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DECEMBER 1992

INFORMATION SYSTEMS OUTSOURCING MARKET OPPORTUNITIES

1992-1997

INPUT®

Published by
INPUT
1953 Gallows Road, Suite 560
Vienna, VA 22182-3934
U.S.A.

**U.S. Outsourcing Information Systems
Program**
(SOSOP)

***Information Systems Outsourcing Market
Opportunities, 1992-1997***

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Abstract

This report analyzes the information systems outsourcing market as it evolved in 1991 and 1992, forecasts the growth for the market through 1997, and examines the issues and trends that affect the market. The analysis includes identification of forces affecting the market in general, as well as within each of the 14 vertical industry markets. It focuses particularly on the impact of downsizing of systems and applications on the outsourcing market.

The report includes a discussion of the leading vendors and their evolving strategies. Some discussion of vertical market dominance is included. A review of buyer motivations leads to suggestions about what constitutes good systems operations prospects.

This report contains 152 pages and 100 exhibits, and was prepared as part of INPUT's 1992 U.S. Outsourcing Information Systems Program.



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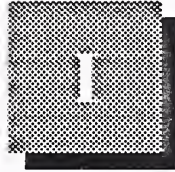
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Introduction

This report has been prepared by INPUT as an update and revision of *U.S. Systems Operations/Outsourcing Market Analysis, 1991-1996*. It analyzes the market for vendor-provided, information-systems-related outsourcing in the U.S. commercial and federal markets. A forecast for the outsourcing market for the period 1992 to 1997 is presented, including the prospects in each of 14 vertical markets.

Market revenue forecasts are also provided for platform operations, applications operations, network management, and desktop services. Marketing recommendations are developed for vendors based on industry surveys conducted during 1992. The effect of the growing trend to downsizing is also discussed as it relates to the outsourcing market.

A

Scope

This report includes a forecast of the federal and commercial systems operations markets for 1992 to 1997 in the U.S. The market prospects for each of 14 vertical markets are examined, and the leading vendors in each of those sectors are identified. Market structure is analyzed to identify the changing market structures and define the diversification that is taking place. Exhibit I-1 identifies the forms that outsourcing currently takes as the market changes. User issues are analyzed to identify market trends and develop recommendations for vendors to successfully market to outsourcing prospects.

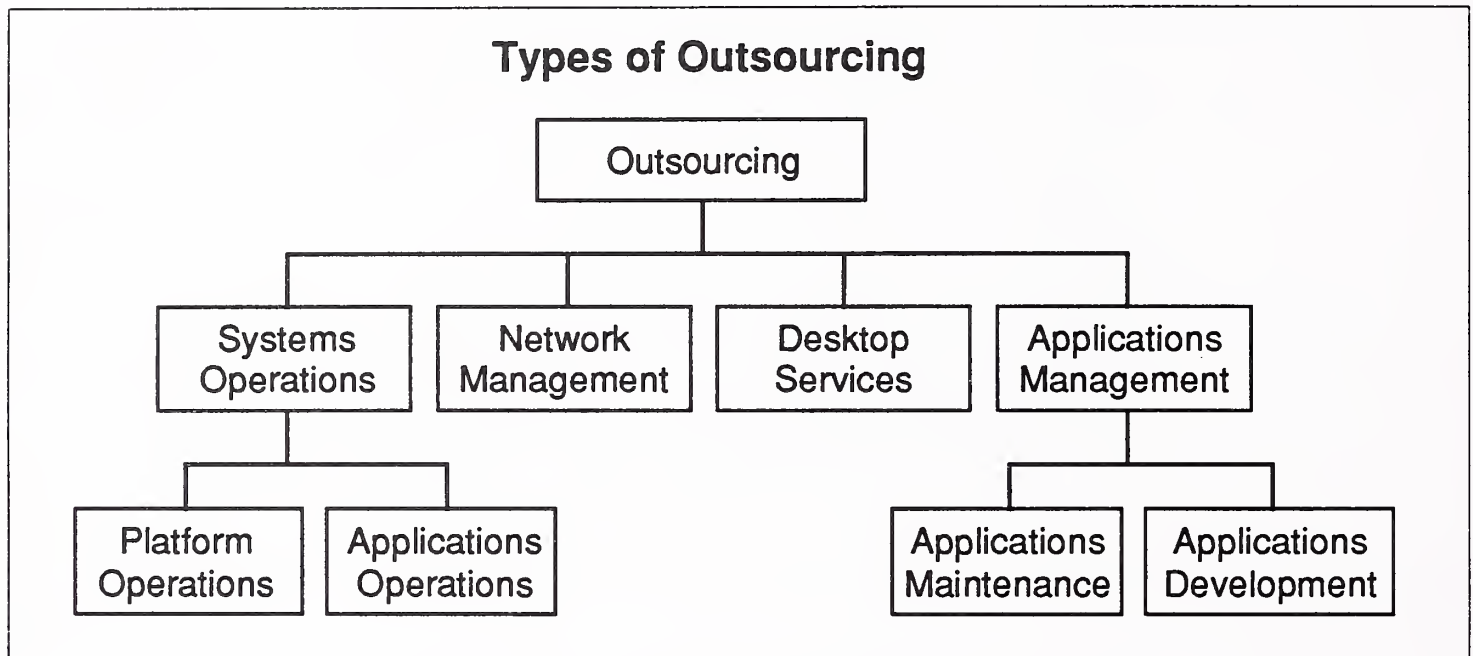
B

Report Organization

This report, *Information Systems Outsourcing Market Opportunities, 1992-1997*, is organized as follows:

- Chapter II, *Executive Overview*, provides an overview of the report and highlights the significant information that follows.

EXHIBIT I-1



- Chapter III, *Market Analysis and Forecast*, identifies the general market characteristics and defines market sectors while differentiating between commercial and federal markets. It forecasts growth for the next five years by vertical industry as well as by type of outsourcing activity. It concludes by identifying key marketplace factors and describing the competitive environment that currently exists.
- Chapter IV, *Vertical Industry Markets*, details the penetration of outsourcing of information systems (IS) operations in the 14 vertical industry markets identified by INPUT. The forecast in each market sector is complemented by an analysis of the information services environment in that sector, and the potential for information systems outsourcing of IS as a result of that environment.
- Chapter V, *Market Strategies and Recommendations*, crystallizes the data developed in the earlier sections into a set of marketing and sales strategies. Attention is focused on three trends:

- First, the market diversification that is taking place and the effect that will have on both vendors and users
- Second, the effect that the downsizing revolution will have on the outsourcing market both overall and on the component parts
- Third, the fact that prospects are becoming more sophisticated in evaluating and selecting outsourcing vendors

The report includes three appendixes:

- Appendix A relates INPUT's industry sectors to Standard Industrial Classification Codes.
- Appendix B contains the forecast data base used by INPUT for this analysis.
- Appendix C contains the reconciliation of the current forecast data base with that used in the previous year.

C

Methodology

INPUT used two research sources for this report. The first was a survey of outsourcing vendors and current and potential users of these outsourcing vendors. The second was INPUT's annual survey of information services vendors. The first source was used to identify and compile data regarding current vendor and user views about IS outsourcing. The second source was used to assist in establishing user expenditures for outsourcing. This provided the base-year data for INPUT's forecast for each component of the outsourcing market.

Exhibit I-2 provides a summary of the respondents to the IS outsourcing survey administered as part of INPUT's ongoing research. The vendor respondents represented approximately 60% of the market revenue. Twenty-two of these respondents also completed in-depth interview questionnaires that probed market issues and management practices. The user firms surveyed were distributed among existing users, firms that had evaluated outsourcing but rejected it, and firms that had not yet considered it.

EXHIBIT I-2

Systems Operations Study

- 20 vendors
- 68 users or potential users
 - 24 current systems operations users
 - 24 would consider use
 - 20 definite "no's"

The user sample was intentionally spread over most of the vertical industry markets to identify general market characteristics but still recognize industry-specific issues.

INPUT's annual research process consists of two major parts: base-year expenditure calculations and market forecasts. Each is briefly described below.

1. Outsourcing Revenue Identification

Exhibit I-1 defines the elements of the outsourcing arrangements as they are currently evolving in the industry. INPUT used these categories in its market analyses and forecasts. The market consists of four modes of outsourcing, with two of these having submodes identified under them. As yet, no sufficient data has been gathered to permit forecasting the applications management mode.

Vendors were questioned intensely to identify how their revenues were generated in each outsourcing mode. Care was taken to isolate processing services from professional services from systems operations, and network management from network services. Only revenue judged by INPUT to be truly representative of information systems outsourcing activity was included in its estimates of vendor revenues for 1992.

2. Base-Year Expenditure Calculations

- INPUT determines previous year IS outsourcing revenues for each mode and for each of the 14 vertical industry sectors for hundreds of vendors. This is accomplished through interviews, use of public data, and INPUT estimates.

- The initial data is projected to represent the entire market, including all active vendors and hundreds of active customers.
- Adjustments are made to eliminate duplications due to distribution channel overlap and to assure that captive (internal) systems operations expenditures are not included.
- The end result is a base-year (1991) user expenditure for each of the 14 vertical industry sectors and the four IS outsourcing modes.

3. 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 end result is a five-year forecast for each of the 14 vertical markets and the four outsourcing modes.

To complete the process, INPUT reconciles its new forecasts with those from the previous year. Differences due to market restructuring and other causes are explained, providing users of these projections with the ability to track INPUT's forecasts from year to year.

D

Economic Assumptions

Forecast numbers are presented in current dollars (i.e., 1997 market sizes are in 1997 dollars). In developing the five-year forecast, INPUT has incorporated the following economic assumptions regarding the outlook for the total U.S. economy.

As shown in Exhibit I-3, Real GDP growth is currently projected to be improving in 1992 to 2.4%, then range from 3.0% to 2.2% over the next five years. In addition, the inflation rate, as measured by the GDP Deflator, is expected to increase modestly from an annual rate of 2.9% in 1992 to 3.6% in 1997.

EXHIBIT I-3

Inflation/GDP Economic Assumptions, 1992-1997

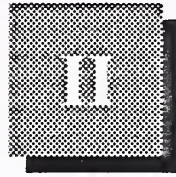
	Percent							
	1991A	1992E	1993E	1994E	1995E	1996E	1997E	Avg. 92-97
Nominal GDP	3.4	5.3	6.2	6.7	6.1	6.1	5.9	6.2
GDP Deflator	3.0	2.9	3.2	3.6	3.7	3.6	3.6	3.5
Nominal GDP	0.4	2.4	3.0	2.3	2.3	2.4	2.2	2.6

A = Actual E = Estimated

Source: March 1992 *Blue Chip Report***E****Related INPUT Reports**

For a complete view of the outsourcing and related information services market, readers are encouraged to review the following related INPUT reports:

- *Systems Operations—Growth for the 1990s* (1989)
- *U.S. Systems Operations/Outsourcing Market, 1991-1996* (1991)
- *Systems Operations Management Issues and Practices* (1990)
- *Network Operations Management, 1990-1995* (1990)
- *Systems Operations Buyer Issues and Alternatives* (1991)
- *Systems Management Priorities and Directions* (1991)
- *Systems Operations Vendor Analysis* (1991)
- *Case Studies in Downsizing* (1992)
- *Methods of Approaching IS Outsourcing* (1992)
- *Outsourcing of Network Management and Operations* (1992)
- *Strategic Assessment of the IS Outsourcing Revolution* (1992)
- *Outsourcing Desktop Services* (1992)
- *Interaction of Downsizing with Outsourcing* (1992)



Executive Overview

A

Information Systems Outsourcing

Outsourcing has become synonymous in much of the current literature with systems operations. INPUT defines outsourcing as the *contracting of all or a major part of an information systems process to an external vendor on a long-term basis*. The vendor takes responsibility for the performance of the process. Outsourcing is a method of acquiring a vendor to provide for existing operations, not a delivery mode. Within this framework, systems operations in its two forms, platform and applications operations, represents the major portion of the outsourcing market. It can include a variety of elements, as illustrated in Exhibit II-1. The client that chooses to procure only one of the elements is still outsourcing to a vendor.

1. Types of Outsourcing

All of the types of outsourcing agreements represent functions or processes that are performed, rather than projects that are accomplished. INPUT identifies four types of outsourcing, which are further subdivided as shown in Exhibit II-1. The intent is not to confuse the market watchers by adding categories but rather to clarify what is happening in the market by looking at each component as it develops and evolves at a different growth rate.

Systems operations still represents the largest portion of the outsourcing market, but must be subdivided into platform and applications to identify and track the changing patterns. The trend to turn over more responsibility (namely, the growth and feeding of the applications software) as well as the processing in the organization, to the vendor is accelerating .

Network management and desktop services are two new outsourcing arrangements that have been spawned by the many downsizing initiatives that are appearing in all industries. It is fine to empower the user with more processing capacity and more control over application software, but connectivity and user assistance then become more difficult to manage.

Outsourcing vendors are well positioned to respond to these new market demands.

Applications management consists of applications maintenance and applications development. There is evidence that this outsourcing arrangement is beginning to emerge in the market. In this instance, there is no related processing as in applications operations, but the responsibility for the applications software is turned over to a vendor.

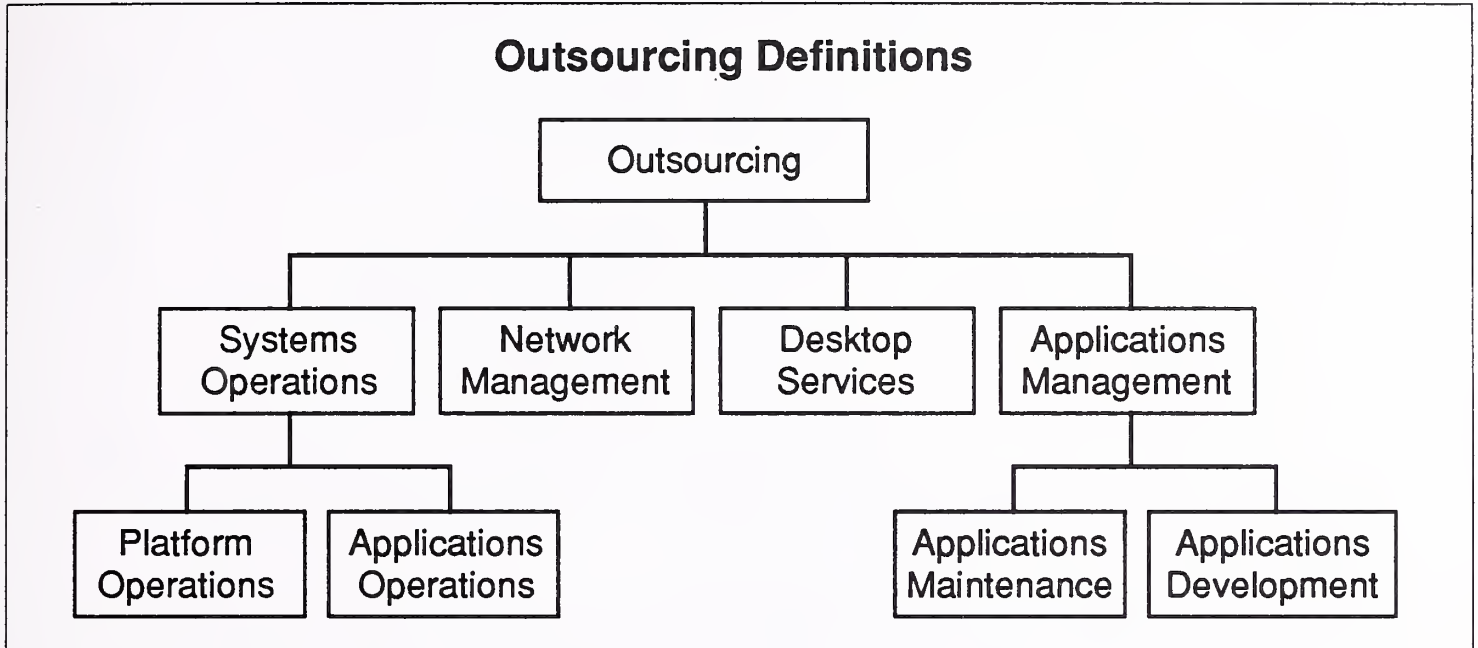
2. Impact of Downsizing

The ongoing downsizing revolution that is currently pervading the information technology (IT) market will have a profound impact on the outsourcing market. Already its effects are evident as the new outsourcing options of network management and desktop services become ever more attractive to clients looking for some way to control the proliferation of systems, user requests for help, and interconnectivity requirements.

IS managers are realizing that managing thousands of PCs and workstations, their associated (noncompatible) software, connecting these units to LANs and WANs, and responding to user hot line problems is more difficult than running a data center. These tasks are even more awesome to the user departments when they must provide their own support.

EDS and Digital Equipment Corporation (DEC) have already negotiated impressive standalone desktop services contracts worth millions of dollars. Other vendors are beginning to service this market as part of existing contracts. Still other firms are poised to make their first entry into the outsourcing market through this route. INPUT is projecting growth rates above 30% as this option becomes more recognized by the business community as another case of letting the experts run the process in a more cost-effective manner.

EXHIBIT II-1

**B****Major Buyer Issues**

The buyer issues presented in Exhibit II-2 have been identified by user executives as the major issues that arise when considering the outsourcing of information systems operations.

Many organizations face continuing pressure to reduce costs and preserve capital. The stagnant economy is causing even more firms to reassess how they can further reduce expenses and is changing the investment plans of their organizations.

The market continues to be extremely competitive as the reluctant consumer is courted by more firms, both domestic and foreign. Companies must serve their customers better, and in turn, they must get high-quality service from their IS departments. Many companies are becoming convinced that outside vendors can provide a higher level of service than their own internal organizations. They often feel they have more leverage over a vendor's resources than over their own.

Constantly changing technology breeds two problems for the user community. Senior management is finding it difficult to understand the new technology and is also finding it increasingly difficult to recruit staffs that can apply the new technology to meet competitive needs. Outsourcing offers options in both areas.

EXHIBIT II-2

Major Buyer Issues—1992

- Reduce costs/conserve capital
- Improve service levels
- Resolve skills shortage
- Achieve technology upgrade
- Refocus executive attention
- Lose control to vendor

Senior executives in many firms need, more than ever, to focus attention on their core business, be that making cameras or selling hamburgers. Often information systems are not considered part of that core business but a part that, nonetheless, consumes a lot of executive time for the reasons cited above. Turning over systems operations to a vendor eliminates a major demand on executives' time.

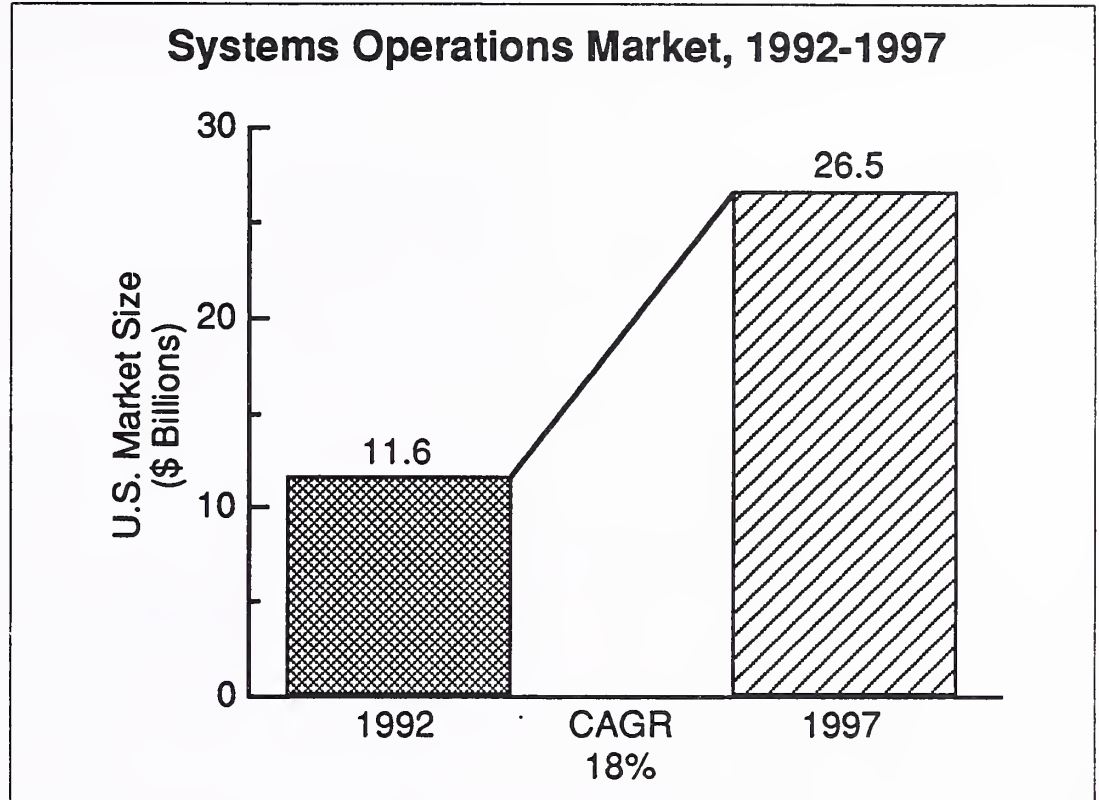
One major concern will continue to trouble companies considering outsourcing. Many feel there is no turning back once they have turned their IS operations over to a vendor. They are probably right, but two options are available and both have been demonstrated in the market place:

- A return plan should be created at the start of the relationship if this is a likely outcome of the outsourcing arrangement, i.e., in a transition outsourcing agreement.
- Several clients have successfully changed vendors in the past year at some cost but without major disruption in services levels. There are enough reputable vendors in the market place now to provide options.

C**Market Forecast, 1992-1997**

INPUT projects that user expenditures for systems operations will be \$11.6 billion for 1992 for the combined commercial and federal markets. Growing at a compound annual growth rate of 18%, these expenditures will reach \$26.5 billion in 1997, as illustrated in Exhibit II-3. This represents a slight increase in the growth rate over that reported last year and reflects the continued health of the market, increasing acceptance of the outsourcing option as a viable one, and the emergence of other outsourcing options in response to the downsizing revolution.

EXHIBIT II-3



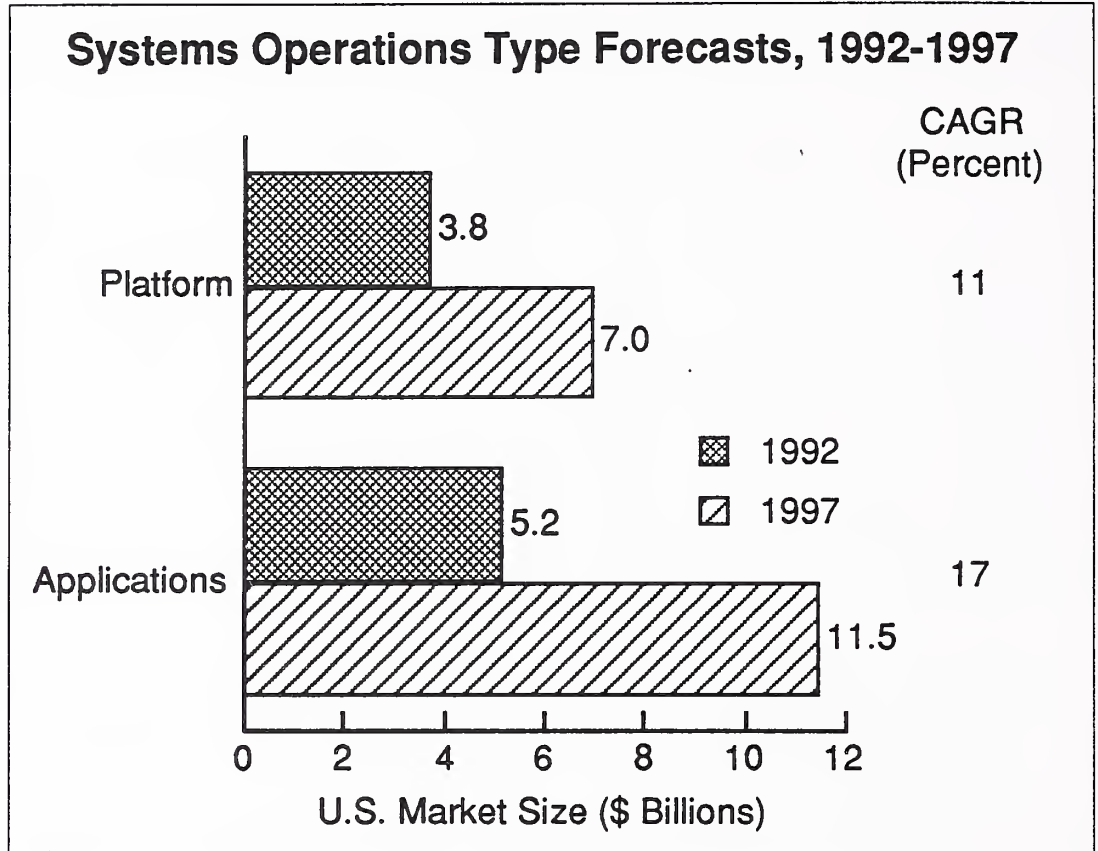
There continue to be major differences between conditions in the federal government and commercial markets. In the federal market, the emphasis on budget constraints and the recurring federal budget deficit are the overriding considerations. Defense budgets are being cut drastically, leading to consolidation of a number of information systems by the Pentagon. Federal government IS expenditures for 1992 are expected to be \$2.0 billion, growing to \$3.7 billion in 1997, for a compound annual growth rate of 13%—higher than the 10% CAGR predicted last year.

Interest in outsourcing continues to increase in the commercial market, resulting in a compound annual growth of 19% for the period from 1992 to 1997—a slight increase over the 18% forecast last year by INPUT. Outsourcing operations expenditures by commercial enterprises in 1992 are expected to be \$9.6 billion, growing to \$22.8 billion in 1997.

D**Systems Operations Components Forecast**

Exhibit II-4 illustrates how the market is split between the two types of systems operations and how this spread will accelerate over the forecast period. In platform operations, the vendor is responsible for managing and operating the client's computer and/or communications systems. In applications operations, the vendor operates and manages the computer and/or communications operations and is also responsible for maintaining, or maintaining and developing, the client's applications software.

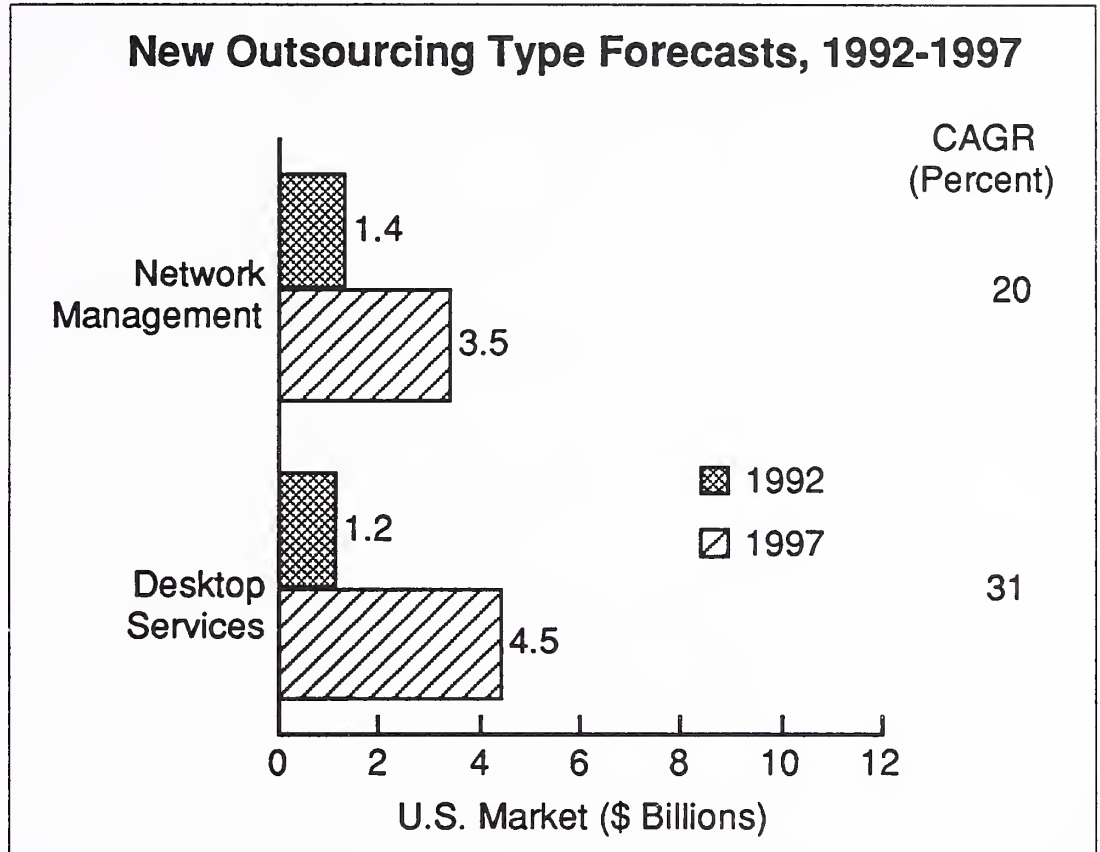
EXHIBIT II-4



INPUT projects that applications systems operations, already the dominant submode, will grow at a compound annual growth rate of 17% through the period. Expenditures will grow from \$5.2 billion in 1992 to \$11.5 billion in 1997. Platform operations expenditures will grow from \$3.8 billion to \$7.0 billion in the same period, at a CAGR of 11%. The difference reflects the client community's greater acceptance of the concept of total systems management by vendors.

INPUT projects that network management will represent a market of \$1.4 billion in 1992 and that it will grow at a compound annual growth rate of 20% to reach a value to \$3.5 billion in 1997. Desktop services is expected to grow even faster, going from a market size of \$1.2 billion in 1992 to \$4.5 billion by 1997. This represents a CAGR of 31%, significantly higher than the other three modes of outsourcing being measured this year. The impact of the downsizing phenomenon in organizations and the recent proliferation of PCs as a user tool for productivity are feeding this rapid market expansion.

EXHIBIT II-5



E

Forecast of Key Vertical Industry Sectors

Annual expenditures for systems operations services from 1992 to 1997 for the four leading industry market sectors are included in the table in Exhibit II-6. The industries are ranked based on projected 1997 user expenditures.

EXHIBIT II-6

Industry	Market Size (\$ Billions)		CAGR (Percent)
	1992	1997	
Banking/Finance	2.5	6.0	19
State/Local Government	1.8	4.1	18
Federal Government	2.0	3.7	13
Insurance	1.2	2.7	17
Total	7.5	16.5	16

As seen in the exhibit, the top four industries—banking and finance, state and local government, federal government, and insurance—represent 65% of the expenditures in 1992, and 62% in 1997.

F**Vendor Market Share, 1991**

Exhibit II-7 lists the leading outsourcing vendors in 1991 based on reported annual revenues.

EDS continues to maintain its market share lead by a comfortable margin. ISSC has moved up from fifth to third position after only one year on the list.

Computer Sciences Corp. (CSC) still obtains most of its revenues from the federal market, but its major win of the General Dynamics contract has changed that mix significantly. However, EDS is still more widely dispersed across various vertical industries. ACS and Systematics specialize in three or fewer industries and have demonstrated strength within their markets.

EXHIBIT II-7

Vendor	1991 Market Share (Percent)
EDS	13
CSC	5
ISSC	3
Systematics	2
ACS	2

G**Client Selection Process**

The vendor and the client must develop a clear understanding of each other's capabilities and commitments before a real outsourcing contract can be entered into. It is a grueling task for both the vendor's marketing force and the prospect's evaluators.

Fifty percent of the prospects interviewed by INPUT prepared a formal solicitation document. The prospect's purpose is to provide vendors with common data upon which to base their proposals.

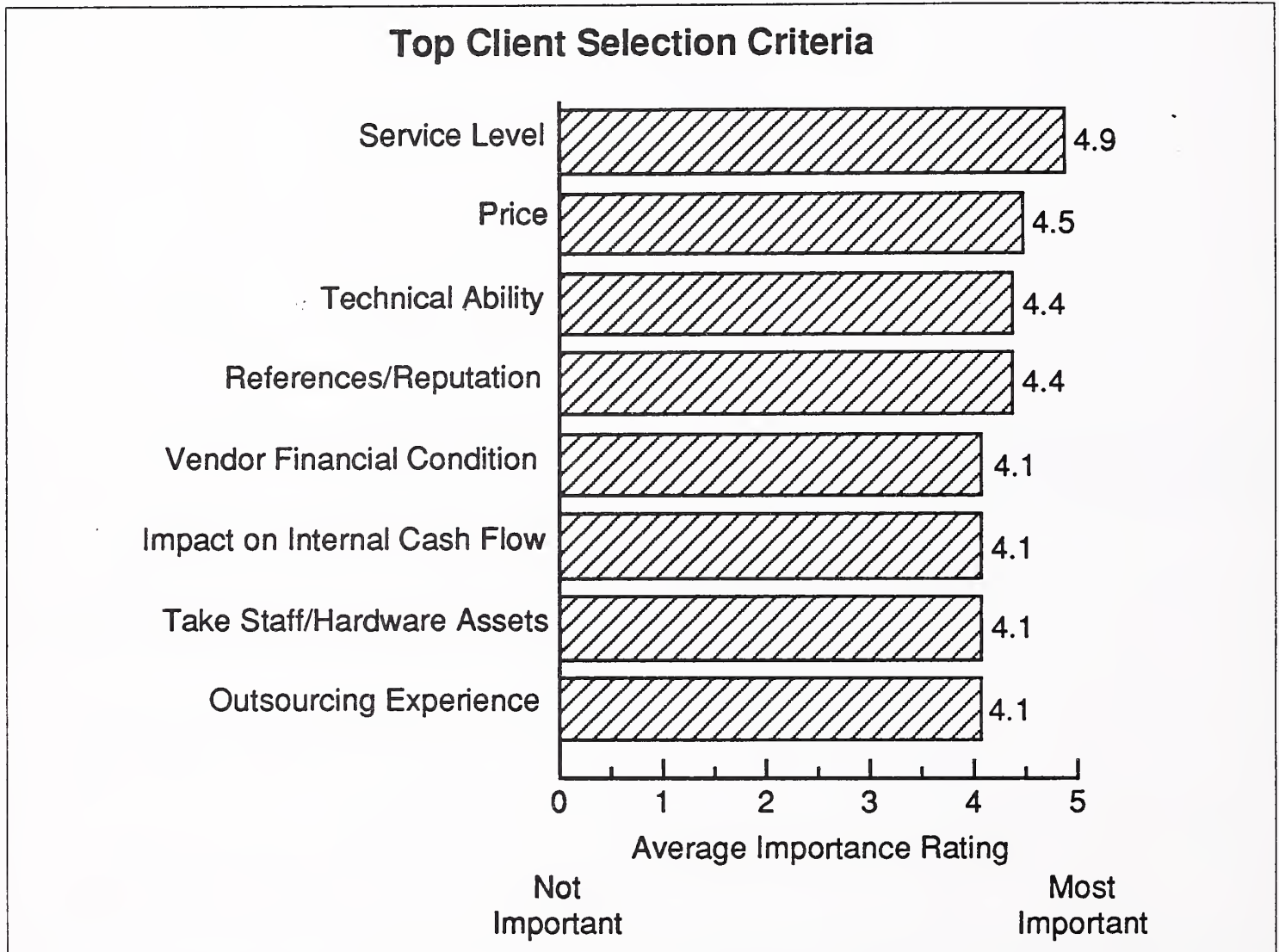
The other firms simply assembled their requirement data and notified known vendors or current suppliers that they were looking for an external systems operations management arrangement.

The selection process is essentially a screening process. The first set of responding vendors is narrowed down to a smaller, more viable short list through a preliminary evaluation. This usually involves a comparison of some common criteria. The short list of vendors is then reviewed more thoroughly and discussions are typically begun with several vendors.

Certain vendor capabilities repeatedly appeared on selection criteria. Exhibit II-8 presents ratings for the major evaluation criteria developed as part of INPUT's ongoing research.

A more detailed examination of users' selection procedures confirms that price is not the determining factor in vendor selection, as shown in Exhibit II-8. INPUT asked users to rate a wide range of vendor evaluation criteria on a 1 to 5 scale. The proposed service level—not priced—received the highest average rating, 4.9. Price was rated 4.5. Over half of the criteria received ratings above 4.0.

EXHIBIT II-8



The most highly rated vendor characteristic, service level, was an indication that prospects are more concerned about the quality of service they receive from vendors than the price they pay. They are willing to pay a premium to get superior service levels.

The next three criteria, technical ability, vendor reputation, and vendor financial condition, as well as another criterion also rated at 4.1, outsourcing experience, reflect on the vendor's ability to perform. The prospect knows the relationship with the vendor must be a solid one to

succeed, one that will extend for several years and one that will depend a lot on the abilities of the vendor. The prospect therefore wants to deal with a stable, proven vendor.

The other two items rated above 4.0, impact on cash flow and taking on of hardware/staff assets, reflect other financial concerns that drive prospects to choose outsourcing.

Several other selection criteria were less frequently mentioned by respondents to INPUT's user survey. A more thorough discussion of these less important items can be found in INPUT's report, *Methods of Approaching IS Outsourcing*.

H

Recommendations

The set of recommendations presented in Exhibit II-9 is derived from the analysis of the market this study represents.

These recommendations reflect the conditions as they exist in the present marketplace. They incorporate the issues raised by users and the strategies successfully demonstrated by vendors.

EXHIBIT II-9

Recommendations

- Pre-sales
 - Select high-probability prospects
 - Establish strong alliances
 - Assume risk carefully
 - Define expectations in contract
- Post-sales
 - Communicate constantly
 - Develop partnership relationship
 - Participate in client strategy development

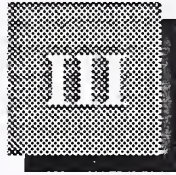
The key recommendations to be made for the pre-sales cycle are

- Select prospects carefully. Capitalize on existing knowledge or prior successful relationships in the target industry.
- Capitalize on long-term, pre-existing relationships with the prospect, which feels that such a relationship is, indeed, the best choice for it.
- Establish strong alliances with partners that can complement industry expertise and provide additional cost-effective resources.
- Assume some financial risk, usually a capital investment or assumption of some of the client's assets.
- Develop contractual terms that protect against undue risk and define expectation for both parties.

The key factors of the post-sales period need to be considered from the onset of the sales cycle also. They are

- Communicate within the client's organization with both user and senior management, on a daily basis if necessary.
- Become part of the client's organization, providing a better service level than that provided by the internal staff.
- Use the contract to define initial operating parameters for both parties.
- The formal contract will need to be supplemented by both parties agreeing that the good of the partnership will often require actions not specifically written in the contract.
- The vendor and client must have joint strategy sessions at which important issues can be discussed and key information shared.

Vendors who successfully master the development of partnerships will be the major outsourcing vendors that benefit most from the expanding market. The relationship will need to be adjusted as IT technology (re-engineering, downsizing, client/server) introduces new options for the client and/or changing business conditions alter the operating requirements.



Market Analysis and Forecast

Major business organizations continue to contract with outsourcing vendors for the management of their operations related to information systems. The outsourcing can range from simply transferring to a vendor responsibility for management and operation of a data center and its associated communications network to turning over all processing, applications software maintenance and development as well as responsibility for the PC/workstation inventory of the client and the associated LANs. In some cases the client is turning over an entire business function to the vendor.

The vendors have become much more willing to assume financial risks by assimilating such client assets as hardware and staff, or even making direct financial investment in the client's business.

This chapter will examine the general market characteristics, then discuss the various outsourcing options available and the differences between the commercial and the federal market. It will then present forecasts of the outsourcing market overall, by mode and by vertical industry market. Finally, the key marketplace factors and the competitive environment will be reviewed. The result will be a comprehensive view of the current market and the trends affecting its performance in the forecast period 1992 to 1997.

A

Market Structure

Systems operations still represents the major portion of the outsourcing market, as defined by INPUT. Other portions of the market are growing rapidly, however, and represent two driving forces:

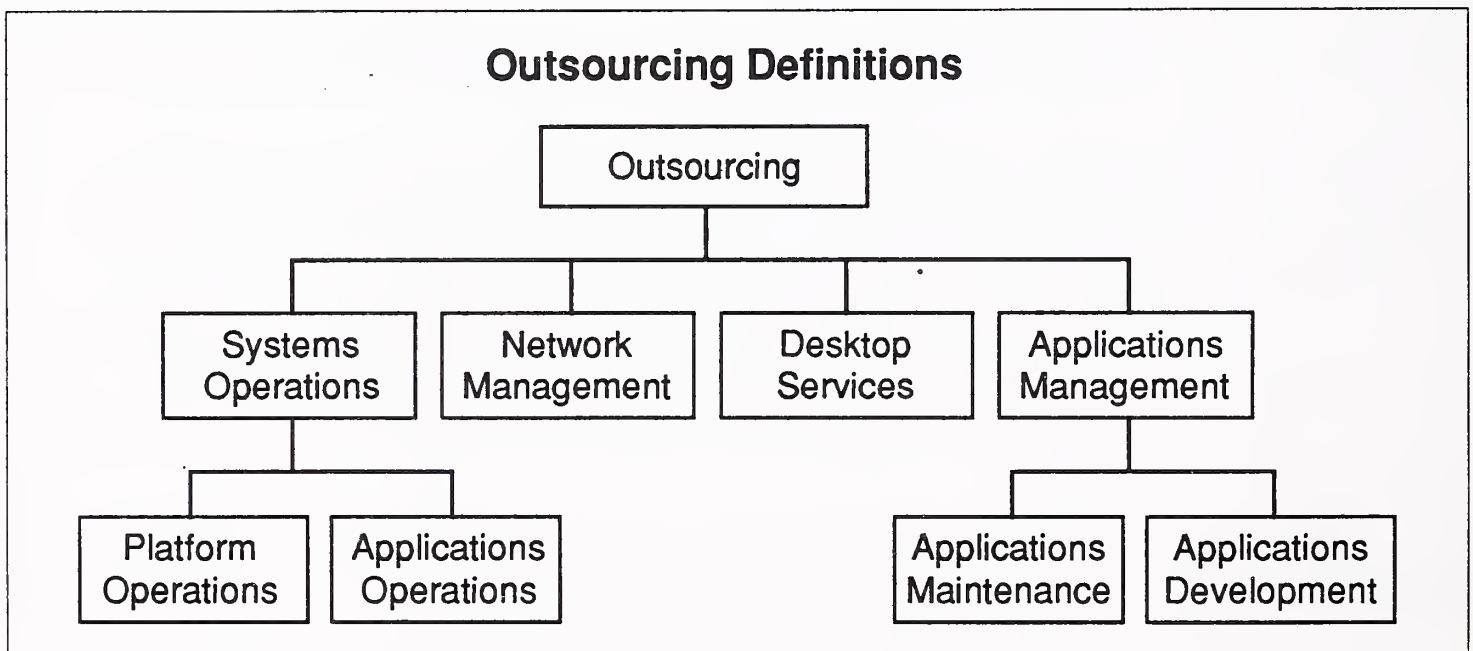
- First, clients are more comfortable with the outsourcing arrangement and are asking the vendors to take on additional tasks.
- Second, the vendors are complementing their own skill sets to become more useful as full-service providers to their prospects.

The market components will be examined in detail to determine how the market is changing and to identify opportunities that these changes present to the aggressive vendor. A fast-changing environment is anticipated, since outsourcing represents a change in the method of contracting for existing functions rather than the creation of a demand for new functions. This analysis is designed to help vendors better understand the changes and capitalize on them.

1. Outsourcing Has Many Variations

Outsourcing was once synonymous in much of the literature with systems operations. This led to much confusion. INPUT defines outsourcing as the *contracting of all or a major part of an information systems process to an external vendor on a long-term basis*. The vendor takes responsibility for the performance of the process. Outsourcing is a method of acquiring a vendor to provide for existing operations, not a delivery mode. Within this framework, systems operations is but one delivery mode that can be acquired through outsourcing, as illustrated in Exhibit III-1. The client that chooses to procure only one of the elements is still outsourcing to a vendor.

EXHIBIT III-1



The summary definition of each outsourcing mode at this stage will assure that the ensuing discussion of the market and its myriad components will be clearly interpreted.

All of the elements in the outsourcing category represent functions or processes that are performed rather than projects that are accomplished. Platform operations and applications operations and network management operations are obviously functions that an organization depends on for its

survival. In the same vein, the maintenance and/or management of an organization's applications software is crucial to the successful accomplishment of its mission. Applications management can include both applications development and/or applications maintenance. Finally, desktop services, which include such functions as the user help desk and the maintenance of workstations and PCs in the user environment, are other functions critical to the daily operational efficiency of an organization.

2. General Market Characteristics

The outsourcing relationship between client and vendor remain consistent in some respects. The contract is typically for a term longer than three years. The price is predictable over that term, and the clients become an integral part of the vendor's organization.

More and more of the support functions, running the gamut from providing the data processing platform operation to operating the help desk and maintaining the workstation/PC inventory for the client, are being outsourced to vendors.

To operate in this environment, vendors continue to form alliances with other suppliers and partnerships with the client that provide the best combination of services to that client. They assume responsibility for the client staff whenever that is warranted. Flexibility is the key operating word in the resulting arrangement.

Clients, for their part, accept the vendor staff as a part of their own operations and formulate plans with the vendor personnel actively participating in the process. The we/they relationship may still exist, but the professionalism demonstrated by the vendor's staff has convinced most IS managers who have outsourced their operations that they made the right decision.

a. Environmental Factors

The conditions that fostered a sudden spurt of growth in the systems operations market about two years ago still linger. The economy is very slow to recover; where there is recovery, it ranges from slow to minuscule. Many firms incurred major financial burdens and have consolidated their operations. They are still looking for more cost-effective ways of operating; they don't expect boom times to return soon. Exhibit III-2 summarizes these factors.

EXHIBIT III-2

Outsourcing Environmental Factors

- Economic adjustments continue
- Global market growth accelerates
- Technology enhancements challenge old methods
- Downsizing trend emerges

Firms that have chosen to outsource their IS systems have done so because of cost pressures or consolidation problems. Other organizations in their vertical industry have taken note and are now seriously looking at the viability of the IS outsourcing option for their own organizations. Where there once had been strong skepticism about outsourcing, there now is substantial interest.

The increasing scope of the global business community is becoming more apparent each day. As markets expand across national borders, particularly in Europe, corporate management puts more demands on the IS organization's processing and communications infrastructure. As new markets open in the Far East and South America, new services will need to be provided. Many of the major outsourcing vendors have a wealth of experience in international IS markets. As yet most of the existing outsourcing contracts are geographically bounded, but the emergence of network management as a major outsourcing area and the formation of consortia and alliances in the telecommunications area to meet these needs signal that the geographic range of outsourcing contracts is about to change.

The rate of technological change continues to be rapid. IS executives want to apply these new technologies as effectively as possible. Adoption of some new technologies can greatly improve a firm's competitive position. However, many organizations lack the internal resources needed to understand and implement new technologies. Systems operations vendors are a viable alternative to this skill shortage. As major IS suppliers, vendors can more easily recruit and retain the top talent needed to stay abreast of technological developments. They can share this talent with their clients and leverage the expertise that client firms cannot acquire and retain internally.

b. Evolution of Vendor/Client Relationship

Outsourcing provides a hedge against technological obsolescence at a lower cost in executive time. It provides a better cost alternative to in-house operations in times when cash flow is critical and when the global market introduces additional complexity to already challenging IS problems. Vendors and buyers together have crafted the outsourcing relationship into a vehicle well suited to current business conditions.

The relationship between vendor and client in the outsourcing environment is one which, of necessity, evolves over time. The long-term nature of the typical outsourcing contract, coupled with the need for intense vendor involvement in the client's business issues, adds an extra incentive to actions that make the partnership work.

Many current outsourcing clients, in response to INPUT inquiries, indicate that the original contract bears no resemblance to the conditions under which they are currently operating. It is difficult to predict future needs of the client organizations. As a result a new cautious outlook has emerged in the prospect community. It has three components:

- First, prospects are less willing to sign for 10- and 12-year contracts and prefer 5- to 7-year contracts. They know conditions will be different 3 to 5 years from now.
- Second, the contract terms are being scrutinized much more closely. In earlier studies, INPUT had heard such comments as, "We let the vendor deal with those issues since he has more experience." Now prospects and clients seek outside counsel more often and make sure all contingencies are accounted for in the contract.
- Third, independent viewpoints are being sought more frequently by prospects trying to evaluate offers they have received in response to solicitations for bids. Client responses indicate the activity is well worth the expense.

Both parties must be willing to adjust their operating modes. Clients must understand the impact of their change requests on the vendor staff. Both groups must demonstrate constant professionalism in their day-to-day relationships.

As this new relationship develops, new management techniques evolve to account for the demands of the changing environment. Chapter V, Section E will discuss this further.

Clients and prospects are finding it increasingly difficult to acquire some of the skilled personnel they need to provide superior applications software support. Vendors have the same problem, but they have two advantages in recruiting such personnel. First, they can offer higher pay scales

to systems analysts and programmers. Next, they offer a more attractive, challenging career path to the technical resources since their function is information services.

The next four factors, though mentioned less frequently than the cost and skills issues, represent interesting attitudes on the part of the vendors. There is no doubt that a client buys a great deal of flexibility when depending on the vendor for applications development, at least in terms of staff. Clients need not plan to balance the development load but can call for the software development resources on an as-needed basis to meet changing user requirements. By passing responsibility for software development cycles to the vendor, the client also shares the risk for late delivery and the impact of software delays on operating costs. Thus, if the vendor doesn't deliver on time, the client may acquire additional resources to get the job done without any increase in staff cost to the client.

Vendors are convinced they can deliver a better quality of software support to the client. As we shall see later in this chapter, it is no longer simply a good marketing tactic; clients are also choosing to improve the quality of their information services. Finally, vendors are citing clients' wishes to refocus their attention on their core business. The outsourcing of applications software development allows them to do this.

The above are sound reasons for outsourcing applications development. These market forces should continue to accelerate the rate of outsourcing of applications software maintenance and development to vendors.

3. Outsourcing Modes

As the outsourcing relationship evolved between the vendor and the client, the realization emerged that more of the information systems operations could be transferred to the responsibility of the vendor without adversely impacting the effectiveness of the user organization in its business operations. This meant a diversification of the modes of outsourcing that occur in the marketplace.

What is good news for the users is greeted with mixed emotions by the vendors. They welcome the opportunity to provide more services to their clients, but they must also round out their own skills set to provide a greater service offering than before. When this is difficult to do in the short term by internal expansion, it is often accomplished by acquisition or alliance.

This same phenomenon is greeted with some trepidation by market researchers. The job of projecting the market trends accurately is complicated when there are many components to the market. The task of clearly and accurately communicating what these changes are and what they mean to those affected depends even more on accurate definitions of the market

components. Exhibit III-3 provides a capsule definition of the four components of the outsourcing market that INPUT is tracking this year.

EXHIBIT III-3

Outsourcing Modes

Platform	Applications
Vendor does processing/communications	Vendor does processing/communications
Client does applications software management	Vendor does applications software management

In subsequent sections of this chapter and in Chapter IV of this report, these four outsourcing modes will be measured and the growth of each of these will be forecast for the period 1992-1997.

In Exhibit III-1, a more diffuse set of outsourcing options were identified. The state of the market is such that at this time data is available only for the two versions of systems operations, platform operations and applications operations, and for the network management and desktop services modes of outsourcing. The applications management situation, when a vendor assumes responsibility for applications development or applications maintenance only, is no less interesting as an outsourcing market. The data to accurately project trends and forecast market size is simply not yet available. INPUT will remedy this situation in subsequent research.

4. Vertical Industry Markets

INPUT has identified 14 vertical industry markets for information services. Each has a set of unique driving forces and characteristics dictated by conditions in those markets. These will be discussed at some length in Chapter IV of this report. Exhibit III-4 identifies the 14 vertical industry markets used by INPUT to segment the information services market.

EXHIBIT III-4

Fourteen Industry-Specific Markets

- Discrete manufacturing
- Process manufacturing
- Transportation
- Utilities
- Telecommunications
- Wholesale distribution
- Retail distribution
- Banking and finance
- Insurance
- Health services
- State and local governments
- Federal government
- Business services
- Education

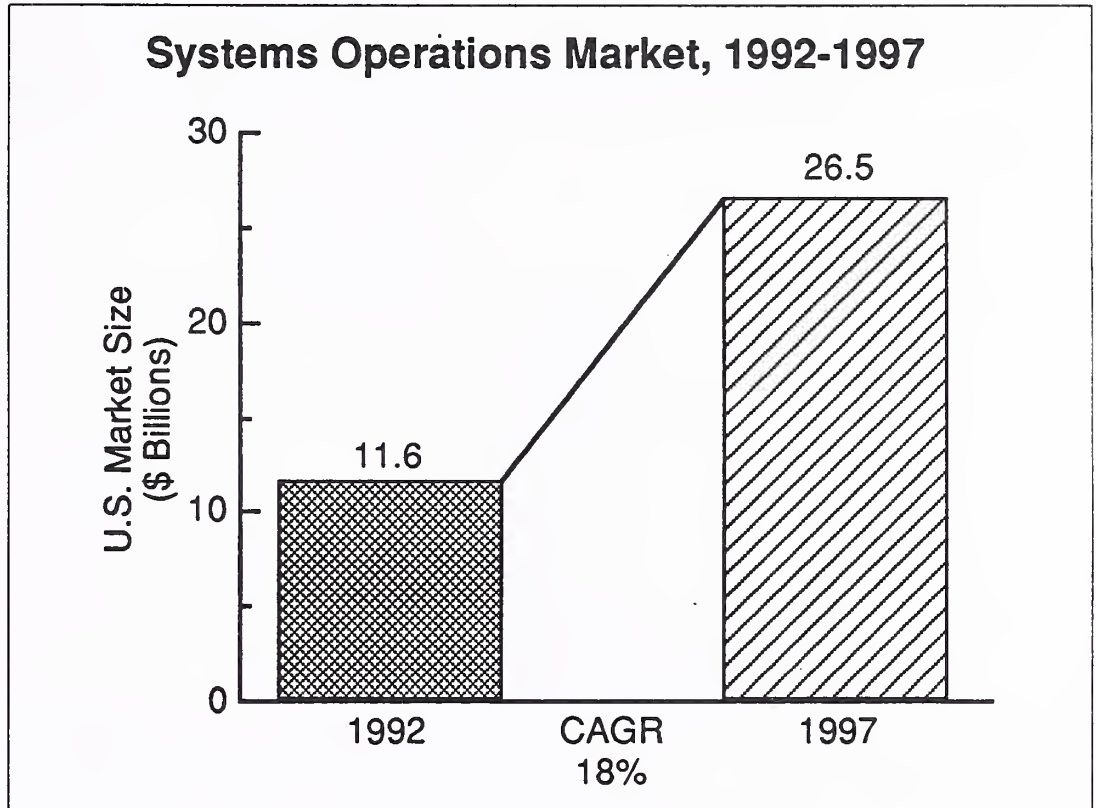
B**Market Forecasts, 1992-1997**

The outsourcing forecast is provided in annual user expenditures. The forecast is limited to actual user expenditures for outsourcing contracts. The user expenditures for services provided within these contracts to plan, manage, operate, fix, and enhance clients' applications and to operate and repair information and telecommunications equipment are included. Client expenditures on equipment that it will own but that is operated by a vendor are not included.

1. Systems Operations Market, 1992-1997

INPUT projects that user expenditures for IS outsourcing will be \$11.6 billion for 1992 for the combined commercial and federal markets. Growing at a compound annual growth rate of 18%, these expenditures will reach \$26.5 billion in 1997, as illustrated in Exhibit III-5. This represents a slight increase in the growth rate over that reported last year and reflects the continued health of the market, increasing acceptance of the outsourcing option as a viable one, and especially the increase of outsourcing options required by the user community.

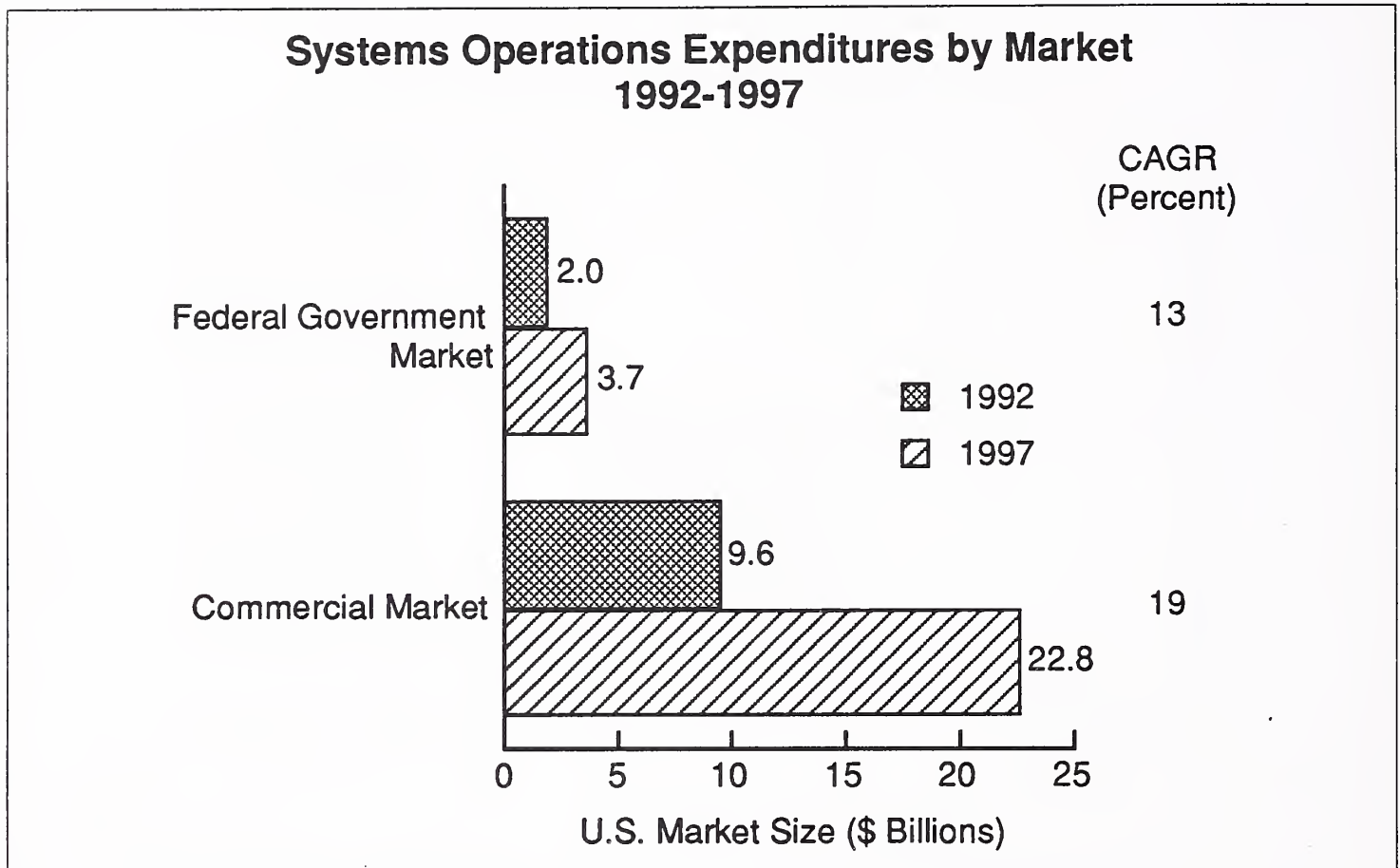
EXHIBIT III-5



2. Commercial versus Federal Systems Operations Market Forecasts

Exhibit III-6 illustrates that there continues to be major differences in conditions in the federal government and commercial markets. In the federal market, the emphasis on budget constraints and the recurring federal budget deficit are the overriding considerations. Defense budgets are being cut drastically, leading to further consolidation of a number of information systems by the Pentagon. The civilian agencies may benefit in the long run, as their budgets may actually increase over time. The net effect is still sluggish growth in the foreseeable future. The 1992 federal government expenditures are expected to be \$2.0 billion, growing to \$3.7 billion in 1997, for a compound annual growth of 13%—somewhat higher than the 10% CAGR predicted last year.

EXHIBIT III-6

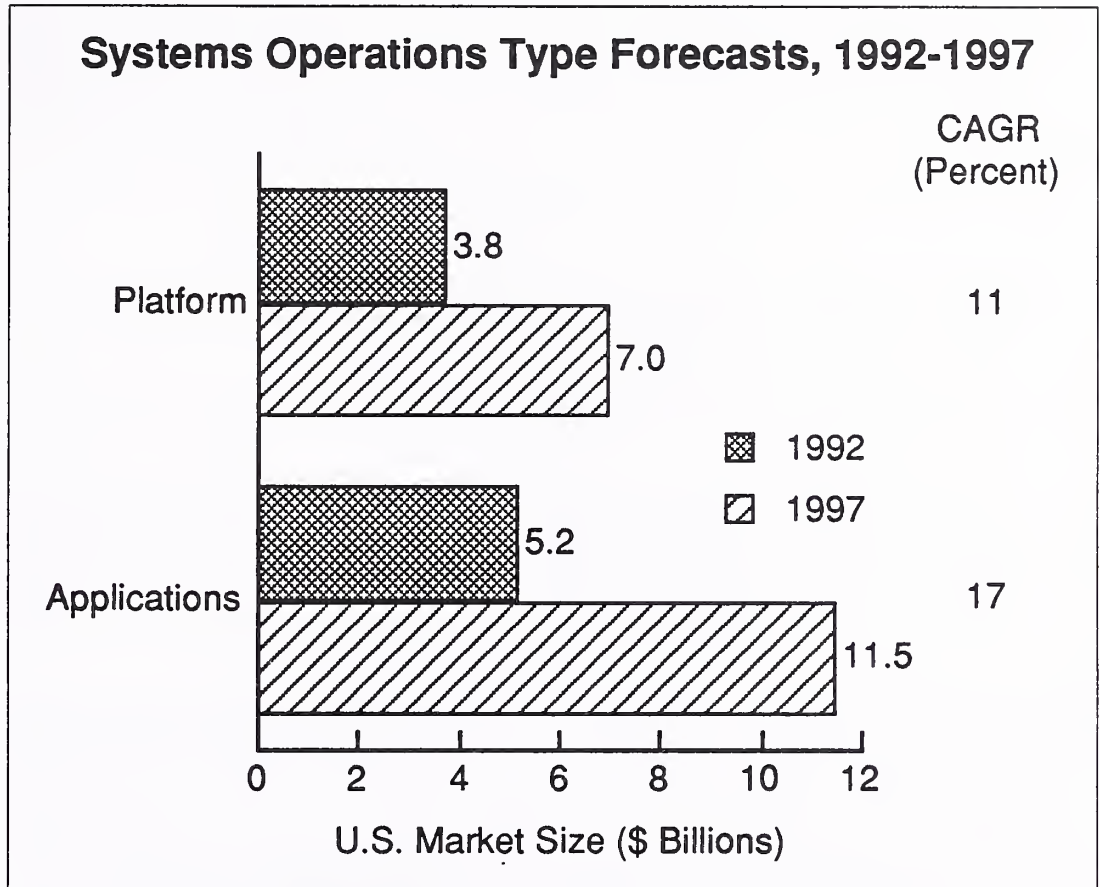


Interest in outsourcing continues to increase in the commercial market, resulting in a compound annual growth of 19% for the period 1992 to 1997, an increase over the 17% forecast last year by INPUT. Systems operations expenditures by commercial enterprises in 1991 are expected to be \$9.6 billion, growing to \$22.8 billion in 1997. The continued sluggish economic recovery and unresolved troubles in the banking market have actually spurred interest in the outsourcing option as a means of preserving capital and improving cash flow. The insurance and retail distribution industries are currently experiencing similar financial trauma. Health services also has significant growth potential as the issue of medical costs continues to attract national attention.

3. Outsourcing Market Forecast by Type, 1992-1997

Exhibit III-7 illustrates how the market is split between the two submodes of systems operations and how this spread will accelerate over the forecast period. In platform operations, the vendor is responsible for managing and operating the client's computer and/or communications systems. In applications operations, the vendor operates and manages the computer and/or communications operations and is also responsible for maintaining, or maintaining and developing, the client's applications systems.

EXHIBIT III-7



INPUT projects that applications systems operations, already the dominant submode, will grow at a compound annual growth rate of 17% through the period. Expenditures will grow from \$5.2 billion in 1991 to \$11.5 billion in 1997. Platform operations expenditures will grow from \$3.8 billion to \$7.0 billion in the same period, at a CAGR of 11%. The difference reflects greater acceptance in the client community of the concept of total systems management by vendors.

INPUT has gathered sufficient research data to forecast two other emerging modes of the outsourcing market. The market for these segments are in addition to the two systems operations modes described above and represent incremental dollars being expended in the outsourcing market.

Network management is the contracting to a vendor for the operations and management of the computer-related telecommunications network, including the local and wide-area networks, whether they are transmitting data, voice, image, or text. Voice-only networks are not considered part of information systems outsourcing. INPUT has prepared a separate report on this market entitled *Outsourcing Network Management and Operations*.

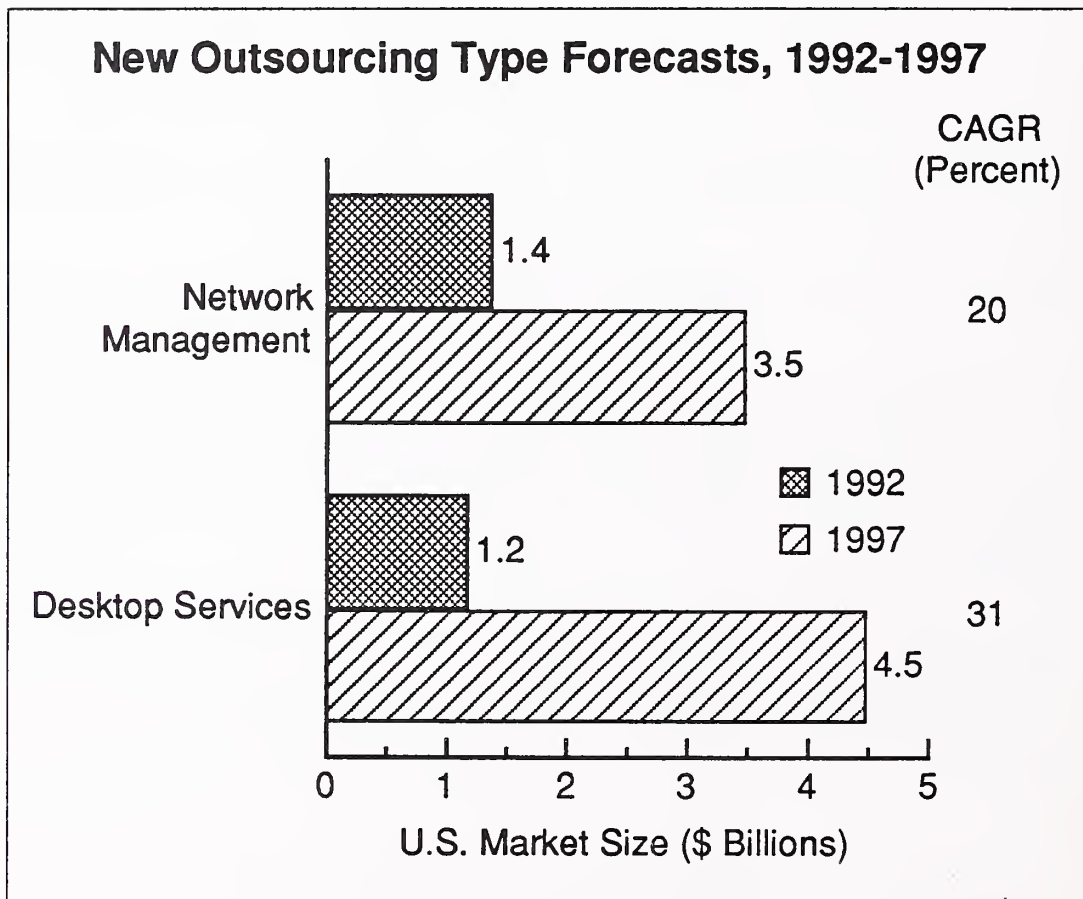
Desktop services is the contracting out to a vendor for the deployment, maintenance, support, and connectivity of the organization's PC/worksta-

tion inventory. There are a great number of service components under this definition. They include:

- PC/workstation selection, design, and consultation
- Hardware procurement
- Software procurement
- Hardware and software installation
- Hardware and software upgrade
- Help desk function
- User training
- LAN installation
- LAN management

A separate report on this segment of the market has also been prepared, entitled, *Outsourcing Desktop Services*. Exhibit III-8 illustrates what the market is for these two modes and projects the market trend for the 1992-1997 period.

EXHIBIT III-8



INPUT projects that network management will represent an market of \$1.4 billion in 1992 and that it will grow at a compound annual growth rate of 20% to reach a value of \$3.5 billion in 1997. Desktop services is expected to grow even faster, going from a market size of \$1.2 billion in 1992 to \$4.5 billion by 1997. This represents a CAGR of 31%, signifi-

cantly higher than the other three modes of outsourcing being measured this year. The impact of the downsizing phenomenon in organizations and the recent proliferation of PCs as a user tool for productivity are feeding this rapid market expansion.

4. Forecast by Vertical Industry

The annual expenditures for outsourcing of information systems for 1992 to 1997 for the 14 vertical markets are illustrated in Exhibit III-9. The compound annual growth rate (CAGR) for the period is shown in the right-hand column. The industries are ranked in order of projected 1997 market expenditures. As seen in the exhibit, the top four markets are banking and finance, state and local government, the federal government, and insurance. The top three are the same markets as reported last year, though the federal government and the state and local government categories have exchanged rankings. Insurance has replaced health services, which was fourth last year.

Growth rates substantially above the average will occur in the retail distribution, discrete manufacturing, and business services markets. In the first case, this represents both the reaction of the clients to financial hard times in their industry and an aggressive entry into the market by IBM's ISSC subsidiary and the realization by many retail establishments, pressured by hard times, that they have to automate to compete with the market leaders Wal-Mart and Kmart. In the business services industry, some strong activity by EDS in the travel and hospitality reservation business accounts for the expected growth. Discrete manufacturing's increased growth rate reflects more outsourcing activity in an industry that adopted the concept early. Demand for network management and desktop services is also a reflection of the geographical diffusion of firms in this industry.

The federal government and utilities markets continue to demonstrate the least growth though both are up from last year. Both of these markets are suffering from major budget limitations that will affect them for the next few years. Note that the state and local government market is projected to grow at the commercial market rate. This market has reached a point at which expenditures cannot be delayed any longer if the demand for new services is to be met.

A more detailed analysis of each vertical industry market is presented in Chapter IV of this report.

EXHIBIT III-9

Market Forecast by Vertical Industry, 1992-1997

Industry	Market Size (\$ Billions)		CAGR (Percent)
	1992	1997	
Banking/Finance	2.5	6.0	19
State/Local Government	1.8	4.1	18
Federal Government	2.0	3.7	13
Insurance	1.2	2.7	17
Health Services	1.1	2.5	17
Discrete Manufacturing	0.8	2.0	21
Process Manufacturing	0.9	2.1	18
Retail Distribution	0.4	1.0	23
Transportation	0.2	0.5	17
Business Services	0.2	0.5	20
Wholesale Distribution	0.2	0.5	17
Education	0.2	0.5	17
Telecommunications	0.2	0.4	17
Utilities	0.06	0.1	15

CAGR difference due to rounding of expenditures

C

Key Marketplace Factors

INPUT surveyed users and vendors in the outsourcing market to identify the factors that most influence the growth and direction of that market. The research identified some important changes in the buyers' selection criteria that will influence how the market will evolve. Vendors, on the other hand, must find creative approaches to acquiring new business, then implement cost-effective approaches to providing the required services at the lowest cost while continuing to provide superior service that enhances their reputations in the marketplace.

1. Changing Buyer Attitudes

A key part of INPUT's annual outsourcing market analysis is a survey that assesses how the attitudes of the user are changing toward systems operations. The responses to this survey are summarized in Exhibit III-10.

EXHIBIT III-10

Motivations for Outsourcing	
Motivation	Number of Responses*
Reduce costs	13
Improve cash flow	2
Reduce assets	2
Migrate to new platform	2
Lower risks	2
Need technical expertise	2
New company	1

*Multiple responses were allowed.

The motivations to outsource information systems operations is usually made for one of the reasons listed in Exhibit III-10. Respondents did not mention the need to improve operational efficiency specifically. However, a stronger balance sheet is often viewed as improving business efficiency.

Most companies seek outsourcing alternatives as a cost-cutting or control measure. Personnel and hardware and software costs are escalating in our inflating economy. The cost of the associated space needed to house data

operations is usually eliminated if the processing site is transferred to a vendor location.

A company's cash flow position is usually improved as less money is expended for data processing operations on a yearly basis. The corporate financial picture is also strengthened as assets are reduced and the profitability ratio becomes higher.

Companies are also choosing outsourcing vendors to manage their present data processing operations while they migrate to new computer platforms. This new trend to transition outsourcing is expected to increase. Internal data processing resources are free to concentrate on the migration to a new platform, while the day-to-day operations are maintained by an outside vendor.

Placing the responsibility for a company's data processing operations on a contractor that specializes in providing outsourcing services is very appealing to many companies. There is less risk, and user companies are free to focus their energies on their primary business needs.

Companies find it difficult to staff and maintain a first-class information systems operation. As technology changes, considerable corporate resources are required to continually hire and retrain qualified technical personnel.

Small, start-up companies find it easier to contract with a vendor to fulfill information systems needs rather than invest critical resources in an in-house operation.

Though there are many reasons to outsource, companies decide not to do so for one major reason, illustrated in Exhibit III-11. Fortunately, for some companies, information systems functions already operate efficiently. Economies of scale could not be achieved if a vendor provided the services. In INPUT's sample, four respondents had systematically performed both an internal analysis and an outside evaluation before deciding to retain operations in-house. Two respondents were currently in the process of evaluating vendor proposals.

EXHIBIT III-11

User Reasons for Not Outsourcing	
Reason	Number of Responses
No cost advantage	8
Currently evaluating	2

2. Vendor Strategies

Exhibit III-12 summarizes current vendor strategies. They have created further incentives by entering into equity investment arrangements with the client that immediately improve the organization's cash flow and reduce its capital requirements.

EXHIBIT III-12

Outsourcing Vendor Strategies
<ul style="list-style-type: none"> • Provide full range of services • Provide financial incentives • Form ad hoc alliances • Leverage current expertise • Target transition situations • Develop new markets

Vendors present themselves to prospects as able to provide the full range of services required currently and in the future. This becomes even more important as the network management and desktop services components gain market presence. A full range of services will soon need to include traditional systems integration services. The need for systems integration services will continue as business requirements change and organizations seek to take advantage of new technologies. Those organizations that have already outsourced their IS operations will very likely think first of the outsourcing vendor as the provider of these services. In fact, a certain set of systems integration services may already be included in the outsourcing agreement in the form of technology refreshment clauses.

Vendors continue to seek clients in markets in which they can capitalize on their previous experience. For example, since IBM has a good reputation in the retail industry, it was able to score three quick successes in that market—with Zale Corporation, Cullum Companies, and Supermarkets General Corporation. CSC was able to close the largest outsourcing contract on record with General Dynamics partly because both vendor and client are defense contractors who understand each other's marketplace. Vendors also continue to target companies in transition. There are many in financial straits, and though marketing and analysis activity has fallen off, many still are recovering from the impact of these transitions. The opportunity for immediate cash benefit is particularly appealing to this group of prospects.

But every rule is made to be broken. Vendors have demonstrated that sticking to what you know is the best strategy for success as in the two cases cited above. Some vendors, however, are beginning to be uncomfortable with niche markets. They are beginning to look around for partners or acquisitions that will help them get into markets other than those in which they are now successful.

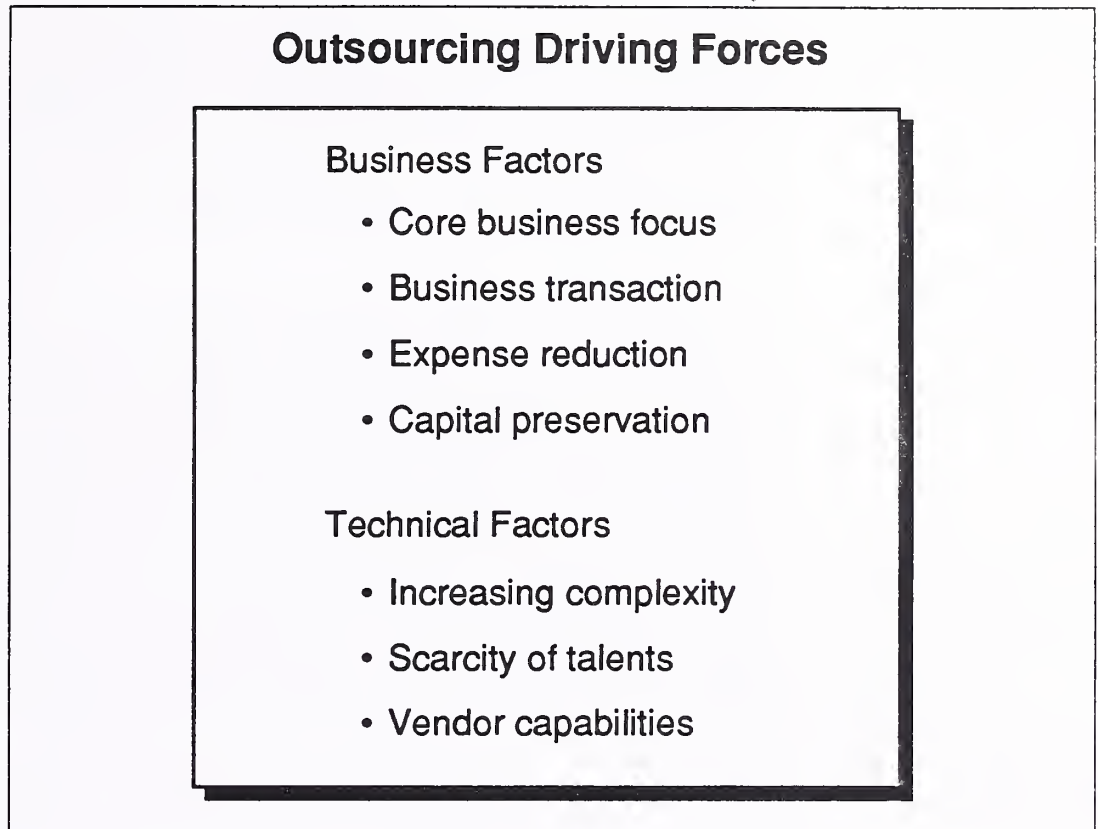
As yet the most striking instance is the acquisition of Sears Business Systems by ISSC. A number of other outsourcing vendors are known to be actively looking at acquisitions both in the U.S. and Europe. As these are announced in 1993, a pattern will surely emerge.

3. Market Drivers and Inhibitors

The outsourcing market is being affected by a number of positive and negative driving factors. Exhibit III-13 summarizes factors that are stimulating growth of the market.

The positive driving forces can be split into two categories. The first set represents the economic and business environment, the second represents technological factors.

EXHIBIT III-13



From the business side, there continues to be an increasing incentive for management to concentrate on the organization's core business. In many cases, the information processing function is not considered part of that core function. In other cases, there is increasing willingness to "leave it to the experts"—thus providing more opportunity for outsourcing vendors. Some of these same organizations feel the pressure to concentrate on the core business because they are in a transition period. They are trying to digest the result of recent merger or acquisition activities or are downsizing their operations because of changing business demands. The continuing economic slowdown continues to force organizations to constantly review their expenses and capital investments. They are seeking to reduce both of these significantly. Outsourcing of operations related to information systems positively impacts the bottom line by reducing short-term expenses and preserving capital for alternative investment purposes.

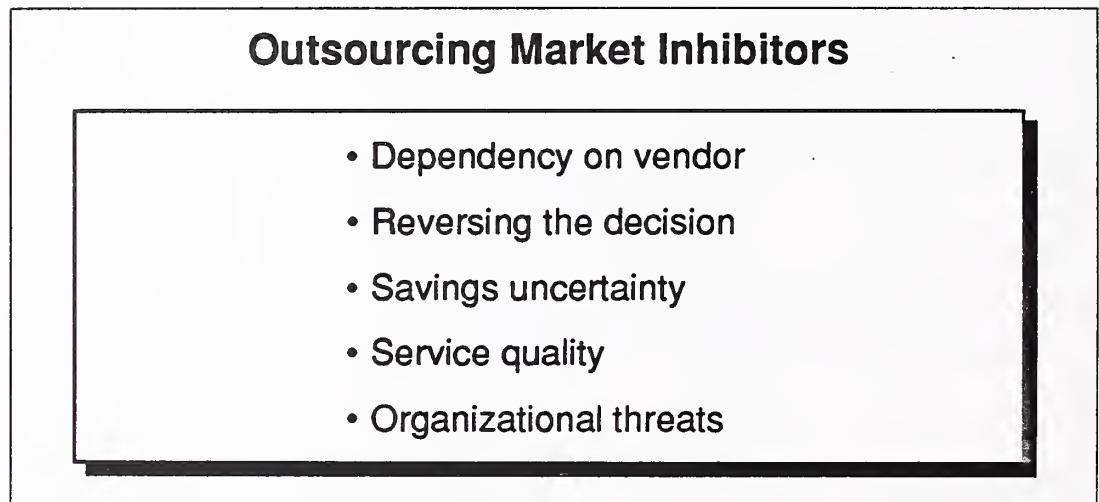
There is a series of technological factors that also have a strong, positive impact on the market. The technology that firms need to maintain a competitive edge, domestically and in the global marketplace, gets more and more complex. If a firm needs to expand its coverage to an additional 10 countries as its market expands, communications challenges must be met. If a sales organization needs instant access to market and product availability data, the latest distributed data base technology has to be in place.

As the technical requirements become more complex, the skilled resources needed to solve those problems are harder to find and retain. Vendors provide a valuable resource pool for these scarce talents, particularly those

that are not required full time by the client organization. Those same vendors are improving their capabilities as they gain experience and acquire staff and processing capacity. The positive track records of most vendors and the string of successes to which they can point, particularly in such demanding markets as the banking industry, are making the outsourcing of systems operations a much more appealing alternative for management.

Exhibit III-14 lists those market inhibitors that do exist, however, to temper the effect of the positive drivers. Many prospective firms are still uncomfortable about relying on an outside vendor for such a critical function as information services. They sense they are losing control over a vital function. As they look further into the future they realize that it will be difficult to reverse the decision to outsource, should the arrangement not be successful. There is, indeed, a high probability that the vendor/user relationship will be a permanent one, since the user will become less familiar with IT technology as the contract evolves. All of these decisions are difficult, unless the management has decided that information services is not part of its core business.

EXHIBIT III-14



Remember that, in most cases, the prospect only makes the decision to outsource systems operations one time. Prospects have no experience base from which to assess how much can be saved or what the service quality from the vendor will be. This level of uncertainty can only be reduced by second-hand accounts from other firms already outsourcing their operations and from the assurances of the vendor. In addition, any major change, such as the outsourcing of systems operations, poses a major organizational threat that must be addressed by the firm's management. That threat is felt particularly by the IS organization. However, users of the services in the rest of the organization may also feel uncomfortable when it is proposed that the service be provided from a remote site.

The net effect, however, is that the trend to outsource information systems operations is being positively affected by the combined market forces, resulting in a healthy growth rate for the five-year period.

D

Competitive Environment

The great diversity of clients in the outsourcing marketplace is easily matched by the wide variety of outsourcing vendors offering to provide the required services. Professional services organizations, equipment manufacturers, processing services firms, and firms specializing in a single industry participate in the market. Some firms are actively seeking to gain market share by acquiring other firms, others are leveraging their resources in their other related organizations to broaden their own skills base for the outsourcing prospect community. ISSC's rapid penetration of the retail distribution industry was predicated on a prior strong presence as equipment vendor there. EDS's recent restructuring has brought its Technical Products Division into a stronger position in the organization, better able to provide desktop services to those prospects needing it.

1. Vendor Categories

Vendors used to react to the market on the basis of their origin. For example, most professional services firms got into the outsourcing market via the systems integration route. The processing services vendors, on the other hand, migrated gradually to outsourcing over an extended period of time by providing facilities management services to their client base.

As the market has matured over the last two years, the user demands have caused this distinction to all but disappear. To compete effectively in the outsourcing market, vendors have had to provide a wider range of services, either directly or through alliances. Their approach to the market has become more homogeneous and the range of services more uniform.

A large group of outsourcing vendors have their roots in the professional services industry. Exhibit III-15 is not intended to be an exhaustive list but rather just an illustrative sample of types of firms. In this category, many of the firms got large servicing the federal government. Most of them still have a large component of their business in that industry.

EXHIBIT III-15

Vendor Clasifications

Genesis of Firm	Examples	
Professional Services	CSC AMS Martin Marietta SHL Systemshouse	Anderson Consulting Black & Decker (PRC) SAIC
Processing Services	EDS Genix Litton Computer Services	Power ACS Commercial Services First Data Resources
Equipment Vendors	IBM DEC	Unisys
Industry Specialists	Mellon Bank Systematics FIserv System and Computer Technology	Agway Shared Medical Systems First Financial Management

CSC stands out as one firm that is actively succeeding at diversifying to commercial accounts. Martin Marietta, on the other hand, is gaining market share mainly because it has recently acquired a number of federal outsourcing contracts. SHL Systemhouse has been concentrating in the other public sector market, namely state and local government, but is aggressively expanding its focus particularly in Canada, and particularly in the petroleum industry.

EDS, of course, stands out in the processing services group. All of the others are less diversified than EDS but seem to be effectively applying their abilities to manage information systems operations to the needs of those clients wanting to outsource their data centers. ACS has been very aggressive in acquiring new business, while Power and Litton seem to be unsure as to how to expand their market penetration. First Data Resources is exhibiting much more independence from its parent American Express recently and can be expected to become a factor in its selected markets.

The equipment vendors now include Unisys as well as IBM, represented by ISSC, and DEC. ISSC continues to successfully penetrate the market. Its recent joint venture with Sears/Advantis will certainly greatly impact the network management portion of the outsourcing market. DEC is still saying the right words—it has to be in the services business—but the execution of this major shift in focus is still going on.

The industry specialists continue to effectively service the clients in their chosen business areas. Systematics and FIServ continue to provide their own industry expertise as an integral part of the outsourcing service they provide to the banking community. Shared Medical Systems does the same for the health services industry. Systems and Computer Technology has leveraged their software position into a healthy outsourcing business in the higher education market. Mellon Bank is the only vendor acting out of character, having recently signed an outsourcing agreement with National Steel in Pittsburgh. In fact, Systematics also stepped out of its mold recently by closing a large contract in the health services industry.

2. Vendor Strategies

It is not so easy to classify the vendors by category when looking at their market strategies. Though this topic will be addressed at length in Chapter V of this report, it is appropriate to summarize those strategies here.

There is much more uniformity in strategy than there was in classifying the vendors. After all, they are all addressing similar needs in the marketplace. If there is any distinction to be made, it is rather by size than by category.

Exhibit III-16 summarizes the strategies that are evident in the marketplace. Companies with a large market share or with large market potential, like EDS and DEC, have expanded their horizons to include international opportunities. EDS, in its recent reorganization assigned worldwide responsibilities to members of the Leadership Council. The intent is no doubt to re-examine where outsourcing has international possibilities. DEC has several international outsourcing arrangements in place and has been particularly effective in Canada and the U.K.

EXHIBIT III-16

Vendor Strategies

- Develop international potential
- Penetrate new industries
- Acquire complementary assets

Vendors well established in certain markets have decided to explore new industries. It appears that vendors believe it is more important to be good at providing information systems outsourcing than to be an expert in one's industry. Users are beginning to vote with their dollars too. As cited above, Systematics has acquired a contract in the health care industry, while Mellon has moved its attention to the manufacturing sector. CSC and PRC are both actively trying to diversify out of their strong market, the federal government.

Other vendors continue to acquire or ally with the assets they need to either complement their current capabilities or solidify their penetration of a specific market. Systems Computer and Technology is an example of a company that is doing both. They increased their market penetration in their primary market by acquiring Information Associates from Dun & Bradstreet and entered both the utilities industry and the state and local industries by acquiring small software firms in those industries.

The biggest "alliance" news is of course the formation of Advantis by IBM and Sears. Since it is to be managed by ISSC and includes the assets of IBM's IIN (IBM Information Network) division, this new entity has to be a major factor in the network management segment of the outsourcing market as well as the electronic data interchange (EDI) market as a whole.

3. Leading Outsourcing Vendors, 1991

From year to year the list of top U.S. outsourcing vendors does not change significantly. Exhibit III-17 presents the top ranked vendors based on 1991 revenues. EDS is still in the lead though its market share has dropped one point. CSC follows again, though its share has dropped one point also. Both ISSC and ACS have displaced Systematics in the rankings though the last two are still very close in revenues.

EXHIBIT III-17

Leading U.S. Outsourcing Vendors

Vendor	1991 Market Share (Percent)
EDS	13
CSC	5
ISSC	3
ACS	2
Systematics	2

The emergence and rise of ISSC is not unexpected since it continues to meet some success in the outsourcing market it so recently entered. ACS continues to aggressively pursue a number of opportunities, so its relative position is also not unexpected. A more interesting observation may be the market share number that the top five vendors represent. In the 1991 report, INPUT reported that the top five vendors represented 28% of the market. This year the figure is 25%. As the market matures, the expectation is that the larger vendors will get bigger. Yet, the reverse effect is occurring, at least in the short run. There seems to be plenty of room for smaller vendors in the market. Whether this trend will continue will be closely watched in the months ahead.

Exhibit III-18 presents the market positions of the major vendors in still another light. Since INPUT does track the outsourcing market by industry, it is possible to look at the performance of vendors in the commercial market by factoring out the federal market numbers. This has substantial merit because certain vendors, like CSC, still depend heavily on the federal market, and this market features just a few, very large outsourcing contracts, so the perspective may be skewed by this phenomenon.

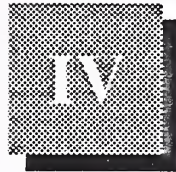
EXHIBIT III-18

Leading Commercial Outsourcing Vendors, 1991

Vendor	1991 Market Share (Percent)
EDS	13
ACS	4
Systematics	3
ISSC	2
Shared Medical	2
DEC	2

EDS does not relinquish its top position in this list since the majority of its revenue is generated in the commercial market. CSC drops out of the top six entirely because much of its business is still with the federal government, in spite of the General Dynamic deal. ISSC drops behind ACS and Systematics because a larger portion of its revenue is still derived from federal contracts than either of those two. Shared Medical and DEC move up in the rankings since they have no federal outsourcing business.

In summary, the major vendors are sharing the market a little more with the other vendors. Many vendors are making efforts to increase penetration or expand their service offering. These are signs of a healthy, prospering market, one reacting to meet the client requirements and striving to use technology to reduce risks and increase their profits.



Vertical Industry Markets

Each vertical market has characteristics that create market opportunities. Vendors must understand these for effective market penetration. This section discusses the forces at play in each vertical industry and identifies the key issues in each of them. The discussion leads to an assessment of the potential within each market for outsourcing vendors, followed by a forecast for the vertical industry for the period 1992 to 1997.

A brief description of the types of enterprises that INPUT includes in each vertical market is included at the beginning of each discussion. Often the mix of companies varies greatly, both in size and market impact. The discussion about the vertical industry generally focuses on companies that are most prominent in that industry.

The discussion of industry forces reflects research on economic trends identified in that sector. The current economic state, the growth rate of business in that sector, the demographic change in establishments, and the changing demands in the market served may all be factors influencing information technology decisions.

An assessment of the impact of these economic forces on information systems and services refocuses the discussion to the information services executives' viewpoint. A better analysis of the buyer motivations in each vertical market is possible when factors influencing the outsourcing decision are well understood.

The potential in each vertical market is directly influenced by the economic forces at play. For example, an industry in difficult financial straits may be a better target for outsourcing vendors because reducing current expenses or preserving capital may be overriding considerations.

Still other companies may need to leap-frog to a new technology platform to stay competitive. In reviewing the characteristics of a vertical industry, both the motivators and the inhibitors to entry into that industry will be identified.

The assessment of potential leads directly to a forecast for each vertical industry market. All of the forces discussed above are considered in identifying and evaluating the industry. The short-term effects can cause a change that has a lasting effect on the market. On the other hand, growth patterns may take some time to develop if strong inhibitors exist in a given market.

A complete review of market potential by vertical industry must include identification of the major vendors in that market. This information allows prospective outsourcing vendors to assess their chances in a particular vertical industry. Is the competition too tough? Does entry require a higher level of industry knowledge than is currently available in the vendor's organization? Can alliances be used to supplement internal resources?

A

Banking and Finance Industry

This sector covers four major areas: commercial banks, thrifts, security and commodity brokerages, and other financial services. The latter encompasses credit unions, mortgage banks, cooperatives, and personal and industrial financial institutions. Insurance is discussed as a separate vertical industry sector.

1. Industry Forces

Major changes in the current financial environment created trends that affect the industry's image and methods of doing business. These changes include deregulation, the thrift crisis, third world debt, junk bond debt, and the decline in value of commercial real estate.

One of the greatest factors affecting most U.S. banks is the drastic decline of commercial real estate. In 1990, commercial banks increased reserves and restricted their lending in fear of bad loans made on real estate. Money centers felt the effects of bad real estate loans as well as loans made on less-developed countries (LDCs).

During 1990 and 1991, the Resolution Trust Corporation, an agency of the federal government, managed the bail-out of insolvent savings and loan institutions (S&Ls). S&L investments in junk bonds and real estate, which are guaranteed against loss to depositors by federal depositors insurance, now imperil an estimated 600 to 800 of the remaining 2,500 S&Ls. Over 700 S&Ls have already been liquidated. Current estimates of the cost are now over \$500 billion. Continuing recessionary impacts could cause this number to grow as real estate investments continue to lose value.

The principal industry trends include extension of functions into multiple business lines, acquisitions and mergers, and new offerings of individual products and services. The industry goal is full relationship-based banking with brokerage services, investment advice, money markets, and other nontraditional services all available to the customer. All of these trends directly affect the structure and function of information processing.

Among the impacts on the financial services sector has been an apparent interest in returning to basic values. One aspect of the interest in full-relationship banking has been a growing interest in branch-office automation.

Following years of developing sophisticated (centralized) systems, many banks are focusing on returning to community (branch-office) banking. This return is affecting information systems in various ways, as described below.

2. Impact on Information Systems and Services

Consolidation has continued in the banking industry—motivated, on the one hand, by declining profitability of commercial banks and on the other by the crisis in the savings and loan industry.

Consolidations and the demand for an increasing range of services put enormous stress on in-house IS staff. Highly specialized experience, which may not be available in small institutions, is needed for short periods. The average life cycle of systems is becoming shorter, so more frequent upgrade or replacement is essential.

Financial managers need more information and supporting analyses to make the decisions that will keep their firms competitive. Portfolio and credit services require customer services and account managers to interact with most of the previously independent departments of financial institutions.

Distributed data processing will need to operate with central data processing applications, employing standardized network protocols and systems architecture. New systems must provide PC user interfaces for access to central computer facilities to allow combining of office tasks, financial processing, and service analyses by a single manager.

Expansion of access to a widening range of internal data by users and customers increases the demand for data management. Control, integrity, and security of frequently sensitive data are major concerns of banking and financial management.

Demands for greater cost control, improved profitability, and improved customer service continue to place strains on the information systems

staff. One key result of these demands is an increasing acceptance of the outsourcing of systems operations as an effective alternative to internal management of the changing IS environments.

3. Outsourcing Potential

The potential for systems operations in banking/financial institutions has increased slightly from the previous year. It is still the largest single projected market over the 1992-1997 period. The positive and negative external pressures affecting information systems are listed in Exhibit IV-1.

EXHIBIT IV-1

Key Factors in Banking/Finance Industry

- Positive
 - Accelerated consolidation of commercial banking operations
 - Continued savings and loan failure and retrenchment
 - Strong cost pressures continue
- Negative
 - Strong internal staff in large banks
 - Unique industry knowledge required
 - Complex multi-hardware environment growing
 - Acceptance of outsourcing slows

New opportunities arise in commercial banking because of the increased pace of mergers in that sector. Some of the largest mergers will not be likely candidates for outsourcing vendors, however, unless the vendor can assimilate large number of excess staff. In the case of the Bank of New England/Fleet Norstar acquisition, for example, approximately 2,000 employees in IS and operations were laid off. When Bank of America completed its merger with Security Pacific, 1,500 employees of Security Pacific's data center lost their jobs.

Demand continues to develop for complex communications solutions to manage the telecommunications networks of individual components of the new corporate entities being formed by mergers and acquisitions in the commercial banking sector. Communications technology with lower error

rates is particularly important as financial companies extend their electronic transactions across the country and around the world. National networks of ATMs and debit cards are a competitive necessity. Systems operations services have to fit within this complex environment. While manageable in mid-sized banks, this can be a serious challenge in the largest banks.

The attempts by the Resolution Trust Corporation to effectively salvage the operating assets of ailing savings and loan institutions has meant good opportunities for several outsourcing vendors.

Applications software packages continue to be in demand in this industry. The availability of vendor-developed and vendor-maintained products are attractive to mid-sized banks that are overwhelmed by applications development and maintenance requirements. The recent alliance between Andersen Consulting and Systematics is one indication that vendors are paying attention to user demands. The success of the niche players like Systematics and FIServ illustrate that good applications software is a key to success in this industry.

In a community known for its extensive executive network, the news of one success spreads rapidly and makes it easier for the next CIO/CFO to choose outsourcing as an alternative. Conversely, when one senior executive, such as Michael Zuchini at Fleet Norstar, says outsourcing is not for him, it can slow down the market demand, at least temporarily.

The banking/finance industry requires highly sophisticated industry-specific knowledge for successful systems operations management. Those vendors that are able to combine advanced technology with industry-specific applications knowledge will be successful. Vendors targeting the larger banking/financial services institutions must be in a position to demonstrate proven capabilities and to overcome entrenched operations organizations.

4. Outsourcing Forecast

Savings and loan problems, consolidations in commercial banking, and a major problem with both junk bond and third world debt all served as a brake on the IS banking market in general. The outsourcing systems operations sector continued to grow at a steady rate, however, because each IS dollar must be more effectively spent. Outsourcing provides an avenue to affect cost savings, so more financial institutions will be evaluating and choosing outsourcing as a viable alternative to internal IS development.

Exhibit IV-2 illustrates how the outsourcing market will grow at a 19% CAGR in the period 1992-1997. That growth rate will cause the market to increase from \$2.5 billion in 1992 to \$6.0 billion in 1997. This growth

represents a large increase in absolute dollar expenditures, though the base of expenditures is already so high that the percentage of growth rate is only slightly above the overall systems operations market growth rate of 18%.

EXHIBIT IV-2

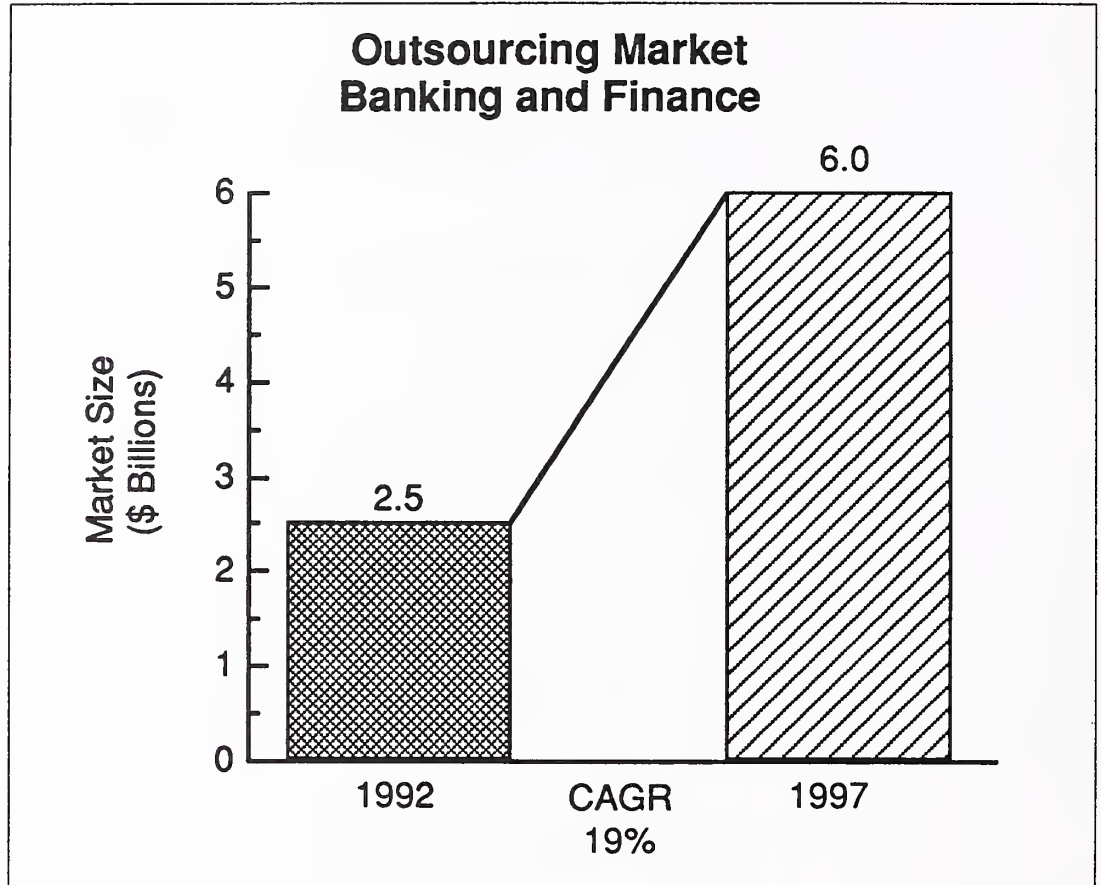


Exhibit IV-3 presents the forecast for the banking and finance industry in terms of applications and platform operations over the 1992-1997 period.

EXHIBIT IV-3

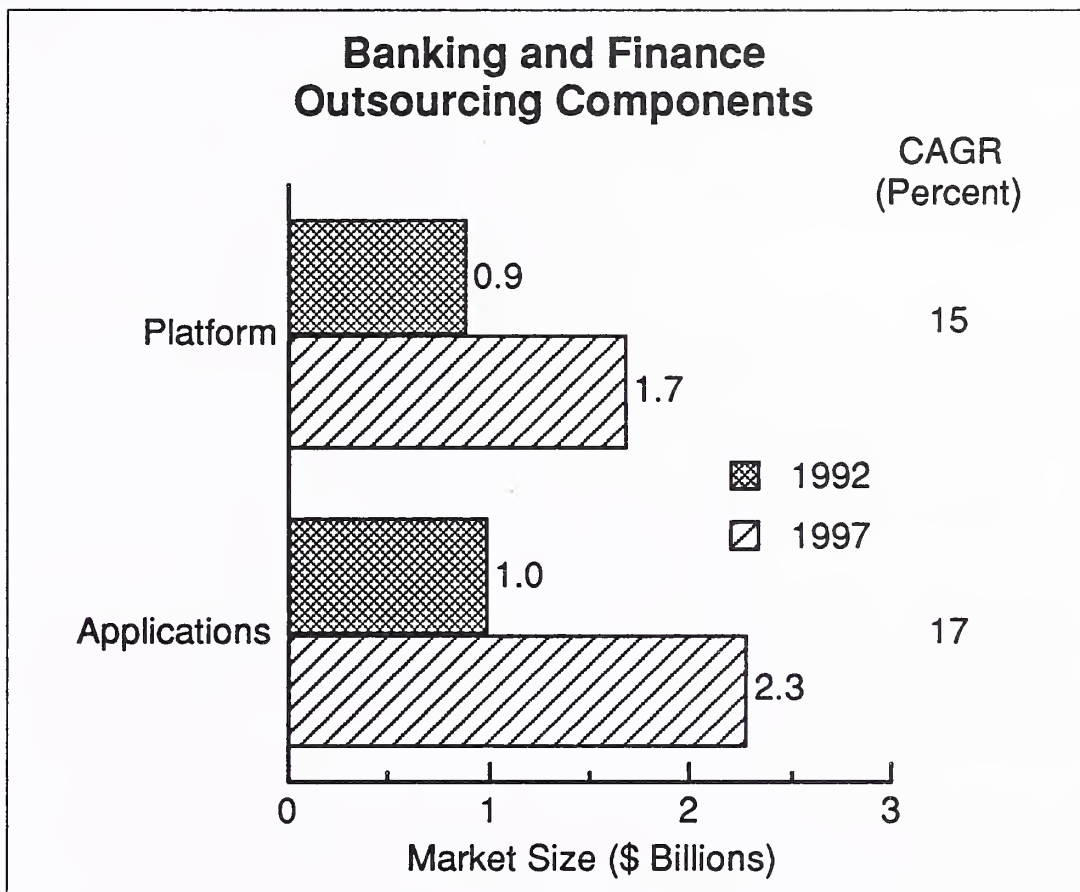
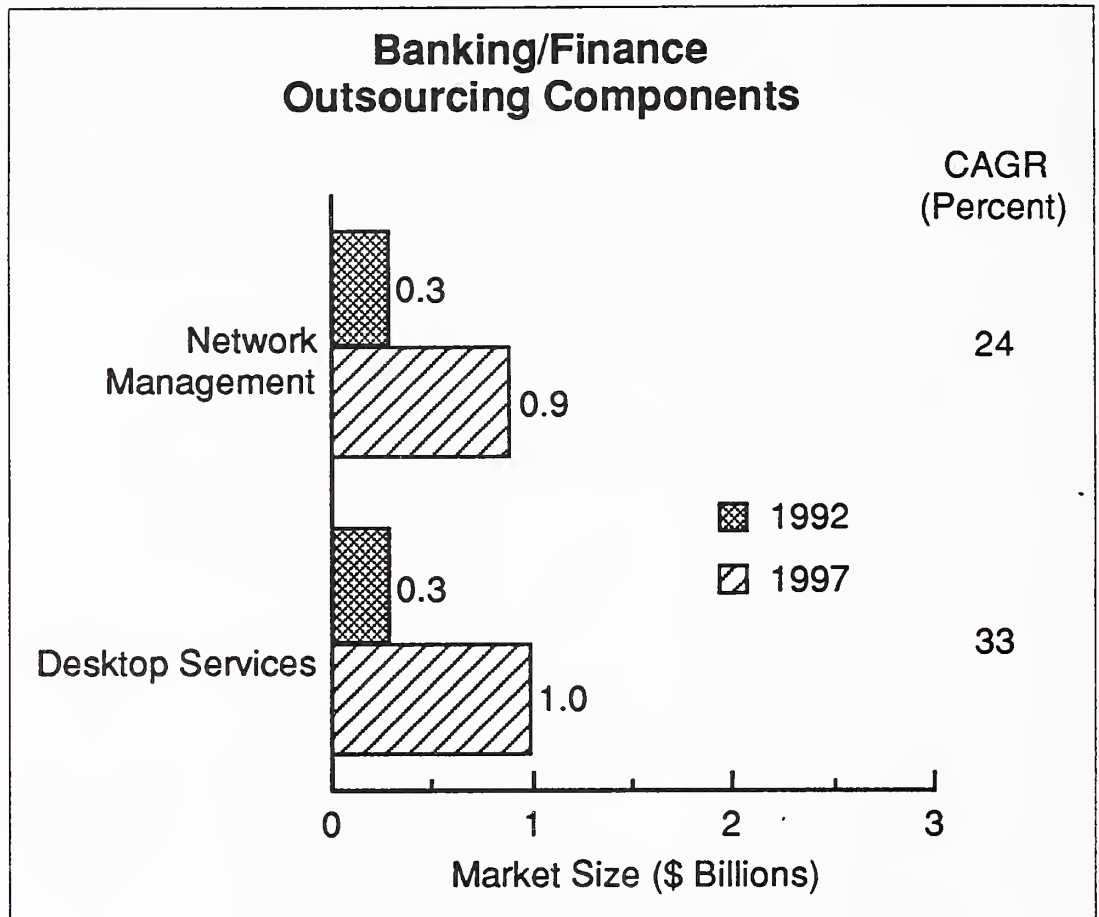


Exhibit IV-4 presents the forecast for the network management and desktop services outsourcing components of the banking and finance vertical industry. For the period 1992 to 1997, network management is expected to grow at a CAGR of 24%, while desktop grows at a CAGR of 33%. These two relatively new segments of the outsourcing market are expected to grow at an accelerated rate because of the consolidation activity mentioned above and because more users will be empowered with computing capacity that has to be interconnected with the central repository of financial information.

EXHIBIT IV-4



The banking and finance sector is serviced by two types of vendors. Broad-based vendors such as ISSC and EDS are mentioned frequently by bank IS managers as potential outsourcing vendors. EDS and ISSC have scored major contract wins repeatedly. Another generalist, Perot Systems, has had success in the banking community with major contracts at NCNB Corp. and First American Bankshares. Prominent also are the vendors that specialize in this market segment, such as Mellon Bank, Systematics, SEI, Fiserv and First Financial Management Corporation (FFMC). These specialized vendors should retain a large portion of this market because of their in-depth knowledge of the business and proprietary banking software offerings. The broader based vendors are positioning themselves to provide the lowest operating costs. They also appeal to their prospects with promises to stay abreast of technology and enhance the operating environment as part of the contractual agreement.

B

Federal Government

This sector includes defense and civilian departments, independent agencies, and public corporations but excludes weapons, platforms, and classified applications such as embedded computer systems, intelligence, and tactical command and control systems.

1. Industry Forces

The current administration has not developed an effective campaign for resolving mounting domestic issues. Federal resources cannot adequately address the problems without threatening federal government fiscal health. In addition, the recession has pushed many state and local governments into both budget cuts and tax increases. The 1991 joint budget package to reduce the deficit over the next five years actually increased taxes, with no significant expenditure reduction except to block the effectiveness of the Gramm-Rudman-Hollings Act.

Most of the data in this section was gathered as part of INPUT's ongoing Federal Information Technology Market Program and Federal Information Technology Procurement Program. Trends, market size, and growth rates are based primarily on government budgets and information resources management (IRM) plans, in-depth interviews with federal agency officials, and the vendors serving the federal government industry sector.

The world and the U.S. federal government are being impacted by a range of forces that make the future more difficult to forecast. The net effect of the forces discussed below is a pronounced reduction in the growth rate of federal spending in a number of subsectors, some of which directly affect prospects for the information industry.

The military establishment is facing a substantial reduction since the cessation of the Cold War with the Communist Bloc and democratization of the Eastern European countries and the U.S.S.R. However, strategic policy changes will be delayed by difficult political choices. The large and increasing federal budget deficit continues to cause agencies and Congress to carefully review all proposed major IT programs.

The U.S. trade imbalance continues to depress the value of the dollar. Continued farm subsidies will impact budget reduction moves. The continuing depression of the real estate market, unregulated investments by S&L banks, and the inability to buy back junk bonds for leveraged buyouts have fueled a downward spiral of the economy. Economists agree that the U.S. economy and much of the world economy is in the midst of a recession of an uncertain duration. Business cutbacks and failures will appear as lost tax dollars, severely retarding any federal budget support. Increased unemployment further reduces tax revenues and creates additional expenditures under entitlement programs.

2. Impact on Information Systems and Services

Federal IS budgets aim toward greater functionality of information resources. Most IS organizations are committed to maintaining high-quality support of their agencies, but continually face rising service-level demands, obsolescence of resources, and rising maintenance costs. A major

share of existing software was custom-developed by contractors and in-house staffs to satisfy applications that have since been extensively modified. These legacy systems are difficult to maintain and modify.

Hardware and software maintenance will continue to impact the availability of IS staff to do new applications development and to staff internal projects. Demands for technical assistance to end users equipped with PCs or advanced workstations are also reducing staff availability for new projects.

The government is in transition—from collecting and processing incredible volumes of data to the presentation of more readily understood information to support decisions. IS must acquire, store, and permit access to the enormous collection of information essential to agency operations and the public. Industry standards, like POSIX and GOSIP, support this transition, enabling interoperability and compatibility. Standardization of communications protocols will also continue. The federal government also produces de facto standards through mega-procurements.

Another evolutionary but frequently debated government process is the acquisition method used for information systems and services. Risk containment and cost control needs support increased use of fixed-price contracts and closer scrutiny of procurements by vendors and oversight agencies. The Defense Department and other agencies impacted by protest delays are pressing for utilization of commercial buying practices. However, to date, they have made little progress.

The Defense Department is evaluating the potential savings of a massive consolidation of all of the data processing functions. This has caused a great deal of short-term uncertainty and postponement of many programs. If this consolidation does occur, it will create more opportunities. It is very difficult for the government to attract and retain the personnel capable of managing and performing major programs.

3. Outsourcing Potential

As mentioned earlier, the federal government employed systems operations vendors early on. The terms GOCO (government-owned, contractor-operated) and COCO (contractor-owned, contractor-operated) were used in this market to describe examples of facilities management contracts. Those terms have now been replaced by the term *mission-contracting*, which describes the environment in which a vendor assumes total responsibility for an agency's data processing operation, or at least the operations for a major process or function within that agency. The term *outsourcing* is also being used increasingly.

The lack of skilled technical staff in the government sector has long been attributed to the gap in pay scales between the federal sector and commer-

cial enterprises. This problem makes outsourcing an attractive alternative for agencies looking to upgrade and enhance their IS capabilities to better serve the public, which is requiring more and more services.

Exhibit IV-5 presents these positive factors as well as some negative market factors. Budget restrictions continue to plague the procurement plans of the agencies and cause significant uncertainty as to what projects will actually be funded and at what levels. The problem is particularly acute in the Department of Defense (DoD) segments of the market given the new CIM initiative being championed by Paul Strassman. Defense budgets are being cut back drastically and a number of major systems procurements are being consolidated or delayed. On the civilian agency side, budget cuts may actually generate more funds for use on SO projects, but that is still several years in the future.

EXHIBIT IV-5

Key Factors in Federal Government Market

- Positive
 - Mission-contracting trend
 - Technical staff shortages
 - Shared implementation risks
 - Service demand increases
- Negative
 - Long-term uncertainty
 - Deficit-limited budget
 - Extended procurement schedules

Not only is Congress asking more questions prior to procurement, the vendors themselves are protesting many procurements after award, thanks to the Competition in Contracting Act and the adversarial environment it has created. These postprocurement protests have greatly lengthened the procurement cycles in the federal sector. This, in turn, makes it more expensive to bid in this market.

Agencies are looking for integrated systems that will improve the productivity of both staffs and facilities, without significant operating budget increases. Existing personnel policies cause continued shortages of in-house technical staffs. Implementation and systems to meet the service demands operating support must come from commercial organizations.

Since there is always an element of uncertainty associated with the implementation of new information technology and higher capacity resources, the federal agencies moved to a policy of sharing implementation risks with the successful vendor. Despite the risk of new service demands, federal procurement moved to the increased use of fixed-price contracts.

4. Outsourcing Forecast

The forecast for this sector has been increased again from last year's figure of 9% because of the award of several major long-term contracts at HUD and the FAA and expected awards at the Department of Treasury and other agencies. The new projected growth rate for the period 1992-1997 is 13%. This will result in a projected revenue of \$2.0 billion in 1992, growing to \$3.7 billion in 1997, enough to make this market segment the third largest in 1997. This is illustrated in Exhibit IV-6.

EXHIBIT IV-6

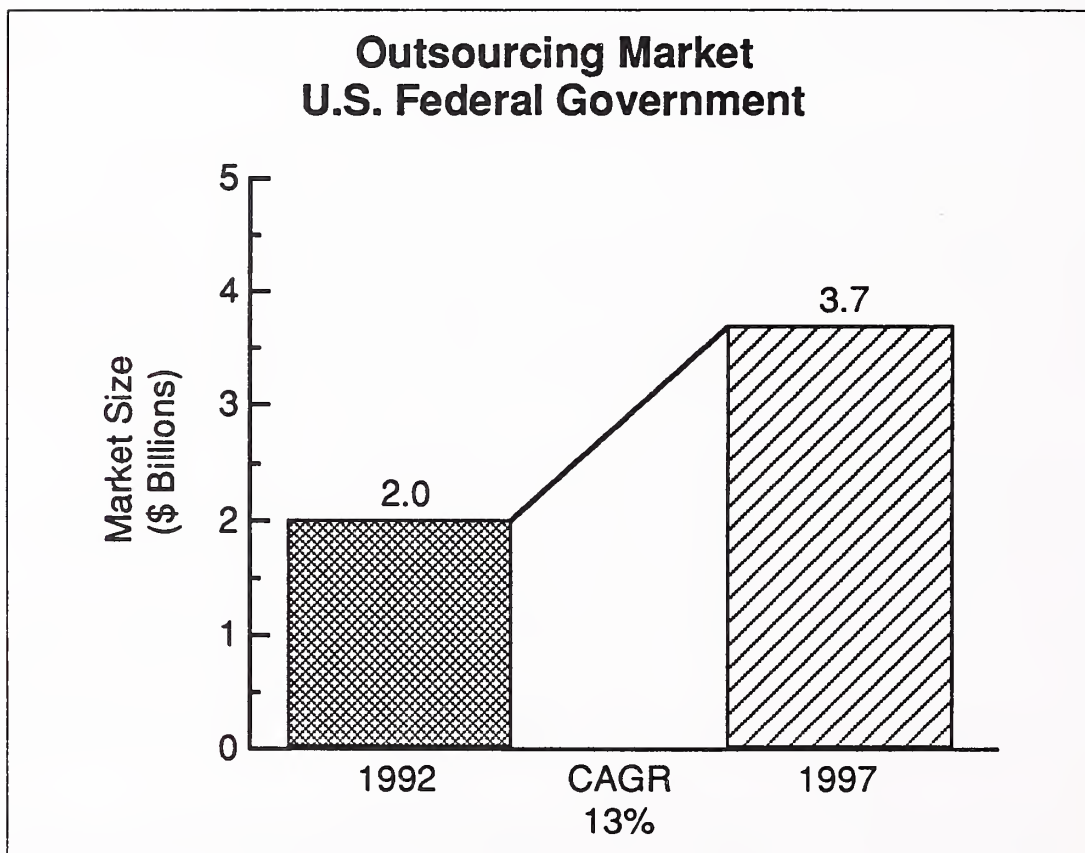


Exhibit IV-7 illustrates how the federal government continues to be heavily weighted toward applications systems operations. A higher proportion of federal government outsourcing contracts involve both processing and software than outsourcing contracts in many other industry markets. This tendency is expected to continue, with the trend towards applications operations accelerating in the next few years.

EXHIBIT IV-7

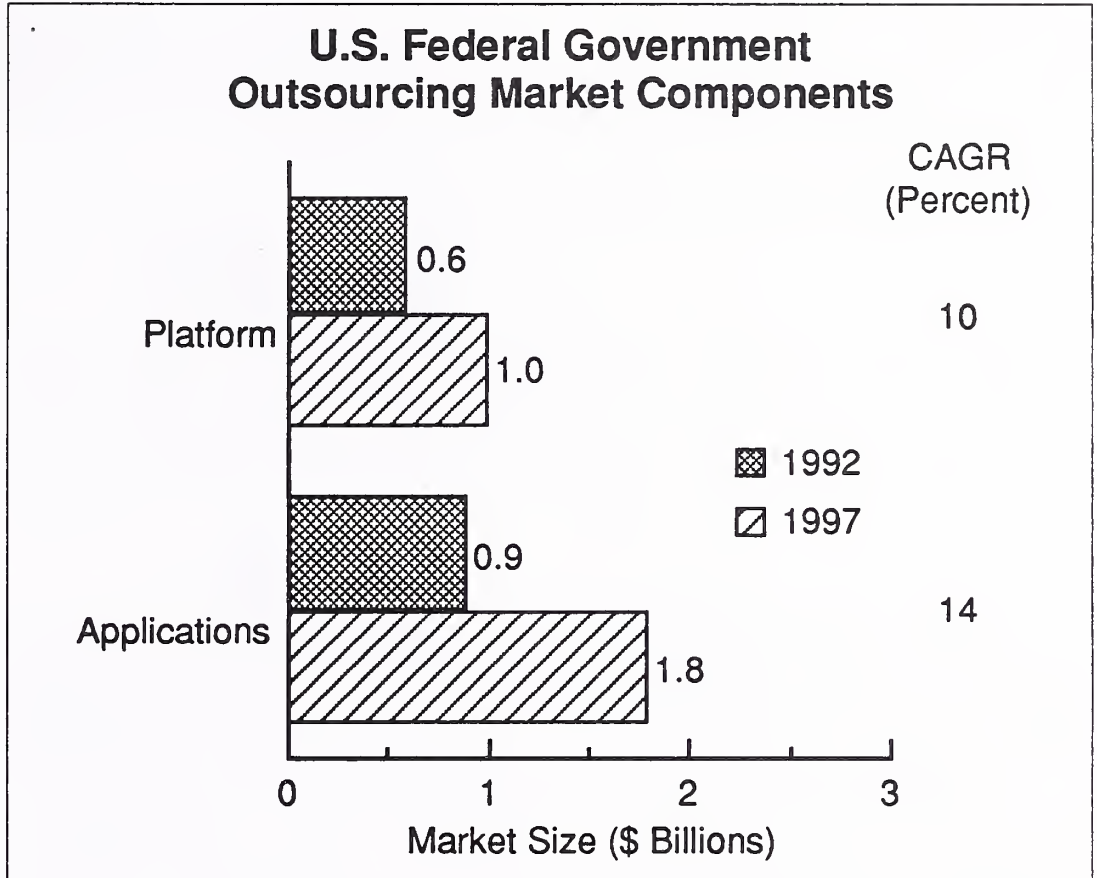
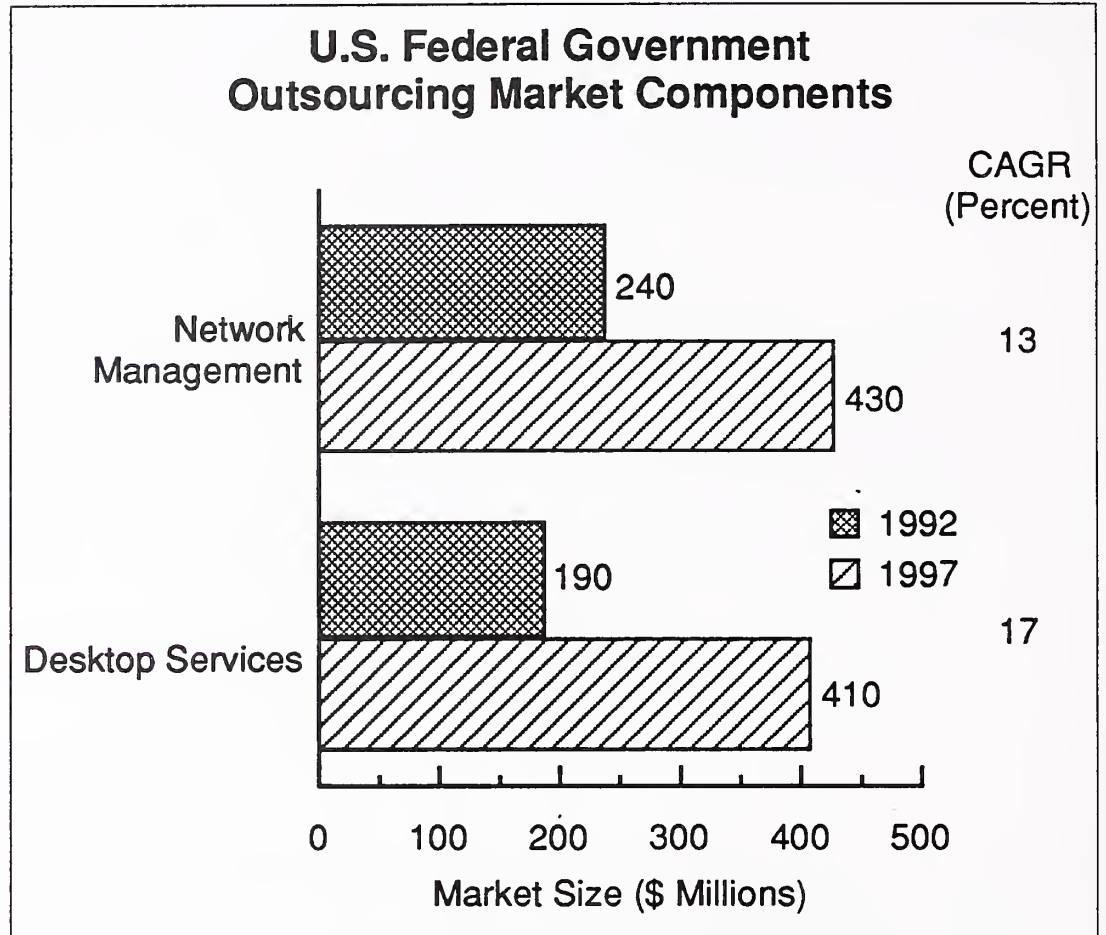


Exhibit IV-8 indicates that the federal government market is also showing healthy growth in the newer outsourcing components. Desktop services is particularly healthy, growing at a 17% CAGR over the five-year period. The network management rate may, in fact, be even lower than we currently project since FTS-2000 continues to be the major vehicle for network management for the federal government. Demand is increasing, however, and some incremental growth will take place in service levels that will be greater than the expenditures demonstrated.

EXHIBIT IV-8



Most of the major outsourcing vendors who do not concentrate on niche markets are represented in the federal market because the contract award values are very large. EDS, IBM, and DEC have existing major contracts. Andersen Consulting, American Management Systems (AMS), and SHL Systemhouse are trying to enter the market through their professional services credentials. SAIC, Martin Marietta, and Boeing Computer Services have the majority of their outsourcing contracts with federal agencies, and all are expected to continue to focus on that segment. CSC was in the same category until its recent move into commercial markets, which started with the General Dynamics award.

Alliances are becoming more common for major outsourcing bids because of the complexity of the requirements. This trend to form alliances started in the federal sector, and it will probably become common in the commercial sector also.

C

State and Local Government

This sector includes city, county, regional/district, and state government bodies, particularly those involved with public safety, highways, welfare, education, health and social services, and sanitation.

1. Industry Forces

Much like the federal government, state and local governments have come under greater financial pressures as requirements for services increase without corresponding improvements in the tax base. Nevertheless, vendors view this sector as an attractive alternative to the shrinking federal sector, one that plays by the same rules.

If past contracting patterns continue, 45% of state and local government expenditures will come from state government, 30% from cities, 14% from counties, and only 11% from districts and other authorities. Staff retention problems, increased demands for services, and new technology expertise are driving dependence on contractors versus internal staff personnel.

Federal programs and initiatives also impact state and local government purchases of information technology. These purchases are usually not accounted for in state and local government budgets. The National Crime Information Center 2000 initiative, sponsored by the FBI, will allow states to purchase workstations and other equipment necessary to participate in a national automated data base system to identify, match, and analyze criminal data.

The Department of Health and Human Services is linking 52 sites nationwide through its Child Support Enforcement National Communications Network (CSENET). Case information will be standardized and shared across state boundaries.

Industry vendors expect that the Department of Transportation's (DOT's) Land Transportation Program, the Federal Highway Authority, the EPA, and the Targeted Cities/Alcohol-Drug Abuse programs will offer additional opportunities for vendors in the state and local market.

One-quarter of state IT expenditures will be expended for network services requirements. State governments are increasingly networking new on-line systems. Network needs between state offices and services are greater in states having large geographic size and/or dispersed populations.

2. Impact on Information Systems and Services

The mission of information systems departments in state and local governments has broadened considerably in recent years. Despite overall budget limitations, the investment in IT is viewed by many states and municipalities as an investment enabling overall cost savings in performing required functions or providing necessary services.

Public demands for new services from governments continue to mount in the areas of health and social service; tax and fee collection for licenses;

court and criminal justice automation needs; real estate construction/inspection/assessment data; voter, vehicle, and business registration; and public safety and civil aid services.

Older batch processing government information systems and many manually performed processes are being replaced by interactive on-line systems. LANs and WANs are replacing existing standalone workstations inter- and intra-agency-wide. The downsizing trend from mainframe processing to microcomputers is also emerging in this market.

Connectivity between systems has been resolved at state and large metropolitan centers by reliance on commercial networks from the common carriers. Larger states, such as New York, Michigan, Illinois, and Washington have implemented integrated (statewide) networks, some of them operated by vendors.

Cutbacks in staff and the inability of government agencies to remain competitive with private industry in salaries for technical personnel have resulted in a shortfall of qualified in-house staff. This shortage creates a natural opportunity for outsourcing vendors.

3. Outsourcing Potential

The shortage of qualified project managers and technology specialists on in-house staffs will substantially increase outsourcing prospects in this market segment. Agency executives and governing bodies want systems that can share data, provide planning services and information on public issues, ensure the integrity and security of personnel data, reduce current maintenance backlogs, and offer more timely budget and financial data.

Though federal budget cuts discussed earlier will have major effects on state IS budgets, the pent-up demand for new services and the relative obsolescence of the existing services in many states will force the agencies to devote their limited IS resources to new systems. The outsourcing vendor that has experience in a particular delivery system, be it welfare payments, motor vehicle registration, or health insurance, will look particularly attractive to states and counties faced with the need to rapidly upgrade their own operations.

Unfortunately, this market is large (82,000 government units) and geographically dispersed, presenting a significant problem for marketing and sales activities. The wide separation of opportunities also appears to foster greater dependence on local vendors that may lack adequate support staffs.

Despite the urgency of the need, many vendors find it difficult to compete because the roles and influence of officials, IS management, and advisory groups are not always clear, and some decisions seem arbitrary or politically motivated.

These negative factors are only aggravated by the current reduction in the federal budget, which, in turn, continues to impact the block grants passed on to the states. Exhibit IV-9 illustrates both the positive and negative factors at play in this market segment.

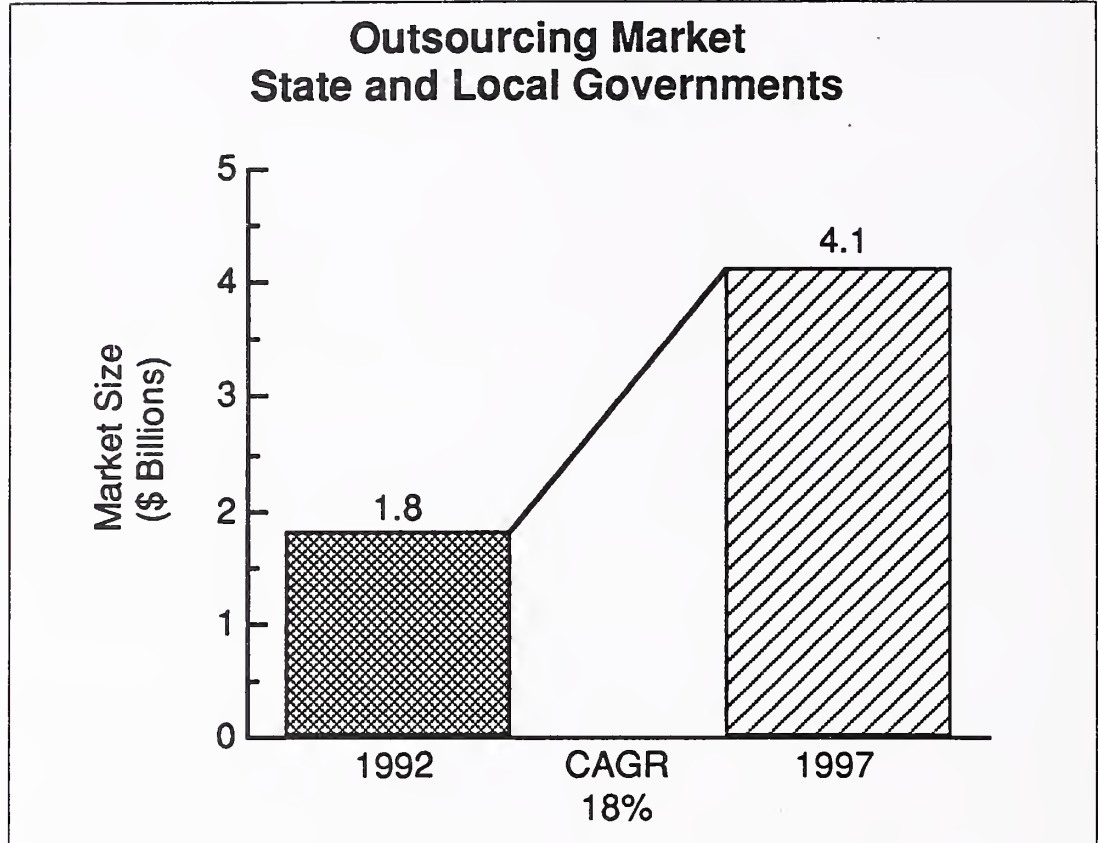
EXHIBIT IV-9**Key Factors in
State and Local Government Market**

- Positive
 - Increasing network and resource-sharing demands
 - Shortage of qualified in-house staff
 - New program and service demands
- Negative
 - Dispersed market (82,000 government units)
 - Emphasis on local vendors
 - Federal budget reduction impact
 - Federal revenue sharing ended

4. Outsourcing Forecast

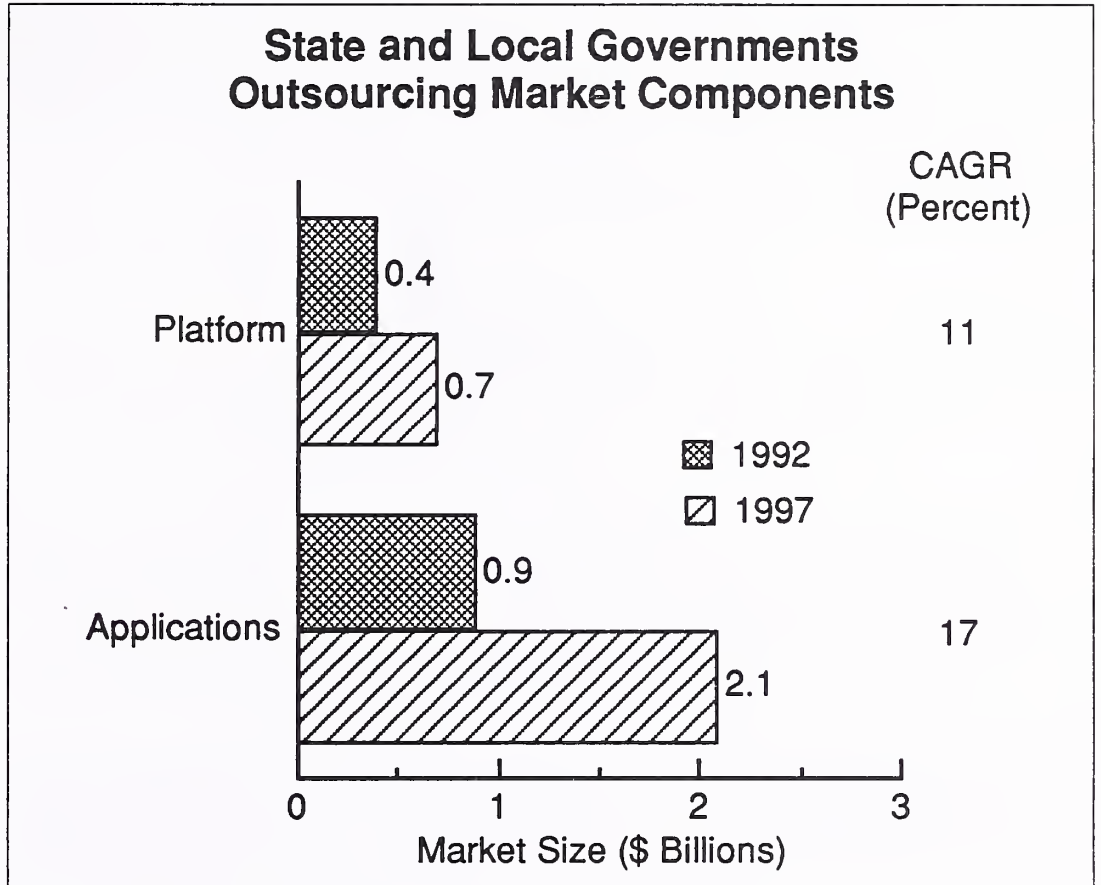
Exhibit IV-10 shows that the growth rate for the state and local government sector will be 18% overall for the period 1992-1997. The uncertain future of funding through state and local taxes will not greatly limit growth over the period. The need for outside expertise and more efficient processing than outsourcing vendors can supply does exist, and the decision will be made to contract for services more frequently.

EXHIBIT IV-10



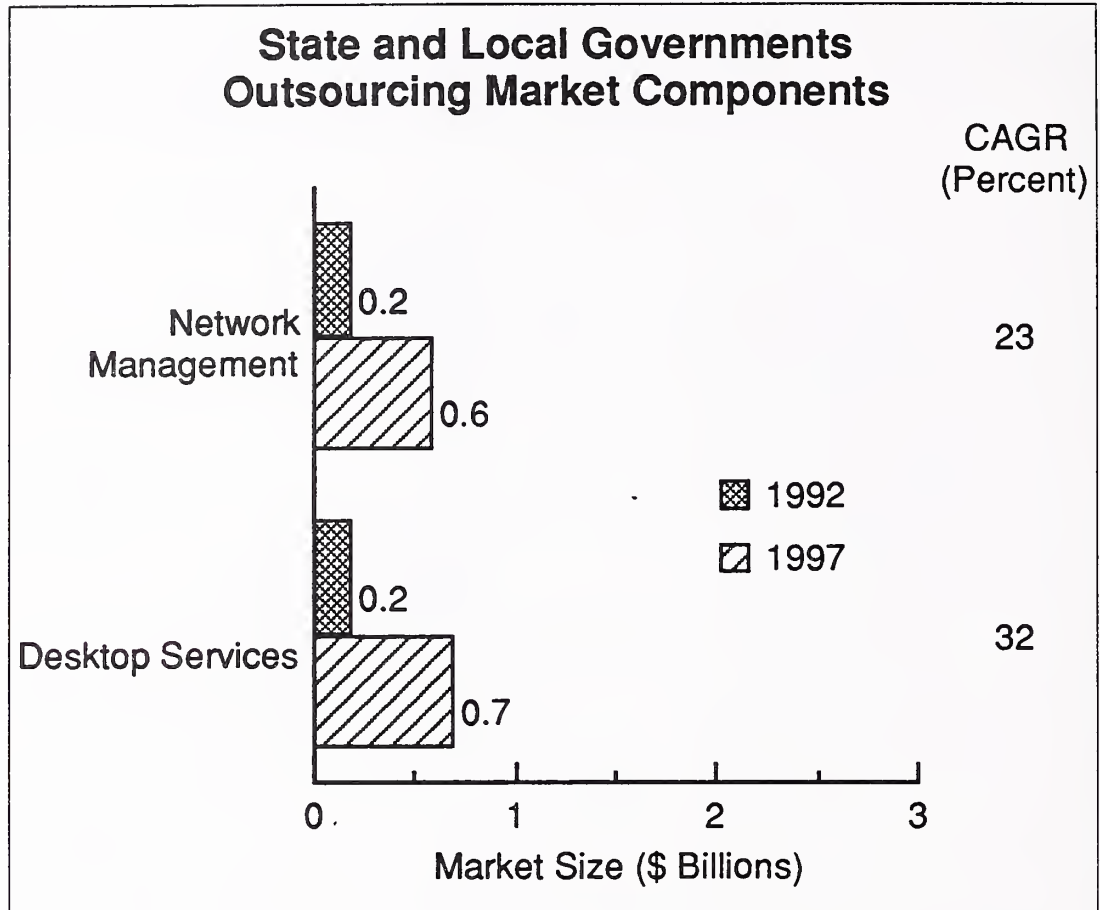
There will be a marked trend toward more applications operations over the 1992-1997 period, as seen in Exhibit IV-11. The platform systems operations vendors in this industry will begin assuming responsibility for software as clients find it more difficult to recruit staff with technical skills and clients begin to appreciate that they can all share common software from state to state in a number of applications areas.

EXHIBIT IV-11



There is an even more pronounced trend to outsource the network management and desktop components of the IS functions as illustrated in Exhibit IV-12. As mentioned earlier, a number of larger states have already outsourced their network. The proliferation of PCs and workstations will soon become a management nightmare for public sector IS management, and they will turn to vendors, some locally based, for help.

EXHIBIT IV-12



EDS, SHL Systemhouse, and Systems and Computer Technology (SCT) have traditionally been successful in this marketplace and should continue to be. Andersen Consulting is parlaying systems integration work into longer term systems operations contracts. MCI and Boeing have been successful in the network management area and can be expected to continue there. Computerland, JWP, and Sears are best situated to take on desktop services at the state and local level because of their wide geographic dispersion.

D

Health Services Industry

This sector includes physicians, dentists, hospitals, medical and dental laboratories, nursing homes, outpatient care facilities, and allied services. It excludes health insurance and medical claims processing, covered in the insurance industry sector.

1. Industry Forces

Hospital care is still the dominant category of costs even in an environment where occupancy rates continue to fall. To contain costs, the length of hospital stays has been shortened by shifting to outpatient care and home health agencies (HHA).

The federal government, Blue Cross/Blue Shield and other insurance companies, and even large employers are pressuring health care providers (physicians/dentists, hospitals, laboratories, nursing homes, outpatient care facilities) to reduce costs, which continue to rise faster than the consumer price index (CPI). The rising cost of new treatment technologies, an ongoing shortage of professional nurses, and malpractice insurance costs all have major impacts.

Coupled with escalating costs is a decline in the number of people with health insurance. There are an estimated 37 million people without health insurance. An additional 21 million are underinsured. Some form of service is necessary for these individuals should they become ill.

With the continuing cost escalation, the federal government has taken an increasingly active role in identifying alternatives to control costs of providing health care. The government has established prospective payment systems (PPSs) in diagnostic-related groups (DRGs) and shifted reimbursements from a cost basis to a DRG basis.

With the escalating costs, a declining number of people with insurance, and the emergence of diseases such as AIDS that take an increasing toll on health care facilities, providers are forced to seek ways to provide more services at lower unit costs.

2. Impact on Information Systems and Services

Attention to the need for and cost of providing health care creates significant pressure on information systems professionals. There are a number of trends and issues of particular importance to industry vendors.

One recent trend is finding new applications for systems to serve physicians' and nurses' clinical needs—especially care planning, treatment administration, and record keeping—in ways that boost efficiency and cut costs. Cost-cutting measures are a particular need in nursing, where costs can vary substantially when overtime is required.

On the revenue side, documenting care is a closely related pressure, as Medicare now requires care to be documented to be reimbursable. Private payers now review and challenge charges regularly. New systems must play a significant role in addressing this need. Similarly, as electronic billing (through electronic data interchange) becomes more accepted, systems that link payment and patient care systems will be needed.

Documented care-based reimbursements demand current, on-line handling of patient information on a cost rather than an expenditure basis. Separate systems for financial operations, patient care, nursing management, and laboratory management are being combined to reduce data entry redundancy, error rates that accompany constant re-entry of the same information, and the wasted time that occurs with both.

3. Outsourcing Potential

The demand for new support services in hospitals comes at a time when IS departments are facing downsizing pressures in the form of budget cuts and staff shortages. No money is available for capital investment to upgrade obsolete equipment. Lacking internal resources to develop systems, hospitals and other medical organizations are looking to applications operations vendors that provide packaged applications software as part of their service.

Medical institutions that have recently entered into outsourcing agreements stressed their requirement that the proposed solution contribute immediately to cost savings. Outsourcing vendors will need to provide creative financing and a strong case for the cost savings that will result from outsourced operations.

On the negative side, a number of factors are also at work. These, as well as the positive factors, are outlined in Exhibit IV-13.

Hospital management is generally reluctant to deal with any new vendors. They prefer to deal with vendors who have demonstrated industry experience and success, either in the processing or the applications area. Given the tight financial constraints imposed on hospital management because of escalating costs, the outsourcing vendors will have a difficult time convincing systems buyers, unless they are well regarded in the industry.

Hospital management companies such as Sentara, Hospital Corporation of America, and Humana are becoming significant players in the industry as they continue to take over the management of private hospitals. They have large information systems operations that are very in-house oriented, so even this growing segment of the industry will be hard to penetrate.

Finally, the continued downsizing of many private hospital information processing departments, from mainframes to mini- and microcomputers, is reducing the potential market for systems operations. When a hospital has no mainframe processing to outsource, there is little potential for a systems operations vendor.

EXHIBIT IV-13

Key Factors in the Health Services Industry

- Positive
 - Pressure to contain medical service costs
 - Growth in departmental systems
 - Large number of medium-sized hospitals
 - Need for new outpatient services
- Negative
 - Need for industry knowledge
 - Limited in-house staff experience
 - Bottom line financial limitations
 - Downsizing of internal hardware

4. Systems Outsourcing Forecast

In spite of the negative factors mentioned above, the market for outsourcing operations in the health services market is expected to grow at the rate of 17% in the period from 1992 to 1997, as seen in Exhibit IV-14.

This projected growth rate is slightly lower than that in INPUT's last report (18%). The continuing pressure to reduce costs, and the need to track patient-related data even more extensively, have tempered the growth. A countertrend to downsize operations has left many internal information processing organizations with only micros or minis to manage, and they have not as yet turned to outsourcing vendors for desktop services.

EXHIBIT IV-14

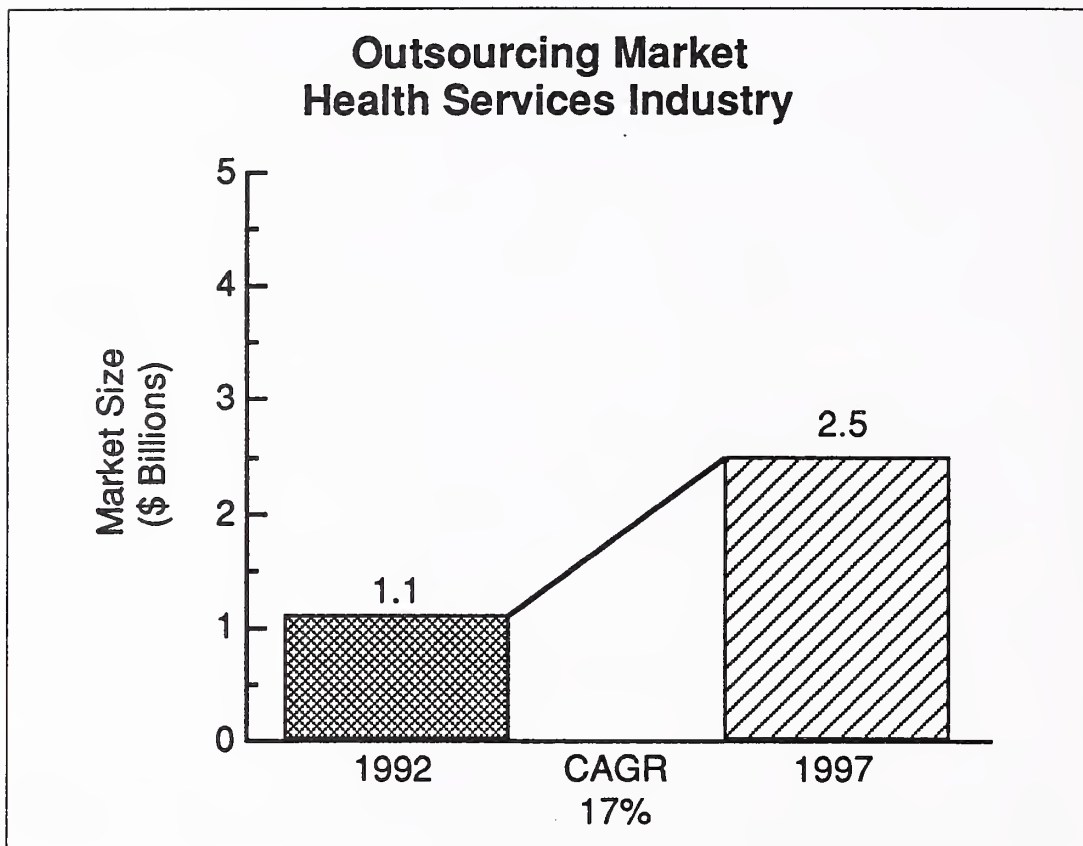
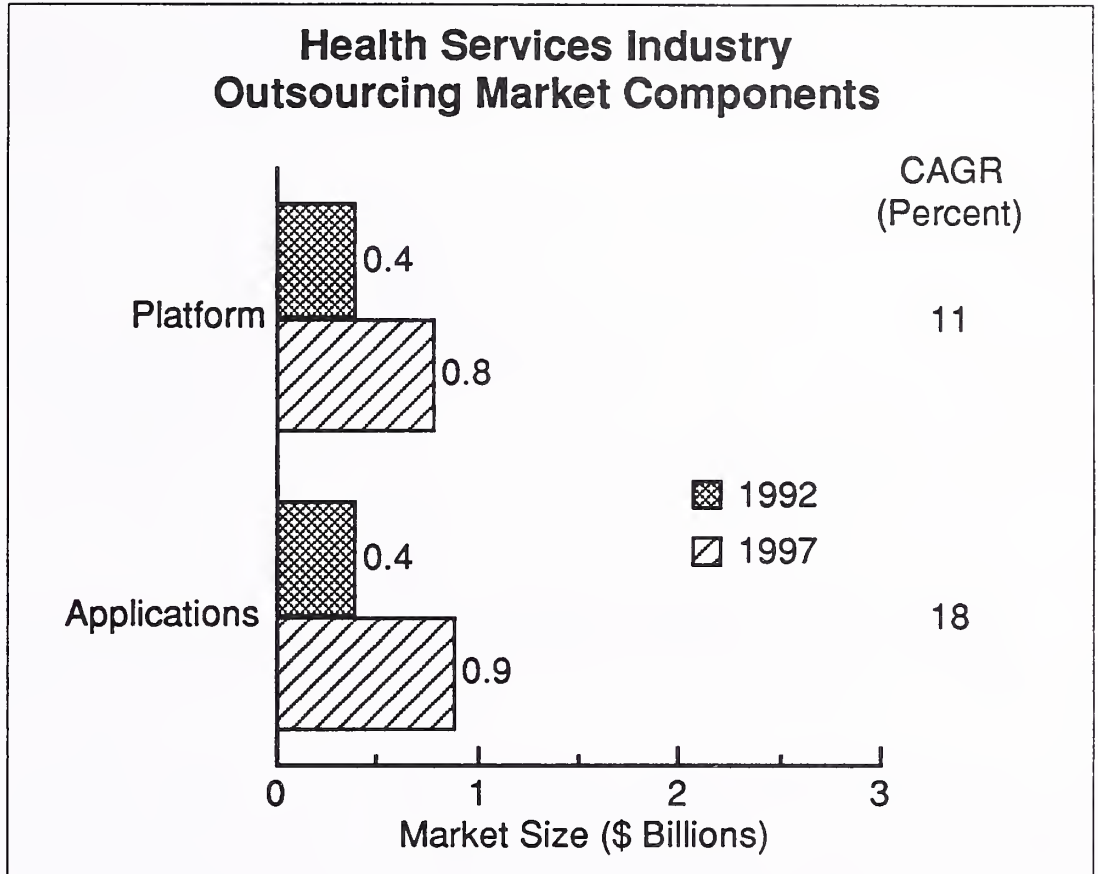


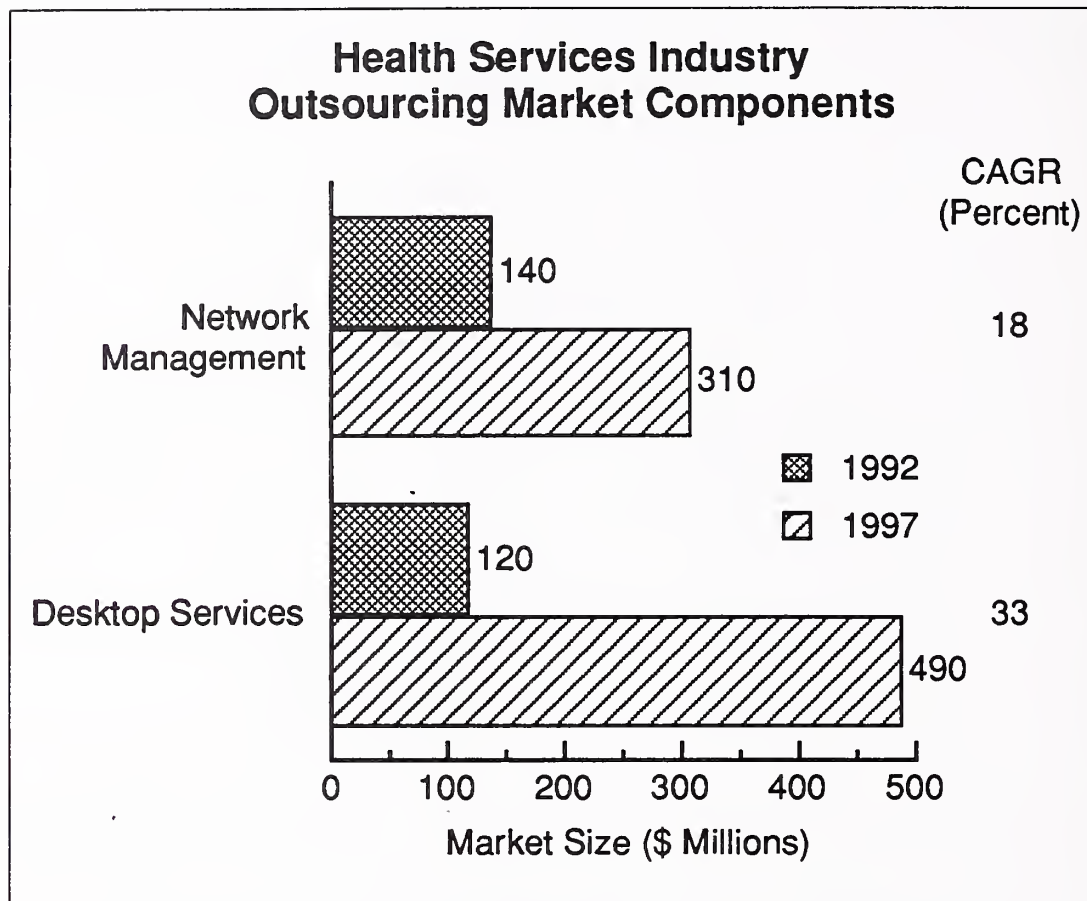
Exhibit IV-15 shows the forecast for the 1992-1997 period for the health services industry in terms of applications and platform operations. Outsourcing vendors will continue to provide both processing and applications expertise to the prospects that, in turn, feel increasing pressure to downsize their staffs and rely on vendors for all of their outsourcing needs.

EXHIBIT IV-15



As Exhibit IV-16 illustrates, the growth of network management (CAGR = 18%) in the health services sector is tempered by the fact that not many hospitals need to share much of their operating data with hospitals in other parts of the country. Desktop services should grow rapidly, however (CAGR = 33%), because of the previously cited tendency to downsize in more hospitals. Eventually, someone will be needed to efficiently manage those proliferating workstations and PCs.

EXHIBIT IV-16



Prominent systems operations vendors in this industry include Shared Medical Systems, Cycare, and American Express Medical Systems. All are specialists in health care processing. In addition, EDS and Perot Systems obtained large outsourcing contracts for systems operations from hospital management companies in 1991. Yet the two largest hospital management companies, Hospital Corporation of America (HCA) and Humana, themselves do processing for noncaptive hospitals, and therefore, must be considered outsourcing vendors. In these cases, the hospitals usually have had an earlier affiliation with HCA or Humana.

E

Discrete Manufacturing Industry

The discrete manufacturing sector includes a wide variety of fabrication or assembly-type activities. Discrete manufacturing is a disparate collection of narrowly focused vertical markets, each with its own specific characteristics. Care must be taken not to view the sector forecasts as referring to a homogeneous market.

Analysts combine specific products into major industry groups, such as aerospace, automotive, metal fabrication, electrical, electronic, telecommunications, textiles, industrial machinery, and tools, to simplify discussions of trends.

The forecast for this sector excludes unique automation devices such as robotics and other non-information machinery.

1. Industry Forces

The U.S manufacturing industry continues to be impacted by numerous factors including foreign competition and an overall weak economy. As a whole, the manufacturing industry recognizes the need to invest in new plants, facilities, and technologies that will permit more cost-effective operations. Only with significant levels of investment will the industry be competitive against more modern, foreign producers. Investment ability is limited, however, by weak financial structures and an increasingly limited availability of capital. Foreign competitors' successes in penetrating the U.S. domestic markets also continue to discourage growth in this sector.

As a result of a weak economy and growing foreign competition, the manufacturing industry has grown slowly. Many companies have not grown at all, as evidenced by the number of consolidations and business failures.

The Department of Commerce's 1990 *U.S. Industrial Outlook* report projected that 80% of manufacturing companies would experience positive growth rates. However, of this total, 72% would be no greater than 5%. Only an estimated 9% of companies would grow at a rate of 5% to 10% during the year.

The Department's 1991 report indicates the situation has not improved; if anything, the situation has deteriorated. In its most recent report, 60% are expected to show positive growth rates and only 9% are expected to exceed a 5% growth rate.

Difficulties in the discrete manufacturing sector as a whole indicate both the opportunity for information services to improve business operations and the difficulty systems operations vendors have in marketing to the sector.

In INPUT's report, *Systems Integration Technology Trends*, respondents were very clear in their focus on the core business. Respondents were clearly less interested in technology than in solutions that would improve their basic operation processes.

Manufacturers have enthusiastically embraced electronic commerce. Electronic documents are used with a wide variety of trading partners. After these systems are fully integrated with existing systems, companies can also then use some electronic documents to transfer information internally. Full use of electronic commerce implies an integrated desktop and shop floor system.

Manufacturers are implementing flexible manufacturing systems (FMS) to improve the return on investment (ROI) of capital machinery, and are providing rapid reconfiguration to meet changing fabrication/assembly demands.

Manufacturing planning and control systems (MPCS) and material resource planning (MRPII) are being employed, along with practices like just-in-time (JIT) procurement to reduce the costs of carrying inventory. Automation of the shop floor and the efficient utilization of inventory and capacity are viewed as the main productivity goals of the industry.

INPUT believes that the application of these technologies can contribute to cost control. Real advances in productivity will come, however, only by revising the entire manufacturing process, rather than by piecemeal automation that produces islands of automation with relatively small improvements.

Production experts have postulated the urgency of the need to implement existing technologies, as well as those technologies now in development, for the survival of the majority of discrete manufacturers in the 1990s.

The current recessionary forces and lack of real growth of capital investment will delay some of the capital investment decisions needed to implement these technologies and further aggravate the cost pressures in less modern manufacturing sectors.

2. Impact on Information Systems and Services

The IS environment in discrete manufacturing seems stable, perhaps even mature. Decreasing hardware costs, better price/performance ratios, and emphasis on purchasing rather than leasing equipment have all served to create a very large base of installed systems, including hardware and software.

The push to automate manufacturing processes has also created a very large base of mostly incompatible and unconnected process control and automation equipment, ranging from materials handling, CAD/CAE, and process controllers to assembly robots and automated guidance vehicles for parts retrieval from stores.

In many discrete manufacturing firms, the IS and production organizations function independently of each other, seldom sharing the same data processing platforms. Information systems that support the financial, sales, and administrative groups usually come under the control of the IS organization. CAD/CAE/CAM/CIM systems tend to be the responsibility of the production/operation departments, often not involving the IS department. However, the newer MRPII and MPCS systems merge the separate functions, requiring interaction and agreement between the two groups.

The new systems that integrate the sales, purchasing, invoicing, production, and inventory control functions will push IS into interactive, on-line, and real-time or near real-time modes of operation. A substantial number of current financial and administrative systems in this industry do not and have not needed to operate in real time, and are not equipped with hardware and software to support the needs of flexible manufacturing systems (FMSs).

3. Outsourcing Potential

Exhibit IV-17 summarizes the key industry factors at work in this vertical market.

EXHIBIT IV-17

Key Factors in Discrete Manufacturing Industry

- Positive
 - Increasing pressure for manufacturing quality
 - Focus on core business needs
 - Increased linkage of systems
 - Continued replacement of batch-oriented systems
- Negative
 - In-place infrastructures
 - Tendency to build rather than buy
 - Industry experience prerequisite

The size of this sector and the potentially large expenditures continue to be attractive to outsourcing vendors. The use of outside services is growing faster than inside services because management is becoming focused on its core business requirements, which do not include information systems operations.

The current inventory of batch-oriented systems must be replaced to meet the needs of integrating sales-to-customer factory procedures. Some of the newer hardware may be convertible, but the majority needs to be replaced. Downsizing to PCs and workstations for sales, design, scheduling, and supply/resource control will make the conversion even more important, while encouraging the use of distributed networks in a demanding environment.

Vendors should be sensitive to the presence of IBM in determining a suitable platform strategy. IBM has short-term products in place (CAD/CAE, shop floor minicomputers, etc.) and an apparent long-term strategy of tying these components together in an architecture dependent on a mainframe server.

Since IS managers frequently cite the absence of project management skills in their staffs, outsourcing vendors can capitalize on that resource in their own staffs when meeting prospects. Executives note the increasing use of systems specialists for CAD/CAE/CAM and automation projects built in-house as workload and financial conditions permit. The tendency of the larger organizations is still to build their own systems rather than buy them from a vendor.

Medium-sized and small companies are usually less inclined to carry the needed specialists in their constrained overhead accounts. They need to implement and operate manufacturing support systems as much as the large companies to remain competitive while maintaining quality. These companies present good opportunities for outsourcing vendors that can demonstrate that expertise and provide transition outsourcing while their clients move up to newer systems.

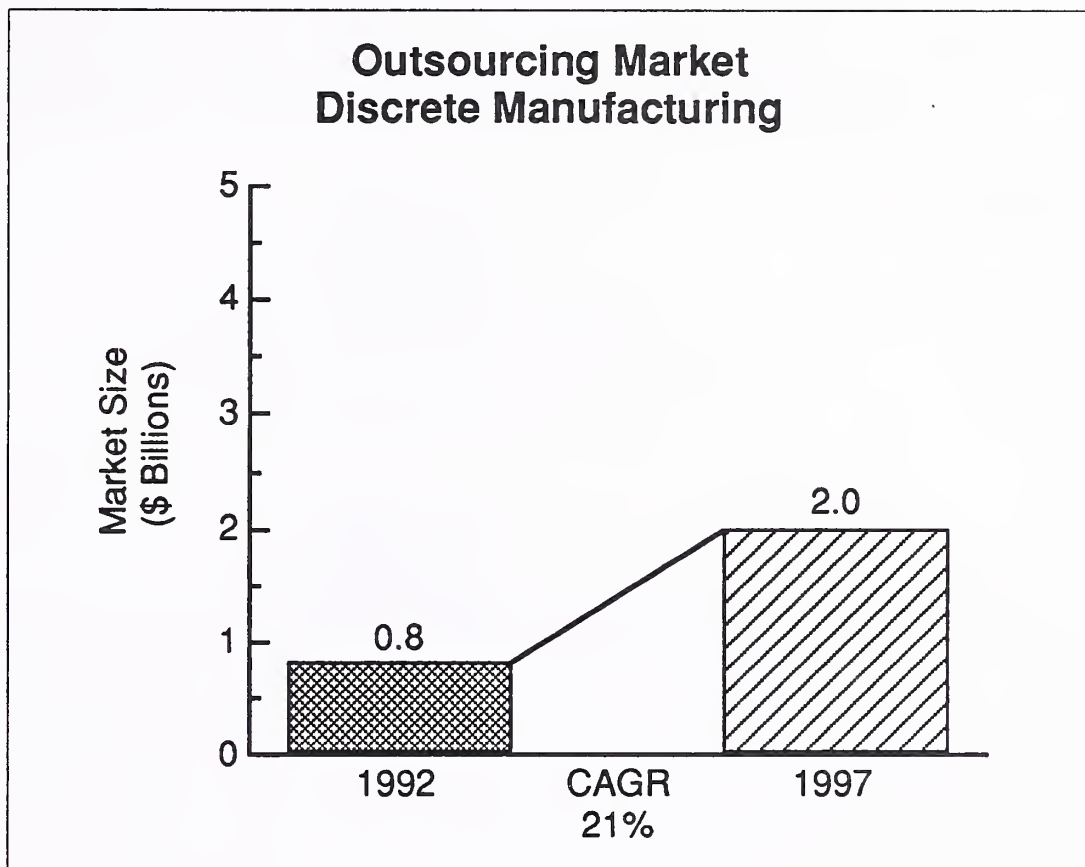
Other companies under pressure to remain competitive choose to reduce their operations or enter into a merger to accomplish organizational downsizing. These transition situations are ideal opportunities for outsourcing vendors also, particularly for those willing to assume ownership of equipment and assimilate the operations staff of the IS department.

4. Outsourcing Forecast

The forecast for this sector is illustrated in Exhibit IV-18. It shows a healthy overall growth rate of 21% for the 1992-1997 period, just up from last year's rate of 19%.

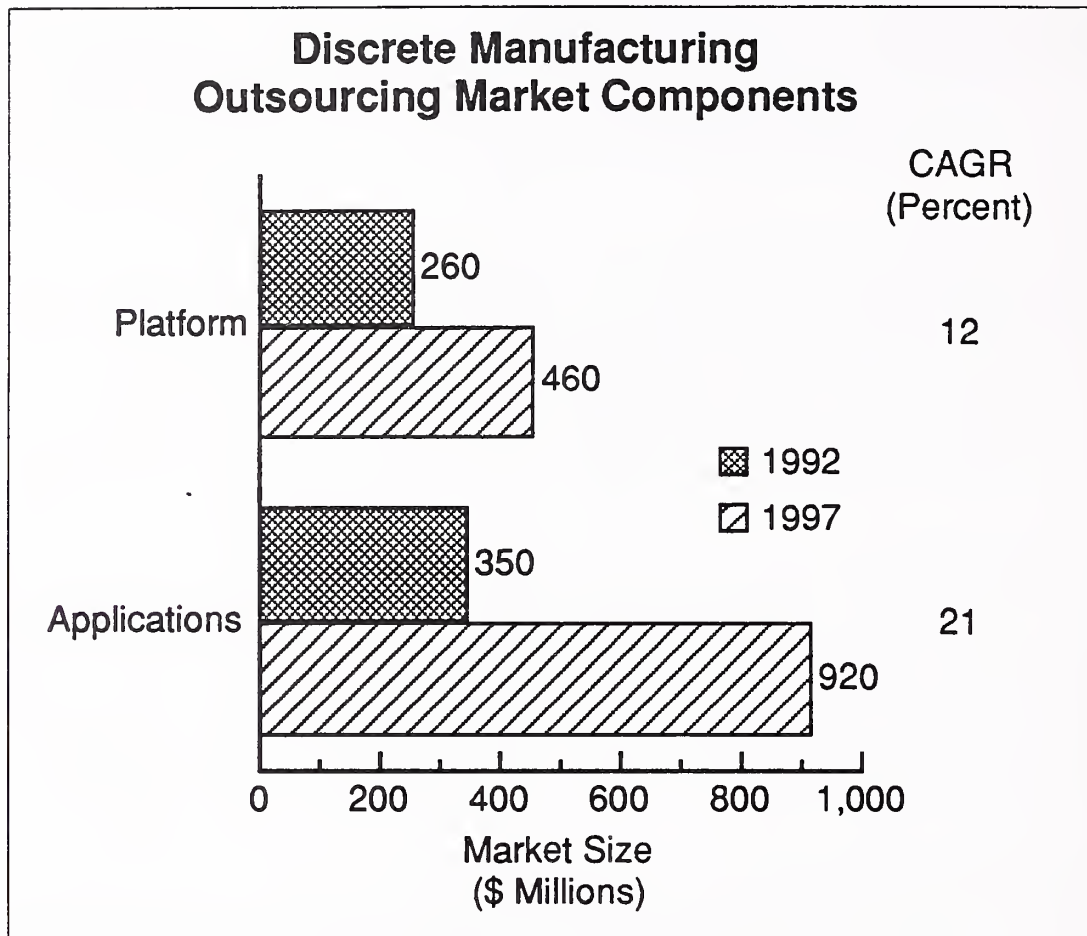
Though manufacturing executives now understand that information services is not their primary business, the loss-of-control issue is not yet resolved in their minds in spite of the examples at Kodak, American Standard, and General Dynamics.

EXHIBIT IV-18



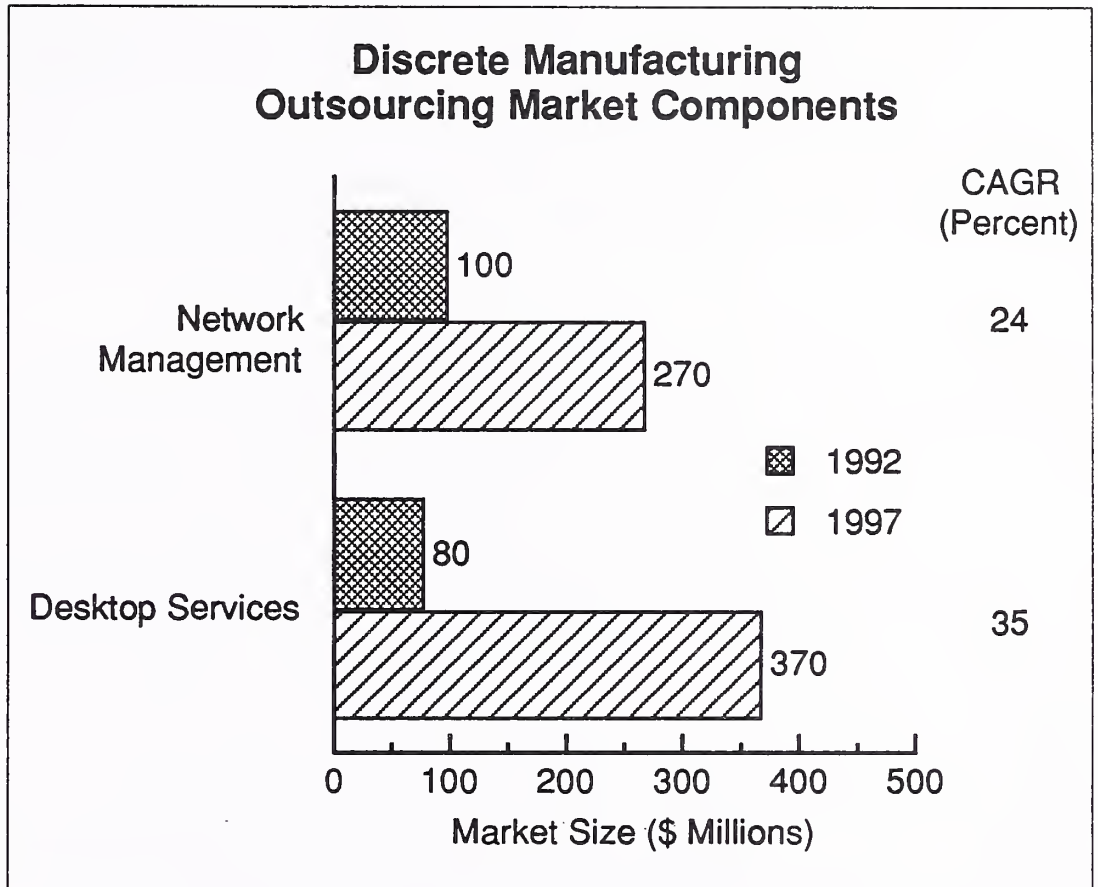
Applications operations will continue to be a major mode in the discrete manufacturing industry for 1992-1997. However, by 1997, applications processing will become a still larger component of the total outsourcing expenditures, as shown in Exhibit IV-19.

EXHIBIT IV-19



The growth rate for network management is healthy enough, but it could be explosive if the electronic commerce vendors (GEIS, Advantis, ADP) begin to take on more operational responsibility. The growth rate of 24% does not reflect this eventuality for the industry, but developments are being closely watched. The near-explosive growth rate for desktop servers reflects the recognition in this market that all these PCs have to be managed. The largest single desktop contract to date was awarded in the vertical industry (GE to EDS). Exhibit IV-20 illustrates what is happening.

EXHIBIT IV-20



The different requirements of the market are being addressed by several groups of vendors. Equipment vendors competing in this market include IBM and DEC, leveraging their strong, early presence in this market. In addition to Andersen Consulting, other leading industry specialists are the Genix Group and Power Computing. EDS holds a unique position combining three ingredients that are very attractive to industry executives: EDS brings extensive communications experience from its internal network; it has been in the facilities management business for 28 years; and it has acquired extensive manufacturing experience in support of GM's internal needs.

F

Process Manufacturing Industry

This sector is a combination of medium and large corporations active in oil and gas, mining, tobacco, chemicals, paper and wood products, food processing, rubber, primary metals, and plastics manufacturing.

1. Industry Forces

In general, this industry sector has seen an increase in competition brought on by decreased demand from a slow economy. Wood products are suffering because of the stagnant domestic construction market. Lower

prices and margins for ethylene and plastics are resulting in increased competition for the chemicals and plastics industries. The food processing industry faces a recent trend in reduced consumer spending that may result in a shift of consumer preference to lower margin generic brands. The oil industry also has been marked recently by reduced earnings, and increased merger activity. Exxon, Mobil, and Texaco reported first quarter 1992 earnings drops ranging from 25% to 80%. The oil industry continues to face both near- and long-term uncertainty.

The process manufacturing sector has been driven in recent years more by the economy and offshore competition than by manufacturing technologies. Major efforts are focused on reducing costs, improving operating efficiencies, increasing capacity utilization, and reducing capital commitment risks, while maintaining a competitive posture through automation. The solution to the cost problems of some organizations was mergers to gain economies of scale. Further mergers may be in the offing in response to the recession that is impacting industry revenues and earnings.

2. Information Systems and Services Environment

This diversified market sector was buffeted by negative economic winds this past year. Mergers and consolidations in the oil and gas sector created problems of excess capacity, redundant IS staff, and incompatible processing platforms—an ideal environment for the outsourcing of systems operations. Competitive pressure in the chemicals, food processing, and rubber and plastics industries focused attention on cost-reduction programs.

Automation of manufacturing processes, as in discrete manufacturing, continues as a key initiative. Unlike discrete manufacturers, however, process manufacturers also had extensive needs for communications networks that tie the sources of raw material to the processor and the processor to the seller.

Much of the attention of information systems organizations in these industries is directed at process control, inventory control, and manufacturing control systems. These systems are traditionally the domain of the minicomputer vendors and the specialty instrumentation suppliers. They are less amenable to processing on general-purpose machines. All of these systems, however, do generate data streams for general business procedures such as scheduling, purchasing, and inventory control.

3. Outsourcing Potential

Like discrete manufacturing, this industry needs to meet widely varying competitive market demands. It needs to unify and coordinate diverse data streams, process systems data, and application developments to support marketing and strategic management. Network communications

management skills are in high demand to extend these activities to multiplant operations and international sources of raw materials.

IS managers can identify shortcomings of in-house project management and network design skills, and are becoming less reluctant to pay a vendor for these capabilities. Training and transition management are also highly valued resources in short supply.

In this market, support for marketing and strategic planning requires sophisticated tools that are information intensive. Each industry, and even specific companies, employs processes that will need customized solutions from vendors with industry knowledge. Exhibit IV-21 presents some key factors influencing buying decisions in this sector.

EXHIBIT IV -21**Key Factors in Process Manufacturing Industry**

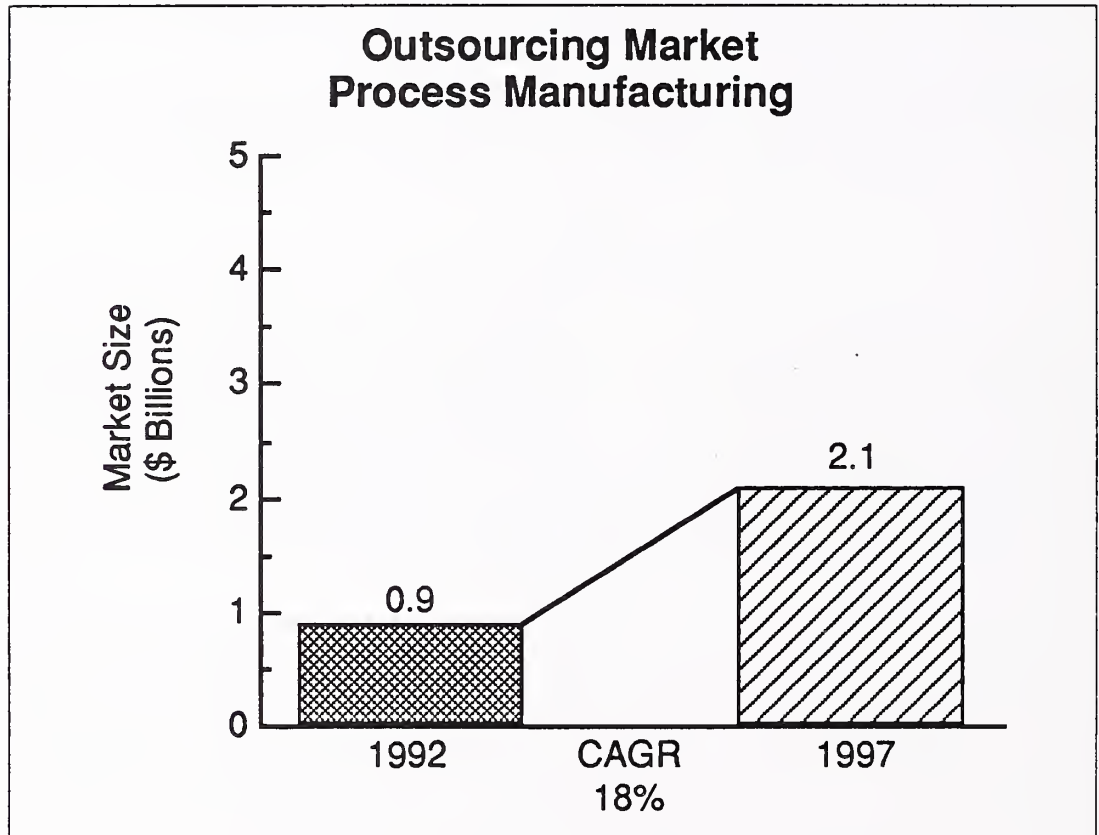
- Positive
 - Competitive need to meet market demands
 - Need to improve operating efficiencies
 - Network design/management requirements
 - Slow economic recovery
- Negative
 - Diverse client needs according to industry segment
 - Processing concentrated in operations
 - Reluctance to consider outside help

The stagnant economy augurs for lower profits. Management is promoting tactics that preserve capital, even though the oil industry may experience some short-term profits from the increase in oil prices. In this industry, the projects are concentrated on the production side, which must be the focus of the potential outsourcing vendor. Changing market conditions can also cause clients to change requirements very rapidly and unexpectedly. Vendors in this industry have not always demonstrated ability to match the changing requirements effectively.

4. Outsourcing Forecast

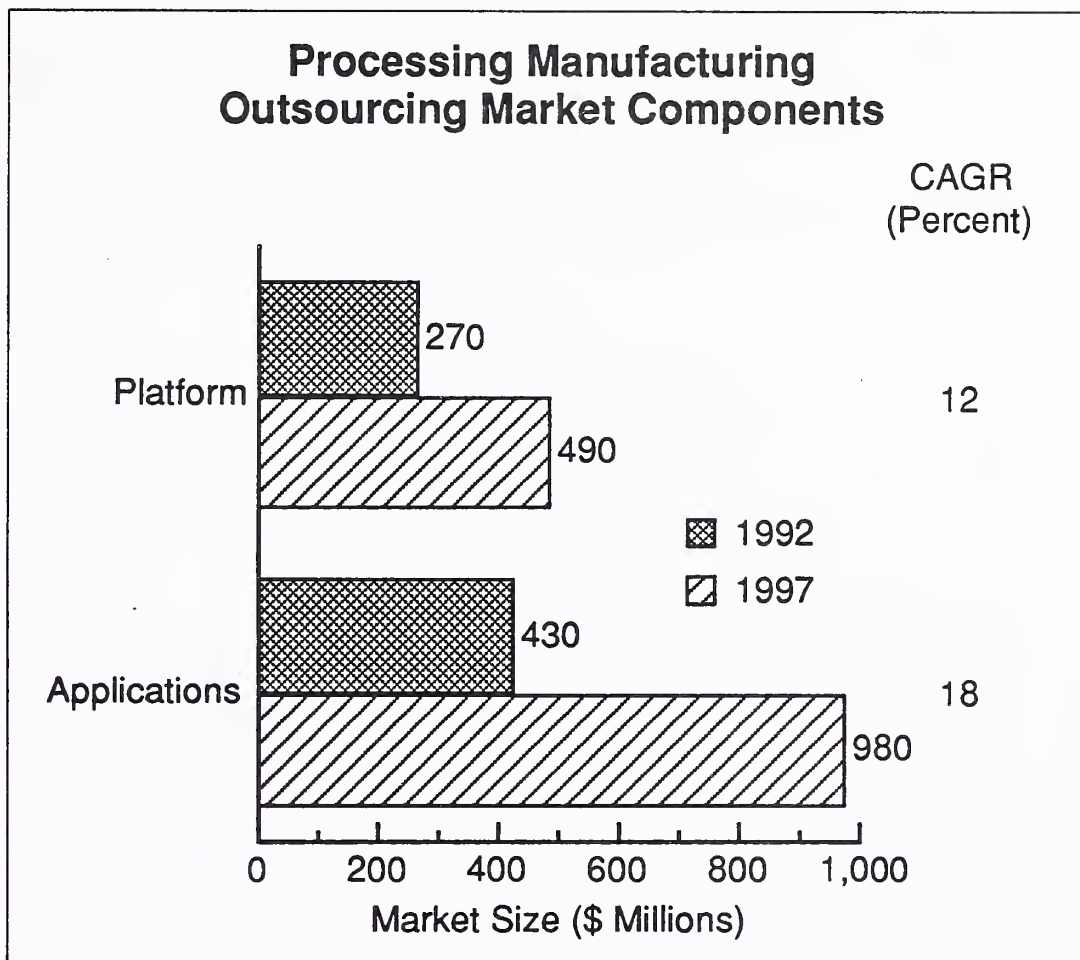
INPUT projects an 18% CAGR for this industry for the period 1992 to 1997, which is down from its projection of 20% last year (see Exhibit IV-22). The actual market size has shifted upward since last year's forecast, however, primarily because of newly identified activity and shifting emphasis to desktop services. There was a sharp increase in expenditures, as predicted, spurred by a series of consolidations and mergers in the troubled oil and gas sector. The negative factors in the market will not cause the growth rate to level off further, but will keep this industry sector growing at the overall industry rate.

EXHIBIT IV-22



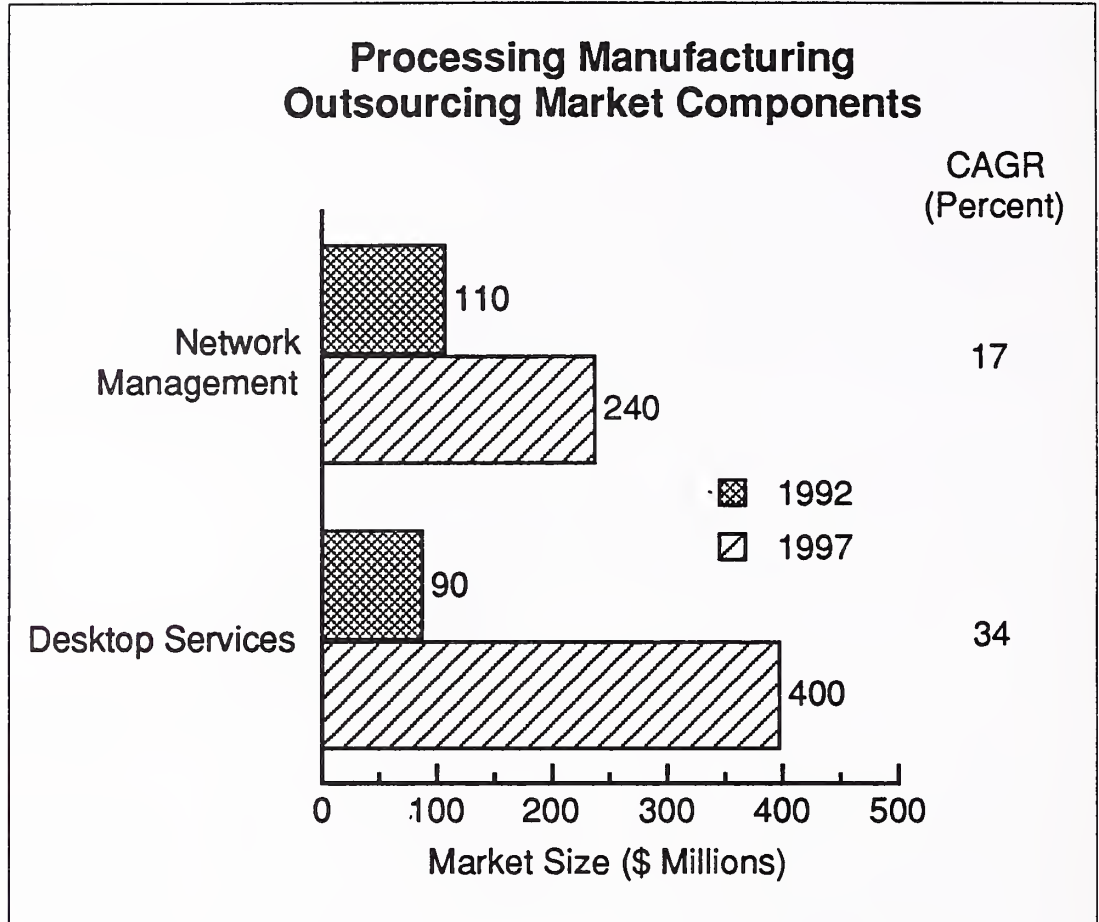
The gap between platform and applications processing operations will widen in the period 1992-1997, as shown in Exhibit IV-23. In 1992, 30% of the expenditures are for platform operations, while in 1997 only 23% will be platform operations expenditures. Though much of the revenue in 1991 was generated by platform operations, the shift will occur over the next five years because more clients and prospects will choose to outsource their applications developments as they feel more comfortable with having outsourced their processing operations. Clients in this vertical industry market are already reporting they are investigating this further change to their outsourcing agreements.

EXHIBIT IV-23



Network management is projected to grow only at the market rate because only one segment of this market—oil and gas—has far-flung operations. If that segment of this industry were projected separately, its network management growth rate would probably be nearer 30%. Desktop services, however, is expected to grow very rapidly as can be seen in Exhibit IV-24, fueled by the strong downsizing pressures in this vertical industry.

EXHIBIT IV-24



Vendors with a strong presence in the discrete manufacturing sector also appear as strong suppliers in this segment. Andersen Consulting is particularly strong in food processing, whereas EDS has been very successful in capitalizing on the consolidation in the oil and gas industry. Power Computing is also active in this sector. Many companies in this sector have indicated that using an outsourcing vendor provides greater flexibility in meeting changing IS requirements as business demands change. This motivation often was cited as more important than any immediate cost savings. No one has yet penetrated the pharmaceutical nor the chemicals sector significantly.

The first instance of business operations outsourcing occurred in this industry, albeit in the U.K. B.P. Exploration has turned over its entire accounting function to Andersen. This trend is expected to accelerate in the future.

G

Transportation Industry

This sector is composed of airlines, railroads, trucking, and other transportation including shipping, mass transit, postal, and pipeline services.

1. Industry Forces

This industry performed poorly in 1991 because of the downturn in the economy, environmental concerns, and increased oil prices. All transportation industry segments are affected by the economic slowdown because they are closely linked to the general trends of the U.S. economy. However, some areas are showing innovation and profitability.

Increased use of less-than-full truckload shipments and double trailers helped trucking to increase revenues. Rate discounts have continued to cut margins. Restructuring and mergers are expected to continue to contribute to a decline in the industry's revenues and profits, however.

Air cargo and air express competitors have added automation, extended data communications, and bar code readers to their arsenal of competitive weapons. Intermodal shipping companies that combine rail, road, and water transportation are on the increase, with several employing sophisticated load-modeling tools to improve efficiency.

Transportation is a capital-intensive industry. Lower interest rates have helped to mitigate the negative effects of the poor economy. Reduced availability of capital has also restrained new entrants to this industry.

2. Impact on Information Systems and Services

Limited growth in IS expenditures is expected as transport firms try to control costs and remain competitive. Productivity and efficiency are paramount in reducing personnel costs. IS organizations will remain small but productive.

Part of the strategy is replacement of personnel wherever possible with external vendors or less labor-intensive systems. Technology lowers the cost of overall service by reducing labor costs and, at the same time, improves the speed of response required to remain competitive. Systems are necessarily communications intensive. Travel reservation systems, crew and maintenance scheduling, and route and load optimization modeling are the current backbones of the industry.

The deregulation of this industry fostered a competitive environment that demands the use of automation technologies as competitive tools. Price wars based on more progressive tariff structures have cut so dramatically

into revenue that many firms need to take additional cost-cutting measures. The industry has only a limited number of large transportation companies in the airline sector and in rail transport with the sophistication to accomplish the technological changes internally.

The competitive battleground is largely in the reservation systems required for securing, at a guaranteed price, space for the movement of people or cargo. Since prices seem to change daily with deregulation, and since the agents who need this up-to-date information are dispersed over vast areas, complex networking experience is the ticket to this industry. Some positive factors are in place for outsourcing vendors to step in and service the market.

3. Outsourcing Potential

There are a limited number of opportunities because of the low level of anticipated expenditures outside the airlines segment. In the airline sector, opportunities will tend to involve communications-intensive solutions.

Outsourcing vendors operating in this market sector will need to make changes to a complex system easily and without interrupting ongoing operations. Vendors need to offset the recognized technical weaknesses in the prospect's internal staff as well as their limited capabilities in project management. These and other negative factors are outlined in Exhibit IV-25.

The rail industry has begun looking at some automation projects that have potential for operations outsourcing, but the trucking industry seems unable to support them as yet.

INPUT expects other portions of this market—rail, truck, and ocean transportation—to continue to be stagnant in spite of their urgent need to reduce costs. There appears to be a lack of sophistication in some of the sectors, which results in reluctance to outsource operations. In the rail transportation sector, respondents indicate that any outsourcing that will develop will be strictly for communications services or remote special data-gathering functions, not for complete information processing centers.

EXHIBIT IV-25

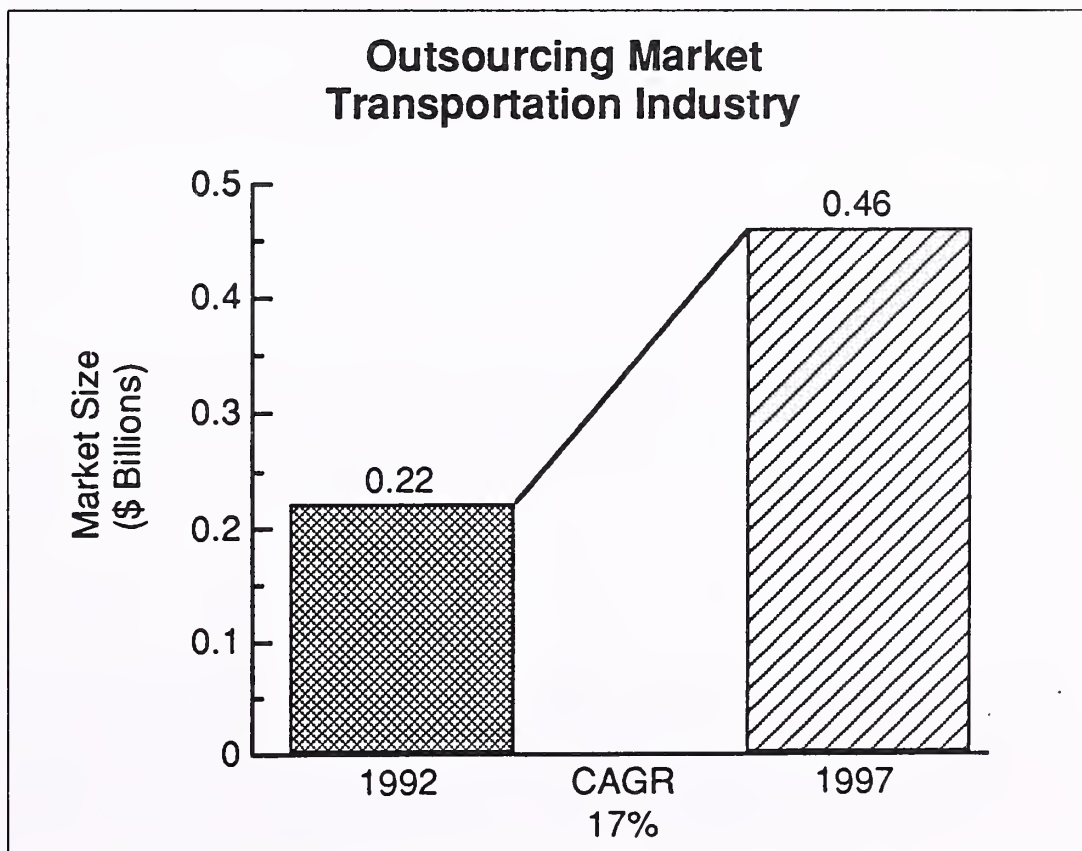
Key Factors in Transportation Industry

- Positive
 - Network requirements
 - Technology seen as competitive tool
 - Limited capital investment available
- Negative
 - Limited opportunities outside of airline segment
 - Limited growth in IS expenditures
 - Limited use of outside services

4. Outsourcing Forecast

The projected CAGR for the period 1992 to 1997 for this market sector is 17%, down from the projected 20% reported in INPUT's last report. This forecasted change represents slowed activity primarily in the airlines sector. Exhibit IV-26 presents this data.

EXHIBIT IV-26



As indicated in Exhibit IV-27, the expenditure split between platform and applications is expected to change slowly over the five-year period. The large market share for platform operations reflects the continued activity in the airline sector, as opposed to new developments in other sectors. Exhibit IV-28 shows higher rates of activity in the network management and desktop services area typical of the entire market.

EXHIBIT IV-27

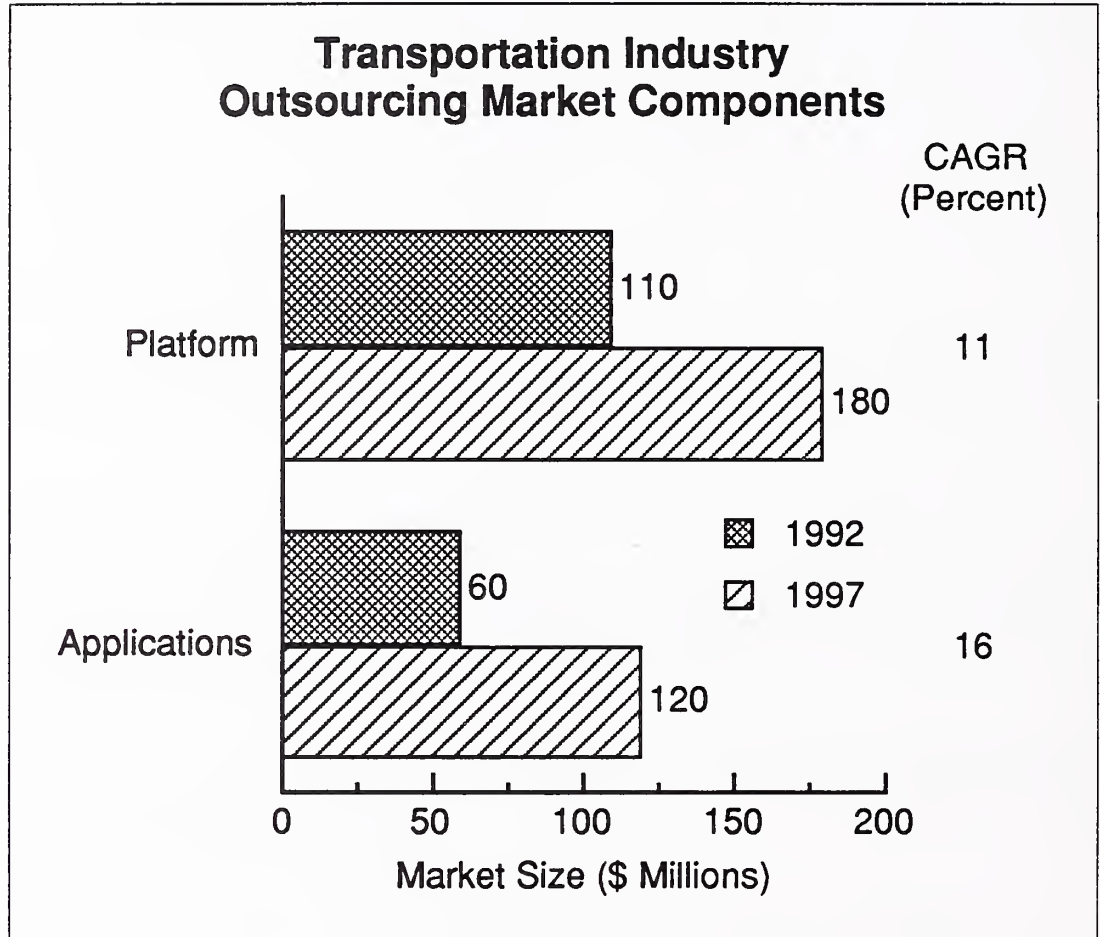
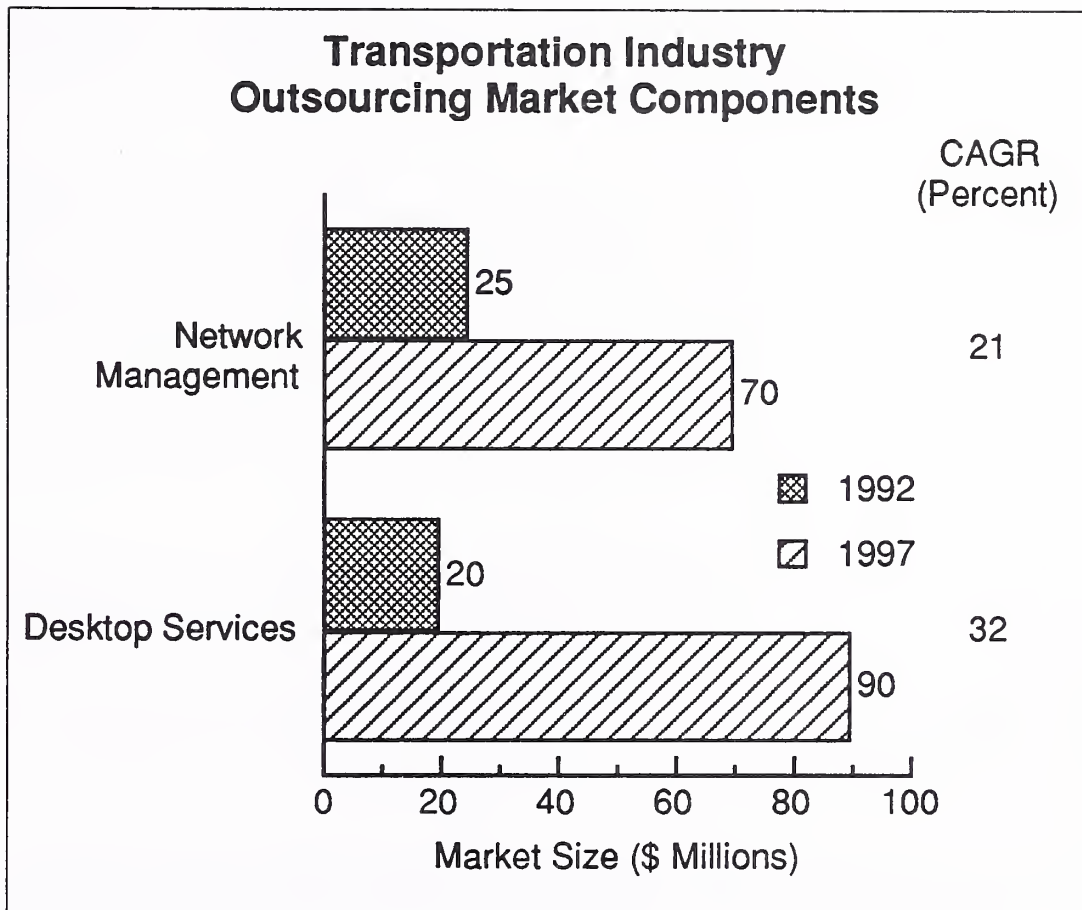


EXHIBIT IV-28



EDS is the dominant vendor in this market. There is no reported activity among other major outsourcing vendors, although Andersen Consulting has done some systems integration projects in the transportation market and may capitalize on these in the future in the applications management area.

H

Utilities Industry

This sector includes the energy market (electricity generation and coal/nuclear/hydro/oil/solar/geothermal/gas energy production), water utilities, and sewage/waste disposal and treatment, but excludes telecommunications.

1. Industry Forces

Most utilities are regulated monopolies. In return, the utilities accept an obligation to serve the public. The rates a utility can charge have been set by a public utility commission and are targeted to a reasonable rate of return. Deregulation has arrived, however, and changes in the industry are

being predicted. Of the approximately 59,000 utilities in the country, only the largest 200, which have mainframe computers, are prospects for outsourcing vendors.

There are three primary functional areas for computerization with a utility: commercial applications, engineering applications, and operations functions. The commercial applications are the normal set of business functions with an emphasis on high-volume billing and collection. The engineering systems are oriented to the physical aspects of the utility with an emphasis on facility design and planning. The operations functions are the process control systems to monitor the production and distribution process. It is the commercial and operations functions that are most likely to be outsourced.

Pressures continue on the utilities for mergers, improved cooperative load sharing, and a search for funds for more facilities. The poor condition of utility balance sheets results from the enormous cash drain many utilities have suffered as a result of litigation, project overruns, environmental clean-up measures, and, in particular, nuclear power plant construction.

2. Impact on Information Systems and Services

IS has been forced to shift from a comfortable day-to-day operating orientation to one where IS must meet dynamic demands within constrained budgets. Management has directed IS to help enhance operating efficiency and productivity, to make the utility more profitable, and to reduce costs, while increasing the ability to serve users. Cost containment remains the principal focus of all operations support activities.

Under the consumer-oriented constraints imposed by regulatory and environmental authorities, and the resultant low ROI, investments are limited and prevent implementation of a number of desirable improvements in data and control systems. Operating executives have modular, rather than total, views of the systems; their perspective is restricted to raw materials, processing, maintenance, or customer relations. Traditional views are slow to be modernized in this basic industry.

3. Outsourcing Potential

Exhibit IV-29 presents key factors affecting IS departments in the utilities industry.

EXHIBIT IV-29

Key Factors in Utilities Industry

- Positive
 - Increasing complexity of technology
 - Hardware/software obsolescence
 - Automation of repetitive tasks
- Negative
 - Day-to-day orientation of IS
 - Limited number of establishments
 - Financial constraints
 - Incentive to add to in-house capacity

Information systems managers in the utilities vertical industry market are faced with the increasing complexity of technology being introduced as a labor-saving measure. This technology includes remote meter readers, remote sensing hardware, other control equipment, and devices to eliminate redundancy. Internal data processing shops and staffs, meanwhile, are becoming obsolete and cannot interface with the new technology. Outsourcing vendors can leverage scarce technical expertise and help them out of their dilemma. Yet there are strong counteracting forces to these incentives.

The in-house orientation that is traditional in utility firms continues, fostered by a conviction that cost containment policies are working. The fact that the firm's capital equipment base is used in calculating the rate base for most utilities encourages the accumulation of data processing hardware in-house. The net effect is to discourage the search for solutions outside the company, except in very specialized cases.

4. Outsourcing Forecast

The compound annual growth rate (CAGR) for this industry for the period from 1992 to 1997 is 15%. This is slightly higher than the 1991 forecast. See Exhibit IV-30 for a summary.

EXHIBIT IV-30

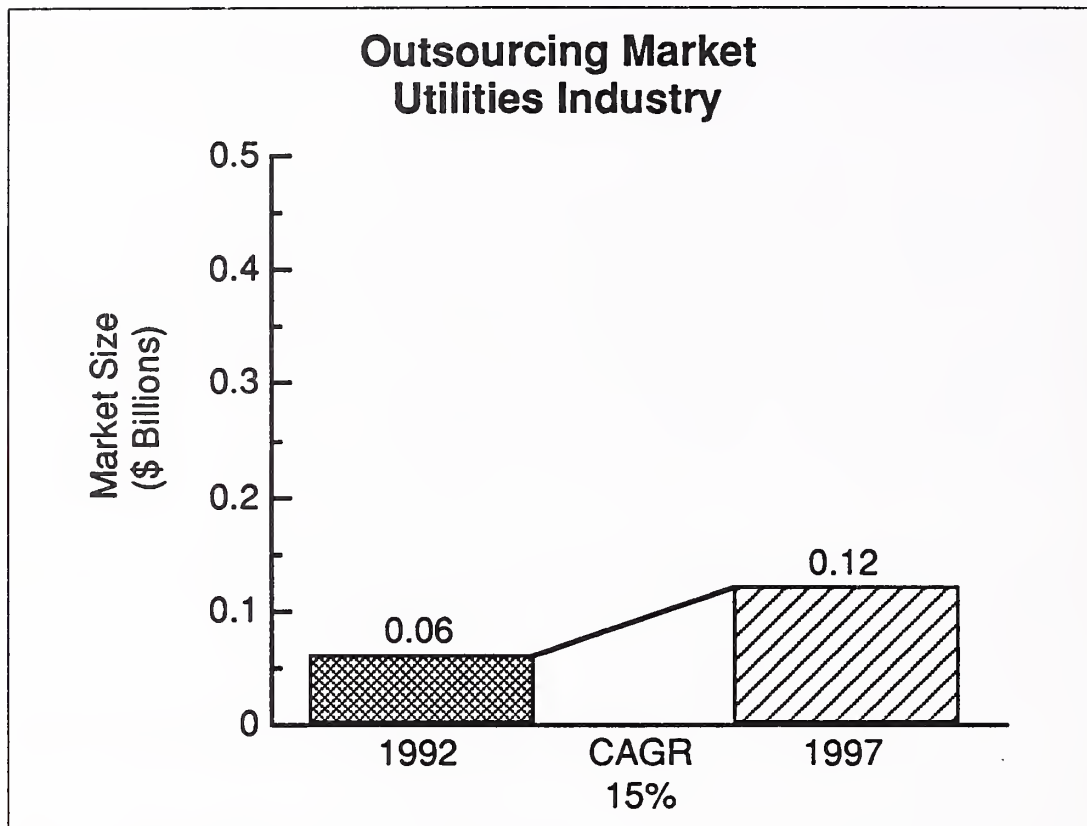


Exhibit IV-31 illustrates how applications operations, despite its small expenditure base, will grow in the 1992-1997 period. Applications operations should exhibit the same general tendencies as in other vertical markets and grow slightly more rapidly over the forecast period.

EXHIBIT IV-31

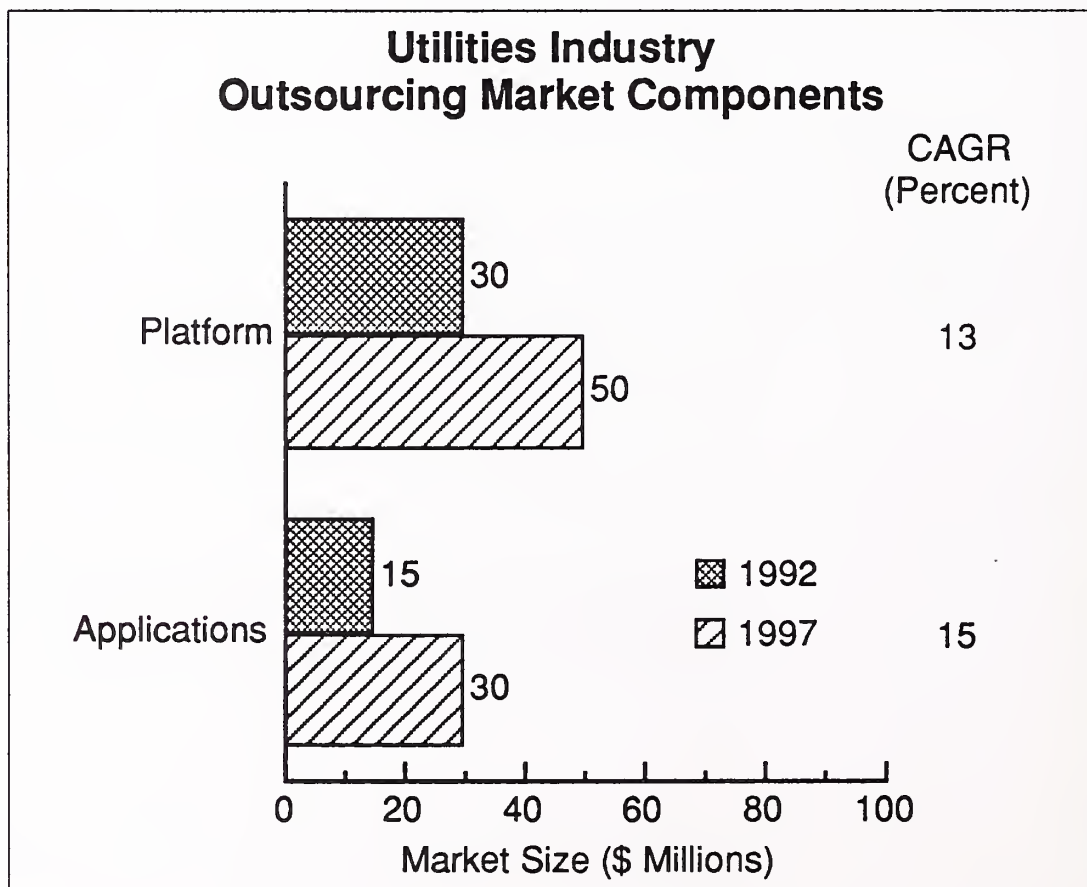
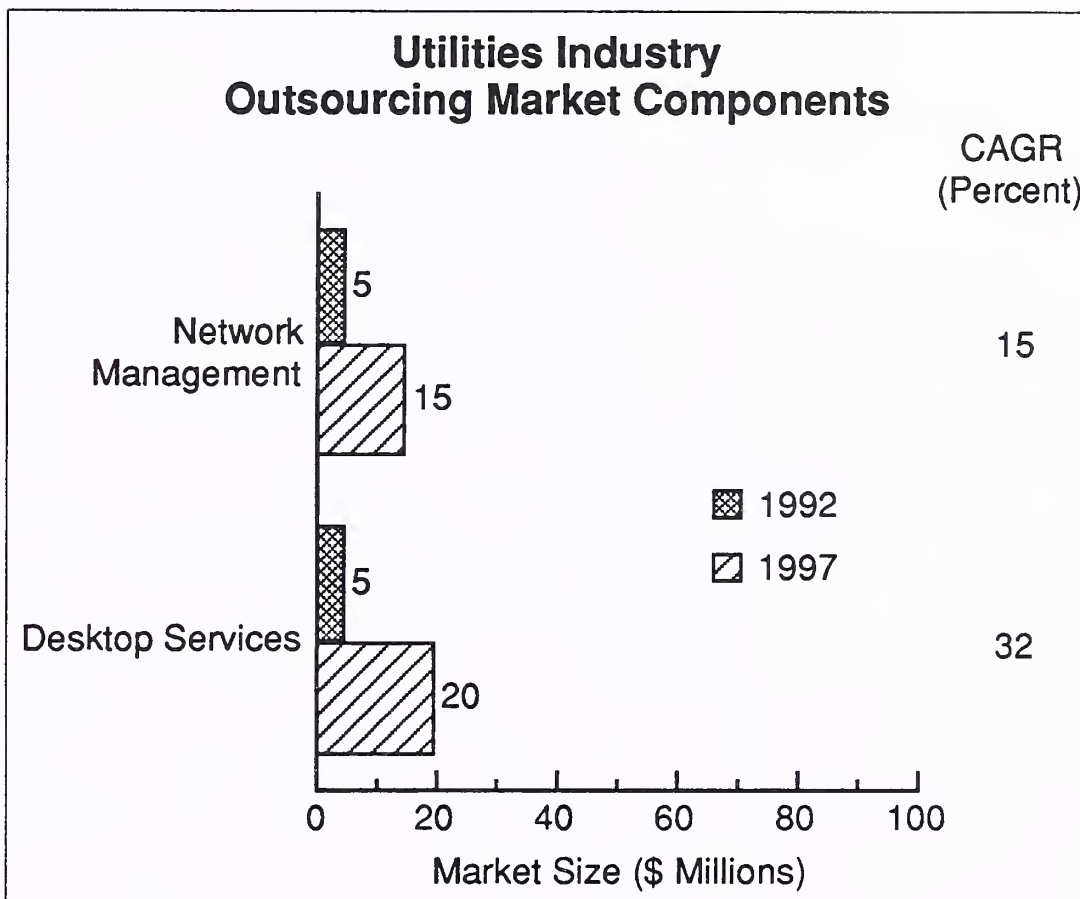


Exhibit IV-32 shows that network management is not a large factor in this market but that desktop services is likely to grow at the same rapid rate as the rest of the market.

The industry continues to be in-house-oriented because of the incentive to invest in hardware. EDS was the first major vendor to penetrate this barrier with its contract at Washington Water Commission. MCN has not yet penetrated this sector. MCN's Genix Group, a force in the manufacturing sector of the systems operations market, has not yet penetrated this sector, though its parent, Michigan Consolidated Gas, can certainly provide expertise in the utilities sector. Power Computing and ACS have also reported activity in this sector, but very few other suppliers can be identified.

EXHIBIT IV-32



I Telecommunications Industry

This sector is composed of the major providers of telecommunications—AT&T, MCI, Sprint, GTE/Contel, Miltel, the Regional Bell Operating Companies (RBOCs), independent local exchange carriers, long-distance resellers, 800 and 900 services, and cellular phone operators—as well as companies providing broadcasting, cable TV, and optical fiber and satellite networks. As the media available for information transfer become

more varied, this sector may be better described as the “electronic communications industry.”

1. Industry Forces

The telecommunications industry continues to post nominal growth overall, but this is beginning to change. Vendors such as AT&T and MCI report substantial gains, and subsectors such as cellular phone and very small aperture transmission (VSAT) show significant growth potential.

Merger activities reflect an industry need to dominate or establish presence in selected markets and to place greater emphasis on service rather than on circuit capacity. MCI's acquisition of an equity interest in INFONET and the acquisition of TELCOM-ONE are notable examples, as is the GTE/Contel merger. AT&T's acquisition of Western Union electronic mail service is another.

Although substantial investments are being made, the industry is still in a holding pattern until the next round of deregulation takes effect. Most RBOCs are preparing to provide additional information services. Meanwhile, independent companies are positioning themselves to be end-to-end providers of information services.

One major development by IBM is the formation and funding of an automated division to deliver information services into the home. This division has initial funding in excess of \$100 million. Now that the majority of homes are connected to a cable system, they have high-bandwidth access for a multitude of data service offerings.

2. Impact on Information Systems and Services

In addition to the competition that deregulation fostered, Bell telecommunications companies lost a major source of IS support when they were separated from AT&T. This lost capability is now replaced by in-house capabilities or by external outsourcing vendors. Bell companies also lost data processing resources to cost-cutting measures, creating even greater opportunities for outsourcing vendors.

The new and emerging information carriers—such as cable, TELETEX, and cellular systems—are already using IS to operate billing, traffic and programming management, maintenance scheduling, and marketing programs. Their need for flexibility of services, connectivity among operating elements, and response to changing market conditions may cause them to seek external resources, since these carriers are not regulated sectors of the industry and gain no advantage in procuring hardware.

3. Outsourcing Potential

With the tendency for the major communications providers to maintain a large internal processing capacity, the challenge for outsourcing vendors is to identify certain niches where they can provide added value.

Certain major independents and the RBOCs have been outsourcing much of their labor requirements, including the operations of data centers. In those cases, the management of the data center remains the purview of the client, but this tendency should be watched, as it provides an opportunity for outsourcing vendors.

In other sectors of the communications market, the outsourcing potential should be greater. Many of the new, emerging firms in the cellular phone and cable TV industry need the billing, problem tracking, scheduling software, and processing capacity that vendors have available now. Outsourcing vendors may be competing with RBOC data processing departments that are also positioned to service this market, but this potential should be noted.

The highly unionized work force in the telecommunications industry is a negative factor for the penetration of certain sectors of this market. Exhibit IV-33 illustrates some of the positive and negative forces in this marketplace.

EXHIBIT IV-33

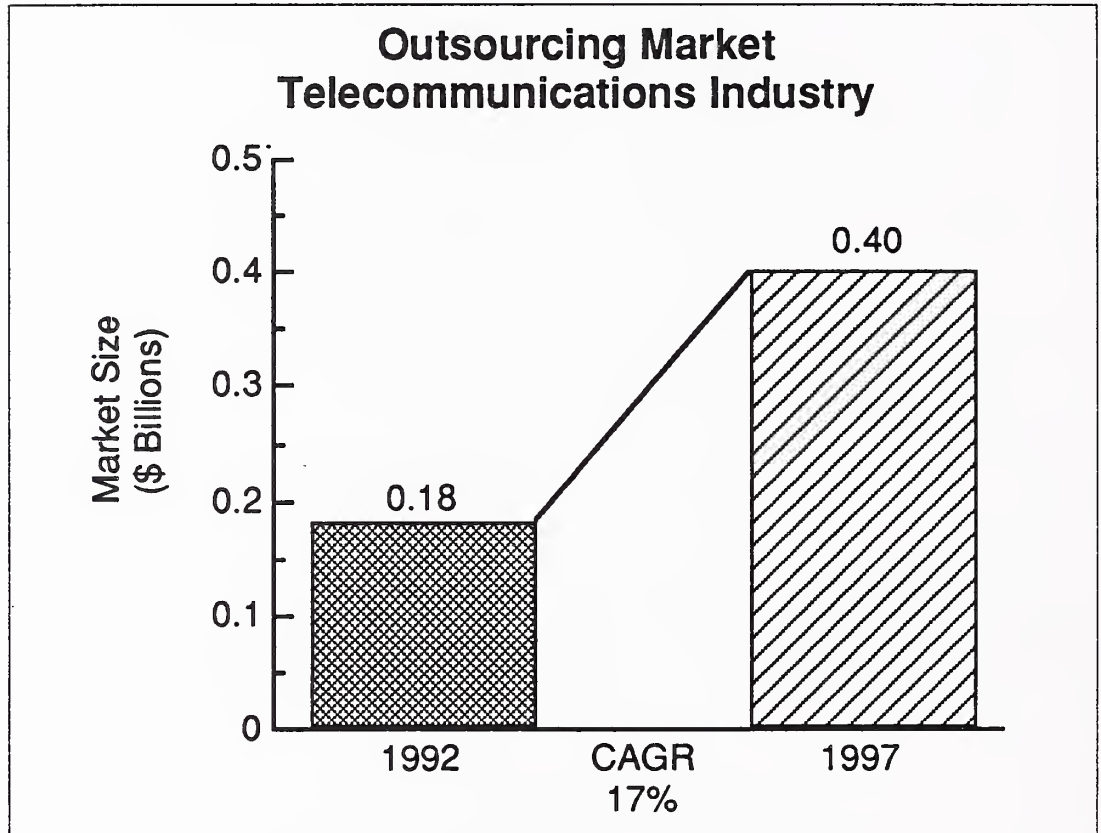
Key Factors in Telecommunications Industry

- Positive
 - New industry sectors lack IS skills
 - Widening range of services requiring support
 - General health of telecommunications industry
- Negative
 - Desire to keep hardware in-house
 - Perceived in-house technical skills
 - Highly unionized work force

4. Outsourcing Forecast

INPUT projects the CAGR for this industry over the period from 1992 to 1997 to be 17%, lower than the projection for last year. This is illustrated in Exhibit IV-34. The barriers to penetration mentioned above—highly unionized work force and heavy investment in computer equipment—are slowly yielding to the need for more cost-effective solutions to mounting budget pressures.

EXHIBIT IV-34



From Exhibit IV-35, it is evident there is a slight imbalance in the growth rate between applications and platform operations (15% and 13%, respectively). This is a function both of the vendors—primarily the RBOCs and professional services companies—and of the fact that the smaller companies in this industry (the most likely prospects) are looking for total solutions from vendors, not just platform processing solutions.

EXHIBIT IV-35

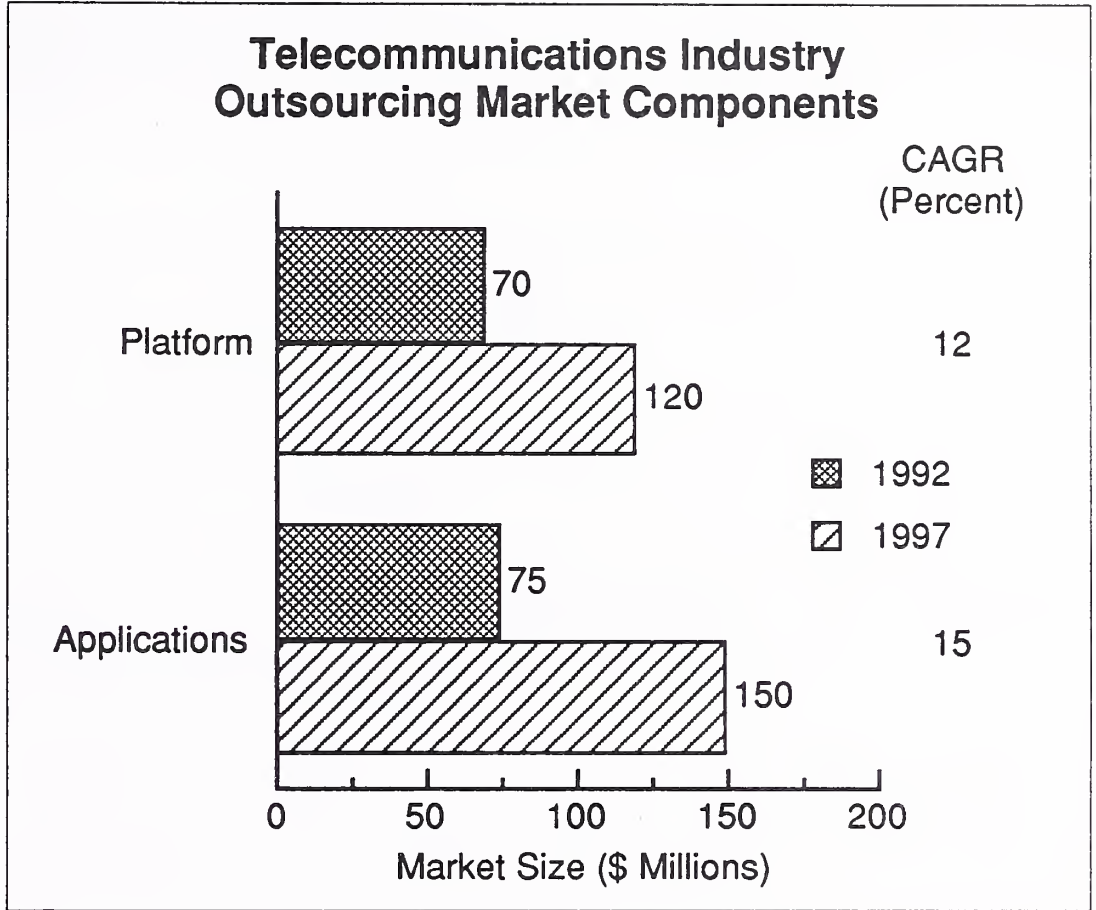
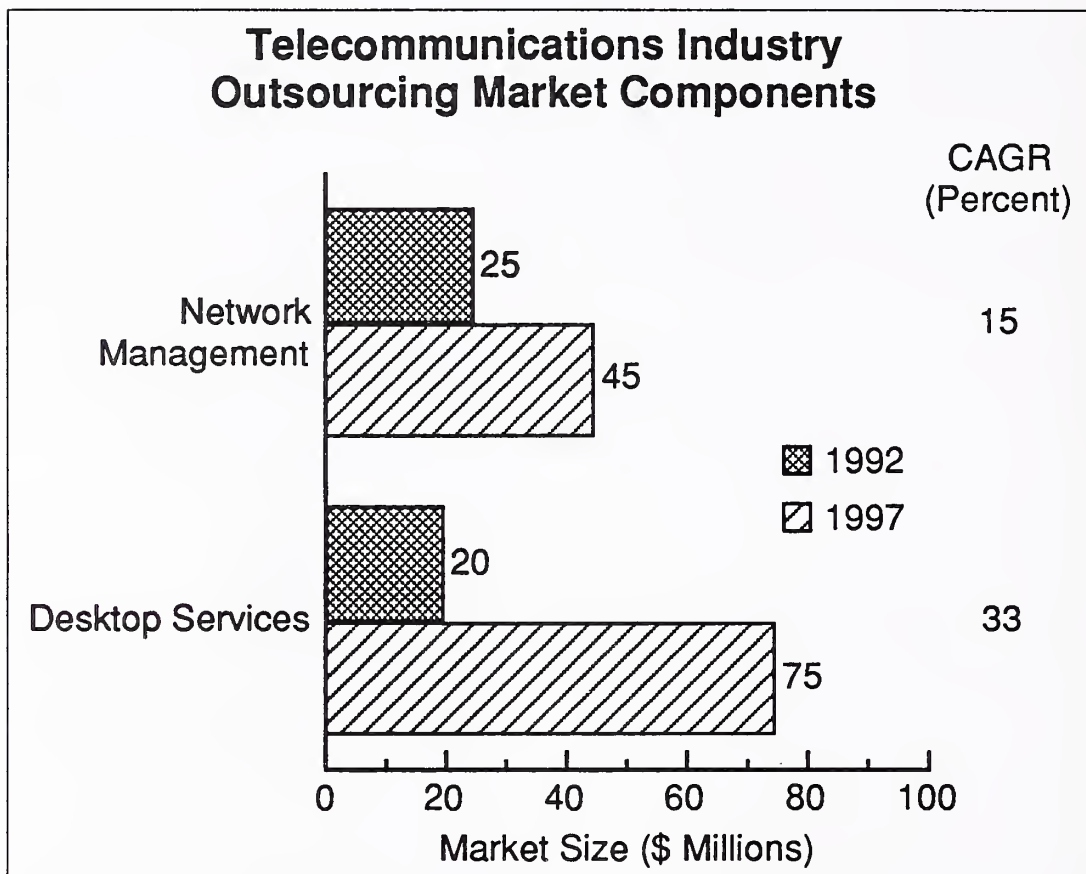


Exhibit IV-36 illustrates that, as expected, telecommunications companies do not need much help in network management but it is expected they will outsource desktop services to a high degree.

EXHIBIT IV-36



When assessing the prime vendors in this industry, Cincinnati Bell Information Services, Ameritech, and U S WEST stand out as providing services to the smaller independents. They are actively pursuing this marketplace and can offer industry expertise and processing capacity that is hard to match. Other companies, such as EDS and CSC's Intellicom, have found particular applications niches that they continue to exploit. Some vendors with professional services roots, such as Andersen Consulting, AMS, and SHL Systemhouse, also report revenues in this industry sector.

J

Retail Distribution Industry

The retail distribution sector includes single establishments and chains in apparel, food, appliances, drugs, hardware, etc.

1. Industry Forces

Fears concerning a slowing economy and other gloomy economic outlooks are causing consumers to cut back spending. The "real" unemployment rate is estimated at over 10% seasonally adjusted. Retail sales have continued to drop and are expected to rebound slightly as the economic downturn begins to bottom out. Increased competition and a battle for

market share could be the consequences. Generally, there is an excessive amount of floor space devoted to retailing, twice as much per capital than in 1974. This oversupply can only lead to destructive competition, failures, and consolidation in the industry.

There are only 800 large retailers among the more than one million companies that are the principal targets for outsourcing vendors in the immediate future. The emphasis of these companies will be on improving internal systems and external communications.

Externally, communication with suppliers is very important. Better communication links facilitate the flow between customers, outlets, retailers, and wholesalers. EDI has already helped to streamline the transaction flow significantly and more can be done. The use of information systems for credit checking and point-of-sale (POS) data collection ensures the steady flow of funds while monitoring inventory. Back office use of computer-to-computer order processing increases the speed of locating and delivering merchandise.

Internally, the primary use of automation thus far is in applications for closely monitoring finances, supporting financial decisions, and analyzing profit margins, but not for providing strategic management decision information.

Since management is concerned with the increasing communications costs required to support broader networks, it sees the use of outsourced services as the only way to simultaneously control costs, track customer buying patterns, manage inventory, and match merchandise to buyer interests.

2. Impact on Information Systems and Services

The mission of IS, given the broad diversity of products handled by each outlet, is to provide systems that control logistics associated with warehouse and shelf inventory, pricing and obsolescence of goods, etc., while also handling the logistics of credit/check verification, bad credit losses, cash handling, and funds consolidation and transfer.

IS is also expected to provide customer-oriented services for faster and simpler order entry, transaction processing, in-store processing (distributed processing), and the use of such technologies as EDI to reduce paperwork.

Provision by IS of real-time information for improved decisions by management means improved marketing/sales data, sales demand forecasting by demographic areas, vendor performance ratings, telemarketing systems, and inventory deployment models.

Increased integration of data processing and communications in the retail distribution industry is essential to on-line connectivity of all operating elements, distributed processing to all locations, and end-user support throughout the organization.

3. Outsourcing Potential

Most IS managers feel their applications needs are very specialized, so few are looking for extensive applications support. They feel platform operations is where they can reap substantial benefits in the short term. It is expected the interest will shift to applications operations in the 1996-1997 period.

Small margins, low investment capital availability, increasing labor costs, and rising facility costs have discouraged frequent use of outside services, except when considered absolutely essential. Respondents in the mail order sector appear especially reluctant to outsource.

Retail establishments have rediscovered the critical importance of customer service to ensure repeat sales. Among the tools being employed are rapid credit checks and multiple payment methods, early warehouse response to local out-of-stock requests, telemarketing services, and accurate tracking of shipments to clients. All of these depend on rapid and accurate transfer of information that may exceed current systems network capabilities.

The large number of medium-sized firms have traditionally are not driven by the need for automated solutions as much as by merchandising skill. But this situation is changing. As large wholesalers and retailers find their margins shrinking even further in a more competitive environment, they are acquiring some of these firms and creating new IS consolidation requirements that cannot be met by internal staff. Exhibit IV-37 illustrates the positive and negative factors at work in this market.

EXHIBIT IV-37

Key Factors in Retail Distribution Industry

- Positive
 - Strong need for attention to customer service
 - Drive to higher inventory turnover
 - Mergers and consolidations of retail outlets
 - Strong interest in customer service
- Negative
 - Infrequent user of outside services
 - Smaller-than-average IS expenditure
 - Financial problems in retail chains
 - Low profit margins across industry

Leaders in the retail industry are investing in better ways to increase inventory turnover and reduce inventory excesses. Methods include EDI for rapid transfer of orders to production sources and suppliers and, in turn, shipment to specific outlets to minimize risky interim shortages of salable goods. This provides a supply version of JIT that avoids overstocking and the risk of unsold inventories.

4. Outsourcing Forecast

The forecast for this market sector, shown in Exhibit IV-38, indicates that the growth continues at a CAGR of 23%, close to last year's projection. As mentioned above, the need for consolidation of support services, stimulated by a rash of mergers, acquisitions, and retrenchments in the retail sector, has made the market for outsourcing particularly attractive. The emergence of IBM as a strong vendor in this market has added a cachet of acceptance to the outsourcing decision, so that others are likely to follow.

EXHIBIT IV-38

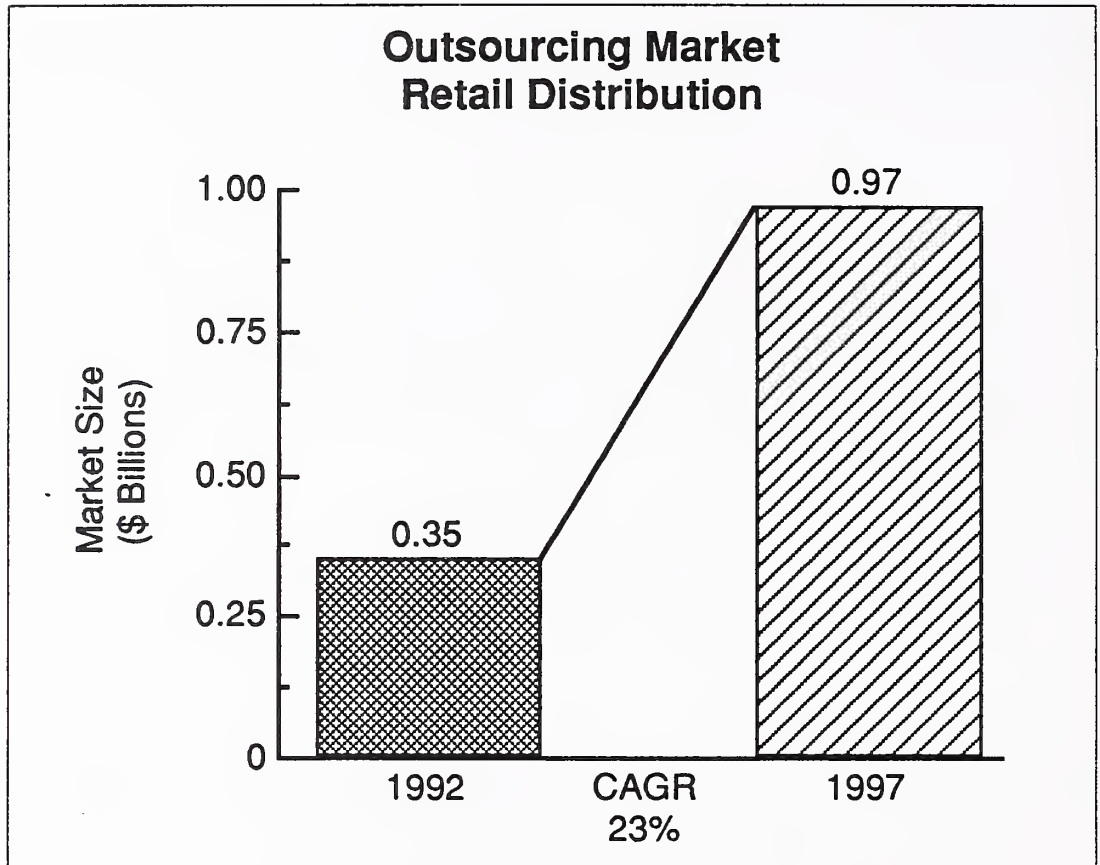


Exhibit IV-39 presents the user expenditure split between applications and platform operations for the forecast period. Applications operations become much more dominant in this vertical industry, as the vendors become more familiar with the applications on which the clients are dependent. Exhibit IV-40 illustrates the higher rates of growth for network management and desktop services expected in the 1992-1997 period. This is to be expected in a highly dispersed, information-intensive industry.

EXHIBIT IV-39

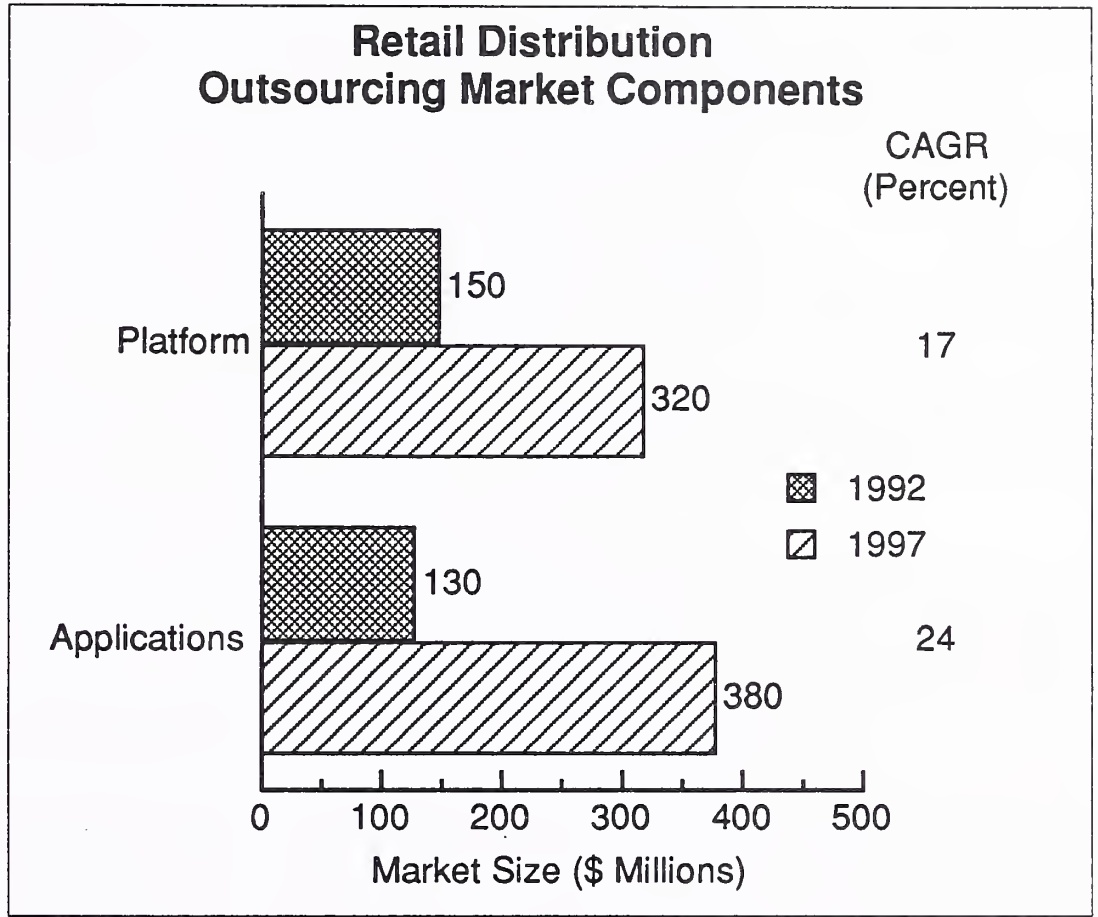
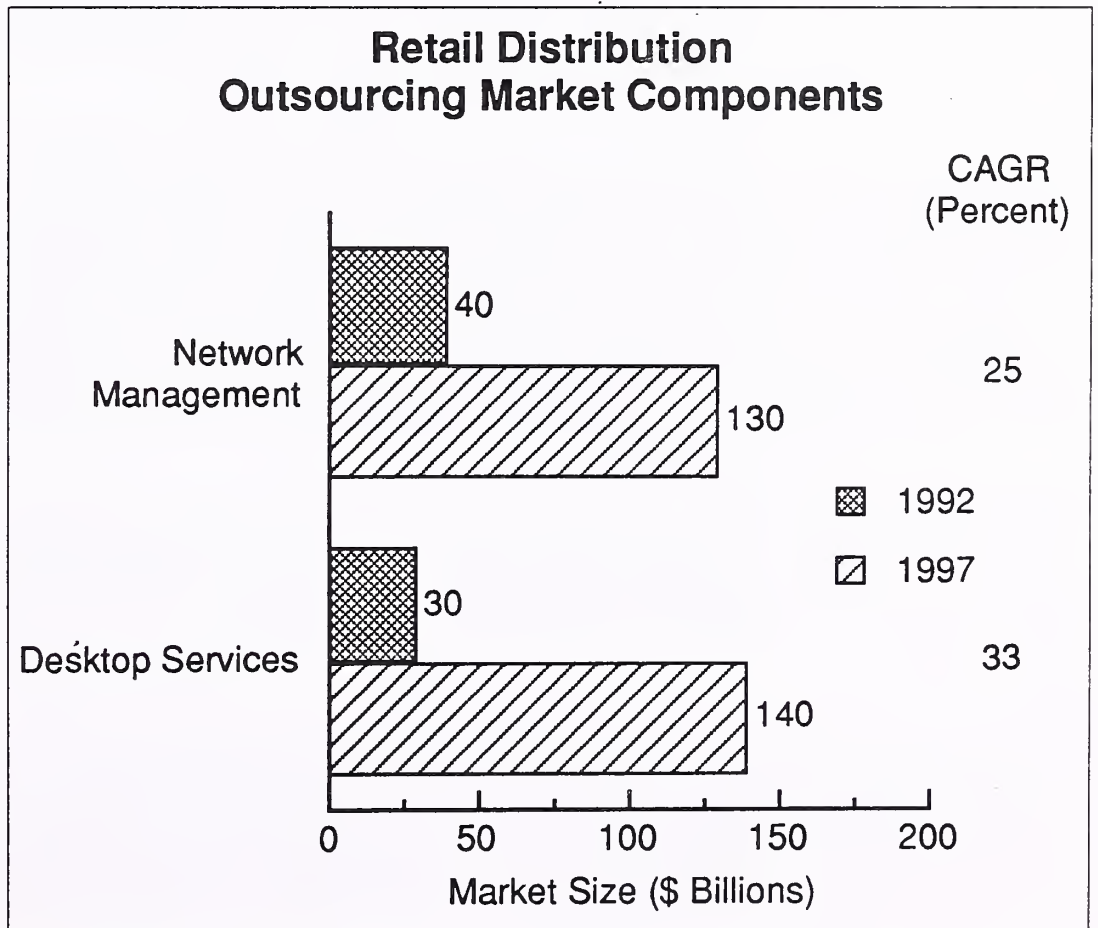


EXHIBIT IV-40



As mentioned above, the major vendor is ISSC, which obtained four contracts in the first three quarters of 1991 in this sector and two additional ones in 1992. It capitalized on its prior penetration in this market with equipment. More specialized systems operations vendors, notably ACS, have a large share of the revenue in this sector because they have built up a solid base of experience in retail distribution that inspires confidence in prospects. ACS, for example, is processing all work for the Southland Corporation and Builder's Emporium.

K

Wholesale Distribution Industry

This sector includes establishments that sell goods to retailers or industrial/commercial/institutional groups acting as brokers.

1. Industry Forces

The wholesale distribution market includes a number of widely different submarkets with equally different growth rates. Some very large wholesale establishments are leading edge users of information technology. However, many more (in the thousands) are very small and employ only a minimum of IS technology. There are three types of firms: independent distributors (merchant wholesalers), which account for about 55% of sales; manufacturer's sales branches, which generate about 35% of sales revenues; and agents and brokers, which handle somewhat less than 10% of sales and whose numbers are diminishing.

Measures to ease the pressure on margins include increased inventory turnover, secured high-volume purchases, longer and larger purchase commitments, and system improvements that contribute to the bottom line by enabling rapid response and deployment of products. Better communications will accelerate the information flow between wholesalers, retailers, and manufacturers/sources of goods. EDI can accelerate the flow and reduce order-processing costs. Back office use of computer-to-computer order processing will reduce the time needed to locate and deliver merchandise.

Automation is viewed as a matter of survival by the independents and manufacturing branches. The leaders forecast an aggressive use of computer and communications technology.

2. Impact on Information Systems and Services

In medium-sized to large wholesale organizations, IS is faced with meeting rising management expectations. It must satisfy increasing demands for the integration of data and applications while managing the limited technical investment. The mission is complicated by the traditional

instability of the sales-oriented organizational environment and its varying use of information services. IS is also faced with the increasing importance of data integrity in an environment where PCs are beginning to proliferate because of downsizing activity. Proposed solutions must be proven in the market to support early payoff.

Productivity of the IS staff is frequently impacted by varying backlogs of short-term or one-time application demands. Users in sales, management, and traffic are demanding increasingly complex tools, such as new workstations, upgraded applications, and on-line teleprocessing to gain a competitive edge. To meet these demands, IS is looking to outsourcing vendors to provide less expensive processing facilities, expanded connectivity, and network techniques such as EDI.

Conversely, the cost constraints limit the level and availability of the in-house staff to address these issues with the latest technology, while meeting day-to-day service requirements. In addition, IS managers are having difficulty gaining meaningful insight into future industry directions that would influence the selection of information technologies.

Like the retail distributors, wholesale distributors have not made use of outside services, except for hardware maintenance and essential software support. In an industry largely guided by merchandising intuition that uses relatively small IS staffs and is financially constrained by narrow margins, there has been minimal outsourcing of information systems operations.

3. Outsourcing Potential

There are approximately 30,000 wholesale distributors with between \$5 and \$20 million in annual sales, plus another 6,000 with sales in excess of \$25 million. This large and diverse base of prospects is faced with the need to automate but lacks the skilled in-house resources to accomplish it. Only the largest distributors have adequate staff to change the way they address market needs. Many of the smaller firms look to the large firms for direction. Exhibit IV-41 summarizes the market factors.

Part of the lack of penetration in this vertical market is attributable to the existence of widely different submarkets. Outsourcing vendors' experience is seen as relatively narrow. Each submarket sees itself as having unique requirements that can only be addressed by knowledgeable specialists.

From an outsourcing viewpoint, however, this market offers broad challenges that could be addressed by technology and tools already employed successfully in other markets. The marketing of outsourcing capabilities has to offer phased transition over time to minimize the impact on day-to-day operations.

EXHIBIT IV-41

Key Factors in Wholesale Distribution Industry

- Positive
 - Network requirements for retail access
 - Potential for increased EDI
 - Strong interest in inventory controls
 - Automation needed for survival
- Negative
 - Cost pressures/low margins
 - Need to keep operations running during transitions
 - Widely different submarkets
 - Many small wholesalers

4. Outsourcing Forecast

The wholesale distribution sector is expected to grow at 17% for the period 1992 to 1997. This segment starts with a low base and continues to be a small portion of the total outsourcing market. Exhibit IV-42 illustrates the market forecast.

EXHIBIT IV-42

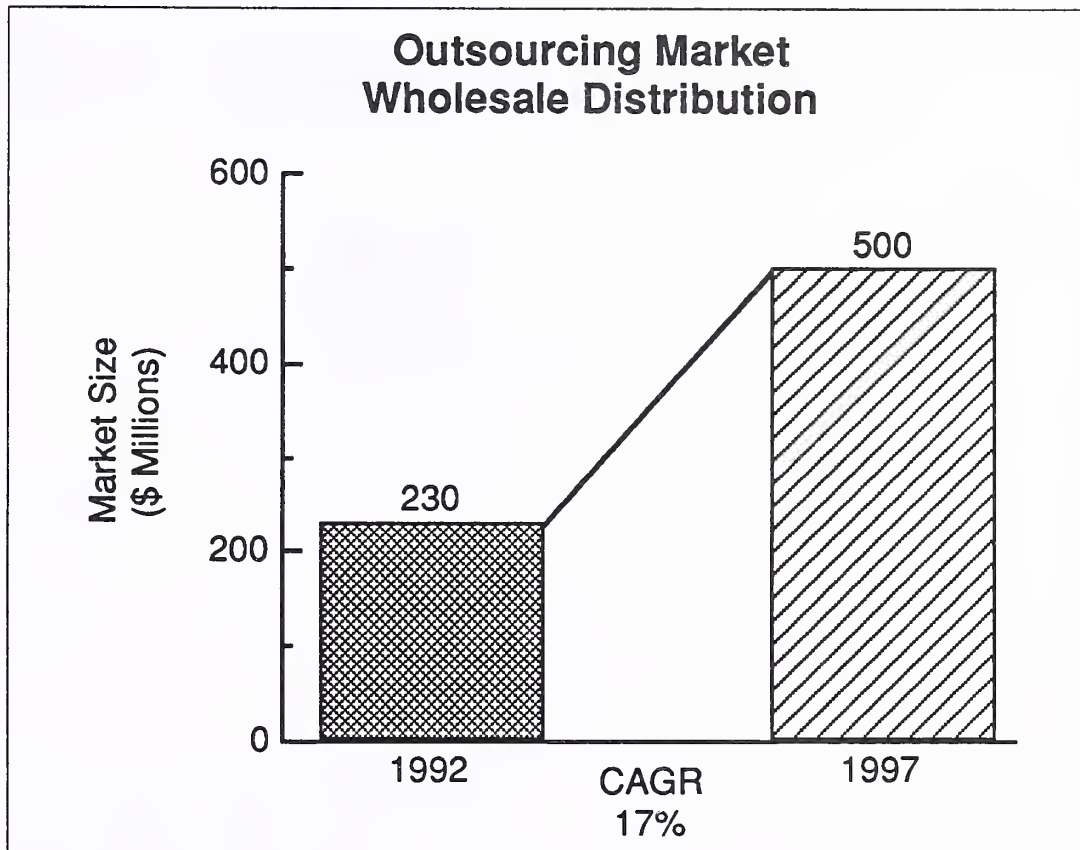
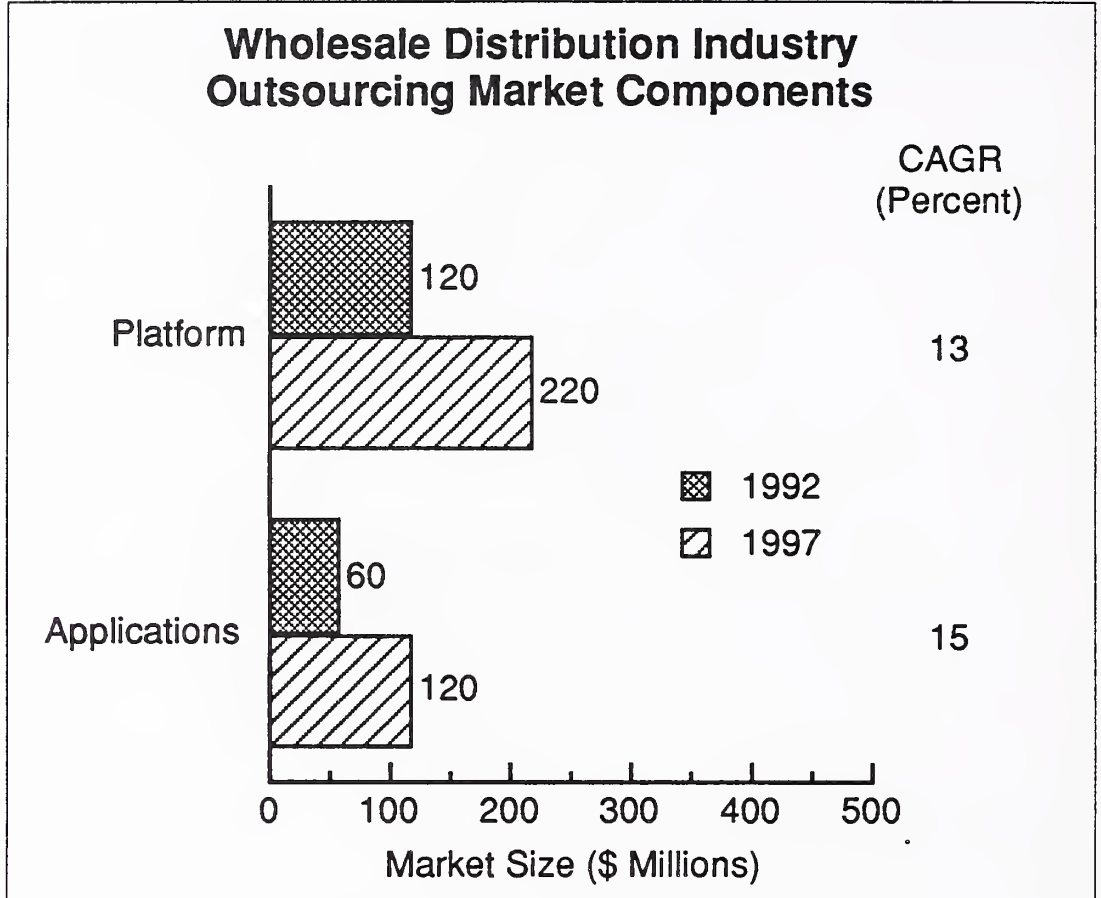


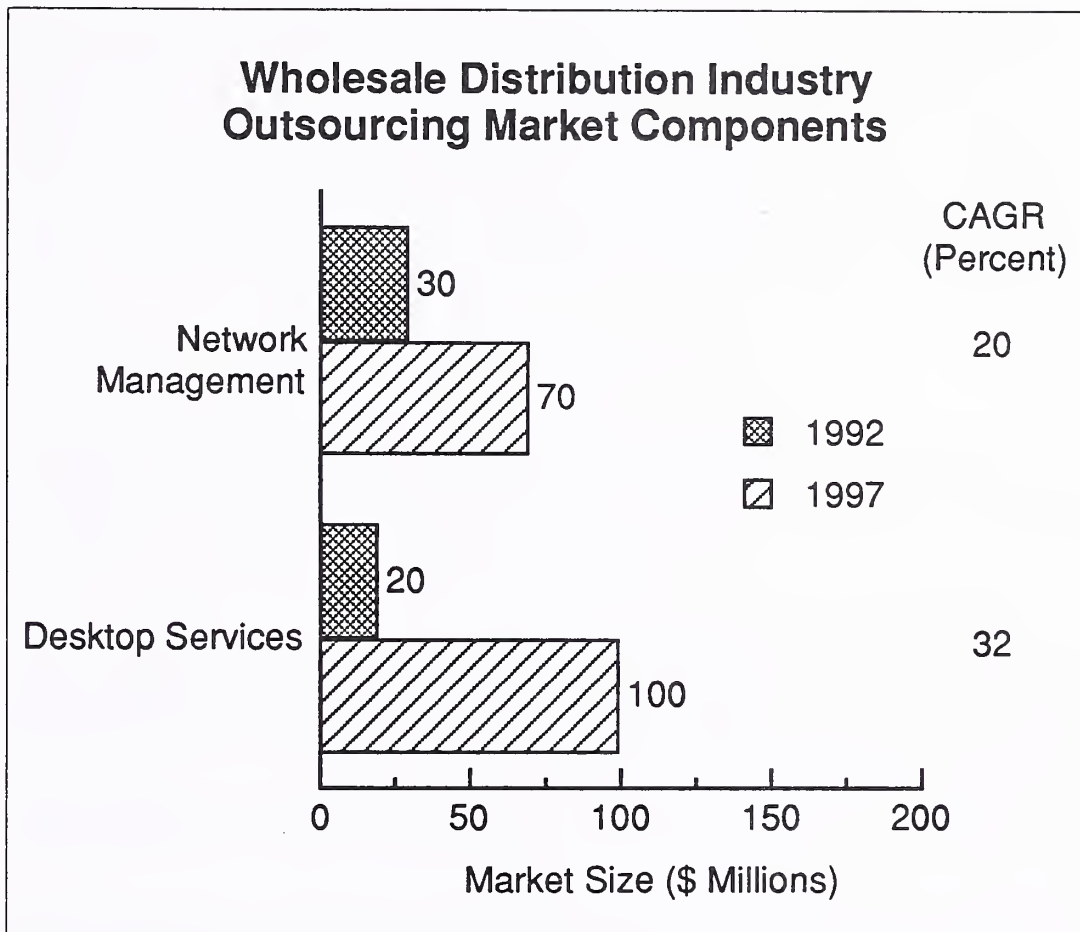
Exhibit IV-43 illustrates that most of the processing in this vertical industry is platform systems operations. Most clients indicate they know their business best and will not entrust software to vendors. This trend will continue, though the growth rate for applications operations will accelerate slightly by 1996. Exhibit IV-44 indicates that network management will grow somewhat more rapidly and desktop services will grow still faster, again an indication that the problems of distributed information requirements will cause wholesalers to turn to outsourcing vendors in this period.

EXHIBIT IV-43



Martin Marietta entered the commercial market in 1991 with a contract at Monarch Foods, a large grocery wholesaler in the mid-Atlantic region. User respondents still indicate that they do not find any vendor with expertise in the wholesale distribution business. Certain large wholesalers—particularly agricultural cooperatives such as Agway and Land O’Lakes—do processing for smaller co-ops in their submarket, but this pattern does not seem to occur in other submarkets.

EXHIBIT IV-44



L

Insurance Industry

This sector is composed of life, property, casualty, and health insurance; the reinsurance segment of agents and brokers; and health services claims processing.

1. Industry Forces

The insurance industry is highly competitive. In addition to competition from traditional providers, many are facing further dilution of market shares by the potential entry of banks and foreign competitors.

Foreign competition is generally associated with industries other than insurance. On the plus side, U.S. insurance companies have an estimated 28,000 affiliates abroad through which they sell insurance. On the minus side, approximately one-third of premiums in this country are paid to foreign-owned companies. While the overall trade impact continues to be fairly small, the data suggests that insurance is becoming as much a global activity as manufacturing or banking.

Financial institutions have made their appearance in the insurance market as competitors by offering "benefit consultants," "financial planners," and "full-service" business planners. Response to this influx of financial institutions has led to new insurance products with more complex premium calculations and to diversification into financial areas and interest-sensitive products. Individual states can now legislate the relationship between banking and insurance firms in their states.

Other problems facing the industry include increased liabilities from court actions, a growing elderly population with increasing out-payment levels, the AIDS epidemic, some bad investments in junk bonds and commercial real estate, and consumers' concerns about insurance availability and coverage. Possible opportunities for the industry include the opening of markets in Eastern Europe, Japan, and the rest of the Pacific Rim. Some of the industry's problems have justly been blamed on the poor economy.

Overall, the industry is relatively stable and should remain that way. Opportunity for information services vendors appears to be positive now that more automation is required and more connectivity is needed between each agency and home office.

2. Impact on Information Systems and Services

Increased competition and lackluster performance in the investment community are causing insurance companies to reduce costs by improving efficiency. Improvement of operations and increased productivity will most likely be accomplished through a reduced work force, increased capabilities of existing systems, the automation of additional functions, and the outsourcing of processing functions to third-party vendors.

In a new role, IS supports the effective management of change, the anticipation of systems needs for new product lines, and the provision of immediate IS support. System flexibility is essential to accommodate more products, improve customer services and sales, and permit nationwide system consolidation across all lines of business. Intra- and intercompany businesses will require a level of compatibility among systems on the same order as the banking/finance industry.

Insurance companies need more timely information, especially in claims administration, to write better and more competitive policies. Access to mainframe data through well-managed communications capabilities will improve user efficiency to offset some of the ongoing staff reductions.

There are requirements for building an infrastructure to support agents in the field by giving them a sales support system and by networking within and between offices. Artificial intelligence and expert systems are expected to play an increasingly important role in applications such as underwriting, risk management, investment planning, policy customization, and health services review analysis.

One technology that is of growing importance to the insurance industry is electronic imaging. Faced with a never-ending flood of paperwork, insurance companies are increasingly interested in technology that will reduce the cost of managing paper records. All recognize the benefits of electronic imaging. All also recognize that they are constrained both by lack of high throughput telecommunications services to connect electronic imaging systems to field offices and lack of internal expertise to design, install, and operate these systems.

3. Outsourcing Potential

Continued scrutiny of health care costs, and public awareness of the escalation of these costs, have created increased opportunities for vendors skilled at administering cost control systems.

Most personnel in insurance company IS departments are assigned to maintenance, resulting in a shortage of capabilities in the more sophisticated technologies currently in demand. IS managers in this industry note the importance of project management skills in design and implementation of networked systems, and the frequent lack of these skills within the in-house staff. Outsourcing vendors can provide these skills more effectively.

Many of the outsourcing opportunities in this industry are in the medical claims processing sector. As in every vertical market, there is a strong preference for demonstrated industry-specific knowledge. This requirement tends to favor vendors with extensive insurance and financial systems experience. This sector has had a number of systems integration projects in the past that ran into major problems. Financial and schedule overruns were severe, and a resurgence of the industry's self-sufficiency mentality has resulted. Particularly within larger companies, the feeling is that information services are too critical to let them be performed by an outside vendor. Only in small and medium-sized companies does there appear to be an understanding of the cost effectiveness of outsourcing systems operations.

Exhibit IV-45 summarizes the positive and negative factors at work in the insurance market. The counterbalancing forces will continue to dampen growth in this industry until one major insurance company chooses outsourcing as the route to a more cost-effective operation. The large multi-functional companies set the trends in this industry, and any large contract could cause a snowball effect to develop and radically change the growth rate for outsourcing in the insurance industry.

EXHIBIT IV-45

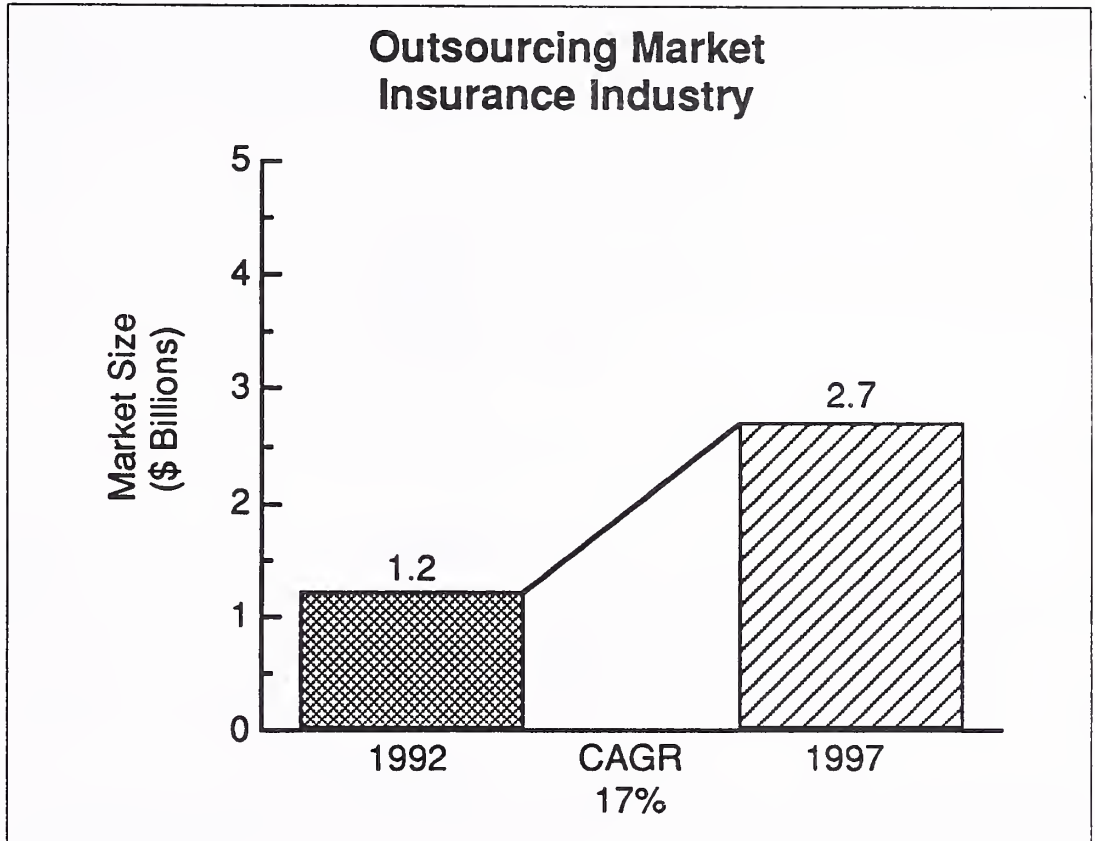
Key Factors in Insurance Industry

- Positive
 - Growth in health insurance requirements
 - Need for on-line policyholder/client information
 - Continued pressure for increased efficiency
- Negative
 - Cost controls limit new starts
 - Decline of property/casualty strength
 - Large insurers set trends
 - Self-sufficiency mentality

4. Outsourcing Forecast

The current forecast for the insurance industry is a 17% growth rate for the five-year period from 1992 to 1997, as shown in Exhibit IV-46. This reflects increased cost pressures in most sectors of the insurance market. The increased emphasis on health care cost containment also has helped to offset the overall slowdown in the insurance industry.

EXHIBIT IV-46



Applications operations and platform operations are evenly matched currently, but applications operations will be slightly larger by 1997, as shown in Exhibit IV-47. Platform operations is growing at 11% over the period, whereas applications operations is growing at a 17% rate. Exhibit IV-48 illustrates what will happen to the network management and desktop services components of the insurance industry's outsourcing market.

EXHIBIT IV-47

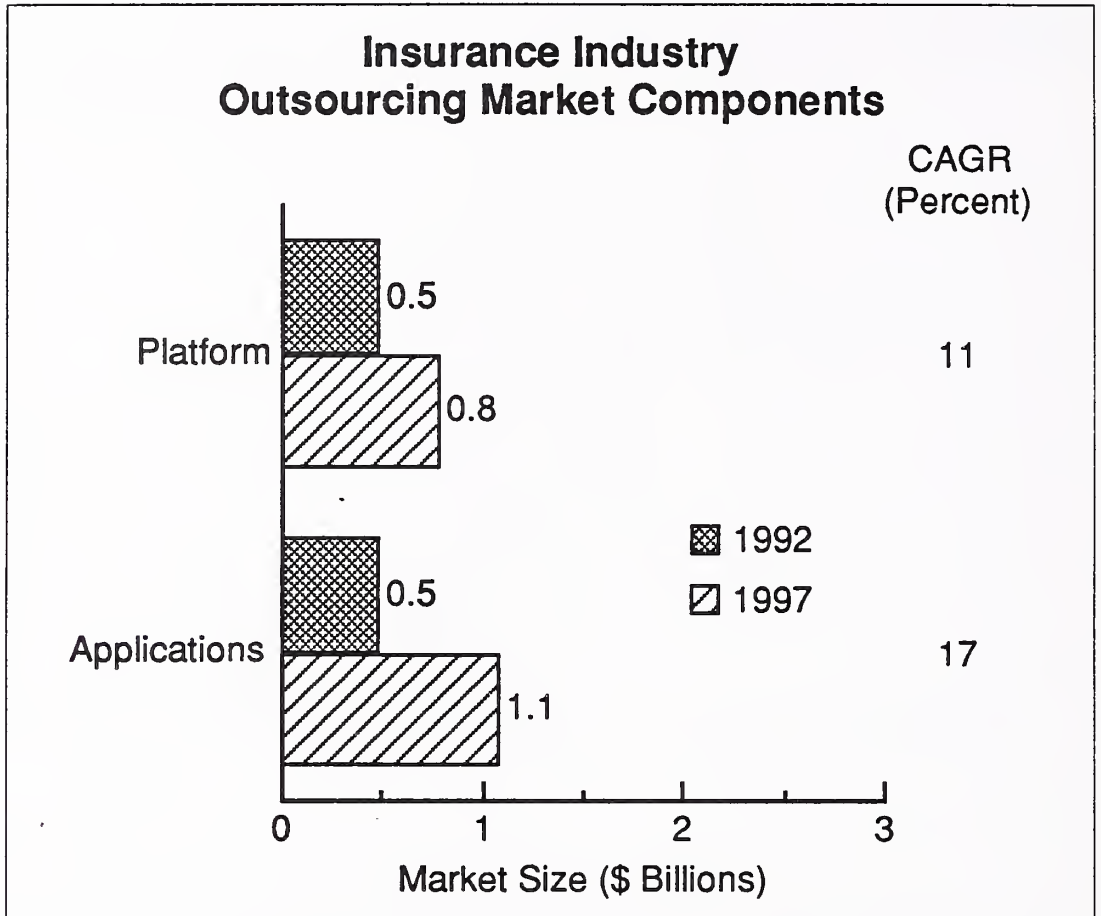
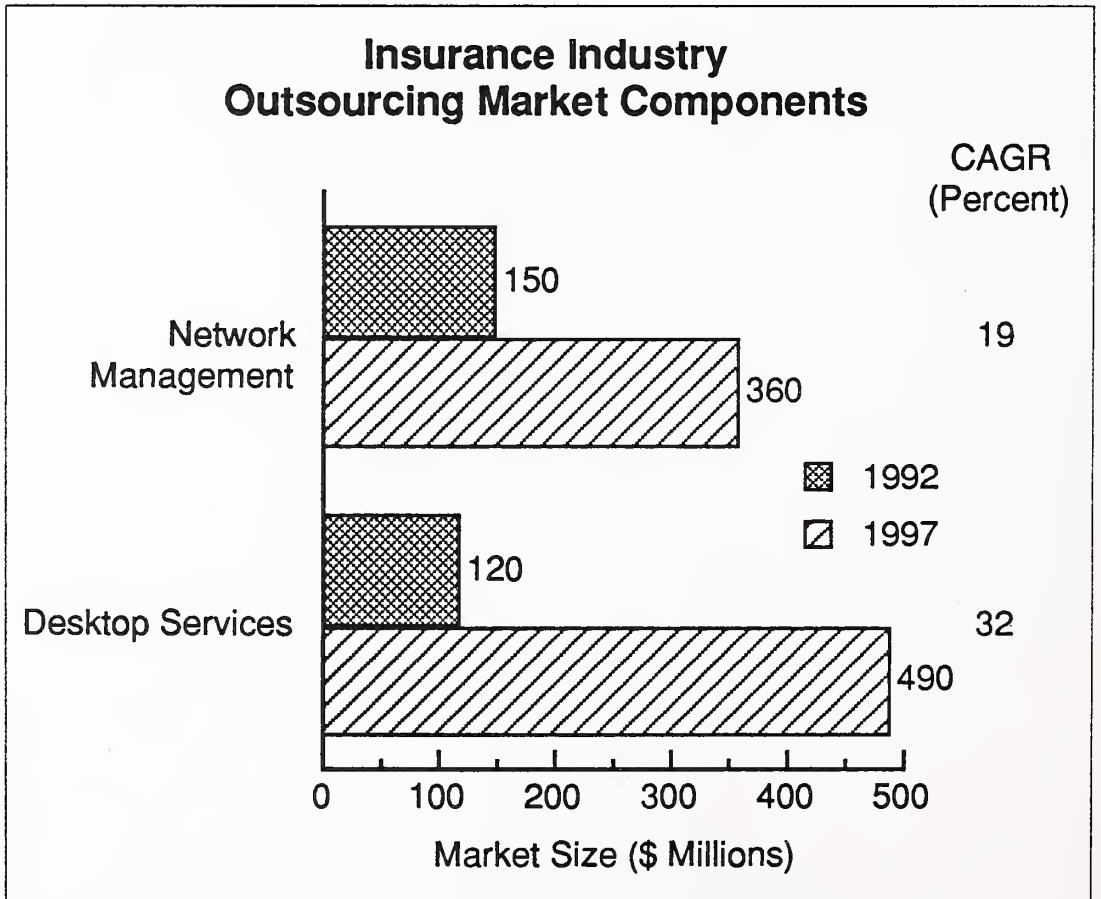


EXHIBIT IV-48



Successful outsourcing vendors in the insurance market will need to demonstrate experience in this sector. EDS and CSC, for example, have demonstrated success in medical claims processing, both in federal contracts (CHAMPUS) and as Blue Cross/Blue Shield service providers. Industry specialists such as Continuum, ISI Systems, and Policy Management Systems (PMS) build upon their prior insurance claims processing experience in this industry, as well as on proprietary software. PMS and Continuum have also formed an alliance with ISSC, which should greatly enhance prospects in this industry.

M

Education Industry

The education sector is subdivided into two segments—academic and industry/commercial. The academic segment comprises public and private institutions that provide basic education from kindergarten through 12th grade, vocational schooling, community colleges, and institutions of higher learning for undergraduate and graduate study.

The industry/commercial segment comprises organizations that provide private educational services, such as private business and technical schools.

1. Industry Forces

The current administration has placed emphasis on this area and is receiving strong support from industry which feels the U.S. is losing its competitive edge partly because of lack of education. This should result in increased focus and spending for systems that will result in improved academic achievement. There are, however, a number of factors that constrain the use of information services within the educational market. They include the following:

- Flattening enrollment patterns that result from decreasing family size, although there continues to be an emphasis on post-high school education
- Constrained funding sources that result from state and local funding and spending limits
- Reduced federal spending on educational research grants

2. Impact on Information Systems and Services

The four major areas of opportunity for information-based solutions in education are

- Administrative applications
- Academic/courseware applications
- Research
- Library applications

Larger educational institutions employ IS staffs to operate academic and business centers. Academic support includes timesharing mainframes and interconnected microcomputers for computer studies, research, and courseware.

Administrative functions include class and teacher scheduling, student records, building and equipment maintenance, and the usual range of payroll, finance, and accounting functions. Library functions may be controlled by the academic or administrative staff or operated separately.

The increased focus on improving the quality of education should begin to improve spending in areas that will have the most impact on academic results. This should include spending for more microcomputers and courseware in the K-12 arena and networking of capabilities within and among campuses. Microsoftware vendors continue to develop creative programs to introduce more computer usage in the classroom.

Industry also appears willing to spend in areas that will better prepare students in technical areas in which it believes the U.S. is trailing but that are essential for industry to be competitive. Expenditures for systems to improve computer science skills and to perform research in advanced applications areas such as artificial intelligence, groupware, and CIM should be anticipated.

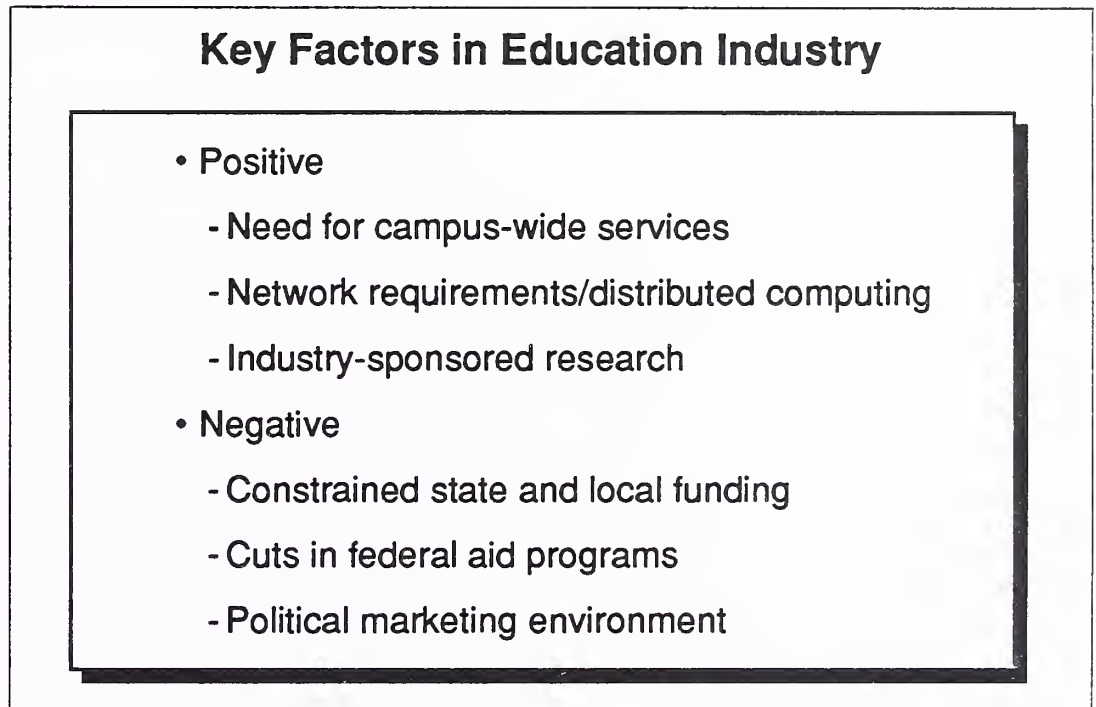
Large private colleges and state university systems will be competing for public and private grants to perform research for the government and industrial companies. The competition will encourage institutions to develop and maintain state-of-the-art research facilities.

Industry is increasing its grants to education in support of the national emphasis on education and to allay its concerns about competitiveness. These research grants require immense amounts of computer processing capability, again available on a campuswide or statewide basis. These grants drive the demand for skills to build and manage supercomputer complexes and network them throughout the research community.

3. Outsourcing Potential

Though education is not a large component of the outsourcing market, the commonality of administrative procedures and requirements, coupled with the inability of academic institutions to be competitive with industry in salaries, make the marketplace a viable one for outsourcing vendors with the required expertise. Exhibit IV-49 illustrates the market factors at work in this sector.

EXHIBIT IV-49



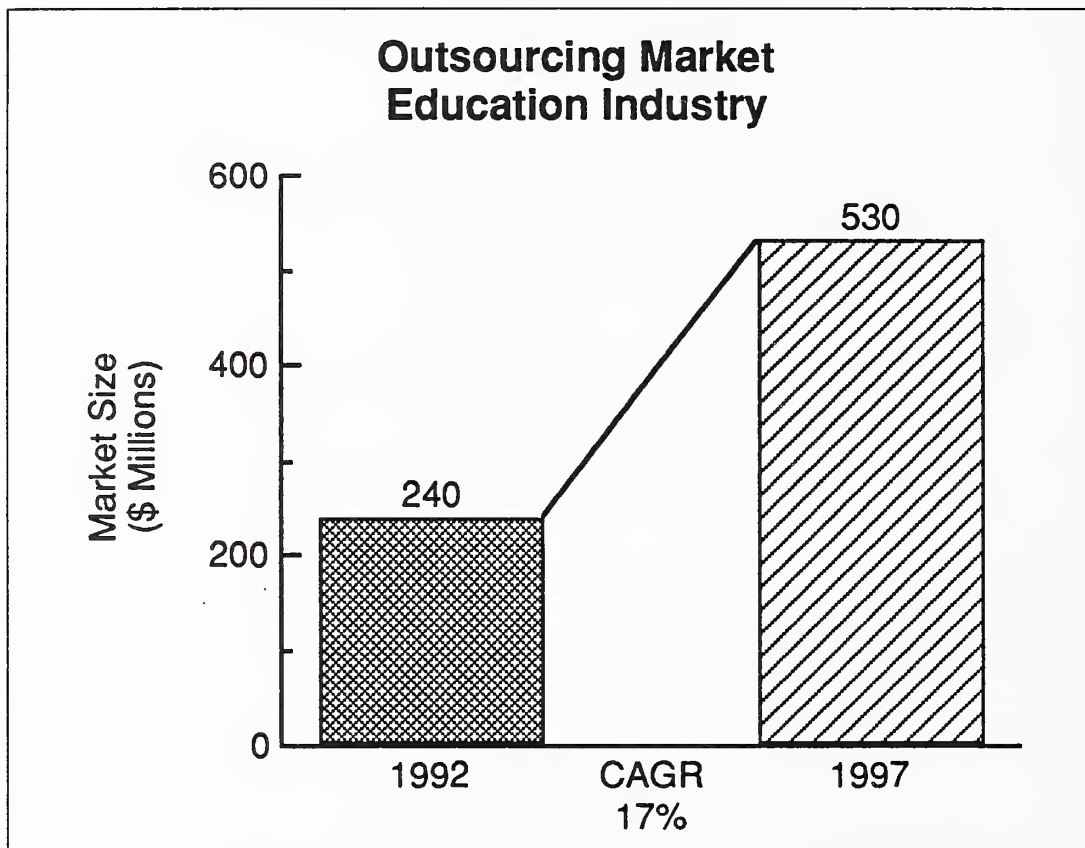
Schools that have gone outside for help have found it effective. Many others are trying to accomplish the task with internal resources. There are both platform and applications opportunities in the education sector. Many IS departments support administrative departments and the research community within the academic environment. Often these services are provided on different platforms. The general-purpose processor used for administrative functions is not what the research community wants for its computation-intensive work. Some schools will benefit from vendors such as SCT that have applications software available to handle student registration, class scheduling, and other administrative functions. Others need to upgrade their computational capacity with supercomputers available from a platform systems operations vendor providing raw processing power.

The education market continues to be constrained by budget limitations. There have been, and will continue to be, reductions in federal research grants. This could become a positive pressure for outsourcing. Vendors who know and understand this market can best take advantage of the unique political environment that often requires many rounds of review and approval, particularly at the state university level.

4. Outsourcing Forecast

The forecast for outsourcing is illustrated in Exhibit IV-50. The growth rate of 17% overall is slightly less than the industry's average of 18%, but significantly up from last year's rate of 13%.

EXHIBIT IV-50



Applications operations has emerged as the dominant type of outsourcing in the education industry (see Exhibit IV-51).

This trend is expected to accelerate as schools find the need to replace their outmoded administrative systems with less labor-intensive systems. As Exhibit IV-52 shows, there is not a great demand for network management. Internet and NSFNet seem to be meeting many of the needs of the academic institutions.

EXHIBIT IV-51

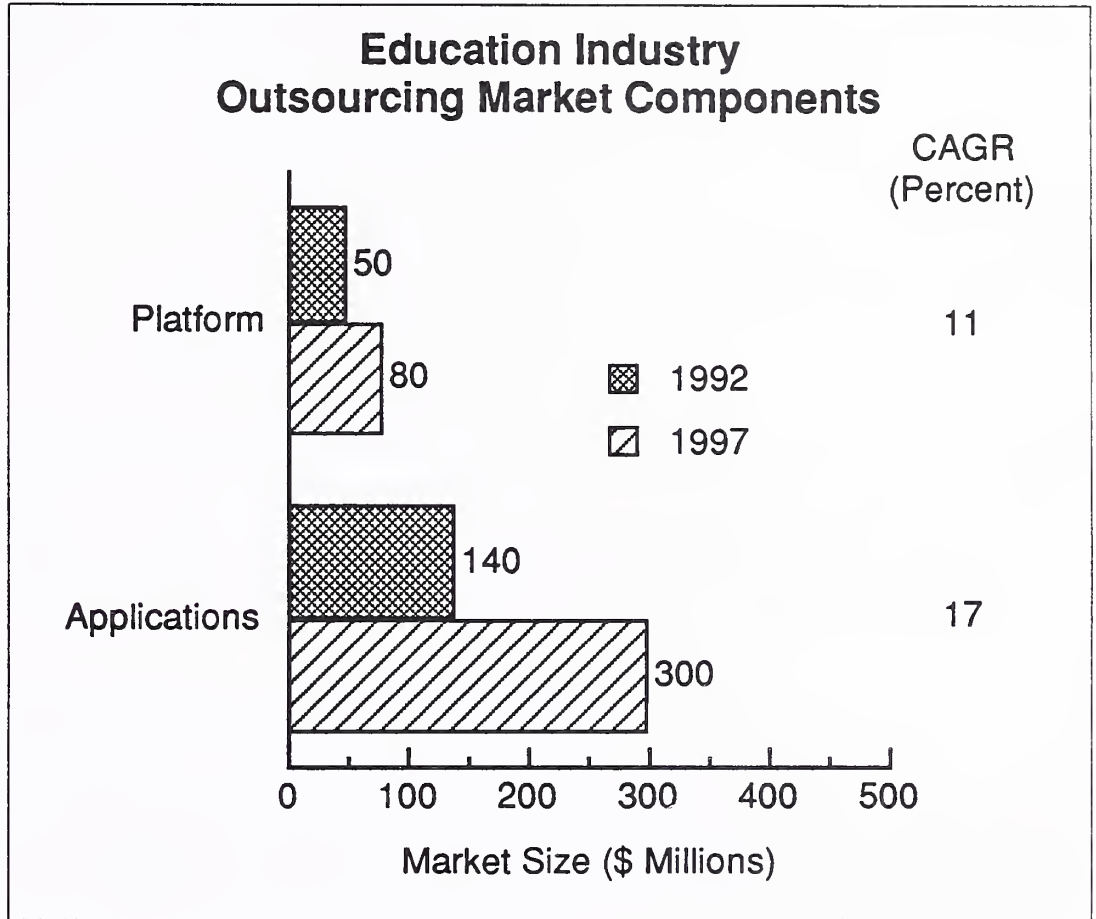
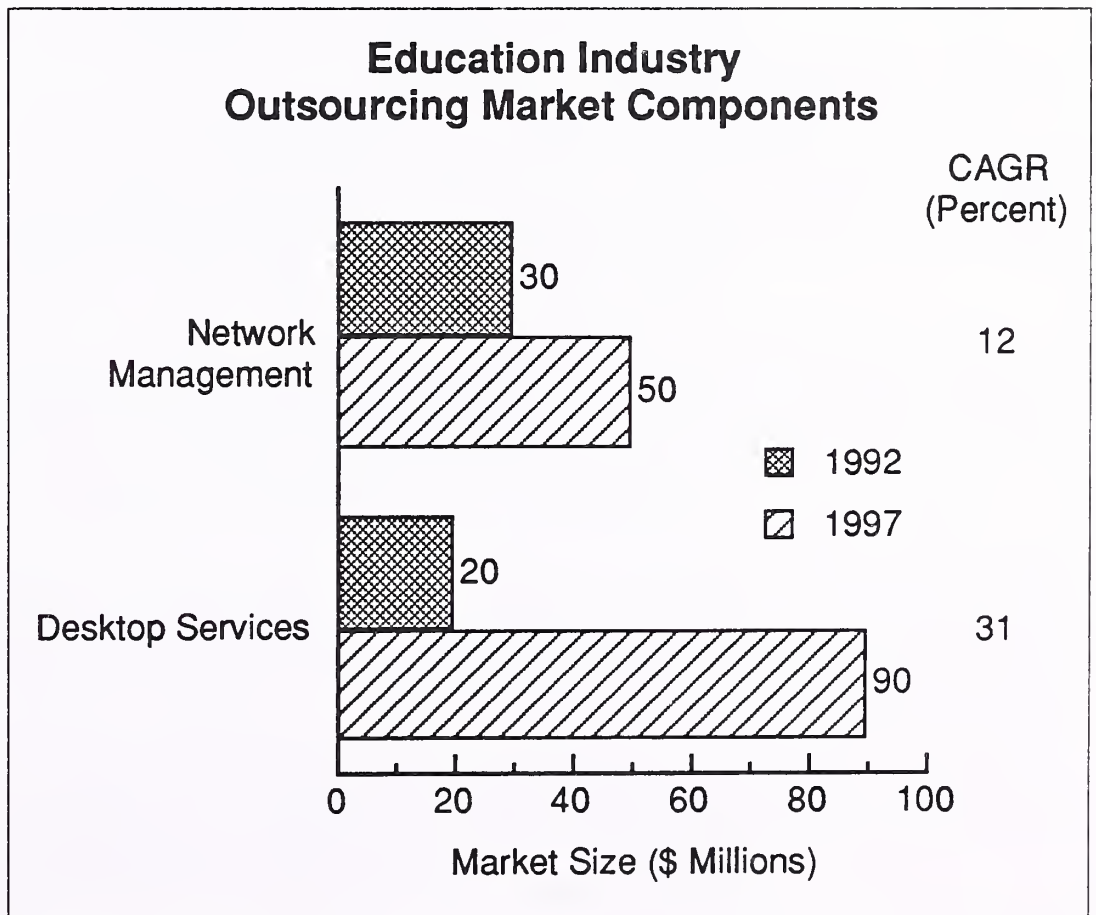


EXHIBIT IV-52



System and Computer Technology is the major supplier of outsourcing to the education market. They have enhanced their position significantly with the acquisition of Dun & Bradstreet's AI division in mid-1992. American Management Systems also reports activity in this sector.

N

Business Services Industry

This sector includes real estate companies, business and legal services firms, firms providing engineering, accounting, research, management and related services. It also includes the airline reservation business, travel agencies, hotels, and hotel reservation services, the entertainment business in its various forms, automobile services, other repair services, membership organizations, and social service organizations.

1. Industry Forces

A transition from an industrial to a service-oriented economy is underway in the U.S. According to the Bureau of Labor Statistics, business services are expected to add 2.7 million new jobs between 1988 and 2000. The 2.7 million increase represents almost 1 of every 6 new wage and salary jobs added for all industry sectors between 1988 and 2000.

This growth is in contrast to manufacturing employment, which is projected to shrink slightly from 19.4 million to 19.1 million at the turn of the century.

Reasons for the trend toward a service economy include the following:

- Big businesses are increasingly using outside business services—for tax work, accounting, and inventory control—in order to contain costs and maintain flexibility.
- The number of small companies is growing; smaller companies do not have a full spectrum of internal resources or know-how. They therefore hire outside sources to set up their books, do their advertising, handle marketing, etc.
- More expertise, which companies do not necessarily need on a full-time basis, is required as the world becomes more complex. It is not cost-effective to provide in-house resources to meet every demand in the course of doing business.

Some of the forces affecting the business services industry are the general economic slowdown, globalization, and expansion into homogeneous markets. With the U.S. economy facing a slowdown, companies are looking to outside business services to reduce their internal costs and keep

their businesses focused and flexible. Firms are, in effect, "outsourcing" services other than IS.

In another sector of this market, the hotel industry continues to experience an oversupply of rooms and weaker demand. To combat this problem, there has been an emphasis on niche markets in different price levels, such as economy accommodations and all-suite accommodations. Hotel reservation systems are becoming more inclusive, with central reservation systems appearing that allow reservations for rooms, cars, and airline tickets to be purchased at one location.

The travel service industry is made up of mostly small businesses, with the exception of the airline industry. The airline reservation business continues to struggle and has become more innovative due to deregulation and increased competition. Rental car companies are installing automated reservation terminals, located in airports, that are used to speed up the rental process.

2. Impact on Information Systems and Services

This sector is made up of extremes. On one hand, airline and hotel reservation systems represent classical outsourcing functions with large volumes of transactions and a large network component. On the other hand, there are subsegments of this market that are very small and diverse with very unsophisticated IS needs.

The reservation system has long been an area to which the latest IS technology has been applied to improve responsiveness and efficiency in transaction processing. Large mainframes were applied to the task early in the industry's evolution. It also continues to be a very fruitful area for the application of the latest communications technology, and EDI technology has potential for application here.

The demands for technology are driven by a need to be responsive to customer needs. This same need exists among auto dealerships and social service organizations, which have been less quick to adopt the technology.

3. Outsourcing Potential

There is recognized potential in the airline reservation sector that is currently being pursued aggressively by EDS. What started out as a large processing operation owned and managed by the airlines, System One, became a problem as the airlines' financial situation deteriorated due to mergers, acquisitions, and the intensified competition caused by deregulation of the airline industry. The outsourcing of systems operations provides them with a source of cash to be applied to their debt servicing and ongoing operations.

This same cash crunch may be developing in the hotel industry as the economy slows; hotel chains are a prime candidate for outsourcing vendors. These same factors are at work in the automobile rental industry as well, but the preponderance of independent dealers makes a concentrated thrust much more difficult.

The rest of this sector is made up of small purchasing units that do not appear to be good candidates for anything but niche vendors. Exhibit IV-53 summarizes the forces at work in this market sector.

EXHIBIT IV-53

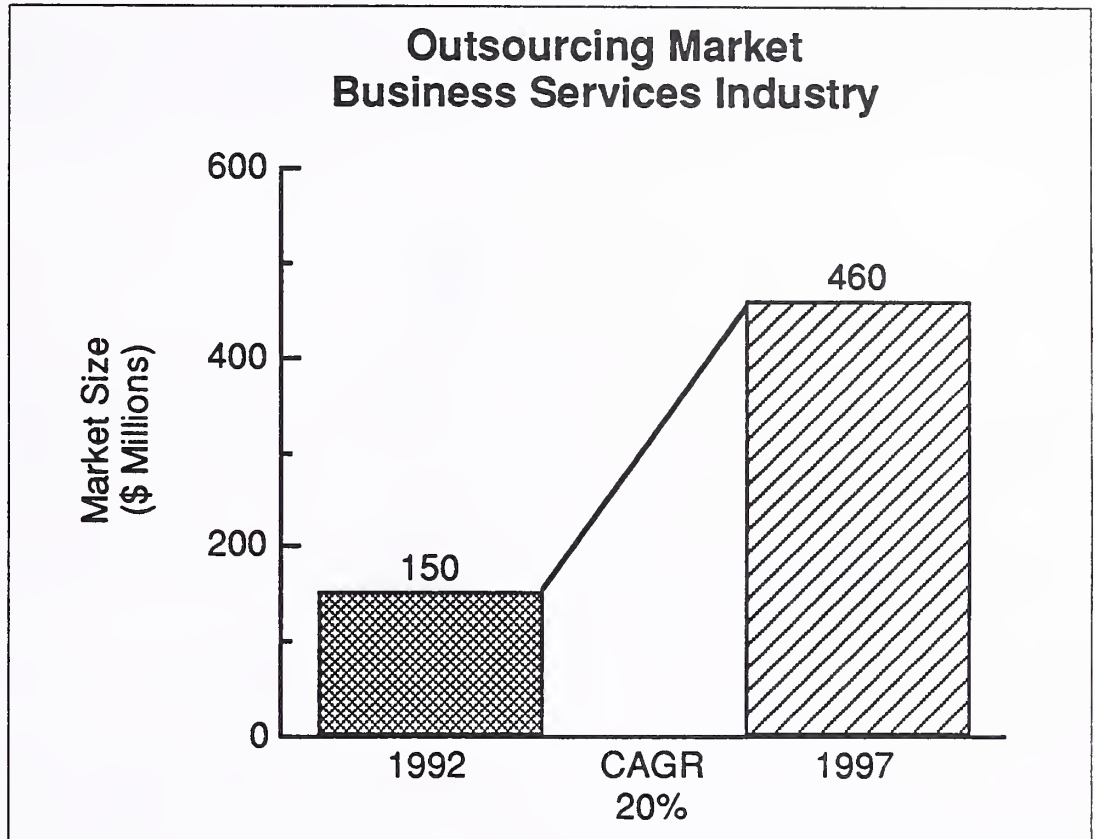
Key Factors in Business Services Industry

- Positive
 - Strong customer service orientation (airlines and hotels)
 - Need for cash in certain market subsegments
 - Need for network capabilities
- Negative
 - Segmented marketplace
 - Very diverse expertise required to service market
 - In-house control of large client systems

4. Outsourcing Forecast

The growth for this industry is projected at 20% for the period 1992 to 1997, as seen in Exhibit IV-54. Continued activity in the hospitality segment of the market will probably lead to further growth and outsourcing in this area.

EXHIBIT IV-54



As demonstrated in Exhibit IV-55, there will be unbalanced growth in this vertical market between platform and applications operations. This change will accelerate if there is a major change in the relationships between vendors and clients in the airline reservation segment or in the hospitality sector. Exhibit IV-56 illustrates that network management as a separate outsourcing activity will not be a major factor in this industry, mainly because the major contracts have network operations included as part of the platform or applications operations outsourcing component.

EXHIBIT IV-55

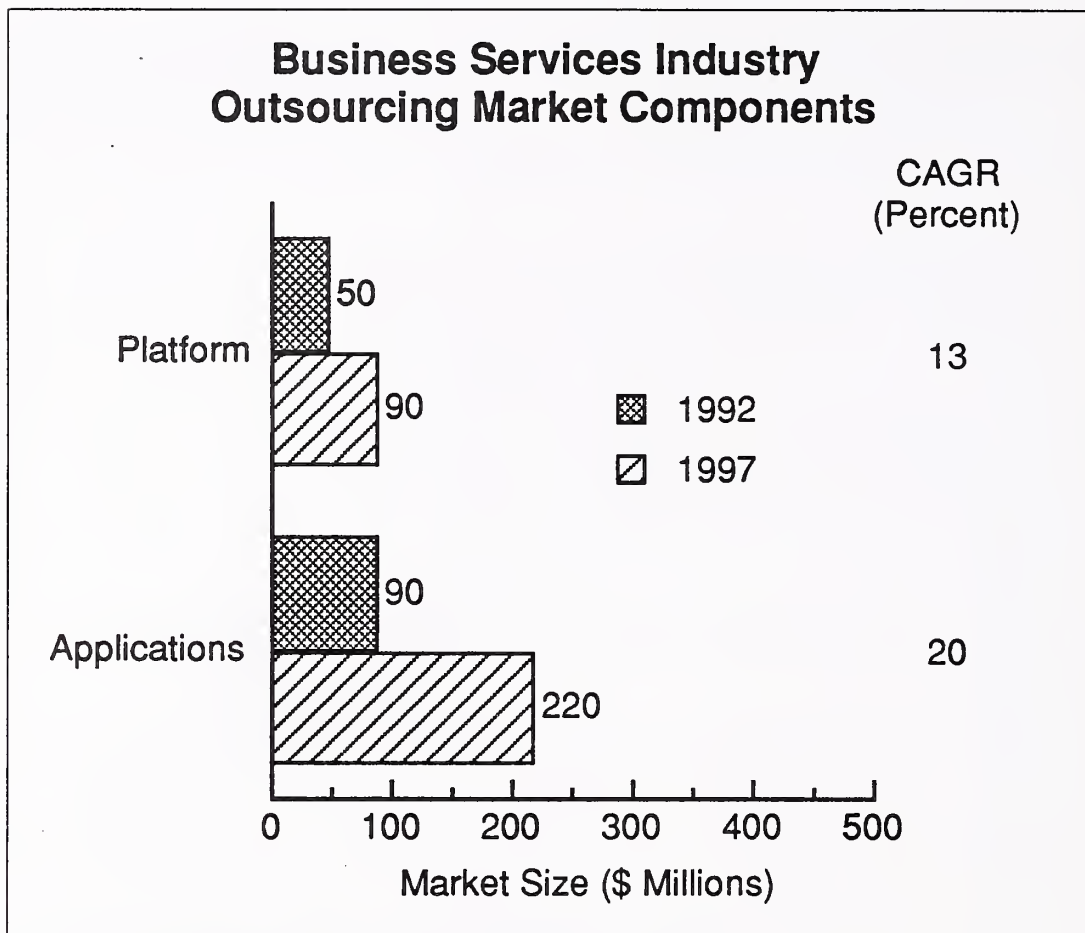
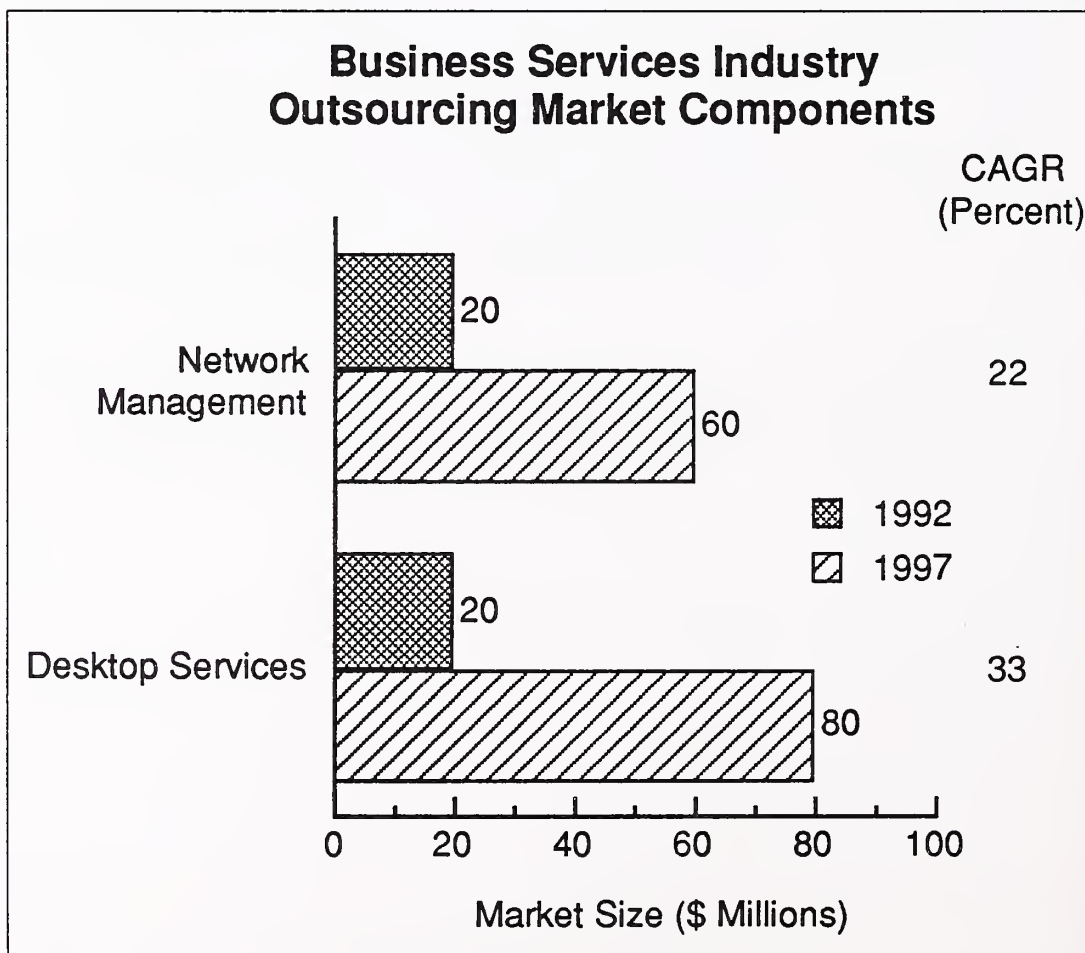


EXHIBIT IV-56



EDS continues as the dominant vendor in this segment of the marketplace by virtue of its contacts with Continental Airlines, National Car Rental, and Hospitality Franchise System. IBM is active in the hotel industry and may be expected to increase its market share in 1993.

O

Miscellaneous Industries

This sector includes companies engaged in the agricultural production and construction industries only. This category is the former "other" category without the entertainment and hospitality industries, membership organizations, museums, and auto repairs; these have been reassigned to the business services sector. No detailed analysis was conducted of this vertical industry because of the small volume and limited opportunities.

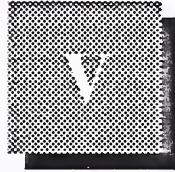
P

Summary

This analysis illustrates how varied the market conditions are within each vertical industry market. Thus, there is a growth rate of only 13% in one of the largest markets, the federal market, and rates at 20% and above in much smaller sectors such as retail distribution and business services. Some of this diversity reflects the difference in maturity of the various industry markets, but in the smaller markets a significant win by a major vendor may change the complexion of that segment for several years.

Specialization continues to be effective where some specific industry knowledge is desired, but the "generalists"—usually large vendors—can counter with an established reputation and a large base of resources to apply creatively to prospects' needs. There continues to be room for many types of vendors in this healthy market.

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Market Strategies and Recommendations

The outsourcing market continues to be attractive for a variety of vendors. The close relationship that evolves between the vendor and the client leads to better account control for the long term. Vendors can apply economies of scale, both to processing capacity and scarce technical resources, leveraging these across several clients.

Yet the risks are significant. The vendor is often required to make a direct investment in the prospect's business by assuming responsibility for the operations staff and the processing equipment, or even acquiring other assets. The vendor's success is closely tied to the fiscal health of the client. The vendor assumes business risks along with the client. Vendors must adapt their product to meet changing market needs. The emerging demand for desktop services, sparked by a strong interest in downsizing of operation, needs to be addressed. Vendors need new skills to participate in the market of 1992 and beyond.

The marketing process must, therefore, be carefully orchestrated to ensure a high success rate. Identification of real opportunities early in the cycle becomes critical to success. The techniques that best address the marketing environment need to be clearly defined. The new concept of vendor/client partnership that is developing needs to be explored in this context also. The need to provide a different mix of services to a client as the relationship evolves is becoming a bigger factor in the success equation. INPUT's market analysis leads to some recommendations on strategies to best succeed in this dynamic outsourcing market.

A

Market and Opportunity Identification

There is no guide to successful sales in the outsourcing marketplace. Yet, careful attention to trade press, coupled with user and vendor interviews, can provide some useful insights into what has worked well in the past, what constitutes the characteristics of a successful deal, and what is likely to succeed in the future.

There is a consistent set of characteristics that allows vendors to build the prospect list and identify those with higher potential.

As was evident in Chapters III and IV, the vertical industry markets vary greatly in their degree of penetration by outsourcing vendors. Within those markets, a subset of the organizations most likely to benefit from information systems outsourcing can be identified. Exhibit V-1 lists the types of companies that are likely to be good candidates for information systems outsourcing. These companies can be found in any industry.

Their receptivity to an outside vendor is generally closely related to their business situation. These trying economic times have created a wealth of situations in which firms will find outsourcing of systems operations an attractive alternative.

EXHIBIT V-1

Good Outsourcing Prospects

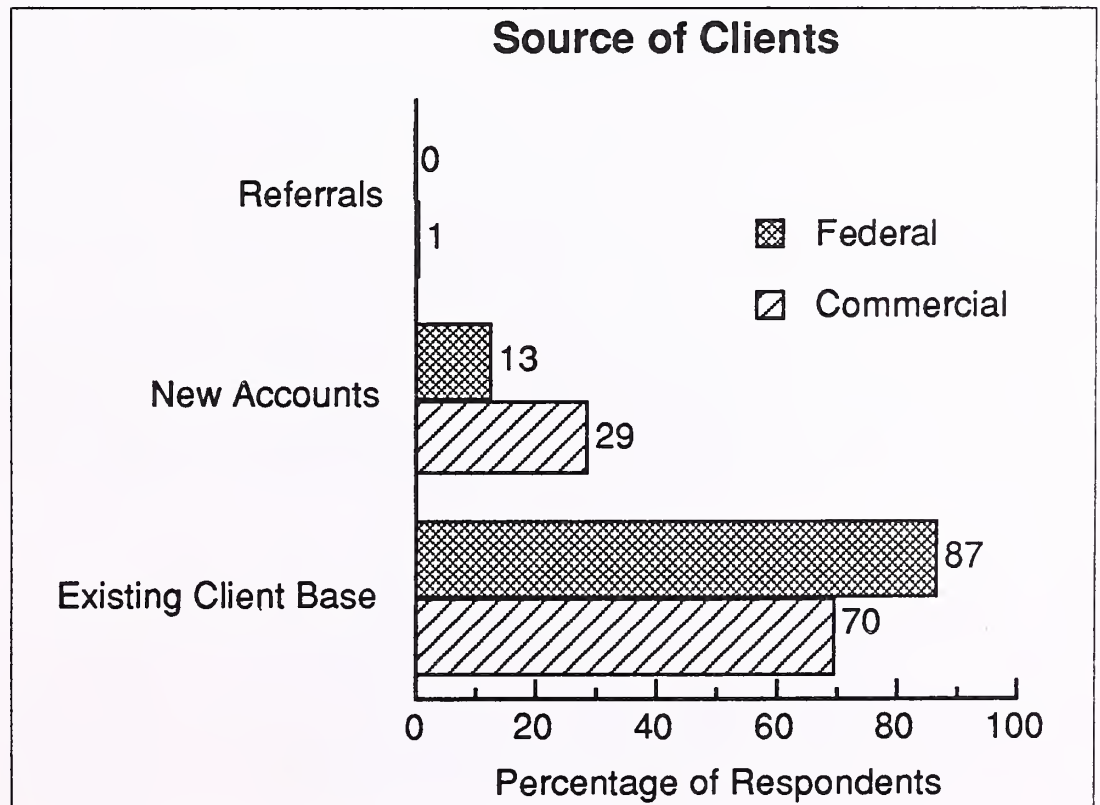
- Fast-growing organizations
 - Merging acquired data processing operations
 - Expanding geographic scope
- Organizations with major structural changes
 - Adjusting to divestitures
 - Reacting to a leveraged buyout
- Organizations in trouble
 - Recovering from bankruptcy
 - Operating under Chapter 11 protection
- Medium-sized organizations
 - Falling behind the technology curve
 - Having limited investment capital
- Organizations with disparate architectures
 - Wanting to change architecture
 - Having incompatible data centers
- Organizations refocusing on their core businesses
 - Concentrating on what they do well
 - Leveraging scarce resources

The prospect firm will be either in an industry that has shown high acceptance of the outsourcing arrangement or in which the vendor has some demonstrable experience. The prospect in an industry that has not yet shown good acceptance of outsourcing is still viable when other characteristics are favorable. The organization may be in transition. The company may need to make substantial changes in the way it is conducting business. The company may be in financial trouble. In any case, the vendor must demonstrate an understanding of the company's business. The vendor with prior business dealings with the firm has an advantage. If most of these qualifications are met, the sales cycle can continue.

When examining the marketplace for likely candidates, it is important not only to know the potential of that vertical industry, but also the vendor's previous relationship with the prospect. In a series of vendor interviews, INPUT determined that more than 70% of the respondents indicated their source of clients came from within their existing client base. In other words, they were most successful with prospects that already knew their company and its capabilities. Exhibit V-2 presents these findings. Note that in both the federal and the commercial marketplace, experience with the customer is an important success factor.

Prior experience can be in many areas: equipment sales, leveraging an earlier systems integration project, or a previous consulting engagement. The entry point is often a function of the type of vendor. Experience first opens the door, then becomes an important factor in the evaluation phase, particularly if all competitors are otherwise on equal footing. If the vendor has no experience with the client, then strong industry experience and references are essential.

EXHIBIT V-2



In addition to industry knowledge and prior business relationships, there is a need to demonstrate the technical qualifications needed to do the entire job. Very few vendors have all the resources at hand to perform as the information services department of a firm in any industry they choose. The solution is to form alliances with other firms to round out capabilities or to acquire complementary firms.

In the operations, applications, and consulting areas, most firms have the capability in-house but still choose to go outside for particular expertise. In the less generic activities, even more vendors form alliances. Disaster recovery, equipment maintenance, and network communications are areas of information systems operations that vendors often turn over to specialists, rather than establishing an in-house capability.

B

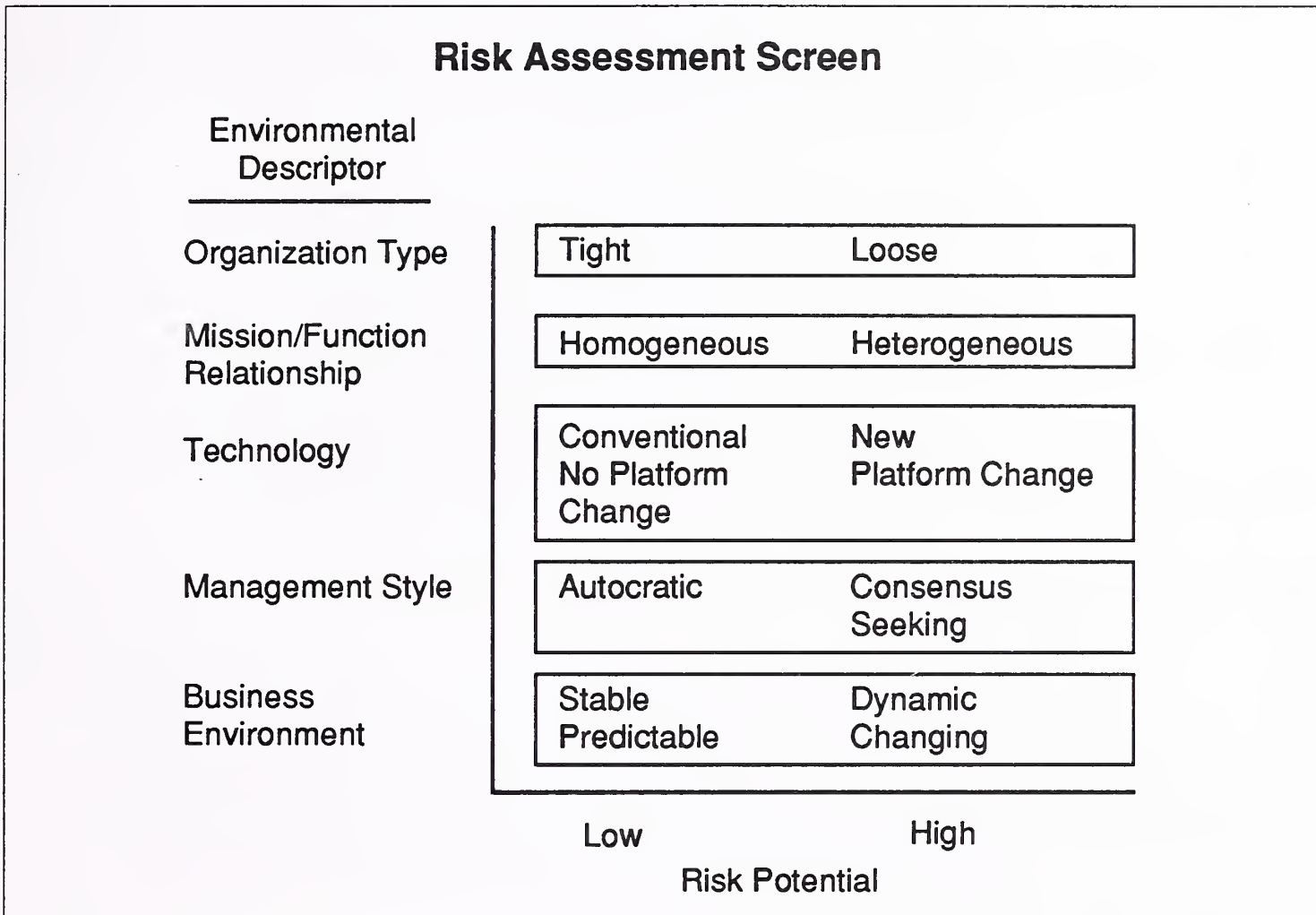
Risk Assessment

A study entitled *Alternatives to Grand Design for Systems Modernization* was released in late 1991 by the General Services Administration (GSA). This report studies the risk factors inherent in major information technology projects undertaken by federal government agencies. GSA sought to identify what factors increase or reduce the risk of failure. A series of 29 case studies was conducted of both commercial and federal contracts to identify and better evaluate factors that contributed to success, failure, or long delays in project execution. They ranged from the massive FTS 2000 contract to provide telecommunications services to most federal agencies, to an automated service dispatching system for Otis Elevator.

There are lessons to be learned for commercial outsourcing vendors from this report. A risk assessment screen can be developed to look more closely at any prospect and identify how risky it would be to take over an organization's operations. The assessment screen is not intended to discourage the pursuit of legitimate opportunities. Instead, it refines the selection process. In this way, vendors will have full knowledge of the risks prior to entering into an agreement with their clients.

A series of environmental factors can be identified and a risk potential spectrum postulated to describe the range of possibilities for each. Exhibit V-3 illustrates what a typical risk assessment screen would look like. It should be tailored to every prospective outsourcing opportunity, but the general case illustrated here is useful as a discipline.

EXHIBIT V-3



In this hypothetical scenario, five different environmental descriptors were evaluated to determine the amount of risk inherent in entering into an outsourcing agreement.

First, the vendor needs to understand the prospect organization clearly. Is it a tightly structured organization with clear lines of responsibility between management levels? Is the management structure much more open ended? Obviously, it will be easier to get the initial decision in the tightly structured organization, and it will also be easier to deal with day-to-day operating problems in an organization where lines of authority are clearly delineated. Therefore, if the prospect has a tight organization, the risk potential is low.

How does the mission of the organization relate to the functions to be outsourced? In other words, when the core business of the prospect organization has a high information content, such as the insurance business or the reservation business, the risk is lower, since senior management is more likely to understand the outsourcing vendor's proposals. In an engineering company, information processing operations are often

ancillary to the main business. This results in higher risk because information systems processes are less developed and more difficult to take over smoothly. This same mission/function relationship has the opposite impact on the probability of sales success. When the organization's mission and its processing function are very different, it is much easier to outsource that processing function.

The technology factor is obvious but must be considered in every case. Sometimes both parties (vendor and client) are comfortable with a processing environment that has been operating successfully for some time. Then, assuming responsibility for the entire operation involves very little risk. When new technology is to be introduced or the applications are to be moved to a new platform, the probability of problems is much higher. If the outsourcing vendor is merely doing transition outsourcing, however, in which the vendor takes on the existing operation while the client develops the new operating environment, the risk is obviously low.

C

Bid/Proposal Preparation

A recurring theme in the vendor interviews conducted by INPUT was that the vendor and the client must develop a clear understanding of each other's capabilities and commitments before an effective outsourcing contract can be entered into. This will result in a longer sales cycle. It will be a grueling task for both the vendor's marketing force and the prospect's evaluators. Obviously, both sides will want to maximize benefits.

Many commercial firms prepare a formal solicitation document for vendors, but others simply gather material that describes their current operating environment, combine that with their expectations and ask vendors to respond.

In INPUT's sampling of users, 50% of the prospects prepared a formal solicitation document. The prospect's purpose is to provide the vendors with a common set of data upon which to base their proposals. This makes it easier to compare the vendor responses during the evaluation phase. Respondents to INPUT's survey indicated that the preparation of the actual document took from two weeks to two months to prepare. The preparation was generally the responsibility of the Chief Information Officer in the organization. This person usually was assisted by a staff analyst, or, in a few cases, by an outside management consultant.

Exhibit V-4 presents the types of information that are always provided to vendors, whether or not a formal solicitation document is prepared. There are no surprises here. No vendor can prepare a valid proposal without at least this basic data. The fact that the list is not longer is a bit surprising,

though. It is also revealing that the buyer's transition plan expectations are generally not included in the solicitation documentation, for example.

EXHIBIT V-4

Elements Common to All Solicitations

- Current processing equipment
- Current systems software
- Current applications software

In addition to the basic data identified in Exhibit V-5, other information is usually provided to prospective vendors to allow them to better tailor their responses to the specific needs of the company. This information varies by buyer but generally includes the items shown in Exhibit V-5.

EXHIBIT V-5

Contents of a Solicitation Document

Item	Number of Responses
Current processing volumes	14
Software inventory	12
Equipment inventory	12
Future volume needs	11
Current staff deployment	10
System management facilities data	10
Current communications needs	9
Other	1

Knowledge of current processing volumes is critical to vendors. Most proposals are based on some measure of the number of transactions or resource use. Vendors must also know the types of applications they are expected to run and/or develop and maintain. Systems software and

software license agreement information is supplied if the vendor is expected to assume all software operations. The same type of information is required for the hardware. In order to prepare an accurate proposal, vendors need data on all the roles that they are expected to assume for a company.

Information on future volume requirements, if known, can serve to further sharpen a vendor's proposal. If processing volumes are expected to increase or decrease, pricing flexibility should be included in the contract.

When a vendor is expected to assimilate the user's employees, head count and skills inventories become essential information. Approximately half of all outsourcing arrangements include the transfer of user employees into a vendor's organization, or the vendor somehow assumes responsibility for the employees.

Resource accounting data, such as SMF (systems management facilities) data, and other operating parameters are also commonly furnished.

Detail on network communications is provided when outsourcing needs include this service. More recent agreements include network operations services from vendors. This represents about half of INPUT's current sample.

Unlike the respondents in an earlier INPUT study, respondents did not communicate their transition phase expectations to vendors. They expect vendors to provide expertise in establishing a transition schedule in all cases.

A few buyers revealed that internal operating cost data was not furnished to prospective vendors. This information may jeopardize vendor/buyer cost comparisons. It is also difficult to prepare this type of data in a form meaningful to outside parties.

D

Client Selection Criteria

The selection process is essentially a screening process. The first set of responding vendors is narrowed down to a smaller, more viable short list through a preliminary evaluation. This usually involves a comparison of some common criteria. The short list of vendors is then reviewed more thoroughly and discussions are typically begun with one or two vendors. Any more than that becomes unmanageable. At this point, more data is generally exchanged between the buyer and the vendors; further refinements of the requirements are made, and visits to client sites are scheduled.

Unlike the process of “sealed bids” so common in the public sector, there is much discussion at the second stage between buyers and vendors with regard to services provided and the price for these services. The outsourcing vendor trying to move from the federal marketplace into the commercial market should be aware of this and be prepared to interact with the prospect extensively during the selection phase.

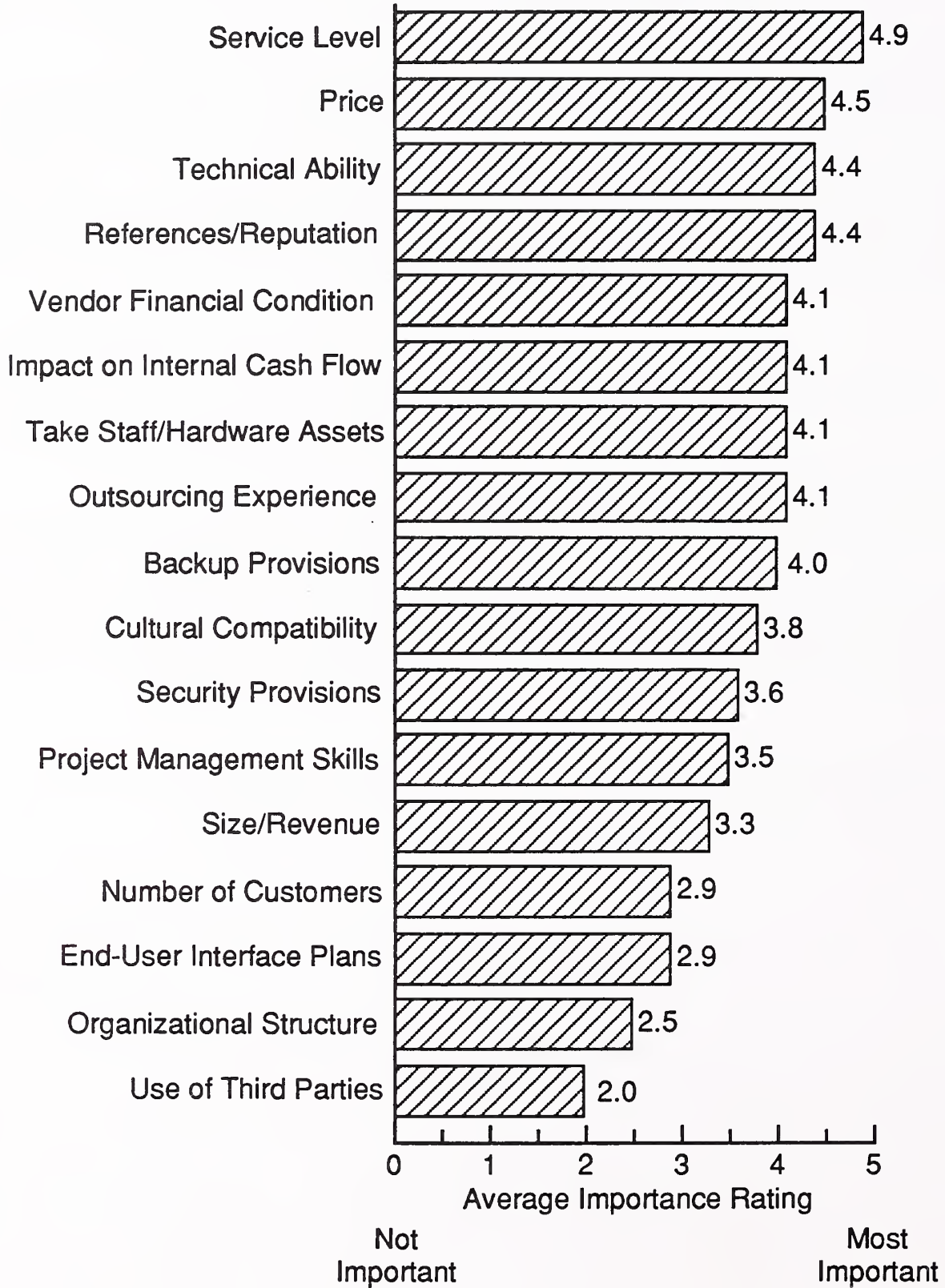
The evaluation and selection process generally takes from three weeks to six months, with the majority taking at least three months. The evaluation team, usually made up of the same people who prepared the solicitation document, prepares a recommendation for an executive board. The recommendation of the evaluation team is generally accepted without extensive discussion by the board. The process is more formal in the financial community than in the manufacturing sector.

The real discriminators between vendors are not generally of a specific technical nature. How the vendor proposes to assist in the relocation of staff or how the user interface will be handled is often more important in the evaluation than the price per transaction or the transition plan submitted by the vendor.

A more detailed examination of users’ selection procedures confirms that price is not the determining factor in vendor selection, as shown in Exhibit V-6. INPUT asked users to rate a wide range of vendor evaluation criteria on a 1-5 scale. The proposed service level—not price—received the highest rating, 4.9. Price was rated 4.5. Over half of the criteria received rating above 4.0.

EXHIBIT V-6

Vendor Evaluation Criteria Ratings



The most highly rated vendor characteristic, service level, was an indication that prospects are more concerned about the quality of service they receive from vendors than the price they pay. They are willing to pay a premium to get superior service levels.

That premium cannot be too high though, since price did show up as the next most highly rated selection criteria. This supports other data that indicates that cost reduction is still a very important motivator for outsourcing prospects.

The next three criteria—technical ability, vendor reputation, and vendor financial condition—as well as another one also rated at 4.1, outsourcing experience, reflect on the vendor's ability to perform. The prospect knows the relationship with the vendor must be a solid one if the venture is to succeed, one that will extend for several years and one that will depend a lot on the abilities of the vendor. The prospect therefore wants to deal with a stable, proven vendor.

The other two items rated above 4.0, impact on cash flow and taking on of hardware/staff assets, reflect other financial concerns that drive prospects to choose outsourcing.

One item that appears much lower in the rating scale this year than in the past is cultural compatibility. This criteria received a much higher rating in earlier INPUT surveys. Respondents used to respond that their vendor must think organizationally like them. Its lowered rating probably indicates that outsourcing vendors have been successful at convincing the market that a vendor that can successfully demonstrate outsourcing success is viable even if the two cultures of the organizations do not appear compatible.

Several other selection criteria were less frequently mentioned by respondents to INPUT's user survey. A more thorough discussion of these less important items can be found in INPUT's report, *Methods of Approaching IS Outsourcing*.

E

Client and Vendor Management Strategies

It is obviously a major marketing task to identify the most likely prospect for outsourcing, line up the proper alliances to round out the vendors' technical capabilities, and conduct the negotiations that lead to a successful sale. Yet in some ways, the job for the outsourcing vendor is just beginning. The relationship of the vendor to the client is much more closely meshed than in most other IS marketing situations. Discussion with users and vendors have pointed out that a new type of relationship is being forged. The term *partnership* has been used by vendors and users to

identify the relationship that must exist if an outsourcing agreement is to be successful. This relationship begins the day the contract is signed and continues throughout the life of the contract, which is typically 5 to 10 years.

The client usually agrees to be completely dependent on a vendor for its data processing operations, the associated network management services, and even the application software management in some cases. The vendor generally invests in the client's firm by assuming financial responsibility for computer hardware, facilities, and staff. The relationship has to go beyond the contractual arrangement in this case, though that is important to establish operating parameters and performance guidelines. Vendors and users are increasingly aware of the need for a managed partnership.

The tools that make this type of partnership work are not clearly defined in management textbooks or in business school lectures. Some might be identified by a close scrutiny of case studies, however. INPUT talked to both vendors and users and has identified a set of factors that can make an outsourcing partnership successful. Exhibit V-7 summarizes these factors.

Exhibit V-7 lists the average ratings given by users to factors that influence the quality of the vendor-user relationship once the contract management phase has begun.

Ongoing user-vendor communication is the cornerstone of a good outsourcing relationship. It is essential for both parties to communicate problems, successes and issues immediately. Users repeatedly stressed that vendors who respond quickly by listening to users' concerns and taking the steps necessary to resolve issues will ensure client satisfaction.

EXHIBIT V-7

Factors Affecting Outsourcing Relationships

Factor	Rating*
Frequent communications	4.9
Vendor professionalism	4.5
Client professionalism	4.4
Flexible contract	4.3
Advance planning	4.1
Formal meetings	3.8
Vendor on site after conversion	3.3
Strict contract terms	3.1

*Ratings based on a 1-5 scale where 5 = very important and 1 = not important at all.

The professional demeanor a vendor's staff exhibits towards the client's business and staff members carries a lot of weight in building a strong relationship. Users also believe that the professionalism displayed by their own staffs contributes almost equally to solidifying the relationship.

A flexible contract becomes a vehicle for easing tensions or problems that may arise between the two parties. Conversely, a contract that requires strict adherence to terms was rated the lowest. Rigid contracts generally cause more problems over the long term. Some users reported that after initial signature, their contracts have never been referenced. One client said that if it is necessary to refer to the contract, a poor relationship exists with the vendor.

Advance planning received a rating of 4.1, indicating its relatively high importance. It is impossible for a vendor to take over any portion of a company's IS operations without carefully planning the transition.

Formal meetings are important to the strength of the relationship. They add to the professional image of both parties and provide an opportunity to regularly monitor the contract's management. However, formal meetings cannot replace informal communications on an as-needed basis.

The presence of a vendor on-site after conversion is one of the least critical factors to users in a vendor-client relationship. Several vendors mentioned that vendor presence was needed more during the conversion process to respond to any questions or problems that may arise.

F**Recommendations**

The marketing strategies exhibited by the major vendors, the selection practices of the user community, and the management strategies in place after the contract is negotiated have now been reviewed. All of this discussion leads naturally to a set of recommendations for vendors to help them assess both potential prospects and successful implementation of information system outsourcing. These are summarized in Exhibit V-8.

EXHIBIT V-8

Recommendations

- Pre-Sales
 - Select high-probability prospects
 - Establish strong alliances
 - Assume risk carefully
 - Define expectations in contract
- Post-Sales
 - Communicate constantly
 - Develop partnership relationship
 - Participate in client strategy development

The key recommendations for the pre-sales cycle are

- Select prospects carefully to capitalize on existing knowledge or prior success in the target industry.
- Capitalize on long-term pre-existing relationships with the prospect, which feels that such a relationship is indeed the best choice.
- Establish strong alliances with partners that can both complement industry expertise and provide additional cost-effective resources.

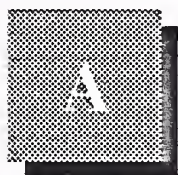
- Assume some financial risk, usually a capital investment or assumption of some of the client's assets.
- Develop contractual terms that protect against undue risk and define expectations of both parties clearly.

The key factors of the post-sales period need to be considered from the onset of the sales cycle also. They are as follows:

- Communicate within the client's organization with both the user and senior management, on a daily basis if necessary.
- Vendor personnel need to become part of the client's organization, providing a service level even better than that provided by the internal staff.
- Use the contract as the vehicle to define the initial operating parameters for both parties.
- The formal contract will need to be supplemented by both parties' agreeing that the good of the partnership will often require actions not specifically written in the contract.
- The vendor and client must have joint strategy sessions at which important issues can be discussed and key information shared.

Vendors that successfully master the development of partnerships will be the major outsourcing vendors that benefit most from expanding markets. They will be able to adjust their relationship to reflect changing service needs of the client as technology (client/server downsizing, re-engineering) introduces new options for the client and/or changing business conditions introduce different operating conditions that must be reflected in the outsourcing agreement.

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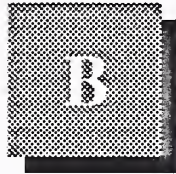
Appendix: Industry Sector Definitions

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, 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/quarry non-metallic 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	

Industry Sector	SIC Code	Description
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)
Utilities	49xx	Electric, gas and sanitary services
Telecommunications	48xx	Communications
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	Depository institutions
	61xx	Nondepository 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
Business Services	65xx	Real estate
	70xx	Hotels, rooming houses, camps, and other lodging places
	72xx	Personal services

Industry Sector	SIC Code	Description
	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 Governments	9xxx	
Miscellaneous Industries	01xx	Agricultural production - crops
	02xx	Agricultural production - live-stock/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

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Appendix: Forecast Data Base

EXHIBIT B-1

Platform Operations Market Size by Industry Sector, 1991-1997

Industry Sector	1991 (\$M)	Growth 91-92 (%)	1992 (\$M)	1993 (\$M)	1994 (\$M)	1995 (\$M)	1996 (\$M)	1997 (\$M)	CAGR 92-97 (%)
Discrete Manufacturing	230	12	255	290	330	370	410	460	12
Process Manufacturing	245	11	270	310	350	385	440	485	12
Transportation	95	14	110	120	135	150	165	185	11
Utilities	30	9	30	30	35	40	45	50	11
Telecommunications	60	12	70	75	85	100	110	120	12
Wholesale Distribution	100	15	120	135	150	170	190	220	13
Retail Distribution	120	19	145	175	210	240	280	320	17
Banking/Finance	735	16	855	980	430	1,300	1,495	1,730	15
Insurance	415	10	460	500	565	615	675	765	11
Health Services	345	14	450	500	560	620	685	770	11
Business Services	45	15	50	60	65	75	85	95	13
Federal Government	560	10	620	685	765	840	925	1,015	10
State/Local Government	360	14	410	455	510	565	630	700	11
Education	45	10	50	55	60	65	75	85	11
Total	3,435	15	3,895	4,370	4,250	5,535	6,210	7,000	12

EXHIBIT B-2

Applications Operations Market Size by Industry Sector, 1991-1997

Industry Sector	1991 (\$M)	Growth 91-92 (%)	1992 (\$M)	1993 (\$M)	1994 (\$M)	1995 (\$M)	1996 (\$M)	1997 (\$M)	CAGR 92-97 (%)
Discrete Manufacturing	290	22	350	420	505	615	755	920	21
Process Manufacturing	360	18	425	505	595	700	825	975	18
Transportation	50	16	60	65	80	90	105	125	16
Utilities	10	15	15	15	20	20	25	30	15
Telecommunications	65	16	75	85	95	110	130	150	15
Wholesale Distribution	50	18	60	65	75	85	100	115	15
Retail Distribution	105	20	125	160	200	245	300	375	24
Banking/Finance	920	13	1,040	1,210	1,415	1,670	1,950	2,325	17
Insurance	420	17	490	575	670	785	925	1,095	17
Health Services	365	16	425	490	570	655	790	955	18
Business Services	75	22	90	110	135	160	190	225	20
Federal Government	835	13	945	1,065	1,205	1,485	1,690	1,825	14
State/Local Government	830	15	955	1,100	1,270	1,475	1,710	2,090	17
Education	120	16	140	160	190	215	250	300	17
Total	4,495	15	5,195	6,025	7,025	8,310	9,745	11,505	17

EXHIBIT B-3

Network Management Market Size by Industry Sector, 1991-1997

Industry Sector	1991 (\$M)	Growth 91-92 (%)	1992 (\$M)	1993 (\$M)	1994 (\$M)	1995 (\$M)	1996 (\$M)	1997 (\$M)	CAGR 92-97 (%)
Discrete Manufacturing	80	20	95	115	145	180	220	270	24
Process Manufacturing	90	20	110	125	145	170	195	235	17
Transportation	20	20	25	30	40	50	55	70	21
Utilities	5	22	5	10	10	10	10	15	25
Telecommunications	20	20	25	25	30	35	40	45	15
Wholesale Distribution	25	25	30	35	40	50	60	70	20
Retail Distribution	35	24	40	50	65	80	100	130	25
Banking/Finance	250	24	310	380	475	590	730	895	24
Insurance	125	22	155	185	220	265	315	365	19
Health Services	115	22	140	160	185	215	255	310	18
Business Services	20	20	20	25	30	40	45	55	22
Federal Government	210	13	235	265	300	335	380	430	13
State/Local Government	180	22	220	265	325	400	490	600	23
Education	25	20	30	35	35	40	45	55	12
Total	1,200	21	1,440	1,705	2,045	2,460	2,940	3,545	20

EXHIBIT B-4

Desktop Services Market Size by Industry Sector, 1991-1997

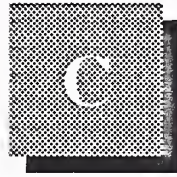
Industry Sector	1991 (\$M)	Growth 91-92 (%)	1992 (\$M)	1993 (\$M)	1994 (\$M)	1995 (\$M)	1996 (\$M)	1997 (\$M)	CAGR 92-97 (%)
Discrete Manufacturing	60	34	80	110	150	200	275	365	35
Process Manufacturing	70	32	90	125	170	230	305	400	34
Transportation	15	30	20	30	40	55	70	90	32
Utilities	5	30	5	5	10	10	15	20	32
Telecommunications	15	27	20	25	30	40	60	75	33
Wholesale Distribution	20	32	25	30	40	55	75	95	32
Retail Distribution	25	32	35	45	60	80	110	140	33
Banking/Finance	190	32	250	330	440	600	810	1,040	33
Insurance	95	28	125	160	205	280	380	490	32
Health Services	85	33	115	155	205	285	380	490	33
Business Services	15	33	20	25	35	45	60	75	33
Federal Government	160	17	190	220	255	295	350	405	17
State/Local Government	135	39	175	225	290	400	540	690	32
Education	20	27	25	30	40	55	75	95	31
Total	910	29	1,175	1,515	1,970	2,630	3,505	4,470	31

EXHIBIT B-5

Outsourcing Market Size Forecast Total, 1991-1997

Industry Sector	1991 (\$M)	Growth 91-92 (%)	1992 (\$M)	1993 (\$M)	1994 (\$M)	1995 (\$M)	1996 (\$M)	1997 (\$M)	CAGR 92-97 (%)
Discrete Manufacturing	655	19	780	935	1,125	1,365	1,655	2,010	21
Process Manufacturing	765	17	900	1,060	1,260	1,490	1,765	2,095	18
Transportation	185	17	215	250	295	340	395	465	17
Utilities	50	14	55	65	70	85	95	115	15
Telecommunications	160	16	180	210	245	285	335	390	17
Wholesale Distribution	195	19	230	265	310	360	425	500	17
Retail Distribution	290	21	350	430	535	650	795	965	23
Banking/Finance	2,100	17	2,460	2,900	3,455	4,160	4,990	5,990	19
Insurance	1,055	16	1,225	1,420	1,660	1,950	2,300	2,710	17
Health Services	960	17	1,130	1,310	1,520	1,775	2,110	2,525	17
Business Services	150	21	180	215	260	320	380	455	20
Federal Government	1,770	12	1,990	2,240	2,525	2,955	3,345	3,675	13
State/Local Government	1,500	17	1,755	2,045	2,400	2,840	3,370	4,080	18
Education	210	16	245	280	325	380	445	530	17
Total	10,045	16	11,695	13,625	15,985	18,955	22,405	26,505	18

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Appendix: Data Base Reconciliation by Industry Sector

EXHIBIT C-1

Data Base Reconciliation by Industry Sector

Delivery Mode	1991 Market				1996 Market				'91-'96 CAGR per data '91 rpt (%)	'91-'96 CAGR per data '92 rpt (%)
	1991 Report (Fcst) (\$M)	1992 Report (Actual) (\$M)	Variance from 1991 Report		1991 Report (Fcst) (\$M)	1992 Report (Fcst) (\$M)	Variance from 1991 Report			
			(\$M)	(%)			(\$M)	(%)		
Discrete Manufacturing	575	515	-60	-10	1,400	1,165	-235	-17	19	18
Process Manufacturing	465	605	+140	+30	1,145	1,265	+120	+10	20	16
Transportation	150	145	-5	-3	375	270	-105	-28	20	13
Utilities	30	40	+10	+33	55	70	+15	+27	13	12
Telecommunications	75	125	+50	+67	175	240	+60	+34	18	13
Wholesale Distribution	80	150	+70	+88	180	290	+110	+61	18	14
Retail Distribution	180	230	+50	+28	550	580	+30	+5	25	20
Banking/Finance	2,045	1,660	-385	-19	4,660	3,445	-1,215	-26	18	16
Insurance	900	835	-65	-7	1,885	1,600	-285	-15	16	14
Health Services	865	760	-105	-12	1,985	1,475	-510	-26	18	14
Business Services	95	115	+20	+21	260	275	+15	+6	22	19
Federal Government	1,685	1,400	-285	-17	2,595	2,615	+20	+1	9	13
State/Local Government	1,055	1,185	+130	+12	2,360	2,340	-20	-1	17	15
Education	85	165	+80	+94	155	325	+170	+110	13	15
Total	8,285	7,930	-355	-4	17,780	15,955	+1,830	-10	17	15

Note: Only totals for platforms and applications added to allow direct reconciliation of 1991 and 1992 reports.

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