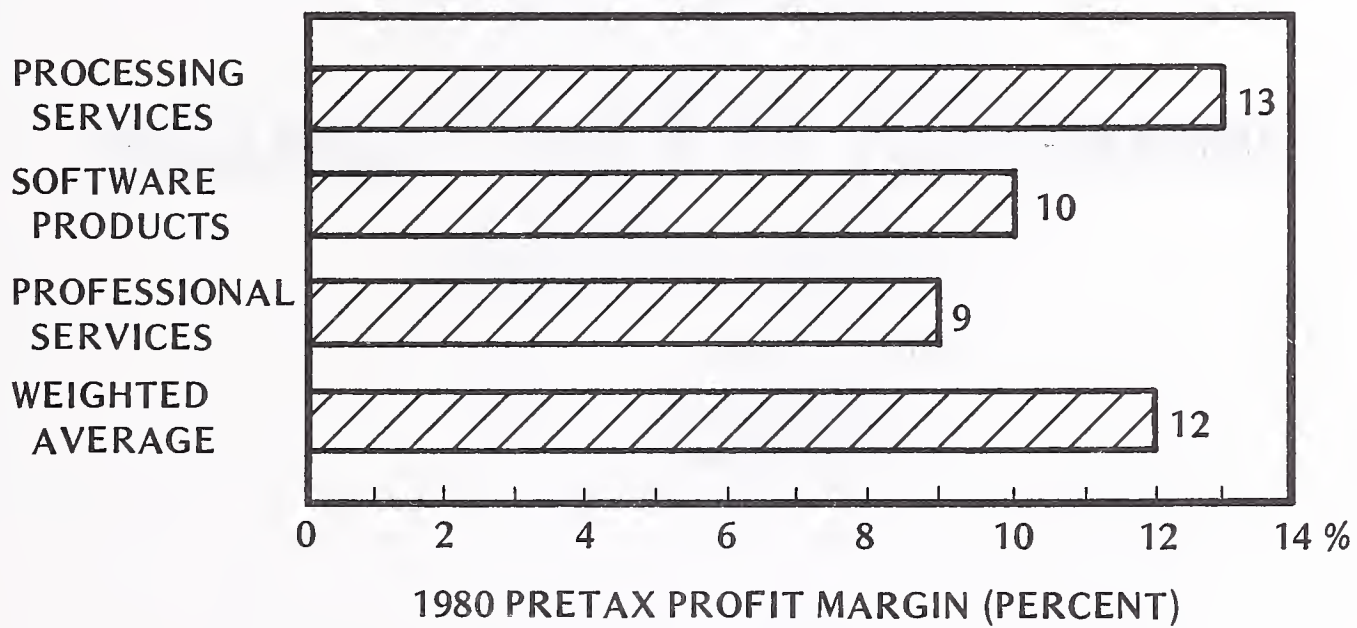
INPUT

PERFORMANCE OF PUBLIC COMPANIES

- **PROFITS**
 - \$376 MILLION
 - 28% GROWTH
- **PROFIT MARGIN**
 - 11.6% 1979
 - 11.6% 1980

INPUT

1980 PUBLIC COMPANY PERFORMANCE



INPUT

PERFORMANCE OF PUBLIC COMPANIES

- 56 COMPANIES ANALYZED
- REVENUES
 - \$3.2 BILLION
 - 27% GROWTH

INPUT

PUBLIC COMPANY PBT - FISCAL 1980

QUOTRON	25%
SMS	25
ADP	17
MDSI	17

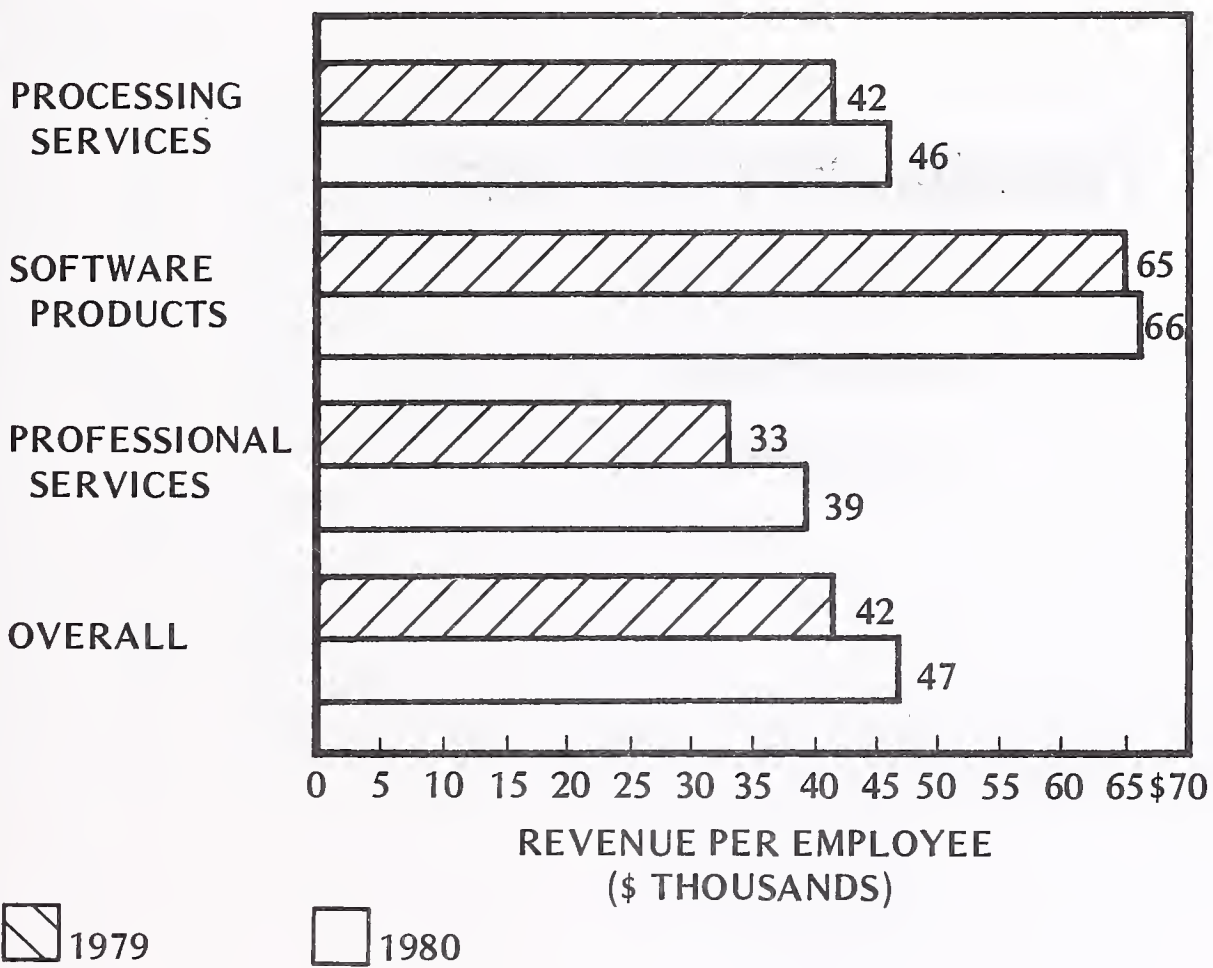
INPUT

PUBLIC COMPANY PBT - FISCAL 1980

NATIONAL DATA	15%
TYMSHARE	15
ANACOMP	12
EDS	12
CSC	10

INPUT

PRODUCTIVITY 1979, 1980



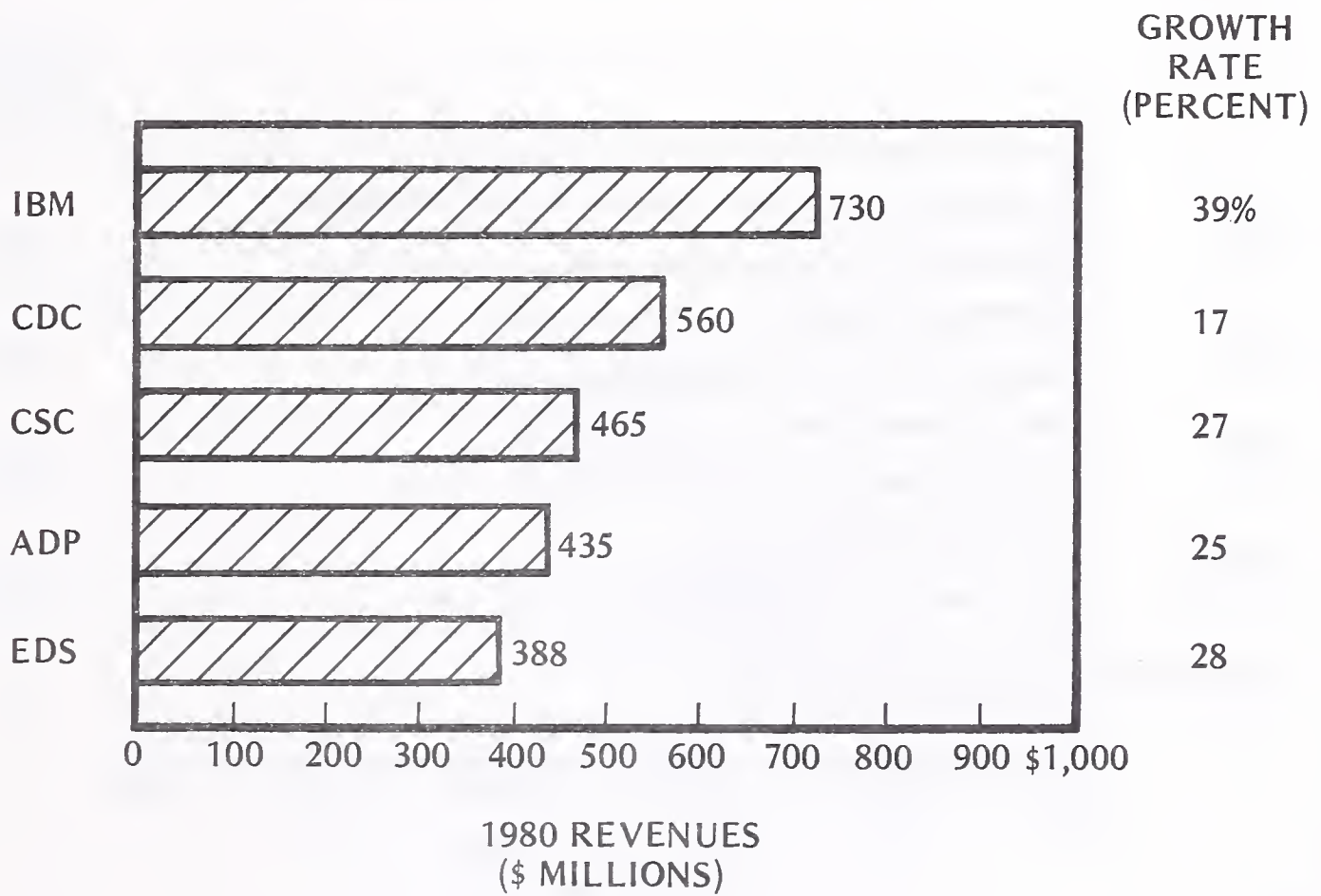
INPUT

VENDOR PERFORMANCE

- U.S. REVENUES
- NON-CAPTIVE
- CALENDAR 1980

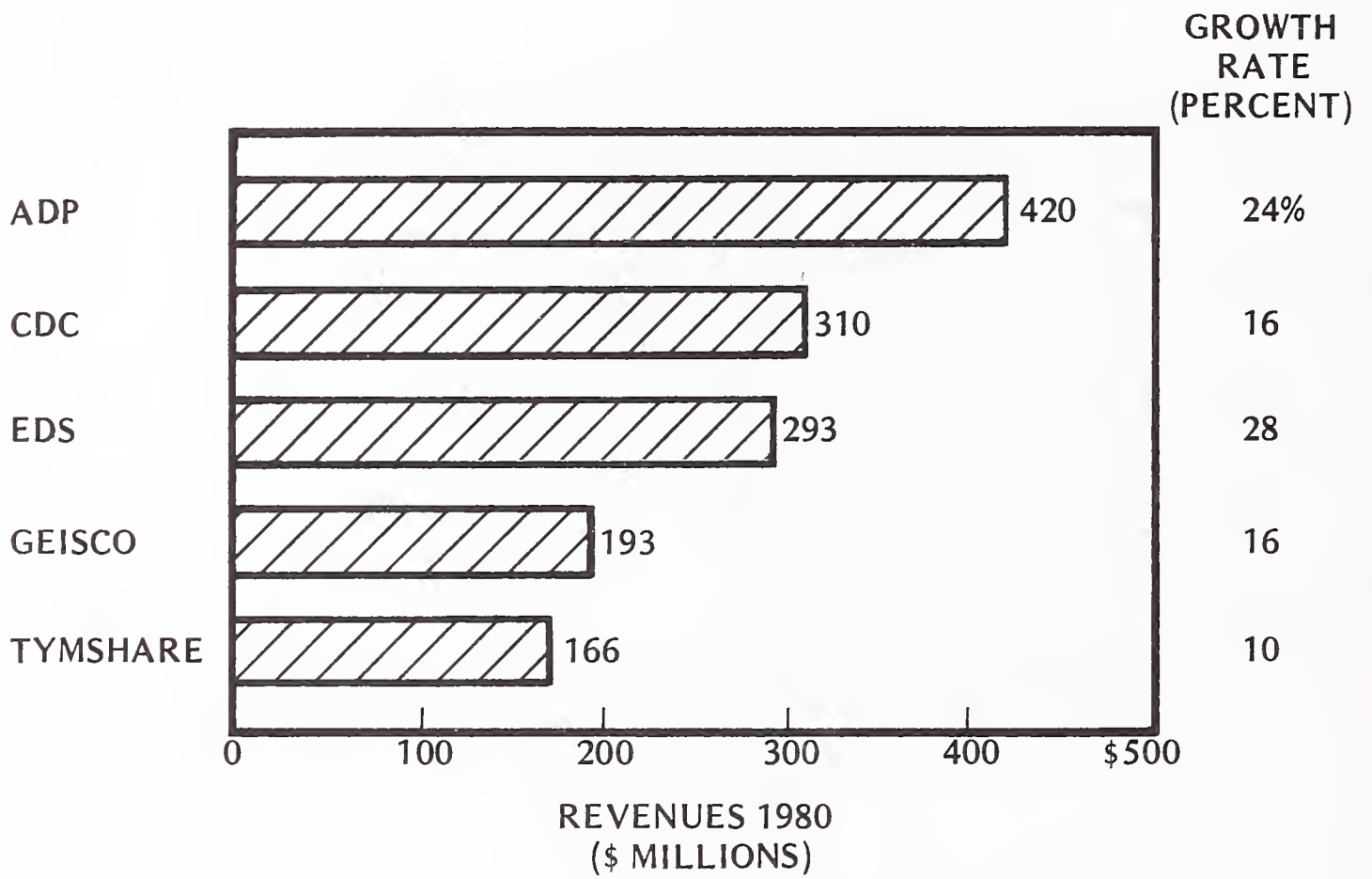
INPUT

LARGEST INFORMATION SERVICES VENDORS



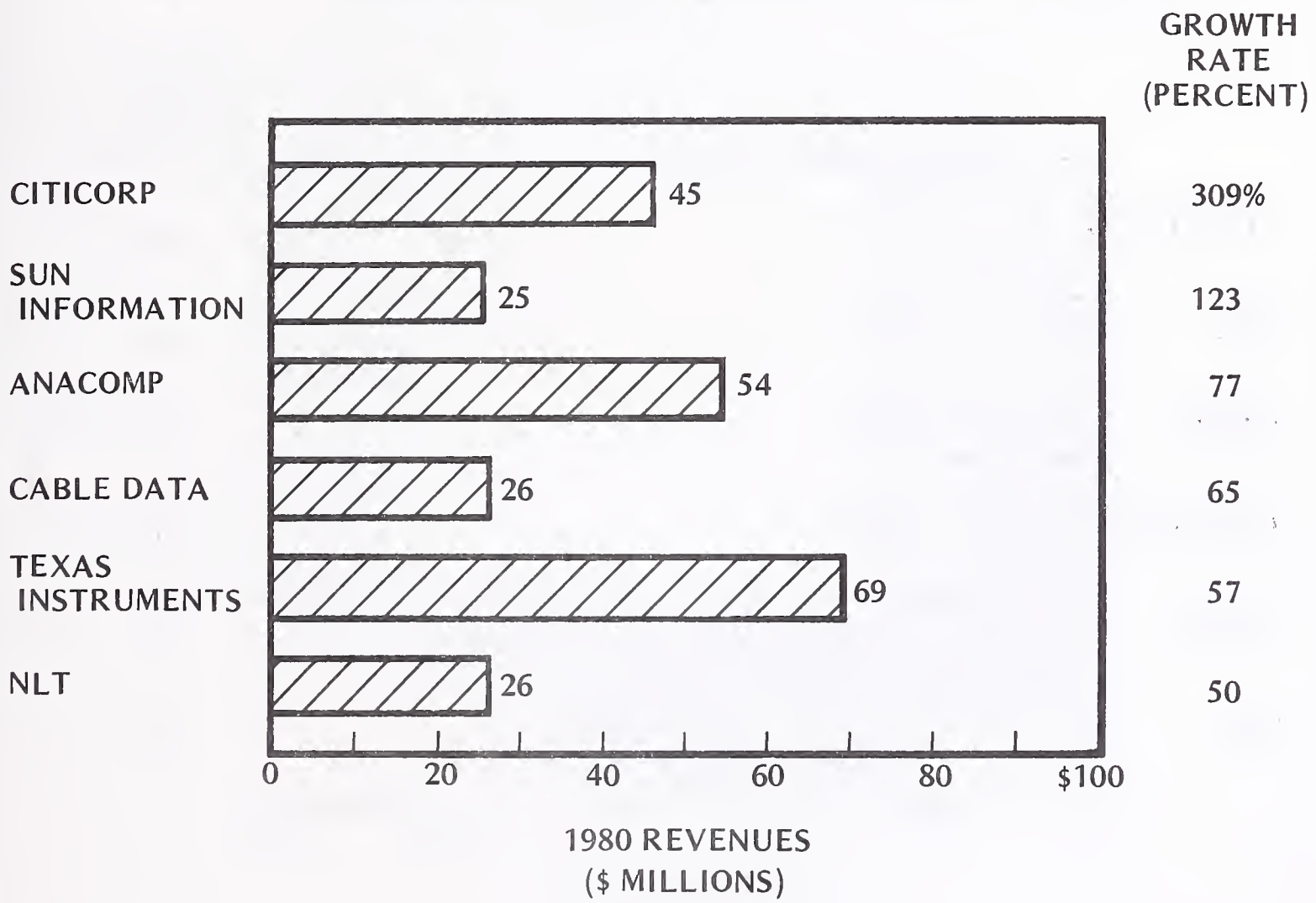
INPUT

LARGEST PROCESSING SERVICES VENDORS



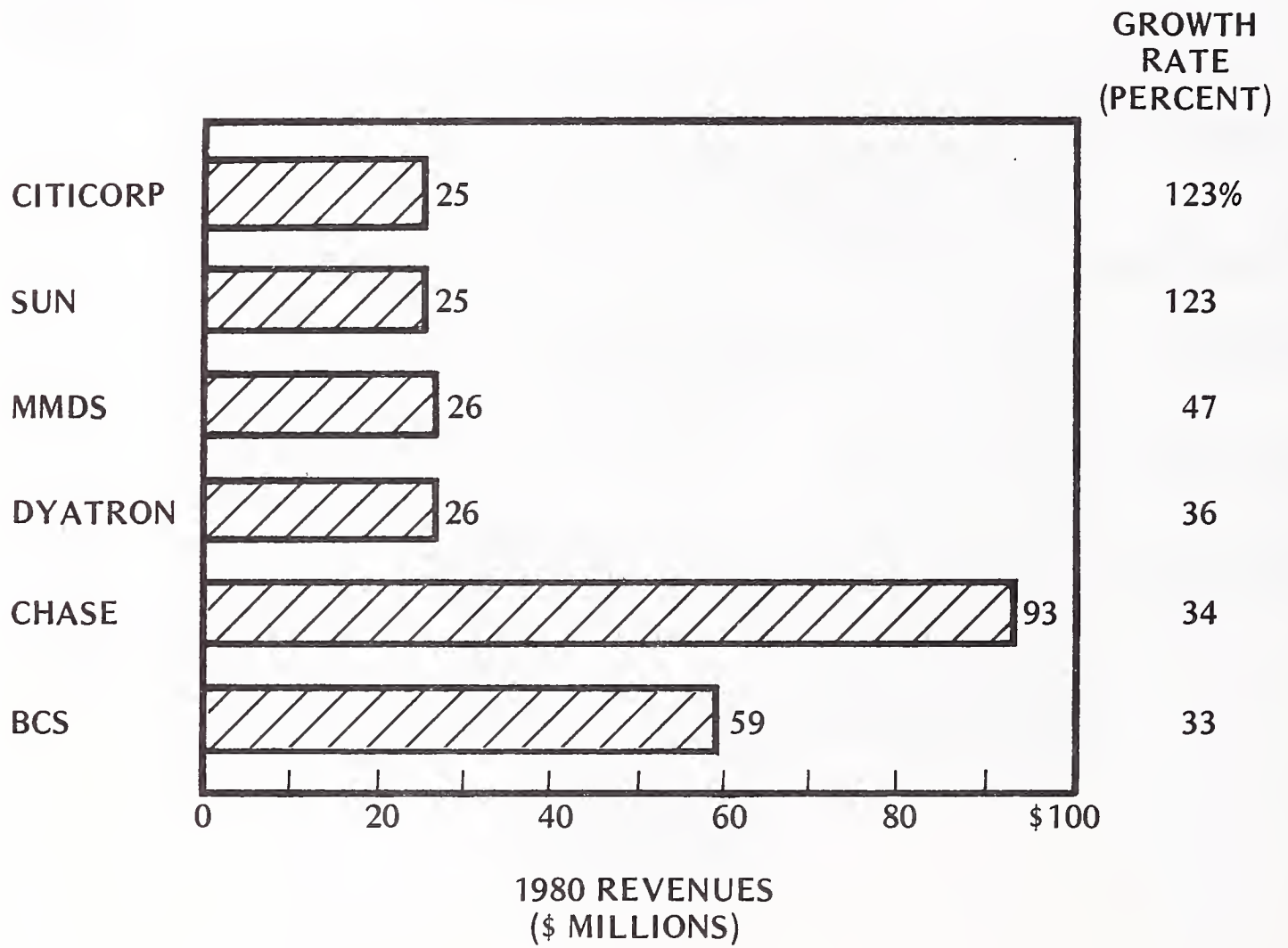
INPUT

FASTEST GROWING VENDORS - PROCESSING SERVICES OVER \$25 MILLION



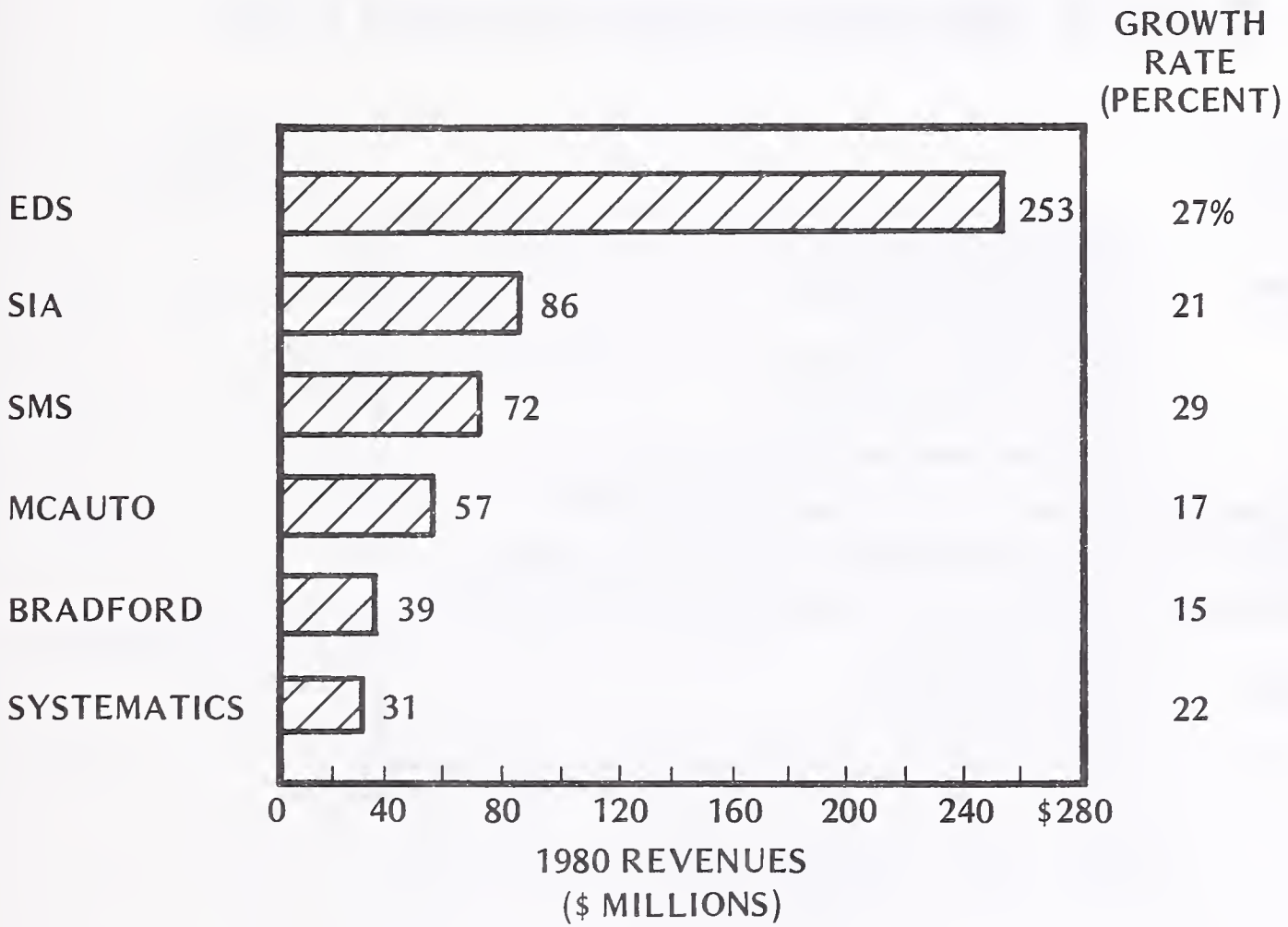
INPUT

FASTEST GROWING COMPANIES - RCS OVER \$25 MILLION



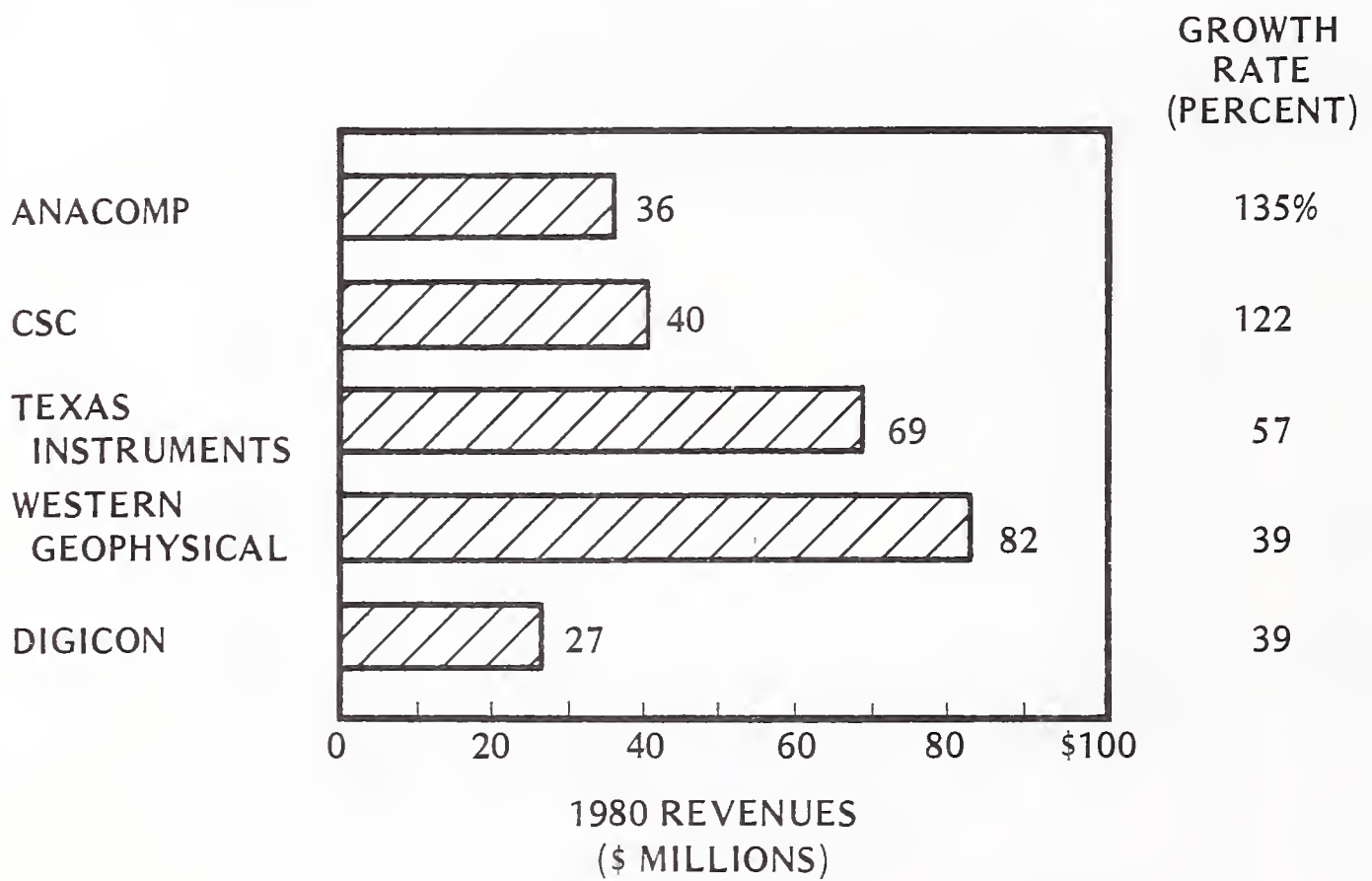
INPUT

LARGEST FM VENDORS



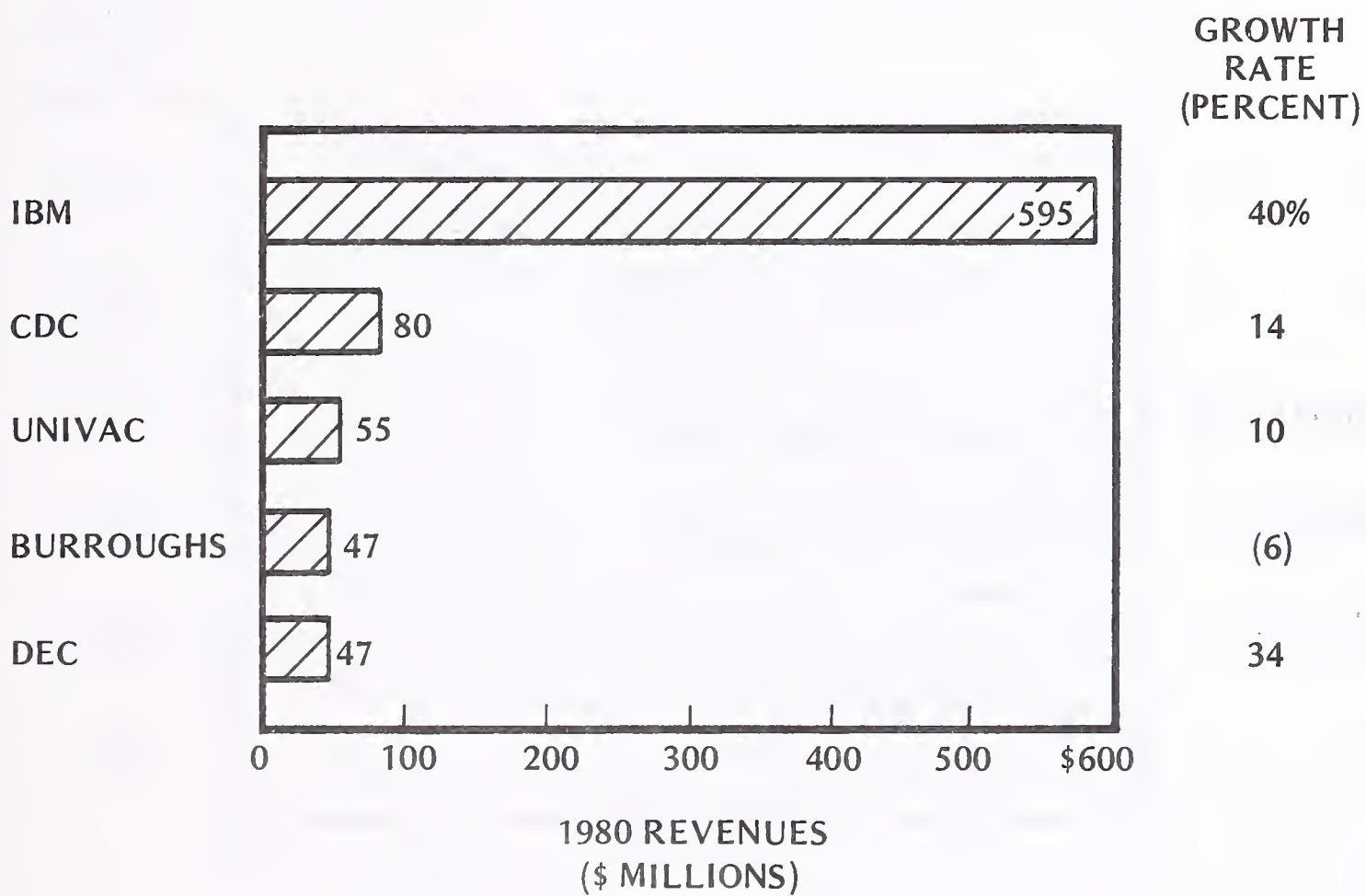
INPUT

FASTEST GROWING COMPANIES - BATCH SERVICES OVER \$25 MILLION



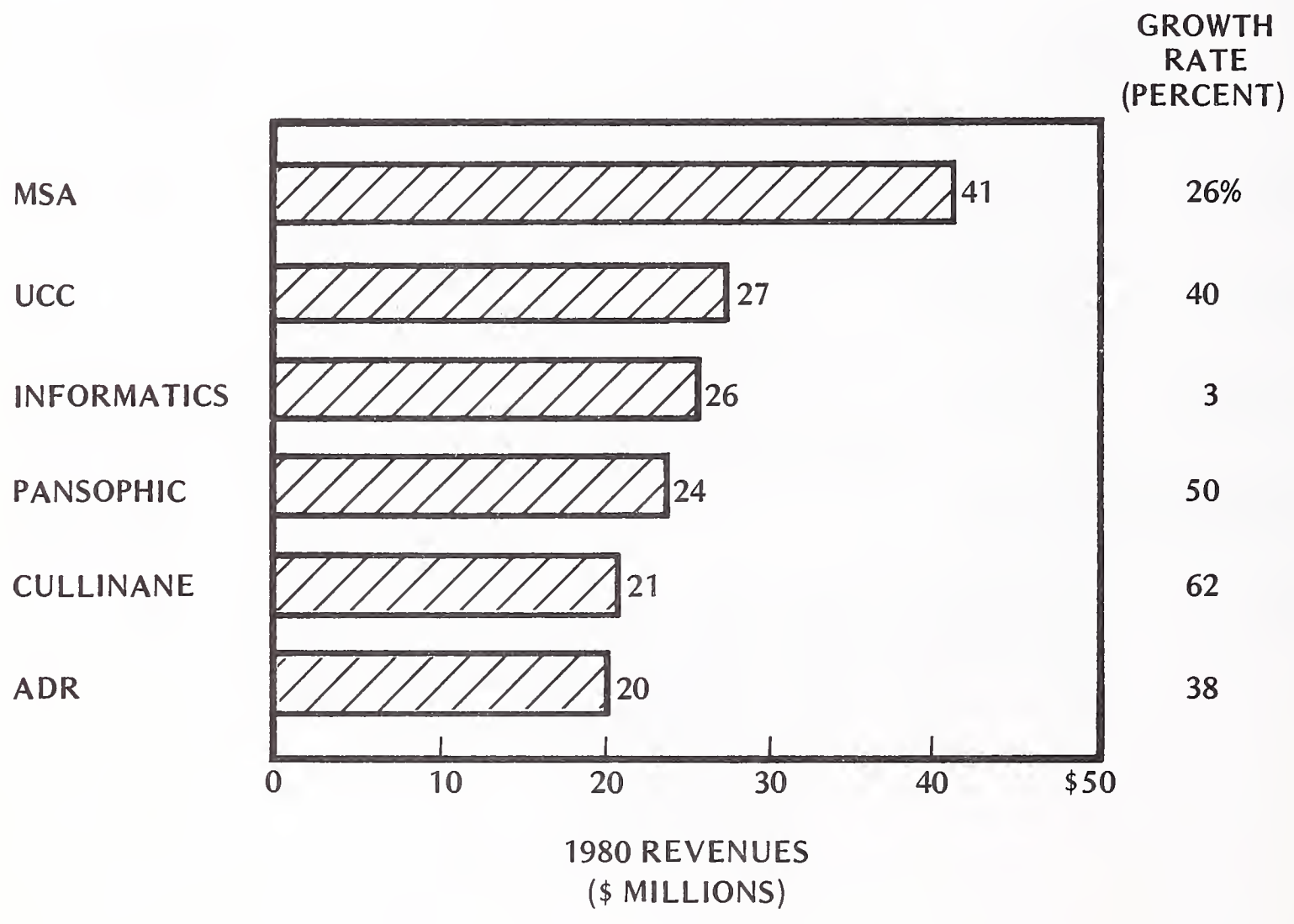
INPUT

LARGEST SOFTWARE PRODUCTS VENDORS



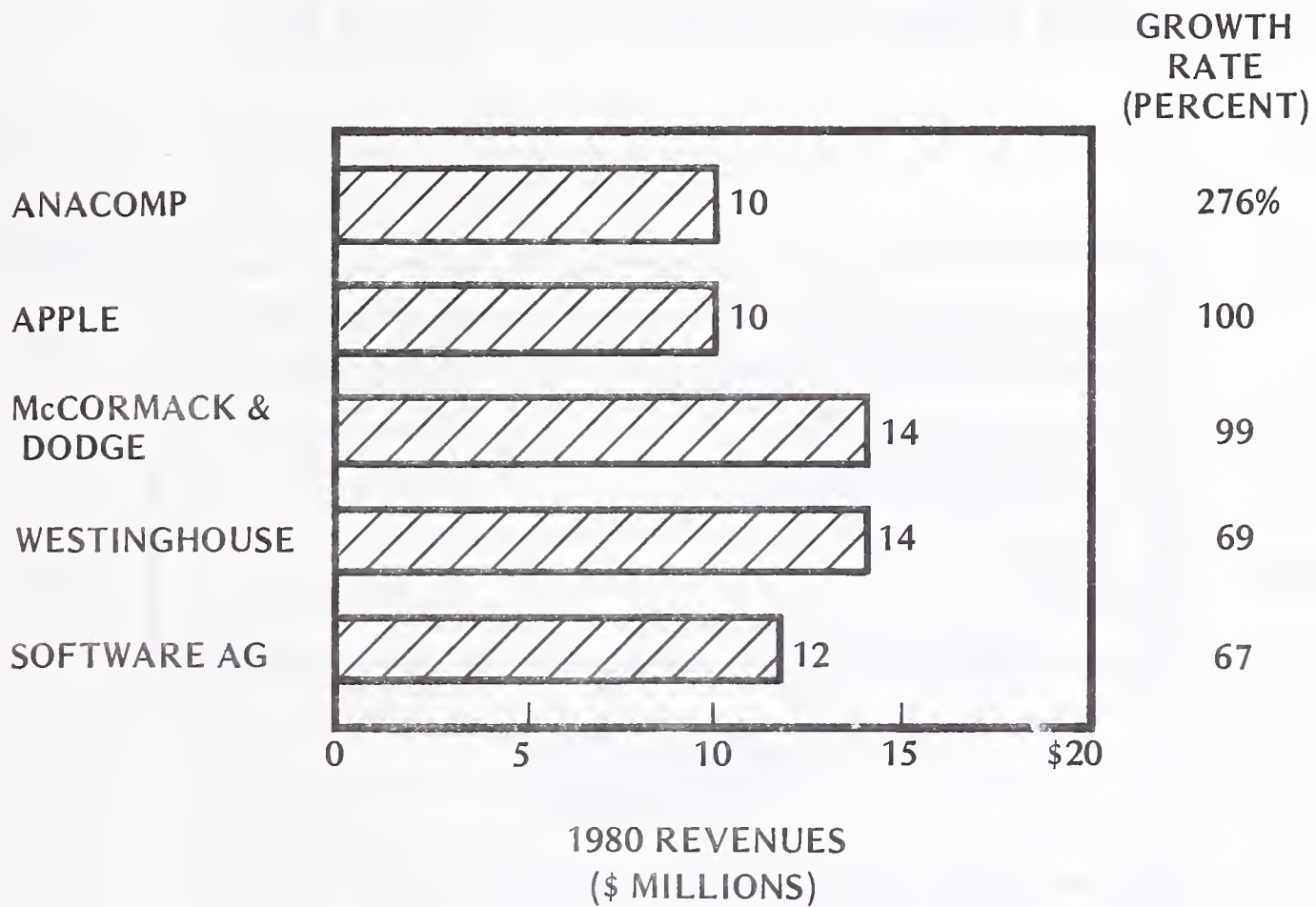
INPUT

LARGEST INDEPENDENT SOFTWARE PRODUCT VENDORS



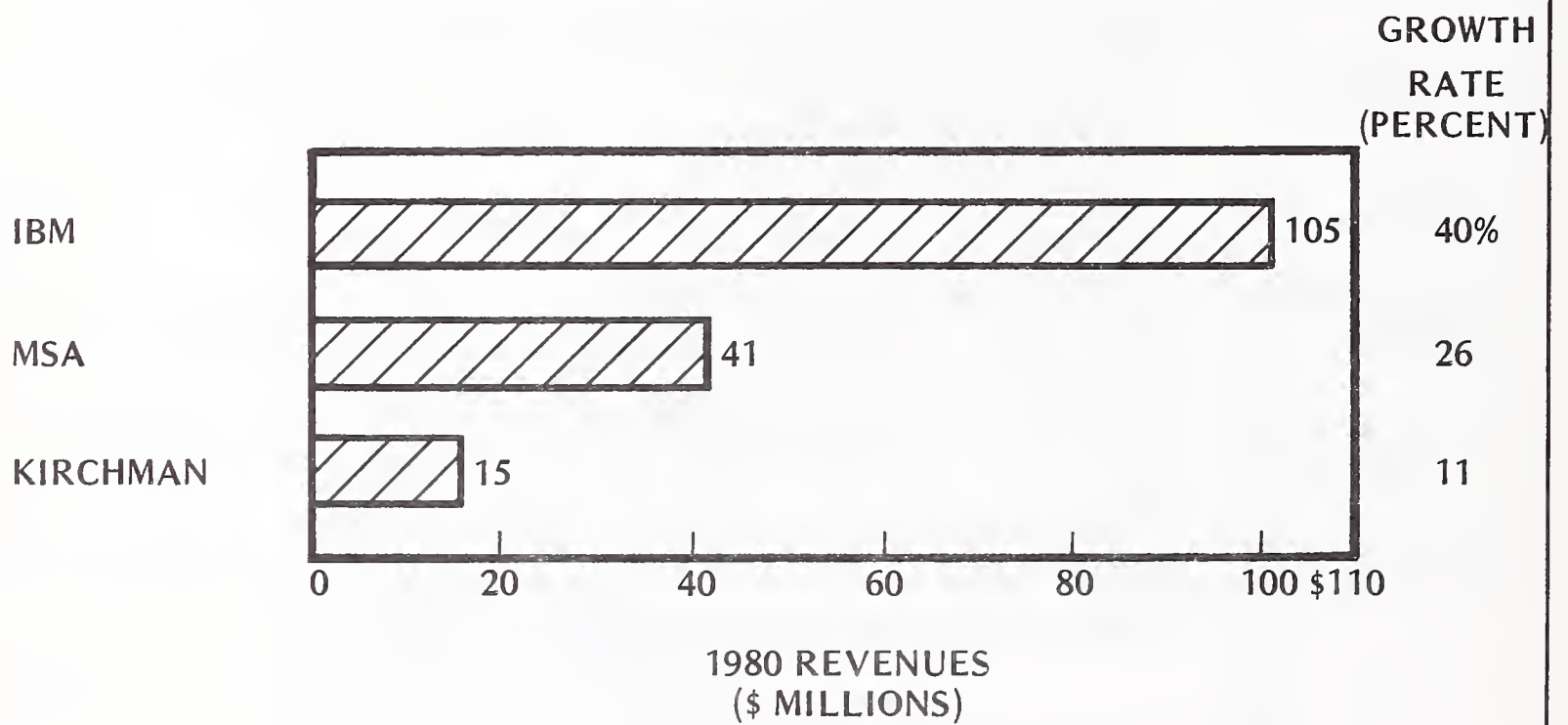
INPUT

FASTEST GROWING VENDORS - SOFTWARE PRODUCTS OVER \$10 MILLION



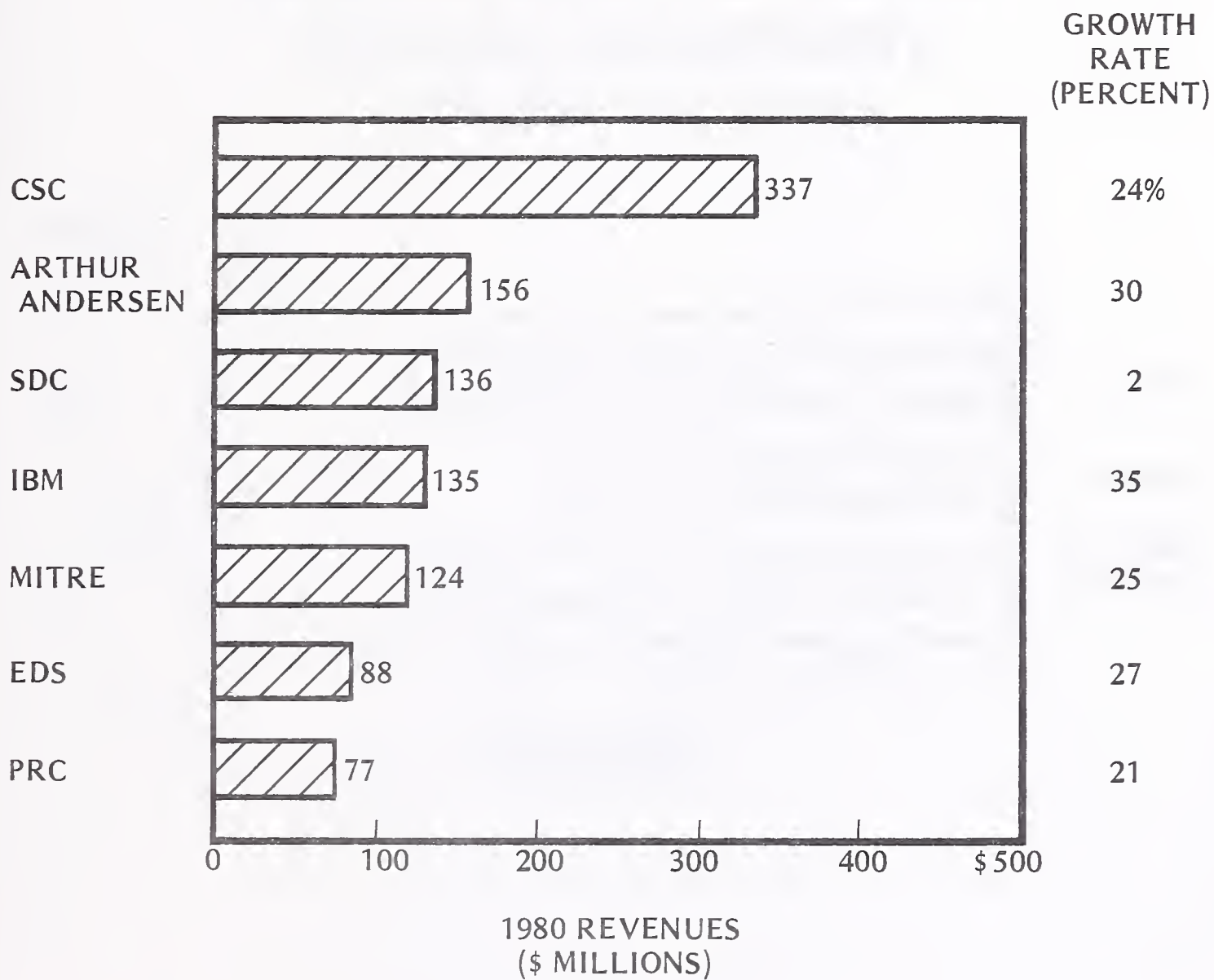
INPUT

LARGEST APPLICATIONS SOFTWARE PRODUCT VENDORS



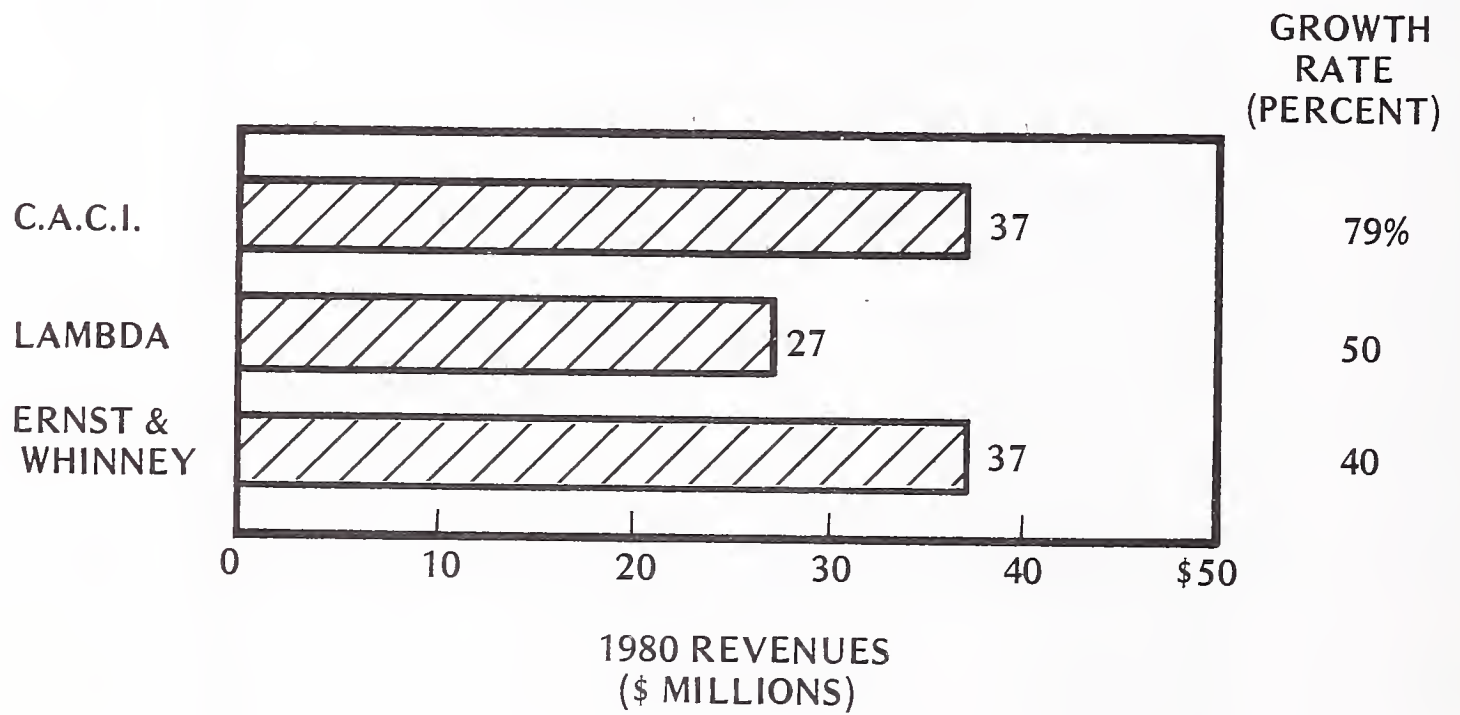
INPUT

LARGEST PROFESSIONAL SERVICES VENDORS

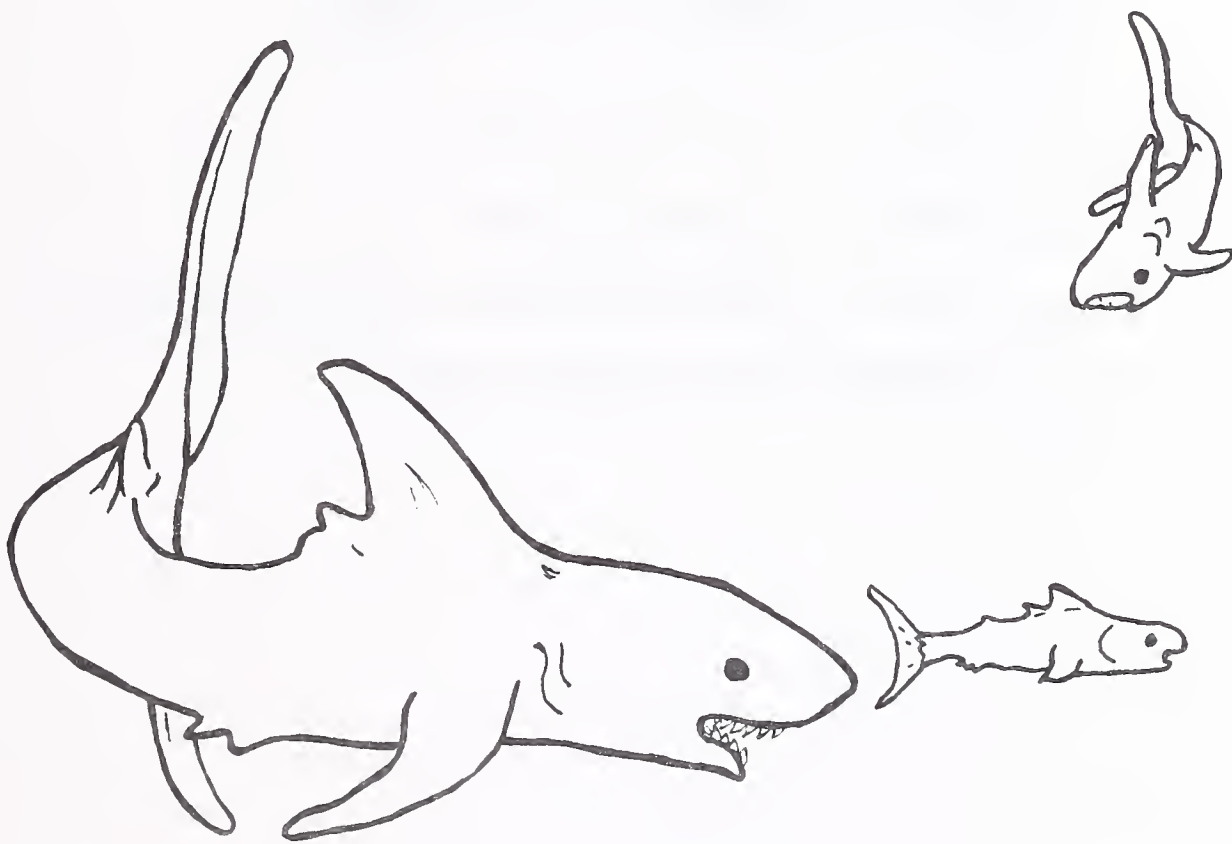


INPUT

FASTEST GROWING VENDORS - PROFESSIONAL SERVICES OVER \$25 MILLION



INPUT



INPUT

ACQUISITION ACTIVITY

- 1979 107 ACQUISITIONS
- 1980 87 ACQUISITIONS
- 1981 ≈50 ACQUISITIONS (THROUGH AUGUST)
- ACQUISITIONS GETTING LARGER

INPUT

MAJOR ACQUISITIONS

<u>ACQUIRED</u>	<u>ACQUIROR</u>	<u>VALUE</u>
MDSI	SCHLUMBERGER	\$187M
CALMA	G.E.	\$100M
SDC	BURROUGHS	\$ 98M
ISA	UNITED TELECOM	\$ 41M
LAMBDA	GEISCO	\$ 22M

INPUT

MAJOR ACQUISITIONS (Cont.)

<u>ACQUIRED</u>	<u>ACQUIROR</u>	<u>VALUE</u>
SOURCE TELECOMPUTING	READERS DIGEST	\$ 12M
DASD	CAP GEMINI	\$ 11M
DATA CORPORATION OF AMERICA	ADP	\$ 5M

INPUT

ACQUISITION ACTIVITY

<u>ACQUIRED</u>		<u>ACQUIROR</u>
TRANSPORTATION COMPUTING	}	INFORMATICS
AUTOMATED SYSTEMS DESIGN		
PROFESSIONAL SOFTWARE SYSTEMS		
CENTURION		EDS
MICROBAND	}	TYMSHARE
ITT TRAVEL SERVICES		
MCCI		SUN
PRAXA		XEROX

INPUT

ACQUISITION ACTIVITY

<u>ACQUIRED</u>	<u>ACQUIROR</u>
PREDICASTS	INDIAN HEAD
COMPUTER APPLICATIONS CORPORATION	PIONEER HYBRID
COMPREHENSIVE COMPUTING	COMSAT
WORLDWIDE COMPUTER SERVICES	GENERAL DEVICES, INC.
WORLDWIDE SOFTWARE ASSOCIATION	OXFORD SOFTWARE CORP.

INPUT

OTHER ACQUISITIONS

<u>ACQUIRED</u>	<u>ACQUIROR</u>
SOFTWARE INTERNATIONAL BANKING SYSTEMS, INC. ENERGY ENTERPRISES, INC. ISD	GEISCO CDC
PEACHTREE SOFTWARE	MSA

INPUT

OTHER ACQUISITIONS

<u>ACQUIRED</u>	<u>ACQUIROR</u>
EXECUTIVE SYSTEMS, INC. FLORIDA COMPUTER SYSTEMS	AMS
DSI	ANACOMP
RAPIDATA	NATIONAL DATA
BUNKER RAMO	ALLIED (CHEMICAL) CORP.

INPUT

... AND MORE TO COME

INPUT

IV. REVIEW OF KEY ISSUES

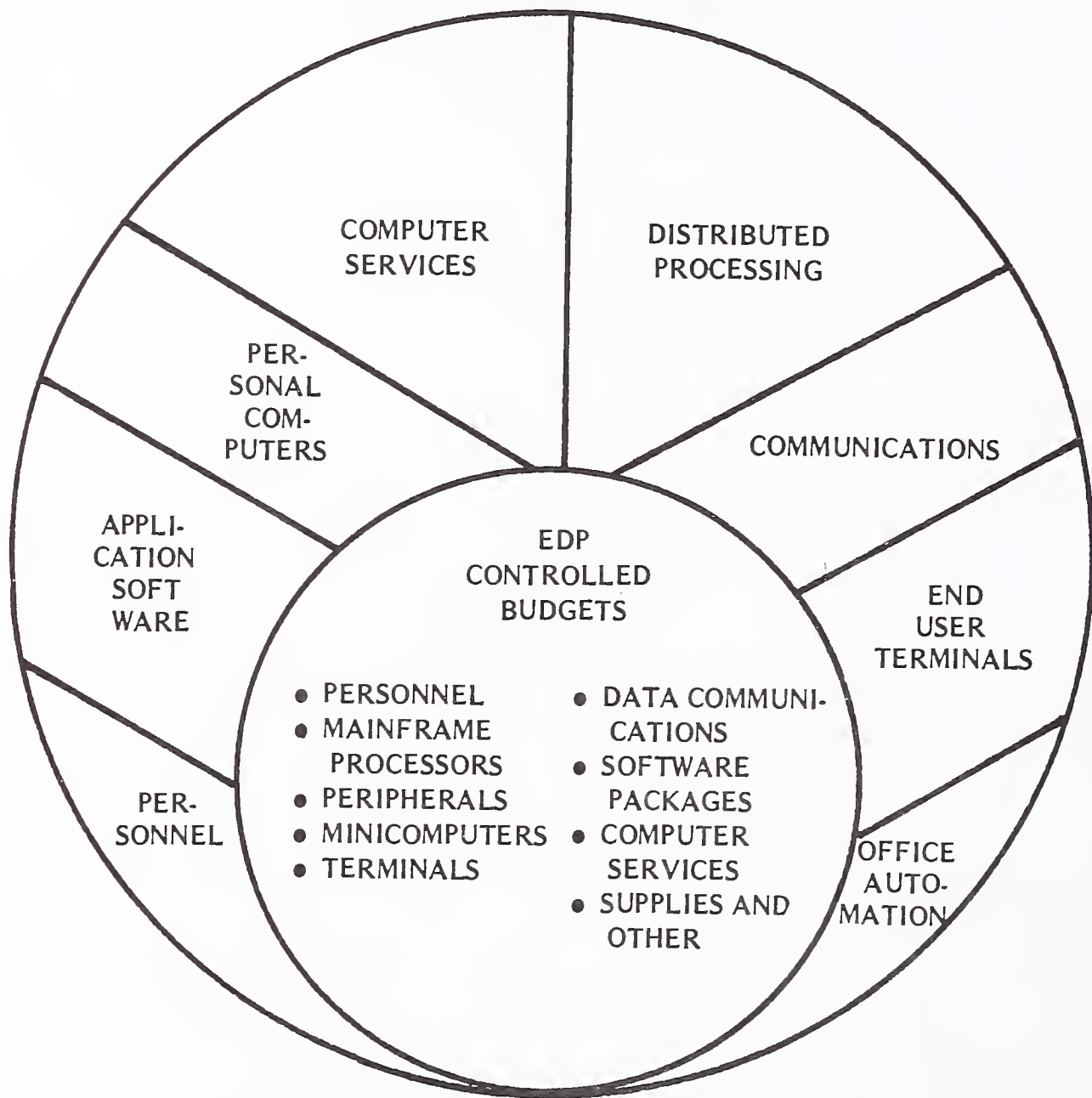
- BUYER CHANGES
- OFFICE SYSTEMS
- ON-LINE SYSTEMS
- PERSONAL SYSTEMS
- OPTICAL STORAGE
- OTHER DEVELOPMENTS

INPUT

BUYER CHANGES

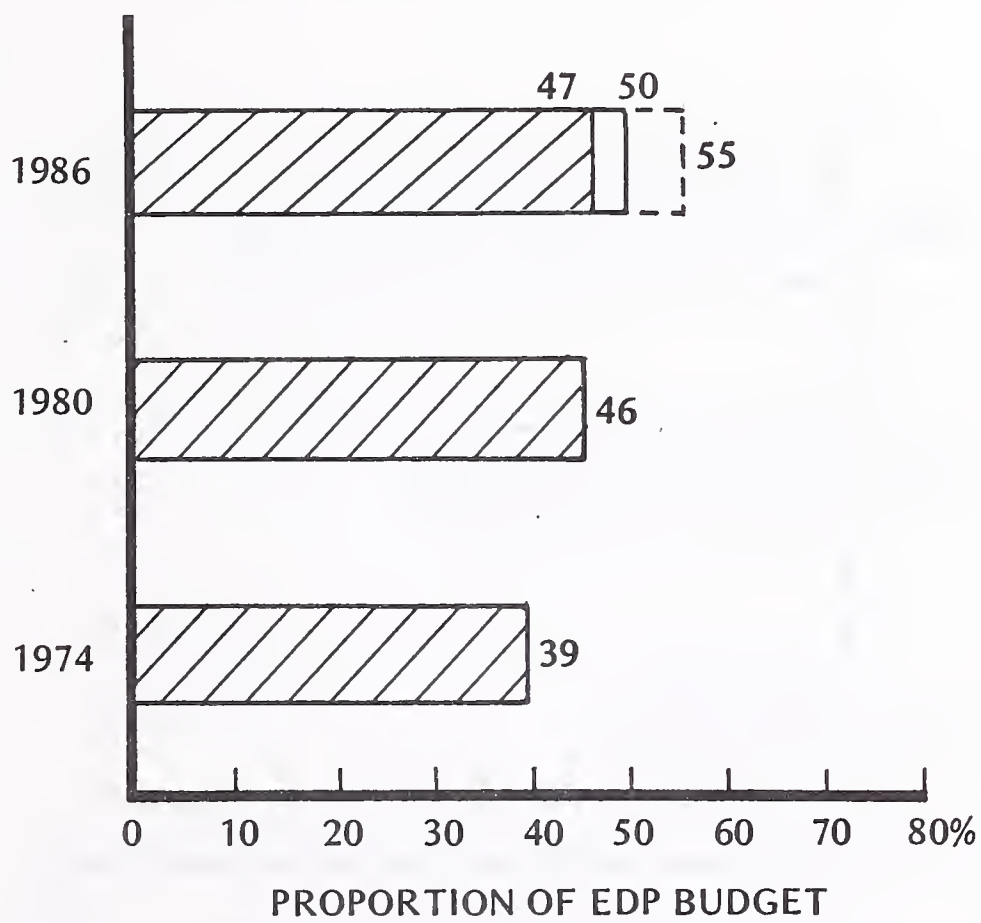
INPUT

COMPONENTS OF THE TOTAL INFORMATION PROCESSING BUDGET



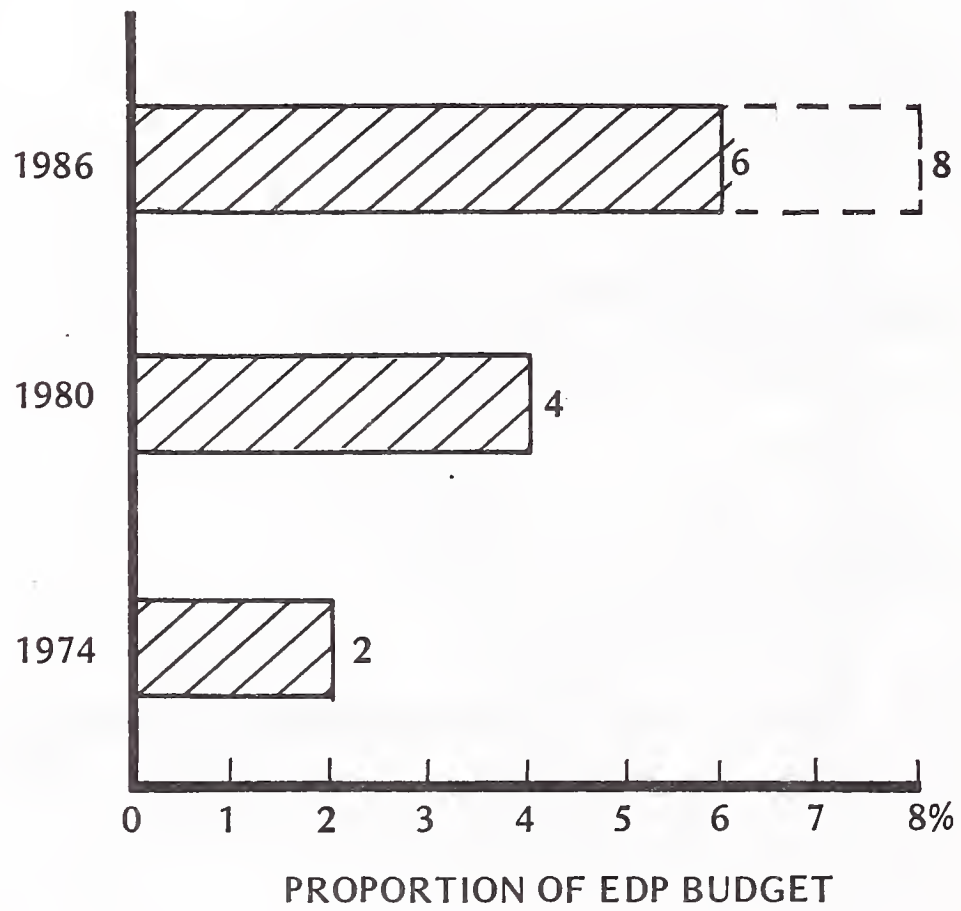
INPUT

PERSONNEL



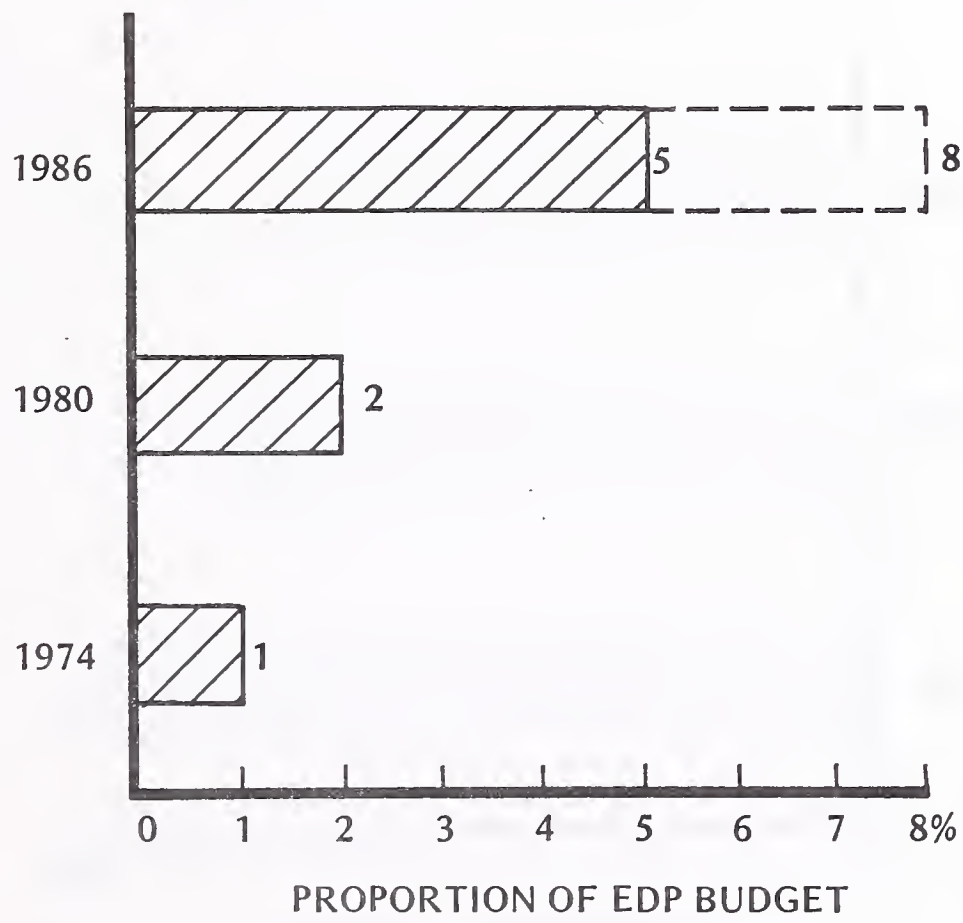
INPUT

TELECOMMUNICATIONS



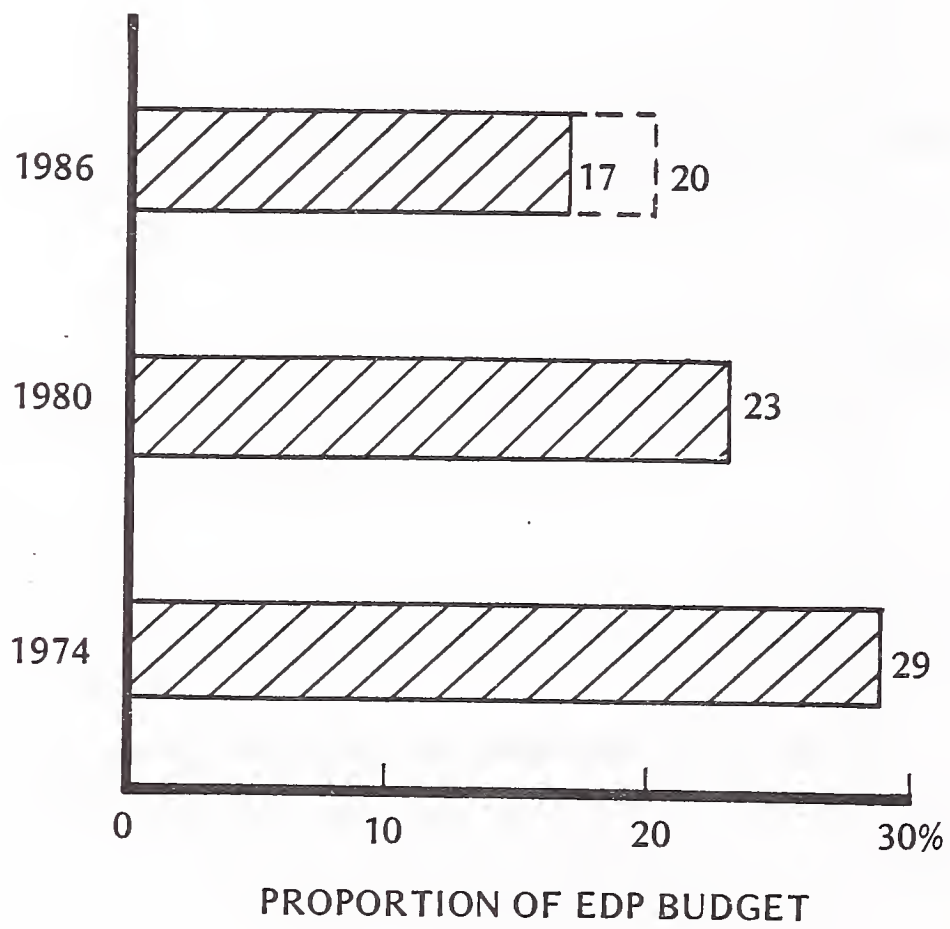
INPUT

SOFTWARE PRODUCTS



INPUT

CENTRAL SYSTEMS



INPUT

OFFICE SYSTEMS

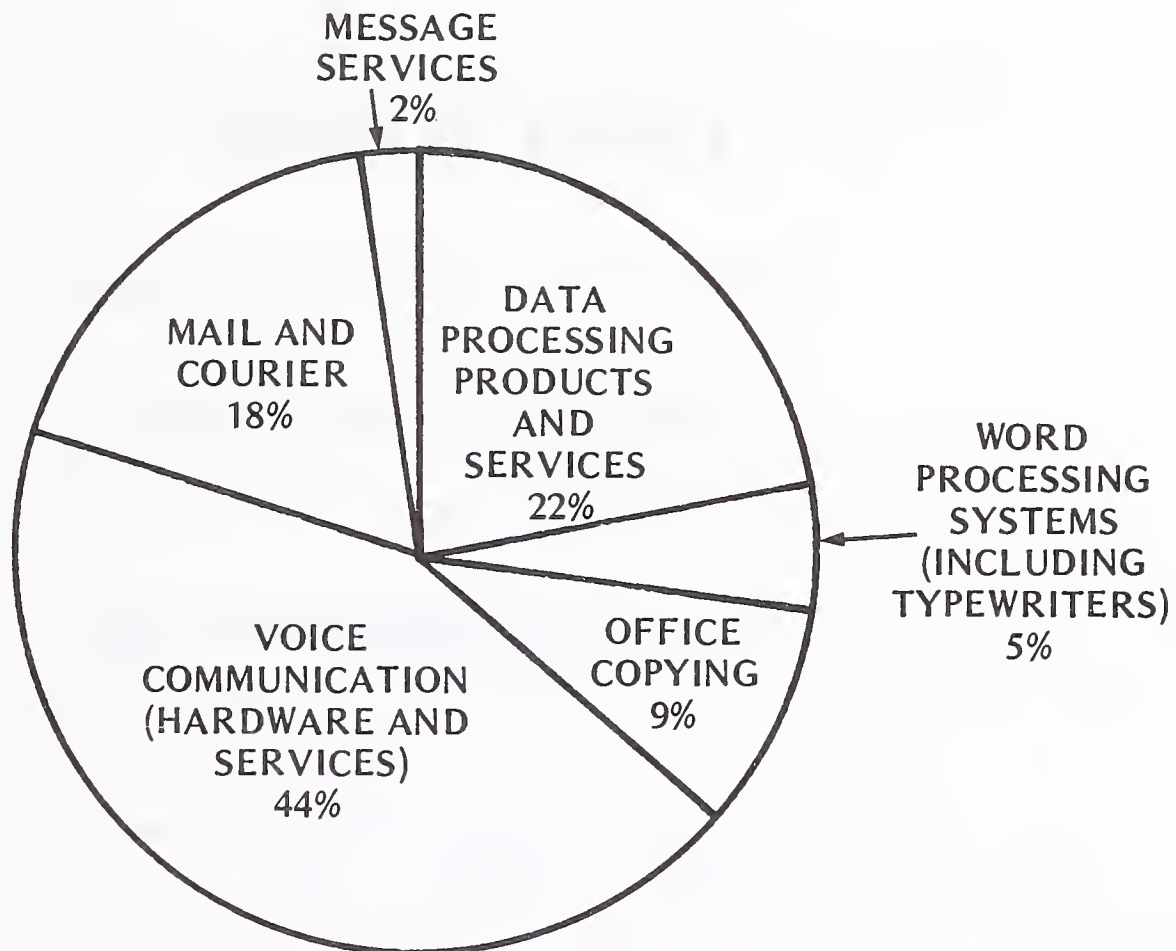
INPUT

OFFICE SYSTEMS

- COMMUNICATIONS PROBLEM
- COMPUTER AIDED MANAGEMENT
- MULTIPURPOSE SYSTEMS
- PERSONAL SYSTEMS MAJOR BREAKTHROUGH

INPUT

BREAKDOWN OF OFFICE PRODUCT AND SERVICE EXPENDITURES



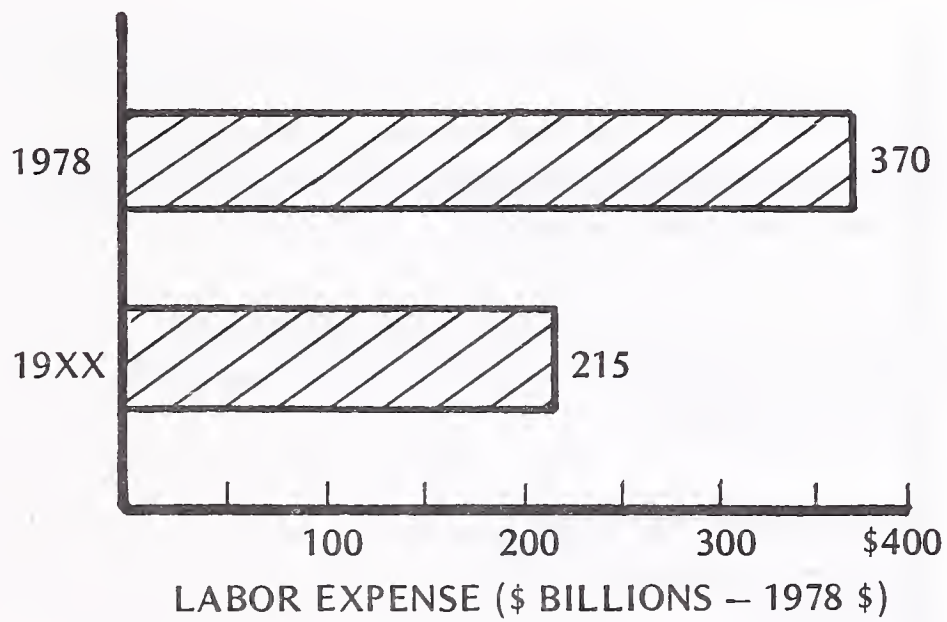
INPUT

OFFICE SYSTEMS

- POTENTIAL CHANGE IS FRIGHTENING
- "PRODUCTIVITY POTENTIAL" (PP)
MEASURE
- EACH OPERATION NEEDS ANALYSIS

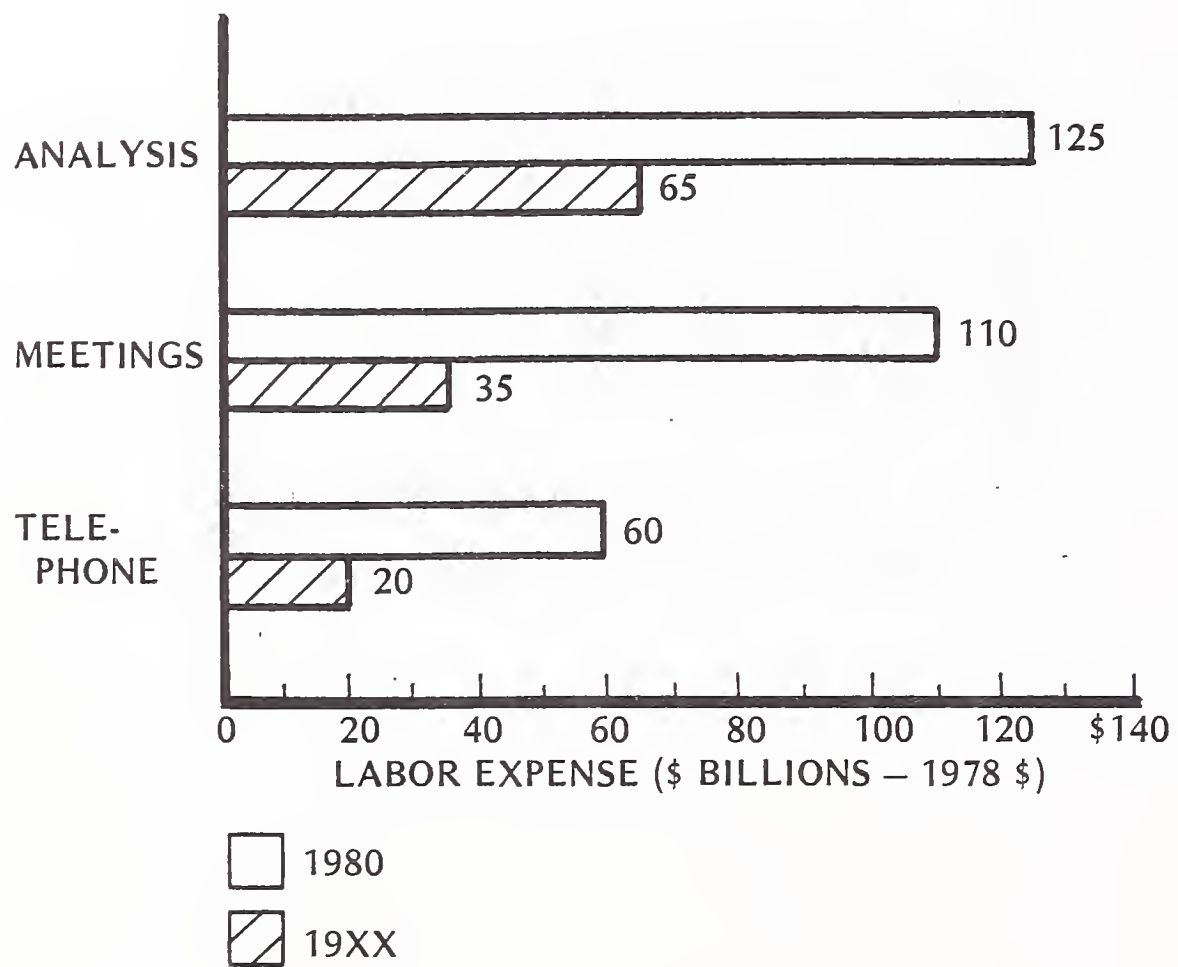
INPUT

PROFESSIONAL & TECHNICAL PP



INPUT

PROFESSIONAL AND TECHNICAL PP



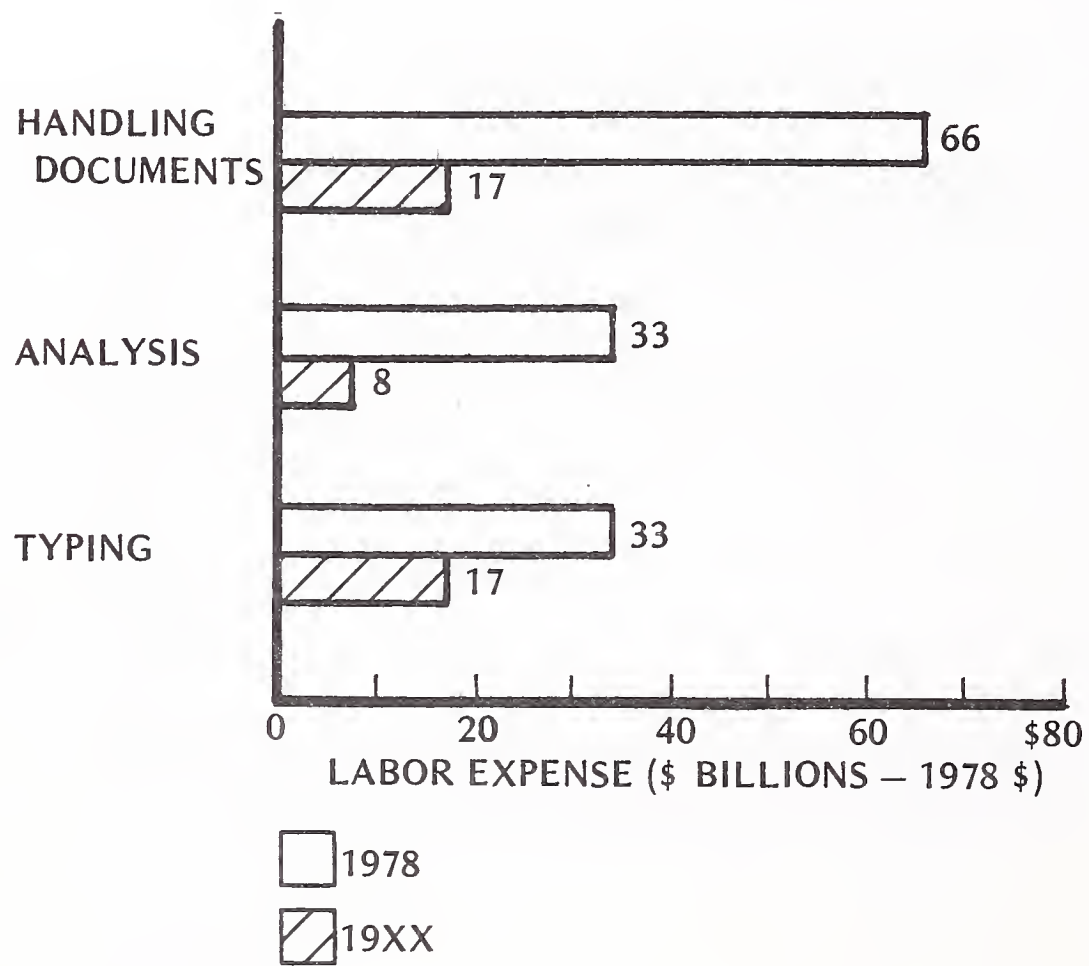
INPUT

PROFESSIONAL AND TECHNICAL PP

- CURRENT MEETINGS 75% REPLACEABLE
- NEW PROCESSES 10X EFFICIENCY
- MEETINGS TRANSFER INFORMATION

INPUT

CLERICAL AND TYPING PP



INPUT

TELEPHONE CALLS

- **REPLACED BY ELECTRONIC MAIL
AND VOICE STORE/FORWARD**
- **REDUCTION IN PHONE NEEDS**
- **CONTROL IMPROVES**
- **EXTERNAL REMAINS**

INPUT

ON-LINE SYSTEMS

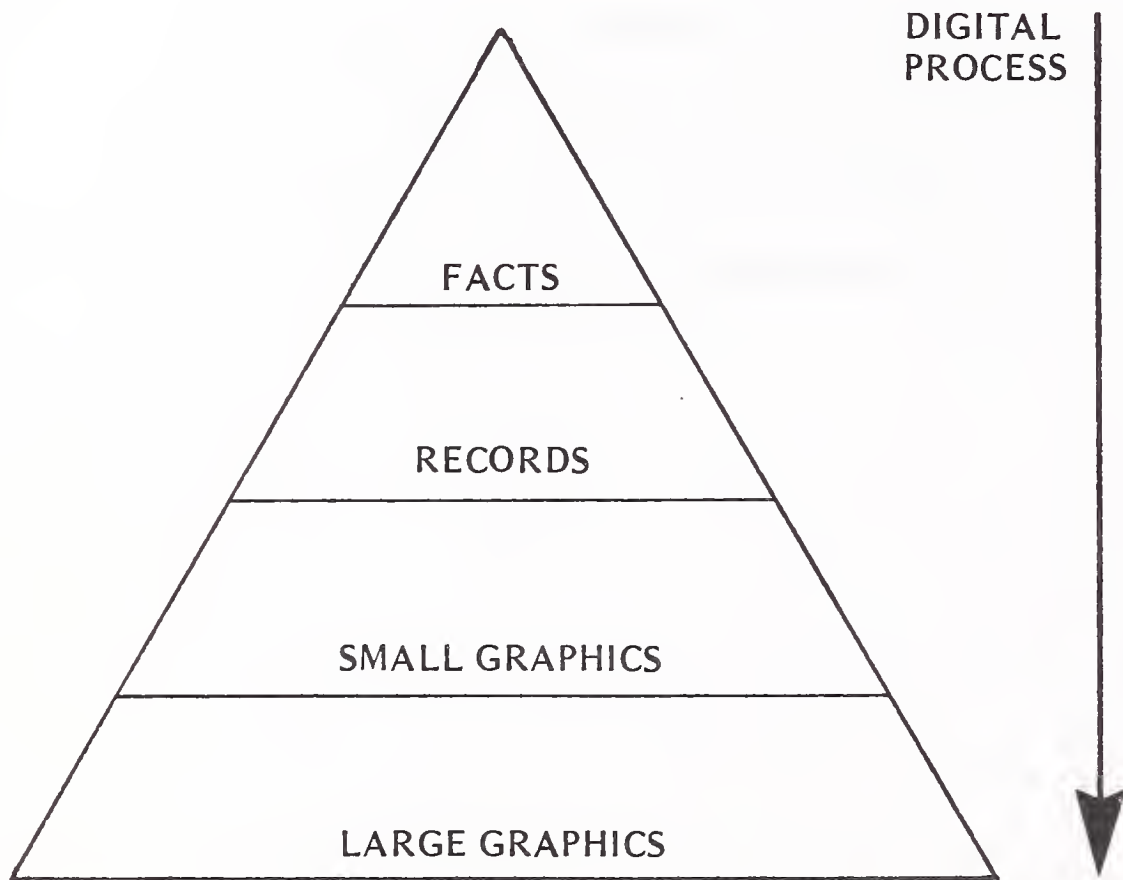
INPUT

PAPER PREDOMINATES

- GROWTH OF NON-IMPACT PRINTING
- WILL DOMINATE THROUGH 1990s
- "EXTERNAL" PAPER HARD TO REPLACE
- EDP PAPER USE REPLACEABLE

INPUT

INFORMATION ORGANIZATION



INPUT

- FACTS BASES ESSENTIALLY SMALL
 - TELEPHONE LIST
 - ON-LINE NOW
 - CAN BE DYNAMIC
- RECORDS/TRANSACTION HISTORY
 - MOVING TO ON-LINE
 - DESCRIPTION OF ACTIONS

INPUT

- SMALL GRAPHICS
 - SIGNATURES
 - EXTRACTIONS
- LARGE GRAPHICS
 - FULL DOCUMENTS
 - PICTURES

INPUT

VOLATILITY/IMAGE CONTENT

IMAGE CONTENT	DATA VOLATILITY		
	LOW	MEDIUM	HIGH
LOW	<ul style="list-style-type: none"> ● GENERAL INTEREST BOOKS 	<ul style="list-style-type: none"> ● PERIODICAL INDICES ● LEGAL CITATIONS 	<ul style="list-style-type: none"> ● STOCK QUOTATIONS
MIXED	<ul style="list-style-type: none"> ● GEOLOGICAL DATA ● ENGINEERING AND SCIENTIFIC DATA 	<ul style="list-style-type: none"> ● PRODUCT DESCRIPTIONS ● ECONOMIC TIME SERIES 	<ul style="list-style-type: none"> ● NEWS SERVICES
HIGH	<ul style="list-style-type: none"> ● CARTOGRAPHIC DATA ● ELECTRONIC PUBLISHING 	<ul style="list-style-type: none"> ● PATENT DESCRIPTIONS 	

INPUT

PERSONAL SYSTEMS

INPUT

PERSONAL SYSTEMS

- 600,000 SYSTEMS IN 1986
IN FORTUNE 500/50 COMPANIES
- "1 COMPUTER FOR EVERY 10 EMPLOYEES
BY 1986"
- REPLACE TERMINALS/WORK STATIONS
- EQUIVALENT DEVELOPMENT TIME
 - MAINFRAMES, 20 YEARS
 - PERSONAL COMPUTERS, X YEARS

INPUT

PERSONAL SYSTEMS

- USED BY PROFESSIONALS
- USED BY MANAGERS/EXECUTIVES
- GRAPHICS ORIENTED
- LARGE PROCUREMENTS UNDERWAY
- "TROJAN HORSES"

INPUT

PERSONAL SYSTEMS SOFTWARE

- NON-TRADITIONAL PRICING
- PORTABLE
- DISPOSABLE
- LISTED SOURCES - 2,000
 - NON-TRADITIONAL
 - FEW VIABLE

INPUT

SOFTWARE DISTRIBUTION CHANNELS

- USER GROUPS/CLUBS
- MANUFACTURERS
- STORES
- SYSTEM VENDORS
- EMPLOYEES
- SOFTWARE COMPANIES
- SOFTWARE BROKERS/PUBLISHERS
- SUPPLIES COMPANIES
- NON-COMPUTER COMPANIES

INPUT

PERSONAL SYSTEMS APPLICATIONS

- NUMBER IDENTIFIED BY POTENTIAL USERS

—	MARKETING	22
—	MANUFACTURING	12
—	ENGINEERING	24
—	OPERATIONS	18
—	PLANNING	22
—	FINANCE	24
—	LEGAL	14
—	PERSONNEL	20

INPUT

APPLICATIONS - TRADITIONAL

- ACCOUNTING
- PAYROLL
- INVENTORY MANAGEMENT
- STATISTICS
- ENGINEERING/SCIENTIFIC

INPUT

APPLICATIONS - CONTEMPORARY

- TEXT PROCESSING
- ELECTRONIC MAIL
- PLANNING
- EDUCATION
- DECISION SUPPORT SYSTEMS

INPUT

APPLICATIONS - PERSONAL

- FORECASTING
- PROJECT SCHEDULES
- CALENDARS
- LISTS
- CALCULATIONS

INPUT

SOFTWARE PROTECTION

- LIKE BOOKS
- VENDORS MUST BE AGGRESSIVE

INPUT

PERSONAL COMPUTER VENDORS

- IBM
- APPLE
- XEROX
- COMMODORE
- AT&T (?)
- RADIO SHACK
- HP

INPUT

IBM PERSONAL COMPUTER

- **IBM ASSEMBLED**
 - INTEL 8088
 - EPSON PRINTER
 - TANDON DISKETTE
 - HITACHI DISPLAY
- **DEPOT MAINTENANCE**

INPUT

IBM PERSONAL COMPUTER SOFTWARE

- MICROSOFT: BASIC 80 AND ADVENTURE
- DIGITAL RESEARCH: CP/M
- PERSONAL SOFTWARE: VISICALC
- INFORMATION UNLIMITED SOFTWARE:
EASY WRITER
- PEACHTREE SOFTWARE: ACCOUNTING
- PROGRAMS PROVIDED "AS IS"

INPUT

IBM PERSONAL COMPUTER

- SYSTEM PRICE \$3,500 AND UP
- IBM COMMUNICATIONS COMPATIBLE
 - 3270 (SNA)
 - ASCII COMMUNICATIONS
- RECOGNIZES SMALL COMPUTERS FOR CORPORATE USE

INPUT

NON-TRADITIONAL IBM APPROACH

- **PRODUCT "MANUFACTURING"**
- **DISTRIBUTION CHANNELS**
 - **EMPLOYÉES**
 - **SEARS**
 - **COMPUTERLAND**
 - **IBM**
- **MAINTENANCE**
- **APPLICATIONS DEVELOPMENT**

INPUT

FUTURE

- NETWORKING
 - LOCAL
 - REMOTE
- 8 → 16 → 32 BIT
- IS&R/DBMS
- PROGRAM GENERATORS
- VOICE/VIDEO PROCESSING
- OPTICAL STORAGE

INPUT

**PERSONAL COMPUTERS
ARE NOT TOYS BUT...**

INPUT

DON'T FORGET THE GAMES



**"TRAINING THE NEXT GENERATION
OF WARRIORS"**

INPUT

OPTICAL STORAGE DEVELOPMENTS

INPUT

CHARACTERISTICS

- **READ AND READ/WRITE**
- **DISCONTINUITY IN PRICE/PERFORMANCE**
- **APPLICATION AND PROCESSING IMPACTS**
- **FUNCTIONAL AND MANAGEMENT IMPACTS**

INPUT

INFORMATION STORAGE AND RETRIEVAL

- REVOLUTIONIZE ON-LINE DATA BASE MARKET
- IN CONJUNCTION WITH COMMUNICATIONS SERVICES
- INCLUDES IMAGES

INPUT

FUNCTIONAL AND MANAGEMENT IMPACTS

- INITIALLY REGARD AS ARCHIVAL/BACK-UP
- WILL STIMULATE MASSIVE INCREASE IN COMPUTING
- COMMUNICATIONS COSTS INCREASE
- TOTAL STORAGE COSTS MAY STAY SAME
- CATALYST FOR DECENTRALIZATION

INPUT

FUNCTIONAL AND MANAGEMENT IMPACTS

- DATA SECURITY
 - PERMANENCY AN ADVANTAGE
 - COMPACTNESS DISADVANTAGE
 - SOPHISTICATED TRACKING NEEDED
- OFFICE-OF-THE FUTURE

INPUT

IMPACTS

- SHORT TERM - ACCELERATION
- MID-TERM - REVOLUTION
- IBM'S TIMING IS UNCERTAIN
 - IMPACT ON INSTALLED BASE
 - "MINICOMPUTER DEBACLE" EXAMPLE

INPUT

OPTICAL STORAGE TIMEFRAME

- INITIAL ANNOUNCEMENT 1982
 - IBM COMPATIBLE
 - DISK SUPPLIER
- ANNOUNCEMENTS FROM NON-DISK VENDORS IN 1982
- INITIAL SHIPMENTS 1983
- IBM ANNOUNCEMENT 1983
 - IBM SHIPMENT 1984 LATE
 - PC SHIPMENTS 1986

INPUT

OTHER DEVELOPMENTS

INPUT

DATA BASE MACHINES (DBM)

- BACK-END PROCESSORS
- DISTRIBUTED PROCESSORS
- SMART PERIPHERALS

INPUT

DBM VENDORS

- SET THEORETIC INFORMATION SYSTEMS (STIS)
- SOFTWARE AG
- COMSHARE
- BRITTEN-LEE

INPUT

DB ORGANIZATION

- HOST SYSTEMS FOR:
 - DIRECTORIES
 - BACK-UP
 - HIGH-SECURITY DEPOSIT
 - INTER DB COMPATIBILITY
 - CONTROL

INPUT

DB ORGANIZATION

- REMOTE SYSTEMS
 - USER FRIENDLY
 - NEW DBMS
 - DISTRIBUTED DBM
 - FAST GROWTH

INPUT

FORECASTS FOR IBM

- **IMS HOST**
- **"X" AT NODES**
- **BRIDGE BETWEEN THEM**

INPUT

LARGE MAINFRAME DEVELOPMENTS

- NEW IBM PRODUCT MID-1982
- 1984 LARGE MAINFRAME PRICE REDUCTIONS
 - ACSYS/STC PRODUCTS
 - REVENUE ENHANCEMENT ELSEWHERE
- AMDAHL/NAS REMAIN VIABLE

INPUT

CUSTOM SYSTEMS

- INCREASING PRESSURE FOR CUSTOM SYSTEMS
- DRAMATIC PERFORMANCE IMPROVEMENT
- "SYSTEM" GENERATORS
- DEFENSE DEPARTMENT EXAMPLES
- MAINTENANCE ISSUE

INPUT

V. INFORMATION SERVICES INDUSTRY

- FORECASTS
- BUSINESS GRAPHICS
- ENERGY INDUSTRY MARKETS
- APPLICATIONS SOFTWARE PRODUCT MARKETS
- ON-LINE DATA BASE MARKETS

INPUT

FORECASTS

INPUT

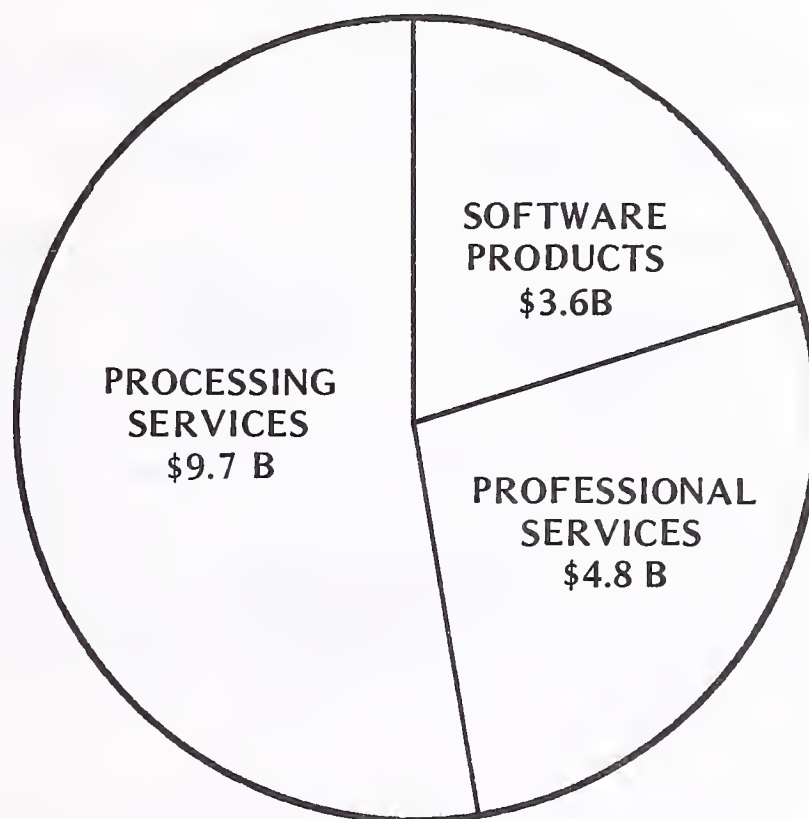
ASSUMPTION

- 9.8% INFLATION RATE
(PRODUCTION PRICE INDEX FORECAST)
- DEFLATORS DIFFERENT FOR EACH
TYPE OF SERVICE

INPUT

INFORMATION SERVICES INDUSTRY

1981

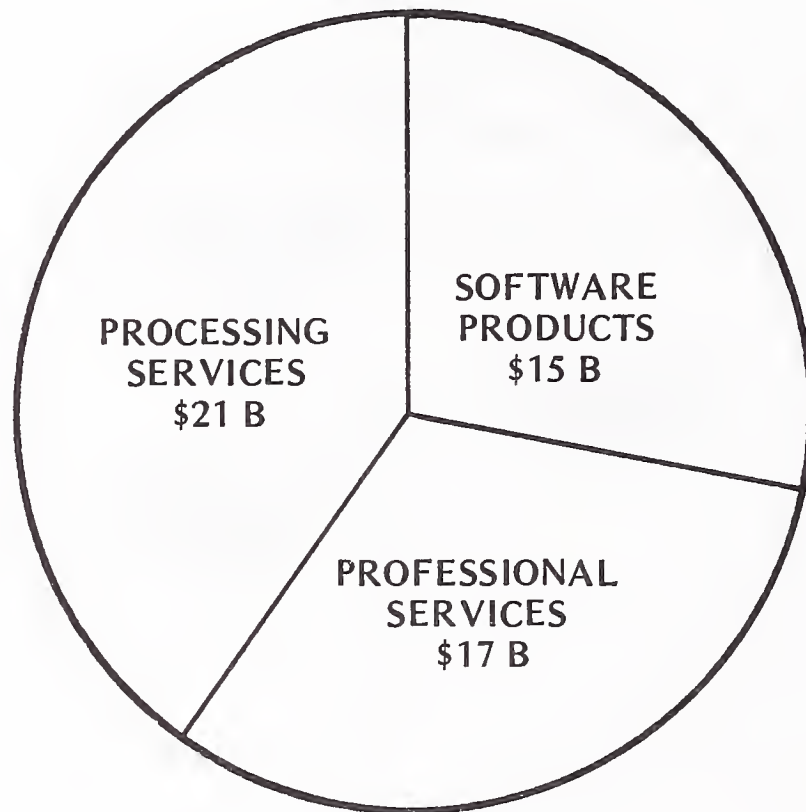


\$18 BILLION

INPUT

INFORMATION SERVICES INDUSTRY

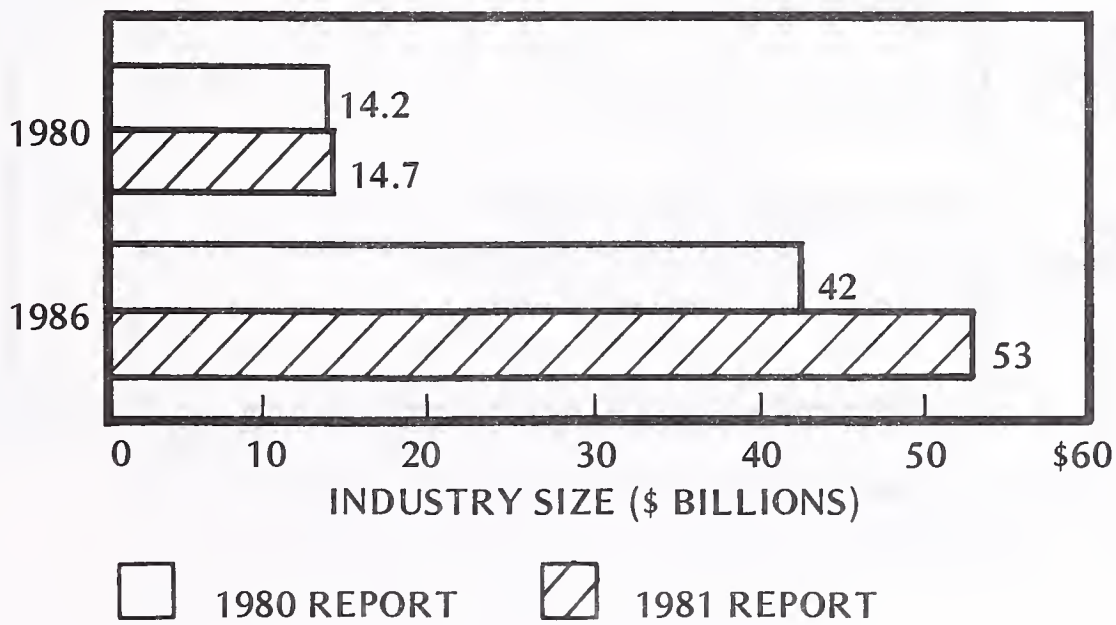
1986



\$53 BILLION

INPUT

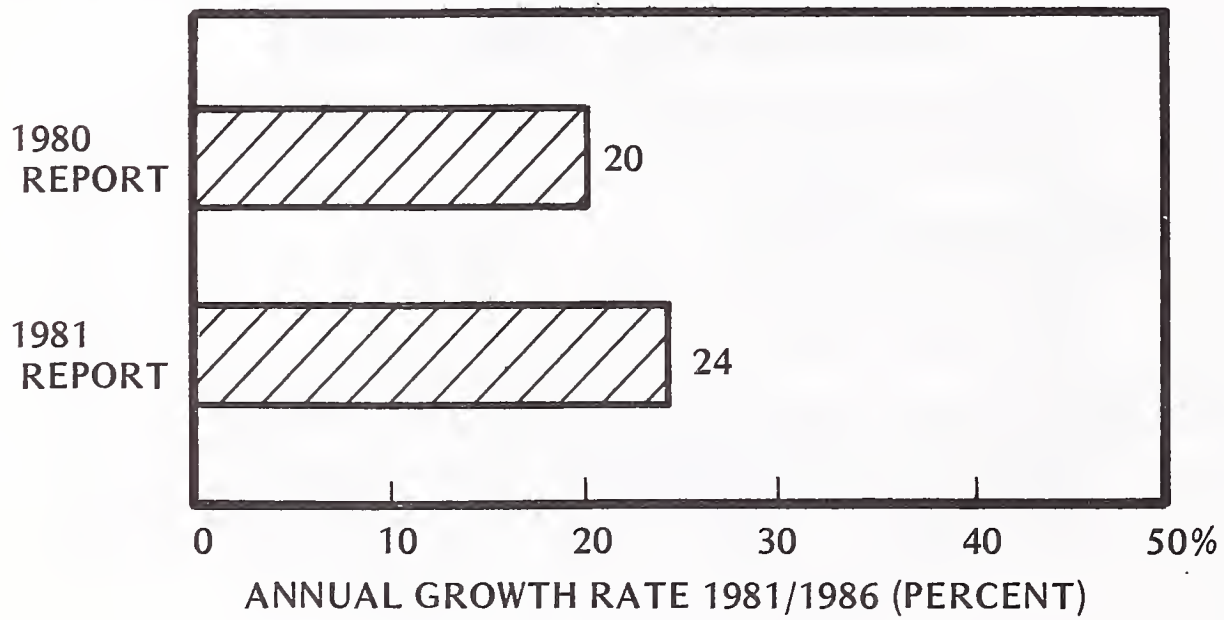
U.S. INFORMATION SERVICES INDUSTRY SIZE - CHANGES 1980/1981



INPUT

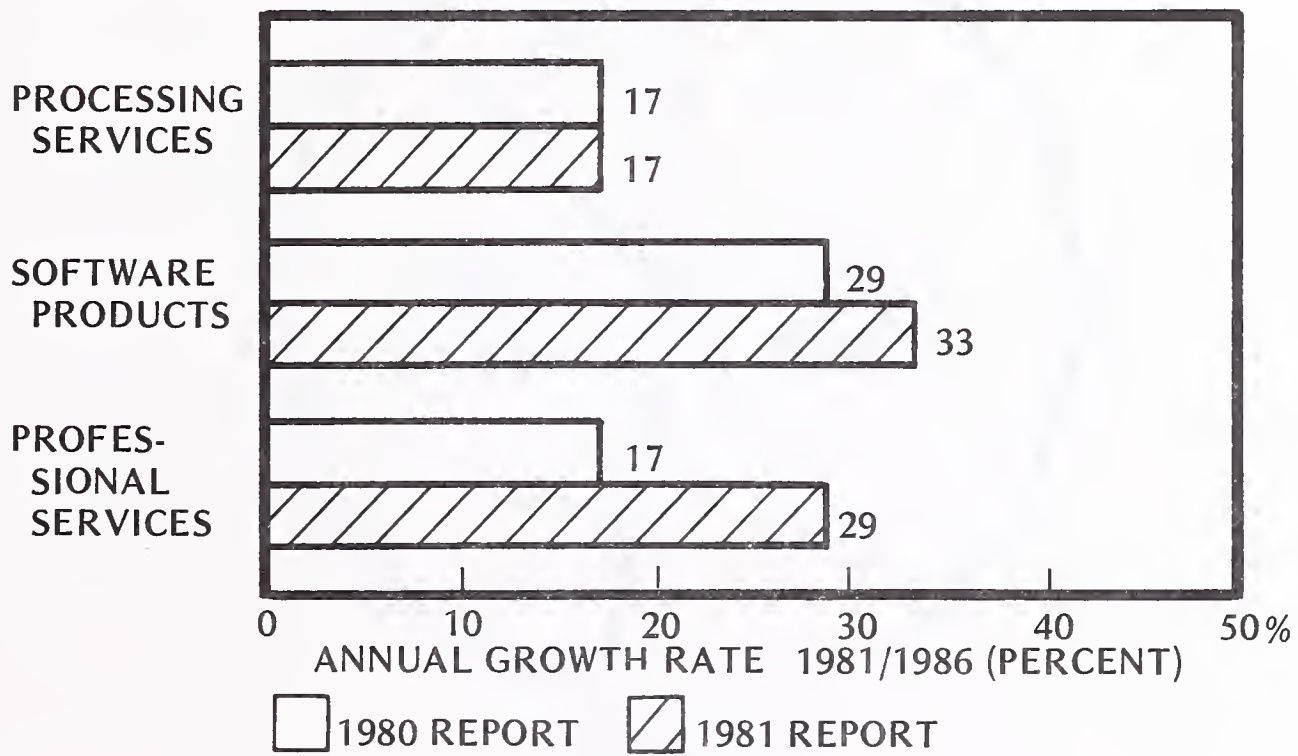
IS MARKET GROWTH FORECASTS - CHANGES 1980/1981

OVERALL INDUSTRY



INPUT

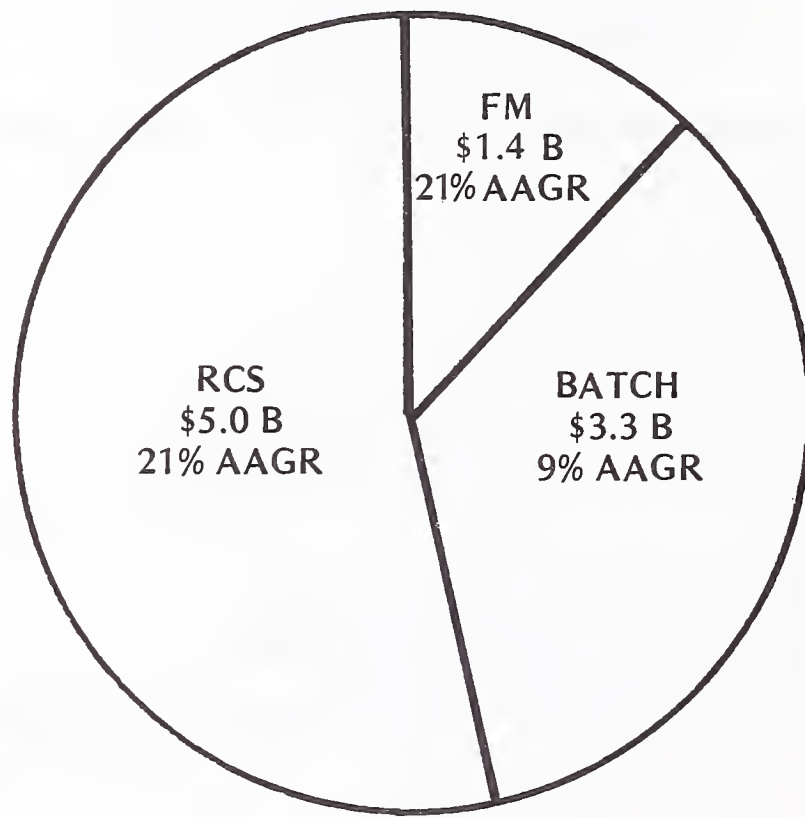
IS MARKET GROWTH FORECASTS - CHANGES 1980/1981



INPUT

PROCESSING SERVICES

1981

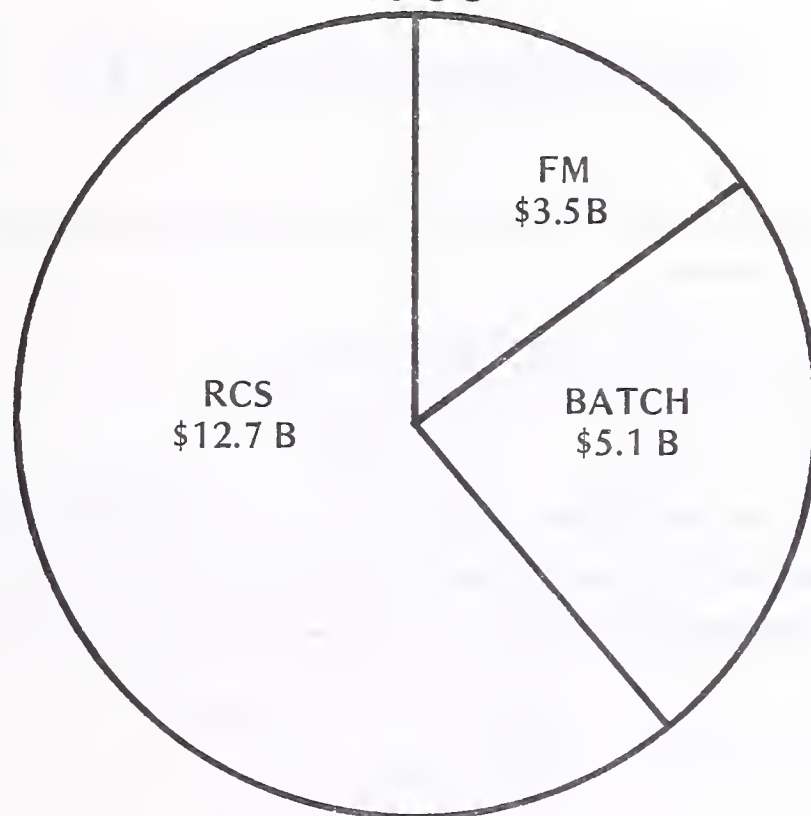


\$9.7 BILLION

INPUT

PROCESSING SERVICES

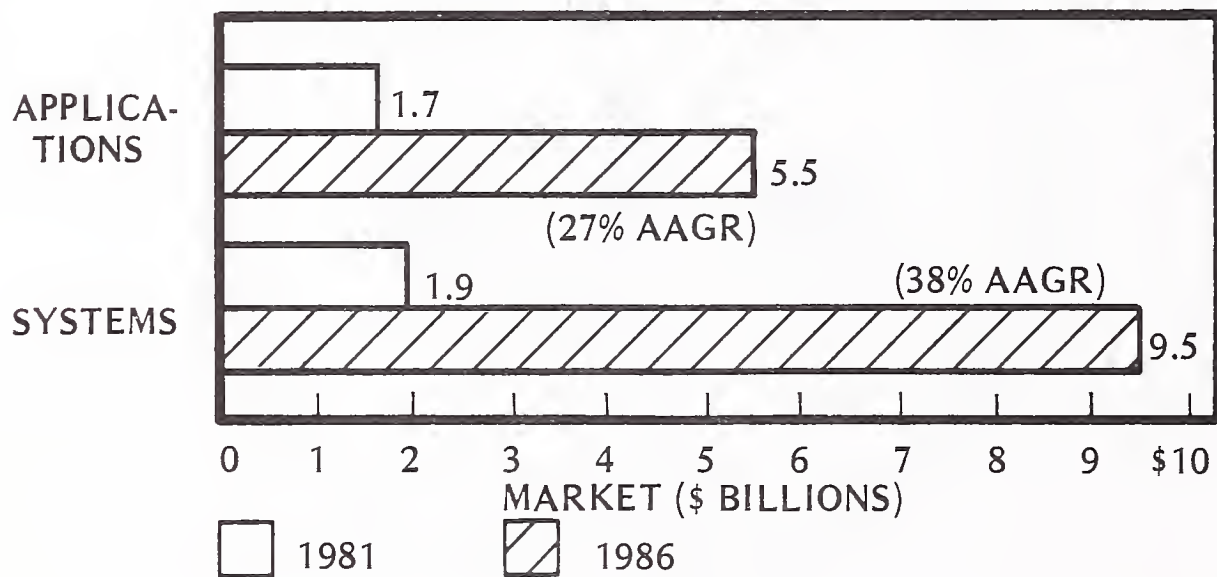
1986



\$21 BILLION

INPUT

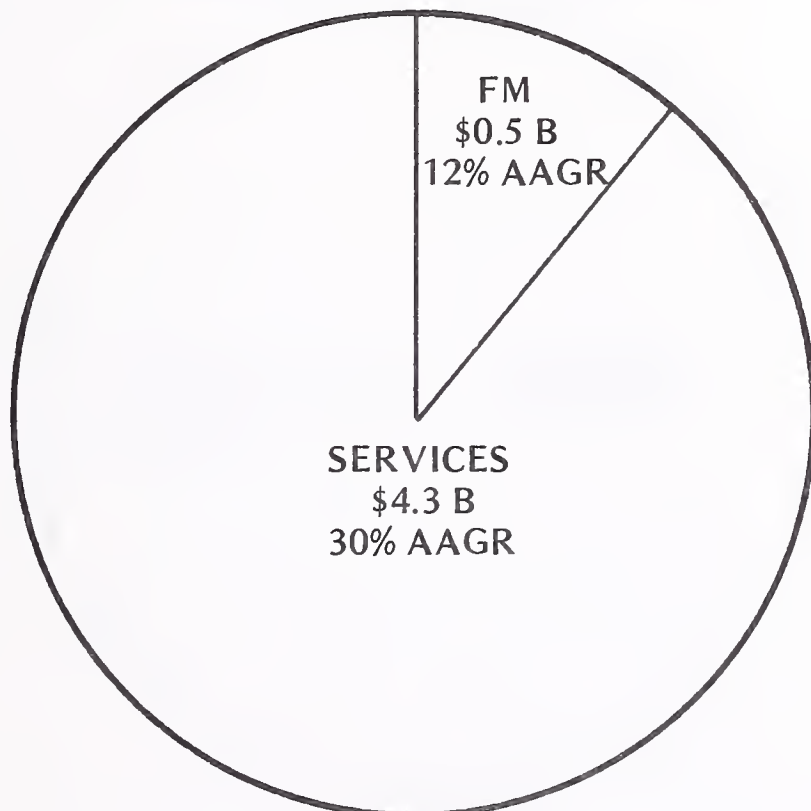
SOFTWARE PRODUCTS



INPUT

PROFESSIONAL SERVICES

1981

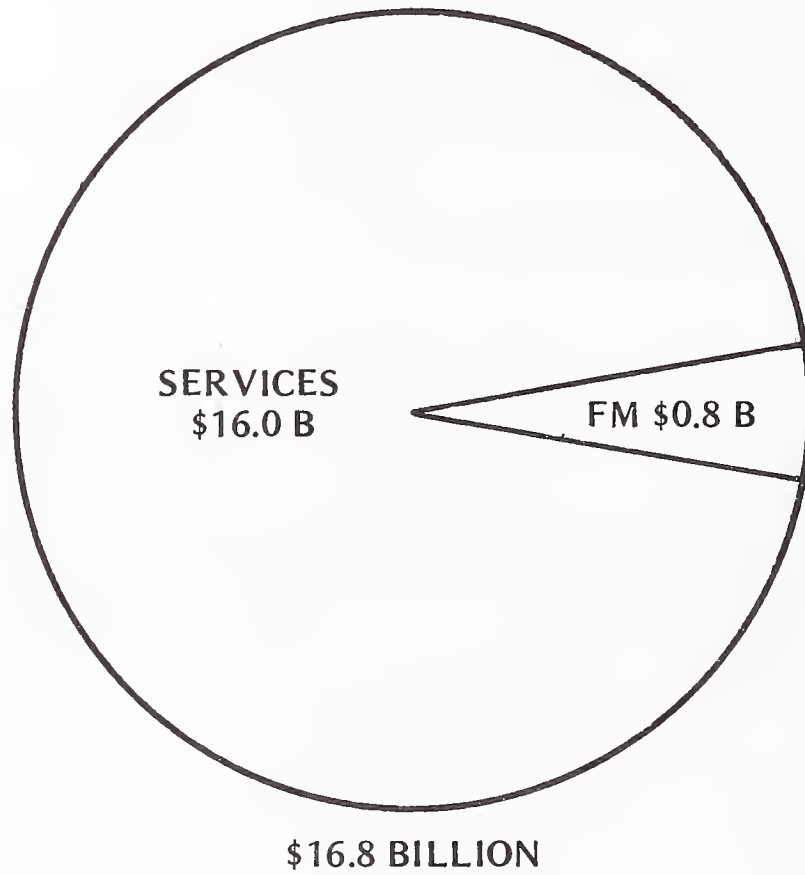


\$4.8 BILLION

INPUT

PROFESSIONAL SERVICES

1986

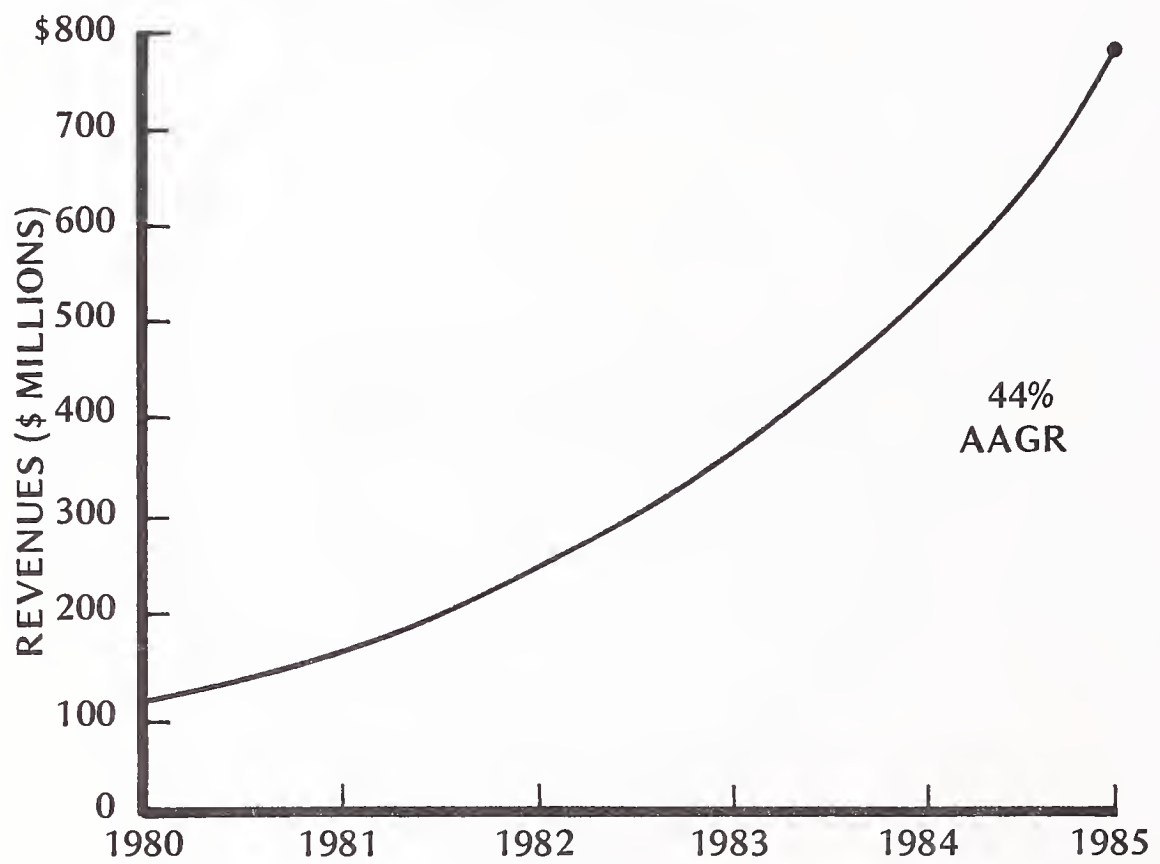


INPUT

BUSINESS GRAPHICS

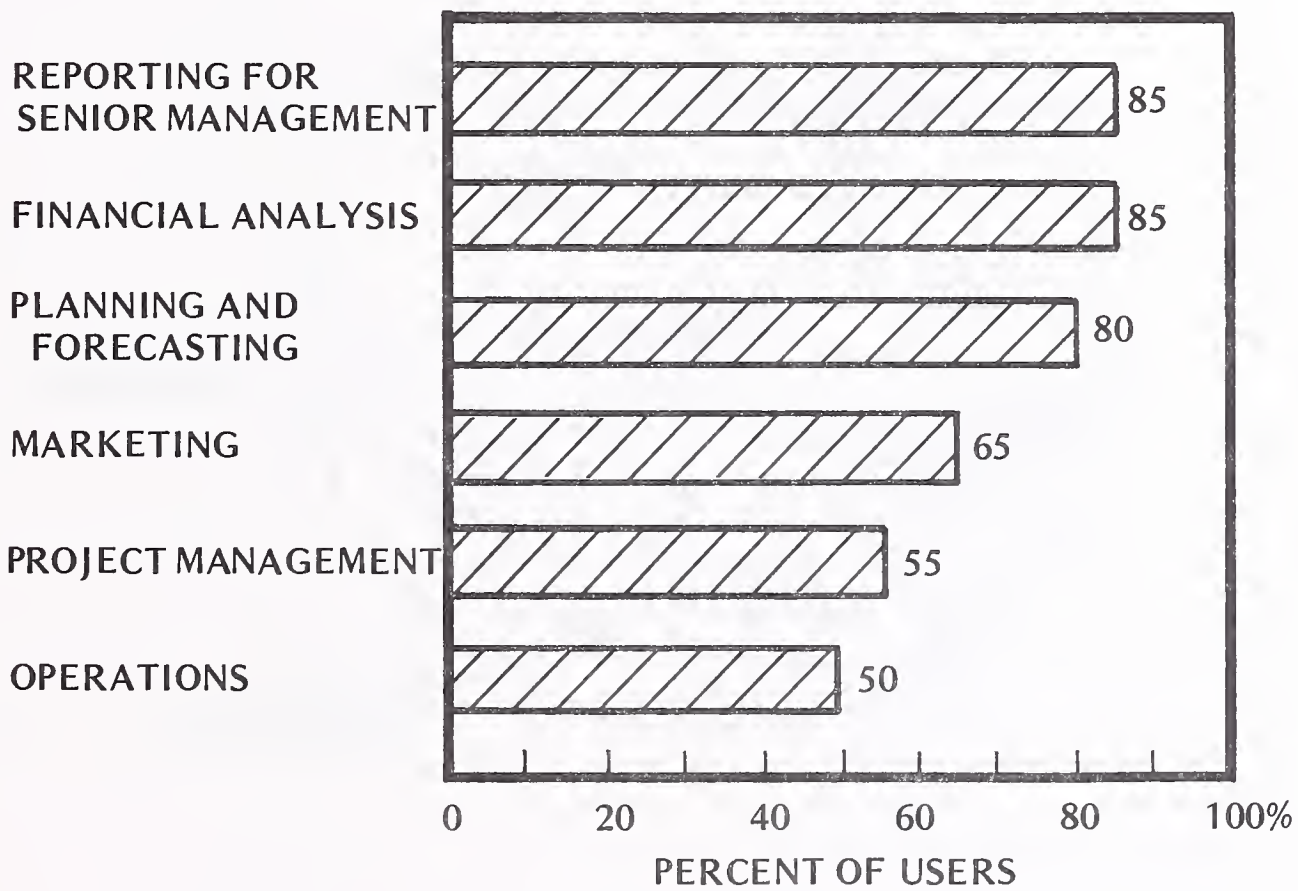
INPUT

BUSINESS GRAPHICS RCS REVENUES



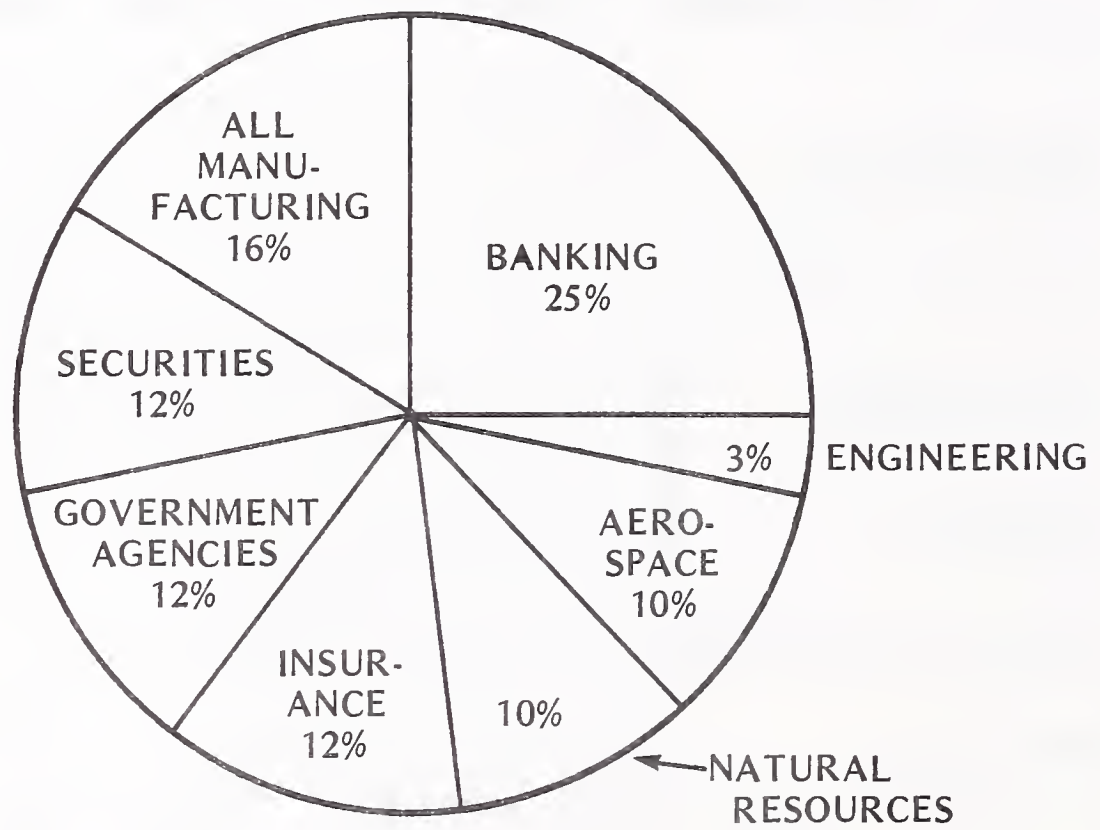
INPUT

BUSINESS GRAPHICS APPLICATIONS



INPUT

SOURCES OF BUSINESS GRAPHICS REVENUES

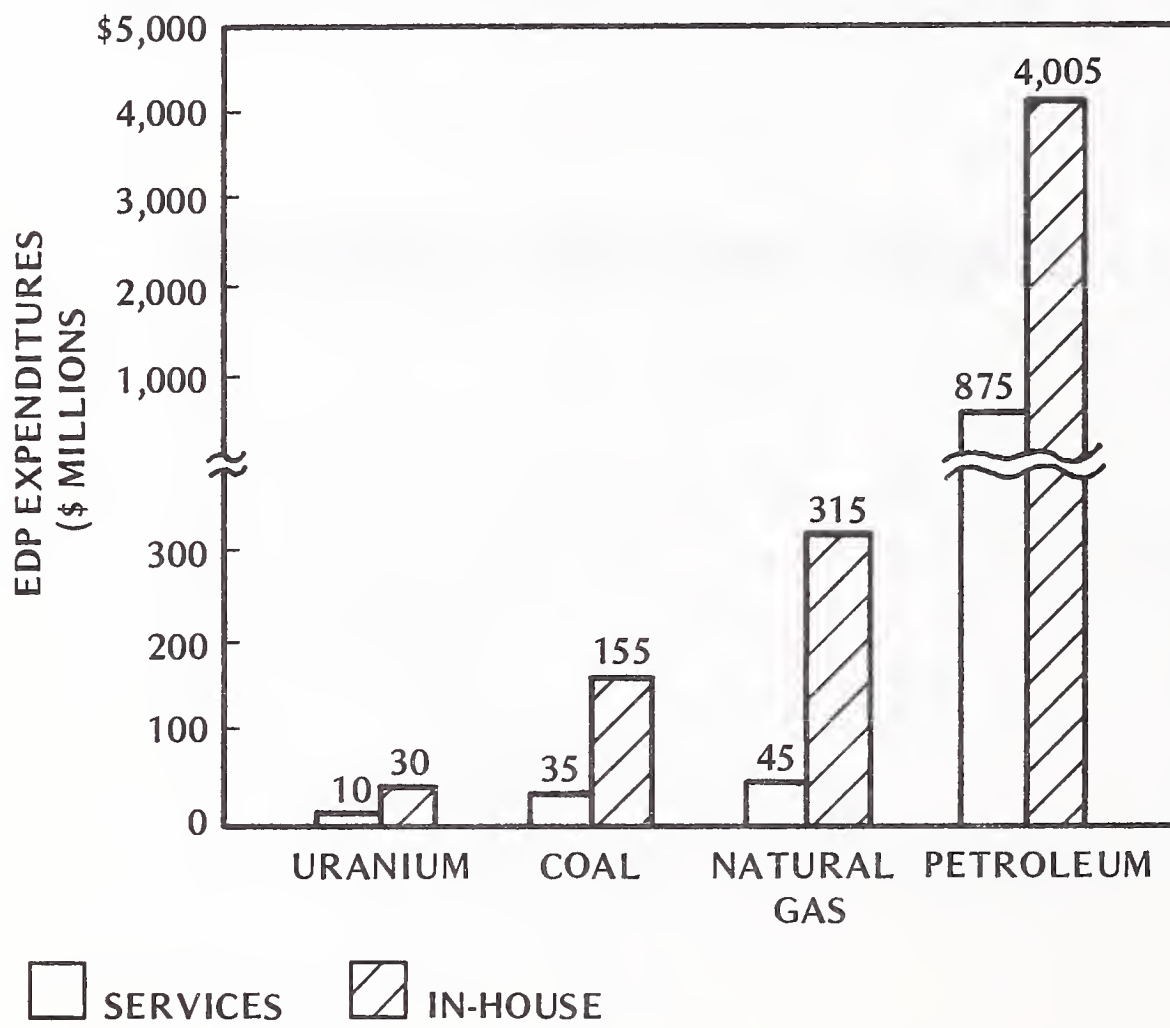


INPUT

ENERGY INDUSTRY MARKETS

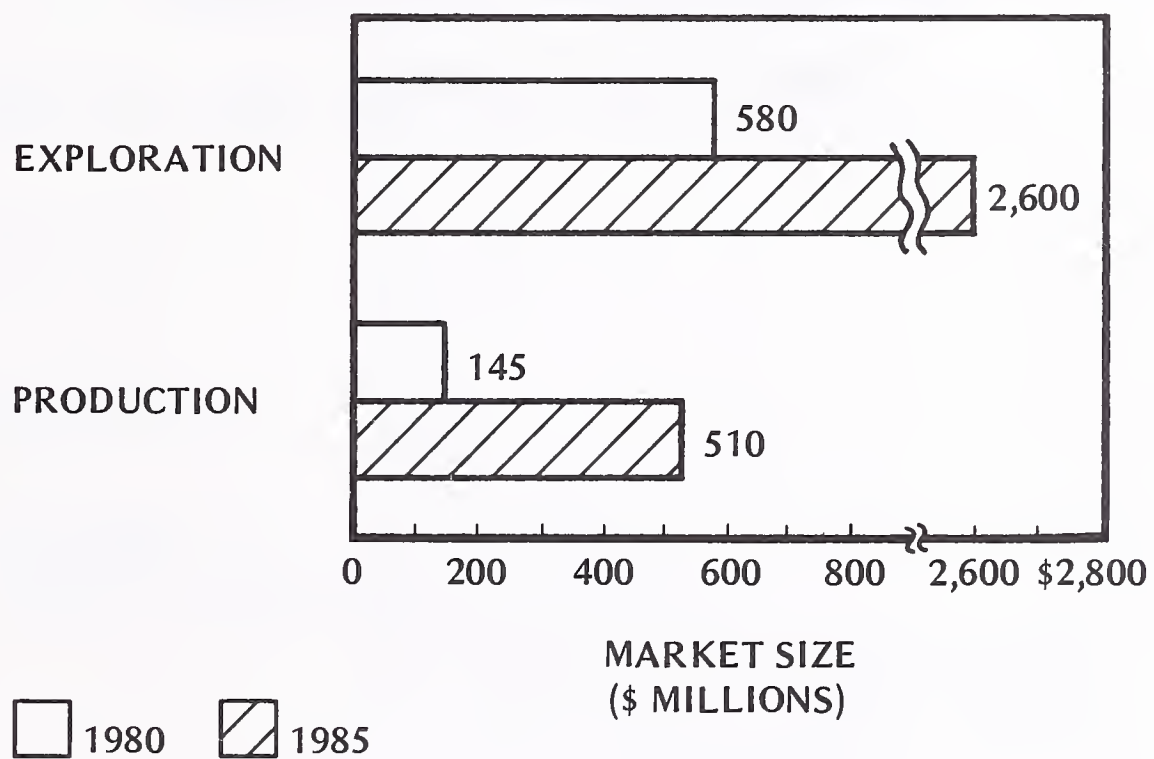
INPUT

EDP EXPENDITURES IN ENERGY INDUSTRY - 1980



INPUT

INFORMATION SERVICES MARKETS IN ENERGY INDUSTRY

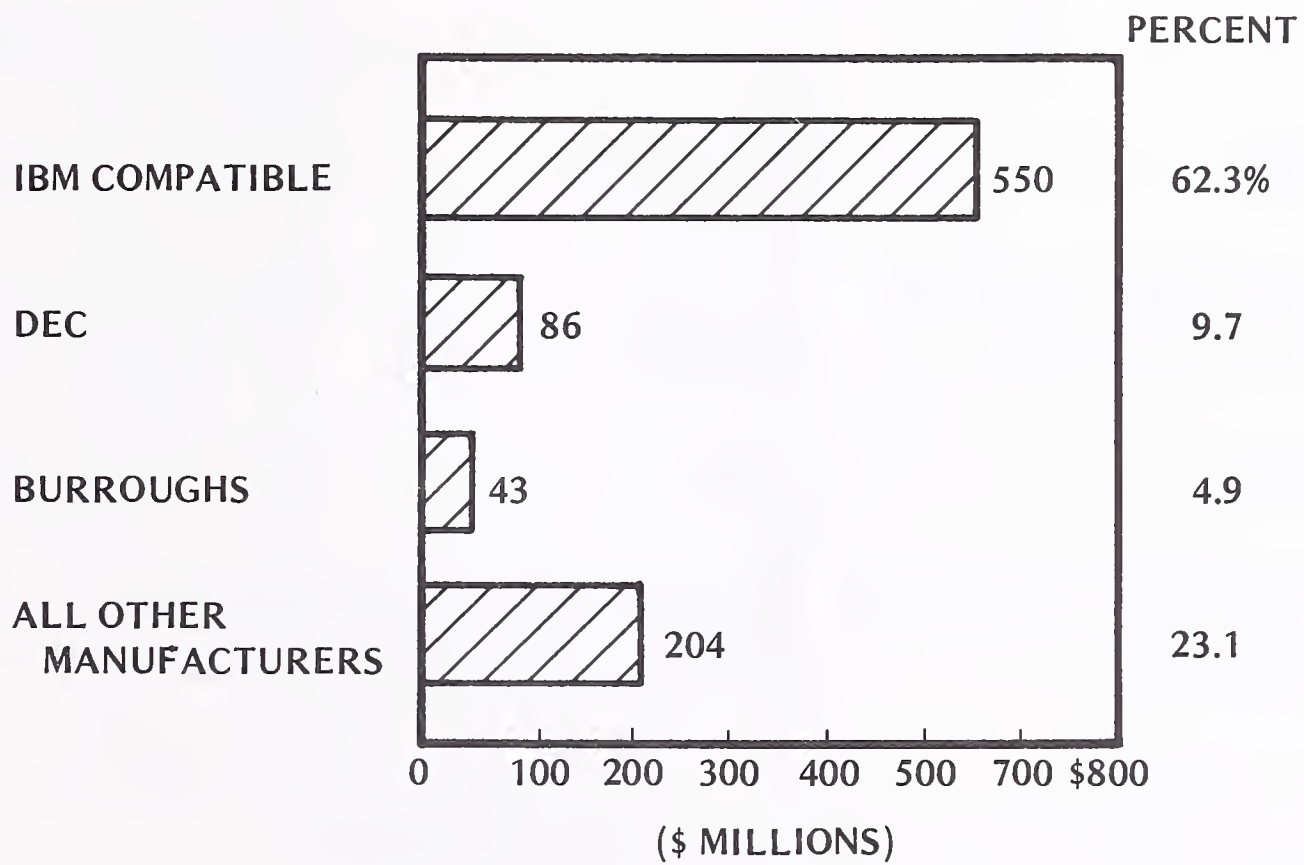


INPUT

**APPLICATIONS SOFTWARE
PRODUCT MARKETS**

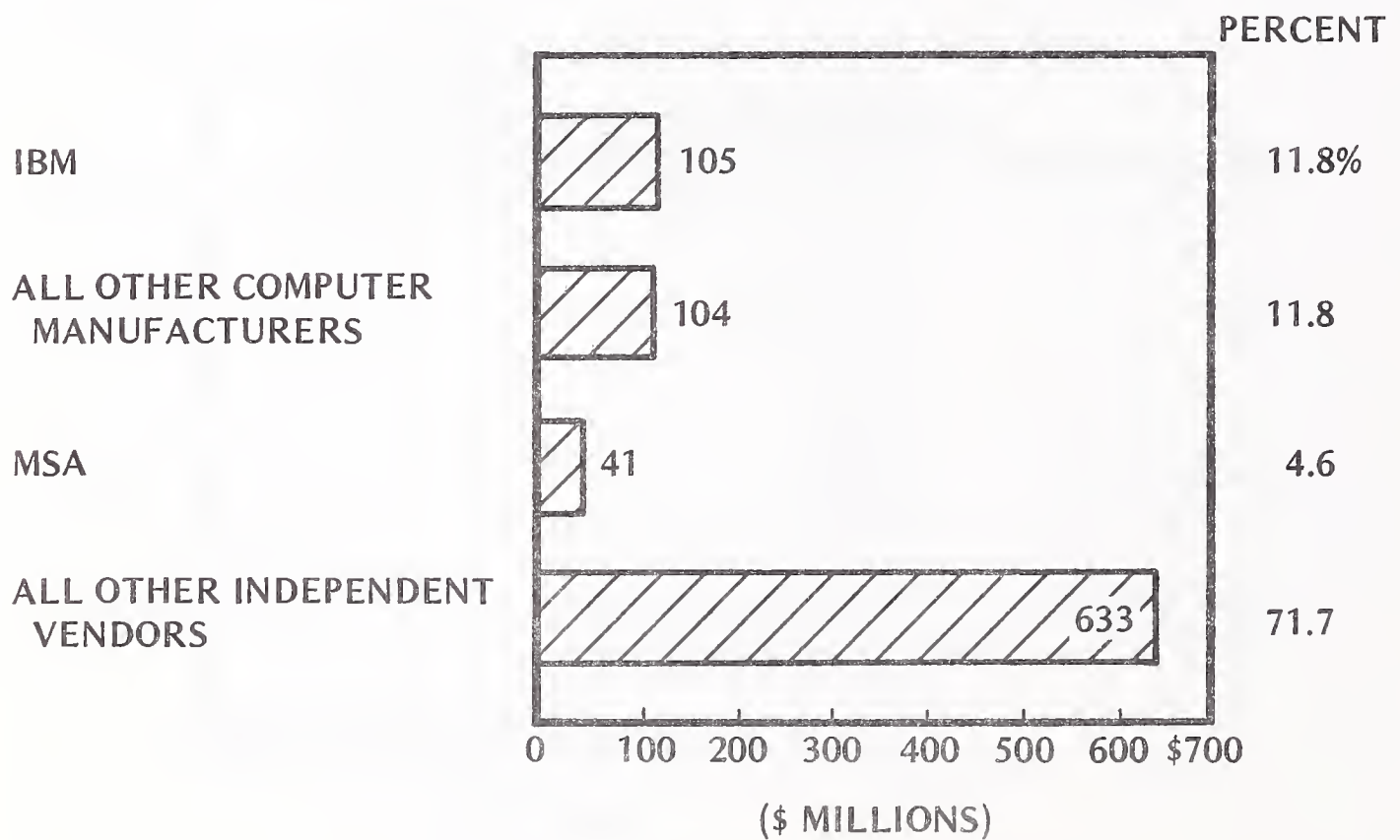
INPUT

1980 APPLICATIONS SOFTWARE PRODUCT MARKET - BY TYPE OF TARGET COMPUTER



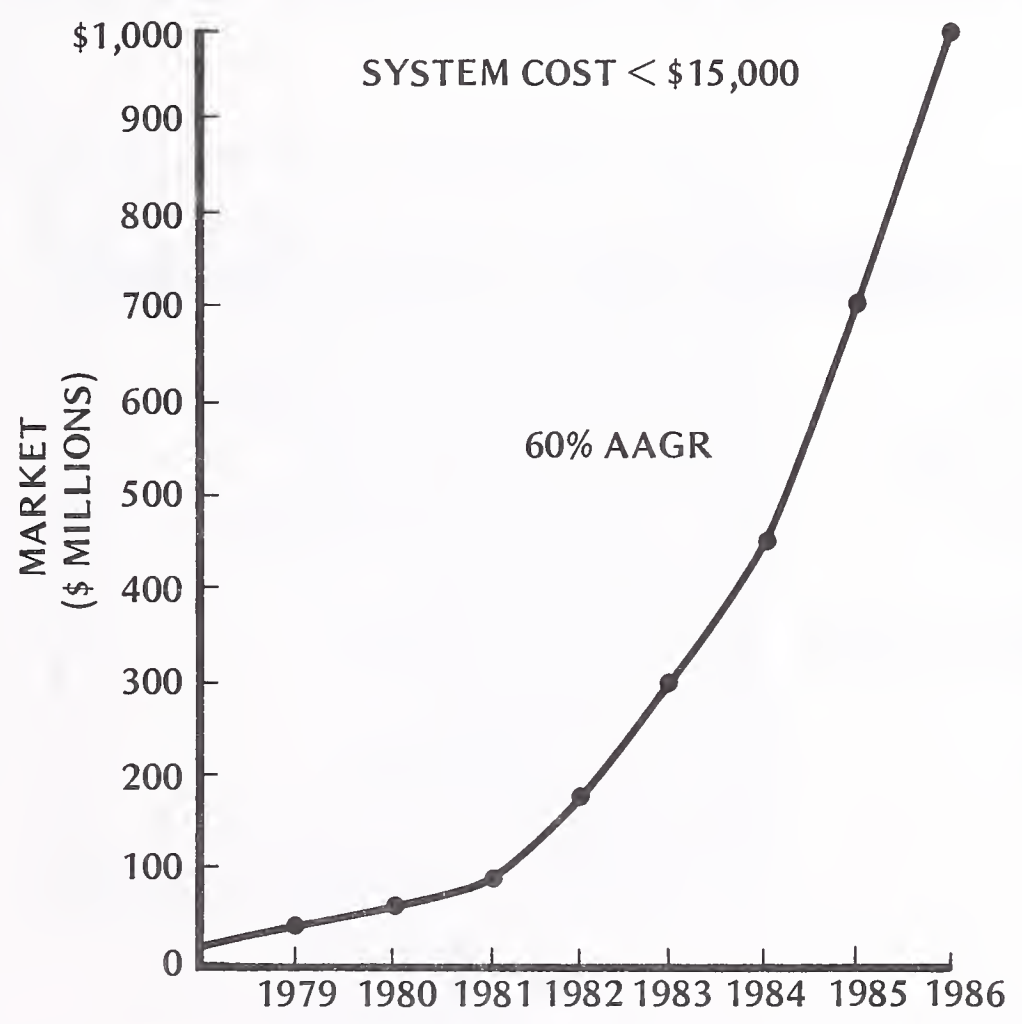
INPUT

1980 APPLICATIONS SOFTWARE PRODUCT MARKET - BY MAJOR VENDOR



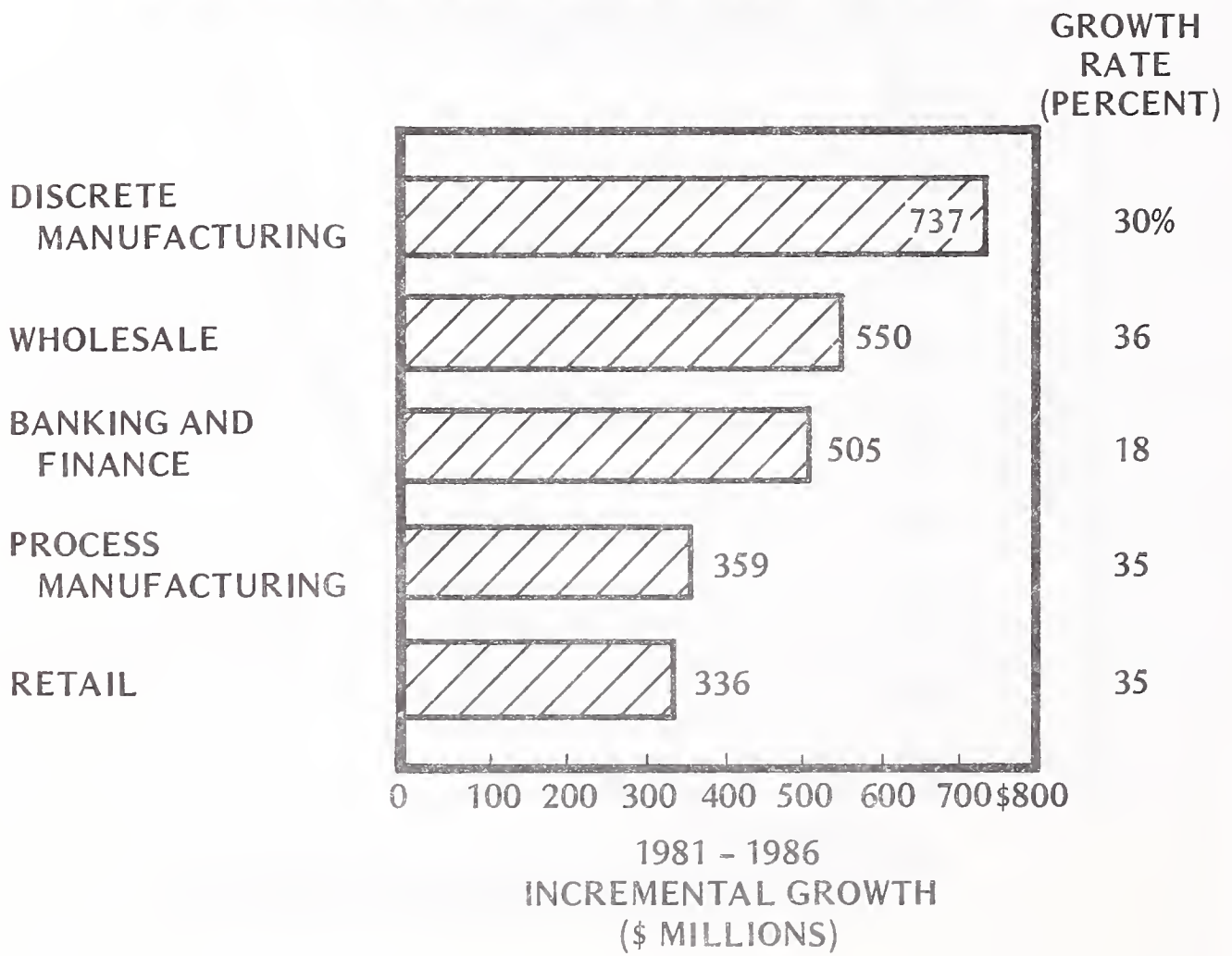
INPUT

VERY SMALL COMPUTER APPLICATIONS PRODUCTS MARKET



INPUT

APPLICATIONS SOFTWARE PRODUCTS MARKETS - GROWTH BY INDUSTRY SECTOR

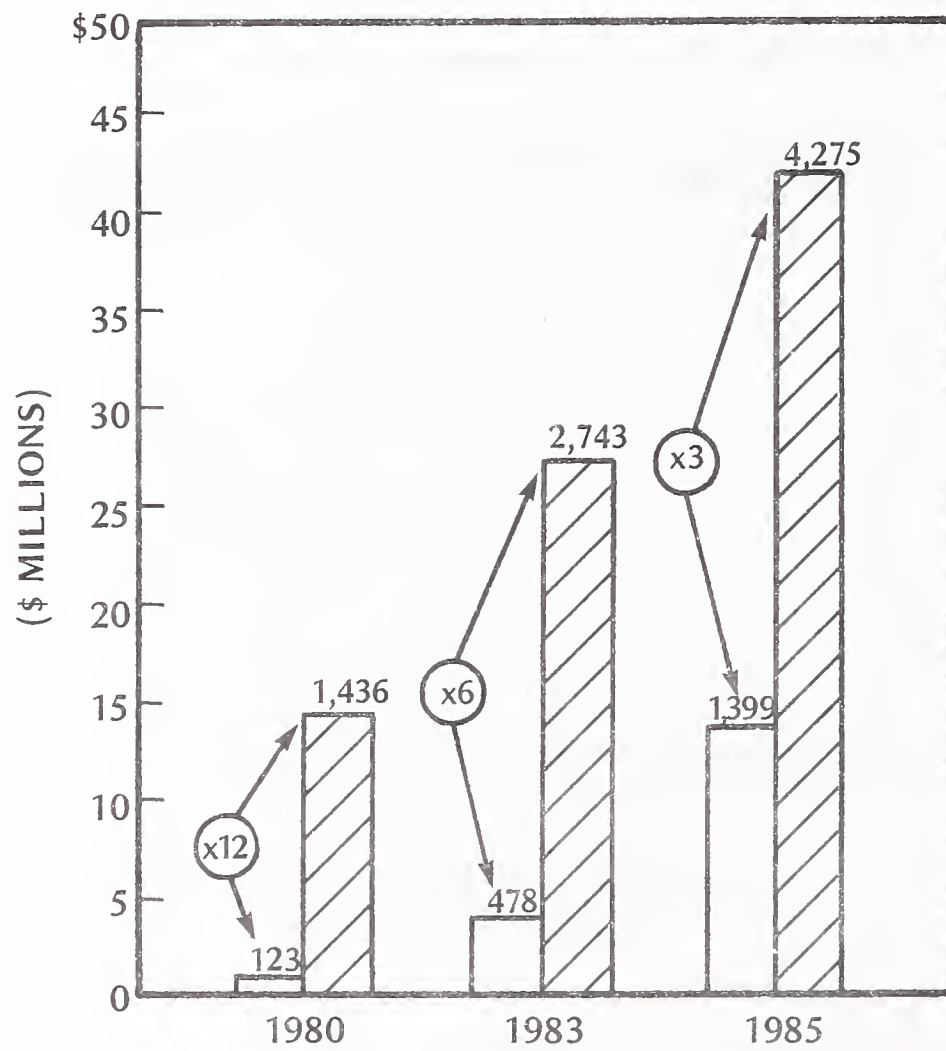


INPUT

ON-LINE DATA BASE MARKETS

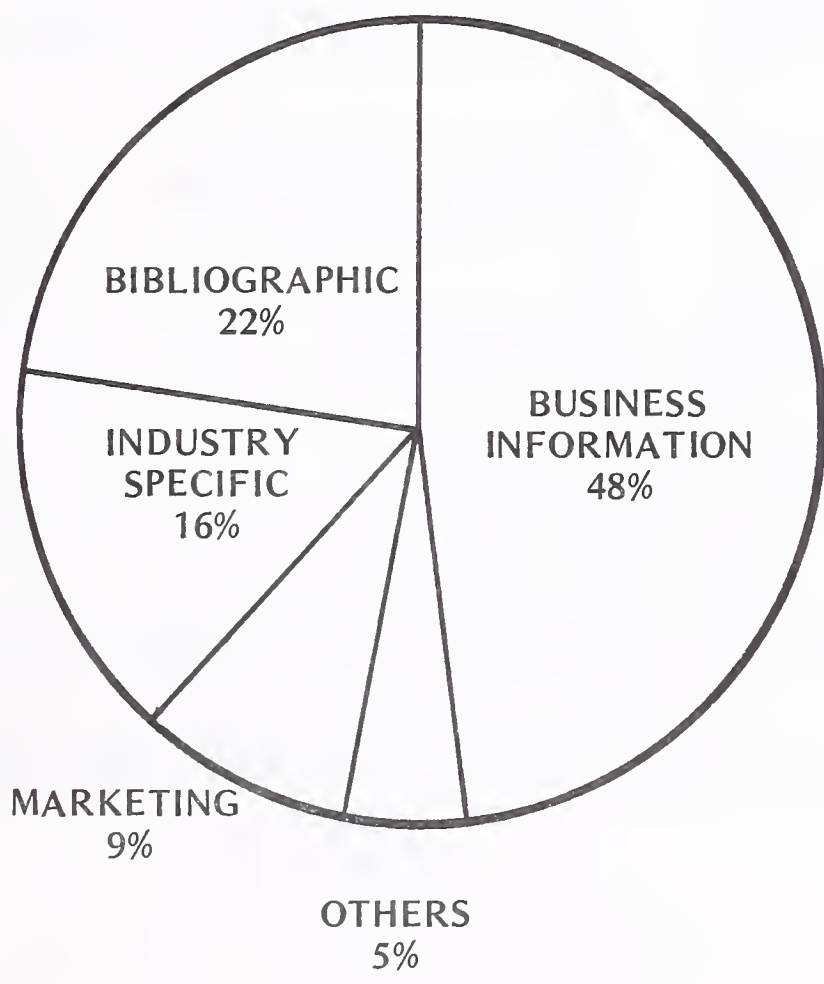
INPUT

ON-LINE DATA BASE MARKETS



INPUT

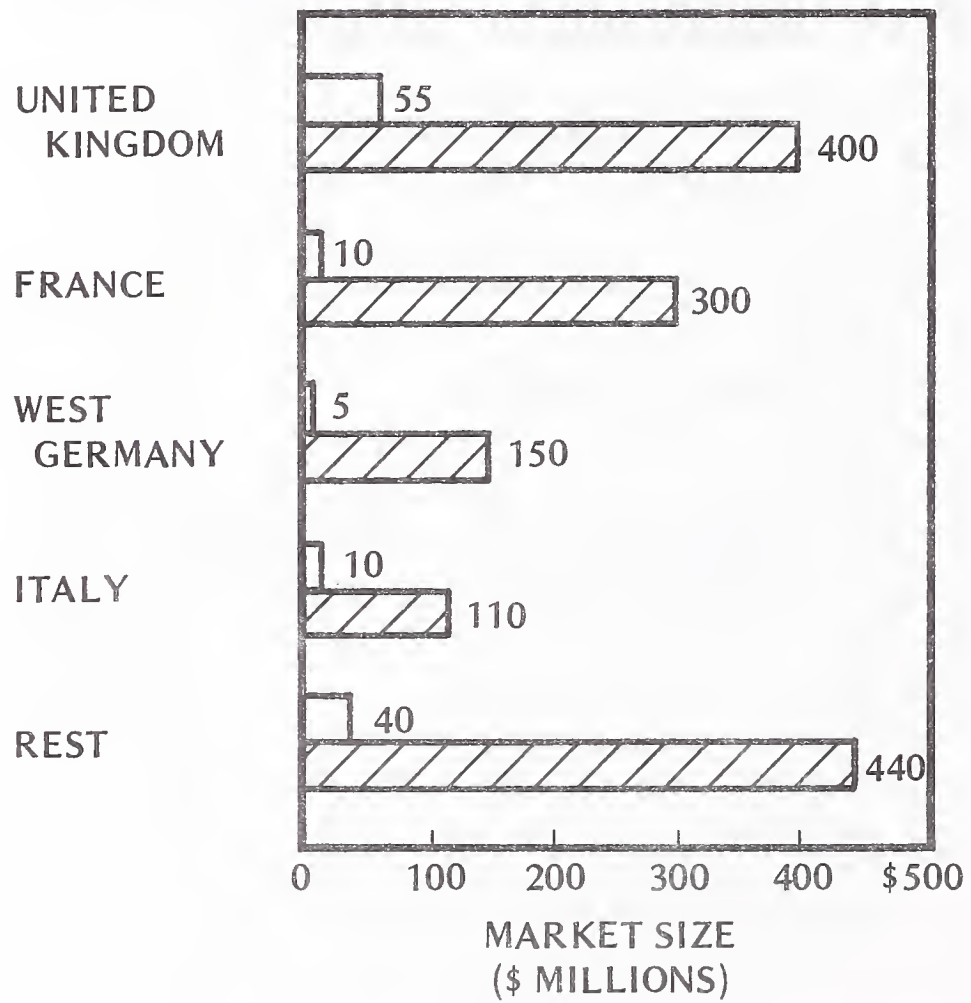
ON-LINE DATA BASE MARKETS - EUROPE



1985 \$1.4 BILLION

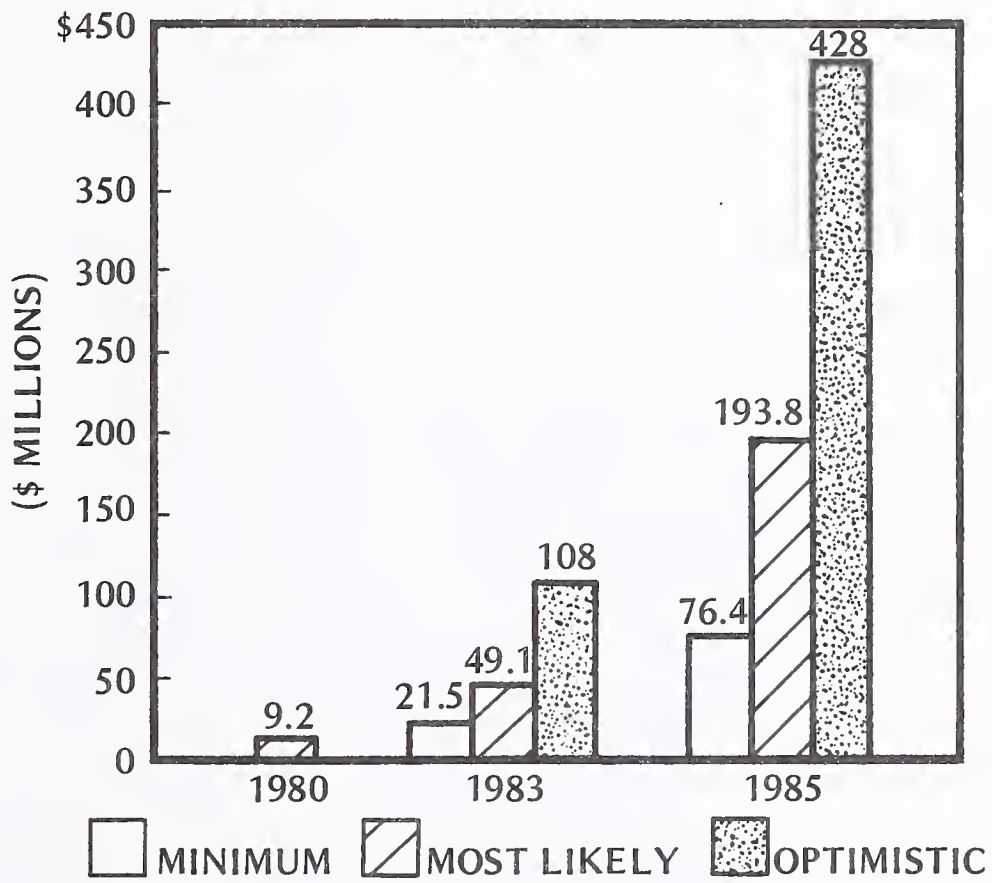
INPUT

ON-LINE DATA BASE MARKETS



INPUT

VIDEOTELEX MARKET FORECASTS - EUROPE



INPUT

VI. CONCLUSION

- **INFORMATION SERVICES IN 1990**

INPUT

ENVIRONMENT

- **INCREASED AUTOMATION PRESSURES**
 - HIGH ENERGY COSTS
 - HIGH INTEREST/INFLATION RATES
- **ASSETS CHEAPER TO ACQUIRE BY MERGER/ACQUISITION**
- **CENTRALIZATION/DECENTRALIZATION CHANGE**
- **SOME WORK MOVEMENT TO “COTTAGE” INDUSTRY/HOME**
- **PERSONAL SYSTEMS WIDESPREAD**

INPUT

TECHNOLOGY

- WAVES OF CHEAPER AND MORE POWERFUL COMPUTERS
- INTERNAL COMPUTER SPEED 100 TIMES FASTER THAN 1981 BY 1990
- DISPERSED COMPUTER ARCHITECTURE
- "DISPOSABLE" OR "FREE" PROCESSORS
- STORAGE CHANGES MOST IMPORTANT

INPUT

TECHNOLOGY

- MAJOR COMMUNICATIONS COST REDUCTIONS BY 1990
- COAX/CABLE IN MOST HOMES AND BUSINESS ESTABLISHMENTS
- AUDIO TO DIGITAL TECHNOLOGY IMPLEMENTED
- INFORMATION STORAGE AND PROCESSING CAPABILITY IN TELECOMMUNICATIONS NETWORKS
 - LIBRARIES
 - SHOPPING
 - MAGAZINES
- TELEPHONE/TELEVISION "FULL SERVICE" PRODUCTS

INPUT

SOFTWARE

- "SOFTWARE ON A CHIP"
- APPLICATIONS PROGRAMMERS OBSOLETE
- SPECIALIST APPLICATIONS BUILDERS
 - LIBRARIES OF AVAILABLE SOFTWARE
 - GENERATORS
- SPECIALIST SYSTEMS ENGINEERS

INPUT

OVERALL ISSUES

- PEOPLE AVAILABILITY
 - 300,000 PEOPLE NOW
 - 1,000,000 BY 1990(?)
- PEOPLE SKILLS
- COMPENSATION PACKAGES

INPUT

PROCESSING SERVICES ISSUES

- **LONG-TERM TRENDS - NEGATIVE**
 - REPLACEMENT
 - CONVERSION OF CONTRACTS
- **LONG-TERM TRENDS - POSITIVE**
 - ADDITION OF PROFESSIONAL SERVICES
 - SOFTWARE DELIVERY VEHICLE
 - SOLUTION TO COMPLEX SITUATIONS
 - DEMAND FOR APPLICABLE INFORMATION
 - FRAGMENTATION OF BUYING POINTS

INPUT

PROCESSING SERVICES ISSUES

- ACQUISITION
- INVOLVEMENT IN NEW AREAS
 - HARDWARE
 - SOFTWARE
 - COMMUNICATIONS
 - OFFICE
- ROLE IN EID (ELECTRONIC INFORMATION DISTRIBUTION)
- INDUSTRY/APPLICATION SPECIALIZATION

INPUT

PROCESSING SERVICES ISSUES

- **REPLACEMENT/HARDWARE FACTORS**
 - DEALING WITH TREND TO IN-HOUSE
 - BUSINESS EXPOSURE TO PERSONAL SYSTEMS
 - EXPOSURE/ROLE VIS-A-VIS TURNKEY
 - TYPE OF USER SITE HARDWARE SERVICE
- **PRICING/UNBUNDLING**
- **DISTRIBUTION**

INPUT

PROCESSING SERVICES IN 1990

- **PROCESSING SERVICES WILL BE PROVIDED BY**
 - **COMMUNICATIONS COMPANIES**
 - **BROADCAST COMPANIES**
 - **PUBLISHERS**
 - **COMPUTER MANUFACTURERS**
 - **BANKING/FINANCE COMPANIES**
 - **PROCESSING SERVICES COMPANIES**
 - **NON-INFORMATION INDUSTRY COMPANIES**

INPUT

PROCESSING SERVICES IN 1990

- PROCESSING WILL BE "FREE"
- INCREASED SOFTWARE, CONSULTING AND DATA BASE COMPONENTS
- SERVICES WILL START TO OVERCOME IN-HOUSE PROCESSING
- PROVIDE PROCESSING SOLUTIONS

INPUT

SOFTWARE PRODUCTS ISSUES

- ON-LINE, DISTRIBUTED PROCESSING PRODUCTS
- COMPUTER MAINFRAME TARGETS
- MANUFACTURER COMPETITION
 - UNBUNDLING
 - INTRODUCING PRODUCTS
 - DISTRIBUTION VEHICLE
- “PLUG-COMPATIBLE” SOFTWARE

INPUT

SOFTWARE PRODUCTS ISSUES

- SOFTWARE SALES, DISTRIBUTION,
INSTALLATION PROCESS
- SOFTWARE MARKETING
- SOFTWARE "MANUFACTURING"
VERSUS "PUBLISHING"
- DEGREE OF CUSTOMIZING CAPABILITY
- SOFTWARE "ASSEMBLY" COMPETITION

INPUT

SOFTWARE PRODUCTS ISSUES

- GROWTH PATH
- COMMUNICATIONS NETWORK INVOLVEMENT
 - REMOTE DIAGNOSTICS
 - DOWN-LINE LOADING
 - SOFTWARE OPPORTUNITY
- HARDWARE INVOLVEMENT
 - TURNKEY
 - SERVICE

INPUT

SOFTWARE PRODUCTS IN 1990

- VENDORS WILL BE SOFTWARE MANUFACTURERS OR PUBLISHERS
- SYSTEMS SUPPLIERS WILL PROVIDE "SOFTWARE CHIPS" - POTENTIAL LOCKOUTS
- ENGINEERING CAPABILITY WILL BE VITAL
- MAJOR SYSTEMS SUPPLIERS WILL BE SOURCES OF REVENUES FOR INDEPENDENTS

INPUT

SOFTWARE PRODUCTS IN 1990

- PRICE CATEGORIES WILL CHANGE
- INCREASED NEED FOR OTHER REVENUE SOURCES
 - CONSULTING
 - TRAINING/EDUCATION
 - SYSTEM MAINTENANCE
 - AUTOMATED DOCUMENTATION
 - SECURITY
 - SUPPLIES
 - NETWORKS
 - DATA BASES

INPUT

PROFESSIONAL SERVICES ISSUES

- **PRODUCTIVITY**
 - INTERNAL
 - EXTERNAL
- **PEOPLE AVAILABILITY**
- **SPECIALIZATION**
- **SKILLS/LEARNING CURVE**

INPUT

PROFESSIONAL SERVICES ISSUES

- PACKAGING
- LIBRARIES OF SOFTWARE ROUTINES
- REMOTE CONTRACTS

INPUT

PROFESSIONAL SERVICES IN 1990

- INCREASED IMPORTANCE
- THREE TYPES OF SERVICE
 - ENGINEERING/COMPUTER ARCHITECTURE
 - APPLICATIONS SPECIALIZATION
 - MANAGEMENT
- ON-LINE SYSTEMS REDUCED DRIVER

INPUT

PROFESSIONAL SERVICES IN 1990

- **FACILITIES MANAGEMENT OPPORTUNITY**
 - NOT “ON-SITE”
 - REMOTE HARDWARE
- **INCREASED COMPETITION**
 - SYSTEM SUPPLIERS
 - OTHER INFORMATION SERVICES COMPANIES
 - ACCOUNTANTS
 - EXTERNAL INDUSTRY SUPPLIERS

INPUT

CHANGE - STRUCTURAL

- DATA → INFORMATION
- PAPER → ELECTRONIC MEDIA
- OFFICE OPERATIONS
- COMMUNICATIONS
- SYSTEMS FUNCTION??

INPUT

CHANGE = OPPORTUNITY
INFORMATION SERVICES ARE
KEYS TO OTHER MARKETS.

INPUT

