U.S. PROCESSING SERVICES MARKET

1992 - 1997

INPUT

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U.S. Information Services
Market Analysis Program
(MAMAP)

U.S. Processing Services Market, 1992-1997

MAPR2 • 611 • 1992

Abstract

This INPUT report, *U.S. Processing Services Market, 1992-1997*, provides forecasts and analysis for the transaction processing, utility processing, and other processing services submarkets. The five-year forecasts cover fifteen industry-specific and seven cross-industry markets. Leading vendors are identified, market share indicated, and strategies profiled.

The report discusses areas of vitality in the processing market together with issues and trends presently influencing processing services. It also provides recommendations on how vendors can take advantage of the key forces driving the market.

The report contains 140 pages and 81 exhibits.

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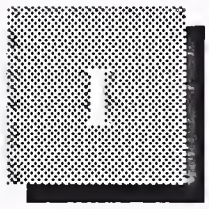
Exhibits

Exhibits (Continued)

Exhibits (Continued)



Introduction

This report is part of a series of market analysis reports written each year by INPUT on the key segments (delivery modes) of the U.S. information services industry. The delivery modes analyzed during 1992 are as follows:

1. Applications Software Products
2. Turnkey Systems
3. Processing Services
4. Systems Software Products
5. Network Services
6. Professional Services
7. Equipment Services
8. Systems Integration
9. Systems Operations

The first seven delivery modes are covered in reports included as part of INPUT's Market Analysis Program (MAP), a planning service for information services vendors. The last two delivery modes are covered in market analysis reports included in INPUT's Systems Integration and Systems Operations programs.

A
Purpose and Organization

1. Purpose

This report analyzes the processing services delivery mode of the U.S. information services industry.

- The report includes five-year forecasts, an assessment of market drivers, analysis of competitive trends, and identification of leading vendors.

- The report assesses trends and events within the U.S. economy, the U.S. information services industry, and the processing services delivery mode to provide the reader with a comprehensive foundation for understanding this market sector and for anticipating future directions.

The report provides readers with insights and information that will help them

- Review the forces shaping the market
- Develop internal corporate financial projections
- Identify new markets and product and services opportunities
- Assess the competitive trends
- Determine potential market directions
- Assist in prioritizing investments

2. Organization

This report is organized as described in Exhibit I-1. Each delivery mode report within the Market Analysis Program follows this format. The industry and cross-industry sector reports, described below, use a similar format.

B
Scope and Methdology

1. Scope

This report addresses the U.S. information services industry for the processing services sector (delivery mode). It includes user expenditures that are noncaptive and generally available to vendors. Many large organizations have portions of their information services requirements satisfied by internal divisions. The resulting expenditure is not available for competitive bid by the general vendor community and is not included in INPUT's projections.

a. Information Services Industry Structure

Exhibit I-2 defines the structure of the information services industry as used by INPUT in its market analysis and forecasts. The industry consists of nine delivery modes, each of which contains a number of submodes.

EXHIBIT I-1

Market Reports Format

I. Introduction
- Introduction and definition of the delivery mode and its substructure or segments.

II. Executive Overview
- Synopsis of the entire report, written at the end of the year.

III. General Business Climate
- An overview of the business climate within the information services industry as a whole and the particular market segment of each report.

IV. Information Systems Environment
- The information systems environment and user perspective as it relates to the specific delivery mode or market.

V. Vendor Issues and Trends
- An assessment of the delivery mode from the vendor point of view.

VI. Information Services Market Forecast
- Presentation of the information services market forecast by delivery mode and submode.

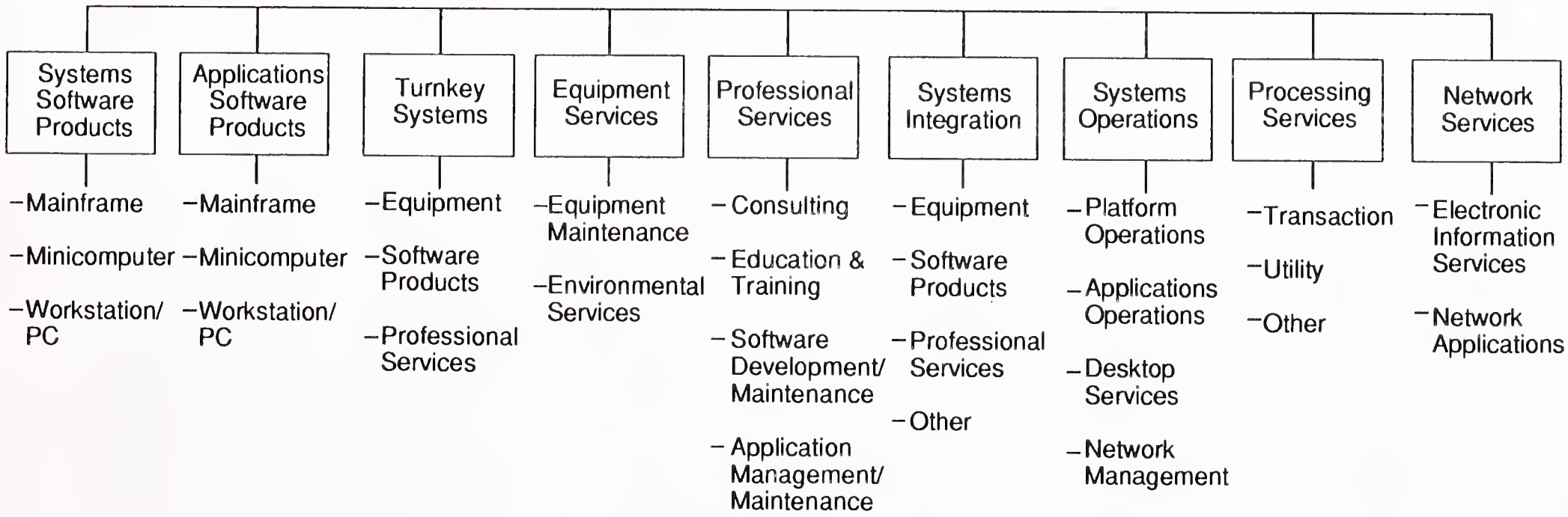
VII. Competitive Environment
- Discussion of the competitive environment for information services within the delivery mode—with market share analysis and vendor profiles.

VIII. Conclusions and Recommendations
- Summary of risks and opportunities.

A. INPUT Definition of Terms
- Definitions and descriptions of market structure and terms used throughout INPUT's reports.

B. Forecast Data Base
- A detailed forecast by delivery mode, submode, and industry/cross-industry sector. Contains a reconciliation to the previous year's Appendix B.

Information Services Industry Structure—1992



Source: INPUT

- *Delivery modes* are groupings of specific products and services that satisfy a given user need. *Market sectors* specify who the buyer is and Delivery Modes specify what the user is buying.

- INPUT develops a five-year forecast for the delivery mode and each of the submodes.

INPUT also publishes market sector reports analyzing 15 industry and 7 cross-industry market sectors. These reports, published annually by INPUT, analyze the information services opportunities in industry sectors such as insurance, transportation, and discrete manufacturing and in cross-industry sectors such as accounting, human resources, and office systems.

The relationship between delivery mode forecasts and market sector forecasts is shown in Exhibit I-3.

EXHIBIT I-3

Delivery Mode versus Market Sector Forecast Content

		Market Sectors		
Delivery Mode	Submode	Industry Sectors	Cross-Industry Sectors	General
Processing Services	Transaction	X	X	
	Utility			X
	Other			X
Turnkey Systems		X	X	
Applications Software Products		X	X	
Systems Operations	Platform	X		
	Applications	X		
Systems Integration		X		
Professional Services		X		
Network Services	Network Applications	X		
	Electronic Information Services	X		X
Systems Software Products				X
Equipment Services				X

For a more complete discussion of INPUT's information services industry structure and market sector definitions, please refer to INPUT's *Definition of Terms, 1992* (Appendix A in this report).

b. Processing Services Delivery Mode Description

The processing services delivery mode, as shown in Exhibit I-4, is composed of transaction, utility, and other processing services submodes.

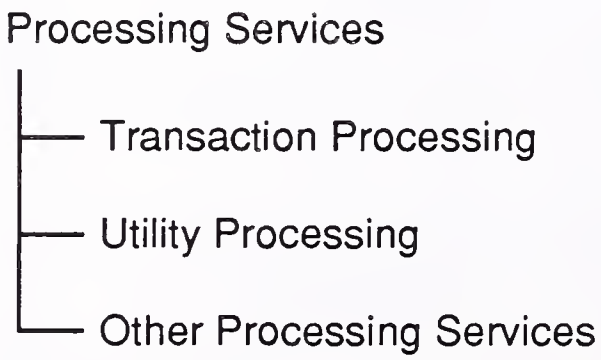
- *Transaction Processing*—Client uses vendor-provided information systems—including hardware, software, and/or data networks—at the vendor site or customer site to process specific applications and update client data bases. The application software is typically provided by the vendor.

- *Utility Processing*—Vendor provides basic software tools (language compilers, assemblers, DBMSs, graphics packages, mathematical models, scientific library routines, etc.), enabling clients to develop and/or operate their own programs or process data on the vendor's system.

- *Other Processing Services*—Vendor provides service—usually at the vendor site—such as scanning and other data entry services, laser printing, computer output microfilm (COM), CD preparation and other data output services, backup and disaster recovery, etc.

EXHIBIT I-4

Processing Services Market Structure



Processing services vendors market transaction, utility, and other processing services alone and in combinations. There are also vendors that only market selected functions, such as microfilm or disaster recovery services, or just one of the primary services, such as transaction processing.

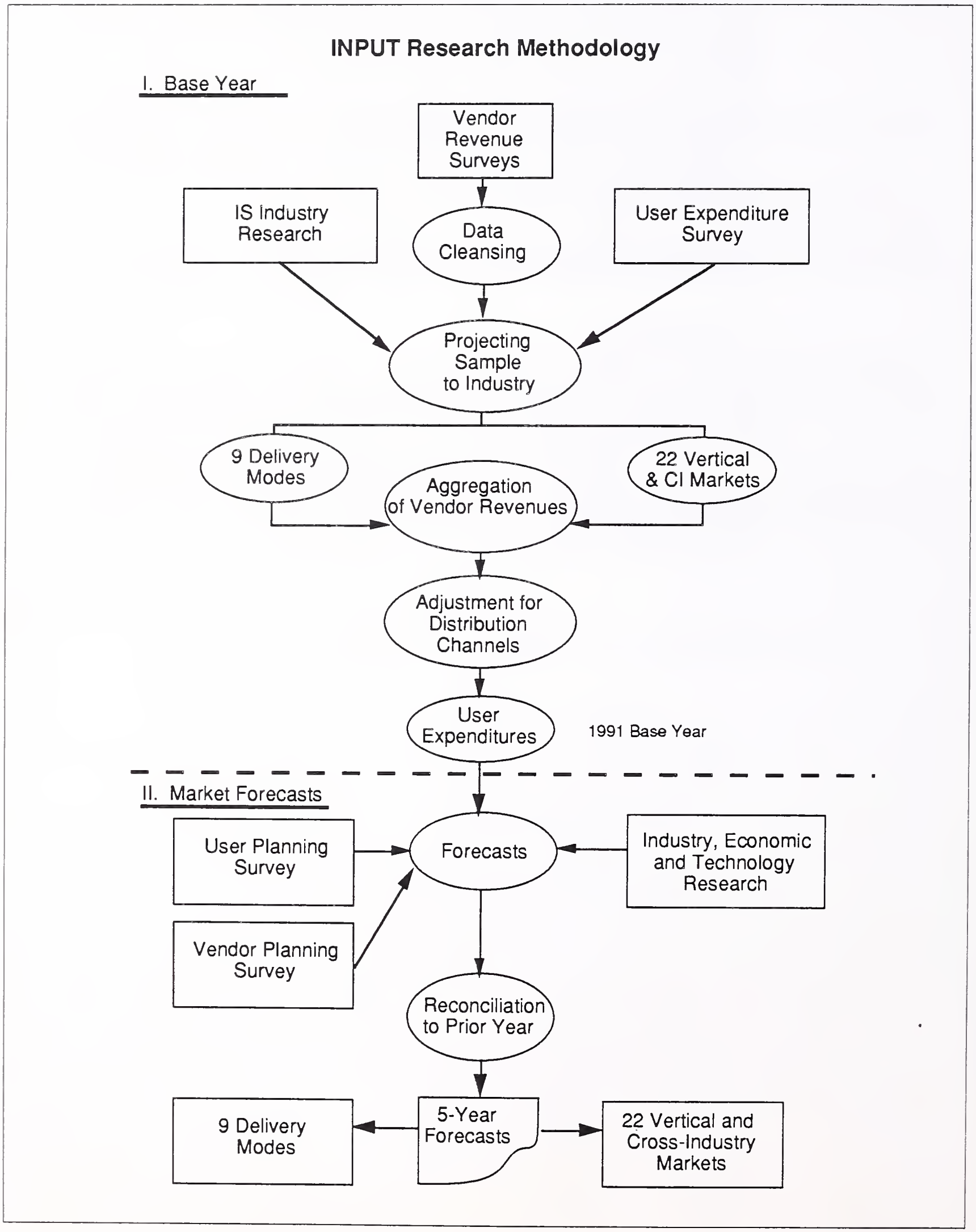
- Most of the processing services delivery mode is considered as purchased by industry sectors—that is, it is industry specific. The forecasts for processing services expenditures within the 15 industry sectors plus expenditures for cross-industry sectors adds to the total forecast for the delivery mode as a whole.

- Processing services sold in conjunction with other services, such as network services, are included in the processing services sector.

2. Methodology

INPUT's methodology for market analysis and forecasting is summarized in Exhibit I-5. As in past years, INPUT has continued to survey information services vendors to determine their U.S. information services revenues, and to query information systems organizations about expenditures and outside services acquisition plans. INPUT interviewed vendors a second time to understand their views of market opportunities over the short and long terms.

EXHIBIT I-5



INPUT's annual forecasting process is broken into two major parts: base-year expenditure calculations and market forecasts. Each is briefly described below.

a. Base-Year Expenditure Calculations

- INPUT determines previous-year information services revenues for the nine delivery modes and 22 industry and cross-industry sectors for hundreds of vendors. Estimates rely upon interviews, public data, and INPUT's own estimates.
- The initial data are projected to represent the entire information services industry.
- Adjustments are made to eliminate duplications due to distribution channel overlap and to assure that captive information services expenditures are not included.
- The result is a base-year (1992) user expenditure for each of the 22 vertical and cross-industry sectors and the 9 delivery modes.

b. Market Forecasts

- In the forecasting step, INPUT surveys information systems executives to determine their projected expenditure levels, both in aggregate and for each of the outside information services categories.
- In addition, a second set of vendor interviews is conducted later in the year to obtain an understanding of how key vendors view the market and its opportunities.
- The result is a five-year forecast for each of the 22 vertical and cross-industry sectors and the 9 delivery modes. The delivery mode and market sector forecasts are correlated according to the diagram in Exhibit I-3.

To complete the process, INPUT reconciles its new forecasts with those from the previous year. Differences due to market restructuring and other factors are explained. One may use these projections to track INPUT's forecasts from year to year.

INPUT forecasts are presented in current dollars (i.e., 1997 market sizes are in 1997 dollars, including inflationary forecasts). In developing the five-year forecasts, INPUT has incorporated economic assumptions for the U.S. economy as a whole.

The GDP and GDP Deflator growth rates used in INPUT's market projections for 1992 through 1997 are from the CONSENSUS™ forecast, a product of Blue Chip Economic Indicators of Sedona, Arizona. The Blue Chip CONSENSUS forecast is derived from a leading panel of economists representing leading financial, industrial, and research firms across the U.S. and has a 13-year track record of balanced and accurate projections.

The 1992-1997 assumptions are contained in Chapter VI, Market Forecast.

C
Related Reports

Related reports of interest to the reader are:

- *U.S. Application Solutions Market, 1992-1997*
- *U.S. Systems Software Products Market, 1992-1997*
- *U.S. Professional Services Market, 1992-1997*
- *Systems Integration Market Analysis Report, 1992-1997*
- *U.S. Systems Operations Trends and Forecasts, 1992-1997*
- *Information Systems Outsourcing Market Opportunities, 1992-1997*
- U.S. Information Services industry sector reports, 1992-1997 (15 reports on all major industry sectors; e.g., insurance)
- *Information Services Cross-Industry Markets, 1992-1997 (7* reports on information services markets that serve all vertical industry sectors; e.g., accounting)

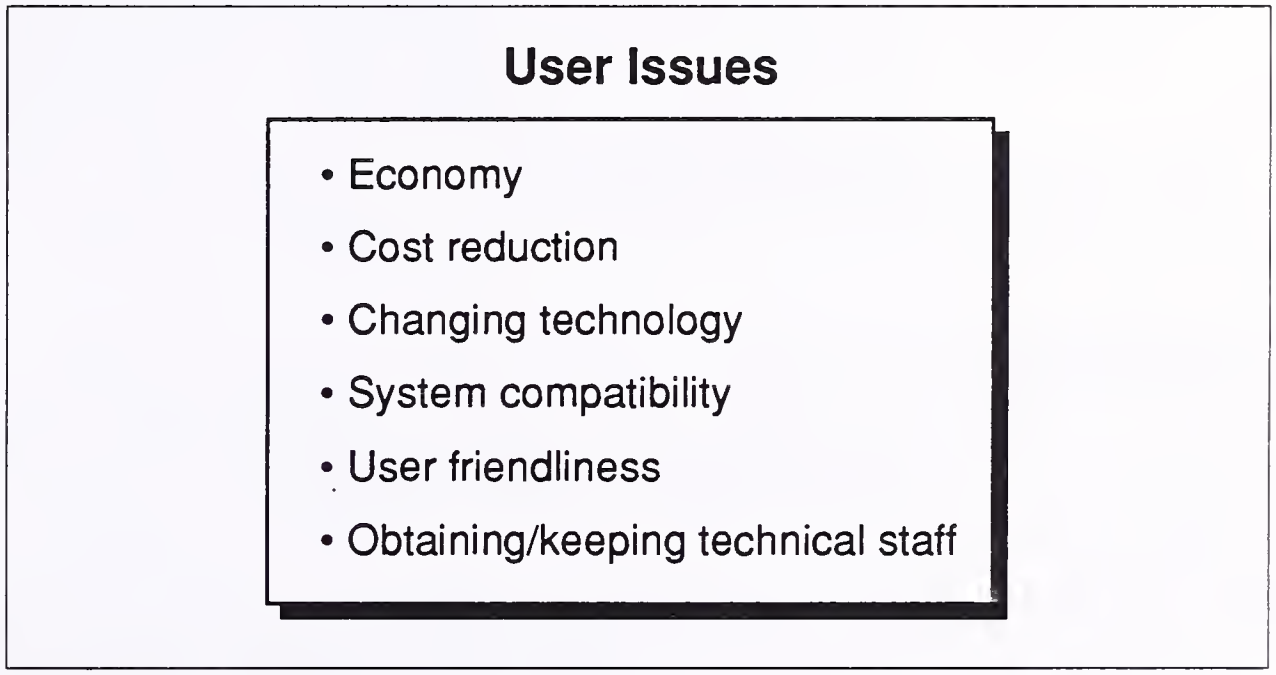
II

Executive Overview

A
User Issues

The economy is still the major business concern of users of processing services, as shown in Exhibit II-1.

EXHIBIT II-1



Industries that have traditionally made extensive use of processing services such as banking/finance and transportation have been going through difficult economic times. Consolidations have been ongoing and many companies report that IS spending has at best remained constant. Many of the buyers contacted by INPUT in the conduct of our research indicated that increased spending is dependent upon a rebound in the economy.

As a result, reducing cost is a critical issue for companies in these industries. This affects the demand for processing services both positively and negatively. On the one hand, buyers are cautious about investing in equipment and internal systems solutions. However, buyers are also less willing to expand their use of processing services or add features that will increase costs. Therefore, while processing services vendors are less likely to lose business to in-house systems in these economic times, they are also not seeing dramatic increases in demand.

Changing technology is another issue of concern to buyers today. The constant changes in capabilities, standards, and costs has led to a great deal of confusion. It's difficult for buyers to know when to invest in a new application or platform. This uncertainty can delay decisions to migrate applications from a processing services to an in-house solution.

Users are also concerned with system compatibility. As they evaluate open systems and UNIX solutions, they want to make sure that their decisions today will be compatible with new standards as they are developed. They are interested in how the vendors they do business with are planning to handle such developments.

User friendliness is another major concern. Processing services users have been drawn toward PCs in recent years due to developments in graphical user interfaces and "user friendly" operating systems.

Difficulty in obtaining technical staff is a fact of life for IS departments today. With technology changing rapidly, the skills required to manage this technology are also changing quickly. Simply out, there is a national shortage of people with the necessary skills to manage systems. This is one factor driving companies to choose to outsource information systems (IS) operations to third-party facilities or systems operations (SO) management companies.

B

Driving Forces

There are a number of forces driving the continued demand for processing services. These are listed in Exhibit II-2.

EXHIBIT II-2

Driving Forces Supporting Use of Processing Services

- Networking requirements
- Vendor expertise
- Rapid application enhancement
- Government requirements
- Business dependence on information

The global marketplace is leading to an increased need for networking to allow communication and exchange of data among sites. Certain applications that involve multiple data entry/delivery points could require changes to network plans if this work was handled in-house. Buyers look to processing services providers to accommodate changing networking requirements that could be time consuming and expensive to implement in-house.

The tendency of users to rely on both the knowledge and application systems of their processing vendors is a driving force for continued use of processing services. For many applications, the vendor takes responsibility for reporting to government agencies or offices, banks, and other necessary external functions. Particularly for applications that are nonstrategic, such as payroll, off-loading such responsibilities presents an attractive option. In addition, the knowledge that processing vendors have of certain industries, particularly banking, has led users to seek processing as well as systems operations services from these vendors.

The need for rapid changes to services applications such as payroll and bank application systems has also been a driving force for the use of processing services.

- Buyers are interested in using vendors' experience in making frequent changes to applications software systems to meet the needs of government agencies and clients.

- Buyers are also interested in using the ability that processing vendors have developed in scheduling changes in applications software as well as massive upgrades in processing capabilities and networks. Processing services vendors offer advantages over in-house systems in this regard. Processing services providers are more accustomed to making changes, since they serve a number of clients and are always scheduling sets of changes. In addition, larger vendors are also constantly performing tradeoffs between the use of existing capabilities and upgraded equipment, systems software, and networks, when changes in application products are considered. It is difficult for users to accommodate the same level of planning.

Federal government requirements also promote growth in processing services. There is a growing trend to require information to be provided to the government on-line. Examples include Medicare health claims processing, Fannie Mae applications, and regulatory compliance documents. In addition, the government, along with insurance companies and customers, have set standards for disaster recovery planning that are driving the demand for recovery services.

The greatly increased dependence on the use of information technology that has taken place in industry and in government has been a driving force that affects several modes of processing services. For instance

- Companies using payroll, credit card, and other processing services report that a leading benefit of such processing is having a vendor worry about and guard against interruptions and loss of data in these operations.

- Banking organizations that use a processing services or systems operations report that one of the benefits is the increased opportunity for continuous operation.

- The magnitude of manmade and of natural disasters in recent years has made companies more aware of how interruptions in information systems can affect their business. This had led to dramatic increase in the use of disaster recovery services.

The growth of electronic data interchange (EDI) is leading American business away from paper transactions and toward electronic delivery systems. With this growth will come significant increase in the number of electronic transactions as compared with paper transactions. EDI technology has the capability to increase demand for processing services to support such transactions.

While there are many factors supporting continued use of processing services, there are a number of factors working in the other direction. The most important factor inhibiting growth in processing services is the price/performance of PC/workstations today and the increased availability of software. The cost of micro technology has become more affordable, even to the smallest of businesses. Complex calculations that previously required mainframe capability now can be handled on high-powered workstations. Increased availability of low-cost software makes use of PCs, for a variety of applications, an attractive option. In addition, the state of the economy has led to slashes in IS budgets, inhibiting growth in processing services along with other delivery modes.

The shortage of technical skills that makes it difficult for companies to maintain in-house systems also has a negative effect on processing services vendors. The support that customers expect from their processing services vendors, such as enhanced applications and networks, require technically trained staff. To increase their business, processing services vendors need the staff to support that growth.

Consolidation within the industries using processing services has, in some cases, created the economies of scale needed to invest in internal solutions. This has resulted in erosion of business for processing services.

C
User Expenditures

As illustrated in Exhibit II-3, actual user expenditures for 1991 were $390 million less than last year's forecast of $17 billion. Though the effect of the recession had been anticipated, it was expected that a turnaround would be realized sooner.

EXHIBIT II-3

Processing Services Market Overview ($ Billions)

1991 Outlook		1992 Outlook
1991 Forecast - 18.3	versus	1991 Actual - 17.9
1992 Forecast - 19.7	versus	1992 Forecast - 19.1
1991-1996 Forecast Growth Rate - 8% (CAGR)	versus	1992-1997 Forecast Growth Rate - 8% (CAGR)

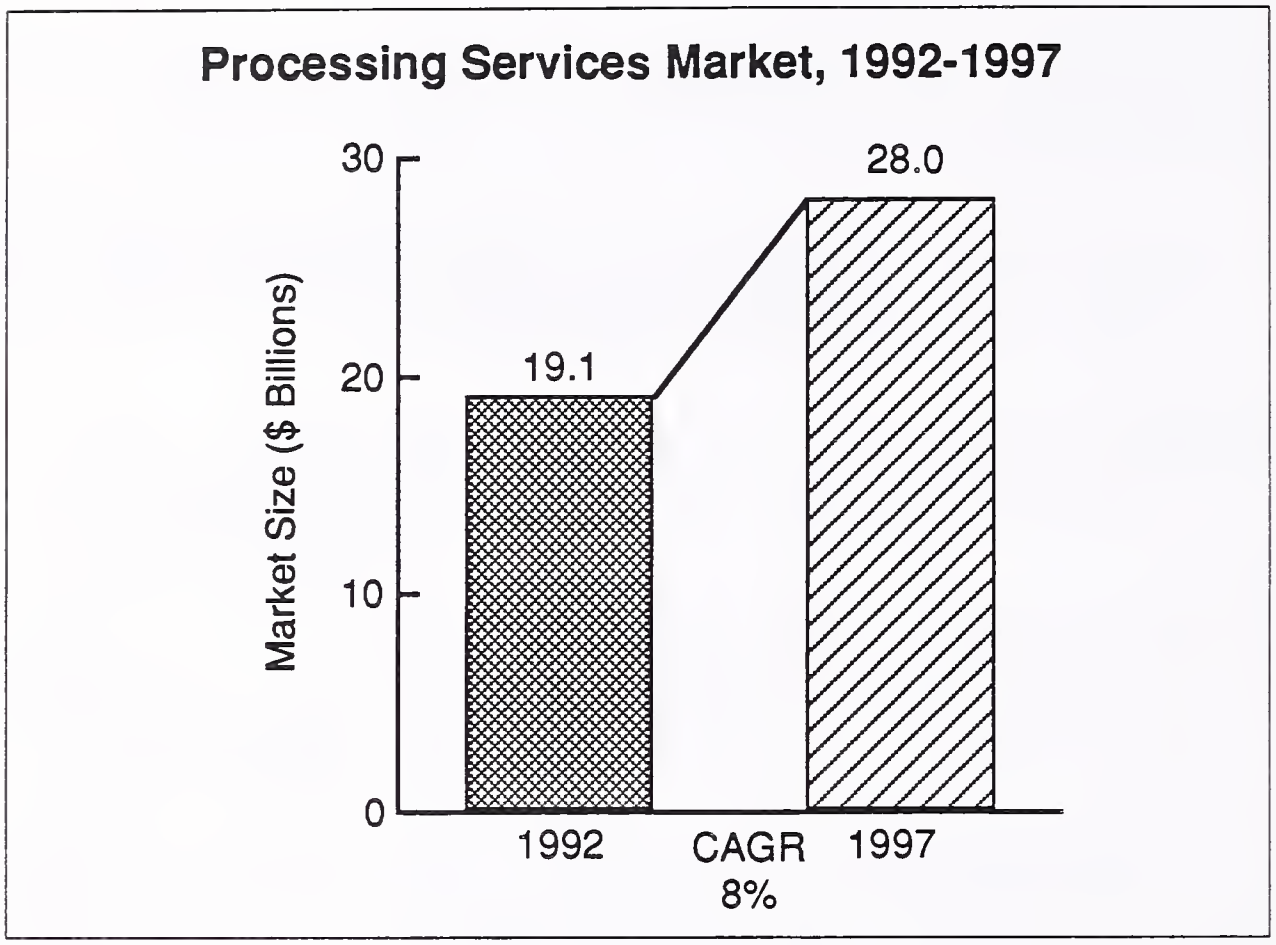
- The continuation and depth of the recession caused the forecast for 1992 to be lowered from $19.7 billion to $19.1 billion.

- While the recession has resulted in adjustments in revenue for 1991 and 1992, it is expected that the CAGR will remain at 8% for 1992-1997.

The compound annual growth rate of 8%, as shown in Exhibit II-4, is the lowest CAGR for any information services delivery mode. This low growth rate attests to the fact that processing services is a mature market.

Processing services however, is forecast to continue to rank among the top delivery modes in user expenditures in 1997, since it had reached a high expenditure level before its growth rate began to dip.

EXHIBIT II-4



Vendor Competition

There are both differences and similarities among the top five processing vendors, listed in Exhibit II-5, that reflect the variation of business among other vendors.

EXHIBIT II-5

Leading Processing Services Vendors
U.S. Revenue, 1991

Rank	Vendor	Estimated Processing Services Revenue Share ($ Millions)
1	ADP	1,286
2	American Express ISC	890
3	First Financial Management Corp.	778
4	Ceridian	322
5	Covia	260

- Two vendors, American Express Information Services Company (ISC) and Covia, are subsidiaries of corporations with most of their business in non-information-services activities. About one-third of the top 20 processing vendors are in this category.

- Three of the top five vendors are information systems companies with significant amounts of business devoted to processing activities. About two-thirds of the top 20 vendors would fit this description.

- Three of the top five vendors serve the banking and finance market, and one of these—Automatic Data Processing (ADP)—also serves the human resources (payroll) market. Banking and finance and payroll are two of the largest industry markets served by processing services. Over half of the top 20 vendors serve one or both of these markets.

- This delivery mode does not seem to be dominated by the top vendors as other modes are, such as network services, systems integration, or professional services are.

- However, service to many industry markets or submarkets is dominated by a small group of vendors, such as ADP, Ceridian, Paychex, and a few other vendors in payroll, and groups of vendors in credit card and bank processing.

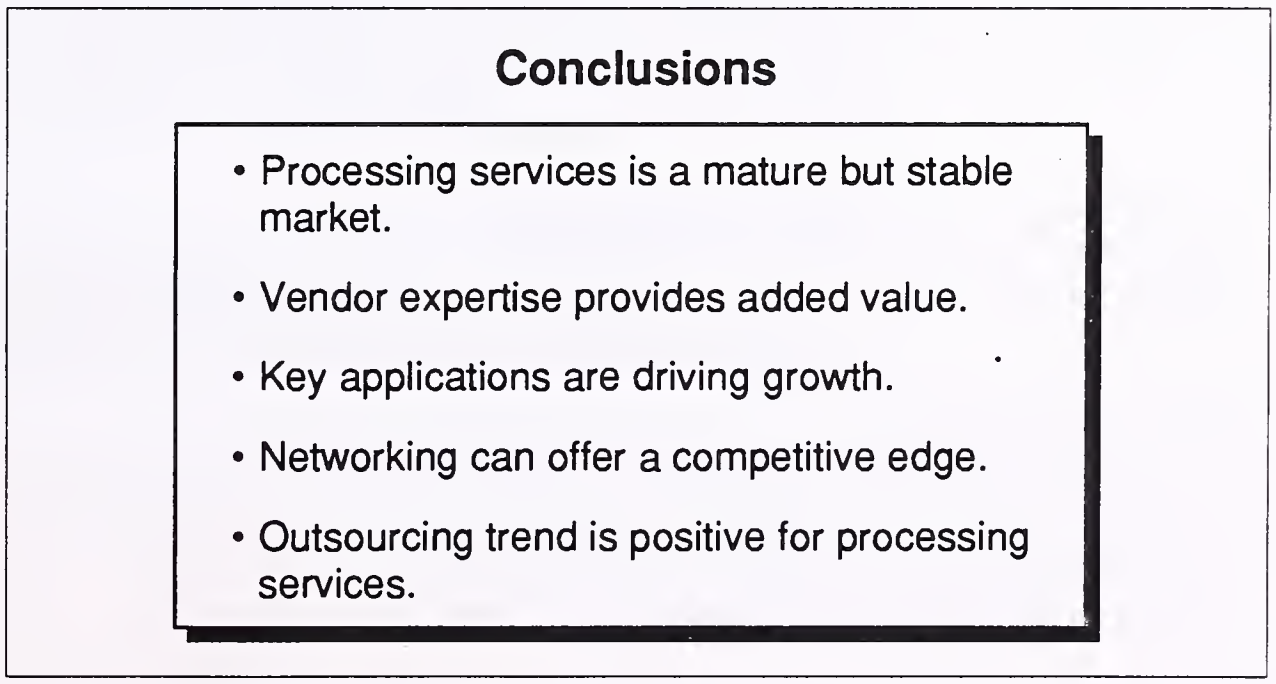
E

Conclusions and Recommendations

1. Conclusions

Exhibit II-6 summarizes INPUT's conclusions regarding the market for processing services.

EXHIBIT II-6



The processing services business is a mature but stable market. While processing services has been the largest of the delivery modes that INPUT reviews, its rate of growth has been steadily declining, due to the growing capability of in-house systems alternatives. As discussed earlier, the downturn in the economy has had a significant effect on processing services since many companies have been reluctant to increase expenditures in this area.

There is a base of customers that is expected to remain stable, however, and processing services *has* its place in the plans of IS organizations. Many companies rely on vendors because of certain expertise that the vendor offers or economies of scale possible due to shared system use. These customers recognize the value added by the processing services vendor and will continue to rely on them.

Certain applications are expected to drive increases in demand for processing services. These include credit/debit card usage, claims processing, billing services, and disaster recovery.

The networking capabilities of processing services vendors can also provide incentives for buyers to continue to rely on their services.

The outsourcing trend is a positive one for processing services vendors. As more companies modify their IS strategies to "buy" instead of "make," processing services vendors have an opportunity to capitalize on this trend. For instance, as companies consider re-engineering and downsizing applications, they often decide to off-load non-strategic applications to outside service providers and concentrate internal efforts on mission-critical applications. This trend will continue to have a positive effect on processing services.

Though processing services is unlikely to return to the dramatic rates of growth experienced in the past, its ability to meet unique application needs will support a stable customer base. Its immediate continued growth is dependent upon a change for the better in the economy and the ability of processing services vendors to capitalize on trends in areas such as outsourcing, downsizing, and networking.

2. Recommendations

Since processing services is a mature market, vendors must look to expanding service if they wish to grow, as shown in Exhibit II-7.

EXHIBIT II-7

Recommendations—Vendors

- Expand service offerings
- Specialize in niche or vertical markets
- Enhance applications and add features
- Maintain sophisticated networking capability
- Develop services to complement new technologies

Many vendors are also providing systems operations, systems integration, and professional services, whereas others offer application software. Offering a variety of services provides three important benefits. First, it provides opportunities to increase revenues at a higher rate than would be possible if only processing services were provided. Second, it puts the vendor in a position to be aware of opportunities to increase processing services revenue. Third, it makes the vendor more aware of customer needs for new services, which can lead to more revenue.

One of the key reasons that customers use processing services is because of the expertise that vendors bring to the table. Vendors should continue to specialize in key application niches or vertical markets as they expand service offerings. They should continually be looking for ways to capitalize on their known reputation in one area, to expand services into a related area.

For processing services there will always be some erosion of the customer base as companies grow and invest in internal systems. Vendors are faced with the need to constantly upgrade their capabilities and add features and new pricing options to bring in enough new business to replace what erodes and meet growth targets.

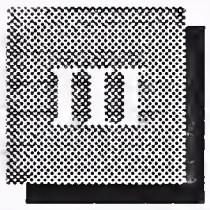
Networking can be a key advantage that processing services vendors can emphasize with prospective buyers. It can be difficult for companies to continually adjust their own networks to accommodate changes in usage traffic patterns and work or transaction volumes.

To compete effectively in the years ahead, vendors of processing services are going to have to find a way to co-exist with technologies such as distributed processing, client/server technology, and wireless communications. Buyers are demanding higher levels of service at competitive prices. The vendors that achieve growth will be the ones that can accommodate these needs.

Processing services vendors are also facing some challenges ahead. One the one hand, customers are continually being offered new service alternatives, at competitive prices, that compete with processing services. To remain competitive, vendors will have to continually update applications, networks and service levels. Yet such upgrades require investment, and buyers of processing services are typically price conscious and reluctant to pay higher rates for improved service.

Processing services vendors must expand their service offerings to survive and grow in the marketplace. The expertise which they have developed over the years in their targeted industries/applications can provide a strong base upon which to enter new business areas.

In the future, the dividing lines between processing services, systems operations, and other third-party services will blur. The successful vendors of tomorrow will be those that can work side by side with upper management in their targeted markets to develop solutions to business problems. These solutions will make use of both in-house systems and outside services. The vendors that offer the most value will be those that can address the customer's needs with the most cost-effective array of options.



Business Climate

This chapter provides the INPUT overview of the current business climate for the U.S. information services industry and for the processing services delivery mode.

A Overview

Despite concern about the painfully slow growth rate in the U.S. economy in 1992, information services industry vendors report that the environment offers significant opportunities together with challenges as indicated in Exhibit III-1.

EXHIBIT III-1

Impact of the Economic Environment

Factor	Impact on the Information Services Industry
Low level of growth in U.S. economy	Increasing need for application systems that can improve revenues and restructure business
Slower growth rate for U.S. information services industry	Likelihood of slower growth rates for vendors that pursue business as usual
Annual increase in information services business of over $10 billion	Significant target for aggressive vendors
Foreign market opportunities and competition from foreign vendors in the U.S. economy	Need for information technology to increase quality in products and customer services

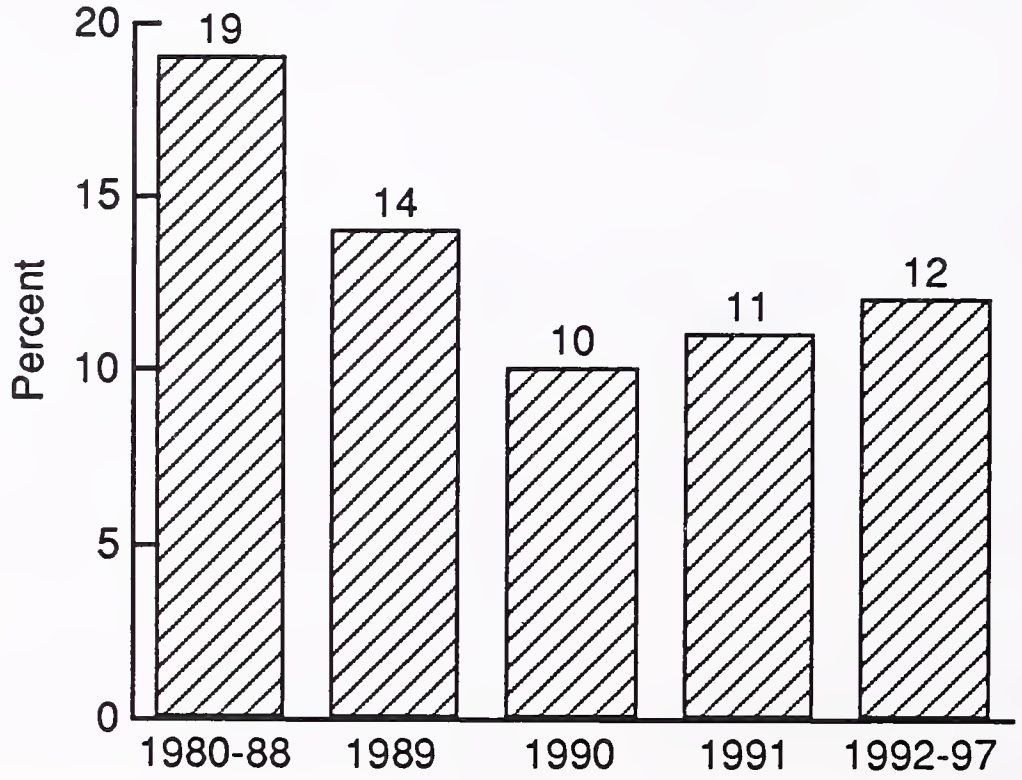
- The annual increase of business in the industry of over $10 billion makes it one of the more attractive areas of opportunity in the economy.

- Demands to address the low level of economic growth has led to vendor projects that are aimed at increasing revenues through improved geographical analysis of sales coverage, and to improving service and product quality through client/server systems that enable users to communicate between functions more effectively.

The U.S. information services industry is growing at a slower rate in the 1990s than it did in the prior decade as shown in Exhibit III-2. Although the industry is rebounding slightly from the recession, it is not likely to return to the growth rates of the early 1980s. Vendors cannot rely upon a favorable growth climate to help many of their product and service initiatives.

EXHIBIT III-2

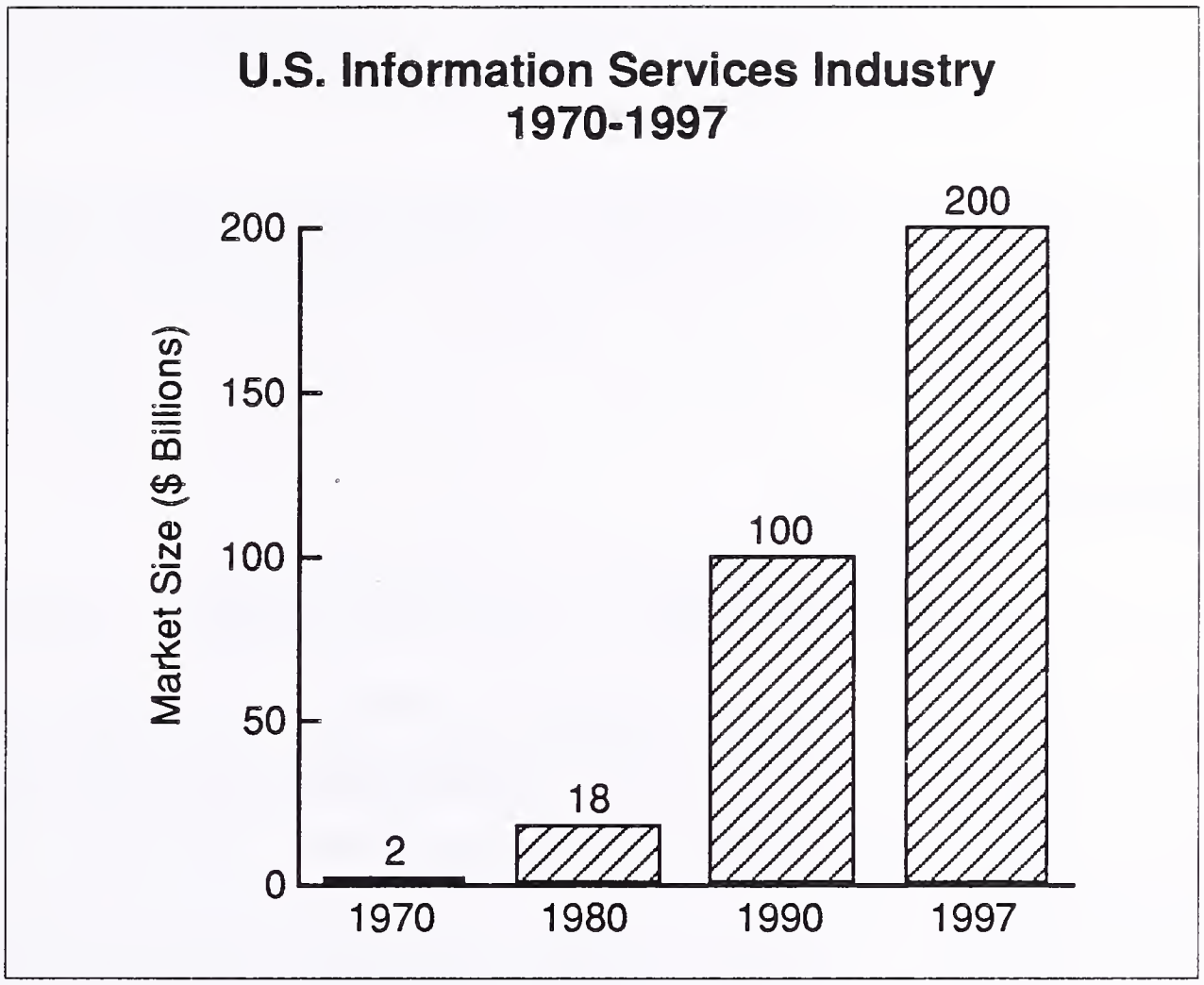
U.S. Information Services Industry
Annual Growth Rates



The industry did reach a milestone during 1990, advancing beyond a level of $100 billion in size.

- As Exhibit III-3 shows, the industry increased in size over five times during the 1980s and is 50 times larger than it was in 1970, when the industry represented $2 billion in user expenditures.

EXHIBIT III-3



- By 1997, the U.S. information services industry will reach a size of $200 billion and the annual increase in absolute terms will in the $20 to $25 billion range.

High rates of growth for the sale of software products and professional services provided the engine for growth during most of the last decade. As rates for increases in sales of these delivery modes declined, there were concerns about continuing vigor in the information services industry.

- Growth of U.S. information services expenditures has been reinvigorated, however, by interest in outsourcing, restructuring, and downsizing business application systems and by an increasing use of network services as well as by a continuing vigorous growth in systems integration.

- In effect, the information services industry has been shifting from sales of products and services for new application systems to sales that will upgrade, manage, and outsource the use of information technology. This shift will continue to increase, driven by needs to restructure business to achieve greater effectiveness and revenues as well as greater productivity.

On a worldwide basis, the industry continues to experience higher growth rates—close to 20%—and many U.S. vendors are experiencing growth overseas that exceeds that of the U.S. industry as a whole.

- This growth is primarily due to the relative stage of automation in many foreign markets, but the focus on specific industry markets in some countries is also a strong factor.

- Inflation rates and somewhat stronger economies have also helped to drive the global use of information services in the last few years, but these factors may have less of an impact at this time.

B

1991 Results for the U.S.

1991 results in the U.S. are analyzed below on a delivery mode basis:

- Although systems integration, systems operations, and network services are not among the top three delivery modes in size, their rapid rates of growth (16% to 19% CAGR) are a major factor in maintaining and increasing the rate of growth in the industry as a whole.

- The software products sectors are maintaining a rate of growth near or slightly above the industry average (about 12% CAGR).

- The industry averages are pulled down by the slower rates of growth in the large professional services and processing services sectors, as well as by the smaller turnkey systems sector (7% to 9% CAGR).

Overall 1991 results in the U.S. information services industry are summarized in Exhibit III-4.

EXHIBIT III-4

U.S. Information Services Industry
1991 Results Summary

- Reached $110 billion in 1991
- Growth 2 to 3 times that of the economy continues
- Growth of 11% in 1991; forecast to return to 12% in 1993
- Extremely slow economic growth is complicating user plans

C
Market Forces

The set of market forces noted in Exhibit III-5 will impact the information services industry in the 1992-1993 timeframe and will also have measurable effects on the overall growth rate for the five-year period covered by this market analysis report (1992-1997). Each force will affect the industry as a whole, as well as each of the nine delivery mode sectors used by INPUT to analyze the industry and its key trends.

EXHIBIT III-5

U.S. Information Services Industry
Primary Driving Forces, 1992-1997

- Slower economic growth
- Globalization
- Growing influence of large vendors
- Shift in technology
- The changing buyer
- Outsourcing ("buy" versus "make")

Slower Growth—The first of these forces, the interaction of the economy with the overall size of the industry, is a significant factor in user expenditure levels for information services, including software products.

- Since economic growth is slow and inflation remains low, there is less increase in industry sales due to pressure on prices.

- Real economic growth, which had been modest over the past few years prior to the recession that started in late 1990, will continue to be low during the forecast period. Consequently, it can continue to cause plans for the expanded use of information services to be deferred or canceled in many industry sectors.

- The shift of information processing to smaller computers, which has been encouraged by the economy as well as technology, has lowered the software products investment, based on current pricing practices. Quantities of software products sold will increase, but revenue levels will grow at more modest rates unless software products are sold together with professional or systems integration services where their price might be increased in line with actual value.

1991 tended to follow the pattern of 1990. While there was little or no real growth in the overall economy and modest inflationary growth in the range of 5%, the information services industry grew at an annual rate of about 11%.

- Whereas INPUT's 1990 and 1991 economic assumptions were for nominal GDP growth of 5.4%, real GDP growth was substantially less.

- At this point in 1992, as the third quarter gets underway, the economy remains in a low level of growth although a recovery, a slow moving or "sloth of a recovery" as *Business Week* has described it, is underway. At the same time, inflationary pressures are modest. INPUT anticipates another year of modest growth in 1992 together with a slight rebound in information technology (IT) expenditures.

The expected slow upturn will have the following positive and negative impacts on the U.S. information services industry in the near term:

- Positive impacts:

  - Increased motivation to buy rather than make, in particular for larger systems requirements. Response time and impact on business operations are the key criteria supporting use of outside services.

  - The interest in outsourcing, which permits organizations to redeploy capital investments and lower direct head count, is being encouraged by slow economic conditions and the desire to lower costs.

  - A tight economy is helping develop interest in lower cost solutions that come from client/server-based applications software products or attractively priced processing services offerings.

- Possible Negative impacts:

  - Continuing delays in decision processes, although not as severe as in 1990 and 1991, will cause some delays or deferrals of major information systems projects.

  - With tight constraints on external information services expenditures at some companies, the internal information systems staff can be burdened with application maintenance, enhancement, and development assignments rather than using contract professional or processing services vendors, thus negatively impacting major segments of the services industry.

Globalization—The second major market force, which INPUT has stressed for the past three years, is globalization. During that time more markets have opened, vendors have expanded their international focus, and users have begun to expect global capabilities.

- The European market is making progress towards becoming a single entity. 1992 has arrived and many changes are apparent. In addition, the European market is showing that it has the size and strength to become a major economic force in relation to the U.S. and Japanese markets, although all are suffering current economic problems.

- U.S. vendors are reporting new ventures in Europe that are being stimulated by the single European market, such as data base application systems that are aggregating data and providing views of results in multiple currencies.

- The worldwide orientation of the larger services vendors has been confirmed by the investments in Europe of Computer Sciences Corporation (CSC), Digital Equipment Corporation (DEC), and other vendors as well as by the ever-expanding interest of Japanese vendors in the U.S. information services industry.

The primary positive impact of globalization is the ability of larger vendors to balance their businesses in multiple markets with less impact from market downturns.

The primary negative impact from globalization is that it may make it harder for smaller vendors to grow and/or maintain independence.

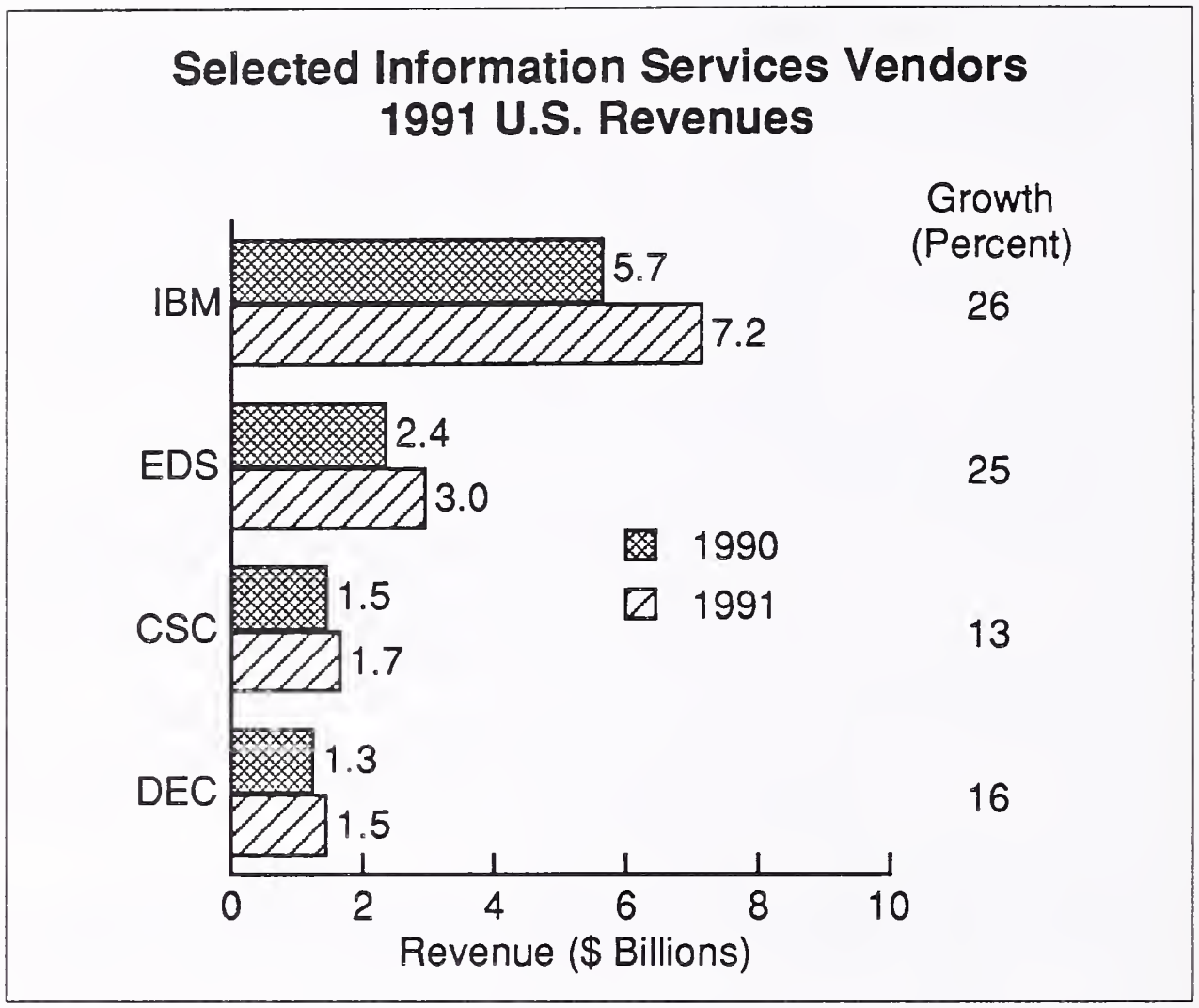
Large Vendors—The third market force is the influence of larger information services vendors, which has increased significantly over the past three years.

- The newer systems integration and systems operations sectors, although smaller than more traditional sectors such as professional services and processing services, are growing faster than the traditional sectors and are dominated by the larger vendors.

- A number of the larger vendors such as IBM, EDS, CSC, and DEC are growing faster than the overall market, as shown in Exhibit III-6. These vendors have more opportunity, based on their resources, to enter (or acquire vendors in) desirable foreign markets.

- There are also numerous smaller firms that are growing faster than the general market, but larger vendors have a disproportionate opportunity for obtaining bigger jobs and continuing to add large amounts of revenue to their bottom line each year.

EXHIBIT III-6



The influence of larger vendors is also increasing in other ways. Starting with IBM, many large services vendors are making minority and majority investments in IT firms to gain influence over technology, access to software products for re-marketing, and market share.

The increasing use of business consulting linked to professional services has provided a means for the large accounting and consulting firms, as well as some large information services firms, to gain a greater share of the industry. INPUT expects this trend to continue over the next few years.

The opportunity for the smaller, more specialized software product or services vendors is not disappearing, but it is changing character.

- Alliances with larger vendors will be essential, at least as secondary sales and support channels.

- Specialization, in terms of the technology used or the industry served or both, will become more important and common.

The continuing increase in the strength and impact of the larger vendors will have the following positive results:

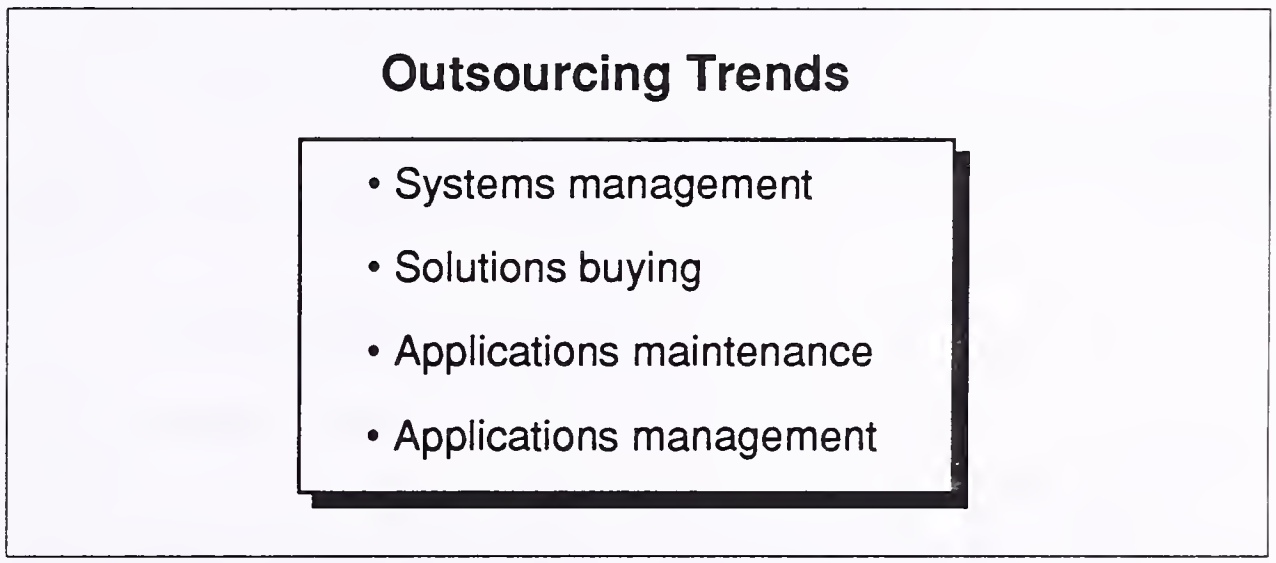
- The larger vendors have the financial strength to mobilize resources for very large jobs.
- The size of the vendors can help to minimize the risk of losing large contracts.
- The larger vendors have financial resources available to invest in new technologies, often through investment in smaller and specialized firms.

Alliances may be necessary for smaller technology firms to overcome the advantages discussed above and survive.

Larger firms, however, tend to move more slowly, which will hamper development and acceptance of new technology. This slowness will provide opportunity to small vendors that seize technology initiatives.

Outsourcing—The fourth market force is outsourcing. The recession has encouraged more companies to consider outsourcing, and interest in it has grown from the outsourcing of payroll processing and the management of information systems (systems management) to other types of activities such as solutions buying, applications maintenance, and application management, as shown in Exhibit III-7.

EXHIBIT III-7

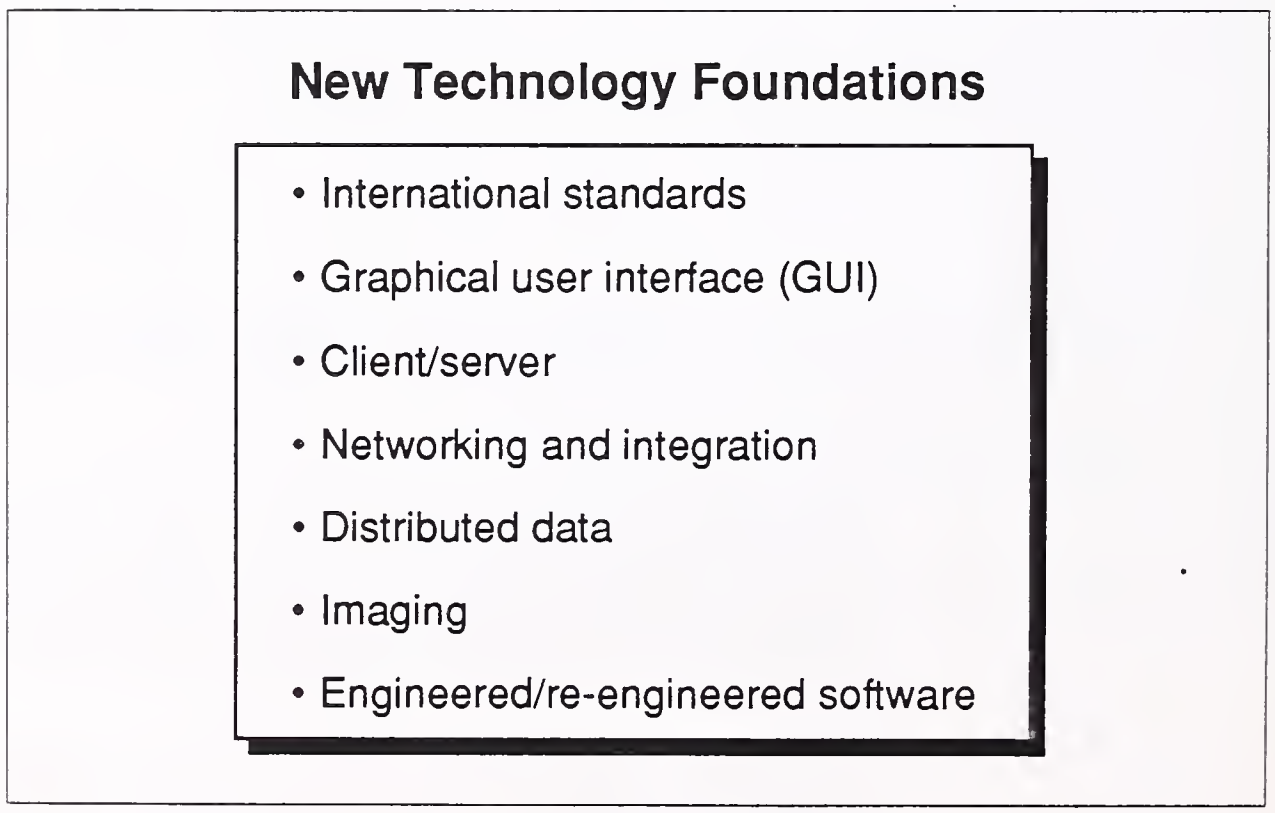


- Applications maintenance, the round-the-clock support of applications systems, and application management, contractual arrangements to manage the development and support of application systems, are new means for utilizing support from professional services vendors that provide for more defined relationships and pricing.
- "Solutions buying" is support for client/server technology where a vendor will provide software products and customization to satisfy the needs of a distributed environment.

Technological Shift—The fifth market force is the shifting technology foundation. This force concerns developments that are adding complexity to or shifting the technological basis for the use of information systems. As shown in Exhibit III-8, new technology foundations include the following:

- The international standards, which must be considered when developing or buying software products in today's market.
- Graphical user interfaces, which are expected in software products delivered to users.
- The client/server architecture, which is providing the technology to meet user needs. This is the vehicle for downsizing application systems or portions of them for user environments.
- Networking and integration, which provide the means for distributing application systems as well as linking the functions of a company—either internally or with, for instance, a processing services vendor.
- Distributed data, providing the ability to use data in distributed user environments.
- Imaging, the inclusion of the entire source document in the information systems application.
- Engineered/re-engineered software products that will change the entire approach to the maintenance and enhancement of application systems.

EXHIBIT III-8



These shifts will make it possible for solutions to be more tailored to user environments and company situations, although they will be accompanied with confusion and hesitation as they are introduced. These shifts will also create a number of opportunities for vendors of information services.

Changing Buyer—The final market force to consider is the changing nature of the buyer.

- The decision maker for the purchase of information services remained relatively constant until the late 1980s.

- The information systems executive and key staff (systems development and data center operations managers) decided when to go outside and whom to contract with.

This role has changed significantly in the past few years and promises to change even more. As the information services vendor moves to provide a long-term service or a full solution, the executive (in user functional areas) is becoming the buyer. The impacts are significant:

- Technology becomes less important and the business or operational impact becomes more important.

- The impact of the information systems function becomes more consultative and less direct.

- The ability to try new ideas and approaches is increased.

- Time to completion is controlled by the organization's ability to afford, not the constraints on the information systems group's ability to develop.

D
Summary

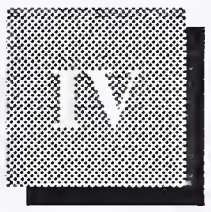
1991 and 1992 have been a period of significant changes from the 1980s. The changes suggest more modest *rates* of growth, but still a sizable *amount* of growth in absolute terms. In addition, a number of opportunities and challenges could have a positive effect on vendors that opt to play a proactive role in the changes taking place. For example,

- A market of $110 billion that is growing at 11% annually and 12% over the next five years (CAGR) offers major opportunities.

- The increasing tendency of larger organizations to turn to vendors for services that include significant elements of systems management and have a solutions orientation will lead to larger, longer term decisions for vendor business.

- The shift in the underlying technology foundation will create more valuable and productive applications solutions, but this shift will also bring re-engineering, reinvestment, and retraining, and require time and money.

The role of the executive (in user functional areas) concerning the deployment of information technology continues to increase and will become more important in regard to vendor selection over the planning period.



Information Systems Environment

A Background

INPUT includes three sectors in its analysis of processing services: transaction processing, utility processing, and other processing services.

The transaction processing sector is characterized by the customer's willingness to off-load a business application or application set to a third-party provider on a "pay as you go basis." It includes such functions as credit card processing, payroll, and airline reservation systems.

Transaction processing services constitute the dominant form of processing service delivery. Vendors such as ADP, EDS, American Express Information Services Company, First Financial Management Corporation (FFMC), Mellon Bank, Shared Medical Systems, General Electric Information Services, and National Data Corporation derive a large share of their revenues from such activity.

Utility processing is the use of computing power and tools to develop and/or tailor applications or solutions specific to each user's requirements. Utility processing is primarily used in very large government, engineering, and manufacturing environments. The vendor provides access to the computer through a communications network, with software tools and consulting support to enable the user to develop and run the specific application being created. Software tools usually include compilers, DBMSs, 4GLs, sorts, terminal hardware support, scientific and statistical libraries, graphics capabilities, financial modeling systems, and other application development tools.

Most organizations use utility services on a project basis. For example, software product companies, particularly small ones, buy time from vendors to develop and test their products. Other companies, converting from one system to another, buy resources during the change to avoid unnecessary and costly in-house duplication of processing resources. Utility processing can also be used to handle overload conditions on in-house systems.

"Other" processing services include computer output laser printing, disaster recovery and backup services, carry-in data entry services, and offshore data entry. This sector has been stimulated by the rapid growth of disaster recovery services, spurred by a series of major disasters in recent years which made it clear that large organizations with mission-critical systems are highly vulnerable if they do not have such services in place.

Processing Services emerged in the 1960s and grew to prominence in the 1970s, spawning a number of large and very successful service organizations. During that time period, the cost of investing in in-house computing was significant and for many small and mid-sized companies unrealistic. For other companies it was efficient and cost effective to use an outside service provider to handle large data processing functions such as payroll. Customers also benefited from the added value which processing services vendors offered in assuring compliance with changing government regulations and other requirements.

The 1980s was a time of considerable growth in the acquisition of in-house computer systems. As the cost of technology came down, particularly at the PC level, and the processing power of smaller systems increased, more and more companies invested in their own systems. Processing services vendors find themselves today in a competitive mode with in-house solutions.

B

Processing Services in the 1990s

In preparing this report, INPUT interviewed 64 users of processing services and 25 vendors. Analysis of responses and other research showed that processing services represents only a part of information technology uses by companies today. Whereas some small companies still make use of processing services vendors for nearly all of their data processing needs, on average 13% of the budget allocated to information services is earmarked for processing services. As seen in Exhibit IV-1, the great majority of those we spoke with described their computing environment as mainframe based, linked to either dumb terminals or LANs/PCs.

The Department of Commerce (DOC) expects processing services revenues in 1992, along with network services, to grow by about 13.5%. The DOC reports that the primary revenues of processing services will continue to be in the area of transaction processing with key applications . being medical/insurance claims processing, utility billing, and credit card billing/approval.

EXHIBIT IV-1

User Computing Environment

Environment	Percentage of Respondents Noting This Environment*
Mainframe linked to dumb workstations or LANs/PCs	83
Minicomputers linked to dumb workstations or LANs/PCs	20
Minicomputers dedicated by application	18
PCs/LANs	8

* Multiple environments were noted by some respondents.

Exhibit IV-2 describes several industries making use of processing services today.

EXHIBIT IV-2

Key Industries Using Processing Services

Industry	Processing Services Application
Banking/Retail	Credit/debit card processing Customer information files Check guaranty Electronic signature
Medical/Insurance	Claims processing
Brokerage	Back office processing-trading
Transportation	Computer reservation systems

Banking and finance is by far the largest user of processing services. Uses include credit/debit card processing, check guaranty, and analysis of customer data bases to develop new customized products and marketing strategies. The retail industry plays an integral role in these functions and is becoming more involved in making use of customer data bases available through credit card usage to fine tune their marketing approaches.

Claims processing is a major function handled by processing service vendors and the move toward electronic filing in the industry is increasing the number of transactions handled for this function.

Vendors such as ADP have become involved in offering services tailored to serving the brokerage industry to handle transactions. Cost savings make this an attractive option to clients.

Most travel transactions are made through a limited number of reservations systems. These services, such as Sabre and Apollo, may make use of third parties such as EDS to support processing needs.

Relevant industry issues affecting the applications described above are discussed in Chapter V.

Cross-industry uses of processing services are seen in Exhibit IV-3.

EXHIBIT IV-3

Representative Cross-Industry Applications

- Payroll/human resource management
- Tax filing
- Scientific applications
- Accounting

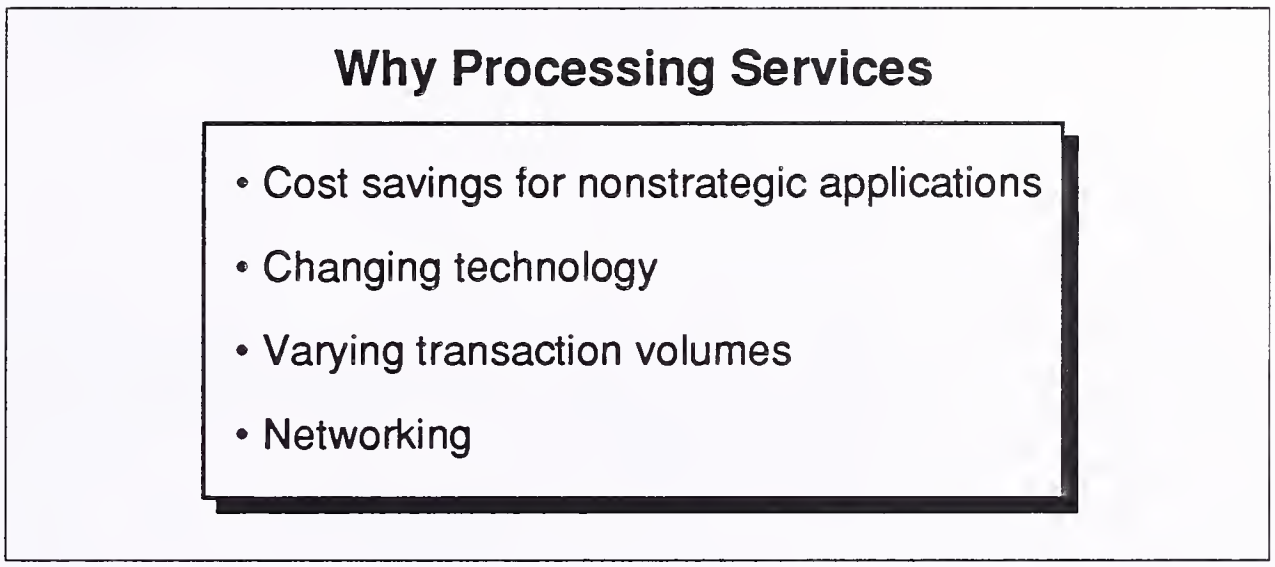
Payroll has traditionally been a major processing services application used by a variety of industries. High unemployment has directly affected vendor revenues in this category, as clients' cost of service is calculated on a per-employee basis.

1. Why Use Processing Services?

With the decreased cost of in-house systems, why make use of processing services today? It appears that the willingness of user organizations to resist bringing applications onto their own in-house systems depends on the nature of the application itself and the vendor's ability to perform such applications in a cost effective and reliable manner.

Exhibit IV-4 lists some of the reasons for using processing services.

EXHIBIT IV-4



Economics: Cost savings is clearly a significant factor in using outside processing services. Many companies have had significant budget and head count reductions as a result of the economy and have had to turn to processing services to take up the slack. In addition, some applications can be run more economically by vendors due to economies of scale. For example, in the brokerage business, companies are finding that an outside vendor can handle back office operations for several brokerage houses much more cost effectively than each firm could do it themselves.

Nonstrategic applications: Another factor is that companies are putting increasing emphasis on channeling their own efforts back to their primary areas of business and using outside services for ancillary functions. Applications that are not related to the primary functions of a business, like payroll, are often prime candidates for processing services.

Changing Technology: Clients are also looking at the fact that technology is changing constantly. This makes companies reluctant to invest in in-house systems only to be faced with updating costs. Many respondents to INPUT's survey said they must constantly walk a fine line between being on the "cutting edge" of technology and managing costs. Changing technology also makes it difficult to acquire and maintain appropriate technical staff.

Varying transaction volume: Certain applications are characterized by variations in input volumes resulting in periodic incremental staffing and equipment costs. In addition, even when volume is low, an in-house system still involves costs related to keeping applications up-to-date. This, along with the costs of adding applications to the workload of existing centers, are key factors in choosing processing services.

Networking: Another primary reason for using a processing vendor is the ability to take advantage of vendor networks, equipment, or software products. A vendor generally can accommodate changes in networking and applications needs in a more timely manner than is typically possible through a customer's own private network. As companies increase the amount of business done on a global scale, and as services such as EDI become more popular, networking capabilities will become important priorities.

When a company decides to use processing services, it expects that such an arrangement will provide added value, as compared with an internal system. The company has certain expectations from its selected vendor. As seen in Exhibit IV-5, these expectations focus on quality, functionality, service, pricing, and ongoing support.

EXHIBIT IV-5

Client Expectations from Processing Services Vendors

- High service levels
- Enhanced applications
- Reasonable pricing
- Support for changing needs

The vendors INPUT contacted indicated that their customers are demanding increasingly higher service levels. Twenty-four-hour service has become a more common requirement. Quality and timeliness in providing reports is a must.

It is also expected that applications will be continually updated as needs evolve. Vendors that are able to customize solutions to specific needs demonstrate that their services are not a "commodity" resource.

Though expectations have increased, customers are reluctant to raise expenditures accordingly, given recent economic conditions. Buyers reason that as technology prices come down, processing services vendors should be beneficiaries of this and should pass these cost savings on to their customers.

Finally, customers want to know that vendors can not only meet their needs today but that they will be able to continue to support requirements in the future. Many companies are changing business processes and investing in new technologies. They expect processing services vendors to also be able to accommodate changing needs.

2. The Impact of the Economic Downturn on Processing Services

Industries that make extensive use of processing services have felt dramatic effects from the recession. The banking and finance industry has gone through considerable consolidation and has felt increasing pressure to reduce costs. The retail, transportation, and manufacturing industries are all heavily dependent on consumer spending and have been experiencing particularly hard times. Most companies seem to be maintaining their IS budgets at a constant level with minimal budget increases in recent years. In banking, IS budgets have often been cut with management hoping to return to pre-recession levels "next year." Still, processing services has held its own, with most client companies reporting expenditures staying the same in recent years, or even increasing slightly.

Exhibits IV-6 and IV-7 show reported budget changes in the past two years both for information services in general and processing services specifically.

EXHIBIT IV-6

Budget Changes, 1990-1991

Status	IS (Percent)	Processing Services (Percent)
Stay Same	52	47
Increase	37 (avg. 7)	37 (avg. 5.6)
Decrease	11	16

EXHIBIT IV-7

Budget Changes, 1991-1992

Status	IS (Percent)	Processing Services (Percent)
Stay Same	48	52
Increase	41 (avg. 8)	43 (avg. 6.4)
Decrease	11	5

Expenditures in both categories have remained constant for the past two years for nearly half of the respondents. Whereas in 1991 only about a third reported increased spending on IS and processing services, in 1992 43% increased processing services spending by an average of 6.4%. This parallels increased spending by about 41% of the respondents on IS in general in 1992 at an average increase of 7%. As demonstrated in the exhibits, expenditures on processing services relative to IS have remained relatively constant.

As seen in Exhibit IV-8, expectations for 1993 are for IS expenditures to remain constant or increase by 10% or less.

EXHIBIT IV-8

IS Budget Outlook, 1993

	Percent of Respondents
Stay same/slight increase	52
5% increase	9
6% to 10% increase	8
Over 10% increase	2
Don't know/no response	29

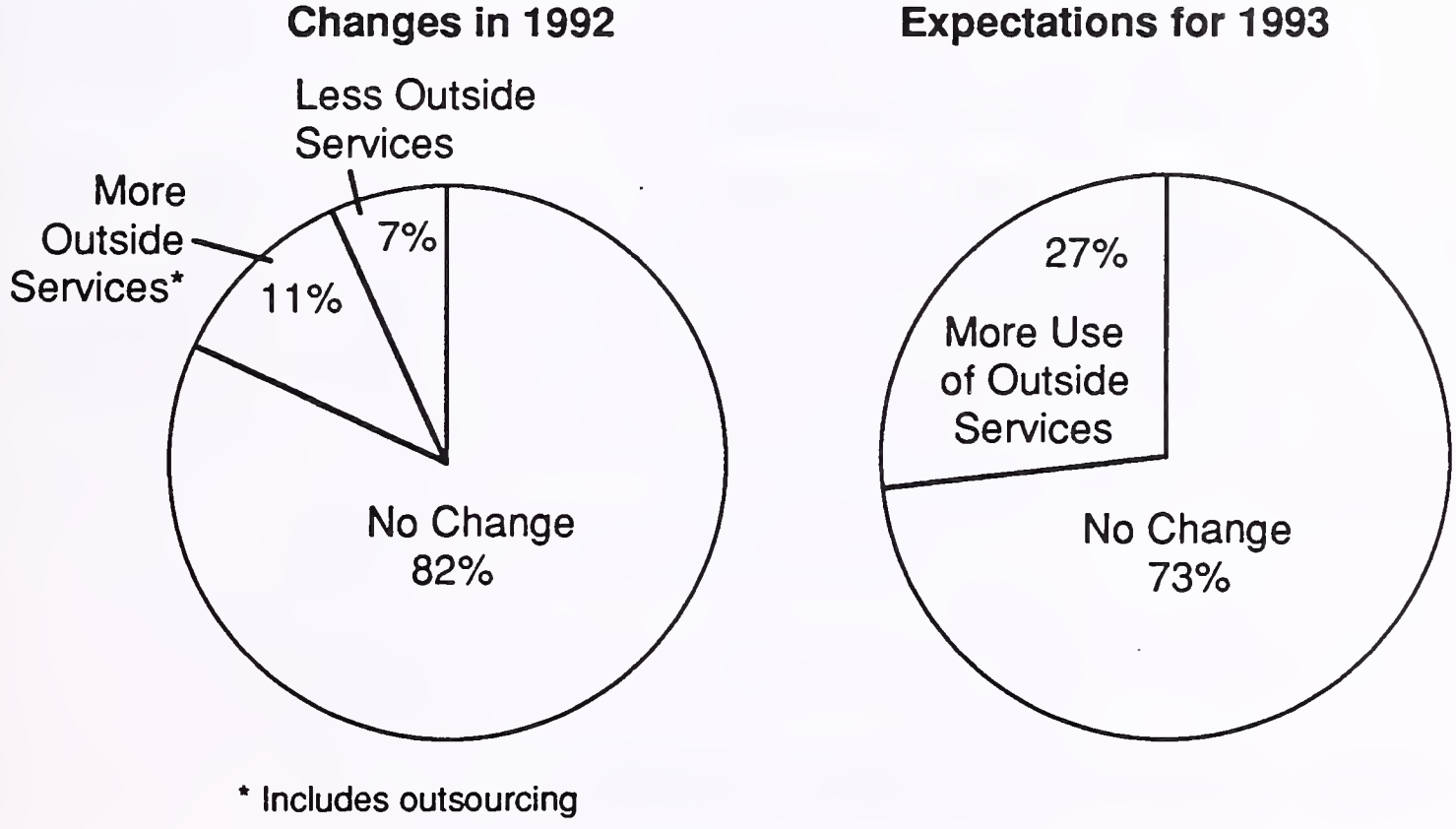
C
Future Outlook

In general, processing services is a mature market. While technology advances in the 1980s resulted in many applications moving in-house, use of processing services today appears to be relatively stable. As seen in Exhibit IV-9, the great majority of those who responded to survey questions regarding plans reported no change in the use of processing services in 1992 and no expected change in 1993.

However, perhaps due to recent business and economic trends and outsourcing, 27% of the companies responding to the question, expect to increase their use of outside services in 1993.

EXHIBIT IV-9

Use of Processing Services



As companies are consolidating and attempting to streamline operations as a result of the effects of the economy, many are focusing on their core business as their top priority. Banks, for example, are putting most of their investments and energy into banking-related activities and looking to outside experts to support their data processing needs. Though much of this activity is in the outsourcing or systems operations area, where a company actually transfers its IS operations to a third-party vendor, processing services can ride on the coattails of this trend. For many of the

processing services vendors that also provide facilities management services, increases in systems operations will probably more than compensate for modest growth in processing services. As the differences between systems operations and processing services continue to blur, vendors can expect to achieve growth through offering a variety of services to clients.

In addition to the transaction processing services that account for the bulk of services offered in this mode, utility and other processing services are also important sectors of the processing services market.

Utility processing is the development and running of jobs by clients using vendor software products and production resources. Although more of this type of processing can be run in-house as workstations/PCs increase in capability, according to respondents, there is always the potential for some utility processing when organizations have information services needs in excess of their capabilities and IS capabilities.

Overall, however, respondents to INPUT's survey expect utility processing to grow less rapidly than the use of transaction processing services.

"Other" processing services include pick up and delivery of work, microfilm and other output, and data entry, which some clients feel are necessary ancillary services to transaction processing.

Disaster recovery services dominates the "other services" category and represents the fastest growing area in processing services today. It was cited by 50% of the companies interviewed as a key planned project involving processing services. Exhibit IV-10 illustrates the importance of this function and the user's reliance on outside services. Most are using disaster recovery services for hot sites and telecommunications.

EXHIBIT IV-10

Disaster Recovery Planning

	Percent of Respondents*
Have disaster recovery plans	88
Use outside vendor	83
• Hot sites	98
• Cold sites	34
• Telecommunications	98

* Multiple responses allowed.

Other key applications which are being considered for processing services are listed in Exhibit IV-11.

EXHIBIT IV-11

Key Processing Services Projects Planned

- Disaster recovery
- Banking applications
- Clearinghouse operations
- Item processing
- Microfiche
- Point-of-sale systems
- Credit card/check clearing
- Payroll

The possibility of adding new applications and services to the work provided to clients today is an important opportunity for processing services vendors. Clients expect vendors to take a larger role in evaluating whether work could be moved in-house or combined with other in-house work and handled as a systems operations relationship. To maintain the revenue flow from clients and to best assist their customers in evaluating processing alternatives, vendors should participate, where appropriate, in client production planning.

Some vendors of processing services may be more interested in offering other types of information services to clients.

As noted in Exhibit IV-12, vendors of processing services frequently offer a variety of other products:

- Professional services offer a fast means of reacting to a new client problem.

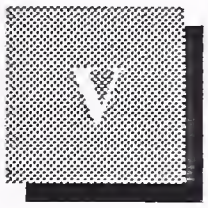
- Software products, turnkey systems, systems integration (SI), and outsourcing are also available to clients.

- To most effectively present service and production options, processing services vendors should be prepared, through the use of alliances if necessary, to use consulting techniques and presentation methods when reviewing alternatives for future work.

EXHIBIT IV-12

Other Services Offered by Processing Services Vendors

- Systems operations
- Network applications
- Electronic information services
- Applications software products
- Turnkey systems
- Systems integration
- Professional services



Issues and Trends

A
Introduction

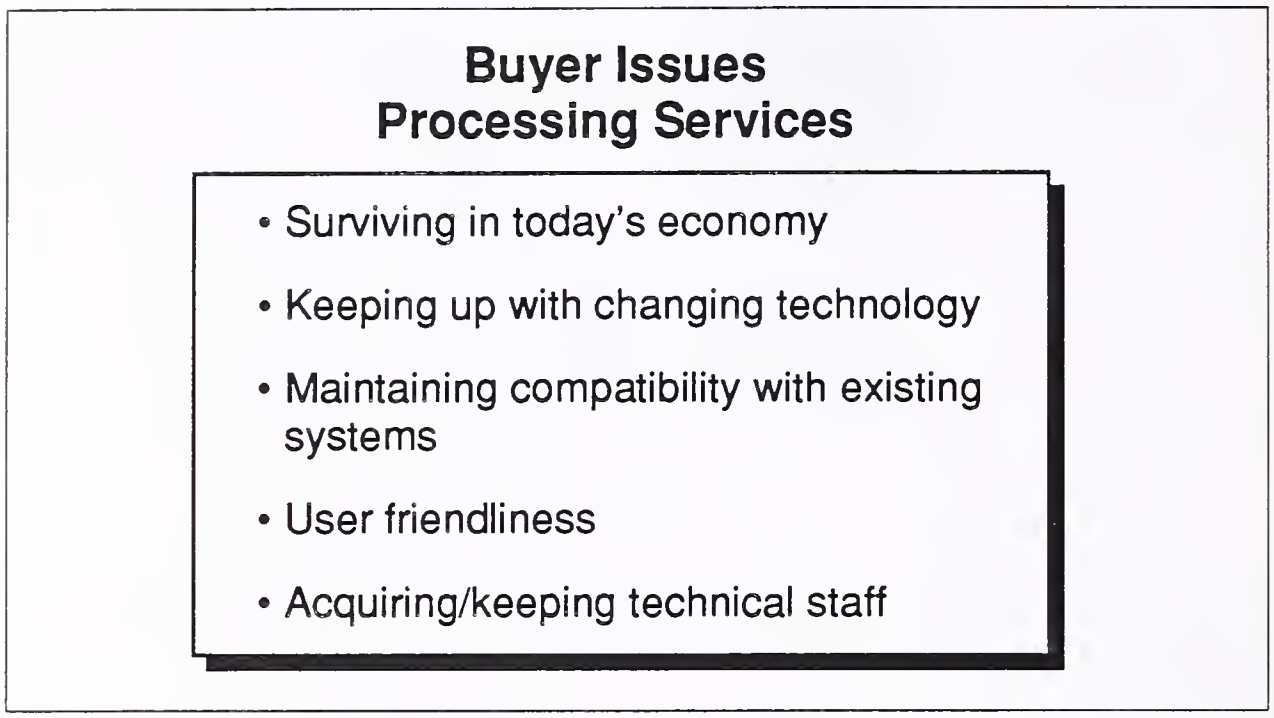
INPUT's research and interviews with both buyers and vendors of processing services uncovered a number of key issues and recent trends that are affecting the market for these services. Some are general in nature, affecting most U.S. businesses today, while others relate to specific industry or technology trends that are having an impact. This chapter describes these issues and trends and analyzes how they are likely to affect the demand for processing services over the next few years.

B
Key Buyer Issues

The economic recovery expected in 1992 has yet to be realized, particularly for some of the primary buyers of processing services such as banking and finance, transportation, and the manufacturing sectors. As noted in Chapter IV, many buyers report that expenditures on IS in general, and processing services specifically, have at best remained constant. Many indicate that increases in spending are expected only when better economic times return.

Key buyer issues are defined in Exhibit V-1.

EXHIBIT V-1



Economy: Most industries have experienced extensive consolidation in recent years, with ongoing merger and acquisition activity. Many companies have been unable to compete and have closed their doors. Those companies that remain report concern about how to survive in this economic climate.

Internal pressure on earnings makes cost reduction a number one issue, particularly in industries like banking. As a result, buyers are less willing to expand services or add features that will increase their costs.

The pressure to reduce costs is, in some ways, beneficial to processing services vendors since buyers are also less willing to invest in equipment and internal systems solutions.

Companies are evaluating how to increase productivity and operate as cost efficiently as possible. In many cases, this has led to a decision to chose a systems operations contract as an alternative to in-house data processing.

Changing Technology: Buyers report that rapidly changing technology makes it difficult to know when to upgrade to "something new." As one respondent put it, "it's hard to know how to be on the 'cutting edge' without going broke." There is a much confusion regarding technology developments, which is an argument for staying with processing services as a "safer choice."

Compatibility: Buyers are also concerned that as they invest in new technology, they must maintain compatibility with systems that are already in place. As companies anticipate future developments in open systems architecture, they want to make sure that decisions made today, will be compatible with those standards.

User Friendliness: As users become increasingly involved in IS decision making, user friendliness continues to be a key concern. Graphical user interfaces and "user friendly" operating systems make PC usage a more viable solution for many companies.

Technical Staff: Buyers and vendors alike will continue to compete for scarce technical skills, a condition that is expected to continue throughout this decade. Both industry-specific and IS-related technical skills will be in short supply, and those possessing them can expect to be in constant demand.

Clearly both technology developments and business concerns are affecting processing services decision making. Exhibit V-2 rates the average degree of impact that a variety of business and technology issues are having on processing services expenditures according to the buyers interviewed.

EXHIBIT V-2

Issues Affecting Processing Services Expenditures

Issue	Degree of Impact* Neg. ◄— 0 —► Pos.				
Recession	1	(2)	3	4	5
Business Climate within Industry	1	(2)	3	4	5
Business Climate within Organization	1	(2)	3	4	5
Changing Applications	1	2	(3)	4	5
Changing Hardware	1	2	(3)	4	5
Cost of Technology	1	2	3	(4)	5
Demand from Users	1	2	(3)	4	5

* 1 = negative impact, 3 = no impact, 5 = positive impact

On the negative side, the recession and constrained business climates within their companies and their industries are having the most negative impact on users. Interestingly enough, cost of technology is having a positive impact on processing services expenditures. While one might

argue that technology costs have been coming down, making in-house systems more affordable, reductions in IS budgets have made cost a major stumbling block to capital investment plans, resulting in favorable consideration for expense-related resources such as processing services.

1. Issues Related to Specific Industries

a. Banking/Finance

There are a number of issues affecting demand for processing services in banking and finance. These are listed in Exhibit V-3.

EXHIBIT V-3

Issues Affecting Demand for Bank Processing Services

- Consolidation/cost reduction
- Developments in debit cards
  - Regional networks
  - Planned national network
- Credit card usage
  - Wireless cellular technology
  - Electronic signature capture
- Development of sophisticated POS systems

Consolidation/Cost Reduction: This industry has been one of the most severely affected by the recession. Merger and acquisition activity increased dramatically in 1991 with the value of mergers increasing from about $4.3 billion in 1990 to $20 billion in 1991. In 1991, there were about 12,000 bank ownership groups in the U.S. There are now about 9,000 and by the end of the decade, there will most likely be only half as many. Asset growth was 1.2% in 1991, which was the slowest since 1948. In this type of scenario, reducing costs is key. As an example, during 1991, the top 25 banks cut about 44,000 jobs.

Whereas belt tightening has put a lid on spending, there are some factors that have been positive for processing services vendors. Some banks are finding that they simply can't afford to develop or maintain applications software. Many have decided to rethink their approach to IS, reduce capital investments and the high costs of technical staffs, and outsource some or all of their operations.

Developments in Debit Cards: Debit card usage for direct purchase of merchandise is a concept still in its infancy. For instance, in 1991 there were approximately 350 million debit transactions as compared with about 7.5 billion credit card transactions. By the year 2000, debit transactions are expected to grow to 2.5 billion as compared with over $10 billion credit card transactions. Debit card usage has been supported by a number of regional bank networks allowing purchases to be made in local grocery and drug stores. Funds are either put on an immediate hold at the time of transaction (Direct) or funds are transferred following clearing and settlement (Delayed). Two major credit card companies, Visa and Mastercard, are developing nationwide networks, Interlink and Maestro, respectively, to support usage of these cards on a nationwide basis. Such activity should stimulate demand for processing services.

Credit Card Usage: Credit cards are an important profit center for banks. Developments in wireless cellular technology are expected to boost credit card usage, and processing services along with it. This technology allows credit card purchases to be made from locations not normally accessible, such as taxicabs and fast food delivery services. Wireless cellular technology makes credit card usage in these circumstances cost effective. Several projects are now underway testing this capability. In February of this year, BT North America and Cellular Data, Inc., announced a wireless point-of-sale (POS) solution for the credit card industry. This is expected to be a strategic way for the credit card industry to expand its marketplace. It will allow credit card providers to serve the mobile marketplace, including taxi and limousine service, along with businesses such as fast food restaurants, which currently have no access to credit card services. Tests are currently underway in New York to provide credit card service in taxicabs.

Electronic signature capture allows the retailer to make use of a liquid crystal display to authorize signatures, thereby making it unnecessary to keep a paper copy of the credit card draft. For the retailer, who operates on tight margins, these savings can be substantial. Use of fiber technology for this application will allow small retailers to make use of low cost terminals for multiple applications. As technology becomes more affordable, it will stimulate usage by many of the small users thereby increasing transactions.

Development of Sophisticated POS Systems: POS systems used by retailers are becoming increasingly more sophisticated in tracking important customer information. These systems, linked with the processing services providers for credit card authorization, allow data to be used to analyze buying trends and target marketing campaigns. Retailers and banks have just scratched the surface in exploring ways that this information can be used. This is expected to be a key growth area for processing services.

b. Insurance

The insurance industry makes use of processing services to handle the ever increasing number of claims being processed. This industry has faced losses in recent years as a result of the economy and a string of major disasters. Losses in 1991 totaled $2.8 billion, largely as a result of Hurricane Bob and the Oakland/Berkeley, California, fire. However, there are a number of developments in this industry expected to boost usage of processing services, as shown in Exhibit V-4.

EXHIBIT V-4

Developments Increasing Demand
Insurance Industry

- Electronic claims submission
- Form standardization by Heath Care Financing Administration
- Health care reform bills
- POS-based electronic claims networks

In the past, slow processing of claims was to the benefit of the insurer who earned interest on unpaid claims. Today, a more important concern is lowering the administrative/labor costs associated with claims handling. This has led to a demand for electronic claims submission (ECS). Industry experts believe that the ability to file claims electronically and process them more quickly will result in systemwide savings of $25 to $40 billion annually.

In the medical area, ECS is becoming a reality, with the government playing a part in requiring information to be submitted electronically. The Health Care Financing Administration is standardizing electronic forms for Medicare processing and Medicaid claims. There are many additional health care reform bills supporting this concept. These include the Pepper Health Care Bill, which proposes a plan to ensure that all Americans are covered by health insurance.

The Mortgage Banker's Association of America's Technology Committee considers HUD claims automation to be of primary importance. Given the number of foreclosures in recent years, lenders consider the amount of time it takes to receive payment from an FHA insurance claim to be critical.

ECS has spawned a number of POS-based electronic claims networks. For example, Health Information Technologies' Health Link provides electronic eligibility and claims processing services. Health Link can quickly check the eligibility of patients and allow doctors to electronically file claims with insurers. Aetna found that 65% of forms sent via Health Link did not require human intervention, thus reducing high administrative costs.

Whereas ECS is indicative of potential increases in processing services, this growth is being balanced by the migration of some applications in-house, owing to the capabilities of PCs and network-based file servers.

c. Other Industries

Along with banking and insurance applications, two key industries where growth in processing services is expected are telecommunications and utilities. As noted in Exhibit V-5, the Department of Commerce predicts that utility billing will be one of the key growth areas in the coming years.

EXHIBIT V-5

Department of Commerce Projections for Processing Services

- Credit card processing
- Insurance claims
- Utility billing

This growth is being driven by a steady increase in demand for telecommunications products and services along, with a "recession proof" market for utility services.

2. Issues Affecting Disaster Recovery Services

Disaster recovery is one of the fastest growing applications for processing services. Exhibit V-6 defines several of the driving forces related to this growth.

EXHIBIT V-6

Driving Forces for Disaster Recovery Services

- Business reliance on computer systems
- Recent disasters
- Insurance requirements
- Customer demand for disaster recovery
- Increased use of EDI

The past several years have brought several major disasters, which have significantly impacted IS operations in major U.S. businesses. In April 1992, a quarter of a billion gallons of water leaked through an aging underground tunnel in Chicago's financial area. This resulted in more than 25 companies moving to disaster recovery sites and an additional 25 putting their disaster recovery vendors on alert. Before the Chicago incident, the San Francisco Earthquake in 1989 was considered to be the worst computer disaster in history when eight companies declared emergencies and moved to backup sites. In May of 1988, a fire in a telephone central office in Hinsdale, Illinois, interrupted communication within a 2,700 square mile area that houses Chicago's O'Hare airport and computing centers for many of the largest companies in the United States.

More than ever, companies in this country are reliant on computer systems to conduct business, particularly in the financial industries. Recognizing this, companies are becoming aggressive in making sure that contingency plans are in place. On Wall Street, a Hot-Site Consortium of the Wall Street Telecommunications Association is building the first trading-capable disaster recovery and backup facility, recognizing that even short outages can have disastrous effects on their business. As noted in Chapter IV, more than 80% of the companies that INPUT spoke with are currently making use of disaster recovery services. By many, it was cited as the top project planned when looking at future use of processing services.

Growth in disaster recovery services also has been spurred by increasing demand for such services by the government, insurance companies, and users. Many states require financial services firms to have disaster recovery services. In the past few years, states have also begun to require health care facilities to have such capabilities in place.

In some cases, insurance companies require their policy holders to have disaster recovery backup—or face a canceled policy or a steep increase in premiums.

The flux of recent disasters have also made customers of third-party services demand to review their provider's disaster recovery capabilities. With the increasing use of EDI, companies are becoming more and more reliant on each other to conduct business. The loss of data in one company can have a significant affect on its business partners. Companies now have a vested interest in the disaster recovery capabilities of other businesses with which they interact.

C
Key Vendor Issues/Trends

Exhibit V-7 focuses on the primary business and technology issues that are having an impact on the providers of processing services.

EXHIBIT V-7

Processing Services Vendor Issues

- Economy
- Industry specialization/consolidation
- Full-service approach
- Enhanced applications
- Pricing
- Networking
- The changing buyer

Economy: Clearly, the impact of the poor economy on customers has directly affected the vendors also. Processing services are handled on a "pay as you go" basis. As customers reduce expenses, expenditures on processing services follow suit. Payroll, for example, is one of the biggest applications for which processing services are used. When companies cut back on staffing resulting in fewer paychecks to process, processing services revenues go down correspondingly. Vendors report that their customers are very cost conscious and are delaying decisions for new services until the economic climate improves.

Industry Specialization/Consolidation: Processing services vendors have also been experiencing the industry consolidation that has been so prevalent among their customers in recent years. This is an industry where entrepreneurs, with an idea for a new service, often enter the marketplace with a product that meets a unique need. The specialization may be required because of new financial industry instruments, changing government or industry reporting requirements, or interest in additional information on processed records such as more detail on purchases involving credit cards. Eventually, economies of scale result in such companies merging or being acquired by other businesses.

A common means of adding revenues and market share in this industry is through acquisition—although vendors differ as to what type of company or workload they acquire.

- Some believe that acquisitions should seek to fill out product lines rather than expand geographic coverage.

- Other vendors feel that products should stay within narrow ranges unless there is a need to expand beyond a saturated sector of a market. Some payroll processors have concentrated more on adding volume and geographic coverage, but even they have expanded product features as a result of acquisitions.

Many of those companies that at one time got into the processing business because of excess capacity within their own internal systems are now reverting back to focusing their efforts on their own business and using another party to handle their processing. Most notably, in April of this year, ADP acquired Bank of America's business services division, as B of A refocuses its priorities on the banking business.

Full-Service Approach: The vendors that are experiencing the most success at this time are those that are able to meet their customers' needs in a variety of areas. Many vendors offer systems operations capabilities while others provide professional services, systems integration, and, in some cases, offer turnkey solutions. This allows the vendor to develop more durable relationships with their clients and to be perceived as providing solutions instead of just isolated services. In a mature industry such as processing services, the ability to meet a variety of needs is critical to growth.

Enhanced Applications/Service: Vendors believe that they need to continually enhance their applications and improve service levels to retain and attract new customers.

One of the key advantages to using a processing service (as noted in Chapter IV) relates to the economies of scale that these services offer. Key functionality and applications upgrades that might be difficult to justify for in-house systems are more cost effective for a processing services vendor that can spread such costs across a large number of users. In addition, the service provider is more likely to have the technical expertise needed to continually develop state-of-the-art applications. However, if the vendor does not stay competitive in enhancing applications, buyers will be more tempted to consider bringing the application in-house.

In addition to enhanced applications, service is another area of focus. Vendors report that their customers want everything to "run faster" and 24-hour service is a significant asset. Vendors are finding that as the cost of moving applications to in-house systems comes down, they must continually look for ways to offer both applications *and* services advantages—to be perceived as offering value over and above use of the system itself.

Pricing: Studies have shown that cost reduction is a primary factor driving companies to make use of outside services as an alternative to internal IS operations. In addition, the vendors INPUT interviewed reported that most of the opportunities for business that were lost during the past year were because competitors' pricing was more attractive.

Networking: Globalization and the tendency for geographic barriers in conducting business to disappear has led to an increased need to connect disparate systems. Service providers offer an advantage here. In addition to cost and technical considerations, individual user or client companies may find it difficult to quickly adapt and reconfigure networks to meet changing needs. A service provider will be in a better position to supplement or reconfigure networks quickly as demand fluctuates. For vendors, this ability offers a competitive advantage—however, it also requires ongoing capital investment to continually maintain and upgrade the network to stay competitive.

The Changing Buyer: Another issue affecting how vendors market their services relates to who within their customer organizations is doing the buying. Today, decisions are increasingly being made by upper management rather than by IS alone. This makes decision making much more bottom-line-oriented, requiring vendors to be more rigorous in cost justification.

D
Major Trends

The major trends in the processing services industry shown in Exhibit V-8 parallel technology and industry-specific trends and indicate that there a number of activities having an impact on processing services.

EXHIBIT V-8

Outsourcing: Just about all of the vendors that INPUT contacted consider outsourcing to be a major trend and a positive one for them. Clearly, many of the major processing services vendors such as EDS and Shared Medical Services are dominant players in the systems operations (SO) marketplace. The SO part of their business represents a high growth potential for them. And as one of the major vendors pointed out, the addition of even one SO contract can have a major impact on revenue.

Processing services vendors that offer other information services find that because they have current business and/or contacts with organizations, they are also able to identify prospects for those other services, such as system operations or professional services.

A number of vendors of processing services, such as First Financial Management and Litton, have negotiated systems operations contracts for handling all the processing of an organization or department for periods longer than a year. (Processing services involve shorter term contracts for application-specific services, typically paid for on a usage basis.)

The outsourcing trend is also considered beneficial for processing services vendors that are not major players in the SO market. As more companies decide to focus their priorities on their own business area, e.g., banking, insurance, etc., instead of data processing, they will look more to outside companies to support their IS needs.

Downsizing: This continuing trend to move applications from mainframes to smaller platforms is also affecting processing services vendors. The effect can be positive as companies will often look to an outside service provider to handle those applications that, for one reason or another, are not appropriate for their new, downsized systems. However, the expanding capability and decreasing costs of PC/LAN-based technology has been a major negative trend for processing services vendors. Many small companies that could not afford to invest in a large-scale system and opted for a processing service, can now have their needs met at the PC level. Vendors also report that developments in client/server technology are driving them to provide services complementary to this technology.

Globalization: The trend toward globalization and ever expanding marketplaces makes the network capabilities offered by processing services vendors an attractive resource. As companies' communications needs move beyond a specific region, networking requirements become more complex. Companies that think about moving applications in-house must also think about expanding internal networks to handle such traffic. The networking capabilities of the processing services vendor become an important hook for retaining such customers. Maintaining sophisticated networking capability is an increasingly important strategy for processing services vendors to stay competitive.

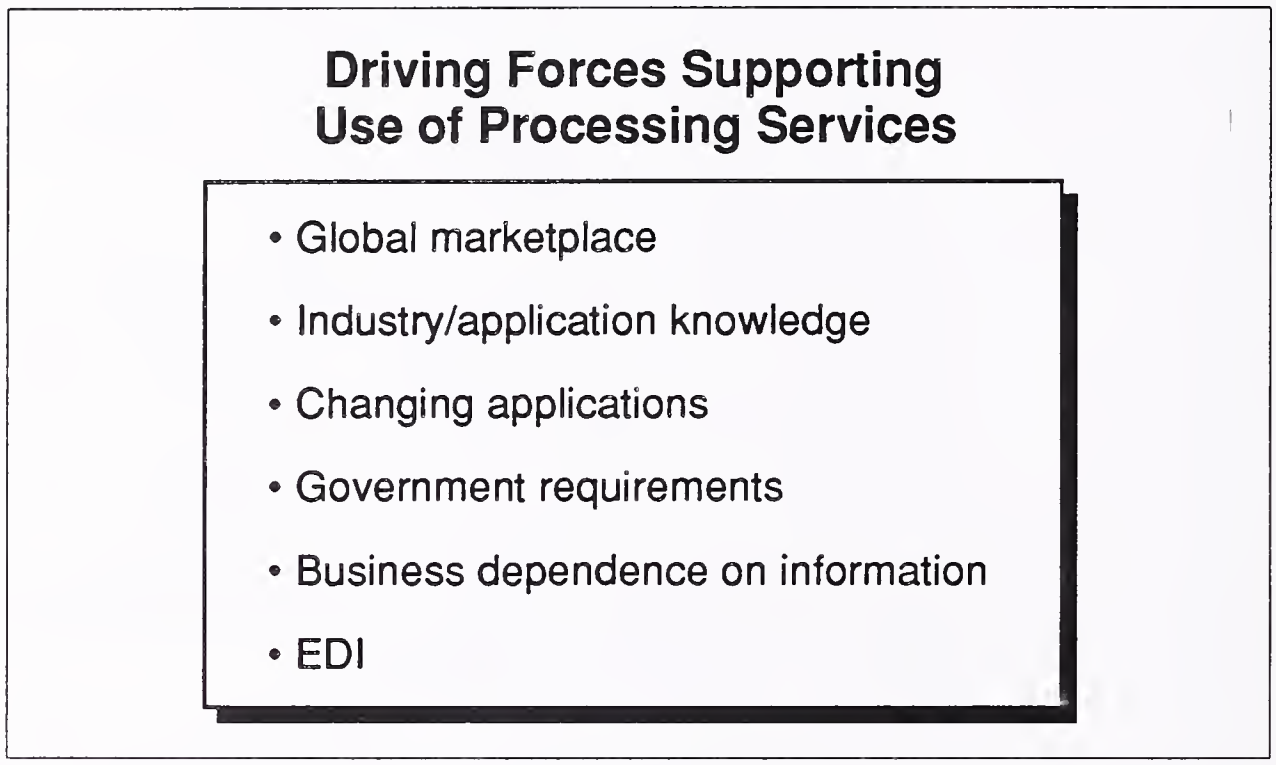
Wireless Communication: One technology development, supporting network growth, is the capabilities offered through wireless communication—as discussed earlier in this Chapter. Wireless will allow transactions to originate in locations where such activity was not previously possible. Examples include using credit cards in taxicabs and fast food restaurants. These high-volume applications will tend to increase the demand for transaction processing services.

Disaster Recovery: As noted earlier, there continues to be considerable growth in the market for disaster recovery services. A major trend is to expand disaster recovery services to a variety of vendor platforms. In addition to IBM mainframes, these services are now available on other vendor equipment, including DEC and Unisys, and midrange equipment, particularly AS/400 systems. The latest trend is to provide work area systems that provide support for staffing and systems at a departmental level.

E
Driving Forces

Major forces driving the use of processing services are listed in Exhibit V-9.

EXHIBIT V-9



Global Marketplace: As indicated in Exhibit V-9, a driving force in the processing services market is the global marketplace, which emphasizes the importance of network capabilities in the conduct of business activities.

- Organizations report that they must be prepared to meet demands to increase network capabilities supporting application systems and to meet customer or remote office needs, within a short period of time. Processing services have been able to help address these needs.

- The ability of vendors to react more rapidly than most users to emergencies, or to changing network needs, is a factor that can promote the use of processing services or systems operations.

Industry/Application Knowledge: Another driving force is the importance of vendor industry/application knowledge. In many applications areas, there is a shortage of packaged software and the cost of in-house development is high. The availability of the technical skills necessary to develop systems is also limited. These factors encourage many companies to rely heavily on those vendors that specialize in their industry and its related applications requirements.

The growing recognition of the value of vendors' knowledge of the industries that they serve, and applications within those industries, has also helped drive the use of systems operations.

Changing Applications: For many of the industries/functions making use of processing services, there is a need for frequent and rapid changes to applications. These changes are needed to meet new government requirements, industry groups, or other bodies. Processing services vendors offer advantages over in-house systems in this regard:

- Processing services providers are more accustomed to making changes since they serve a number of clients with differing needs.

- Larger vendors are also constantly performing tradeoffs between the use of existing capabilities and upgraded equipment, systems software, and networks, even when changes or upgrades to application products are considered. It is difficult for users to accommodate the same level of planning.

Government Requirements: As discussed earlier, federal information and performance requirements are promoting growth in the use of processing services. There is a growing trend to require information to be provided to the government on-line. Examples include Medicare health claims processing, Fannie Mae applications, and regulatory compliance documents. In addition, the government, along with insurance companies and customers, has set standards for disaster recovery planning that are driving the demand for recovery services.

Business Dependence on Information: The greatly increased dependence on the use of information technology that is taking place in industry and government has been a driving force that affects several modes of processing services.

- Companies using payroll, credit card, and other processing services report that a leading benefit of such processing is having the vendor worry about and guard against interruptions and loss of data in these operations.

- Banking organizations that use a processing service or systems operations note that one of the benefits that they perceive is that of continuous operation.

The increasing dependence of business and government on the use of IS has also been a driving force in the use disaster recovery and backup. The redundant capabilities and planning that vendors must have to meet the needs of multiple clients, with critical application systems, makes it possible for them to also provide meaningful backup and recovery for the increasingly complex user application systems.

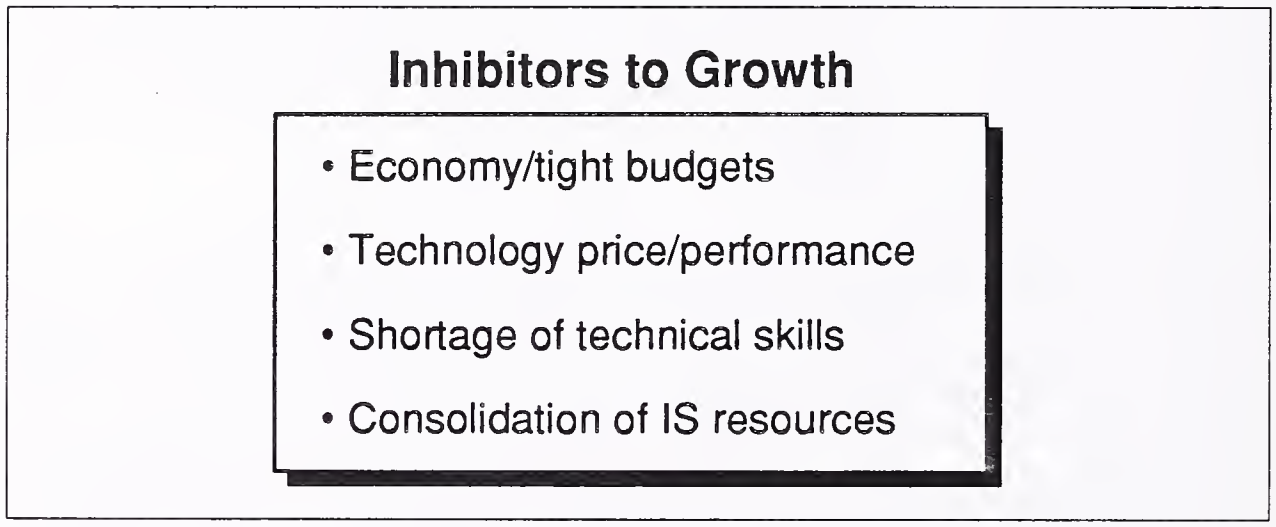
EDI: The growth of EDI is leading American business away from paper transactions and toward electronic delivery systems. With this growth will come a significant increase in the number of electronic transactions, as compared with paper transactions. This technology has the capability to significantly increase demand for processing services to support such transactions.

F

Inhibitors to Growth

Growth inhibitors include those listed in Exhibited V-10.

EXHIBIT V-10



Economy: The delayed economic recovery and tight budgets have been the chief inhibitors to the expansion of processing services.

Growth has continued in the market due to the increasing reliance on processing services for some business functions, but it has not been as high as previously forecast.

New Technologies: New technologies that make the use of in-house systems cost effective and easy to use are continuously being developed. PC technology continues to come down in cost while increasing both speed and functionality. High powered workstations perform functions that required mainframe capability not too long ago. Meanwhile, software capabilities such as graphical user interfaces (GUI) with Macintosh and Windows environments make it easier for anyone to use a computer. This makes it more attractive for companies that could not afford information technology in the past to consider such investments today. In addition, those who formerly relied on outside services for complex scientific and engineering calculations and designs, can now handle these functions themselves using workstations.

Shortage of Technical Skills: The limited availability of technical skills for network, data base integration, complex application systems, and other needs can also be an inhibiting factor.

Consolidation of IS Resources: Some users may find that they can obtain needed economies of scale in processing through the use of shared resources. Recent mergers and acquisitions have shown that consolidation of IS resources and personnel provides the opportunity for savings and allows for more effective planning. However, these users may not be able to achieve the same levels of savings or provide as much security from risks as a vendor could offer in a processing services environment.

Processing services are still considered a viable alternative, and appropriate for many processing requirements that are not related to the chief or core function of a business. Vendors can handle many applications more economically than users because of the economies of scale and/or specialized application knowledge they posses that would be costly for a user to acquire.

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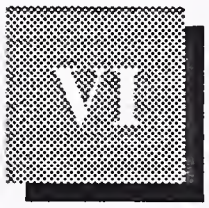


Market Forecast

A
Processing Services Overview

1. Growth Perspective

As a delivery mode for information services, processing services became prominent in the 1970s when it became the largest mode, accounting for over 67% of information services expenditures in 1979. At that time, its compound annual growth rate (CAGR) was over 16%.

Growth rates have steadily gone down as information systems have become smaller, more powerful, and less expensive. While processing services will always offer some unique benefits for certain applications, this delivery mode, as it has been traditionally defined, has become a mature market. The downturn in the economy has also been a factor in processing services' modest growth in recent years. These factors have led to a decrease in the growth of processing services from 12% in 1988 to a projected compound annual growth rate of 8% for 1992 through 1997.

It is interesting to note that one of the biggest trends in information systems today is the move toward outsourcing. Companies today are putting energy into downsizing and re-engineering. As a result many are finding that it makes sense to have some applications handled by a third party. The benefit of this trend appears to be mostly in the systems operations delivery mode, where companies contract with a third party to take over an existing application or IS operation.

However, the differences between systems operations and processing services are not that dramatic. Differences are related to the contract arrangement (long-term versus short-term "pay-as-you-go") and whether or not the application was ever handled in house or not. Therefore, it is likely that the outsourcing trend will stimulate a certain amount of growth of processing services along with systems operations. Some vendors also use processing services as a platform for launching systems operations services.

The change in outlook for processing services from last year's report to this report is shown in Exhibit VI-1.

EXHIBIT VI-1

Processing Services Market Overview ($ Billions)

1991 Outlook		1992 Outlook
1991 Forecast - 18.3	versus	1991 Actual - 17.9
1992 Forecast - 19.7	versus	1992 Forecast - 19.1
1991-1996 Forecast Growth Rate - 8% (CAGR)	versus	1992-1997 Forecast Growth Rate - 8% (CAGR)

- User expenditures in 1991 for processing services were $390 million less than the forecasted amount of close to $18.3 billion. This discrepancy is largely based on the economy and its effect specifically on the banking and finance and telecommunications sectors. Less than expected processing services revenues were also felt in the wholesale/retail distribution markets and in state/local government sector.

- Technological advances were also responsible for 1991 revenues that were dramatically less than expected. In the education and training area, PC/workstation technologies have virtually taken over the market for processing services resulting in a decrease of over 80% in that market.

- Due to the longer than expected effects of the recession, INPUT has adjusted the forecast made in 1991 for user expenditures in 1992 downward from $19.7 billion to $19.1 billion. With the exception of education and training applications, it is expected that growth will more closely approach previously forecasted levels in the coming years. Therefore, relatively slight modifications are found in compound annual growth rates as compared with last year's forecast.

2. Market Definition

Previously, INPUT has included systems operations as a submode of processing services. However, user trends toward the use of vendor services to handle the core applications of a company/department on a long-term basis led INPUT to establish systems operations as a separate delivery mode.

This mode of service is often described as outsourcing and is associated with benefits such as the improvement of service capabilities, reduction of operating costs and risks in the use of information systems, and adjustment to the limited availability of key skills.

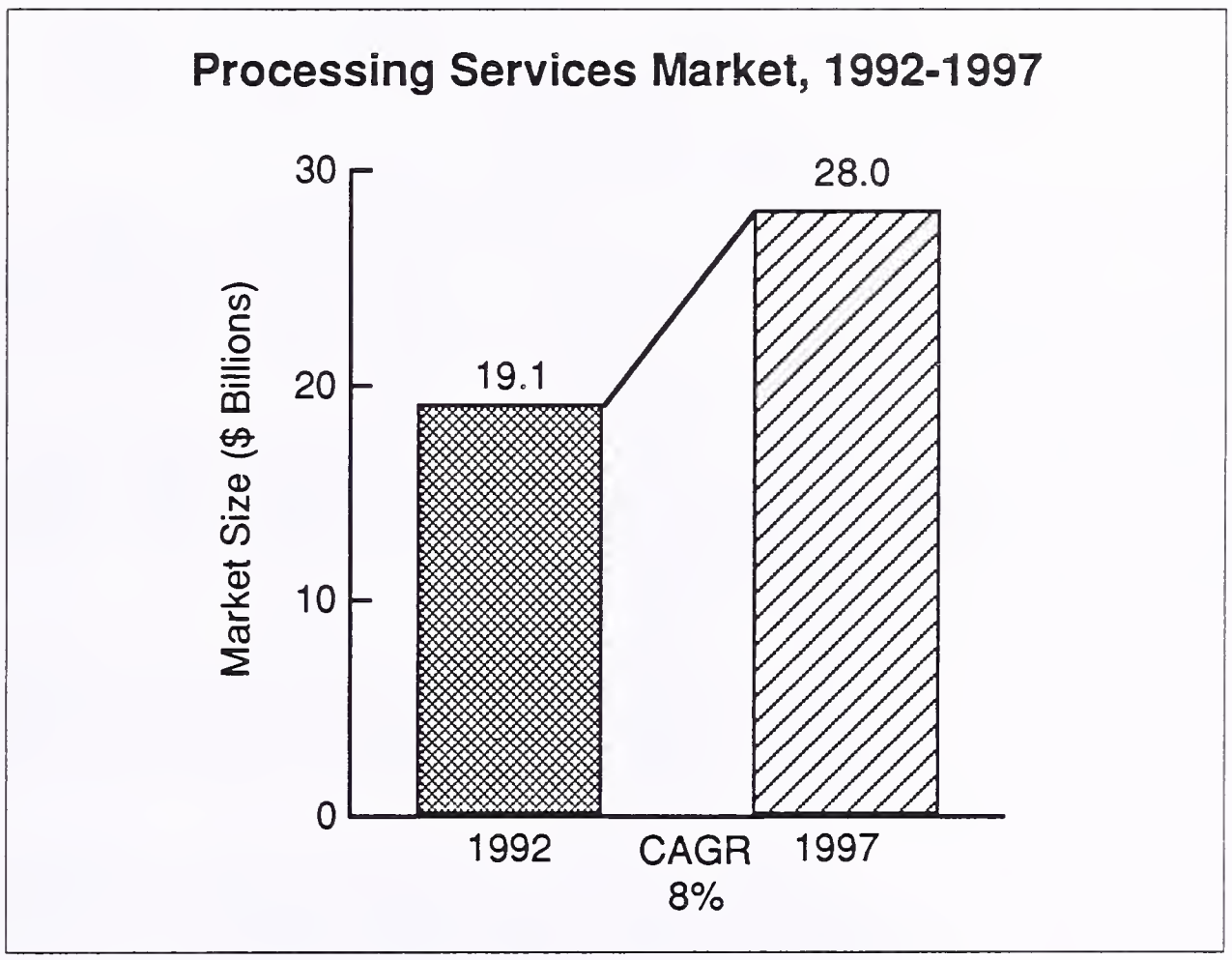
The size and significance of the systems operations market has increased, and INPUT now offers analysis of this market in a separate report, *Information Systems Outsourcing Market Opportunities, 1992-1997.*

As a result of the separation of systems operations services from the processing services market, the INPUT data base has been adjusted to reflect only transaction, utility, and "other" processing services expenditures. These market sectors were defined in Chapter IV.

3. Processing Services Forecast

Based on its ongoing surveys of user expenditures, INPUT estimates that the processing services market will grow from a 1991 level of $17.9 billion in expenditures, at a 7% growth rate, to $19.1 billion in 1992, and projects that it will grow at a compound annual growth rate of 8% to almost $28 billion in 1997, as shown in Exhibit VI-2.

EXHIBIT VI-2

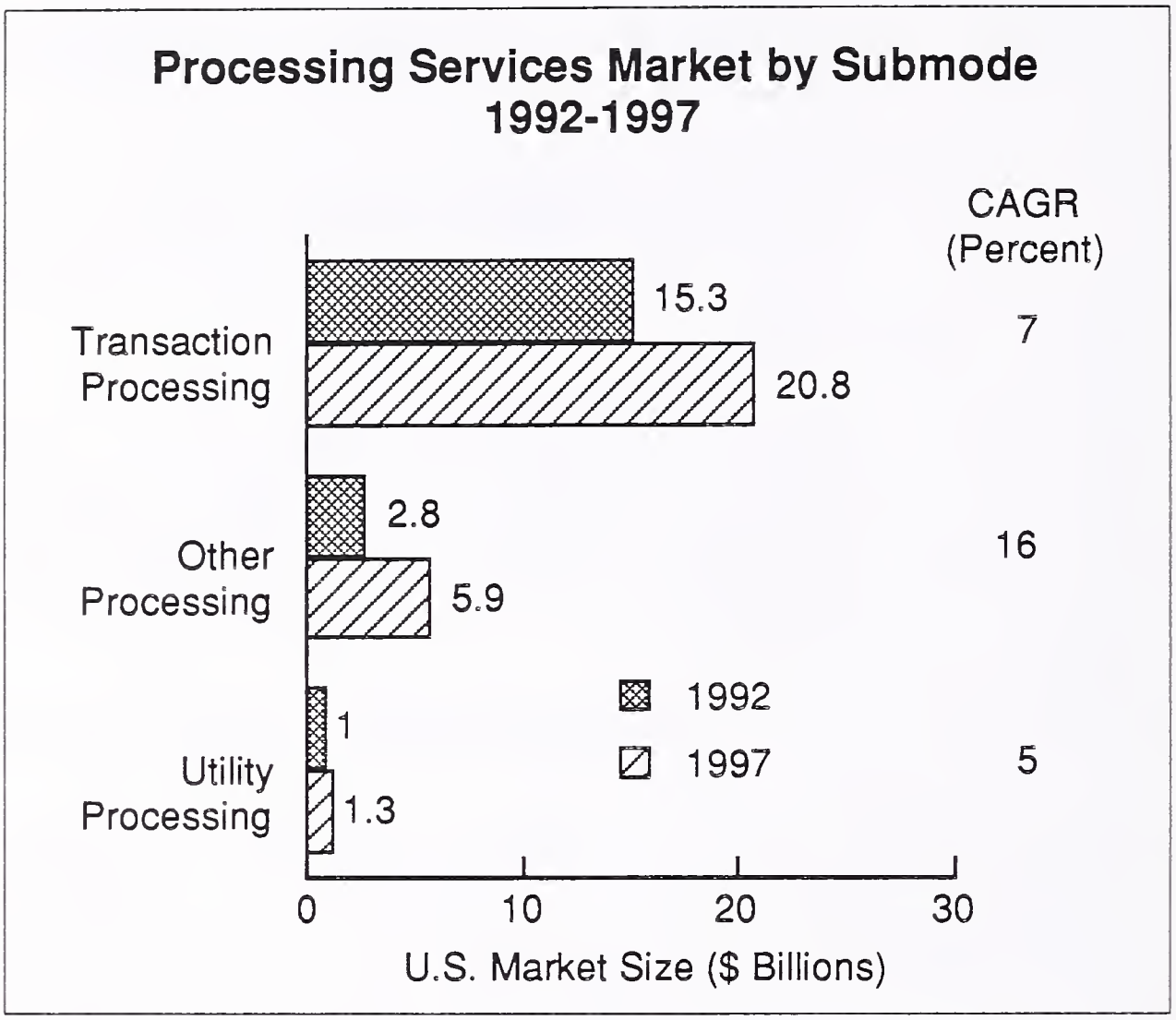


Estimated growth in 1992 is about the same as that forecast in 1991, however, growth in areas such as telecommunications and banking/finance decreased because of the economic factors noted earlier. .

Other factors contributing to modest growth rates are the maturity of the processing services market and the movement of work to other information services modes.

All processing services delivery submodes will experience market growth during the forecast period, as shown in Exhibit VI-3.

EXHIBIT VI-3



"Other" processing services, driven by the growing interest in disaster recovery, will grow most rapidly at a CAGR of 16%, which will more than double expenditures for this submode from $2.8 billion in 1992 to $5.9 billion in 1997.

Utility processing, which will grow at a compound annual growth rate of 5% or about one-third of the rate for "other" processing services, will increase in volume from close to $1 billion to almost $1.3 billion between 1992 and 1997.

The major submode of processing services, transaction processing, will grow at a compound annual growth rate of 7—an increase from $15.3 billion in 1992 to $20.9 billion in 1997.

Except for "other" processing services, which is driven by the growth of disaster recovery, the submode market growth is modest. However, the processing services submodes all provide a steady increase in vendors' revenues, in addition to providing opportunities for marketing other services, particularly systems operations, in some industry markets.

4. Vendor Overview

There are many vendors active in the processing services market, ranging from very small firms to large firms with revenues over $500 million. These vendors also have significant differences in corporate organization, application focus, and markets, as illustrated by Exhibit VI-4.

EXHIBIT VI-4

Leading Processing Services Vendors
U.S. Revenue, 1991

Rank	Vendor	Estimated Processing Services Revenue ($ Millions)	Major Markets
1	ADP	1,286	Human Resources Banking and Finance
2	American Express ISC	890	Banking and Finance Health
3	FFMC	778	Banking and Finance Health
4	Ceridian	322	Split among many markets including Banking and Finance and Human Resources
5	Covia	260	Transportation
6	Flserv	244	Banking and Finance
7	Comdata	224	Transportation
8	EDS	202	Banking and Finance, Government, Telecom-munications, Insurance, Retail
9	GEIS	200	Banking and Finance, Telecommunications, Manufacturing
10	Equifax (and Telecredit)	191	Banking and Finance, Insurance, Retail Distribution

The leading vendors of processing services, noted in Exhibit VI-4, include subsidiaries of an airline, travel and card service firm, and a manufacturer, as well as firms dedicated principally to processing services. Further details and an expanded vendor list and evaluation are contained in Chapter VII, Competition, together with a selection of vendor profiles.

Seven of the 10 largest vendors shown in Exhibit VI-4 offer processing services to the banking and finance industry, which is the largest market for processing services among the 15 vertical markets tracked by INPUT.

B

Forces Impacting the Processing Services Market

As discussed in chapter V, there are a number of forces having an impact on the processing services market. Some are positive, others are negative. The most important factors driving the market and their impact over the planning period are summarized in Exhibit VI-5.

EXHIBIT VI-5

Factors Affecting the Processing Services Market

Factor	Effect
Economy	• Number of transactions stays same or is reduced • Companies delay capital investments
Technology	• Move applications in-house • Confusion
Vendor Expertise	• Reliance on vendor
Business Dependence on Information	• Increased demand for disaster recovery services
Changing Applications	• Increased number of transactions • Increase in conducting business on-line

Economy: As discussed earlier, the effects of the economy on industries that are heavy users of processing services are unmistakable. As businesses in banking/finance, insurance, and transportation struggle to survive, expansion in the use of processing services becomes rare. At best these companies continue the same level of usage. In the payroll area, volumes have decreased as a result of layoffs in many companies. On the

positive side, the recession has kept companies from making the capital investments needed to move applications in-house.

Technology: The advances in information technology, particularly at the PC/workstation level, have made it more feasible for companies to consider moving applications in-house. This, coupled with improved systems user friendliness, encourages small to mid-sized firms to handle applications that formerly were farmed out. The rapid advancement in technology has also led to confusion, however. Businesses are concerned about investing in systems that may not be "state of the art" or easily integrated with new systems in a few years. This can result in companies staying with the status quo and being cautious about investments. In addition, processing services vendors have an opportunity to develop services complementary to new technology to minimize lost business.

Vendor Expertise: Many companies will choose to continue use of processing services, despite the benefits of new technology, because of the unique knowledge of the vendor. ADP and Paychex know the ins and outs of payroll and changing government reporting requirements better than most companies. First Financial Management and American Express ISC have made it their business to understand financial applications. In these times, when it is difficult to find skilled in-house technical staff, a vendor's expertise continues to be an attractive and marketable commodity.

Dependence on Information: Brokerages cannot make a trade without computer systems. Stores cannot authorize credit card purchases nor airlines sell tickets without such technology. We've all heard the statement, "the computer is down—can you call back later?" Computer downtime means lost business. With the recent influx of disasters, businesses have become acutely aware of the importance of disaster recovery. This is driving the demand for such services.

Changing Applications: People are becoming more reliant on debit cards. The government is imposing requirements for information on-line, and businesses are finding that conducting transactions on-line makes good business sense. As on-line applications change and grow, there are opportunities for processing services vendors to increase their share of such business.

C

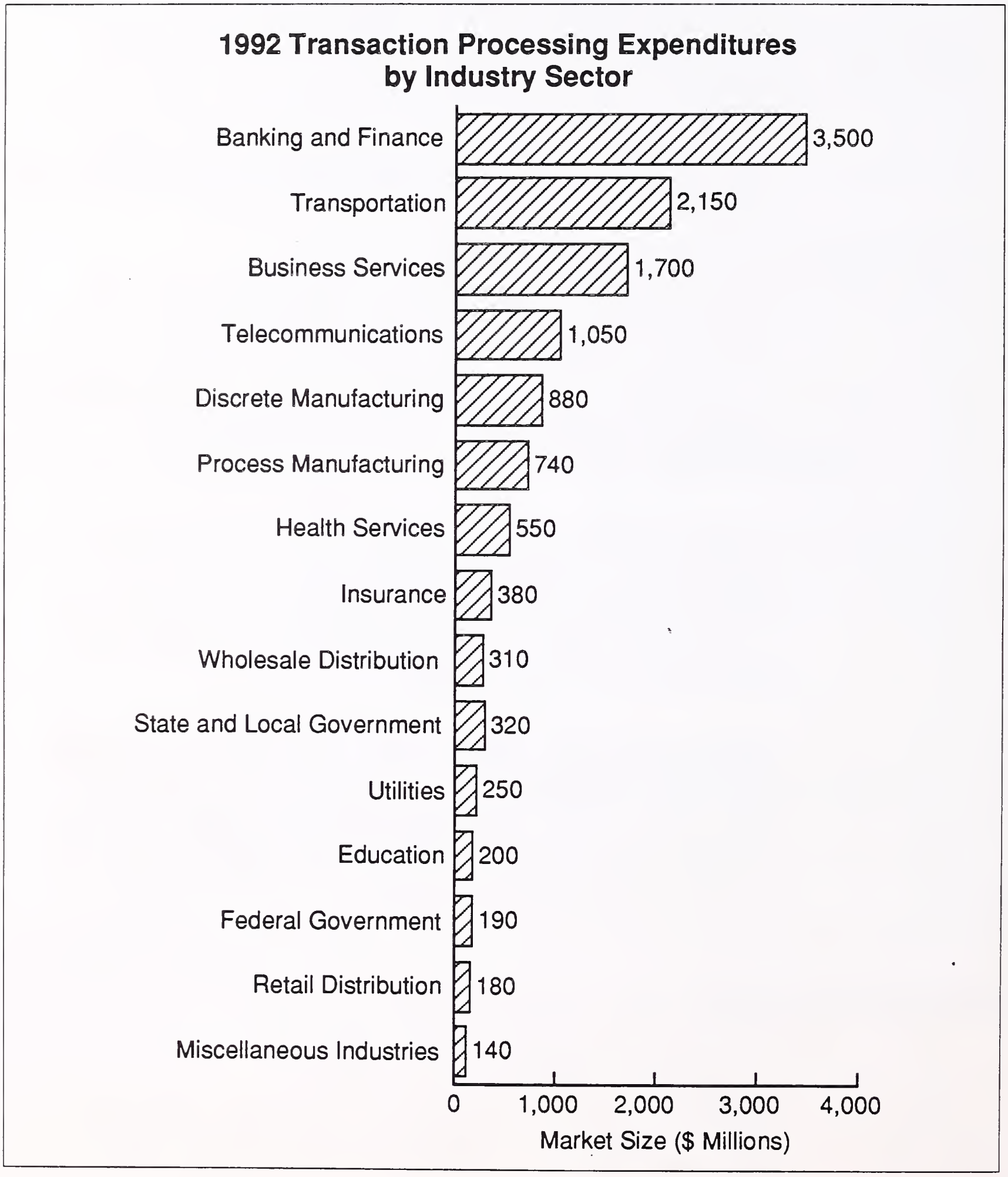
Submode Market Forecasts

1. Transaction Processing Services Market

The transaction processing market is divided into industry-specific and cross-industry sectors. The distribution of the $12.5 billion in user expenditures forecast for industry-specific transaction processing in 1992, is

shown in Exhibit VI-6. Expenditures are spread across 15 industry sectors and are greatest in the banking and finance ($3.5 billion) and transportation ($2.1 billion) sectors.

EXHIBIT VI-6



Consumer services was dropped as an industry sector during 1991 and expenditures for this market were distributed to the transportation and business services sectors.

Given anticipated growth in banking transaction services, INPUT forecasts that banking and finance will remain the largest industry sector in 1997, still accounting for about 24% of the expenditures in transaction processing.

During the period from 1992 to 1997, expenditures for the telecommunications market will grow more rapidly than in the rest of the vertical industry markets, moving telecommunications into third place behind transportation and banking and finance in user expenditures in 1997.

If all the user expenditures forecast for each industry market are added together for the period from 1992 to 1997, as shown in Exhibit VI-7, the expenditures in the banking and finance market will be as large as the those of the next two markets combined.

The preponderance of opportunities in banking is recognized by the large number of leading vendors that serve this market, as shown in Exhibit VI-4.

User expenditures for transaction processing in the cross-industry markets in 1992 are shown in Exhibit VI-8.

EXHIBIT VI-7

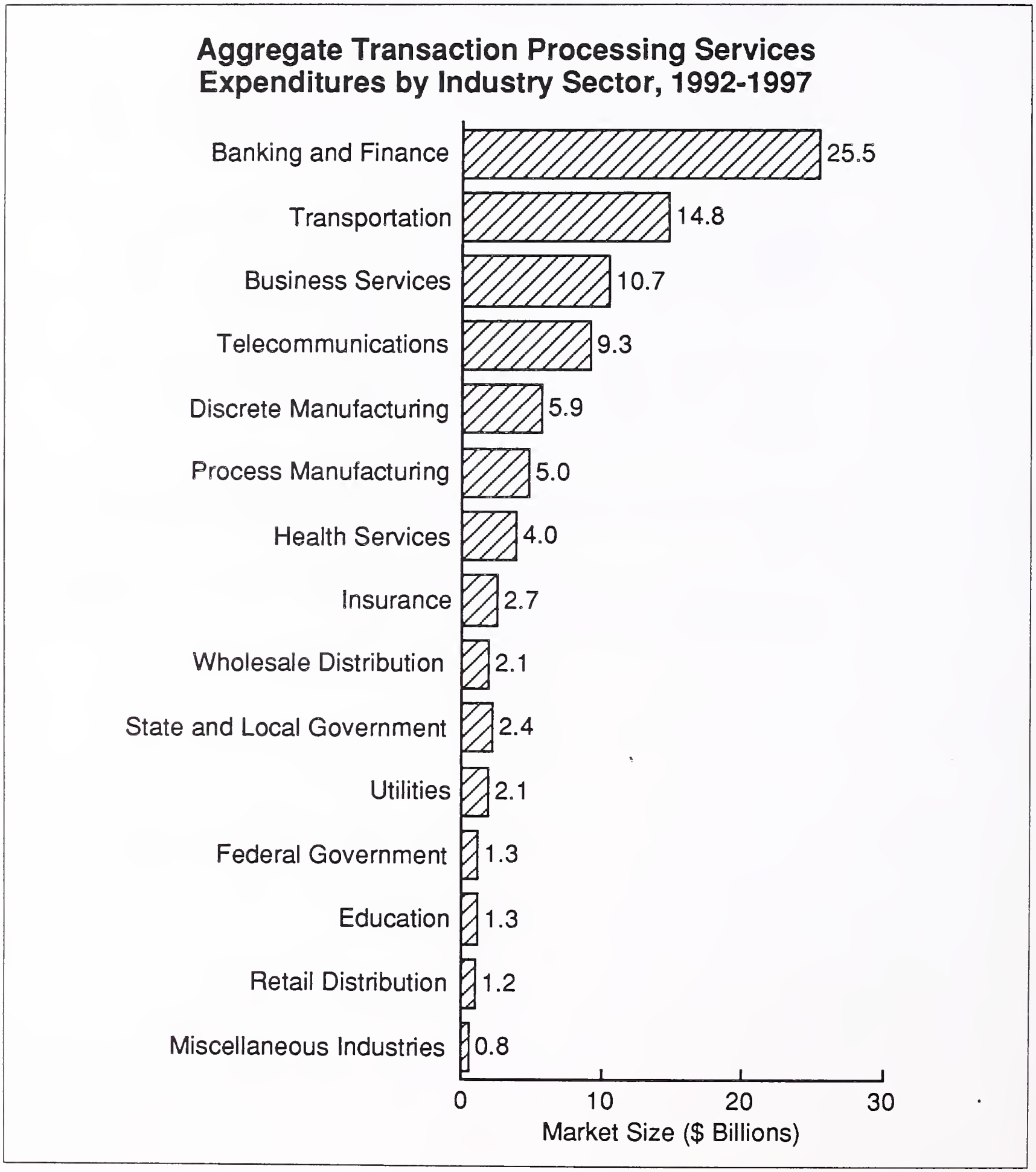
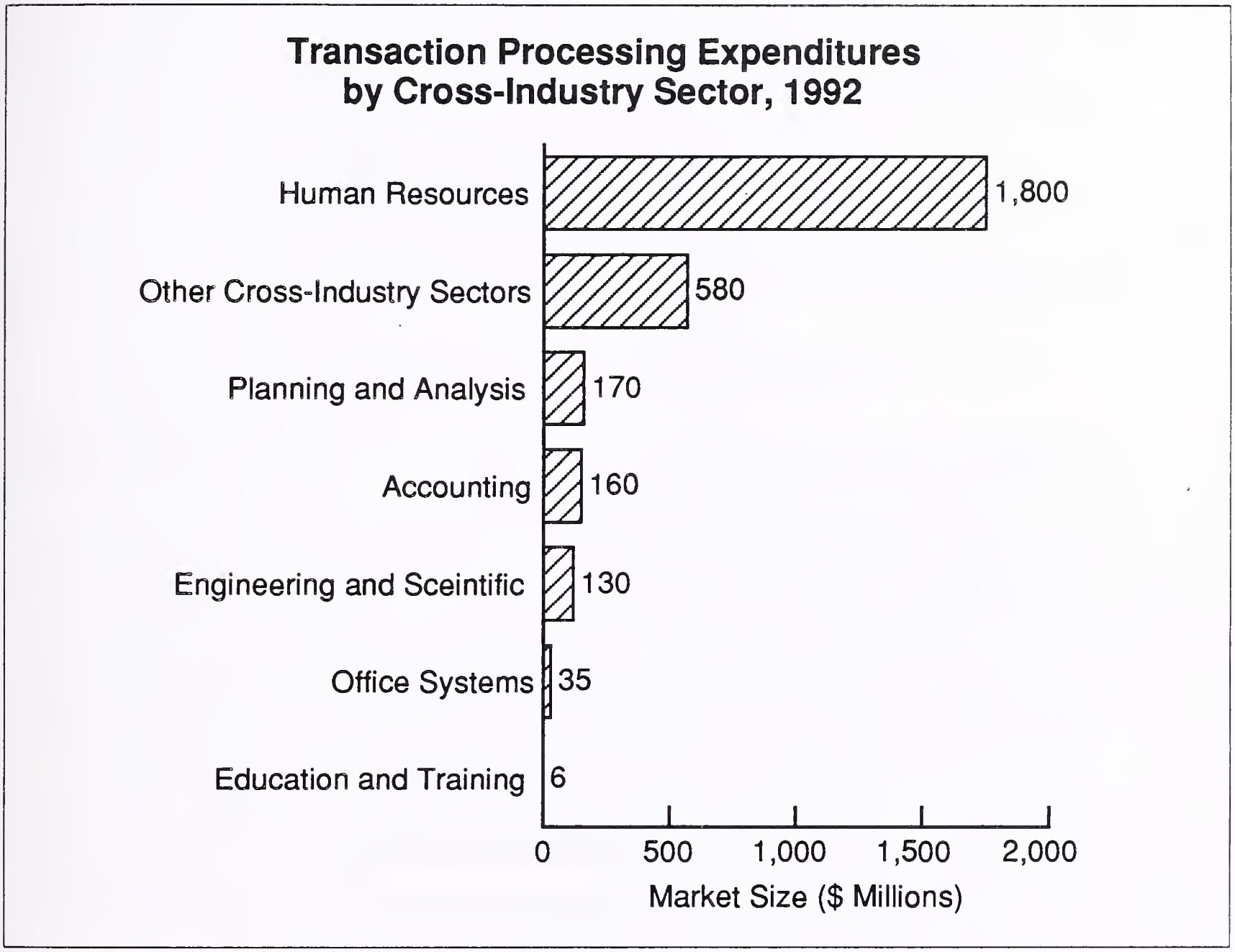


EXHIBIT VI-8



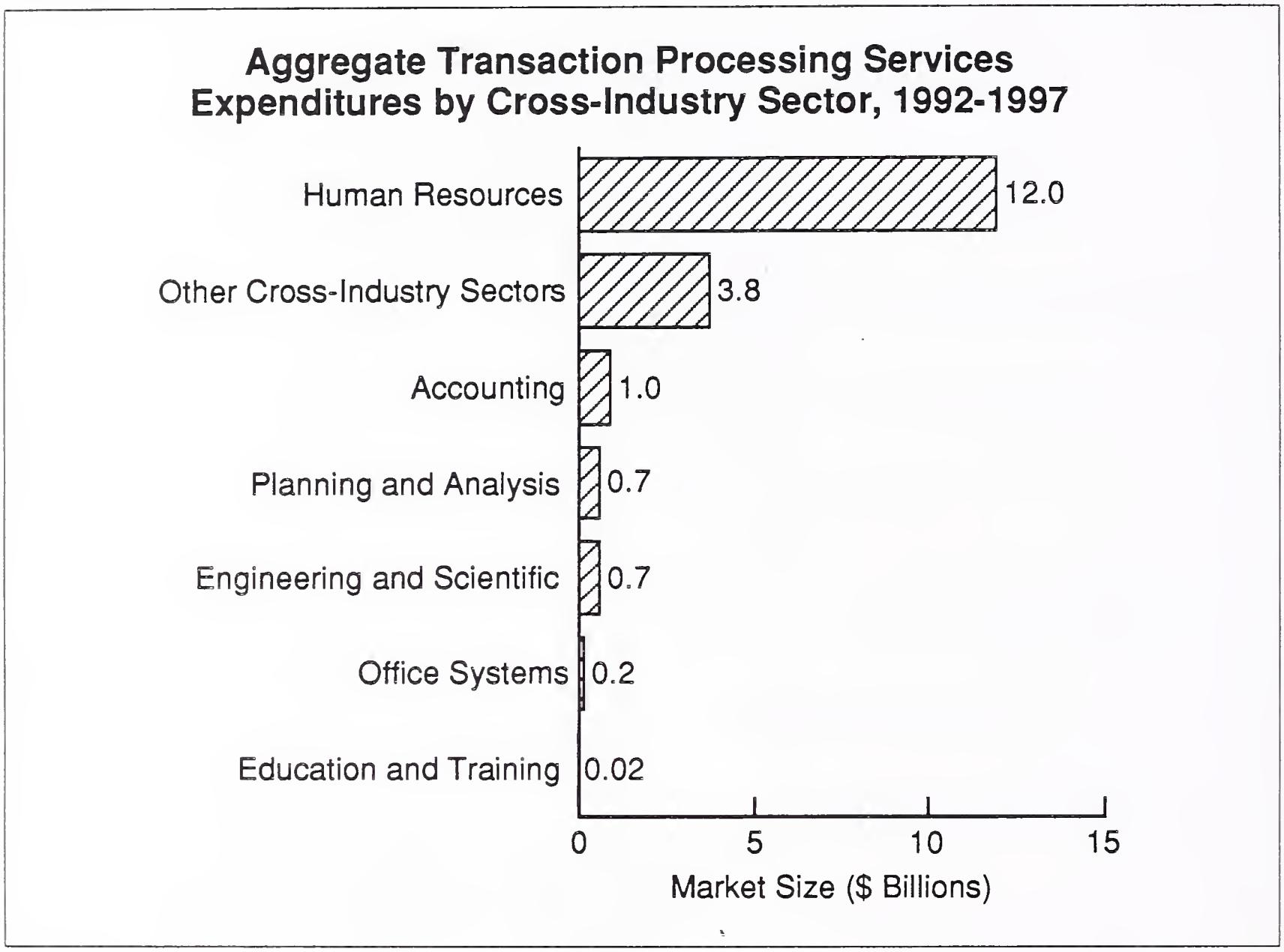
These market sectors are those that are not specific to any industry—such as payroll processing, scientific computing services, office systems, and education and training. Human resources is the most important of these cross-industry sectors:

It is the largest of these markets, as a result of payroll processing being responsible for over half of user cross-industry expenditures in 1992.

Human resources will grow to two-thirds of cross-industry expenditures in 1997, as some other cross-industry application systems are either customized for particular industries so that expenditures for them are moved to industry markets, or they are moved in-house.

Aggregate expenditures for cross-industry transaction processing from 1992 through 1997 are shown in Exhibit VI-9.

EXHIBIT VI-9



As with industry markets, one cross-industry transaction processing market—human resources—is dominant.

However, human resources, particularly payroll and associated activities, is much more dominant among cross-industry markets than banking and finance is among industry markets. It accounts for more processing services expenditures than all other cross-industry markets combined, in the period from 1992 to 1997. (See Exhibit VI-9.) It's reasonable to speculate given technology and software development in cross-industry applications, companies will increasingly handle such applications in-house.

Growth rates for transaction processing services in industry and cross-industry markets are shown in Exhibits VI-10 and VI-11.

- Of the 15 industry and 7 cross-industry market CAGRs, only 4 are equal to or more than the CAGR of 8% for the whole delivery mode, and 5 are negative.

- Among the industry markets shown in Exhibit VI-10, the highest growth rates are for telecommunications (15%) and utilities (14%). The former market is driven by expanding use of telecommunications products and services, and the latter market is driven by Geographical Information Systems (GIS) applications.

Given the growing interest in expanded usage of credit/debit card and claims processing, INPUT expects that there will be continued growth in the banking/finance and insurance market sectors. However, because of the economy, consolidation activities, and market maturity, growth will be modest in these sectors.

Growth is occurring in a much greater number of markets for systems operations and network services.

EXHIBIT VI-10

Transaction Processing Industry Sector Growth Rates, 1992-1997

Industry Sector	Revenues ($ Millions)		CAGR (Percent)
	1992	1997	
Telecommunications	1,050	2,100	15
Utilities	250	480	14
State and Local Gov't.	320	510	10
Transportation	2,150	2,800	6
Wholesale Distribution	310	420	6
Banking and Finance	3,500	5,100	8
Insurance	380	530	7
Retail Distribution	180	240	6
Discrete Manufacturing	880	1,100	4
Process Manufacturing	740	940	5
Health Services	550	790	7
Federal Government	190	230	3
Education	200	230	3
Business Services	1,700	1,850	2
Miscellaneous Industries	140	130	-2

Exhibit VI-11 examines the seven cross-industry markets for transaction processing services. Human resources, driven strongly by payroll services, has the highest growth rate, a CAGR of 5%, as well as being the largest market in both 1991 and 1997.

The markets for education and training, office systems, and planning and analysis are shrinking as more applications systems are moved in-house.

EXHIBIT VI-11

Transaction Processing Cross-Industry Sector Growth Rates, 1992-1997

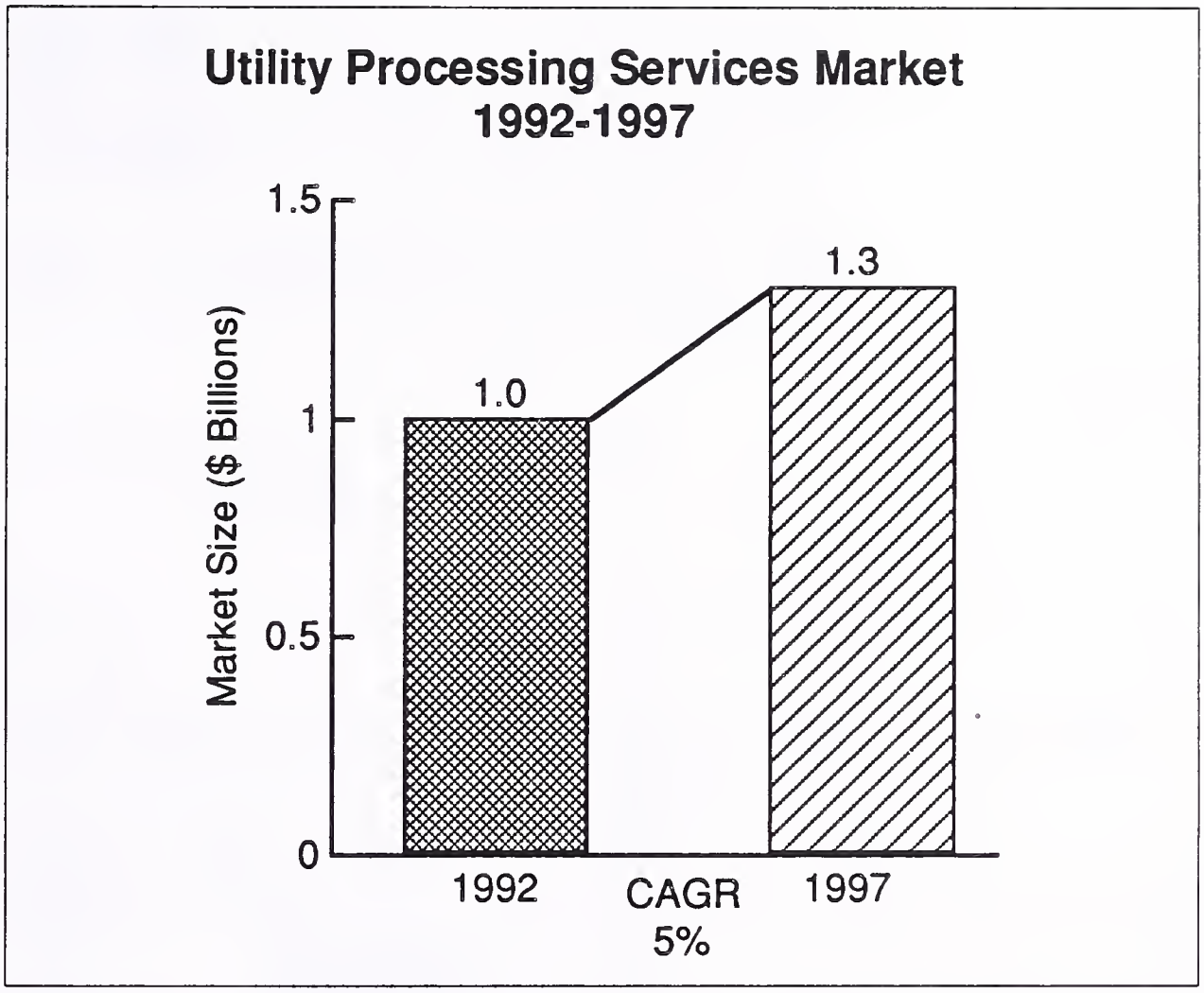
Industry Sector	Revenues ($ Millions)		CAGR (Percent)
	1992	1997	
Human Resources	1,760	2,250	5
Other Cross-Industry	580	700	4
Accounting	160	180	3
Engineering and Scientific	130	100	-5
Office Systems	35	25	-7
Planning and Analysis	170	85	-12
Education and Training	6	2	-20

2. Utility Processing Services Market

Utility processing, which is neither industry nor cross-industry oriented, is still being used by large businesses and the government when certain unique resources are required to run or test applications, or it is more desirable or economic to utilize resources from a vendor than to provide them internally.

As illustrated in Exhibit VI-12, 1991 expenditures for utility processing services were $0.9 billion, and INPUT forecasts that these expenditures will grow at a compound annual growth rate of 5% to $1.3 billion in 1997. Since the growth rate has been declining over time and investment in resources is required for utility processing, this service is most feasible as a supplementary service of a vendor offering other processing services.

EXHIBIT VI-12



3. "Other" Processing Services Market

While most modifications to the forecast have been in a downward direction, "other" processing services is the one area that has grown by a high percentage, as shown in Exhibit VI-13. The disaster recovery and backup market—influenced by increasing dependence on the use of IS and a number of significant events, in recent years, that have disrupted IS operations at major businesses—is driving this demand.

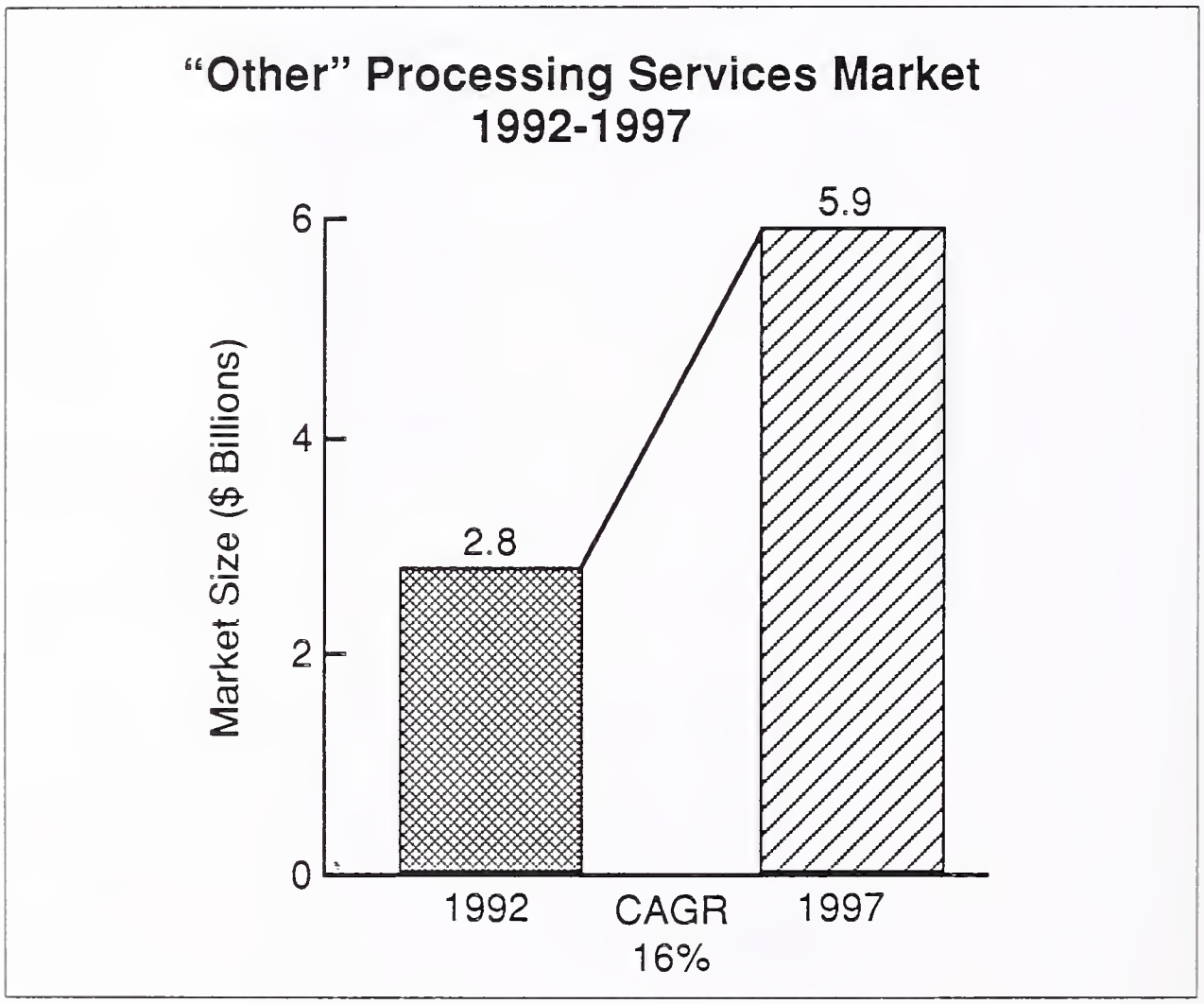
Over 80% of the companies interviewed in preparing this report make use of service providers for disaster recovery services. Over 50% cited disaster recovery planning as one of their top projects planned for the use of processing services.

INPUT expects 1992 expenditures in "other" processing services to be 20% more than in 1991. This is by far the highest growth rate of all delivery modes and submodes.

The compound annual growth rate for this sector is 16%. This growth rate is three times larger than the growth rate for the utility processing services market.

The market for disaster recovery services is estimated currently to be 20% of the "other" processing services market. It has been dominated by three large vendors—Comdisco, IBM, and SunGard—but many other vendors are now entering or exploring the market. It will take time for new vendors to gain meaningful market share because of the investment required and the dominance of established vendors, but the strong acceptance of the value of this service by the user community is causing many equipment and maintenance services firms to become more interested in this service.

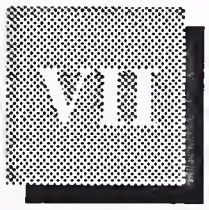
EXHIBIT VI-13



The "other" processing services market also includes operational services such as pickup and delivery of work, remote data entry, and special output services. These resources also have provided opportunities for processing vendors to obtain additional revenue.

Some of the other services—computer output on microfilm (COM), laser printing, and remote data entry—have been sold separately as well as with transaction processing services.

COM has been an important source of revenue for some firms in the processing services market, such as Anacomp and Endata, part of First Financial Management. The use of CD ROM and on-line storage has begun to take some business from COM, but expanded use by current users and the low cost of COM, particularly COM readers, should encourage continued use.



Competition

A
Introduction

Vendors that provide processing services are identified and discussed in this chapter. Specific services offered by these vendors include

- Transaction processing
- Utility processing
- Other processing

If the client has all processing or all the processing of a department performed by a vendor on a contractual basis for a period longer than a year, the processing work is classified as systems operations.

- This type of information services work is analyzed by INPUT in a separate report, *Information Systems Outsourcing Market Opportunities, 1992-1997.*

- The systems operations work of processing services vendors is discussed in this report to some extent, however, since a number of vendors have systems operations work related to their processing services.

The information systems equipment used for processing or systems operations services may be owned by the vendor, the client, or a third party. As part of a systems operations arrangement, the equipment may be bought from a client by a vendor.

B
Market Leaders

While the processing services market is led by large companies, such as ADP and American Express ISC, the vast of companies have revenues of less than $100 million.

The leading vendors are listed in Exhibit VII-1. Some focus primarily on one or two specific industry or cross-industry markets. For example, First Financial Management provides solutions and expertise to the banking/ finance industry whereas Shared Medical Services addresses the unique needs of health care providers. Paychex specializes in payroll services.

EXHIBIT VII-1

Leading Processing Services Vendors
U.S. Revenue, 1991

Rank	Vendor	Estimated Processing Services Revenue Share ($ Millions)	Growth 90-91 (Percent)
1	ADP	1,286	4
2	American Express ISC	890	23
3	FFMC	778	5
4	Ceridan	322	5
5	Covia	260	9
6	Fiserv	244	12
7	Comdata	224	19
8	EDS	202	12
9	GEIS	200	21
10	Equifax (includes Telecredit)	191	5
11	NDC	190	-10
12	CCH Computax	176	-12
13	AT&T/NCR	160	7
14	Comdisco DRS	150	27
15	Shared Medical	149	9
16	Paychex	148	116
17	SunGard	145	8
18	Anacomp	107	8
19	IBM	60	-40

Other vendors, such as GEIS, have chosen a strategy to provide services that cut across a variety of market sectors. The major markets of selected leading vendors are shown in Exhibit VII-2.

EXHIBIT VII-2

Major Markets of Selected Leading Processing Services Vendors

Vendor	Major Markets
ADP	Cross-industry human resources, banking and finance
American Express ISC	Banking and finance, health
Anacomp	Computer output microfilm
CCH Computax	Cross-industry accounting
Comdata	Transportation
Control Data	Various markets, including banking and finance and cross-industry human resources
Covia	Transportation
FFMC	Banking and finance, health
Fiserv	Banking and finance
GTech	State and local government
GEIS	Banking and finance, telecommunications, manufacturing, distribution
NDC	Banking and finance, retail, health
Shared Medical	Health care services
SunGard	Disaster recovery services

Given that processing services is considered a mature market, vendors' growth strategies need to focus on either providing existing services to new markets or expanding the range of services offered to their existing customers.

Most of the processing services vendors that INPUT contacted thought that to continue to be successful, they needed to focus on the unique applications needs of specific vertical markets. While many vendors obtain the a majority of their revenues today from processing services, they also are expanding offerings to include new services and technologies as shown in Exhibit VII-3.

EXHIBIT VII-3

Other IS Services Offered by Selected Processing Services Vendors

	Turnkey Systems	Network/ EIS	Systems Ops.	Systems Integration	Prof. Services	Appl. Software
ADP	X	X				
EDS	X		X	X	X	
American Express ISC	X	X				X
CCH Computax						X
Computer Language Research	X					X
Equifax		X				X
Fiserv						X
GEIS		X		X	X	
M&I			X			X
NDC	X		X		X	X
IBM Information Network		X				
Policy Management Systems		X				X
Shared Medical Systems	X					X
SunGard	X					X
Systematics		X	X			X

Systems operations is clearly a logical market for processing services vendors to enter in order to expand their business. Systems integration and professional services are areas that can both expand the revenue base and provide a springboard to additional processing services. Applications software is another potential delivery mode for vendors that have developed a reputation in certain applications areas.

Some vendors that have been devoted primarily to one or two markets have expanded, through internal development or acquisitions, into other industries.

- ADP has been identified principally with payroll processing (human resources), but it also has substantial business with brokerages, distributors, and firms in the business services industries. In April of this year, ADP acquired Bank of America's Business Services Division, which provides processing services such as payroll. As many companies that got into processing services years ago refocus their strategies on their core businesses, there are more opportunities for processing services vendors to increase revenues.

- American Express was known in the processing services industry for its subsidiary, First Data Resources (FDR), which was active primarily in credit card-related processing. However, FDR has expanded into new industries, and American Express has also acquired vendors, serving the health industry sector, that have been grouped together with FDR in the American Express Information Services Company.

In processing services, growth by acquisition has become common. The processing services sector includes hundreds of small vendors (under $30 million in annual revenues). These companies tend to be local or regional and focus on a limited number of clients. They initiate many of the new offerings within the industry. As these vendors begin to specialize in an application area and grow toward $50 million in revenue, they become logical acquisition candidates for the leading vendors. Over the past few years these acquisitions have become the norm within processing services. This acquisition pattern is not as common in the other services areas

The market that continues to receive the most vendor attention among industry and cross-industry markets is banking and finance, as illustrated in Exhibit VII-2. The second most popular market is human resources. Other major markets include health care and transportation. As noted in Chapter VI, key markets for potential growth are utilities and telecommunications.

Systems operations and processing services, though considered to be separate delivery modes, are similar in that they handle data processing functions as an alternative to in-house processing. As indicated earlier, most of the processing services vendors consider the trend toward systems operations to be a positive one for them since systems operations presents growth opportunities for vendors serving the more mature segment of the processing services market.

Another information services delivery mode that is related to processing services is network services. Firms that provide network services, such as GEIS and BT North America, are likely to market related processing services. For example,

- If electronic information (a network service) is provided by a vendor to a client terminal for the purpose of pricing a stock, the vendor can supply processing services to handle the purchase or sale of stock if a trade results.

- If a value-added network (VAN) or EDI is used through a vendor's network services capabilities, processing work may result from the activity.

C
Competitive Issues

As discussed in earlier chapters, a continuing competitive threat to processing services vendors are in-house solutions. While new technologies threaten to erode their customer base, vendors strive to emphasize the value added by using a service provider specializing in the buyer's particular industry and application needs.

Price, service levels, networking, and applications functions are the key factors upon which vendors compete with each other. Exhibit VII-4 defines what the obvious success factors or "Keys to Success" for competing in the processing services market.

EXHIBIT VII-4

Keys to Success

- Develop industry specialization
- Understand customers changing needs
- Maintain quality
- Give value for dollars spent
- Implement useful new technologies

Industry Specialization: vendors that develop a reputation for expertise in a particular application are offering more than data processing. They are selling solutions and allowing buyers to focus their efforts in other areas of greater priority to their business. The broader the range of solutions a vendor can provide, the more the buyer will tend to rely on the vendor's expertise. Processing services providers who also offer systems operations and/or professional services will be in a good position to recognize opportunities for increased revenue.

There have been a number of vendors that fill specific niches that address a unique application need. Their value is related to their understanding of the issues related to that application. For example, companies that use outside payroll services rely on the vendor to keep up on changing state and federal tax and reporting requirements. These companies prefer to focus their own applications expertise on internal strategic applications and leave payroll to the "experts."

Understanding Customer Needs: Vendors point to their ability to customize and address particular customer needs as a very important key to success. Customers have many options today and need to feel that the service provider can offer more than just a generic service. Vendors must constantly maintain contact with customers, understand changing requirements, and modify, if necessary, solutions to maintain client business.

Quality: Quality is something that customers have come to expect from service providers. Customer expectations continue to be greater as higher service levels are requested—with 24-hour service becoming the norm. One disadvantage to using an outside service, however, is a lack of control. If the quality is not to the customer's standards, the solution may be to bring the application in-house, where the customer will have more control over it.

Value: In these economic times, cost is an important consideration in the selection of computing solutions. In using a service provider, customers are looking very closely at cost as compared to service, quality, and vendor knowledge. Most outsourcing decisions are being made primarily on the basis of cost. The winner may not always be the lowest priced vendor, but it will most certainly be the vendor that has the greatest perceived value for the dollar spent.

New Technologies: Vendors cannot ignore the fact that some of the reasons that companies originally used processing services, such as the high cost of in-house systems, no longer exist. The processing services vendor must continually compete with decreasing costs and increasing functionality of existing technologies and the ongoing introduction of new technologies. Most of the vendors INPUT contacted had a pragmatic, "If we can't beat 'em, join 'em." They recognize that developments such as systems operations and client/server computing are here to stay. If they want to be successful, they need to find a way to provide these or complementary services.

One way to look at industry direction is through examining where vendors are focusing their research and development dollars. Exhibit VII- 5 describes new product development underway for many processing services vendors.

EXHIBIT VII-5

New Product Development

- Re-writing/updating existing applications
- Imaging
- Scanning/bar coding
- PC/workstation and client/server solutions
- Network enhancements

Rewriting and constantly updating applications is a critical focus area for vendors. A key advantage vendors offer their customers is the ability to continually enhance their applications on an "as needed" basis.

Certain technology developments such as scanning and imaging are important as their use increases the number of transactions that need to be processed. Vendors are being proactive in developing capability in these areas.

The vendors contacted by INPUT recognize the importance of advances in client/server technology and PC/workstation capabilities. Many report that their product development efforts are focused on offering services which make use of these technologies.

Upgrading their networking capabilities is another major area of product development for processing services vendors. Once again, they recognize that they can position themselves advantageously if they can offer their customers flexibility, speed, and competitive pricing as user communications needs expand.

Other areas of product development are in the areas of EDI, Notepad technology, and UNIX.

D

Segment Leaders

Of the three segments of processing services, transaction processing by far has the largest percentage of revenues. Some of the larger vendors provide services in two or three segments. These include vendors such as ADP and First Financial Management. Others specialize only in one area, for example, Comdisco Disaster Recovery Services falls only in the "other" category. Exhibit VII-6 presents selected processing services vendors and sectors in which they provide services.

EXHIBIT VII-6

Processing Services Offered
Vendors Profiled

Vendor	Transaction Processing	Utility	Other
ADP	X	X	
Equifax	X		
Anacomp			X
Comdata Holdings	X		
SunGard Data Systems, Inc.	X	X	X
FIserv	X		
CCH Computax	X		
Shared Medical Systems	X		
Comdisco		X	X

1. Transaction Processing Services

As indicated in Exhibit VII-7, the leaders of the transaction processing services submode in 1991 were ADP, First Financial Management, and American Express ISC. Where it is difficult to separate the volume of utility and other processing services provided by firms listed in this mode, the entire processing services offering of the vendor is shown as transaction processing services in this exhibit.

EXHIBIT VII-7

Leading Transaction Processing Services Vendors, 1991

Rank	Vendor	Transaction Processing Services Revenue ($ Millions)	Market Share (Percent)
1	ADP	1,145	8
2	American Express ISC	859	6
3	FFMC	657	4
4	Control Data	304	2
5	Covia	260	2
6	Comdata	224	1
7	NDC	190	1
8	CCH Computax	176	1

2. Utility Processing Services

Utility processing services can also be offered by vendors that provide transaction processing services, as shown in Exhibit VII-8, because they are easily accessible when a client has a need for processing speed, memory size, or special peripherals that cannot be satisfied using in-house capabilities.

EXHIBIT VII-8

Utility Processing Vendors

Rank	Vendor	Estimated 1991 Revenue ($ Millions)	Market Share (Percent)
1	ADP	62	7
2	GEIS	54	6
3	EDS	11	1
4	IBM	6	1
5	May & Speh	3	<1

Some vendors, including Genix and Litton, are able to use utility processing services contracts as a springboard to other business. These vendors provide short-term utility processing services to run applications software products from in-house or third-party sources, which may be run on a processing services or systems operations basis after the short-term contract is over.

3. "Other" Processing Services

In addition to the rapidly growing disaster recovery and backup business, "other" processing services include remote data entry, data pickup and delivery, scanning, computer output microfilm, and laser printing.

As Exhibit VII-9 illustrates, there are vendors whose revenue is solely or mostly due to "other" services, including Anacomp and Comdisco.

EXHIBIT VII-9

Leading Vendors of "Other" Processing Services, 1991

Rank	Vendor	Estimated 1991 Revenue ($ Millions)	Market Share (Percent)
1	Comdisco Disaster Recovery Services	150	6
2	SunGard	145	6
3	FFMC	115	5
4	Anacomp	107	5
5	ADP	77	3
6	EDS	32	1

- Anacomp derives its "other" processing services revenue from computer output microfilm (COM). EDS and FFMC also have substantial amounts of COM revenue as a result of serving the banking market.

- Comdisco obtains their "other" revenues from disaster recovery and backup services and provides mainframe, midrange, and work area service.

While Comdisco and SunGard continue to dominate the disaster recovery market, other vendors have also entered the marketplace. IBM started offering disaster recovery services in 1989 and now offers backup services from its IBM Business Recovery Centers. Hewlett-Packard (H-P) is also offering these services to its customers, and XL Datacomp is also a supplier.

Disaster recovery and backup is the fastest growing part of the "other" processing services market and is responsible for the 16% CAGR that "other" services enjoys.

Although the use of COM is still growing, the use of CD ROM and image processing impact the COM market as the cost of these alternatives is lowered through new technology. The installed base of COM equipment and readers should continue to support the use of COM for the near future, however.

E
Vendor Profiles

The vendors profiled in this report are listed in Exhibit VII-10.

EXHIBIT VII-10

Processing Services
Vendor Profiles

- Anacomp
- Comdisco Disaster Recovery Services, Inc.
- Shared Medical Systems Corporation
- CCH Computax, Inc.
- Fiserv
- Equifax
- Comdata Holdings Corporation

1. Anacomp, Inc., 11550 North Meridian Street, P.O. Box 40888, Indianapolis, IN 46240, (317) 844-9666

a. Company Background

Anacomp was founded in 1968 to serve the COM market and provide related products and services. It marketed software products for the banking market in the 1980s but has returned its focus to the COM market since that period.

More than 80% of Anacomp's total revenue comes from COM hardware systems, maintenance services for COM and related hardware, microfilm, and supplies. Only a small percentage of its business is focused on COM services. Growth was down in 1991 due to depressed spending in the banking and finance and government markets, which account for 60% of the firm's COM business.

All of Anacomp's estimated $107 million revenue in calendar year 1991 for information services was obtained from COM and microforms processing services.

b. Company Strategy

Anacomp's current business strategy is to continue expanding its COM product and service offerings, which cover information services and other offerings.

It strives to be a full-service provider offering customers a variety of options in the COM area.

c. Key Products and Services

Anacomp provides computer output microfilm (COM) services and a variety of "other" processing services to over 6,000 customers nationally through its micrographics service centers.

COM can be provided in roll microfilm or on microfiche sheets. Anacomp has software products that can provide indexing and retrieval facilities to aid in the use of microfilm.

The company also markets COM hardware and maintenance service for the hardware, as well as microfilm duplication service, source document microfilming, micrographics supplies, and computer tape and other products.

2. Comdisco Disaster Recovery Services, Inc., 6111 North River Road, Rosemont, IL 60018, (708) 698-3000

a. Company Background

Comdisco Disaster Recovery Services (CDRS) was founded in 1980 by Comdisco, a leasing company with revenue of about $2 billion. Comdisco's inventory of IBM equipment facilitated entry into the disaster recovery business.

Growth has been aided by alliances with MCI, Nomura Research, and other firms.

It is estimated that calendar year 1991 revenue reached $150 million, 15% above the revenue of the previous year. All of CDRS' revenue was derived from disaster recovery subscriptions and associated contingency planning services.

b. Company Strategy

The chief strategy of CDRS is to provide disaster recovery processing services and associated consulting to subscribers in the U.S., Canada, and overseas.

CDRS management attributes the company's growth primarily to the growth in its customer base and the services offered.

The company has used alliances and other agreements to increase its markets. Such alliances announced by CDRS in 1991 include the following:

- In December, CDRS acquired 100% ownership of its U.K.-based joint venture Failsafe ROC Ltd.

- In April, CDRS and TDS Healthcare Systems Corp. announced a joint marketing agreement to provide business recovery services to users of TDS Healthcare information systems.

- In April, CDRS announced a joint marketing agreement with Data Assurance Corporation, a firm specializing in computer backup services.

c. Key Products and Services

The basic service consists of supplying access to alternative data centers, networks, and other capabilities, including a technical staff to minimize the impact of a disaster that has caused interruption in operation. Recovery service can include the following options:

- CDRS' continuous availability service, which provides for the simultaneous recording of transactions at a CDRS site for customers who depend on on-line transaction processing

- A network of fixed and mobile satellite earth stations that can bypass telephone control office switching equipment when there is a telephone company disaster

- The COMROC mobile computing center, which CDRS will provide at or near a customer's site, even in a parking lot if necessary, within a week of a disaster

- A disaster recovery software product, ComPAS, that uses an expert system to assist customers in developing, testing, and maintaining a full recovery capability related to their industry and business environment

- A network capability developed with MCI to provide transparent access to any of CDRS' recovery facilities

CDRS has traditionally provided hot-site data recovery planning and network recovery solutions. During 1990 and 1991, CDRS focused its service offerings to include business continuity solutions not only for the data center but also for the individual business departments and corporations as a whole.

3. Shared Medical Systems Corporation, 51 Valley Stream Parkway, Malvern, PA 19355, (215) 296-6300

a. Company Background

Shared Medical Systems (SMS) was formed in 1969 as a provider of information services to the health care industry including hospitals, clinics, and physician groups. It became a publicly held company in 1976. Calendar year revenues in 1991 amounted to $438.7 million, a 9% increase over 1990 revenue of $403.1 million. About half of total revenue was gained from systems operations and processing services. The remainder was attributed to software product licenses and turnkey systems.

b. Company Strategy

Originally a provider of processing services, the company has expanded its offerings to include software products, professional services, turnkey systems, and systems operations.

SMS is positioning itself to lead the health care systems industry in three areas:

- Use of LAN technologies to integrate various systems
- Use of image processing systems
- Use of relational databases to increase accessibility of information.

SMS is investing in distributed platforms that will ultimately evolve into a client/server model with hosts and minis functioning as servers.

c. Key Products and Services

Shared Medical Systems offers a complete set of over 100 financial, administrative, decision support, clinical management, physicians', and other application systems to meet the needs of hospitals and physicians' groups.

The company's application systems are provided through processing services or with mainframes or minicomputers to meet the needs of hospitals of various sizes.

Systems are also available to meet nursing, radiology, laboratory, and pharmacy office or group needs.

A physicians' office system is also available on a PC to serve small physician practices of up to five people.

4. CCH Computax, Inc., 21250 Hawthorne Boulevard, Torrance, CA 90503-5502, (310) 543-6200

a. Company Background

CCH Computax, Inc. provides income tax return processing services to professional tax preparers. Tax return processing is offered for federal returns and also for all states that impose individual and corporate income taxes. The company also provides applications software and educational services to accountants. CCH Computax's parent, Commerce Clearing House, Inc. (CCH) is a $700 million corporation that provides tax processing services, tax and business law materials, and legal support services.

CCH Computax's 1991 revenue was $197.6 million, a 12% decrease from 1990 revenue of $224.3 million. Revenue declines during 1991 were attributed to significant volume decreases for service bureau tax return processing, reflecting customer shifts toward in-office tax return processing systems. INPUT estimates 89% of CCH Computax's 1991 revenue was derived from its various tax processing services, 10% from software product licenses, and 1% from education services provided to accountants.

b. Company Strategy

CCH Computax is addressing the needs of a niche market through a variety of solutions including software and education as well as processing services. Growth has been achieved through various acquisitions in the past several years. Most recently, in 1991, CCH Computax acquired Optima Technologies, Inc., a small software development company focused on tax return processing software.

c. Products and Services

CCH Computax provides batch, remote batch, and distributed tax processing services for individual, partnership, corporation, fiduciary, oil and gas, and deferred compensation returns.

Applications software products provided by CCH Computax include the following:

- The Command System—an integrated set of IBM and compatible microcomputer-based software products that allows tax preparers to perform tax calculations

- Computax Connection products—permit the tax preparer to interface microcomputer-based applications for tax planning, audits, and general ledger with taxpayer data residing on CCH Computax mainframes

- ProSystem FX—a complete tax processing system designed to provide customer-selected delivery methods through in-office, remote job entry, or batch processing

- 1040 Solutions—acquired by CCH Computax in 1985, a microcomputer software product that allows preparers to calculate and print individual tax returns in their own offices

- CCH Computax's Fiduciary Taxsystems Division—provides fiduciary tax processing for banks using a software bridge to the bank's trust accounting system

d. Key Issues

In response to continued economic pressure, during 1991 CCH management implemented a general cost containment and awareness program for all of the business segments and is developing a new strategic plan. Included was a 5% across-the-board downsizing, early retirement offers, and a 250-person reduction in full-time staff.

5. FIserv, Inc., 2152 South 114th Street, Milwaukee, WI 53227-1029, (414) 546-50007

a. Company Background

FIserv was formed in July 1984 and has grown through continuing development of new services and products, and through acquisition. In May 1991, FIserv made a public offering of 1.2 million shares of its common stock. FIserv made its initial public offering in September 1986.

FIserv claims to be the nation's largest provider of financial data processing to savings institutions and one of the top five U.S. providers of financial data processing services to banks and credit unions.

FIserv's 1991 revenue reached $260 million. FIserv management attributes revenue growth primarily to acquisitions but also to the addition of new clients, the growth in the transaction volume experienced by existing clients, and price increases. INPUT estimates approximately 94% of FIserv's 1991 revenue was derived from processing services and 6% from application software products.

b. Company Strategy

The FIserv business strategy is to become the nation's largest full-service financial processing company through growth of its existing data centers, expansion into new geographic areas through acquisitions, and expansion into new, but related, products and services for the financial services industry.

FIserv dedicates approximately 20% of its total computer capacity to product development. During 1990, 1989, and 1988, the company spent $28 million, $24 million, and $15 million, respectively, on software development and maintenance.

Acquisitions made by FIserv in 1991 include the following:

- April 1991, Citicorp Information Resources, Inc. (CIR)
- April 1991, BMS Processing, Inc. and a 48% equity interest in BMS On-Line Services, Inc.
- May 1991, FIserv agreed to acquire the item processing business of the Federal Home Loan Bank

c. Key Products and Services

FIserv, Inc. provides on-line processing services to thrifts, commercial banks, credit unions, and other financial institutions. The company also provides trust administration services for self-directed retirement plans and microcomputer software and educational services for asset/liability

management to financial institutions. FIserv provides outsourcing capabilities, application software products, and professional services consulting for the financial services industry. FIserv currently operates multiple full-service data centers, support centers, software system development centers, item processing, and back-office centers throughout the U.S.

The FIserv Service Dimension is an expanded combination of transaction processing and information management products and services for financial institutions.

FIserv processing services support account processing; management, government, and regulatory reporting; and business operations, analysis, marketing, and accounting functions for banks credit unions, and savings institutions.

6. Equifax Inc., P.O. Box 4081, 1600 Peachtree Street, N.W. Atlanta, GA 30302, (404) 885-8000

a. Company Background

Equifax was founded in 1899 as a credit reporting agency under the name Retail Credit Company. The company was renamed Equifax in 1976 and now operates as the parent company for its subsidiaries, which provide a range of services related to credit reporting, check authorization, credit and debit card processing, insurance underwriting, and product marketing.

The company provides information services and other services through the following business units:

- Consumer Credit and Marketing Services
- Insurance and Special Services
- Telecredit, Inc.
- Equifax Canada
- Equifax Europe

Equifax's total 1991 revenue was $1,093.8 million, a 1% increase over 1990 revenue of $1,078.8 million. INPUT estimates that approximately $727 million (66%) of Equifax's total 1991 revenue was derived from U.S. information services.

INPUT estimates that Equifax's information services revenue was derived from electronic information services; credit, mortgage account management, and credit and debit card processing services; and mortgage management software.

Equifax's information services revenue is derived from the insurance, banking and finance, and retail industries and from credit agencies and brokers.

b. Company Strategy

Equifax's strategy is to offer a full range of services to address a variety of needs of the financial services industry.

During 1991, Equifax initiated a restructuring program designed to streamline operations through consolidating facilities and eliminating marginal or unprofitable products and services. The restructuring involved mostly the credit and insurance areas. in the Insurance unit, Equifax's continuing shift to automated products made it possible to reduce the number of district and regional offices. In the Credit unit, Equifax is reducing the number of field operations as it shifts consumer disclosure activities and credit grantor support function to its new Information Service Center.

c. Key Products and Services

Equifax's products and services are categorized in the following areas:

- Credit reporting, account management
- Check verification
- Credit/debit card processing
- Insurance-related electronic IS
- Mortgage Loan systems

Equifax provides a number of information services in the areas described above. It's primary processing service is provided by Telecredit, one of its subsidiaries.

Telecredit provides check authorization services to retailers, credit and debit card processing services to merchants and financial institutions, and lottery services to state lottery organizations.

High Integrity Systems, a wholly owned subsidiary of Telecredit, provides automated instant ticket gaming systems and services to state lotteries.

Using demographic data, Equifax also provides targeted information and statistical modeling to help companies market their products.

7. Comdata Holdings Corporation, 5301 Maryland Way, Brentwood, TN 37027, (615) 370-7000

a. Company Background

Comdata Holdings Corporation (Comdata) currently provides a range of processing services to the transportation, leisure and gaming, and retail industries through the following divisions:

- Transportation Services, provides funds transfer and other information management processing services to trucking companies.

- Consumer Services, provides credit card cash advance services to individuals for personal and emergency reasons.

- Telecommunications Services provides volume discounts for AT&T long-distance charges.

During 1991, nine customers accounted for over 75% of revenue from Comdata's check payment services. Input estimates that Comdata's 1991 revenue was $224 million, which was a 3% decline from 1990 revenue. Results for 1991 were attributed to a poor economy and the reduction in scope of services from two major customers.

b. Company Strategy

During 1991, Comdata entered various systems operations/marketing agreements as follows:

- In September of 1991, Comdata entered into a 10-year agreement for systems operations services with IBM's Integrated Systems Solutions Corporation (ISSC) whereby ISSC operates and manages all data processing functions involved in Comdata's operations.

Also, Comdata entered into an agreement with Advanced Telecommunications Corporation (ATC) whereby ATC has become Comdata's primary provider of long-distance telephone service.

Comdata has essentially decided to outsource its processing services business.

c. Key Products and Services

About 93% of Comdata's 1991 revenue was derived from transaction processing services in support of funds transfer, permit issuance, and check verification and guarantee. About 7% of revenue was derived from volume discount long distance services.

Comdata provides funds transfer services, fuel purchase programs, backhaul information, in-truck communications services, and permit services to the trucking industry. During 1991, Comdata processed about 33 million funds transfer transactions valued at $7.1 billion for about 11,000 trucking company customers.

Comdata Consumer Services provides cash advance services to individuals for personal and emergency reasons and check authorization and guarantee services to retailers.

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VIII

Conclusions and Recommendations

A
Conclusions

INPUT's conclusions regarding the market for processing services are detailed below and summarized in Exhibit VIII-1.

EXHIBIT VIII-1

Processing Services Market Conclusions

- Mature market
- Stable market base
- Key applications driving demand
- Networks growing in importance
- Recession affecting growth
- Outsourcing is key trend
- Re-engineering has positive potential

These are described below:

Mature Market: While processing services has been the largest of the delivery modes tracked by INPUT, its rate of growth has been steadily declining. As PCs and workstations continue to diminish in price and software becomes more easily available, it becomes feasible for companies to handle more applications in- house. This applies particularly to small and mid-sized companies that could not cost justify their own systems in the past.

Stable Market Base: While processing services vendors are losing some business to in-house alternatives, there is a base of customers that is expected to remain stable. Many companies rely on vendors because of specific expertise that the vendor offers, or because of economies of scale possible due to shared system use. These customers don't want to have to worry about things such as changing government requirements affecting payroll handling. Likewise these clients realize that a vendor can respond to changing network and applications needs more quickly than could an in-house user. Banks and other financial institutions will continue to find it cost effective to use processing firms for back-office functions. These customers recognize the value added by the processing services vendor and will continue to take advantage of that resource.

Key Applications: Certain applications are expected to drive increases in demand for processing services. For example, plans are in place to allow credit cards to be used in a number of new locations such as taxicabs and fast food restaurants. This will increase transaction volume in an area that has traditionally relied heavily on processing services. Claims processing is another application likely to increase transaction volumes. Various government requirements and productivity issues for insurance companies are providing strong incentives for on-line claims processing. Continued growth in the telecommunications industry will increase demand for billing services. Disaster recovery is another application that will promote increased use of processing services vendors.

Networks Growing in Importance: Companies in virtually all industries report that globalization is an important factor for business growth. Applications such as EDI are making it increasingly important to interface networks involving a variety of different companies. Processing services vendors with state-of-the-art networks can offer real advantages to customers over in-house network alternatives.

Recession: The downturn in the economy has had an effect on just about all business sectors. Many of the segments that traditionally make use of processing services have been particularly hard hit. IS expenditures in the banking/finance industry have been sharply curtailed in recent years.

Transportation, another heavy user of processing services, has seen decreased demand, as evidenced by the summer airfare wars at a time of year when airlines can usually claim premium prices. As unemployment rises, revenues for payroll processing services decreases. Since processing service vendors' revenues are based upon the volume of transactions, anything that drives the number of transactions down has a direct impact on the bottom line.

Outsourcing: Outsourcing is one of the "hot issues" today in information services. On the heels of unprecedented merger and acquisition activities, companies are taking a good look at the businesses they are in and assigning priorities. Many are deciding that they want to focus their efforts on

their primary business and have a third party provide IS support. This most often is achieved through the use of facilities management contracts.

The outsourcing trend is a positive one for processing services vendors. As more companies modify their IS strategies to "buy" instead of "make," processing services vendors have an opportunity to capitalize on this mind-set. After all, assuming responsibility for information systems has been exactly what processing services vendors have been doing for the last two decades. Many of these same vendors are also offering facilities management services, which presents a strong, new opportunity for business growth.

Re-engineering: Many companies today are rethinking their approach to business processes and information systems. This often leads to decisions to downsize applications to smaller platforms or to PC/LANs and workstations. Though this trend clearly erodes some opportunities for processing services, it also offers others. Companies may decide to make use of outside services to supplement PC/LANs for certain applications.

Though processing services is unlikely to achieve high rates of growth in the future, its ability to meet unique application needs will support an ongoing and stable customer base. Its continued growth is dependent upon a change for the better in the economy and the ability of processing services vendors to capitalize on trends in new areas such as outsourcing, downsizing and networking.

B

Recommendations

Based on the conclusions drawn from this year's analysis, INPUT offers the following recommendations for processing service vendors. These recommendations are also summarized in Exhibit VIII-2.

EXHIBIT VIII-2

Processing Services Market Recommendations

- Expand product/service offerings
- Focus on vertical or niche market
- Continually upgrade applications/networks
- Emphasize networking capabilities
- Develop services to complement emerging technologies
- Maintain high service levels and competitive pricing

Expand Product/Service Offerings: It has been stated that processing services is a mature market. In addition, customers have a myriad of choices available to them today as they make IS decisions. These choices involve in-house solutions using a variety of platforms and applications. They also include a range of outside services ranging from outsourcing the entire IS operation to using processing services, network services, systems integrators, and consultants. Given the choices involved, most companies will make use of a number of options to address their needs. Vendors that can offer more choices will be sought out more by customers.

The buyer of information services has changed in recent years, with upper management being increasingly involved. The significance of this change is that management is more interested in buying a solution rather than a technology. Thus, the vendor that can offer alternative solutions has a competitive advantage. As noted in Chapter VII, many processing services vendors are offering other services such as systems operations, systems integration, and application software. The vendors that can expect to achieve a healthy rate of growth in the coming years will be those that offer such variety.

Focus on Vertical or Niche Markets: One of the key reasons that customers use processing services is the expertise that these vendors bring to the table. ADP and Paychex know payroll much better than most companies. First Financial Management and American Express ISC are focused specifically on the unique needs of the banking/finance environment. Vendors should continue such specialization as they expand the offerings provided to their chosen markets.

Vendors should continually be looking at ways to capitalize on their known reputation in one area to expand services into a related area. For example, service providers noted for their expertise in payroll should begin to look at related human resources applications. Vendors need to be able to customize solutions to avoid having their services viewed as interchangeable commodities.

Continually Upgrade Applications/Networks: Buyers make use of processing services because they believe there are benefits to this approach over in-house solutions. However, technology is continually being developed that is faster and cheaper than what was available the year before. Processing services have to keep up with the functionality of other technologies. If the application is too slow or cumbersome, a buyer will start to think about alternatives.

Though it may, in these economic times, be expedient for vendors to delay making upgrades, such decisions can be responsible for future erosion of their customer base. Given the "pay as you go" nature of processing services, buyers can change their minds at any time. Vendors of processing services need to make sure that the buyer continues to see value in their services by making them comparable in function to in-house alternatives.

Networking can be a key advantage that processing services vendors can emphasize to prospective buyers. It can be difficult for companies to continually adjust their own networks to accommodate changes in traffic patterns and volumes. Because of shared resources and larger volumes, this is an area where processing services vendors can have an edge. The vendor must continually invest in its network capability to stay competitive, however.

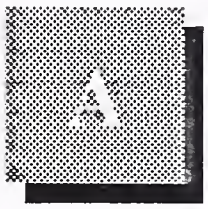
Develop Services to Complement Emerging Technologies: Distributed processing, client/server technology, and wireless communications represent only a few of the technologies that are constantly being introduced to the marketplace. Since processing services have been traditionally been mainframe based and the trend is toward smaller systems, these developments can be seen as threats to processing services. To compete effectively in the years ahead, vendors of processing services are going to have to find ways to co-exist with emerging technologies. Many vendors are targeting their product development toward alternatives to offering services complementary to client/server architecture, for example. Such a technology-driven approach will be an important factor for achieving growth.

Maintain High Service Levels and Competitive Pricing: When a buyer uses an outside service, he gives relinquishes an element of control. To be comfortable with this decision, the buyer needs to know that he can rely on the quality of service. Buyers are demanding higher levels of service and 24-hour operations on a 24 to meet their business needs. The vendors that stay competitive will be the ones that can accommodate these needs. Cost is also a major factor. Of the vendors INPUT interviewed, cost was identified as the number one reason for opportunities lost to competitors. Those companies thinking of outsourcing indicate that savings of at least 10% over in-house options are necessary to make a change. Given the recent economic times, cost becomes an increasingly important factor.

Processing services vendors are facing some challenges ahead. On the one hand, customers are continually being offered new alternatives that compete with processing services at decreasing prices. To be competitive, they must continually update applications, networks, and service levels. Yet such upgrades involve investments, and buyers of processing services are very price conscious and are reluctant to pay higher rates for improved service. In addition, since processing services has become a mature market, growth rates for such services are comparatively modest.

Processing services vendors must expand their service offerings to survive and grow in the marketplace, and the expertise that they have developed over the years in their targeted industries/applications puts them in a good position to implement such and expansion. Providing software, consulting, or system integration services in their established markets will allow them to achieve higher levels of growth by drawing upon and leveraging their traditional strengths.

In the future, the dividing lines between processing services, systems operations, and other third-party services will blur. The successful vendors of tomorrow will be those that can work side by side with upper management in their targeted markets to develop technology-based solutions to business problems. These solutions will make use of both in-house systems and outside services. The vendors that offer the most value will be those that can address the user's needs with the best array of cost-effective options.



Definition of Terms

A
Introduction

INPUT's *Definition of Terms* provides the framework for all of INPUT's market analyses and forecasts of the information services industry. It is used for all U.S. programs. The structure defined in Exhibit 1 is also used in Europe and for the worldwide forecast.

One of the strengths of INPUT's market analysis services is the consistency of the underlying market sizing and forecast data. Each year INPUT reviews its industry structure and makes changes if they are required. When changes are made they are carefully documented and the new definitions and forecasts reconciled to the prior definitions and forecasts. INPUT clients have the benefit of being able to track market forecast data from year to year against a proven and consistent foundation of definitions.

For 1992 INPUT has added one delivery mode and defined three new submodes to its Information Services Industry Structure:

- *Equipment Services* has been added as the ninth delivery mode. INPUT has forecasted the equipment maintenance, support and related services market through its Customer Services Programs for a number or years. Starting in 1992, the equipment services portion of the customer services market will be included in the total information services industry as defined by INPUT. Other portions of this market (such as software support) are already included.

- Two new submodes have been defined in the *Systems Operations* delivery mode - *desktop services* and *network management*. They are defined on pages 5 and 6.

- A fourth submode has been defined within the Professional Services delivery mode—*applications management*. This change reflects a shift in the way some software development and maintenance services are purchased. A complete definition is provided on page 6.

A series of definitions for computer equipment have also been added.

Changes from the 1991 INPUT *Definitions of Terms* are indicated with a ☆.

B

Overall Definitions and Analytical Framework

1. Information Services

Information Services are computer/telecommunications-related products and services that are oriented toward the development or use of information systems. Information services typically involve one or more of the following:

- Use of vendor-provided computer processing services to develop or run applications or provide services such as disaster recovery or data entry (called *Processing Services*)
- A combination of computer equipment, packaged software and associated support services which will meet an application systems need (called *Turnkey Systems*)
- Packaged software products, including systems software or applications software products (called *Software Products*)
- People services that support users in developing and operating their own information systems (called *Professional Services*)
- The combination of products (software and equipment) and services where the vendor assumes total responsibility for the development of a custom integrated solution to an information systems need (called *Systems Integration*)
- Services that provide operation and management of all or a significant part of a user's information systems functions under a long-term contract (called *Systems Operations*)
- Services that support the delivery of information in electronic form—typically network-oriented services such as value-added networks, electronic mail and document interchange (called *Network Applications*)
- Services that support the access and use of public and proprietary information such as on-line data bases and news services (called *Electronic Information Services*)
- Services that support the operation of computer and digital communication equipment (called *Equipment Services*)

In general, the market for information services does not involve providing equipment to users. The exception is where the equipment is part of an overall service offering such as a turnkey system, a systems operations contract, or a systems integration project.

The information services market also excludes pure data transport services (i.e., data or voice communications circuits). However, where information transport is associated with a network-based service (e.g., electronic data interchange services), or cannot be feasibly separated from other bundled services (e.g., some systems operations contracts), the transport costs are included as part of the services market.

The analytical framework of the information services industry consists of the following interacting factors: overall and industry-specific business environment (trends, events and issues); technology environment; user information system requirements; size and structure of information services markets; vendors and their products, services and revenues; distribution channels; and competitive issues.

2. Market Forecasts/User Expenditures

All information services market forecasts are estimates of *User Expenditures* for information services. When questions arise about the proper place to count these expenditures, INPUT addresses them from the user's viewpoint: expenditures are categorized according to what users perceive they are buying.

By focusing on user expenditures, INPUT avoids two problems which are related to the distribution channels for various categories of services:

- Double counting, which can occur by estimating total vendor revenues when there is significant reselling within the industry (e.g., software sales to turnkey vendors for repackaging and resale to end users)

- Missed counting, which can occur when sales to end users go through indirect channels such as mail order retailers

Captive Information Services User Expenditures are expenditures for products and services provided by a vendor that is part of the same parent corporation as the user. These expenditures are not included in INPUT forecasts.

Non-captive Information Services User Expenditures are expenditures that go to vendors that have a different parent corporation than the user. It is these expenditures which constitute the information services market analyzed by INPUT and that are included in INPUT forecasts.

3. Delivery Modes

Delivery Modes are defined as specific products and services that satisfy a given user need. While *Market Sectors* specify *who* the buyer is, *Delivery Modes* specify *what* the user is buying.

Of the nine delivery modes defined by INPUT, six are considered primary products or services:

- *Processing Services*
- *Network Services*
- *Professional Services*
- *Applications Software Products*
- *Systems Software Products*
- *Equipment Services*

The remaining three delivery modes represent combinations of these products and services, combined with equipment, management and/or other services:

- *Turnkey Systems*
- *Systems Operations*
- *Systems Integration*

Section C describes the delivery modes and their structure in more detail.

4. Market Sectors

Market Sectors or markets are groupings or categories of the buyers of information services. There are three types of user markets:

- *Vertical Industry* markets, such as Banking, Transportation, Utilities, etc. These are called "industry-specific" markets.

- *Functional Application* markets, such as Human Resources, Accounting, etc. These are called "cross-industry" markets.

- *Other* markets, which are neither industry- nor application-specific, such as the market for systems software products and much of the on-line data base market.

Specific market sectors used by INPUT are defined in Section E, below.

5. Trading Communities

Information technology is playing a major role in re-engineering, not just companies but the value chain or *Trading Communities* in which these companies operate. This re-engineering is resulting in electronic commerce emerging where interorganizational electronic systems facilitate the business processes of the trading community.

- A trading community is the group or organizations—commercial and non-commercial—involved in producing a good or services.

- Electronic commerce and trading communities are addressed in INPUT's EDI and Electronic Commerce Program.

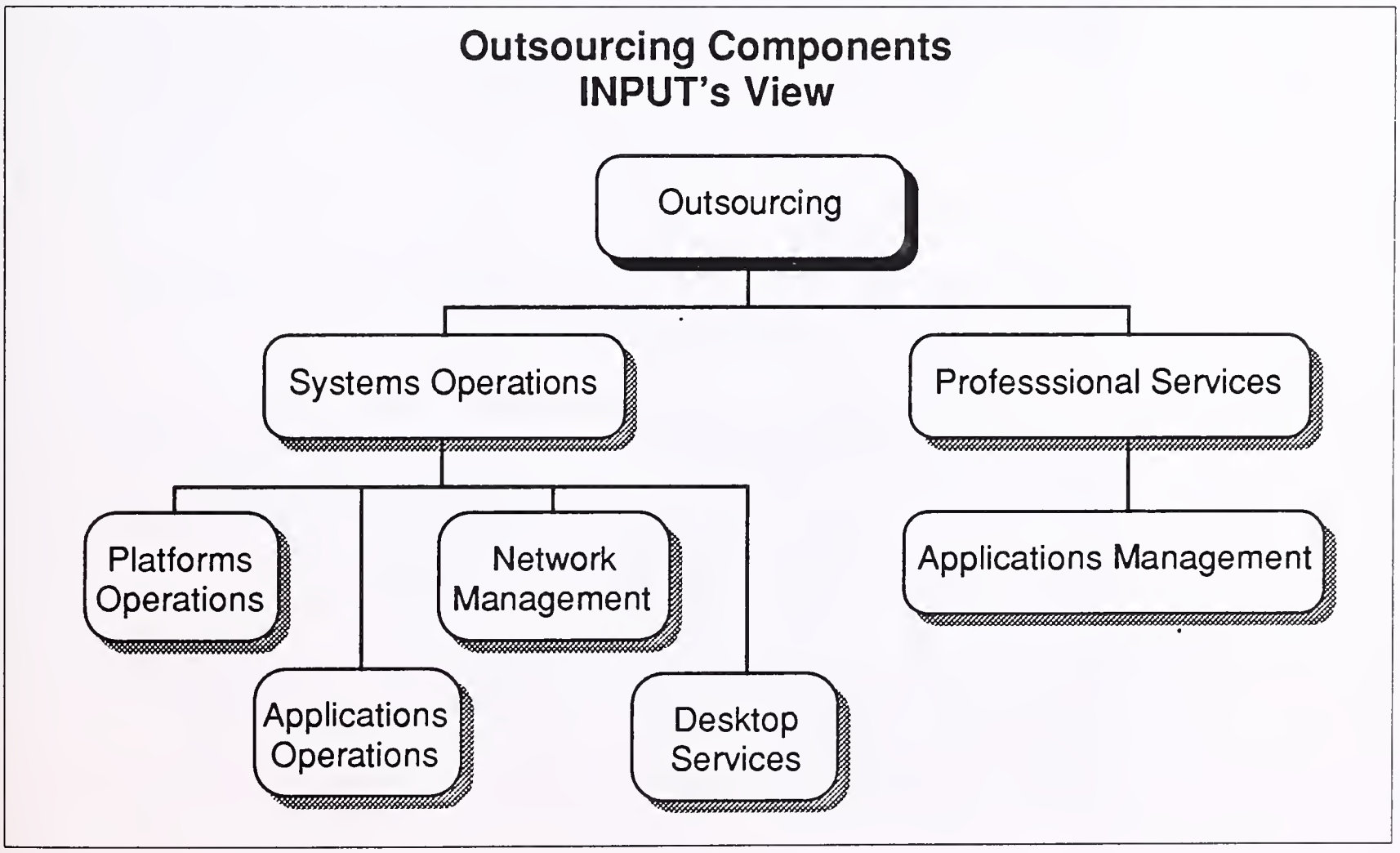
6. Outsourcing

Over the past few years a major change has occurred in the way clients are buying some information services. The shift has been labeled *outsourcing*.

INPUT views outsourcing as a change in the form of the client/vendor relationship. Under an outsourcing relationship, all or a major portion of the information systems function is contracted to a vendor in a long-term relationship. The vendor is responsible for the performance of the function.

INPUT considers the following submodes to be outsourcing-type relationships and in aggregate to represent the outsourcing market. See Exhibit 1. Complete definitions are provided in Section C of this document. INPUT provides these forecasts as part of the corresponding delivery modes.

EXHIBIT 1



- *Platform Systems Operations* - The vendor is responsible for managing and operating the client's computer systems.

- *Applications System Operations* - The vendor is responsible for developing and/or maintaining a client's applications as well as operating the computer systems.

☆ *Network Management* - The vendor assumes full responsibility for operating and managing the client's data communications systems. This may also include the voice communications of the client.

☆ *Applications Management/Maintenance* - The professional services vendor has full responsibility for developing and/or maintaining some or all of the applications systems that a client uses to support business operations. The services are provided on a long-term contractual basis.

☆ *Desktop Services* - The vendor assumes responsibility for the deployment, maintenance, and connectivity between the personal computers and/or intelligent workstations in the client organization. The services may also include performing the help-desk function. The services are provided on a long-term contractual basis.

C

Delivery Modes and Submodes

Exhibit 2 provides the overall structure of the information services industry as defined and used by INPUT. This section of *Definition of Terms* provides definitions for each of the delivery modes and their submodes or components.

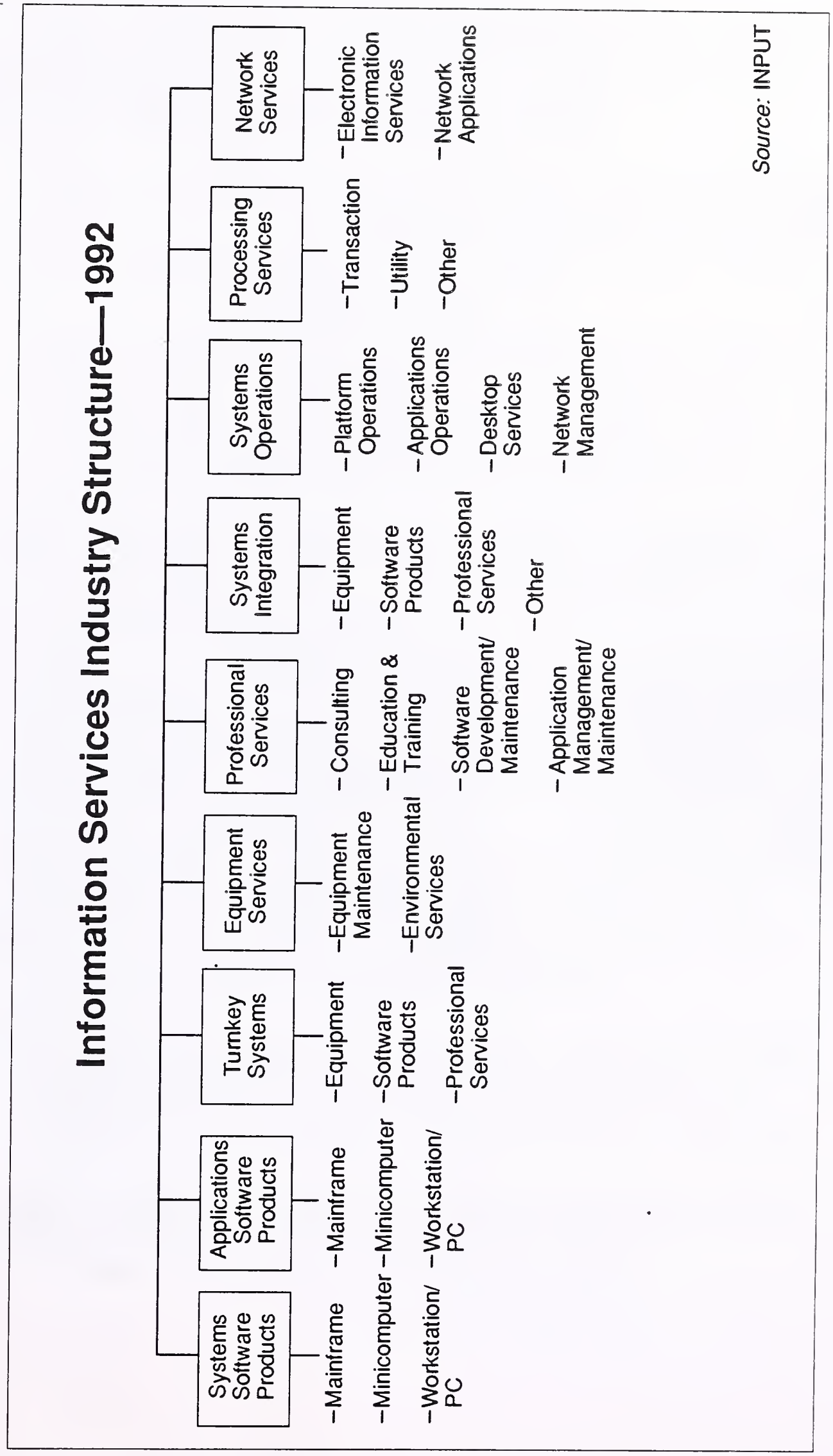
1. Software Products

INPUT divides the software products market into two delivery modes: systems software and applications software.

The two delivery modes have many similarities. Both involve purchases of software packages for in-house computer systems. Included are both lease and purchase expenditures, as well as expenditures for work performed by the vendor to implement or maintain the package at the user's sites. Vendor-provided training or support in operation and use of the package, if part of the software pricing, is also included here.

Expenditures for work performed by organizations other than the package vendor are counted in the professional services delivery mode. Fees for work related to education, consulting, and/or custom modification of software products are also counted as professional services, provided such fees are charged separately from the price of the software product itself.

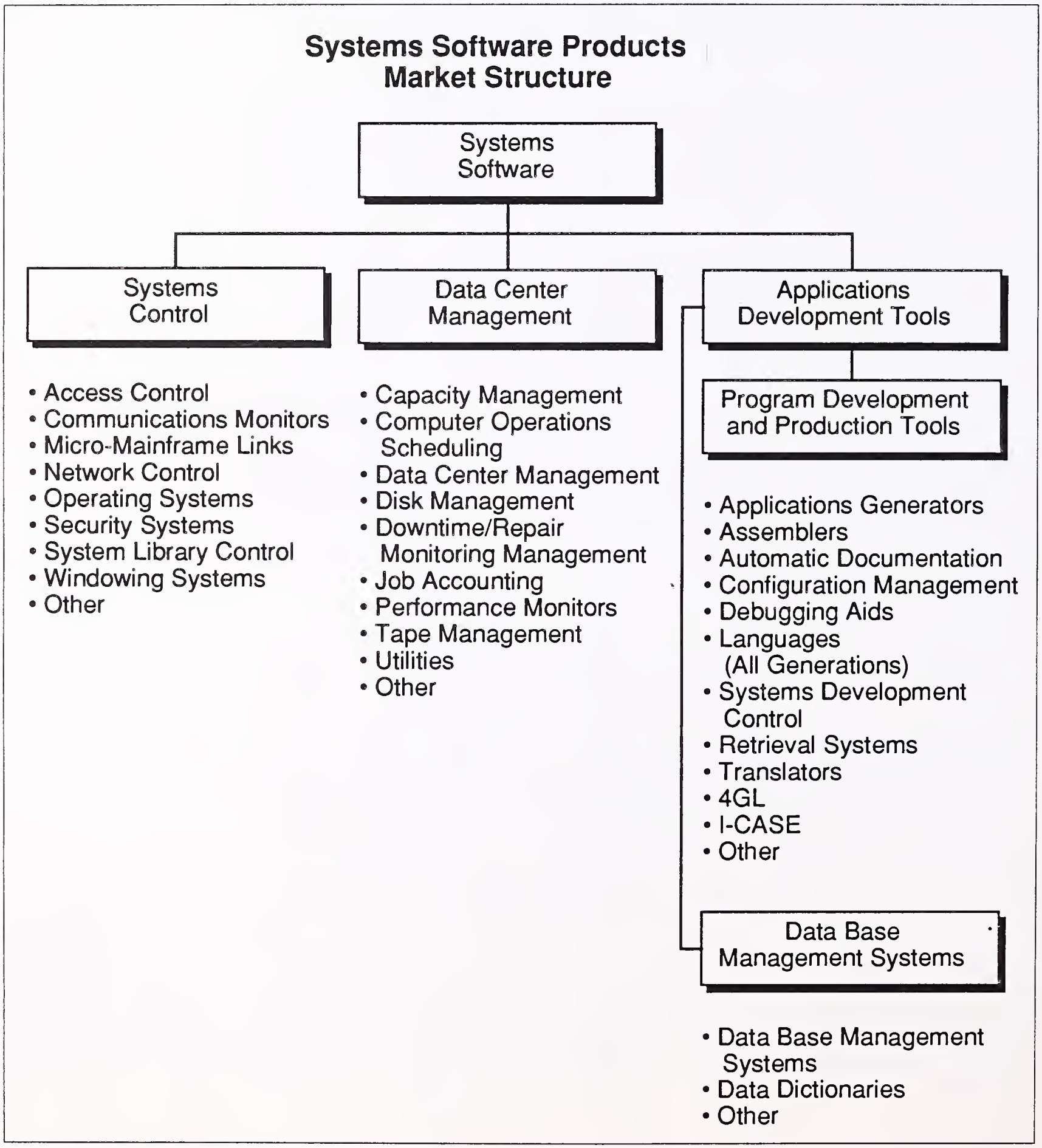
EXHIBIT 2



a. Systems Software Products

Systems software products enable the computer/communications system to perform basic machine-oriented or user interface functions. INPUT divides systems software products into three submodes. See Exhibit 3.

EXHIBIT 3



- *Systems Control Products* - Software programs that manage computer system resources and control the execution of programs. These products include operating systems, emulators, network control, library control, windowing, access control, and spoolers.

- *Operations Management Tools* - Software programs used by operations personnel to manage the computer system and/or network resources and personnel more effectively. Included are performance measurement, job accounting, computer operation scheduling, disk management utilities, and capacity management.

- *Applications Development Tools* - Software programs used to prepare applications for execution by assisting in designing, programming, testing, and related functions. Included are traditional programming languages, 4GLs, data dictionaries, data base management systems, report writers, project control systems, CASE systems and other development productivity aids.

INPUT also forecasts the systems software products delivery mode by platform level: mainframe, minicomputer and workstation/PC.

b. Applications Software Products

Applications software products enable a user or group of users to support an operational or administrative process within an organization. Examples include accounts payable, order entry, project management and office systems. INPUT categorizes applications software products into two groups of market sectors. (See Exhibit 4.)

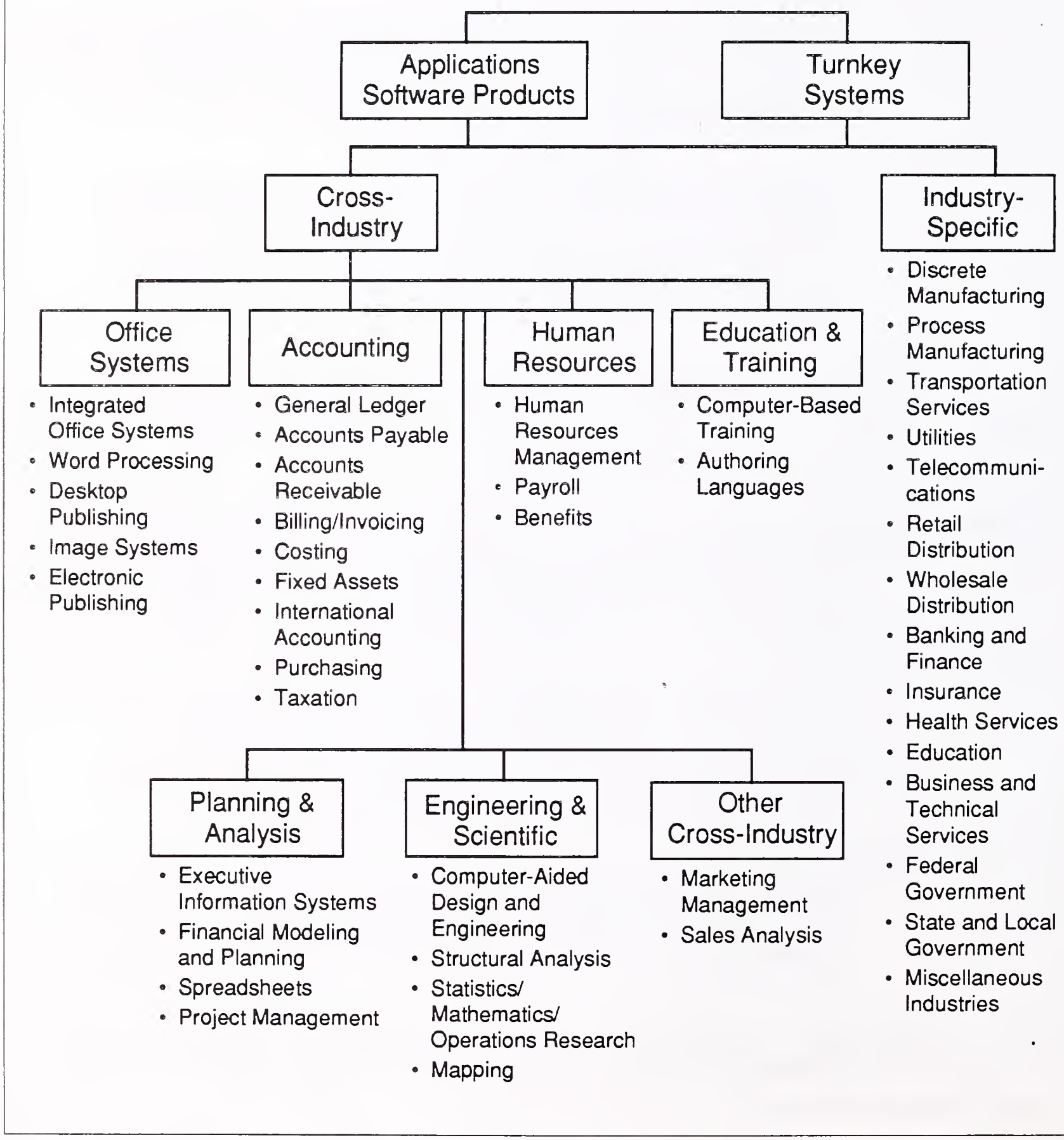
- *Industry Applications Software Products* - Software products that perform functions related to fulfilling business or organizational needs unique to a specific industry (vertical) market and sold to that market only. Examples include demand deposit accounting, MRPII, medical record keeping, automobile dealer parts inventory, etc.

- *Cross-Industry Applications Software Products* - Software products that perform a specific function that is applicable to a wide range of industry sectors. Examples include payroll and human resource systems, accounting systems, word processing and graphics systems, spreadsheets, etc.

INPUT also forecasts the applications software products delivery mode by platform level: mainframe, minicomputer and workstation/PC.

EXHIBIT 4

Application Products and Turnkey Systems



2. Turnkey Systems

A turnkey system is an integration of equipment (CPU, peripherals, etc.), systems software, and packaged applications software into a single product developed to meet a specific set of user requirements. Value added by the turnkey system vendor is primarily in the software and professional services provided. INPUT categorizes turnkey systems into two groups of market sectors as it does for applications software products. (See Exhibit 4.)

Most CAD/CAM systems and many small business systems are turnkey systems. Turnkey systems utilize standard computers and do not include specialized hardware such as word processors, cash registers, process control systems, or embedded computer systems for military applications.

Computer manufacturers (e.g., IBM or DEC) that combine software with their own general-purpose hardware are not classified by INPUT as turnkey vendors. Their software revenues are included in the appropriate software category.

Most turnkey systems are sold through channels known as value-added resellers.

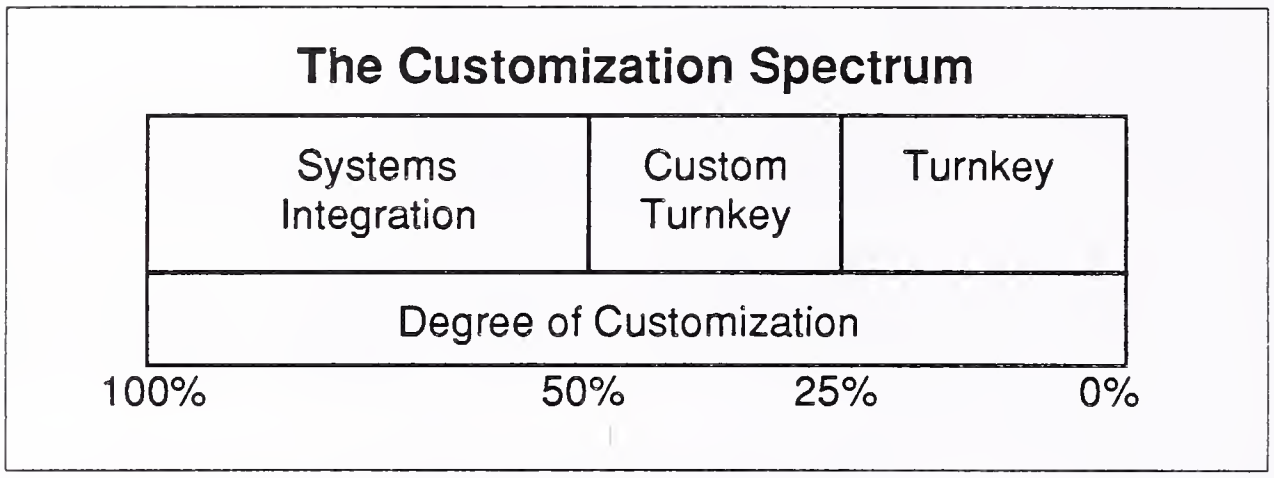
- *Value-Added Reseller (VAR):* A VAR adds value to computer hardware and/or software and then resells it to an end user. The major value added is usually applications software for a vertical or cross-industry market, but also includes many of the other components of a turnkey systems solution, such as professional services, software support, and applications upgrades.

Turnkey systems have three components:

- Equipment - computer hardware supplied as part of the turnkey system
- Software products - prepackaged systems and applications software products
- Professional services - services to install or customize the system or train the user, provided as part of the turnkey system sale

Exhibit 5 contrasts turnkey systems with systems integration. Turnkey systems are based on available software products that a vendor may modify to a modest degree.

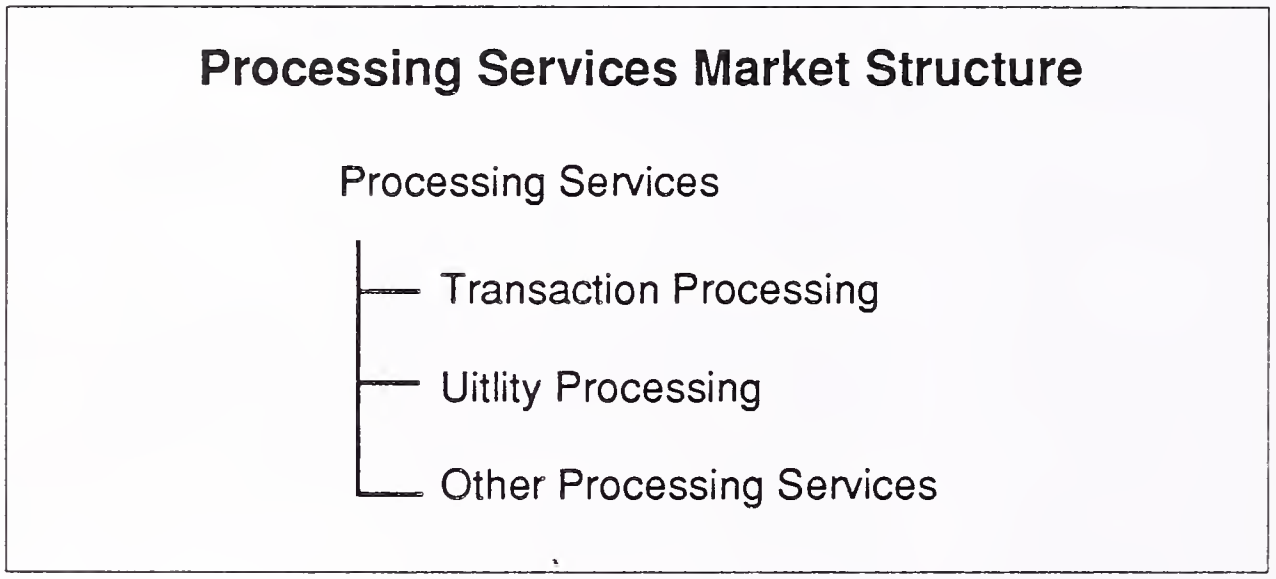
EXHIBIT 5



3. Processing Services

This delivery mode includes three submodes: transaction processing, utility processing, and "other" processing services. See Exhibit 6.

EXHIBIT 6



- *Transaction Processing* - Client uses vendor-provided information systems—including hardware, software and/or data networks—at the vendor site or customer site to process specific applications and update client data bases. The application software is typically provided by the vendor.

- *Utility Processing* - Vendor provides basic software tools (language compilers, assemblers, DBMSs, graphics packages, mathematical models, scientific library routines, etc.), enabling clients to develop and/or operate their own programs or process data on the vendor's system.

- *Other Processing Services* - Vendor provides service—usually at the vendor site—such as scanning and other data entry services, laser printing, computer output microfilm (COM), CD preparation and other data output services, backup and disaster recovery, etc.

4. Systems Operations

Systems operations as a delivery mode was introduced in the 1990 Market Analysis and Systems Operations programs. Previously called Facilities Management, this delivery mode was created by taking the Systems Operations submode out of both Processing Services and Professional Services. For 1992 the submodes have been defined as follows.

Systems operations involves the operation and management of all or a significant part of the client's information systems functions under a long-term contract. These services can be provided in either of two distinct submodes where the difference is whether the support of applications, as well as data center operations, is included.

- *Platform systems operations* - The vendor manages and operates the computer systems, to perform the client's business functions, without taking responsibility for the client's application systems.

- *Applications systems operations* - The vendor manages and operates the computer systems to perform the client's business functions, and is also responsible for maintaining, or developing and maintaining, the client's application systems.

☆ *Network Management* - The vendor assumes responsibility for operating and managing the client's data communications systems. This may also include the voice communications of the client. A network management outsourcing contract may include only the management services or the full costs of the communications services and equipment plus the management services.

☆ *Desktop Services* - The vendor assumes responsibility for the deployment, maintenance, and connectivity among the personal computers and/or workstations in the client organization. The services may also include performing the help-desk function. Equipment as well as services can be part of a desktop services outsourcing contract.

Note: This type of client service can also be provided through traditional professional services where the contractual criteria of outsourcing are not present.

Systems operations vendors now provide a wide variety of services in support of existing information systems. The vendor can plan, control, provide, operate, maintain and manage any or all components of the client's information systems environment (equipment, networks, applications systems), either at the client's site or the vendor's site.

Note: In the federal government market, systems operation services are also defined by equipment ownership with the terms "COCO" (Contractor-Owned, Contractor-Operated), and "GOCO" (Government-Owned, Contractor-Operated).

5. Systems Integration (SI)

Systems integration is a vendor service that provides a complete solution to an information system, networking or automation development requirement through the custom selection and implementation of a variety of information system products and services. A systems integrator is responsible for the overall management of a systems integration contract and is the single point of contact and responsibility to the buyer for the delivery of the specified system function, on schedule and at the contracted price. (Refer to Exhibit 7.)

The components of a systems integration project are the following:

- *Equipment* - information processing and communications equipment required to build the systems solution. This component may include custom as well as off-the-shelf equipment to meet the unique needs of the project. The systems integration equipment category excludes turnkey systems by definition.

- *Software products* - prepackaged applications and systems software products.

- *Professional services* - the value-added component that adapts the equipment and develops, assembles, or modifies the software and hardware to meet the system's requirements. It includes all of the professional services activities required to develop, implement, and if included in the contract, operate an information system, including consulting, program/project management, design and integration, software development, education and training, documentation, and systems operations and maintenance.

- *Other services* - most systems integration contracts include other services and product expenditures that are not classified elsewhere. This category includes miscellaneous items such as engineering services, automation equipment, computer supplies, business support services and supplies, and other items required for a smooth development effort.

EXHIBIT 7

Products/Services in Systems Integration Projects

Equipment

- Information systems
- Communications

Software Products

- Systems software
- Applications software

Professional Services

- Consulting
  - Feasibility and trade-off studies
  - Selection of equipment, network and software
- Program/project management
- Design/integration
  - Systems design
  - Installation of equipment, network, and software
  - Demonstration and testing
- Software development
  - Modification of software packages
  - Modification of existing software
  - Custom development of software
- Education/training and documentation
- Systems operations/maintenance

Other Miscellaneous Products/Services

- Site preparation
- Data processing supplies
- Processing/network services
- Data/voice communication services

6. Professional Services

This category includes four submodes: consulting, education and training, software development, and applications management. Exhibit 8 provides additional detail.

- *Consulting:* Services include management consulting (related to information systems), information systems re-engineering, information systems consulting, feasibility analysis and cost-effectiveness studies, and project management assistance. Services may be related to any aspect of the information system, including equipment, software, networks and systems operations.

- *Education and Training:* Services that provide training and education or the development of training materials related to information systems and services for the information systems professional and the user, including computer-aided instruction, computer-based education, and vendor instruction of user personnel in operations, design, programming, and documentation. Education and training provided by school systems are not included. General education and training products are included as a cross-industry market sector.

- *Software Development:* Services include user requirements definition, systems design, contract programming, documentation, and implementation of software performed on a custom basis. Conversion and maintenance services are also included.

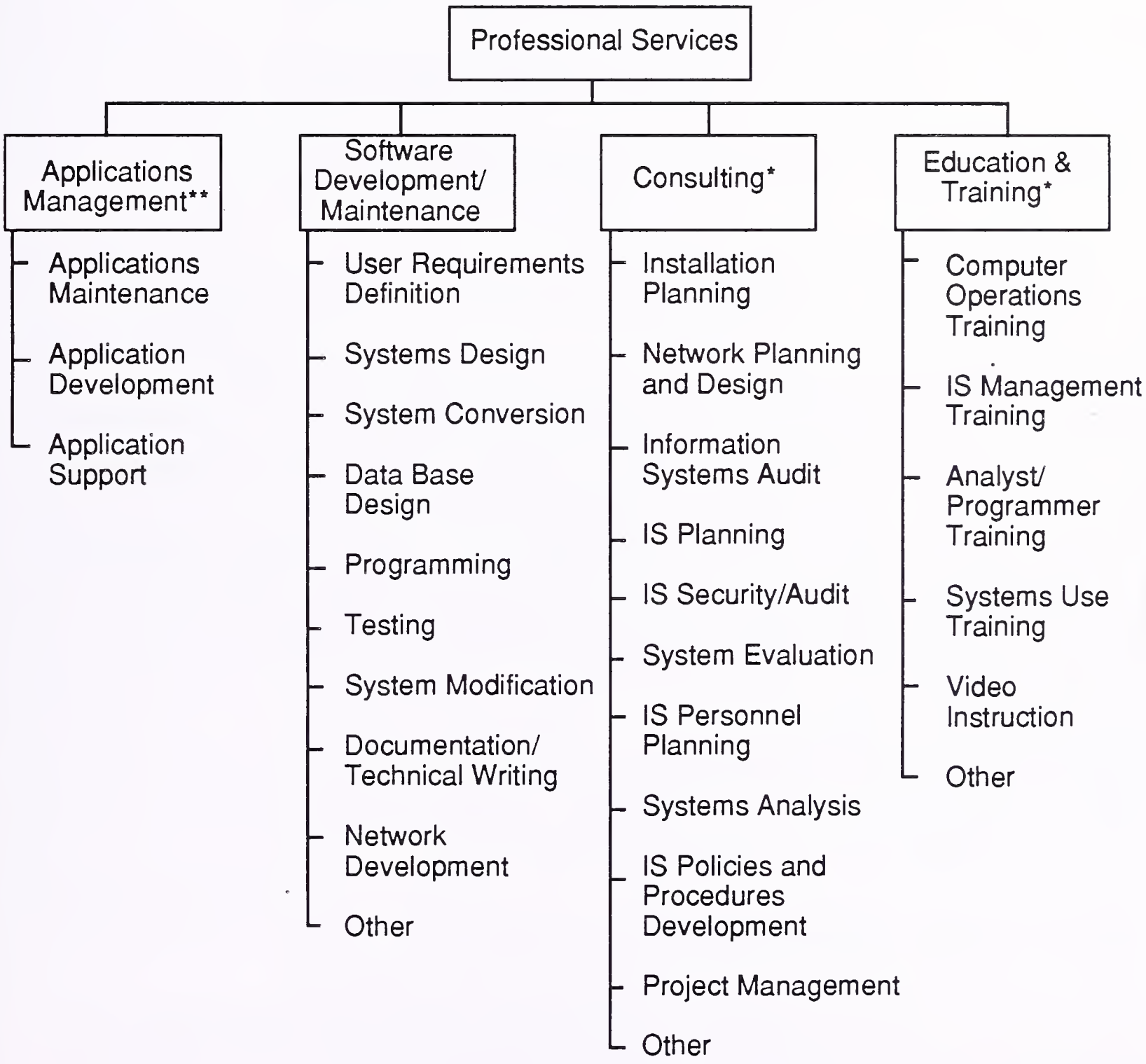
☆ *Applications Management*: The vendor has full responsibility for maintaining and upgrading some or all of the application systems that a client uses to support business operations and may develop and implement new application systems for the client.

An applications management contract differs from traditional software development in the form of the client/vendor relationship. Under traditional software development services the relationship is project based. Under applications management it is time and function based.

These services may be provided in combination or separately from platform systems operations.

EXHIBIT 8

Professional Services Market Structure



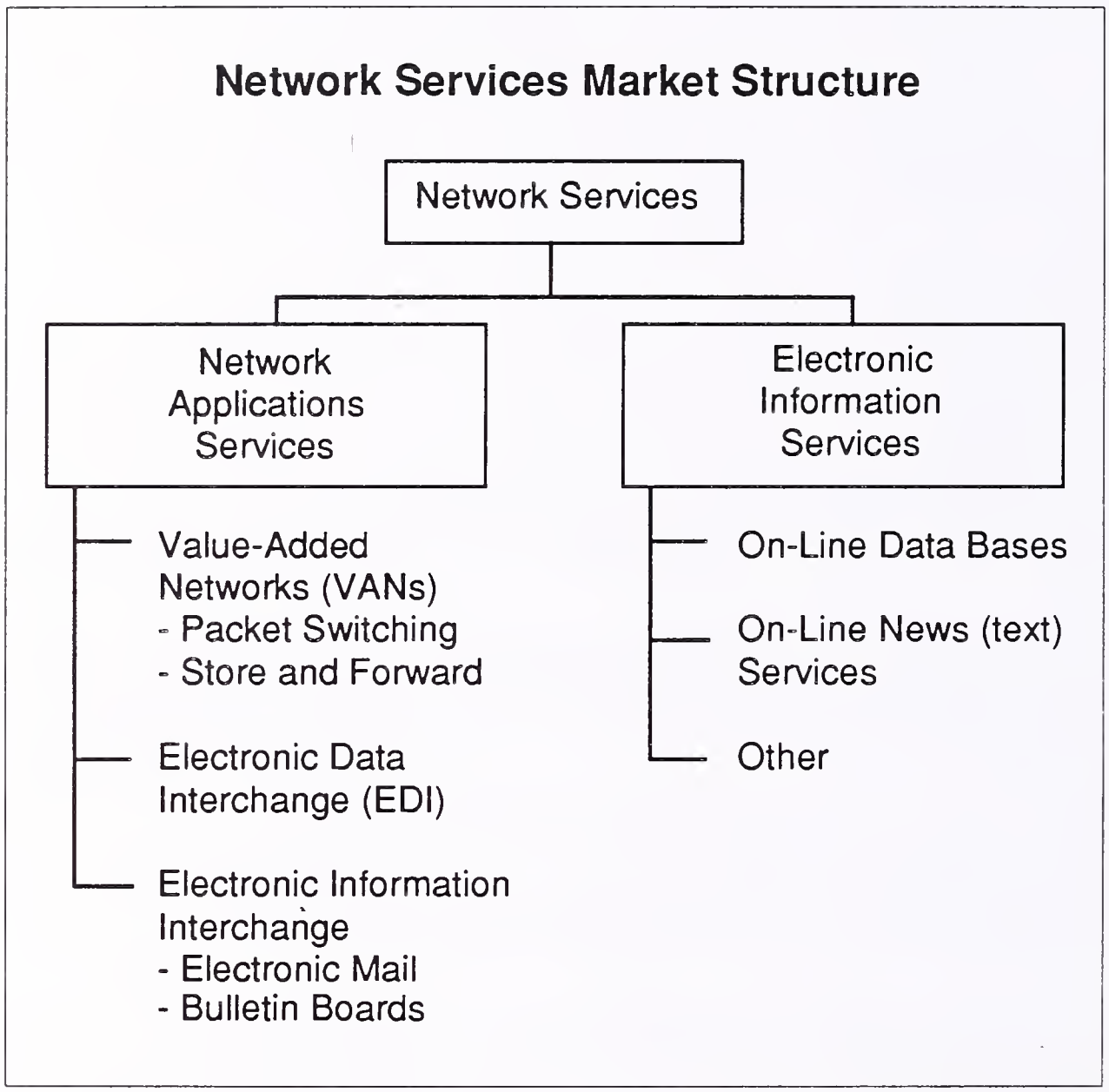
*Related to computer systems, topics, or issues

**Vendor assumes full responsibility on contracted longer term basis

7. Network Services

Network services are a variety of telecommunications-based functions and operations. Network service includes two submodes, as shown in Exhibit 9.

EXHIBIT 9



a. Electronic Information Services

Electronic information services are data bases that provide specific information via terminal- or computer-based inquiry, including items such as stock prices, legal precedents, economic indicators, periodical literature, medical diagnosis, airline schedules, automobile valuations, etc. The terminals used may be computers themselves, such as communications servers or personal computers.

Users inquire into and extract information from the data bases. They may load extracted data into their own computer systems; the vendor does not provide data processing or manipulation capability as part of the electronic information service and users cannot update the vendor's data bases. However, the vendor may offer other services (network applications or processing services) that do offer processing or manipulation capability.

The two kinds of electronic information services are:

- *On-line Data Bases* - Structured, primarily numerical data on economic and demographic trends, financial instruments, companies, products, materials, etc.

- Unstructured, primarily textual information on people, companies, events, etc. These are often news services.

While electronic information services have traditionally been delivered via networks, there is a growing trend toward the use of CD ROM optical disks to support or supplant on-line services, and these optical disk-based systems are included in the definition of this delivery mode.

b. Network Applications

Value-Added Network Services (VAN Services) - VAN services are enhanced transport services which involve adding such functions as automatic error detection and correction, protocol conversion, and store-and-forward message switching to the provision of basic network circuits.

While VAN services were originally provided only by specialized VAN carriers (Tymnet, Telenet, etc.), today these services are also offered by traditional common carriers (AT&T, Sprint, etc.). Meanwhile, the VAN carriers have also branched into the traditional common carriers' markets and are offering unenhanced basic network circuits as well.

Electronic Data Interchange (EDI) - Application-to-application electronic exchange of business data between trade partners or facilitators using a telecommunications network.

Electronic Information Interchange- The transmission of messages across an electronic network managed by a services vendor, including electronic mail, voice mail, voice messaging, and access to Telex, TWX, and other messaging services. This also includes bulletin board services.

8. Equipment Services

☆ The equipment services delivery mode includes two submodes. Both deal with the support and maintenance of computer equipment.

☆ *Equipment Maintenance* - Services provided to repair, diagnose problems and provide preventive maintenance both on-site and off-site for computer equipment. The costs of parts, media and other supplies are excluded. These services are typically provided on a contract basis.

☆ *Environmental Services* - Composed of equipment and data center related special services such as cabling, air conditioning and power supply, equipment relocation and similar services.

D
Computer Equipment

☆ These definitions have been included to provide the basis for market segmentation in the software products markets.

☆ *Computer Equipment* - Includes all computer and telecommunications equipment that can be separately acquired with or without installation by the vendor and not acquired as part of an integrated system. Unless otherwise noted in an INPUT forecast, computer equipment is only included where it is part of the purchase of services or software products (e.g., turnkey systems and systems integration).

☆ *Peripherals* - Includes all input, output, communications, and storage devices (other than main memory) that can be channel connected to a processor, and generally cannot be included in other categories such as terminals.

☆ *Input Devices* - Includes keyboards, numeric pads, card readers, light pens and track balls, tape readers, position and motion sensors, and analog-to-digital converters.

☆ *Output Devices* - Includes printers, CRTs, projection television screens, micrographics processors, digital graphics, and plotters

☆ *Communication Devices* - Includes modem, encryption equipment, special interfaces, and error control

☆ *Storage Devices* - Includes magnetic tape (reel, cartridge, and cassette), floppy and hard disks, solid state (integrated circuits), and bubble and optical memories

☆ *Computer Systems* - Includes all processors from personal computers to supercomputers. Computer systems may require type- or model-unique operating software to be functional, but this category excludes applications software and peripheral devices and processors or CPUs not provided as part of an integrated (turnkey) system.

☆ *Personal computers* - Smaller computers using 8-, 16-, or 32-bit computer technology. Generally designed to sit on a desktop and are portable for individual use. Price generally less than $5,000.

☆ *Workstations* - High-performance, desktop, single-user computers often employing Reduced Instruction Set Computing (RISC). Workstations provide integrated, high-speed, local network-based services such as data base access, file storage and back-up, remote communications, and peripheral support. These products usually cost from $5,000 to $15,000.

☆ *Minicomputer or midsize computers* - Minicomputers are generally priced from $15,000 to $350,000. Many of the emerging client/server computers are in this category.

☆ *Mainframe or large computers* - Traditional mainframe and supercomputers costing more than $350,000.

E

Sector Definitions

1. Industry Sector Definitions

INPUT structures the information services market into industry sectors such as process manufacturing, insurance, transportation, etc. The definitions of these sectors are based on the 1987 revision of the Standard Industrial Classification (SIC) code system. The specific industries (and their SIC codes) included under these industry sectors are detailed in Exhibit 10.

INPUT includes all delivery modes except systems software products and equipment services in industry market sectors. See Exhibit 9 and section E-3 (Delivery Mode Reporting by Sector).

Note: SIC code 88 is Personal Households. INPUT does not currently analyze or forecast information services in this market sector.

EXHIBIT 10

Industry Sector Definitions

Industry Sector	SIC Code	Description
Discrete Manufacturing	23xx	Apparel and other finished products
	25xx	Furniture and fixtures
	27xx	Printing, publishing and allied industries
	31xx	Leather and leather products
	34xx	Fabricated metal products, except machinery and transportation equipment
	35xx	Industrial and commercial machinery and computer equipment
	36xx	Electronic and other electrical equipment and components, except computer equipment
	37xx	Transportation equipment
	38xx	Instruments; photo/med/optical goods; watches/clocks
	39xx	Miscellaneous manufacturing industry
Process Manufacturing	10xx	Metal mining
	12xx	Coal mining
	13xx	Oil and gas extraction
	14xx	Mining/quarrying nonmetalic minerals
	20xx	Food and kindred products
	21xx	Tobacco products
	22xx	Textile mill products
	24xx	Lumber and wood products, except furniture
	26xx	Paper and allied products
	28xx	Chemicals and allied products
	29xx	Petroleum refining and related industries
	30xx	Rubber and miscellaneous plastic products
	32xx	Stone, clay, glass and concrete products
	33xx	Primary metal industries
Transportation Services	40xx	Railroad transport
	41xx	Public transit/transport
	42xx	Motor freight transport/warehousing
	43xx	U.S. Postal Service
	44xx	Water transportation
	45xx	Air transportation (including airline reservation services in 4512)
	46xx	Pipelines, except natural gas
	47xx	Transportation services (including 472x, arrangement of passenger transportation)

EXHIBIT 10 (CONT.)

Industry Sector Definitions

Industry Sector	SIC Code	Description
Telecommunications	48xx	Communications
Utilities	49xx	Electric, gas and sanitary services
Retail Distribution	52xx	Building materials
	53xx	General merchandise stores
	54xx	Food stores
	55xx	Automotive dealers, gas stations
	56xx	Apparel and accessory stores
	57xx	Home furniture, furnishings and accessory stores
	58xx	Eating and drinking places
	59xx	Miscellaneous retail
Wholesale Distribution	50xx	Wholesale trade - durable goods
	51xx	Wholesale trade - nondurable goods
Banking and Finance	60xx	Depositary institutions
	61xx	Nondepositary institutions
	62xx	Security and commodity brokers, dealers, exchanges and services
	67xx	Holding and other investment offices
Insurance	63xx	Insurance carriers
	64xx	Insurance agents, brokers and services
Health Services	80xx	Health services
Education	82xx	Educational services

EXHIBIT 10 (CONT.)

Industry Sector Definitions

Industry Sector	SIC Code	Description
Business Services	65xx	Real estate
	70xx	Hotels, rooming houses, camps, and other lodging places
	72xx	Personal services
	73xx	Business services (except hotel reservation services in 7389)
	7389x	Hotel reservation services
	75xx	Automotive repair, services and parking
	76xx	Miscellaneous repair services
	78xx	Motion pictures
	79xx	Amusement and recreation services
	81xx	Legal services
	83xx	Social services
	84xx	Museums, art galleries, and botanical/zoological gardens
	86xx	Membership organizations
	87xx	Engineering, accounting, research, management, and related services
	89xx	Miscellaneous services
Federal Government	9xxx	
State and Local Government	9xxx	
Miscellaneous Industries	01xx	Agricultural production - crops
	02xx	Agricultural production - livestock/animals
	07xx	Agricultural services
	08xx	Forestry
	09xx	Fishing, hunting and trapping
	15xx	Building construction - general contractors, operative builders
	16xx	Heavy construction - contractors
	17xx	Construction - special trade contractors

2. Cross-Industry Sector Definitions

INPUT has identified seven cross-industry market sectors. These sectors or markets involve multi-industry applications such as human resource systems, accounting systems, etc.

- In order to be included in an industry sector, the service or product delivered must be specific to that sector only. If a service or product is used in more than one industry sector, it is counted as cross-industry.

- INPUT only includes the turnkey systems, applications software products, and transaction processing services in the cross-industry sectors.

The seven cross-industry markets are:

Accounting - consists of applications software products and information services that serve such functions as:

- General ledger
- Financial management
- Accounts payable
- Accounts receivable
- Billing/invoicing
- Fixed assets
- International accounting
- Purchasing
- Taxation
- Financial consolidation

- Excluded are accounting products and services directed to a specific industry, such as tax processing services for CPAs and accountants within the business services industry sector.

Human Resources - consists of application solutions purchased by multiple industry sectors to serve the functions of human resources management and payroll. Examples of specific applications within these two major functions are:

- Employee relations
- Benefits administration
- Government compliance
- Manpower planning
- Compensation administration
- Applicant tracking
- Position control
- Payroll processing

Education and Training - consists of education and training for information systems professionals and users of information systems delivered as a software product, turnkey system or through processing services. The market for computer-based training tools for the training of any employee on any subject is also included.

Office Systems consists of the following:

- Integrated office systems (IOS)
- Word processing
- Desktop publishing
- Electronic publishing
- Image systems

- IOSs—such as IBM's OfficeVision, HP's NewWave Office and DEC's All-In-1—typically include the following core functions, all of which are accessed from the same desktop: electronic mail, decision support systems, time management and filing systems.

- Office systems graphics include presentation graphics (which represent the bulk of office systems graphics), paint and line art, page description languages, and electronic form programs.

- The fundamental difference between electronic publishing and desktop publishing (within the office systems sector) is that electronic publishing encompasses a method of document management and control from a single point—regardless of how many authors/locations work on a document—whereas desktop publishing is a personal productivity tool and is generally a lower end product residing on a personal computer.

- Electronic or computer publishing systems that are sold strictly and specifically to commercial publishers, printers, and typesetters are excluded from cross-industry consideration and are included in the discrete manufacturing industry.

Engineering and Scientific encompasses the following applications:

- Computer-aided design and engineering (CAD and CAE)
- Structural analysis
- Statistics/mathematics/operations research
- Mapping/GIS

- Computer-aided manufacturing (CAM) or CAD that is integrated with CAM is excluded from the cross-industry sector as it is specific to the manufacturing industries. CAD or CAE that is dedicated to integrated circuit design is also excluded because it is specific to the semiconductor industry.

Planning and Analysis consists of software products and information services in four application areas:

- Executive Information Systems (EIS)
- Financial modeling or planning systems
- Spreadsheets
- Project management

Other encompasses marketing/sales and electronic publishing application solutions.

• Sales and marketing includes:

- Sales analysis
- Marketing management
- Demographic market planning models

3. Delivery Mode Reporting by Sector

This section describes how the delivery mode forecasts relate to the market sector forecasts. Exhibit 11 summarizes the relationships.

• *Processing services* - The transaction processing services submode is forecasted for each industry and cross-industry market sector. The utility and other processing services submodes are forecasted in total market in the general market sector.

• *Turnkey systems* - Turnkey systems is forecasted for the 15 industry and 7 cross-industry sectors. Each component of turnkey systems is forecasted in each sector.

• *Applications software products* - The applications software products delivery mode is forecasted for the 15 industry and 7 cross-industry sectors. In addition, each forecast is broken down by platform level: mainframe, minicomputer and workstation/PC.

• *Systems operations* - Each of the systems operations submodes is forecasted for each of the 15 industry sectors.

• *Systems integration* - Systems integration and each of the components of systems integration are forecasted for each of the 15 industry sectors.

• *Professional services* - Professional services and each of the submodes is forecasted for each of the 15 industry sectors.

EXHIBIT 11

Delivery Mode versus Market Sector Forecast Content

Delivery Mode	Submode	Market Sectors		
		Industry Sectors	Cross-Industry Sectors	General
Processing Services	Transaction Utility Other	X	X	 X X
Turnkey Systems		X	X	
Applications Software Products		X	X	
Systems Operations	Platform Applications	X X		
Systems Integration		X		
Professional Services		X		
Network Services	Network Applications Electronic Information Services	X X		X
Systems Software Products				X
Equipment Services				X

- *Network services* - The network applications submode of network services forecasted for each of the 15 industry sectors.

  Industry and cross-industry electronic information services are forecast in relevant market sectors. The remainder of electronic information services is forecasted in total for the general market sector.

- *Systems software products* - Systems software products and its submodes are forecasted in total for the general market sector. Each submode forecast is broken down by platform level: mainframe, mini-computer and workstation/PC.

- *Equipment services* - Equipment services and its submodes are forecasted in total in the general market sectors.

F

Vendor Revenue and User Expenditure Conversion

The size of the information services market may be viewed from two perspectives: vendor (producer) revenues and user expenditures. INPUT defines and forecasts the information services market in terms of user expenditures. User expenditures reflect the markup in producer sales when a product such as software is delivered through indirect distribution channels (such as original equipment manufacturers (OEMs), retailers and distributors). The focus on user expenditure also eliminates the double counting of revenues that would occur if sales were tabulated for both producer (e.g., Lotus) and distributor (e.g., ComputerLand).

For most delivery modes, vendor revenues and user expenditures are fairly close. However, there are some areas of significant difference. Many microcomputer software products, for example, are marketed through distribution channels. To capture the valued added through these distribution channels, adjustment factors are used to convert estimated information services vendor revenues to user expenditures.

For some delivery modes, including software products, systems integration and turnkey systems, there is a significant volume of intra-industry sales. For example, systems integrators purchase software and subcontract the services of other professional services vendors. Turnkey vendors incorporate purchased software into the systems they sell to users.

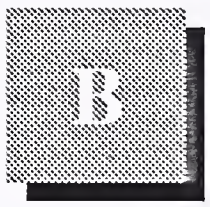
To account for such intra-industry transactions, INPUT uses conversion ratios to derive the estimate of end-user expenditures.

Exhibit 12 summarizes the net effect of the various ratios used by INPUT to convert vendor revenues to user expenditure (market size) figures for each delivery mode.

EXHIBIT 12

Vendor Revenue to User Expenditure Conversion

Delivery Mode	Vendor Revenue Multiplier
Applications Software Products	1.18
Systems Software Products	1.10
Systems Operations	0.95
Systems Integration	0.95
Professional Services	0.99
Network Services	0.99
Processing Services	0.99
Turnkey Systems	0.95
Equipment Services	0.99



Forecast Data Base and Reconciliation

A

Forecast Data Base

Exhibit B-1 presents the detailed 1992-1997 forecast for the processing services market.

B

Forecast Reconciliation

The forecast reconciliation for the processing services market is shown in Exhibit B-2.

- While processing services is a mature market, it is also a relatively stable market. Despite the recession which has affected users of processing services dramatically, the CAGR of 8% forecast last year remains the same.

- Most of the forecast changes for the 1991 and 1992 timeframe have been due to the effect of the economy. In more than half of the vertical markets, the forecast CAGR for 1992-1997 is the same or within one percentage point of last year's forecast.

- The industries where the largest variances in 1991 were found, as compared with last year's forecast, are banking/finance and telecommunications. To a lesser extent, wholesale and retail distribution and insurance had negative variances. Interestingly enough, the applications described earlier in this report, which are expected to increase demand for processing services, apply directly to several of these industries. The applications include credit/debit card processing, utilities billing, and insurance claims processing. INPUT believes that while there is potential for growth in these industries, the recession has had such a strong effect that this growth is yet to be realized.

- Telecommunications, utilities, and banking/finance growth is expected to return to previously forecasted levels once the economy turns around. In wholesale and retail distribution, CAGRs have been adjusted slightly downward.

- The transportation industry, which makes extensive use of processing services, shows a negative variance in 1996 of 11%. Due to the longer than expected effect of the recession and its impact on the airline industry, adjustments have been made downward accordingly.

- In the medical/health services market, the growth rate has been adjusted slightly upward from a CAGR of 5% to a CAGR of 7%. This industry is a recession-proof market that is making increasing use of information systems and services. Given the increased drive for on-line claims processing discussed earlier, INPUT forecasts increased use of processing services in this sector.

- In the cross-industry markets, the demand for processing services is rapidly declining. Nearly all of the markets have negative variances as compared with last year's forecast. The largest decrease in terms of total dollars is human resources, which has a negative variance of $320 million for 1996. In terms of percentage, education and training shows the greatest 1996 decrease at 97%. In the cross-industry markets, the reasons for variance are somewhat different from the vertical markets. Whereas the economy has been the dominant factor in the vertical markets, changes in technology figure more prominently in the cross-industry markets. PC/workstation and applications software capabilities, along with the affordability of both, have had a devastating blow on the cross-industry markets. Education and training software allows companies to make use of this capability in-house. Developments in accounting, planning and analysis, and office systems, which allow these functions to be handled on PCs and LANs, has reduced the processing services market for these uses dramatically. Even engineering and scientific applications that previously required the power of large-scale systems can often be run by today's high-powered workstations. Payroll is the only cross-industry market expected to continue to make sizable use of processing services.

- It should be noted that while the migration of cross-industry markets to in-house systems is negatively affecting processing services, cross-industry markets have been a relatively small part of processing services expenditures.

- Utility processing services also represents a small part of the processing services market. Once again, the capabilities and affordability of in-house systems have gradually eroded the market for these services. However, companies will continue to take advantage of the capabilities

of utility services on an as-needed basis. Significant growth in this market is not expected. No variance from last year's report has been made.

- While there are weaknesses in certain areas of the transaction processing market, there is healthy growth in "other" processing services driven by the continued growth of disaster recovery services.

EXHIBIT B-1

Processing Services Market Forecast by Market Sector, 1991-1997 ($ Millions)

Market Sectors	1991 ($M)	Growth 91-92 (%)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	1997 ($M)	CAGR 92-97 (%)
Delivery Mode Total	17,884	7	19,112	20,554	22,199	23,939	25,884	27,972	8
Vertical Industry Markets	11,884	5	12,522	13,323	14,229	15,225	16,306	17,493	7
Discrete Manufacturing	838	4	875	915	956	994	1,038	1,077	4
Process Manufacturing	717	4	743	778	815	853	895	939	5
Transportation	2,070	3	2,132	2,239	2,373	2,516	2,667	2,827	6
Utilities	217	14	248	283	322	367	421	480	14
Telecommunications	928	14	1,058	1,217	1,400	1,610	1,851	2,129	15
Retail Distribution	170	4	177	186	195	209	224	239	6
Wholesale Distribution	298	3	307	319	341	365	391	418	6
Banking and Finance	3,255	7	3,483	3,761	4,062	4,387	4,738	5,117	8
Insurance	363	5	381	404	432	463	495	530	7
Health Services	526	5	551	584	625	674	729	787	7
Education	191	3	196	201	207	213	218	225	3
Business Services	1,692	2	1,722	1,751	1,778	1,807	1,824	1,860	2
Federal Government	187	3	193	200	206	213	220	227	3
State and Local Gov't	288	10	317	348	383	422	464	510	10
Miscellaneous Industries	144	-3	139	137	134	132	131	128	-2
Cross Industry Markets	2,746	3	2,827	2,919	3,018	3,127	3,227	3,342	3
Accounting	150	3	155	160	165	170	175	180	3
Education and Training	10	-40	6	4	3	2	2	2	-20
Engineering & Scientific	128	2	130	130	125	120	110	100	-5
Human Resources	1,676	5	1,760	1,850	1,940	2,040	2,140	2,250	5
Office Systems	36	-3	35	30	30	30	25	25	-7
Planning and Analysis	190	-13	165	145	130	115	100	85	-12
Other Cross-Industry	556	4	576	600	625	650	675	700	4
Other Markets	3,254	16	3,763	4,312	4,952	5,587	6,311	7,137	14
Processing Services									
- Utility	943	5	990	1,040	1,091	1,146	1,204	1,264	5
- Other	2,311	20	2,773	3,272	3,861	4,441	5,107	5,873	16

EXHIBIT B-2

Processing Services
1992 Data Base Reconciliation by Market Sector
($ Millions)

Market Sectors	1991 Market				1996 Market				91-96 CAGR per data 91 rpt (%)	91-96 CAGR per data 92 rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)		
Total Information Services Market	18,274	17,884	-390	-2	26,639	25,884	-803	-3	8	8
Vertical Industry Markets	12,189	11,884	-305	-3	17,159	16,306	-853	-5	7	7
Discrete Mfg.	838	838	0	0	1,038	1,038	0	0	4	4
Process Mfg.	717	717	0	0	895	895	0	0	5	5
Transportation	2,070	2,070	0	0	2,980	2,667	-313	-11	8	5
Utilities	217	217	0	0	421	421	0	0	14	14
Telecom.	1,020	928	-92	-9	2,052	1,851	-201	-10	15	15
Retail Distribution	174	170	-4	-2	243	224	-19	-8	7	6
Wholesale Dist.	310	298	-12	-4	452	391	-61	-13	8	6
Banking and Finance	3,440	3,255	-185	-5	4,988	4,738	-250	-5	8	8
Insurance	375	363	-12	-3	530	495	-35	-7	7	6
Health Services	526	526	0	0	660	729	69	10	5	7
Education	191	191	0	0	218	218	0	0	3	3
Business Services	1,692	1,692	0	0	1,824	1,824	0	0	2	2
Federal Gov't	187	187	0	0	220	220	0	0	3	3
State & Local Gov't	288	288	0	0	507	464	-43	-8	12	10
Miscellaneous Industries	144	144	0	0	131	131	0	0	-2	-2
Cross-Industry Markets	2,831	2,746	-85	-3	3,636	3,227	-417	-11	5	3
Accounting	150	150	0	0	175	175	0	0	3	3
Education and Training	95	10	-85	-89	68	2	-66	-97	-6	-28
Engineering and Scientific	128	128	0	0	131	110	-21	-16	0	-3
Human Resources	1,676	1,676	0	0	2,460	2,140	-320	-13	8	5
Office Systems	36	36	0	0	26	25	-1	-4	-6	-7
Planning & Analysis	190	190	0	0	100	100	-8	-7	-12	-12
Other Cross-Ind.	556	556	0	0	676	675	-1	0	4	4
Generic Markets	3,254	3,254	0	0	5,844	6,311	467	8	12	14
Processing Svcs.										
- Utility	943	943	0	0	1,204	1,204	0	0	5	5
- Other	2,311	2,311	0	0	4,640	5,107	467	10	15	17