SYSTEMS MANAGEMENT

PRIORITIES AND DIRECTIONS

INPUT

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Systems Operations Program (SOP)

Systems Management
Priorities and Directions

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Abstract

Industry and commerce are demonstrating an increasing willingness to contract for systems development and operations management, and information systems and services vendors are offering higher quality management services. Systems management—comprised of systems integration, systems operations, applications maintenance, and applications management—is the most exciting new market of the 1990s.

INPUT's analysis notes that the systems management market is characterized by long-term contracts and a new kind of client-vendor relationship. The research determined that outsourcing systems management is an executive, not a technical, decision. The client users are buying business solutions, not technology, and expect the vendor to understand the key factors driving the core business. The vendor is being asked to provide innovative solutions to complex problems. The decision to outsource development and/or management is not easily reversible, so the client must consider the total impact of the change on the organization.

This emphasis by vendors addressing this market is focused on providing full service to the client through partnerships, alliances, or acquisitions. Vendors see the key market drivers as the move toward a client/server relationship, access to expertise unavailable in the organization, and the urgency for providing enhanced information services while controlling the cost of data processing services.

The report contains 114 pages and 61 exhibits, and was prepared as part of INPUT's Systems Operations/Outsourcing Program.

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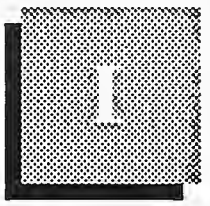
Exhibits (Continued)



Introduction

This report is provided as part of both the Systems Integration Program and Systems Operations Program. INPUT studied the changes in user/client priorities regarding the use of vendor-managed information services. The research examined systems development and operations, and the management of the client's application inventory.

INPUT clients will find this report useful in understanding the problems and opportunities companies face in evaluating and using systems management services. Where earlier INPUT reports examined user attitudes about SI and SO offerings independently, this study examined their willingness to outsource both systems management activities and applications management.

One significant trend in the information services industry over the last decade is the increase in vendor management of client information systems activities. Users are demonstrating a willingness to contract systems development and operations management, while vendors are meeting the challenge to provide quality management services.

A Objectives

The premise of this report is that system management is a broader offering than SI, SO, or applications management. In systems management, the vendor takes operational responsibility for management planning and control of the bulk of the user's information processing management activities. The vendor assumes more risk, and the vendor-client relationship becomes significantly more important.

This report:

- Defines key terms, such as outsourcing, internally and externally managed systems integration, and systems operation

- Identifies the major reasons companies contract for systems management services
- Determines the conditions that would lead companies to seek different vendors for different services, or use a single vendor for all systems management services
- Gauges the types of user organizations that are candidates for total systems management services

In addition to identifying what leads companies to contract out, the report discusses key management practices of systems operations vendors. The report addresses such questions as:

- What components of current SI and SO forecasts cover companies that will be seeking a complete systems management package?
- Will the applications management component of systems management focus more on maintaining packaged software or on client-specific customized code?
- Who are the major vendors offering systems management services, and what are their apparent strategies?
- What forces drive vendors to provide value-added management services that go beyond their standard offerings?

B

Methodology and Scope

Research for this report included primary research with users and vendors. Key elements of the research included the following:

- Review of earlier INPUT data about trends and directions in systems operations and systems integration
- Review of INPUT research data about the characteristics of organizations that have contracted and those that have not
- Interviews with large, medium, and small users to ascertain their willingness to contract for management of their operations and/or development activities
- Interviews with vendors of systems management services to obtain their views on why organizations contract for their services
- Interviews with vendors about how they market systems integration and operations services and how they manage client relationships

The forecasts provided for evaluating systems integration and systems operation are preliminary. Final forecasts will be provided in other INPUT reports:

- *U.S. Systems Integration Markets, 1991-1996*
- *U.S. Systems Operations Markets, 1991-1996*

These reports will be published in the third quarter of 1991.

C

Report Organization

The remainder of this report is organized into seven chapters.

- Chapter II, Executive Overview, briefly summarizes market forecasts and trends, systems management options and strategies, leading systems management vendors, and key recommendations.

- Chapter III, General Business Environment, describes business responses to the new environment and information services organizations of the 1990s. The key focus is information systems strategies for outsourcing of both services and management.

- Chapter IV, User Requirements, focuses on defining key terms of systems management services for the user, for systems integration, systems operations, and applications management.

- Chapter V, Market Trends, includes separate forecasts for SI and SO categories for 1991 to 1996, followed by analysis of systems management trends.

- Chapter VI, Systems Management Options and Strategies, considers service options for SI, SO, and applications management, as well as vendor strategies for expanding markets in each area.

- Chapter VII, Systems Management Vendors, profiles the leading vendors, classifies them by the services they offer, and summarizes vendor strategies.

- Chapter VIII, Conclusions and Recommendations, summarizes key observations of the research.

The report also contains an appendix that includes the working definitions of systems vendors, as well as the vendor and user questionnaires used for the research.

D

Related INPUT Reports

While INPUT believes that systems management is a fundamental trend for the 1990s, its growth must be viewed in context with numerous other trends in the information services industry.

The following is a list of INPUT research reports that provide a foundation for understanding the many changes occurring in the industry. They provide background and perspective about why systems management will be a growing method of conducting business in the 1990s.

- Information Systems Management Reports
  - *The Future of Information Systems Management, 1989*
  - *Information Systems and Outsourcing—A Strategic Assessment, 1990*
- Systems Integration and Systems Operations Reports
  - *Systems Operations—Growth for the 1990s*
  - *Network Operations Management, 1990-1995*
  - *U.S. Systems Integration Markets, 1990-1995*
  - *U.S. Systems Operations Markets, 1990-1995*
  - *Systems Operations Management Issues and Practices*
- Market Analysis Program Reports
  - *U.S. Application Solutions Market Analysis, 1990-1995*
  - *U.S. Processing Services Market Analysis, 1990-1995*
  - *U.S. Professional Services Market Analysis, 1990-1995*
  - *U.S. Systems Software Products Market Analysis, 1990-1995*

II

Executive Overview

Systems management, which comprises systems integration, systems operations, and applications management, is becoming a major factor in information services markets. Increasingly, large commercial and private organizations are turning to outside vendors, either because they lack the internal staff to manage major automation projects, or to concentrate on their core businesses, or both.

A

Major Industry Trends—1991

Based on research discussed in this report, INPUT believes that the markets for all of the major systems management services will increase throughout the 1991-1996 period. Exhibit II-1 lists current industry trends.

EXHIBIT II-1

Major Industry Trends—1991

- Full-service vendors' dominance
- Strategic alliances and niche acquisitions
- Users buying solutions—not technology
- Secondary vendors seek participation
- Corporate data center outsourcing
- User focus on core businesses

Many internal information systems organizations no longer control IS budgets, as user organizations become buyers of solutions and control the solution budgets. Users also seek new technologies, such as artificial intelligence, advanced telecommunications, and relational data base management systems. To gain access to these technologies, they are turning outside, particularly to the larger full-service vendors—EDS, Computer Sciences, and Andersen Consulting.

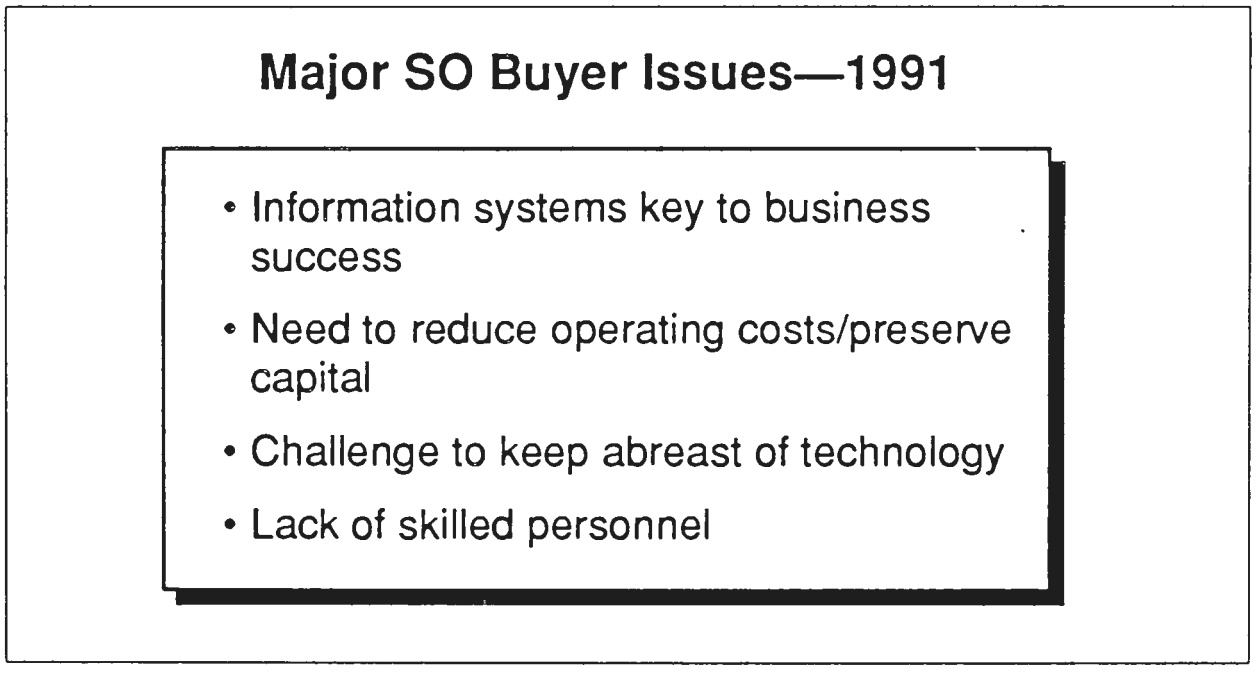
Other vendors are moving to provide a range of services beyond their historic specialties. In particular, systems integration has become a high-level distribution channel for the complete range of information and telecommunications products and services. It provides or limits product access to the largest users in government and U.S. industry, just as they are seeking one-stop shopping, and vendors that are full-service providers.

B

Major SO Buyer Issues—1991

Similar forces are at work in systems operations markets, as Exhibit II-2 shows.

EXHIBIT II-2



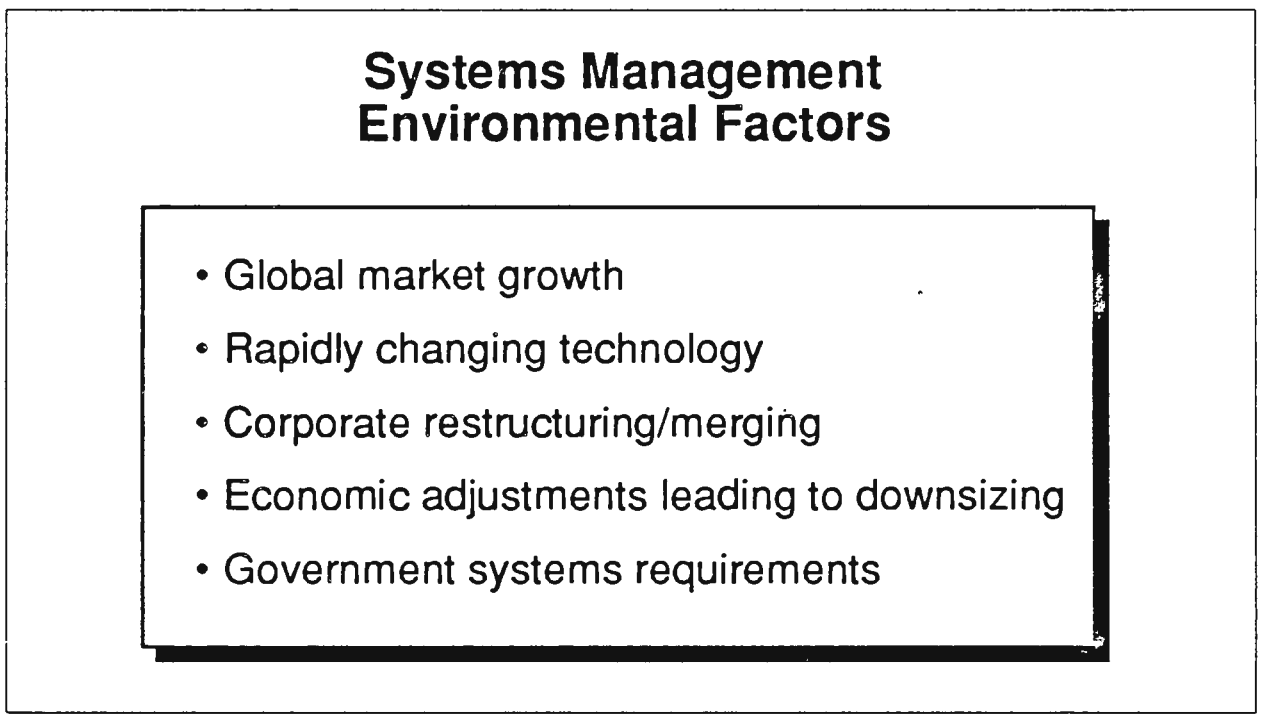
Companies are increasingly deciding to contract with systems operations vendors, many of whom provide systems integration as well. At the same time, they are turning the management of their applications software over to vendors—either full-service firms or smaller, more specialized firms that are moving into systems management.

C

Systems Management Environmental Factors

The forces listed in Exhibit II-3 are causing prospects to approach systems management vendors for innovative solutions to complex problems. As the global business community becomes smaller, more demands are placed on a corporation's processing and communications infrastructure. Eventually, it becomes more cost-effective to seek an external solution to meet these burgeoning demands.

EXHIBIT II-3



Of these factors, the speed with which technology is changing may well be the most important. Few even among the largest corporations have the expertise to assess emerging technology or to incorporate it in their installed base. Outside expertise becomes necessary at the point where a rapidly changing environment is forcing corporations to focus on their core businesses.

The federal government presents a special example because it is the largest of the vertical markets INPUT studies. Its requirements, and the procedures for satisfying them, distinguish it from the commercial sector. The size of agency acquisitions makes federal business very attractive to vendors who understand this environment, including the mandate for competition in contracting, the right of unsuccessful vendors to protest contract awards, and the long lead times on many procurements. In addition, the policy that agencies use the private sector for commercial services, rather than developing them in-house, promotes the outsourcing of government systems management.

D

Vendor Systems Management Options

Vendors contacted by INPUT had a keen awareness of what the market for systems management offered them. Exhibit II-4 lists the principal findings of the INPUT vendor survey.

EXHIBIT II-4

Vendor Systems Management Options

- Lack of specific skills—outsourcing systems integration
- Lower operating expenses—outsourcing systems operations
- Single vendor provides all systems management services
- Full-service vendor emphasis

The majority of vendors surveyed wanted clients to perceive them as full-service vendors. Even though few vendors actually were equally proficient in each service area, most of them were doing what they could to give the customer end-to-end service. This could involve acquiring smaller niche firms to round out the vendor's product lines, entering into joint ventures with competitors, and expanding into vertical sectors, such as banking and finance, where a knowledge of the specialized conditions under which the industry operates is considered essential for getting business.

Most vendors were confident that changes in the U.S. business environment would encourage systems management outsourcing. Among the reasons vendors cited were the move toward a client/server relationship, the need for expertise unavailable within the organization, and the cost involved in running data processing centers. A few vendors did, however, note that outsourcing could lead to the client losing control of operations.

E

Leading Systems Management Vendor Strategies

Other than the desire to get more business, there is no single feature that characterizes the systems management industry as a whole, as illustrated in Exhibit II-5. Hardware vendors, such as IBM and DEC, are becoming systems integrators and operators of data centers. Service firms, like EDS, that focused historically on systems operations, are moving aggressively into systems integration and applications management. And vendors such as Computer Sciences and PRC, that focused on federal markets, are trying to reduce their dependence on one client by getting more commercial business.

EXHIBIT II-5

Leading Systems Management Vendor Strategies

- Acquisition and equity positions
- Long-term alliances
- Staff training and development
- Systems management service offering
- Reduction of single-industry dependence

- Even the largest vendors do not have all the expertise necessary to manage major commercial and government contracts. This is why EDS and CSC have purchased or taken equity positions in several smaller firms and established alliances with major hardware manufacturers.

- There is increased emphasis on training and staff development. In this regard, IBM and Andersen Consulting have been models in this respect, with the former applying satellite communications to educating its professional staff, and AC training its personnel for a variety of assignments.

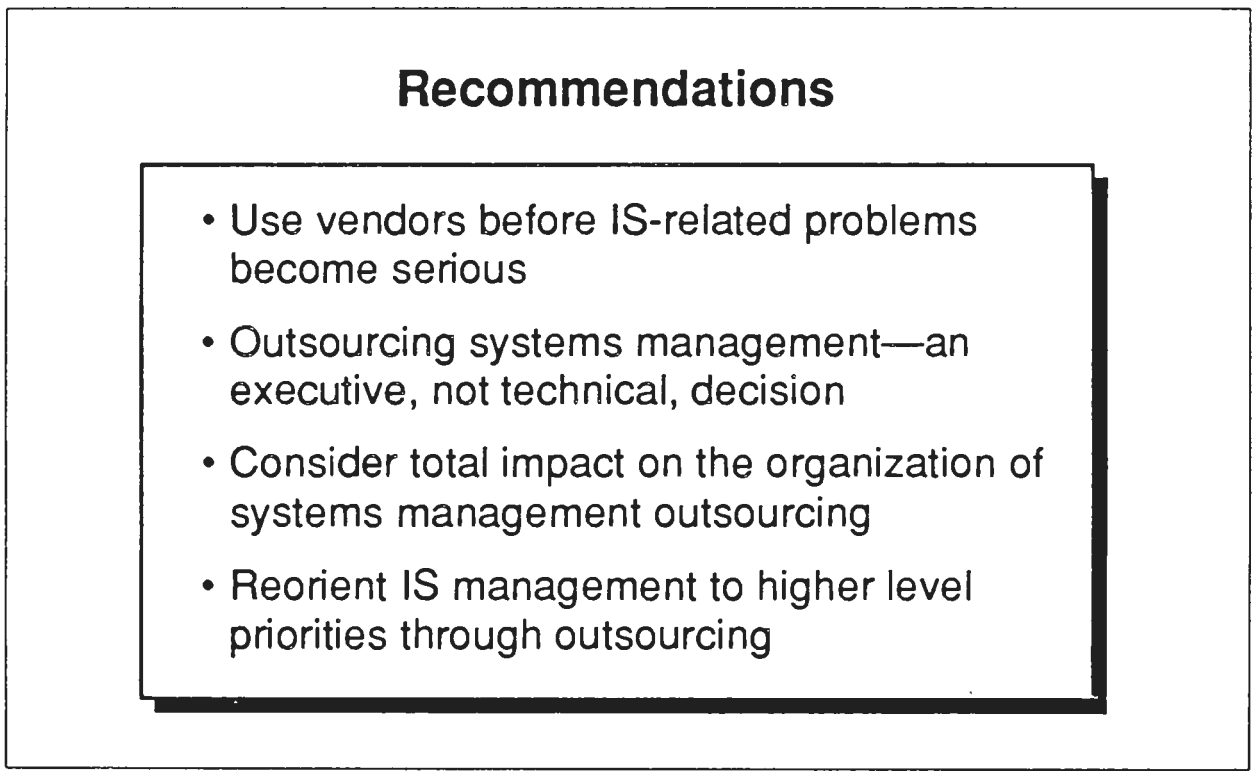
- Vendors are beginning to use systems management as a term to describe the range of services they offer. Although usage varies, the strategy of end-to-end provision of services is one the most successful vendors have been pursuing for several years.

F

Recommendations

The systems management marketplace is characterized by long-term contracts and a new kind of client-vendor relationship. For these relationships to succeed, users need to understand both the conditions that make outsourcing desirable and those that make it possible to succeed. Exhibit II-6 summarizes recommendations vendors can use to encourage systems management contracting among users.

EXHIBIT II-6

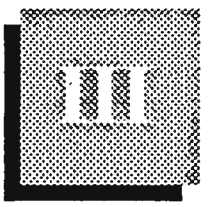


- The decision to outsource should be part of a well-considered strategy for directing the organization to its core businesses.

- Such decisions require executive, rather than technical, judgment. The role of the internal staff should be to assist management in becoming a "smart buyer."

- Outsourcing systems management is a major decision, and one that is not easily reversible. Therefore, management should consider the total impact of outsourcing, rather than the short-term gains or losses to the organization.

- Once outsourcing takes hold, the role of internal staff should be to provide the kind of long-range strategic thinking that concentration on day-to-day operations often precludes.



General Business Environment

Systems operations—the long-term contracting for all or a major portion of an information systems operation—has received renewed interest in the last three years. While the concept is not new, the services it provides have become broader and have greatly improved the ability of corporate and government sponsors to manage complex computing and communications environments. Companies are examining their systems environments closely to find ways of improving business processes.

A

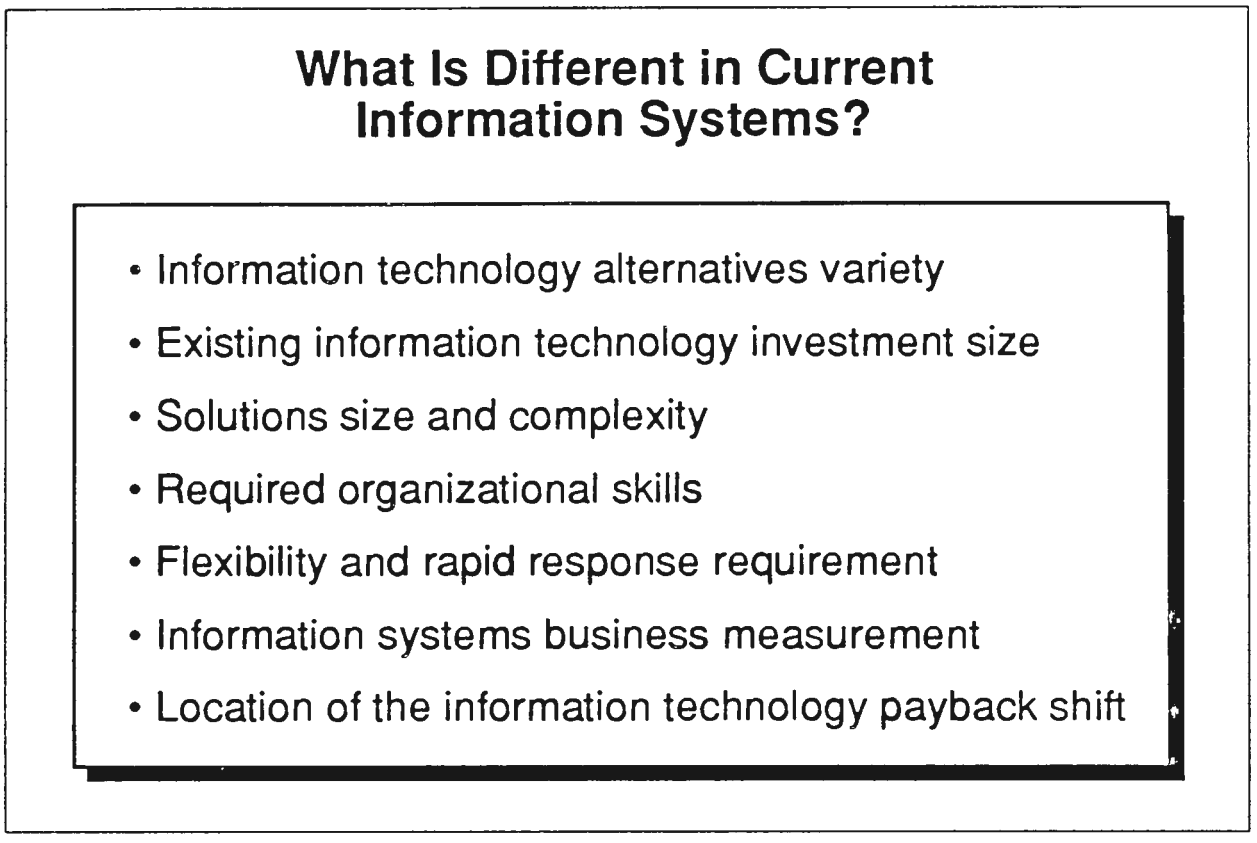
Forces Driving Change

In the late 1980s corporations became increasingly interested in outsourcing systems operations. Many of them were simply reacting to fundamental changes in the business environment—changes that encouraged the more forward-looking firms to reduce their costs, improve productivity and, generally, turn to outside vendors for those aspects of business that could better be contracted out.

Outsourcing information systems (IS) products and services is not new. In fact, the value of information systems has always been based on acquiring and applying products and services from a unique set of vendors. At first, only hardware and systems software were acquired; now a complete set of products and supporting services, including management, is acquired. During the past three decades, the complexity and variety of capabilities available for sale by vendors have increased.

The difference is the complexity of the environment most large and medium-sized firms face. With many markets open 24 hours a day, and companies jockeying for competitive advantage, a company's ability to survive will depend heavily on its mastery of information technology. Exhibit III-1 lists some of the differences between current and earlier, more traditional information systems.

EXHIBIT III-1



Yet, the simple fact is there are too many ways to use information technology within an organization. Developers have always created information technology faster than users could apply it. However, in the last half of the 1980s the rate of development exploded, outstripping an already burdened IS function. There is no way that even the largest IS organization can know about—let alone understand and select from—all that is available for use.

If it were simply a matter of adding new equipment and software to the installed base, most firms would find that difficult enough. But most of them are faced with upgrading systems that, while possibly adequate five years ago, have been overtaken by newer technology. This newer technology does not simply perform the same tasks faster than its predecessor. Often, what it does is fundamentally different, offering new opportunities and challenges. One has only to think of the product offerings for geographic information systems, advanced imaging and data storage technologies, and network management to realize the choices that information managers face.

Thus, systems being developed today are larger and more complex. They address larger segments of an organization's operations, affect more people, and cause more change. Yet the time between identification of need and implementation has shortened. The internal IS function often finds that it does not have the necessary knowledge and skills to create today's complex solutions.

All of this technology is appearing on the market as organizations try to do more with fewer staff.

- The available pool of information systems professionals has not kept up with the demand, making them ever more expensive.

- By providing greater career opportunities for IS professionals, IS vendors have made it more difficult for traditional IS departments to attract and retain the best people.

- A recent result of the information technology explosion is a shift in emphasis within the information network. Although the mainframe will not go away, the payback is now tied to workstations, local-area networks, and telecommunications networks. The data center is becoming a utility in the true sense of the word. When viewed in this light, corporations find alternatives easier to consider.

In summary, today's IS programs are being affected to an ever greater degree by the forces driving business in general. As Exhibit III-2 indicates, the primary forces for the early 1990s are globalization, specialization, pace of change, and integration.

EXHIBIT III-2

Information Technology Driving Forces

Industry Systems	Organization	Information
Globalization	International Opportunities and Competition	International Processing Requirements
Specialization	Core Business and Functions	Strategic Systems
Pace of Change	Structural Change	Rapid Response Deployment
Integration	Intraorganizational Relationships	Intra- and Interorganizational Systems

Each force is causing management to rethink its fundamental strategies and, in turn, is causing information systems programs to shift as well. Today's information systems program must include:

- Full consideration of what competitors are doing internationally
- True focus on the core business and functions. A strategic system is a solution that helps an organization execute a core function—one that helps differentiate it from the competition.
- The ability to respond to structural change in the business—merger, acquisition, divestiture, leveraged buyout, and the elimination of levels of management—can demand very fast response from the information systems staff if the change is to be successful.
- Today's strategic systems not only integrate the internal functions of a business, they also interconnect organizations. Progressive companies today use electronic data interchange to speed communication and interaction with their business partners. IS must be prepared to build bridges with external organizations.

B

Business Responses to the New Environment

Though a burden for the IS user, the technological explosion represented an opportunity that vendors quickly seized. From the late 1970s, vendors began to offer an array of products and services to the IS community. As demand took off, full-service vendors grew. A large vendor in the 1970s was a $100 million company, but today's vendors —like EDS, Andersen Consulting, and Computer Sciences Corp.—have revenues of between $1.5 billion and more than $5 billion (EDS).

As vendors responded to exciting new markets, users began to take stock of their internal IS operations. Perhaps the fundamental change brought about by the new vendor infrastructure was that, from the user's standpoint, everything was up for grabs. It became possible, even necessary, to consider outsourcing functions that had always been performed internally.

Although private firms are now turning over many IS functions to vendors, the federal government had been outsourcing for more than a generation. Beyond the usual political considerations, agencies outsourced, and continue to outsource, for most of the reasons private firms do. They want to reduce costs, keep up with technology, free resources for other uses, and find the qualified people who are not attracted by government service. In some special cases, like the management of the nuclear weapons complex, the government established government-owned, contractor-operated (GOCO) facilities to tap private-sector expertise, and subsequently extended the GOCO concept to other applications.

In either case, the end result has been similar. Organizations are trying to do more with fewer staff. Depending on one's perspective, both agencies and private organizations have ceded routine processing functions to vendors, in order to concentrate on less structured core functions. Companies can no longer hope to retain a competitive advantage by having the largest resource base. In fact, some companies, particularly in the electronics and personal computer business, thrive by contracting out everything except the design of the basic product. Some of the more successful producers of PC clones operate this way: they farm out production offshore, sell the product through independent retailers, and license the operating system from Microsoft.

The advantages of hollowing out the corporation are obvious. It frees the firm's executives to improve current products and develop new ones. Because firms that outsource have smaller sunken costs than their competitors, they are less likely to have a vested interest in conducting business as it has always been done. There are fewer layers of bureaucracy between the laboratory or shop floor and the chief executive. Further, there are large service organizations able and willing to take on the routine functions that any organization over a certain size must manage: payroll, data processing, distribution, and transportation.

There is another side to this delegation of functions. An organization that surrenders too many functions to outsiders runs the risk of losing control over those functions. It can be argued that an organization must retain certain capabilities: whether to be a "smart buyer," or simply to evaluate the technical competence of the vendors to whom it increasingly turns. The corporate or government sponsor does not wash its hands of management responsibilities when it contracts for IS operations. Quite the contrary, it often takes more judgment to delegate the operation and work with a vendor than to retain in-house control.

But, whether organizations elect to retain some functions or turn them over to outsiders, outsourcing is only likely to grow in importance. For that reason, it is necessary to provide a working definition, especially as it pertains to IS functions.

Outsourcing is defined as the contracting of IS functions to outside vendors. Outsourcing should be viewed as the opposite of insourcing: anything that IS management has considered feasible to do internally (e.g., data center operations, applications development and maintenance, network management, training, etc.) is a potential candidate for outsourcing.

IS has always bought systems software, as it is not feasible for companies to develop it internally. However, all other delivery modes represent functions or products that IS management could choose to perform or develop in-house. Viewed this way, outsourcing is the result of make-or-buy decisions, and the outsourcing market covers any product or service where the vendor must compete against the client firm's own internal resources.

C

IS Organizations in the 1990s

In the 1990s there will be no single IS solution to the problems—and opportunities—discussed above. Rather, there will be several kinds of organizations working with vendors and their IS staff to make the most efficient and intensive use of their resources. Exhibit III-3 highlights the environment within which vendors are offering systems and services—an environment very different from what it was five years ago.

EXHIBIT III-3

Outsourcing Characteristics for the 1990s

- IT solutions complexity
- Commitment size and length
- Vendor breadth of assumed responsibility
- Partnership versus supplier/subcontractor
- Professional services component
- Systems management

- The size and length of the commitments that buyers (users and information systems) are willing to make will be much larger and longer. The focus will be on purchasing solutions—not the bits and pieces that have been the general buying patterns of the 1970s and 1980s. The buyer will turn to a single purchase point, a full-service vendor that can deal with complex problems.

- The vendors that are leading the way in the changing information systems and services market are also changing.

  - They are now ready, able, and willing to take on a broad set of responsibilities and to invest in the relationship with the client.

- They are interested in long-term versus short-term relations with their primary customers. The goal is a partnership—not a subcontractor relationship—that leads to long-term client relationships and account control. This partnership makes the vendor's investment possible and of mutual value.

- The typical outsourcing relationship includes a much greater service element than before.

  - First, there is a large component of professional services as the buyer looks outside for expertise as well as technology solutions.

  - Second, the vendor is providing a significant management component that simply was not provided previously. Relationships are being formed at a much higher level of client and vendor management.

Outsourcing is causing some fundamental changes in the structure of the information systems and services market. It affects traditional application software, turnkey systems and, most importantly, has created the newer delivery modes of systems integration and systems operations.

- Over the past three years, INPUT has modified its delivery mode structure to identify systems integration and systems operations as emerging and unique delivery modes. They represent significant shifts in the professional services and the processing services markets, respectively.

- Systems integration and systems operations, plus additional combinations of products and services from all of the delivery modes, represent opportunities for vendors and users in the 1990s. Applications management, transition management, and applications maintenance represent emerging opportunities for information systems to draw on expanding vendor capabilities.

  - Users can improve response, cost effectiveness, and planning.
  - Vendors can capture more business opportunities.

D

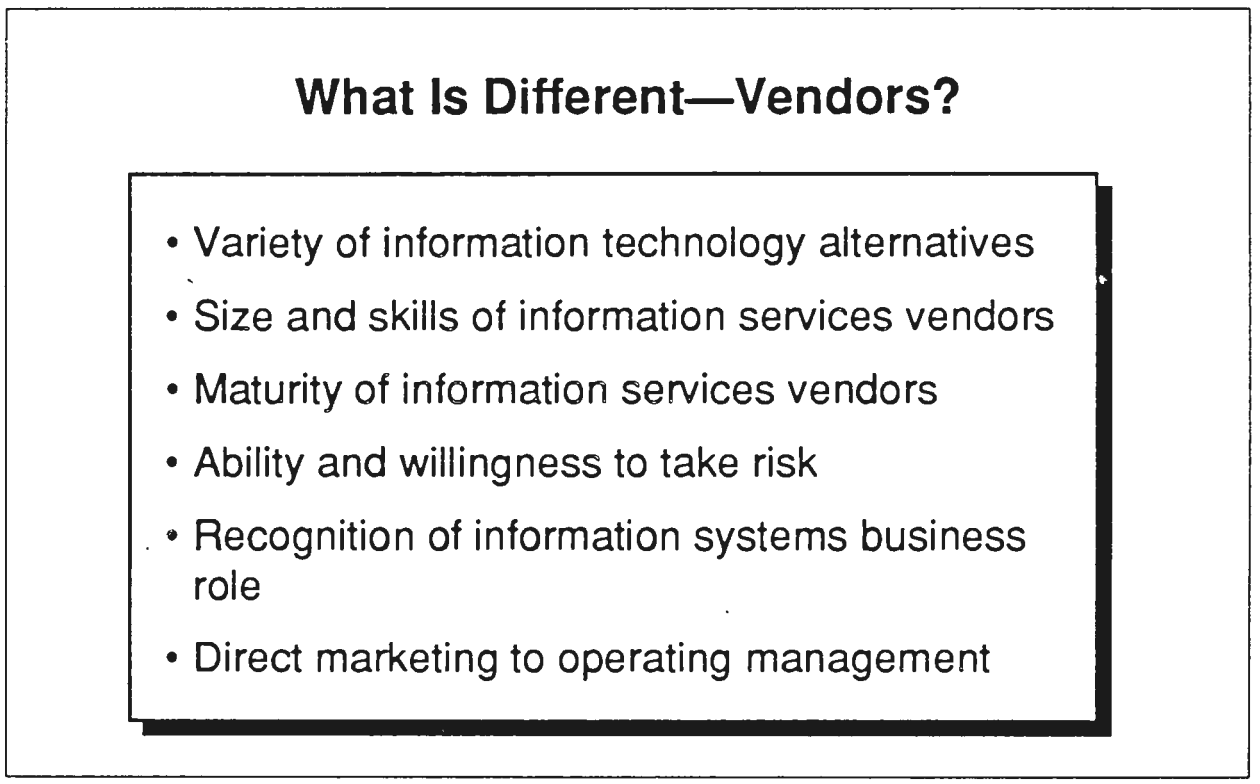
Information Systems Strategies

The existence of a large pool of IS vendors offers corporations many opportunities. Simply put, the large IS vendor is offering solutions, not simply a product line. Indeed, the largest professional services firms are capable of investing in and developing their own products. The larger software firms are building large professional services organizations, and the already large hardware firms—including IBM and Digital Equipment Corp.—are shifting to software and professional services. Today it is possible to find a strong, viable IS vendor to do almost anything with information technology, and they often do it better than the internal IS staff.

1. Services Outsourcing

Today's leading information services vendors have evolved from small job shops to organizations that do it all: design the application, program it, acquire and install the hardware, and even operate it for some period of time. The evolution of these firms from single-function vendors to systems integrators offers IS users many opportunities. Exhibit III-4 lists the key differences between current and former IS vendors.

EXHIBIT III-4



- At many levels, the availability of large, full-service organizations matches client needs. Many IS vendors are prepared to assume significant risk. In the past, as a programming subcontractor, the vendor sought short-term, time-and-materials contracts, and the application software vendor sold but did not install its product. Today the vendor will accept a reduced return in the short term if the relationship is long term. Fixed-price contracts are the standard for systems operations agreements.

- The increased importance placed on the use of information technology by operating management has also benefitted the vendor. Since operating management is more likely to describe the problem in a larger context, more complex ideas and solutions result. Many vendors are now more effective than the internal IS staff at describing how information technology can benefit the business.

- The result is the opportunity for the vendor to market directly to operating management. This permits more information technology alternatives and newer technology to be considered more quickly.

2. Management Outsourcing

The momentum behind outsourcing is reflected in the recent trends in systems integration and systems operations.

Outsourcing in systems integration reflects the buyer's recognition that what to purchase is the solution rather than components. Just as a company would contract to have a new plant built, now it also contracts for all facets of the factory control systems for that plant. Instead of buying the hardware, software, and integration in pieces from a number of vendors, it turns to a single vendor.

For similar reasons, clients who traditionally ran their own data centers are turning to the systems operation market sector.

- The challenge of running a data center is demanding more financial, personnel, and technical resources, which is changing the economic equation.

- Many large organizations are consolidating data centers into very large processing utilities to take advantage of data center automation and to meet the demands of network integration, yet they find the challenge outstrips the skills of their staffs.

- Meeting the demands for processing services is diverting IS management from the real priorities of solving operating problems and fulfilling user information needs. By contracting out the processing utility, attention can be focused on new applications and solutions.

Many companies are looking to vendors and finding they are now equipped to provide broad-based information systems implementation and management more effectively than are internal staffs—that is, at a lower cost and with better performance over time.

E

Systems Management Opportunities

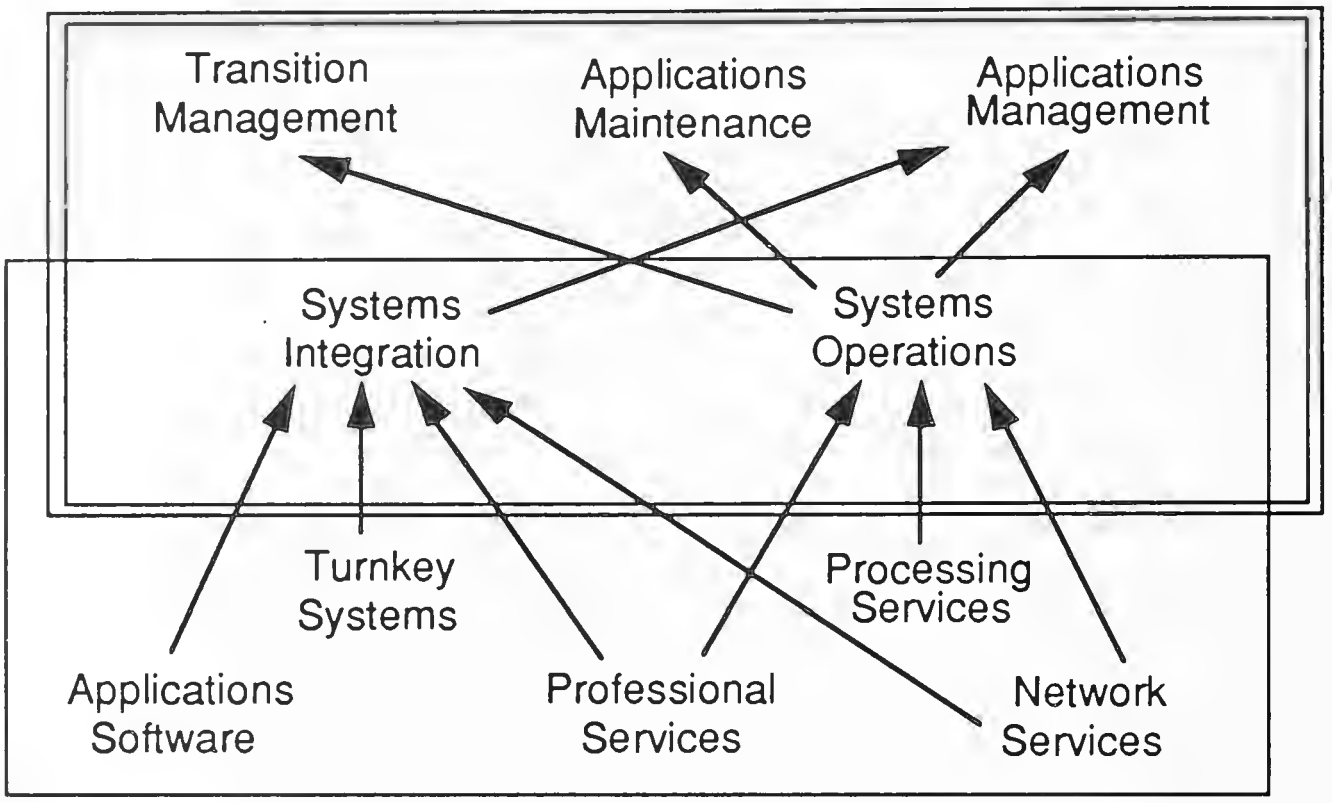
The change in the IS environment since the early 1980s means that the vendor is now providing a significant management element along with the products and services. Whether serving as the prime contractor on a systems integration project or providing full data center and data network services, the vendor interface is at the top of the client IS organization and includes an operational, tactical, and strategic element. The vendor is managing a significant portion of the IS process.

Exhibit III-5 illustrates a relationship between the delivery modes used by INPUT to forecast the information services industry and the types of outsourcing relationships that are becoming common among clients and vendors.

EXHIBIT III-5

Outsourcing
Developing Market Opportunities

Systems Management Functions



- All of the delivery modes represent products and services outsourced by information systems. Those not included in the systems management functions box do not typically include the partnership commitment of today's outsourcing decision. Professional services, processing services, and the others are now the subcomponents of outsourcing relationships.

- Systems integration and systems operations are examples of today's combination of products and services, and are classified as separate delivery modes from professional services and processing services.

- Applications management has existed for some time, with a few vendors taking on total operations and development support for specific applications suites. Today's applications management includes a full systems operations agreement, combined with applications maintenance and applications software, and often a systems integration assignment as well.

- INPUT considers applications maintenance an emerging outsourcing opportunity. In management's eyes, maintenance of the existing application investment is the greatest inhibitor to the ability of information systems to progress. As a small but growing number of vendors prove they can do it better at lower cost, corporations see opportunities to outsource maintenance and use internal staff to attack backlogs.

- Transition management is a second emerging opportunity. IS functions are shifting technology, adjusting to mergers and acquisitions, or consolidating data centers. Vendors can either manage old systems, serve as integrators to install new systems, or both.

Applications management, applications maintenance, and transition management all include management as a critical element of the service, as do systems operations and systems integration. It is the systems management skills the vendor brings to the partnership that permit the user to concentrate on priorities.

Thus outsourcing systems management is an evolutionary step, not a specific delivery mode. It is a phase in the evolution of the information services industry that greatly expands the opportunities for progressive IS executives and information services vendors.

IV

User Requirements

This chapter provides a framework for analyzing the considerations that lead users to outsource information systems (IS). INPUT considers outsourcing to be an evolving concept and trend in the information systems and services market. It is not a new delivery mode, but includes all of the products and services within the information systems and services industry, as categorized by INPUT's delivery mode structure.

This chapter will provide a brief historical perspective of IS before defining the principal systems management functions that will dominate the markets of the 1990s: systems integration, systems operations, and applications management, all of which can be classified as systems management activities. It will conclude with a discussion of the requirements that vendors must satisfy in working with IS users.

A

An Historical Perspective

As Chapter III showed, the concept of outsourcing information systems products and services is not new. In fact, the value of IS has always been based on acquiring and applying products and services from a unique set of vendors. At first, only hardware and systems software were acquired; now a complete set of products and supporting services, including management, is available. Throughout the past three decades, the complexity and variety of capabilities available for sale by information systems and services vendors have increased.

Exhibit IV-1 traces the evolution of three primary INPUT delivery modes: applications software, professional services, and processing services. Each has moved from being a singular product or subcontractor mode in the early 1970s to a complex partnership-based suite of products and services entering the 1990s.

EXHIBIT IV-1

Evolution of Outsourcing

Type of Product or Service	1960s	1970s	1980s	1990s
Applications Software	Applications Packages		Turnkey System	Applications Management
Professional Services	Consulting Contract		Applications Development	Systems Integration
Processing Services	Specific Processing Services		Facilities Management	Systems Operations

- Applications software began as—and to some degree remains—a product-only business. Over time some vendors began to provide a complete system, called a turnkey system, that included the computer software and installation. Today, the leading vendors are providing professional services to customize, integrate, and even maintain the application. The product will be only a small part of the sale in the 1990s.

- The professional services vendor started by selling planning and requirements specifications or by being a programming contractor—somewhat of a jack of all trades. The next step was to merge these two services and develop the entire application. Now professional services firms offer complete solutions to complex requirements for information systems, networks, office automation, and much more.

- Processing services began by providing very specific individual services, such as payroll or timesharing. That expanded in many directions. What was once called facilities management has been renamed systems operations, and the focus has shifted from computer operations to planning and control, and some elements of development.

- To a growing degree, the focus is on the dismantling of data centers, with the client turning to vendors to provide services from the vendor's data centers; this is a processing utility.

In short, where IS hesitated to go outside and usually did so only to subcontract, now IS is looking at the entire requirement and buying more from a single vendor.

B

Market Definitions

The following sections consider the main components of systems management. For each IS element, INPUT provides a market definition, considers some typical tasks, and reviews the perceptions of users contacted by INPUT about the ways in which such services are being provided. This section reviews in turn systems integration, systems operations, and applications management, and concludes by providing a working definition of systems management.

1. Systems Integration

Systems integration is a business offering that provides a complete solution to an information system, networking, or automation requirement through the custom selection and implementation of a variety of information system products and services. Exhibit IV-2 summarizes the principal elements of this definition.

EXHIBIT IV-2

SI Market Definition

- Business offering
- Complete solution to complex requirement for:
  - Information systems
  - Networks
  - Automation
- Custom selection and implementation of products and services

A systems integrator is responsible for the overall management of a systems integration contract and is the single point of contact and responsibility to the buyer for the delivery of the specified system function, on schedule and at the contracted price. Exhibit IV-3 indicates typical tasks of SI projects.

EXHIBIT IV-3

Typical Tasks of SI Projects

- Total project management
- Process feasibility and trade-off studies
- Systems design
- Selection/configuration of equipment and network
- Selection of systems software
- Selection/development of applications software
- Installation of equipment and software
- Systems integration (equipment and software)
- Testing and demonstration of system
- Documentation
- Client staff training
- Systems operations
- Maintenance of equipment and software
- Financing

The operative word in the definition is *complete*. Assume a large organization, government or private, with executives responsible for coordinating information management. What might they require? The organization may well have hundreds or thousands of computers designed by different manufacturers at different times. They will want those computers to be able to communicate with each other, either as local-area networks or between offices scattered around the country. As circumstances dictate, they will want these corporate networks to be able to do whatever is needed: send electronic mail, generate recurring reports, tap into corporate mainframes and data bases, tie into public telecommunications networks, or build private networks that can carry voice and data. The task of the systems integrator is to make all this possible.

But the corporate user wants systems integration without disrupting the organization. This implies several conditions. Firstly, integration must be implemented gradually, with new functions added only after older ones have been assimilated. Secondly, the products of different vendors should function as full and equal members of the total system. Thirdly, integrated systems should be so powerful that they make few demands on users. That is, they should be flexible, easy to enter and exit, and transparent to the user.

Systems integration is becoming important because the pioneering days of office automation and end-user computing are over. Beginning in the late 1980s, the U.S. information services industry entered a new phase. Older services, such as claims processing, remote computing, or the development of standardized software packages, remain important, but the companies that provide them will either find new opportunities or cease growing. Increasingly, large client organizations seek to pull together all of their hardware and software, especially when different manufacturers produce them. Those companies with the necessary skills to pull it all together see tremendous opportunities in a new area: systems integration.

This raises three questions:

- What kinds of firms perform systems integration?
- What are the different approaches to integrating incompatible equipment and software?
- What are the conditions that make systems integration possible?

One answer to the first question is that systems integration grew out of earlier work in facilities management. EDS has been a pioneering systems integrator. Founded in 1962, EDS won its first major contracts operating computer centers that processed state Medicaid claims. From there, EDS proceeded to win several very large federal contracts, including one in 1982 to tie together computers at four dozen U.S. Army installations. In 1984 General Motors paid $2.5 billion to acquire EDS, with the stated aim of improving its own data-processing operations and managing the $40 billion automation of its plants. Subsequently, GM awarded EDS a major five-year contract to continue its factory automation program. With sales of over $5 billion, EDS is a major provider of systems integration and related services to federal agencies, state governments—especially for medical claims processing—and many of the user firms contacted by INPUT.

EDS' approach is only one possible solution. Basically, the systems integration approach can be considered hardware or software oriented. The simplest approach is to use one vendor to acquire hardware and software, and to build a system from the ground up. The hardware and software may or may not derive from a single source. In any event, the vendor is responsible for ensuring that all of the hardware is interoperable, that the user's system can communicate easily with other systems, and that it can be upgraded to exploit advances in technology.

The other, software-driven approach is the one adopted by EDS, Computer Sciences Corporation, and some smaller software houses. There are actually several integration approaches, and some firms offer a combination:

- Firms acquire hardware and software from other vendors, customize the software, and provide a total solution.

- Firms place their own software on someone else's hardware and offer this package to the customer. This approach should be distinguished from turnkey systems that integrate standard equipment with packaged application software. Unlike turnkey systems, which are primarily marketed by value-added resellers, systems integration involves a customized solution offered directly to the user.

- Some manufacturers mix their hardware with hardware from other firms. In some cases, these integrators will repackage hardware from an original equipment manufacturer and market it under their own names.

But even these classifications understate the complexity of the situation. First, only the very largest systems integrators can even claim to offer a total solution. The big integration contracts, especially for the federal government, typically involve several firms working together. In some cases, a prime contractor will pass as much as 80 percent of contract dollars to subcontractors for hardware or software purchases.

Second, for all that corporate customers might wish it otherwise, systems integration often is a continuing process. Once a firm completes a systems integration contract, it may well win other contracts for systems operation and software maintenance. Because such work is so lucrative, it is attracting many of the largest data services firms, as well as the services arms of big manufacturers like IBM and Unisys. As discussed in the final section of this chapter, systems integration is one of the routes by which an objective-based relationship can lead to a long-term partnership with the client.

From the customer's standpoint, there are many advantages to turning over such work to a contractor. The contractor assumes the risk and reduces the amount of time management has to spend with the system; the contractor is the single point of responsibility for managing the system; and the contractor has the expertise to keep the system up to date. Thus, many firms are following EDS' lead, only in reverse—moving from integration to facilities management and upgrading technology.

In short, as corporate and government sponsors buy solutions, they are turning to systems integration vendors. Many of the solutions that users seek include new technologies such as artificial intelligence, image processing, and a variety of advanced telecommunications alternatives such as LANs, WANs, and MANs. Systems integrators with good track records provide an attractive alternative to internal information systems organizations that often lack adequate resources and skills to meet new user requirements. Some internal organizations also lack the required application knowledge and experience with new technologies.

Yet it would be premature to say that U.S. corporations are completely sold on systems integration, or systems management services generally. Of 20 major corporate users INPUT contacted, only 10 were familiar with the term systems management and even they had no consistent definition. Systems management was variously defined as the outsourcing of the entire MIS function, the outsourcing of different components of information technology (applications software, telecommunications, etc.), or the willingness of a vendor to do virtually anything for a fee.

One-half of the users contacted by INPUT said that they had contracted with a vendor for implementing a systems integration project.

For those that do not currently contract for system integration services, the reasons they gave fell into categories listed in Exhibit IV-4.

- Some firms believed they had the in-house staff to manage such projects internally. One organization noted that its corporate culture precluded using outside contractors and consultants, and that the home-grown nature of its software would make it very difficult for an outsider to take over.

- In some markets, the technology is so important to the success of the business that users have to know the details of each project. Here, corporate executives believe no one can manage projects as well as the internal staff.

- Outsourcing systems integration may not be cost effective. Vendors may take too long to go down the learning curve.

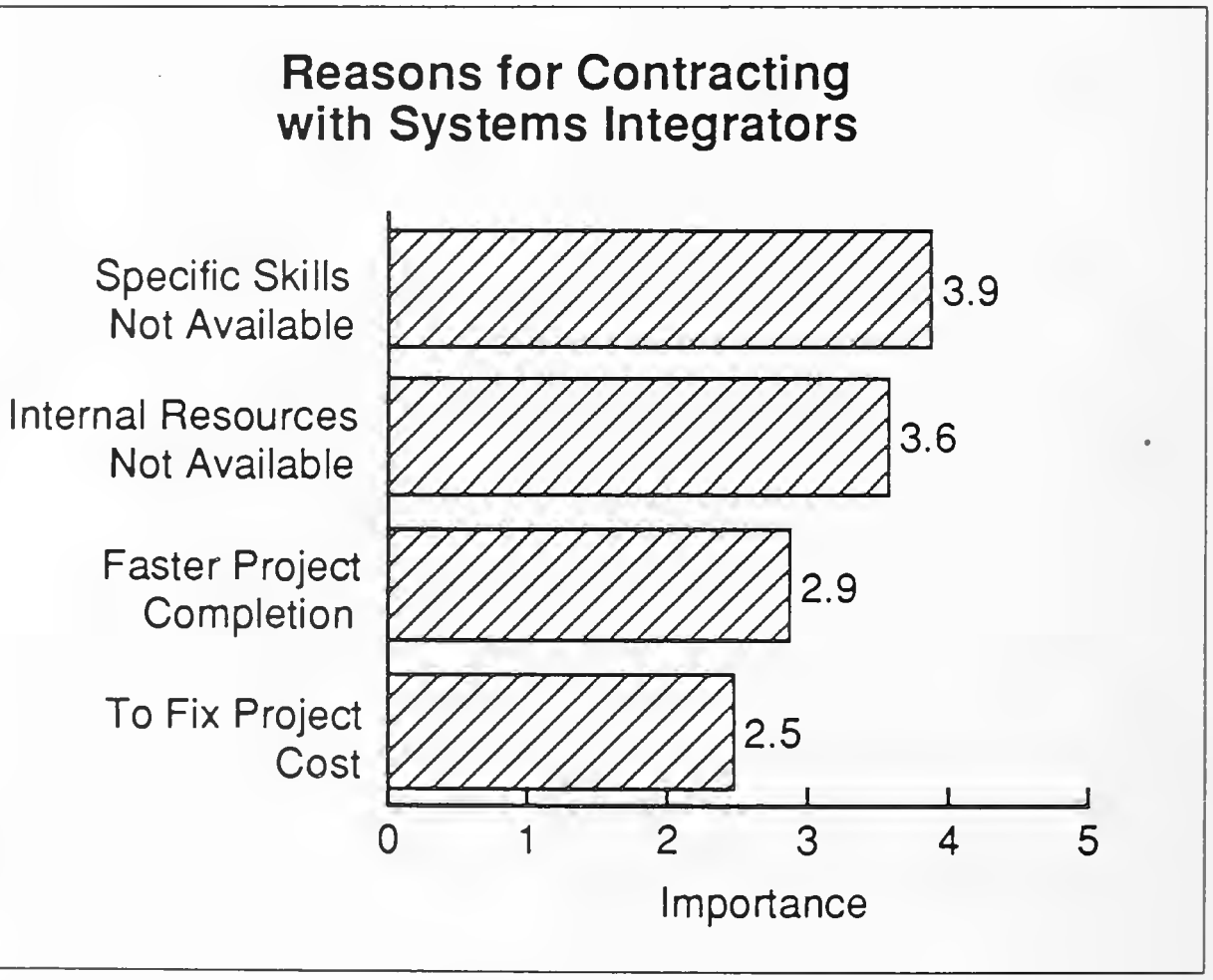
EXHIBIT IV-4

Reasons for Not Contracting with Systems Integrators

- In-house staff available for the work
- Need for organization to control its own technology application
- Outsourcing not cost effective

All the firms INPUT contacted were asked to rate the reasons, on a scale of 1 to 5, for using systems integrators to complete projects, as listed in Exhibit IV-5. The lack of specific internal skills ranked highest, followed by unavailability of internal resources, need to complete projects faster, and need to fix project costs.

EXHIBIT IV-5

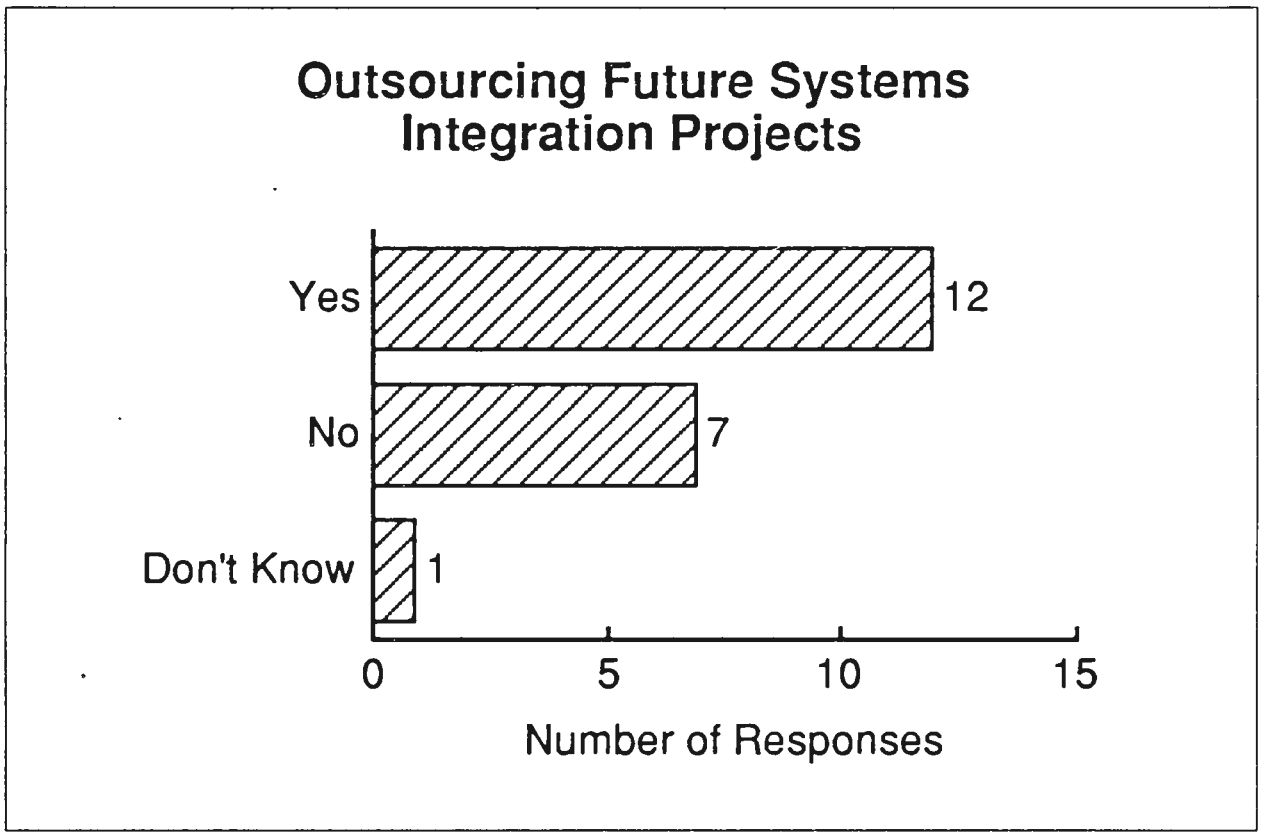


Using the same scale, users rated their levels of satisfaction with the results of systems integration projects at 3.1, slightly above average.

As Exhibit IV-6 shows, a clear majority of users were prepared to outsource future systems developments projects to systems integrators. These results, along with results of other INPUT studies, continue to show a strong demand for vendor-provided systems integration services.

INPUT also asked survey respondents which vendors were best at providing systems integration services. Among the vendors most frequently cited were EDS, Andersen Consulting, IBM, Perot Systems, CSC, and Deloitte Touche.

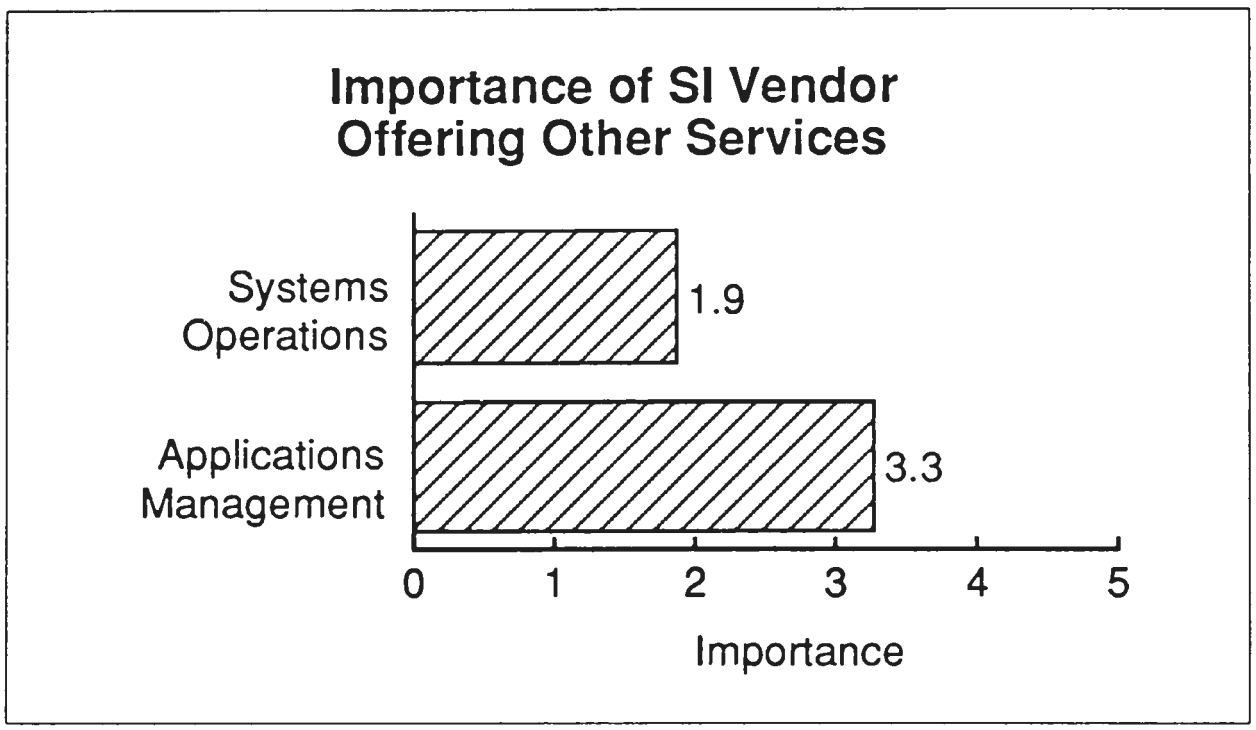
EXHIBIT IV-6



An important point is that a company could hire a systems integrator for a specific project without committing itself to using that firm for systems operations or applications management. Exhibit IV-7 shows that users did not consider it particularly important for an SI vendor to offer systems operations services. They considered it much more important for a systems integrator to provide applications management services.

The tendency of those firms contracting with vendors was to use them on a case-by-case basis and, frequently, to work with several different integrators on as many projects. For many of the firms surveyed, the implication behind their responses is that there is no necessary connection between calling in a vendor to complete a project and establishing a long-term relationship for end-to-end systems operations.

EXHIBIT IV-7



2. Systems Operations

a. Systems Operations in the Commercial Sector

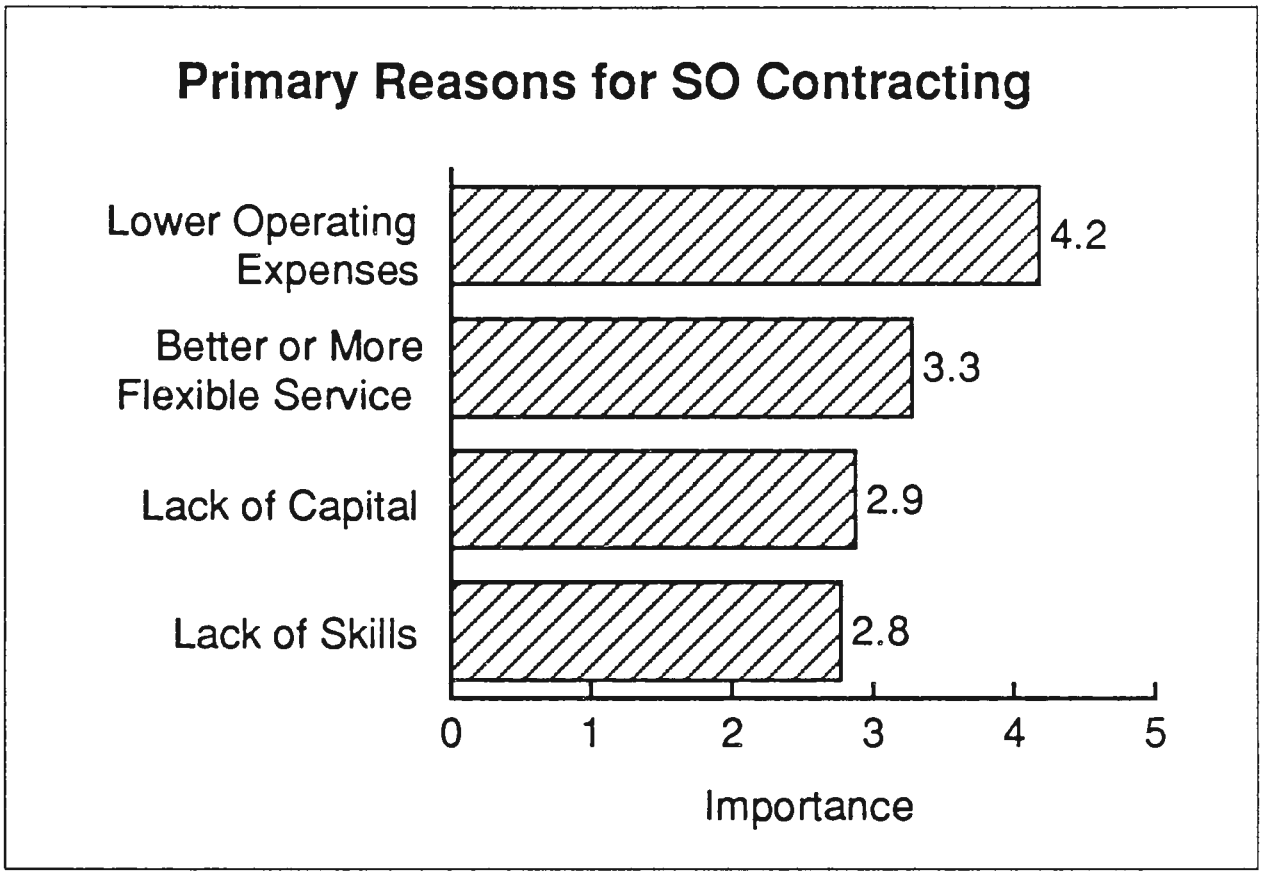
Systems operations involve the operation and management of all or a significant part of the user's information systems functions under a long-term contract. The vendor can either provide platform services, with the user retaining all responsibility for applications maintenance and development, or the vendor can provide applications services where it provides platform services and also manages the maintenance of the applications inventory.

Systems operations vendors now provide a wide variety of services to support existing information systems. The vendor can plan, control, provide, operate, maintain, and manage the majority of all components of the user's information systems, either at the client's or the vendor's site. Systems operations is also known as resource management or facilities management.

There are four primary reasons that companies contract for systems operations. They are summarized in Exhibit IV-8.

- Users that INPUT surveyed for this study ranked lower operating expense as the most important reason for outsourcing systems operations. While the per-unit cost of information processing has continued to drop, executives often see delivery costs go up at a rate greater than the growth of the business. With growing financial pressures, there is a need to find ways to reduce, or at least contain, the cost spiral.

EXHIBIT IV-8



- Some companies believe that a vendor is in a better position to meet service-level commitments than an internal operations department. Removed from internal political considerations, a vendor is guided by contracted commitments and is not subject to internal pressures. Moreover, a full-service vendor offers users many options in procuring services, as Exhibit IV-9 shows.

- There is also a need to conserve capital. Executives recognize that computing equipment is more a commodity than an essential asset and that capital expenditures can be better utilized to support the core business needs.

- Finally, while organizations consider information systems to be too important to the business—and critical to the decision process—to continue to accept delays in information delivery because they lack the internal skills to do the work themselves, they do not consider this as important a reason for contracting with a systems operations firm.

Yet commercial users seem more reluctant to outsource systems operations than systems integration. While half the respondents surveyed by INPUT had contracted for systems integration support, only one-quarter were going outside for systems operations, although their level of satisfaction was higher: 3.7 compared to 3.1. The lower number of respondents currently contracting systems operations is most likely a reflection of the relative newness of the systems operations revival. Greater systems operations satisfaction may portend accelerated acceptance of this service.

EXHIBIT IV-9

Systems Operations Options

- Client or vendor premises
- Client- or vendor-owned equipment
- Dedicated or shared equipment
- Applications development
- Systems and applications software maintenance
- Equipment maintenance
- User training
- Disaster recovery and backup facilities
- Vendor or client staff
- Management of communications networks
- Participation in IS strategy
- Function as "fiscal agent" for client

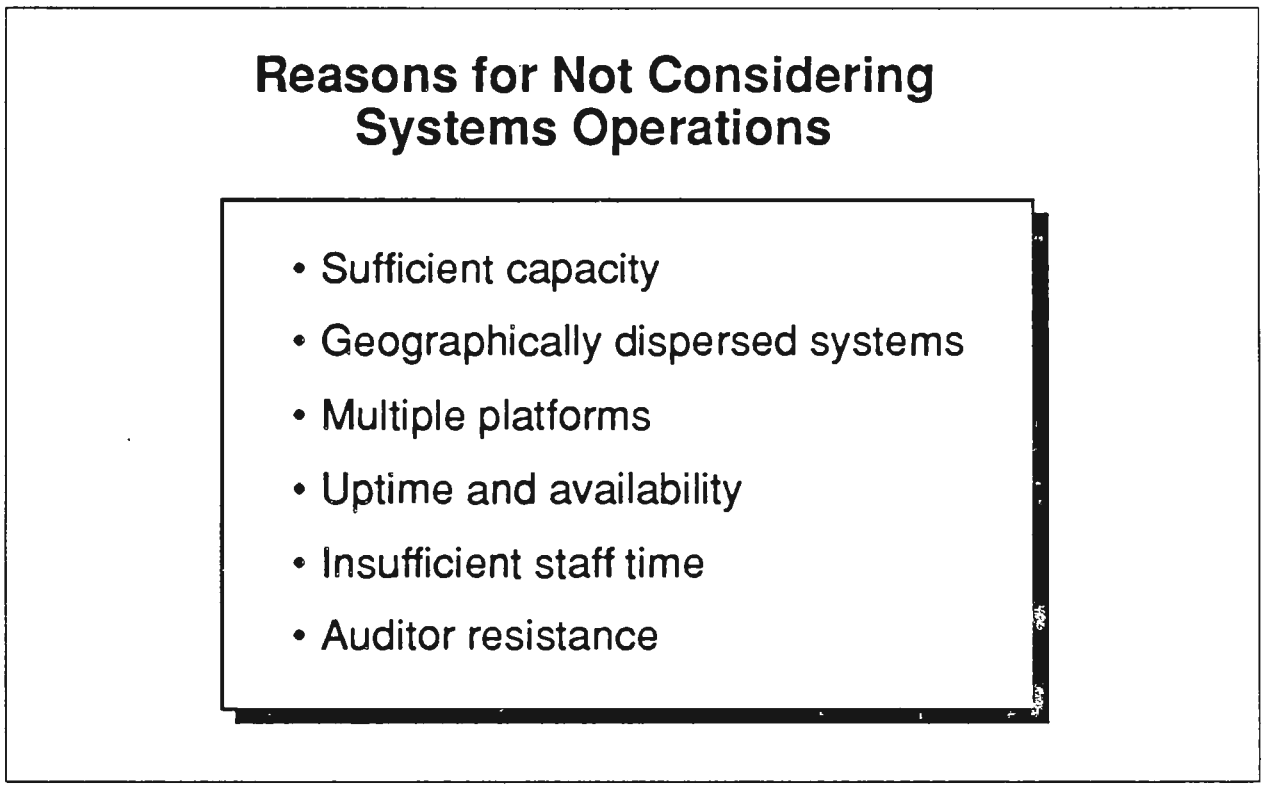
Exhibit IV-10 identifies the reasons organizations gave for not evaluating systems operations.

INPUT believes that these reasons resolve themselves into the following considerations:

- Organizations that currently have sufficient computer capacity are not inclined to consider alternatives. They don't see any need. On the other hand, INPUT's research indicates that companies in transition with significant increases or decreases in capacity requirements are excellent candidates for outsourcing.

- Organizations with geographically dispersed (decentralized) systems, or systems that include multiple platforms (mainframes, minis, and micros), believe they are better able to manage the systems than a vendor. Many users consider systems operations to be applicable only to large, central mainframe operations.

EXHIBIT IV-10



- In many organizations, the process of meeting production schedules allows little time to devote to analysis of systems operations benefits.

- Users indicate that auditors might object to having a key corporate asset controlled by a vendor.

These reasons may serve to explain why so many organizations are more willing to outsource systems integration than systems operations. The former is often a one-shot deal, more in the nature of development than continuing operations. It is more like developing a launch vehicle and its accompanying payload than it is like operating a launch site. Users that are willing to use vendors for ad hoc situations may be less willing to consider a permanent relationship.

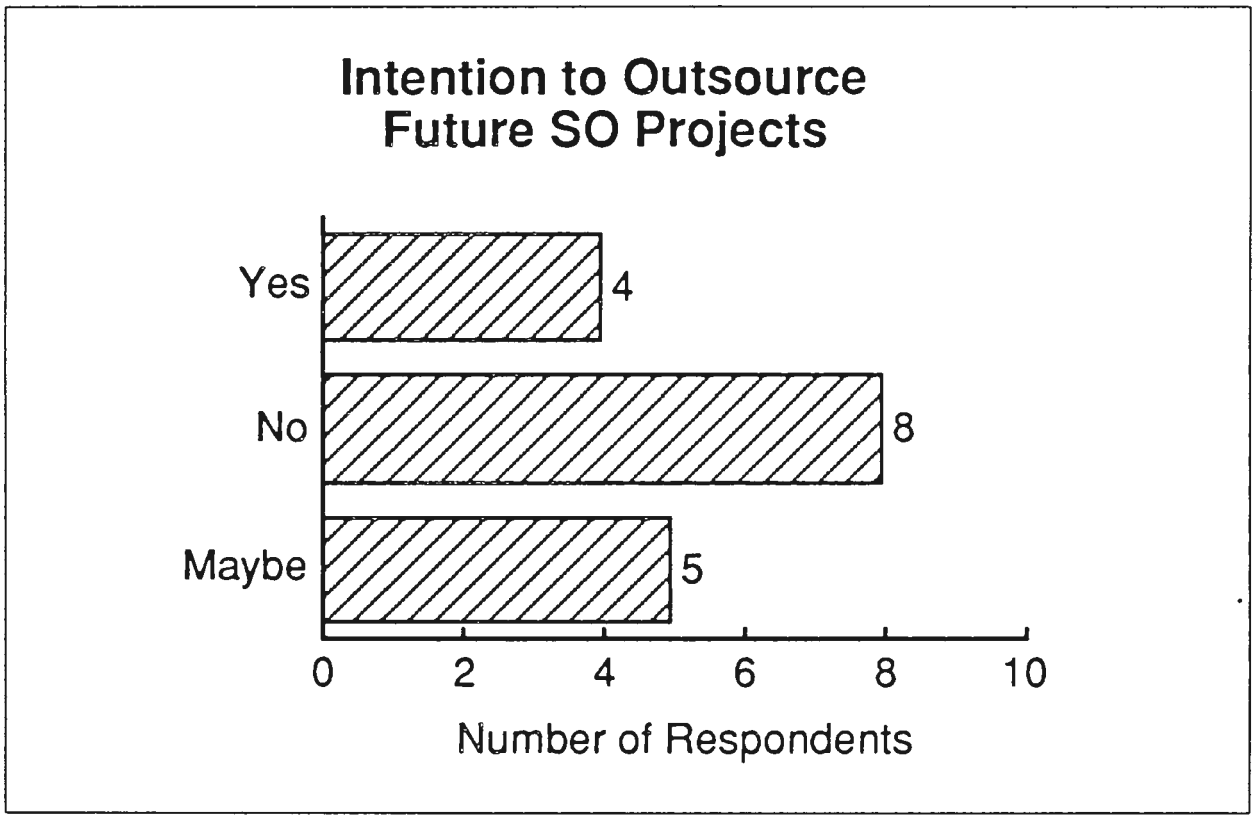
It is also possible that the perceived up-front costs of systems operations may scare off prospective users. It takes time for an outsider to understand the operations of a large, geographically dispersed organization, especially when the vendor needs access to some of its most sensitive information. Yet, INPUT's experience indicates that most vendors are very creative and willing to price contracts so that front-end costs are spread over, or even moved to the back of, the contract's life.

Two other considerations may round out the analysis of why so many firms are reluctant to outsource systems operations. The first is that systems operations is inherently dynamic. When a user outsources, a restructuring of systems operations is likely—bringing with it all the uncertainty that restructuring implies.

Any such restructuring is likely to strike at the existing organization. The threat to individual managers is a major stumbling block. They are not inclined to pursue a solution that they recognize could cause them to lose their jobs or reduce their responsibility. In addition, many companies do not accept that a vendor can know as much about their business or perform as well as they do.

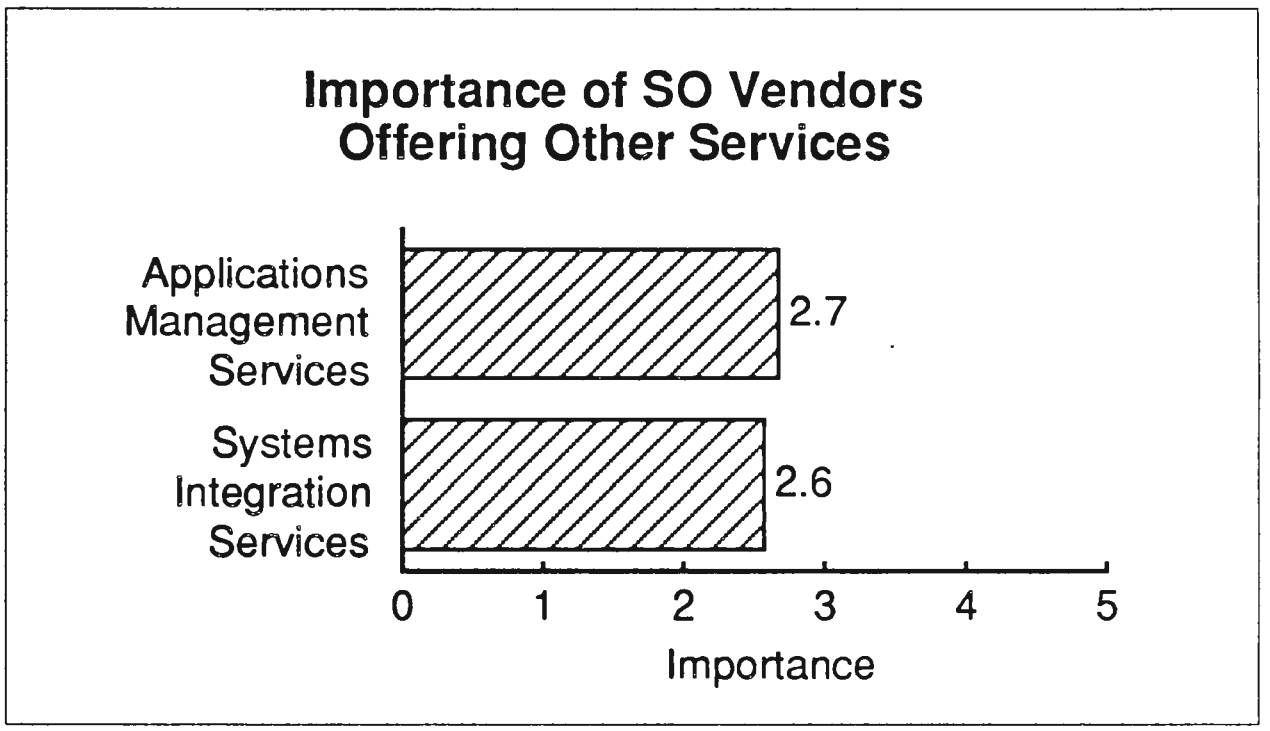
Nevertheless, although only five respondents were using systems operations vendors, nine said they would consider or would definitely consider outsourcing data center operations in the future, as Exhibit IV-11 illustrates.

EXHIBIT IV-11



Compared to the responses of systems integration services users, respondents had quite different views on the other services that systems operations vendors should provide. They had a slightly below average desire for systems operations vendors to provide systems integration or applications management services. However, when asked who they considered best at providing systems operations services, the vendors most frequently cited by users, including EDS and IBM, seemed to be those that were perceived as full-service organizations. Exhibit IV-12 shows the responses.

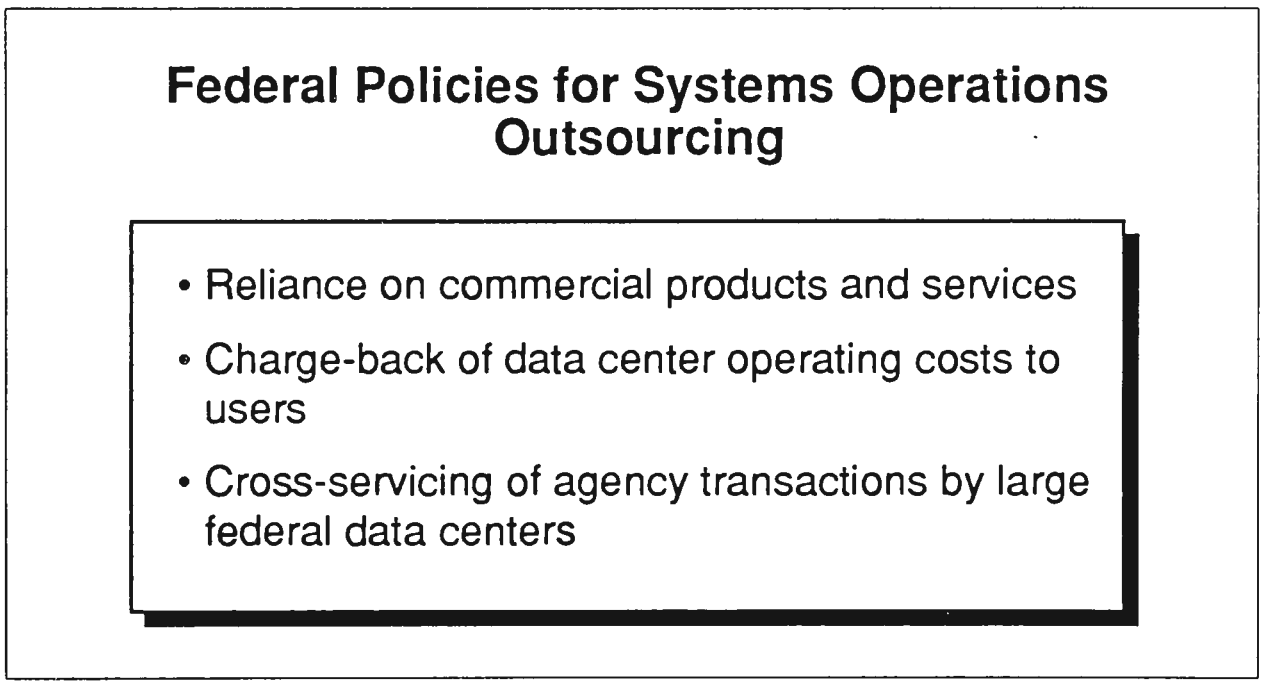
EXHIBIT IV-12



b. Federal Systems Operations Outsourcing

Because the federal government has gone further than commercial users in contracting for systems operation services, its position on outsourcing is of great interest. Through the actions of individual agencies and Office of Management and Budget policy circulars, it has become government policy to rely on commercial vendors for the kinds of products and services that the private sector offers. Exhibit IV-13 summarizes the principles of federal systems management policies.

EXHIBIT IV-13



While none of these policies absolutely dictates contracting for systems operations, they all point in that direction. In general, OMB has taken the position that agencies should not attempt to do what others can do better. For this reason, as well as purely economic reasons, agencies are turning increasingly to large federal data centers that service a variety of users. The cross-servicing facility stands in the same relation to government users as commercial vendors do to their corporate clients.

Thus, the Agriculture Department's National Finance Center in New Orleans processes personnel and payroll for some three dozen agencies. Further, because OMB insists that agencies charge the full cost of their data processing costs back to users, those agencies have the incentive to get the work done more efficiently and cheaply. By cross-servicing many agencies, large federal data centers gain as well. They lower their unit processing costs, keep their processing systems at full capacity, and spread their development and maintenance costs over a much larger customer base. And there is nothing in the logic of the situation to prevent the government— with suitable safeguards—from contracting the operation of these and smaller centers to systems operations vendors.

3. Applications Management

Under applications management the vendor maintains a logical set of applications, including both end-user requirements and technology implementation under a long-term contract.

Many of the same vendors that market systems integration and systems operations services market applications management. For many vendors, maintaining a client's installed base of software is simply a logical extension of its existing product and service lines. As mentioned in the preceding subsection, a vendor can support systems operations in one of three ways—through platform operations, applications operations, or using software provided by a third party.

- In platform operations, the vendor provides the computer processing capacity and/or network without taking responsibility for the applications the client develops and maintains.

- In applications operations, the vendor is responsible for the complete systems function, including equipment, telecommunications requirements, and applications software. This usually involves maintenance, development, and upgrade functions.

- A third-party vendor with expertise in specific markets develops and maintains applications software.

Applications management falls predominantly within the second category. For example, a vendor will operate a corporate or government financial processing center. In addition to having responsibility for day-to-day operations, the vendor will modify the software to meet changing needs, maintain or upgrade code, and add applications not covered in the vendor's platform. Thus, a vendor might add or upgrade a module for tracking inventory and receivables, add programs to handle electronic order generation and customer invoicing, and transport financial information to a relational data base environment. Exhibit IV-14 identifies functions incorporated in applications management.

EXHIBIT IV-14

Applications Management Functions

- Technology assessment of vendor packages
- Purchase of vendor offerings
- Upgrades client's installed base
- Modifies vendor and client packages
- Converts existing code to more advanced languages
- Provides consulting services when client considers new applications for data center

INPUT considers applications maintenance an emerging outsourcing opportunity. The maintenance of the existing application investment is the greatest inhibitor to the ability of information systems to progress in the eyes of management. A small but growing number of vendors are proving they can do it better at lower costs, using disciplined methodologies, re-engineering tools and entry-level staff with strong management. The opportunity exists to outsource maintenance and use internal staff to attack the backlog.

It remains, however, for many user organizations to recognize the potential in outsourcing applications management. Perhaps the key factor driving organizations to outsource applications management is the discovery that no commercial package does it all. In the federal processing environment, the General Services Administration maintains multiple-award schedule contracts for financial and accounting software that conforms to the specifications for "core" financial systems laid down by

the government. After three years, only five vendor packages are on the schedule, and most agencies report that they have to supplement them either with their own customized packages or commercial offerings not on the schedule.

Another factor working in vendors' favor is their customers' desire to avoid costly software modifications, if possible. In particular, users would prefer to avoid the complications that arise when they have to run the same applications on equipment from different manufacturers. Using the vendor already selected to run systems operations minimizes the problems involved in working with software that does not precisely meet users' needs.

Only 20% of the users contacted by INPUT outsourced applications management—an even smaller percentage than outsourced systems operations. One user noted that his organization was not outsourcing applications management because "most of the existing applications base is homegrown and old. We don't think we can do this effectively, and we will wait to outsource until a rewrite."

Another user told INPUT that his organization would not outsource because "we want control internally. We have established staff, a good skill base, and investment in software."

Exhibit IV-15 lists the reasons users give for their reluctance to outsource applications management.

EXHIBIT IV-15

Reasons for Not Considering Applications Management Functions

- Most applications are generated internally
- Client wishes to maintain control
- Outsourcing not economical
- Takes too long for vendor to master installed base
- Lack of perceived requirement for outside support
- Impact on existing IS staff

As with other systems management functions, the outsourcing of applications management can be perceived as a threat to the client's organization. The vendor is not simply taking over a function already performed adequately in-house. Instead, the vendor is proposing to add value to the existing base—not least by inserting technology that may significantly improve operations. And such changes may—but need not—displace many of the client's IS staff.

Despite the small sample of applications management users, the level of satisfaction was the highest for any of the services considered. The range was from 3 to 5, with an average of 3.75. Interestingly, although IBM was cited as a systems operations vendor, it was not cited as an applications management vendor, along with EDS and Andersen Consulting.

4. Systems Management—A Working Definition

Systems management is the totality of services that vendors can offer customers in managing their information effectively. It includes the full range of services traditionally supplied by internal data processors: systems integration, systems operations, applications management, and the ancillary services needed in implementing each one.

Systems management is more than the sum of its parts, although many users have yet to realize this. There is a certain reluctance on the part of users to turn over all of their information-related operations to vendors. Many are willing to use vendors for systems integration projects, fewer for systems operations, and fewer still for applications management. And yet, the capability of tying all these functions together is definitely present.

As discussed earlier, outsourcing is qualitatively different from what it was a few years ago, most significantly in the following areas:

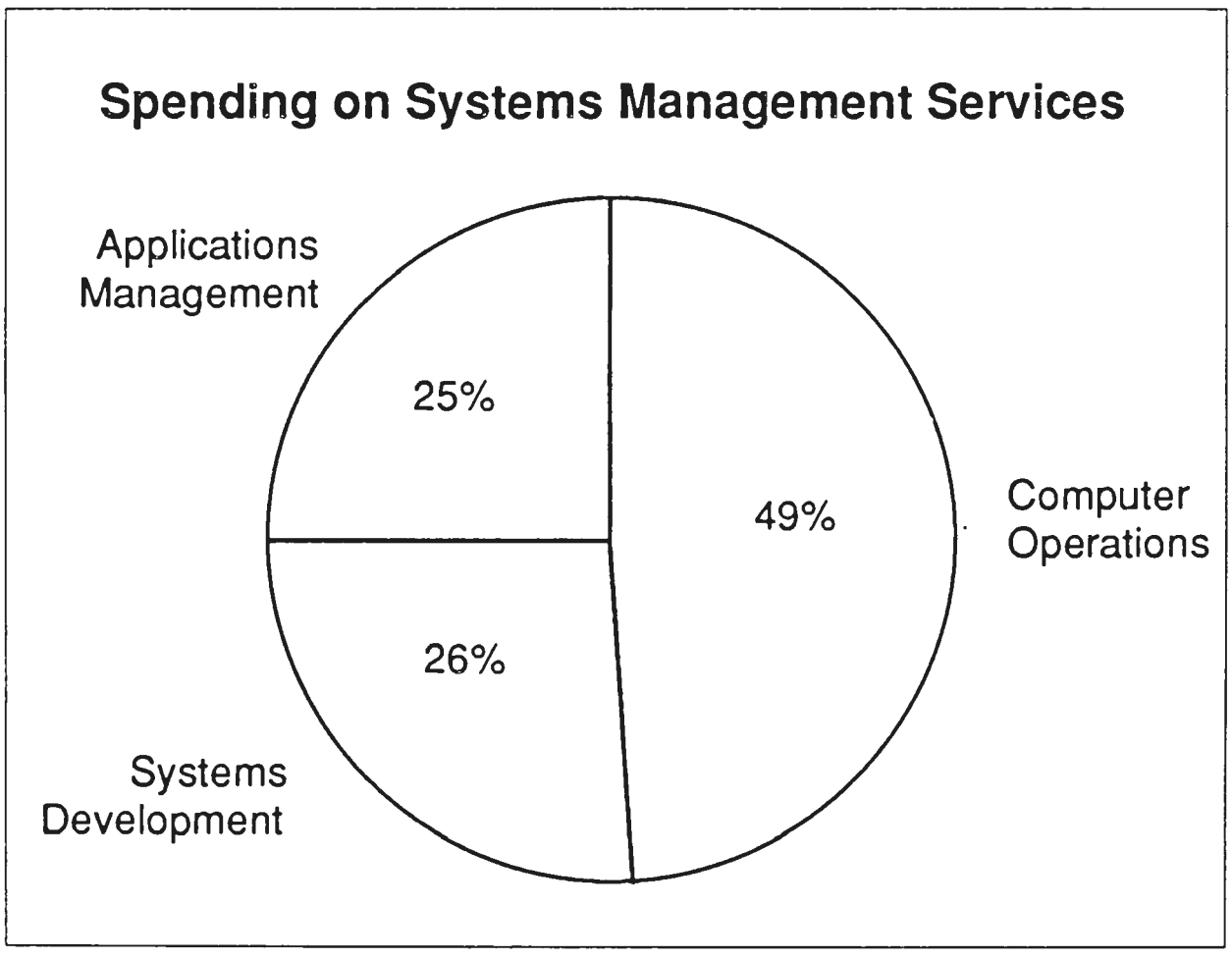
- The breadth of services from a single vendor
- The inclination to buy from a single vendor
- The magnitude of the professional services content of most outsourcing relationships
- The amount of management responsibility assumed by the outsourcing vendor

Outsourcing is more than systems integration and systems operations—including new and expansive combinations of existing products and services to provide applications management, transition management, and applications services. Information systems and services vendors are shifting their strategies to provide broad, flexible products and services to

meet outsourcing requirements. These vendors market a combination of professional services, systems operations, applications development, and support—and within vertical industries, focus on applications software as well.

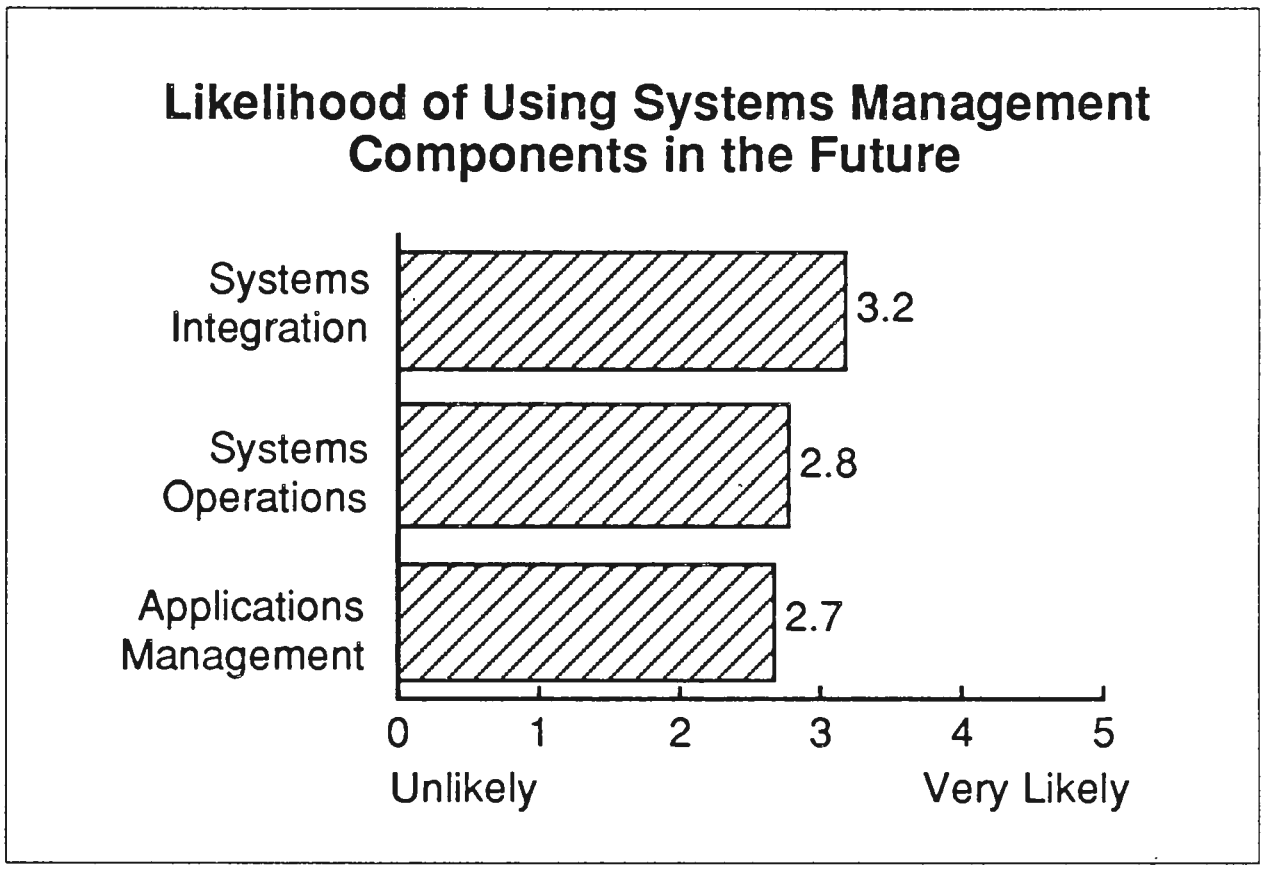
The logic of information management is driving more and more organizations toward long-term relationships with one or a few service organizations. If these relationships correspond to the current spending for information services, vendors will be working predominantly in systems operations. Exhibit IV-16 breaks down current spending by commercial organizations for information services. Nearly half the total is going for computer operations, with the rest divided almost equally between applications management and systems development.

EXHIBIT IV-16



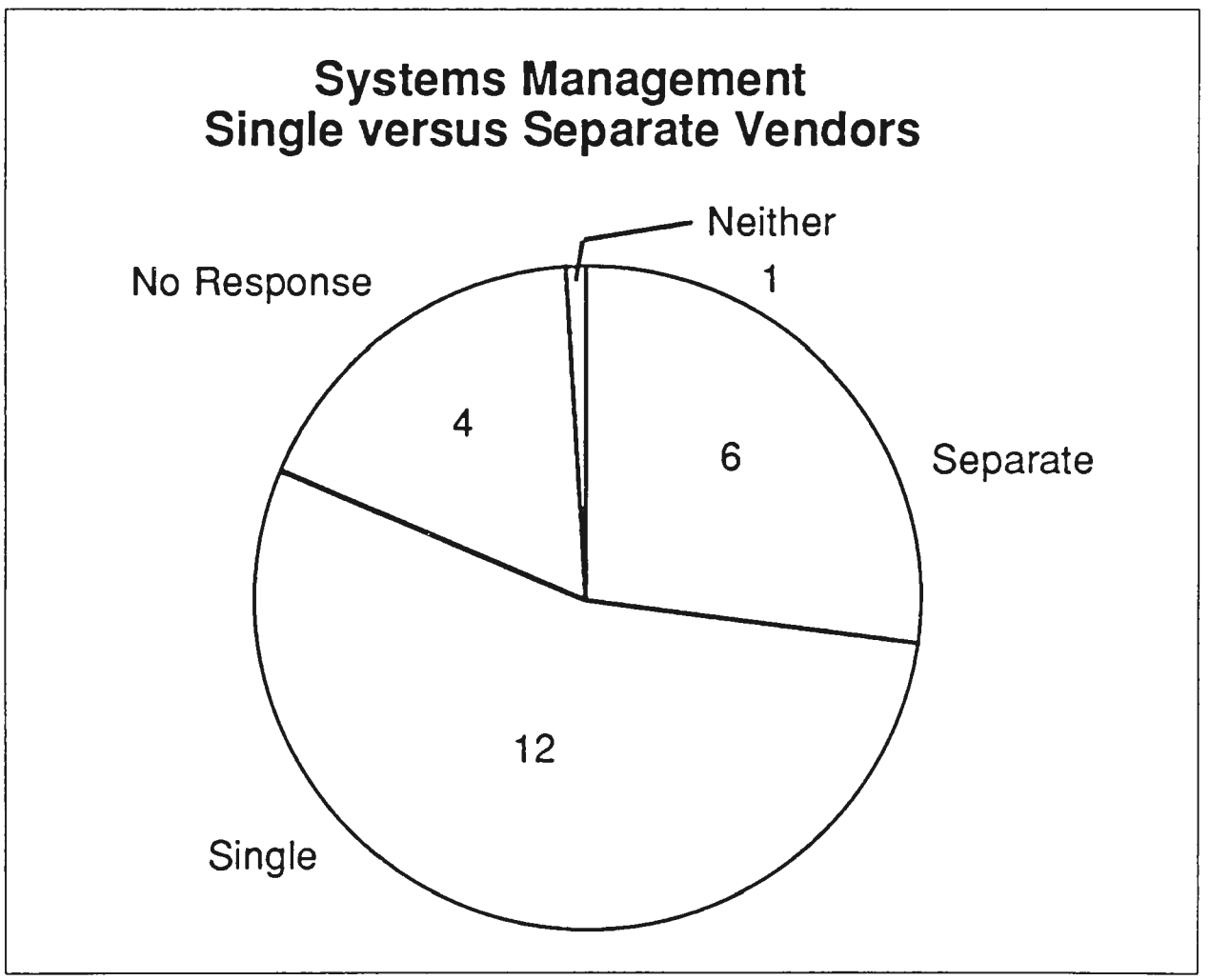
When INPUT asked users which of the three services discussed they were likely to use in the future, they responded that they were most likely to use systems integration, and only slightly less likely to use the other two services. EDS and IBM were the most frequently cited systems management vendors. Exhibit IV-17 details their responses.

EXHIBIT IV-17



The majority of users indicated a distinct preference for using a single vendor to provide all three services, rather than separate vendors for each service. Exhibit IV-18 shows this preference for a single end-to-end vendor.

EXHIBIT IV-18



In summary, many existing vendor-user relationships are evolving into true partnerships. Where partnerships exist, it is the management process along with a broad base of expertise that is most critical to services. The customer comes to depend on the vendor for day-to-day, minute-to-minute support. The scope of the relationship is broad, dealing as it does with a large set of individual services. The timing of the relationship is designed to be open ended, since it starts with a long-term commitment of three to five years. Most importantly, if both parties will the relationship to succeed, it can have significant, lasting organizational impacts.

C

Systems Management Requirements

The word *requirements* can be construed in two compatible senses. Firstly, it means that users need end-to-end systems management that can be met by the vendor organizations just described. Secondly, both vendor and user must satisfy certain preconditions (requirements) if systems management is to succeed. This section considers the latter meaning.

The first of these preconditions is the desire of both parties for a continuing partnership. Yet the result of many major outsourcing decisions remains an objective-based relationship that is tied to fairly specific but complex goals. The user-client will often begin by calling in a vendor for a specific assignment—one that may ripen into a partnership. In effect, the different functions that system management embraces are eventually "bundled" into a single working agreement.

The different functions comprising systems management can lead to long-term relationships:

- An applications maintenance relationship, if successful, will extend over a long time and can expand to cover a complete set of applications and even new development.

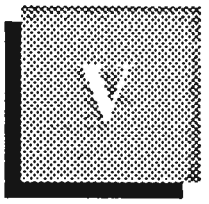
- A systems integration relationship can become, or include from the beginning, systems operations requirements.

When the change occurs, it is critical that the client and vendor recognize the differences in characteristics of the changed relationship. The result will probably mean a redefinition of the business relationship.

A good systems management relationship presupposes a certain kind of client, one whose concern for solution overrides any concern with where that solution originates. They are generally committed to using information systems to improve productivity, and they know their technology well enough to understand where and how outsourcing can improve operations.

Organizations in transition are the most likely candidates for systems management services. Companies experiencing financial difficulties will readily consider opportunities to reduce or stabilize cash flow and to conserve capital. Government agencies facing budget cuts or downsizing will be more willing to consider contracting out those functions that the private sector can perform at least as well. These same agencies are also expected to recover the full cost of operations from users, to rely on existing capacity and to buy off-the-shelf products and services where available. All of these are necessary, if not sufficient, conditions for outsourcing systems management.

Along with the need is the possibility of satisfying it. The majority of successful IS vendors have very strong in-house capabilities, as well as a wide range of alliances. They have the flexibility to meet customer needs and to ensure responsiveness to changing requirements and potential problems.



Market Trends

This chapter reviews trends in U.S. information services markets for the 1991-1996 period.

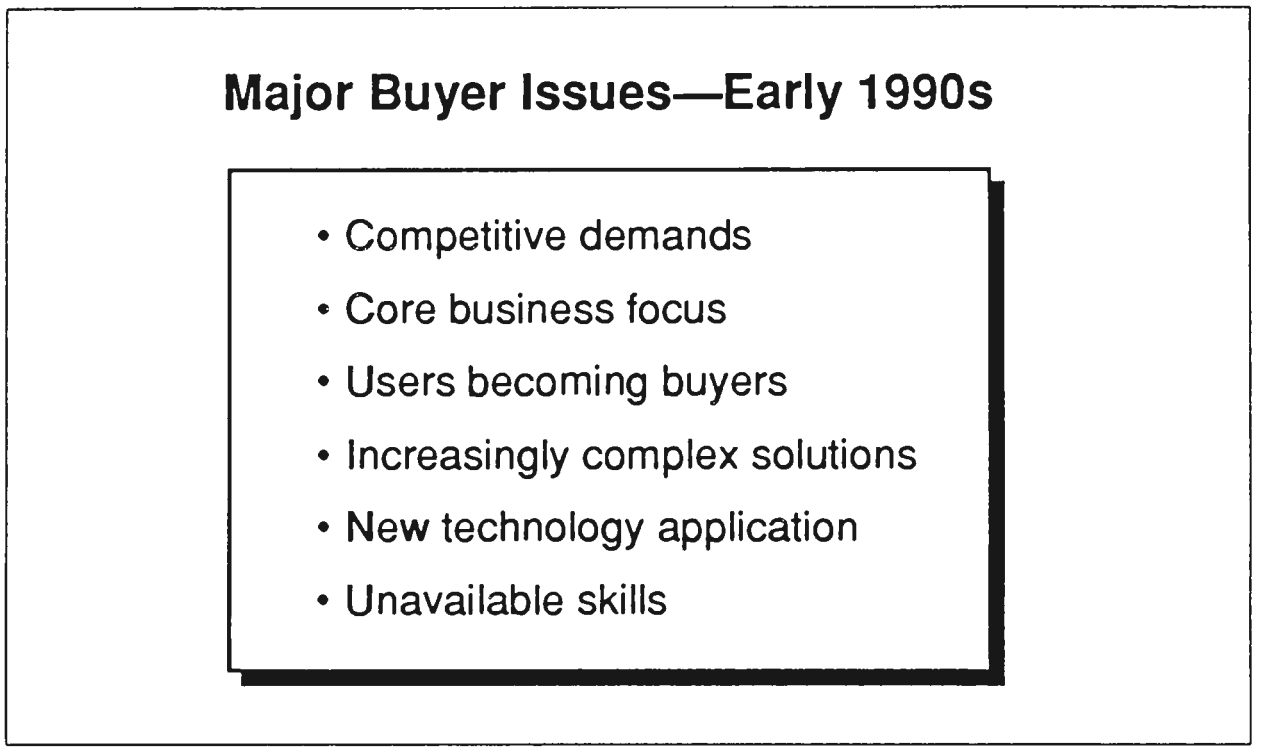
The following sections forecast 1991-1996 markets for systems integration and systems operations. Some consideration will be given to applications management, although INPUT currently classifies it as a professional service, rather than a systems management service in its own right. The chapter concludes with a synopsis of vertical industry opportunities for the period covered.

A Buyer Issues

As U.S. companies feel the pressure of domestic and foreign competition, they are examining their core businesses to differentiate their products and services from industry rivals. In many cases, the right kind of technology can make the difference in offering a superior service faster, or reducing the length of product development cycles. Because much of this technology will come from outside the organization, users are learning to pick and choose among a variety of solutions. Exhibit V-1 identifies the major buyer issues of the early 1990s.

Increasingly, these firms and government agencies are turning to outside firms to provide them with systems management services: systems integration, systems operations, and applications management. Vendors of these services with good track records are attractive alternatives to internal information systems organizations that often lack adequate resources and skills to meet new user requirements. Some internal organizations also lack the new-technology application knowledge and experience required.

EXHIBIT V-1



B

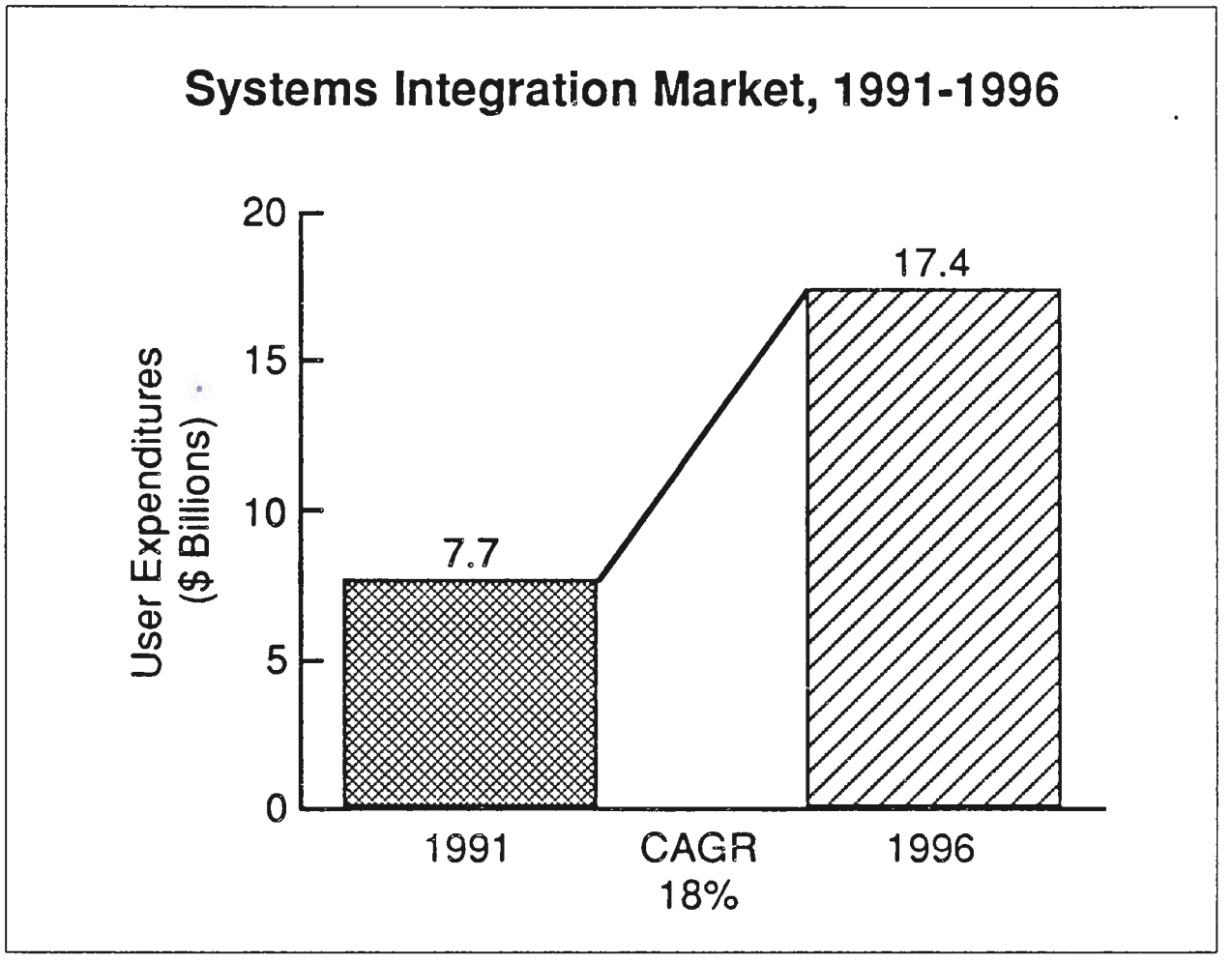
Systems Integration Market, 1991-1996

Systems integration provided by outside vendors in the commercial sector continues to mature. Business conditions and a lack of skilled labor are pressuring businesses to use outside sources to develop and integrate their information support requirements. In effect, these vendors provide complete solutions to complex information systems, networking, or automation requirements through the custom selection and implementation of a variety of products and services.

Critical to the approach from the client's and vendor's perspectives is the sharing or total transfer of responsibility (and risk) for the successful development of the system from the client organization to the vendor(s). In exchange for assuming the risks of failure to deliver the desired solution on time and within budget, the integrator receives project management fees from the client. The integrator also receives markups on the work of subcontractors and has the inside track in providing the products and services that make up the total solution and follow-on services, such as application and equipment maintenance and systems operations.

Based on SI expenditures in 1991 of $7.7 billion for the combined commercial and federal markets, INPUT estimates that with a compound annual growth rate of 18%, expenditures will reach $17.4 billion in 1996. Exhibit V-2 illustrates the growth in SI markets over the 1991-1996 period.

EXHIBIT V-2

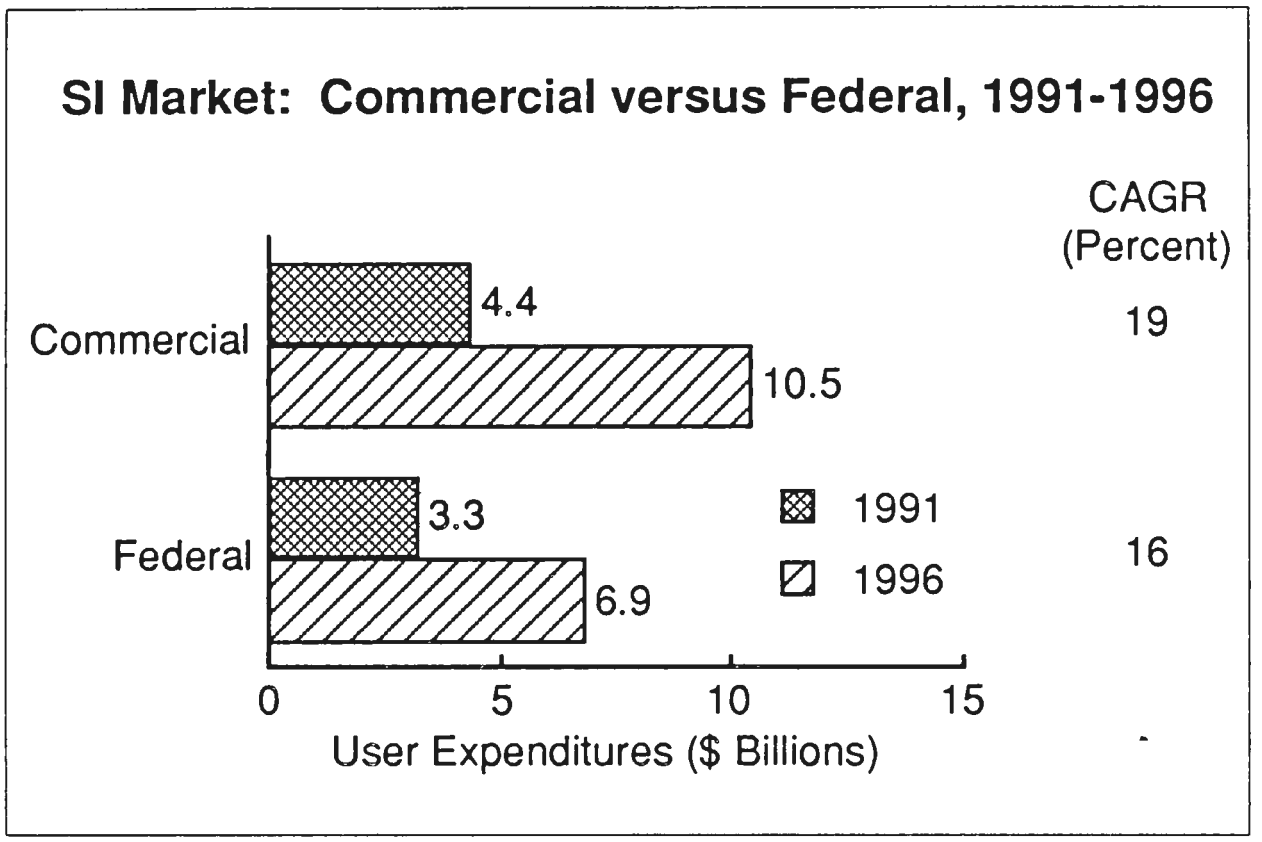


The commercial and federal SI markets continue to be influenced by changes in the economy. The 1990 commercial market expenditures were slightly less (3%) than forecast in 1989, and poor economic performance has resulted in a near-term dampening effect on the start of new systems integration projects. For the same period, federal expenditures were 24% higher than forecast.

Overall, the commercial SI market is now forecast to reach $8.7 billion in 1995 rather than $10.8 billion forecasted in 1990. In 1996, the commercial market should reach $10.5 billion. The five-year growth rate for commercial SI has been revised downward from last year's projection of 23% 19% for the 1991-1996 period .

Note, however, that the reduced five-year CAGR (19%) is more a reflection of the current economic environment than the decline in interest for SI products and services. Assuming an economic resurgence, INPUT expects annual growth rates for commercial systems integration to rebound to the 25% to 28% growth rates for many of the leading industry sectors.

EXHIBIT V-3



Despite budget constraints and criticism of so-called grand designs, the federal SI market continues to thrive. This reflects many agencies' continuing need for system solutions rather than merely hardware and software components. Although some agencies, including NASA and Treasury, have been plagued with protests on major procurements, most of the major federal integrators recognize the rewards (as well as pitfalls) and are in the market for the long haul.

The forecast for federal systems integration has increased from INPUT's 1990 forecast of $2.5 billion. With 1991 expenditures of approximately $3.3 billion, INPUT estimates that the market will grow to $6.9 billion in 1996. The growth rate for federal SI has increased from last year's 13% CAGR to a 16% CAGR for 1991 to 1996.

The growth of commercial SI markets will be affected by the factors outlined in Exhibit V-4. INPUT believes that the positive factors will clearly outweigh the negative, and forecasts that the market will expand over the next decade.

On the positive side, the most significant factor is the rising demand for connectivity between business elements, trading partners, customers, and sources of supply. In addition, SI addresses incompatibility among various vendors' equipment and protocols, and provides cost-effective solutions and implementation of network management systems when needed.

EXHIBIT V-4

Key Commercial SI Factors

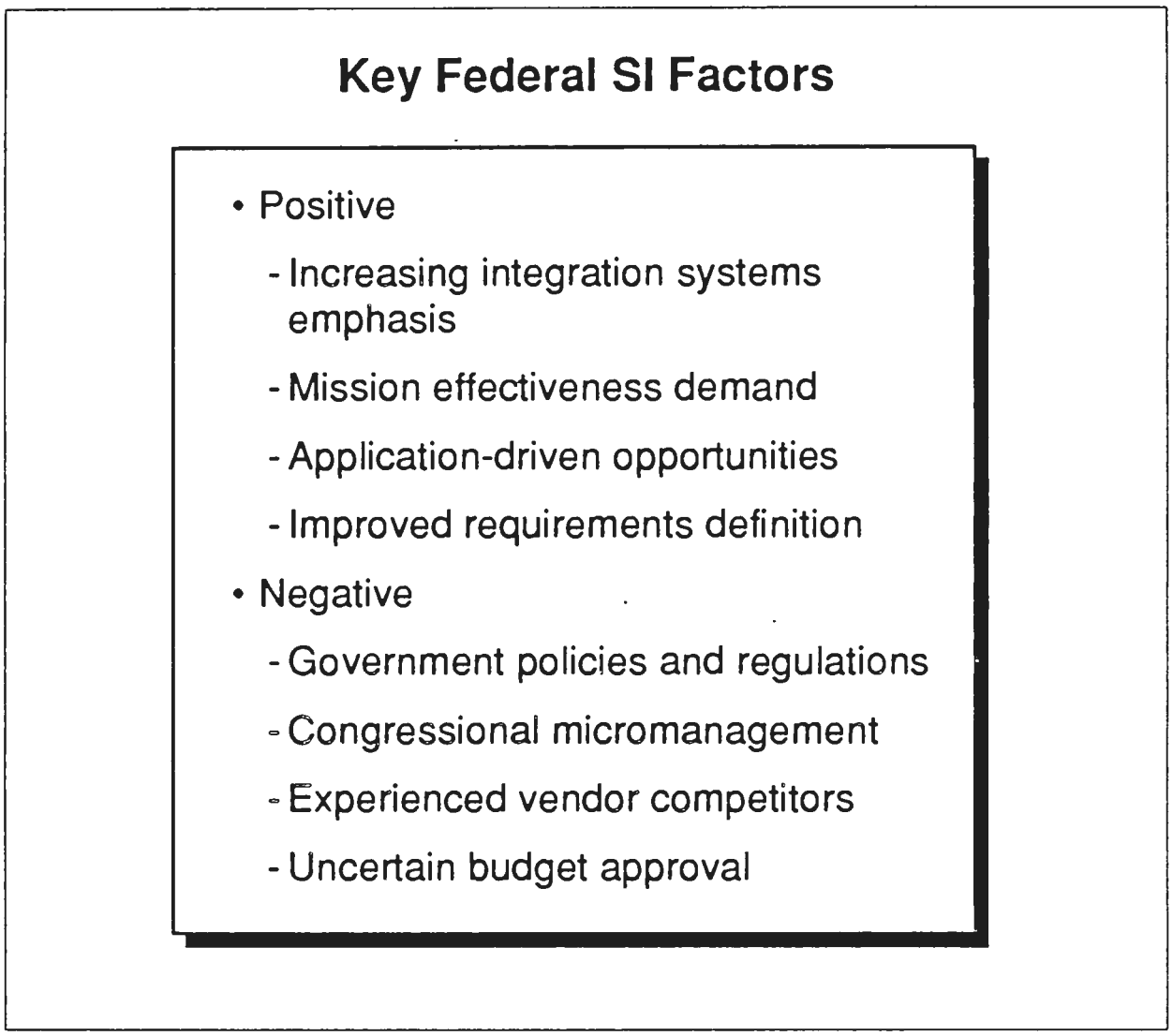
- Positive
  - Rising demand for connectivity
  - Major rebuilding of infrastructure
  - Growing user management trend
  - Global competitive pressures
  - Growing complexity of applications
- Negative
  - In-house competitive threat
  - Economic recession
  - Growing concerns over maintenance issues
  - Organizational instability
  - Wait-and-see track records

The time value of information has become as critical to business as the time value of money. An important systems management focus is the rebuilding of major network and data infrastructures to provide the flexibility and capacity to satisfy new user requirements for business support systems.

The growth of global markets and competition is forcing business to improve its ability to operate in real time—a requirement most business systems cannot meet. New solutions require tools and technologies that equipment and applications just a few years old cannot meet. And while some organizations can implement complex systems, many are preoccupied with maintaining and operating existing applications.

Further, the current economic situation has led many companies to cancel or delay projects, especially those that require capital investment. The recession only reinforces the organizational tendency to delay plans to upgrade or replace existing resources. Wait-and-see attitudes are likely to be the most difficult obstacles for vendors to overcome.

EXHIBIT V-5



Federal SI markets present somewhat different opportunities and problems. As noted in Exhibit V-5, government policies and implementing regulations—the Competition in Contracting, Paperwork Reduction, and Procurement Acts, in particular—all affect the acquisition of large systems.

INPUT previously reported that the federal SI market was becoming more active, competitive, and controversial. This is still true. In terms of activity, many additional agencies have now begun to define their requirements in SI terms. In terms of competition, practically all major federal vendors now claim past or present SI experience or future capability.

C

Systems Operations Market, 1991-1996

Systems operations has received increased attention in the past two years. More companies are contracting with vendors to plan, manage, and operate their data centers. Many of these companies are also turning over software development to these same vendors, who are beginning to assume some financial risks by assimilating the client's hardware and staff. New potential major competitors are entering the market, while current vendors are expanding their offerings through acquisitions.

Information services buyers no longer think of systems operations vendors as providing basic day-to-day processing services. The facilities management contracts and the traditional GOCO and COCO arrangements in the federal government have been expanded. The systems operations vendors now offer a full range of services, from planning and upgrading a client's systems and software, to providing for the maintenance of equipment resident at all client sites. The service can include managing all of a company's information systems activities, or at least all of those for a functional area.

Coupled with the demands of rapidly changing technology, management is increasingly under pressure to preserve capital and reduce operating costs. Shrinking margins in many industries, a change in the demand pattern for goods, and a slowdown in the economy are all affecting the availability of funds. The restrictions on new spending only add to the pressures to do more with existing resources. Once again, the economies of scale and the leveraging of resources offered by systems operations vendors become even more attractive.

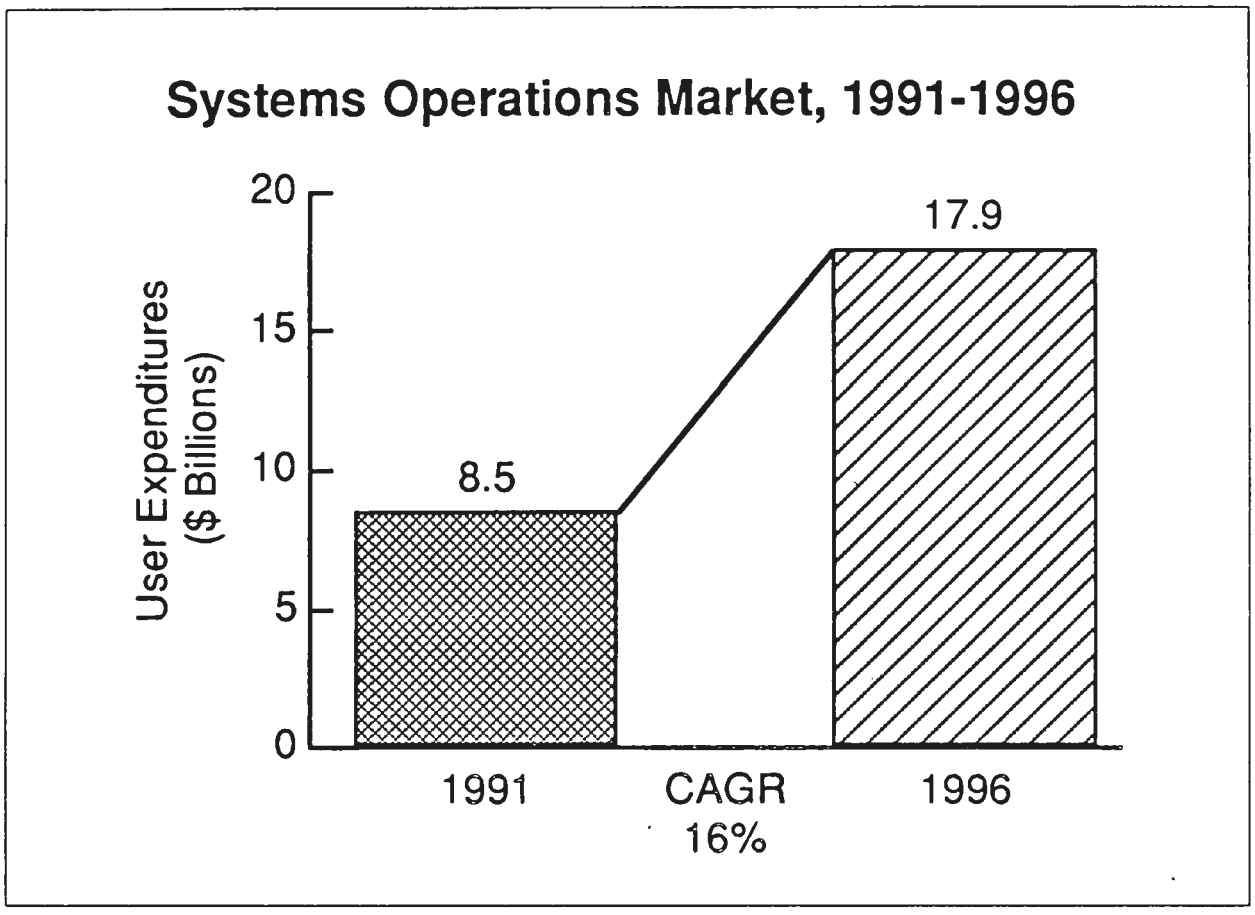
The forecast for the systems operations market is provided in annual user expenditures. The forecast is limited to actual user expenditures for SO contracts. The user expenditures for services provided within these contracts to plan, manage, operate, fix, and enhance the clients' applications and to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

Systems operations activities that are included in systems integration contracts are included in INPUT's systems integration forecast and excluded from the systems operations forecast. Follow-on systems operations contracts, awarded after the initial systems integration contract has been completed, are included in this forecast.

Based on its research, INPUT's preliminary estimate of U.S. user expenditures for systems operations for commercial and federal markets is $8.5 billion in 1991. Growing at a compound annual rate of 16%, expenditures will reach $17.9 billion in 1996, as illustrated in Exhibit V-6.

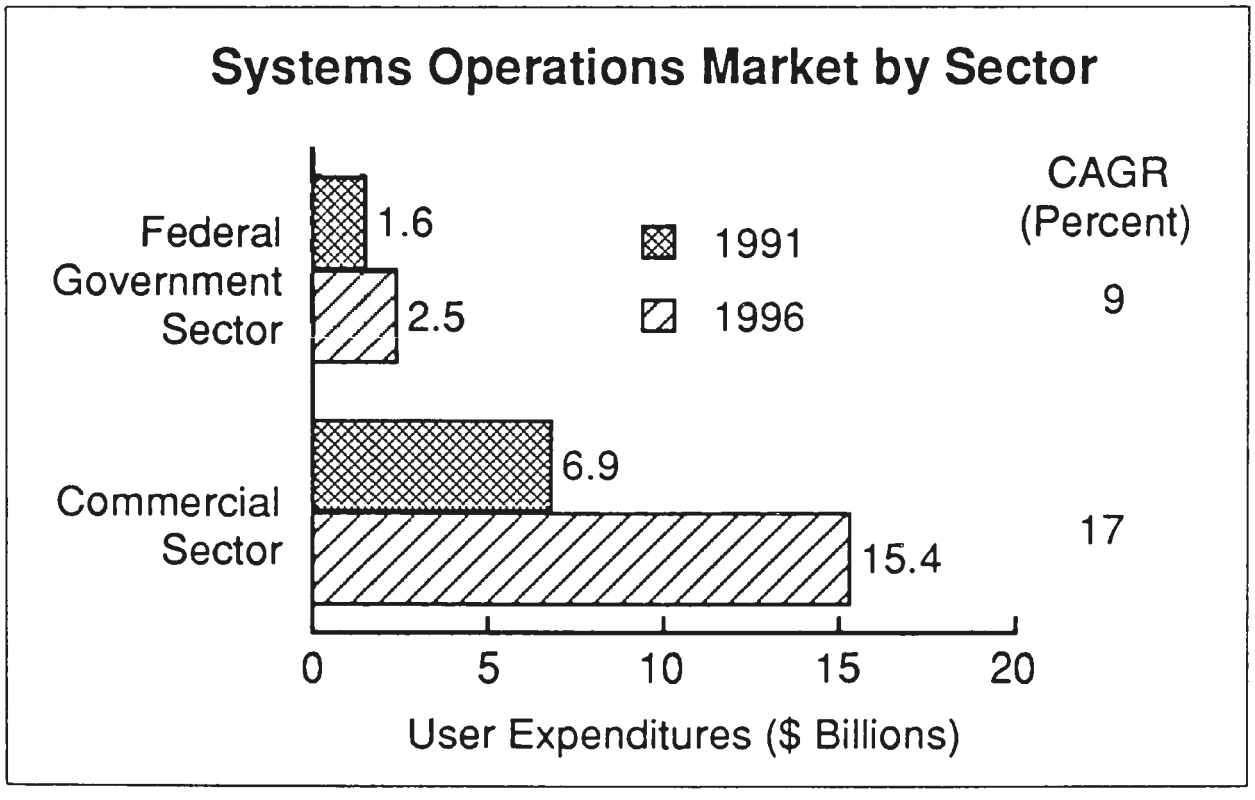
Changes have occurred in the federal and commercial SO markets since 1989. The recession, which began in the third quarter of 1990, has delayed the outsourcing decision in many companies. These companies may need the services of an SO vendor even more now, but have delayed the evaluation in many cases because short-term problems are even more urgent. The net effect has been to shift SO expenditures to the future.

EXHIBIT V-6



Heightened interest in the commercial sector has set the compound annual growth rate at 17%. Systems operations spending in the commercial market, which was $6.9 billion in 1991, will grow to $15.4 billion in 1996, as shown in Exhibit V-7. The economic slowdown has actually created new opportunities in the commercial sector. Companies now see systems operations as a way to preserve capital and reduce operating expenses. It also provides an attractive way to deal with acquisitions and mergers.

EXHIBIT V-7



The federal market for systems operations is much more mature than the commercial market. Federal agencies have sought outside vendors to perform information services functions for almost 40 years. These contracts were generally three to five years in duration, with more recent ones extending to 10 years. The climate was right. Skilled personnel were difficult to attract, much of the in-house hardware was obsolete, and the government encouraged the use of private-sector vendors through the Office of Management and Budget's A-76 initiative.

The 1991 expenditures are now estimated at $1.6 billion, growing to $2.5 billion in 1996 at a compound annual growth rate of 9%. This represents a slight change from the government spending plans in 1990, when INPUT projected a CAGR of 10%.

In the federal market, economic factors similar to those in the commercial sector have had a different impact on the market for systems operations. The increasing federal budget deficit and rigid budgetary constraints have made it difficult, if not impossible, for agencies and departments to acquire new resources and hire and retain the necessary skills to operate the new systems that Congress has mandated since the mid-1980s.

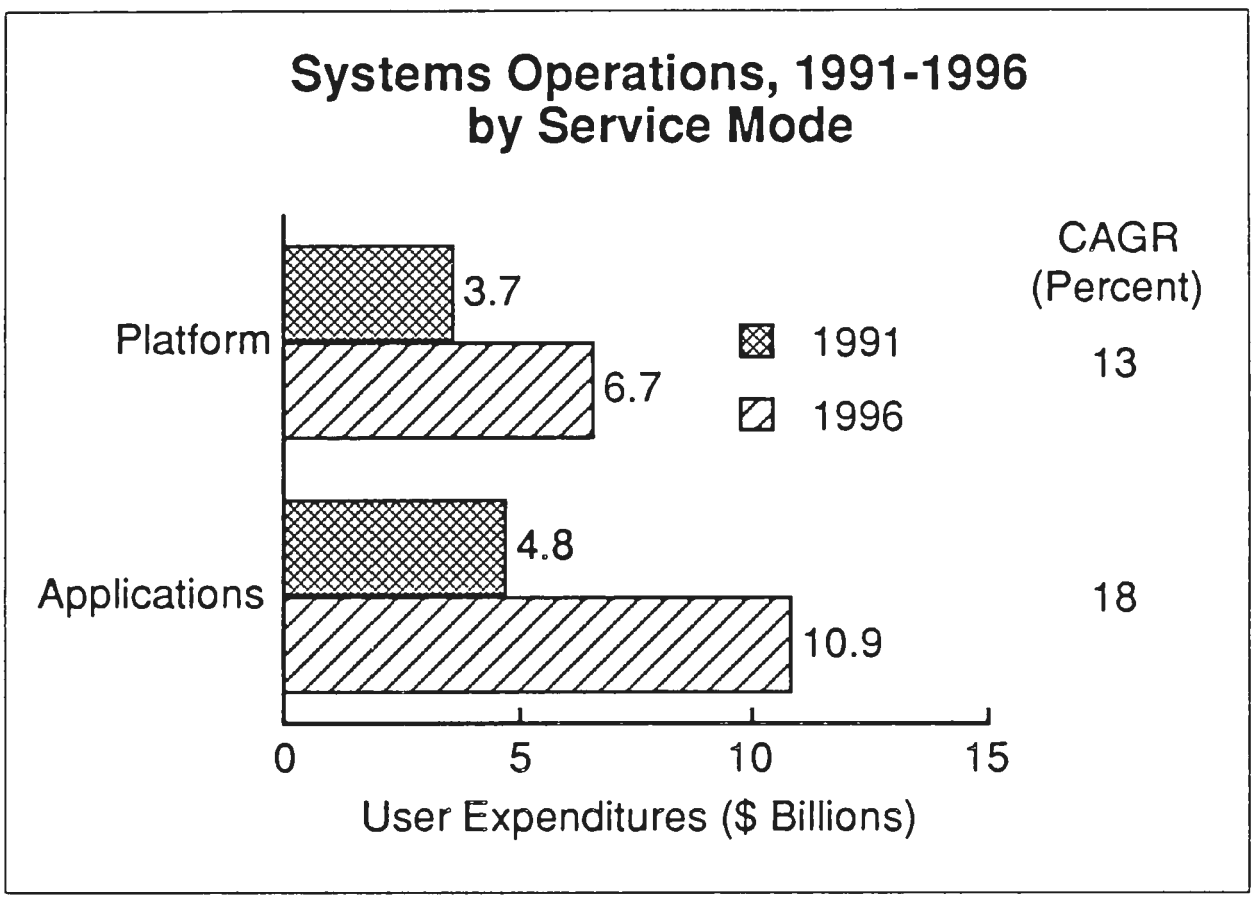
Congress and the agencies recognized systems operations as a solution to this dilemma. Yet the planned spending for these services has dropped sharply. Some projects have been suspended, while others have bogged down in the procurement process for periods sometimes exceeding a year. Major procurements at the Departments of State and Housing and Urban Development face long delays, while the CORN project at the Federal Aviation Administration was just reinstated after being altogether suspended. As a group, these projects alone represent $1.7 billion in expenditures over the next 12 years.

A distinction can be made between two types of systems operations—platform and applications. In platform operations, the vendor operates applications software developed and maintained by the client. In applications operations, the application software is developed or owned and maintained by the vendor or a third party. If the applications software is developed by a third party, the application systems operations vendor is usually responsible for maintaining it.

Exhibit V-8 presents the 1991 preliminary estimates of growth in expenditures for each type.

INPUT projects that platform operations will grow at a compound annual rate of 13%. Expenditures will increase from $3.7 billion in 1991 to $6.7 billion in 1996. The applications operations will grow at a CAGR of 18%, from $4.8 billion in 1991 to $10.9 billion in 1996.

EXHIBIT V-8



The forecast shows that applications operations will become the more prominent mode of operations by the mid-1990s, as more organizations become dependent on the vendor maintaining and, in some cases developing, their applications inventories.

D

Systems Management

It is a thesis of this report that standalone applications management is evolving into an important new systems management offering. The data are admittedly somewhat anecdotal. At one end, larger firms like EDS, Andersen Consulting, and Computer Sciences wish to be perceived as full-service vendors. At the other end are smaller, more specialized firms that manage a client's applications inventory, with no pretense for running their data centers or doing systems integration.

INPUT sees emerging opportunities, although the market is still defining itself. Opportunities depend on the mix of applications and platform expenditures. In two vertical markets—discrete and process manufacturing—there is a large platform systems operations component, because those firms generally have many unique software requirements that they will not turn over to vendors.

Applications systems operations will grow at a compound annual rate of 18%, from $4.8 billion in 1991 to $10.9 billion in 1996, as seen in Exhibit V-8. The accelerated growth in the applications sector reflects users' increasing desire to off-load application development and maintenance, and systems operations vendors' industry specialization to meet users' needs. As a result, vendors are developing proprietary software to apply to specific industry problems.

The federal government market has a large applications systems operations component because many agencies have opted to turn over entire operations to outsourcing vendors. These, in turn, may subcontract much of the applications inventory to specialized firms. There is increasing pressure for this to continue, so the ratio is likely to shift even more over the next five years. The state and local government market, on the other hand, has a larger platform component, but this is expected to shift as more applications become available that can meet the common problems of all state governments. The state governments will also seek to solve their increasing skills shortage through vendors.

Banking and finance has a larger component of applications systems operations because vendors such as Systematics provide much software to the industry. This is partially balanced by those vendors, such as Citicorp and Mellon Bank, that provide only platform processing to their clients.

Many of the other vertical industry markets are quite small, but two trends are worth noting. In retail distribution, the preponderance of platform vendors reflects information services managers' widely held belief that their applications needs are unique and cannot be easily fulfilled by outside
vendors.

In summary, the emergence of vendors that develop and/or manage application software for clients bears close watching. User organizations are outsourcing applications management for many of the same reasons that they are contracting for systems integration and systems operations: rising costs, the need for greater flexibility, and their inability (especially marked in government) to attract and retain quality people. Additionally, clients prefer to assign risk to someone else, like an outside vendor, for the applications development work that they cannot manage on their own.

E

Vertical Industry Opportunities

This section briefly considers systems management opportunities for vendors selling in well-defined vertical markets. These are the federal government, taken as a single vertical market, and four of the largest commercial (or at least nonfederal) markets: discrete manufacturing, state and local governments, utilities, and banking and finance.

1. Federal Government

Federal systems management markets are being affected by the shrinking of defense budgets, and the continuing failure (despite the Gramm-Rudman-Hollings Act) to reduce the budget deficit. Despite the size of the potential federal market, federal government IS spending is shrinking. And this shrinkage is expected to affect prospects for the information industry.

In systems integration, agencies are pressing for more flexible and advanced resources to meet rising executive, legislative, and citizen service expectations. Expenditure growth rates will decline in the 1990s, below the rates experienced in the latter part of the 1980s, but will continue at a positive level throughout the decade, for the reasons seen in Exhibit V-9.

EXHIBIT V-9

Key Factors in Federal Government Market

- Positive
  - Productivity improvements
  - Technical staff shortages
  - Shared implementation risks
  - Information technology upgrades
  - Service demand increases
- Negative
  - Deficit-limited budget
  - Greater protest activity
  - Existing systems maintenance
  - Slow standards implementation
  - Extended implementation schedules

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

User-based service demands continue to increase, steadily exceeding the ability of the in-house IS staff to satisfy them. In some cases, contractors are expected to provide full operational support of newly implemented SI projects for up to 10 years after acceptance.

Several factors tend to inhibit the federal SI market, however. The two most significant are budget cuts to reduce the federal deficit, and greater protest activity by disappointed bidders. Budget restrictions are forcing consolidation or outright cancellation of a number of agency-desired SI projects.

The cost of existing systems maintenance continues to rise rapidly, diverting support funds that are needed to acquire system upgrades and requirements.

Implementation of new information system standards that foster greater competition and substantially improve connectivity between systems has not been as rapid as expected.

Conditions and prospects in the systems operations markets are similar. 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 commercial enterprises. This real problem makes systems operations an attractive alternative for agencies looking to upgrade and enhance their IS capabilities to better serve the public.

Tightened appropriations and the tendency for Congress to disburse funds on a short time frame make it more difficult to make capital investments to upgrade increasingly obsolete equipment. Again, the outsourcing of systems operations is an attractive alternative.

Forecasts for federal SI and SO markets are shown in Exhibits V-3 and V-6. Briefly, the forecast for the federal SI sector is expected to rise from $3.3 billion in 1991 to $6.9 billion by 1996 at a CAGR of 16%. The project management and custom software development components will increase rapidly at 16% CAGR. Software product acquisition will continue to rise from a small base of $219 million. There are sufficiently unique applications in the government to justify, in the agencies' view, the high rate of custom software development.

For systems operations, the projected growth rate for 1991 to 1996 has been reduced from 10% to 9%. This will result in projected expenditures of $2.5 billion in 1996.

An important characteristic of the federal SO market needs to be discussed at this point. At the request of Congress, the government made significant equipment purchases to modernize its IS capabilities. The government modernization strategy included direct equipment purchase rather than leasing or other financing alternatives.

As a result, the government profile for systems operations is unlike the profile of the commercial market. To operate this large base of purchased equipment, it spends much more for professional services-based systems operations contracts than it does on processing services contracts for services on vendor-owned equipment, which is experiencing much lower growth.

2. Discrete Manufacturing

Because this sector covers a wide variety of fabrication or assembly-type manufacturing activities, it should not be seen as an homogeneous market. Analysts combine specific products from many industries—such as aerospace, automotive, metal fabrication, electrical, electronic, telecommunications, textiles, and industrial machinery and tools—into major industry groups.

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 both hardware and software.

In many firms, the IS and production organizations function independently of each other, seldom sharing the same processing platforms. Information systems that process the financial, sales, and administrative aspects usually come under the control of the IS organization. CAD/CAE/CAM systems tend to be the responsibility of the production/operation departments, and often do not involve the IS department. However, the newer MRPII, MPCS, and CIM technologies merge the separate functions. Further, 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.

Exhibit V-10 indicates those factors that will promote or inhibit automation in this sector.

EXHIBIT V-10

Key Factors in Discrete Manufacturing Industry

- Positive
  - Integration of islands of automation
  - Increased use of data bases
  - Preference for customized solutions
  - Replacement of batch-oriented systems
  - Network distributed PCs/workstations
- Negative
  - In-place infrastructures
  - Tendency to build rather than buy
  - Industry experience prerequisite

The integration of all aspects of production is leading to two developments: the integration of factory floor automation with engineering design and production planning, and the need to match production to demand. Rapid reference to buying patterns, material supply schedules, and production capacity is increasing the use of on-line data bases. The uniqueness of many markets and processes creates a preference for customized solutions that could result in a competitive edge.

The current inventory of batch-oriented systems is being replaced to meet the needs of integrating sales-to-customer factory procedures. Increasing use of PCs and workstations will expedite the conversion while emphasizing the use of distributed networks in a difficult environment.

On the other hand, the tendency for larger organizations is to build integrated systems rather than buy them from an SI vendor. However, more firms are looking to external vendors for projects they cannot staff. Medium-sized and small companies are usually less inclined to carry the needed specialists in their constrained overhead accounts.

The forecast for this sector shows that this market is about 56% larger than the next-largest sector (state and local government), with a CAGR of 22%; this represents a decrease of 3% over the 1990 forecasted growth rate. This significant decrease is primarily a result of the economic slowdown and the concomitant drop in capital expenditures. During the past two years, there has been increasing emphasis on new hardware acquisition; and expenditures for hardware are expected to grow to $1 billion by 1996. Software development, the second-largest requirement, will reach $898 million by 1996.

This market is so diverse that even with formidable competition, it offers the largest pool of opportunities for most systems integrators.

The market for systems operations presents a different picture. While the larger organizations tend to build their own systems rather than buy them from a vendor, General Motors and Eastman Kodak are notable exceptions. GM acquired EDS to manage its data centers, while Kodak has turned over its systems operations to IBM and Digital, in order to better concentrate on developing photographic products.

The forecast for the systems operations sector shows a healthy overall growth rate of 20% for the 1991-1996 period. Most of that growth will be in processing services, whose growth rate between 1991 and 1996 is projected to be 21%, down from the 1990 rate of 24%. This healthy growth rate reflects awareness by manufacturing executives that information services is not their primary business, and that vendors can manage systems operations in this sector.

3. State and Local Governments

Much like the federal government, state and local governments are under intense financial pressure, as requirements for services increase without corresponding improvements in the tax base. The passage of Gramm-Rudman-Hollings also curtailed federal support of state governments. Major vendors look to this sector to generate significant revenue opportunities in the next five years.

If past contracting patterns continue, 45% of state and local government spending will come from state government, 30% from cities, 14% from counties, and only 11% from districts and other authorities. Proposals to move more data processing activities in-house have been blocked by staff retention problems and information systems demand growth that continues to exceed available in-house resources. Use of contract services is seen as more economical and politically more desirable, since it avoids the hiring of more government employees.

Despite budget limitations, state and local IS departments are taking on new responsibilities. The demand for new services, especially on-line systems for health and social services and public safety, has led to the replacement of older batch-processing systems with interactive on-line service systems. Exhibit V-11 highlights the factors affecting this market.

EXHIBIT V-11

Key Factors in State and Local Government Markets

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

Connectivity between systems has been resolved at state and large metropolitan centers by reliance on commercial networks from the common carriers.

Unfortunately, this market is large 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.

The need for integrated systems in the government sector is growing. The principal customers for the larger projects will be the industrial and coastal states, large metropolitan centers, and a few large counties that have the financial resources and demand for improved services.

One interesting window of opportunity appears to be systems operations contracts. It is not uncommon for vendors to extend SI projects into SO contracts upon their completion. Conversely, a number of SI projects grew out of SO contracts for operating existing but older systems, particularly at the larger county government level. By the end of the project, the contractor is well known to the client and has a better understanding of the system than anyone, including the client.

State and local governments provide the second-largest commercial SI market. This sector is expected to grow to $1.6 billion in 1996 from $640 million in 1991, at a CAGR of 21%. In the 1990, this market surpassed banking and finance, and is expected to remain in second place during the forecast period.

The growth rate for systems operations in the sector will be at 23% overall, with the growth for the processing services mode at 25% over the 1991-1996 period. There will be a gradual trend toward more application processing during this period, as platform processing vendors begin assuming responsibility for software, as clients find it more difficult to recruit staff with technical skills, and as clients begin to appreciate that they can share common software from state to state in a number of applications.

4. Utilities

In this sector, information services has been forced to shift from a comfortable day-to-day operating orientation to one where IS must meet dynamic demands with constrained budgets. Management has directed IS to help in enhancing operating efficiency and productivity to make the utility more profitable and to reduce costs while enhancing the ability to serve users. Cost containment remains the principal focus of all operations support activities. Exhibit V-12 indicates the key factors affecting this industry.

Utilities are discovering the use of technology for maintaining a competitive edge. Customer files are becoming data bases to market new products and services to existing customers. AI-based automated process control is helping to minimize materials consumption and optimize resource applications. There is much more interest in long-term hardware planning and in curtailing rapidly escalating operations and management costs associated with outdated equipment.

Among the negative factors vendors confront in this market is the day-to-day orientation of IS and its reluctance to expand beyond current capabilities. Another factor is the limited number of large utilities, particularly for gas and electricity.

EXHIBIT V-12

Key Factors in Utilities Industry

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

INPUT forecasts that SI in this sector will grow from $512 million in 1991 to $916 million in 1996, at a CAGR of 12%. While the 1991 growth rate is significantly lower than that forecast in 1990, INPUT recently identified a significant volume of SI work in electric utility plant and grid management that was not recognized in earlier forecasts. The result is a much larger market in 1991 and 1996.

The CAGR for systems operations from 1991 to 1996 is 18%, up from 15% in the 1990 forecast. Major systems operations vendors have taken over bill collecting, consumer interface, and accounting functions that include more applications support. The latter is allowing the utilities to focus on their core services.

5. Banking and Financial Services

This sector covers commercial banks, thrifts, security, and commodity brokerages, and other financial services such as credit unions and cooperatives. Exhibit V-13 lists the external pressures on information systems and services in this sector.

EXHIBIT V-13

Key Factors in Banking/Finance Industry

- Positive
  - Consolidation of commercial banking operations
  - Savings and loan retrenchment
  - New product/service introduction continues
  - Strong cost pressures emerging
- Negative
  - Strong internal staff in large banks
  - Unique industry knowledge required
  - Complex multihardware environment growing

Consolidation has continued in the banking industry, on one hand motivated by declining profitability of commercial banks and on the other hand, necessitated by the S&L crisis. All of this has 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 current systems is becoming shorter, so that more frequent upgrade or replacement is essential.

Financial managers need more information and supporting analyses to make the decisions that will make 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 centralized applications, employing standardized network protocols—all at the lowest possible cost.

Control, integrity, and security of often sensitive data continue to be major concerns of banking and financial management. These concerns must be satisfied in an increasingly cost-conscious environment.

The potential for both systems integration and systems operations in this sector appears to be lower than predicted earlier.

In terms of SI, this sector, though still among the top three vertical industries in prospective growth rates and expenditures, lags behind state and local government and discrete manufacturing in expenditures, and is exceeded only by the much smaller miscellaneous industries category in growth.

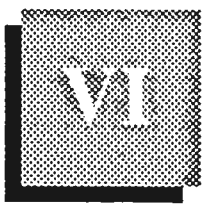
Systems closest to the primary business—direct deposit and loan processing in banks, for example—will continue to be the most active area for development. Additionally, trust, centralized customer information, correspondent banking services, check processing, and commercial loan systems will need to be integrated with the traditional services.

Other growth areas include office automation, communications technology to support electronic transactions, and applications software. Many software vendors have targeted banking/finance, with the industry buying off-the-shelf solutions for applications, and customized development for addressing the entire integrated solution. Vendors targeting this market must be in a position to demonstrate internal capabilities.

Systems integration will grow from $404 million in 1991 to $1.0 billion in 1996, at a CAGR of 20%, which is much less than forecast in previous years. Computer equipment will be the second-largest component of SI expenditures ($244 million in 1996). It will closely follow software development ($262 million).

Systems operations continues to be an attractive alternative, particularly for small and medium-sized banks. SO vendors that can provide and will maintain a complete suite of applications software products eliminate the need for skilled and expensive development staff. Banking and finance has become the largest vertical industry market for systems operations.

Systems operations expenditures will grow from $2.0 billion in 1991 to $4.1 billion in 1996, at a CAGR of 16%. Application processing represents more than 55% of this vertical industry's SO expenditures in 1991, and this will increase to 63% in 1996. INPUT attributes this growth to an increase in the number of medium-sized banks that will outsource systems operations. They are more likely to include applications in their outsourcing agreements than the larger banks.



Systems Management Options and Strategies

Research conducted by INPUT strongly suggests that there is an emerging market for systems management services distinct from the more traditional systems integration and systems operations markets. Surveys of users reveal that they would prefer end-to-end services, whether to free them to concentrate on their core businesses, to bring down costs, or simply to enjoy the flexibility that comes from having just the skills they want when they want them.

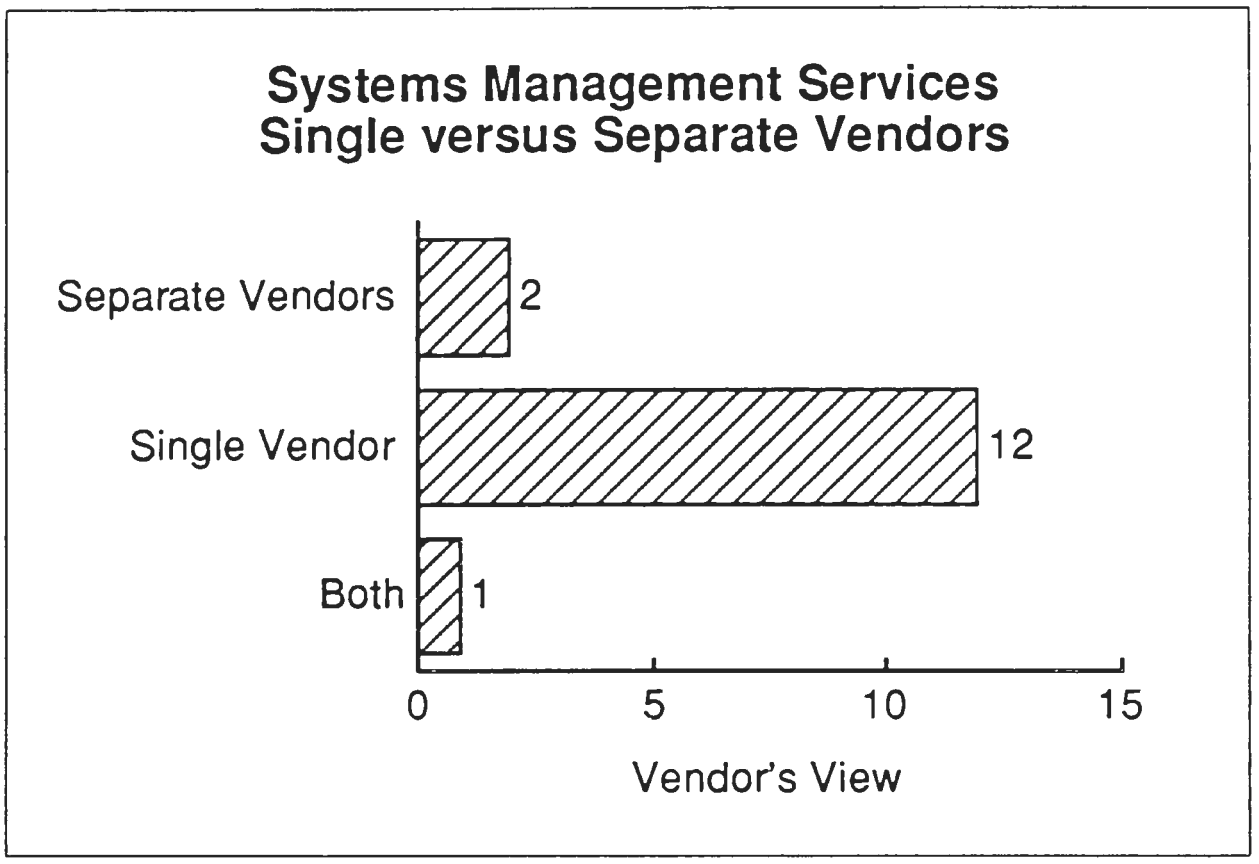
A

Systems Management Services

From their perspective, vendors are confirming the existence of this new market, even though eight out of 15 vendors, a slight majority, do not use the term *systems management* in their practices. For one (as Exhibit VII-1 in the next chapter reveals), a majority of the larger IS vendors now see themselves as full-service firms that offer most of the services clients claim to need. For another, as Exhibit VI-1 shows, the great majority of vendors agree that clients who utilize all three services—SI, SO, and applications management—prefer to use a single vendor to provide all three.

The different trends reinforce each other. A certain need creates the opportunity, which stimulates demand, which creates further opportunities. A company that specializes in systems integration discovers that more of its clients are looking to it to run its data center or maintain its inventory of applications software. And certain developments in the private and public sectors open new opportunities—for example, the outsourcing of Eastman Kodak's data center to IBM and DEC, or the consolidation of federal processing of payroll, personnel, and accounting systems.

EXHIBIT VI-1



The following sections elaborate on these trends. Building on vendor survey data, INPUT reviews the options vendors are offering in each service area, as well as the strategies they intend to pursue. In the course of the review, INPUT compares vendor reactions to systems management issues to the user reactions already discussed.

B

Service Options

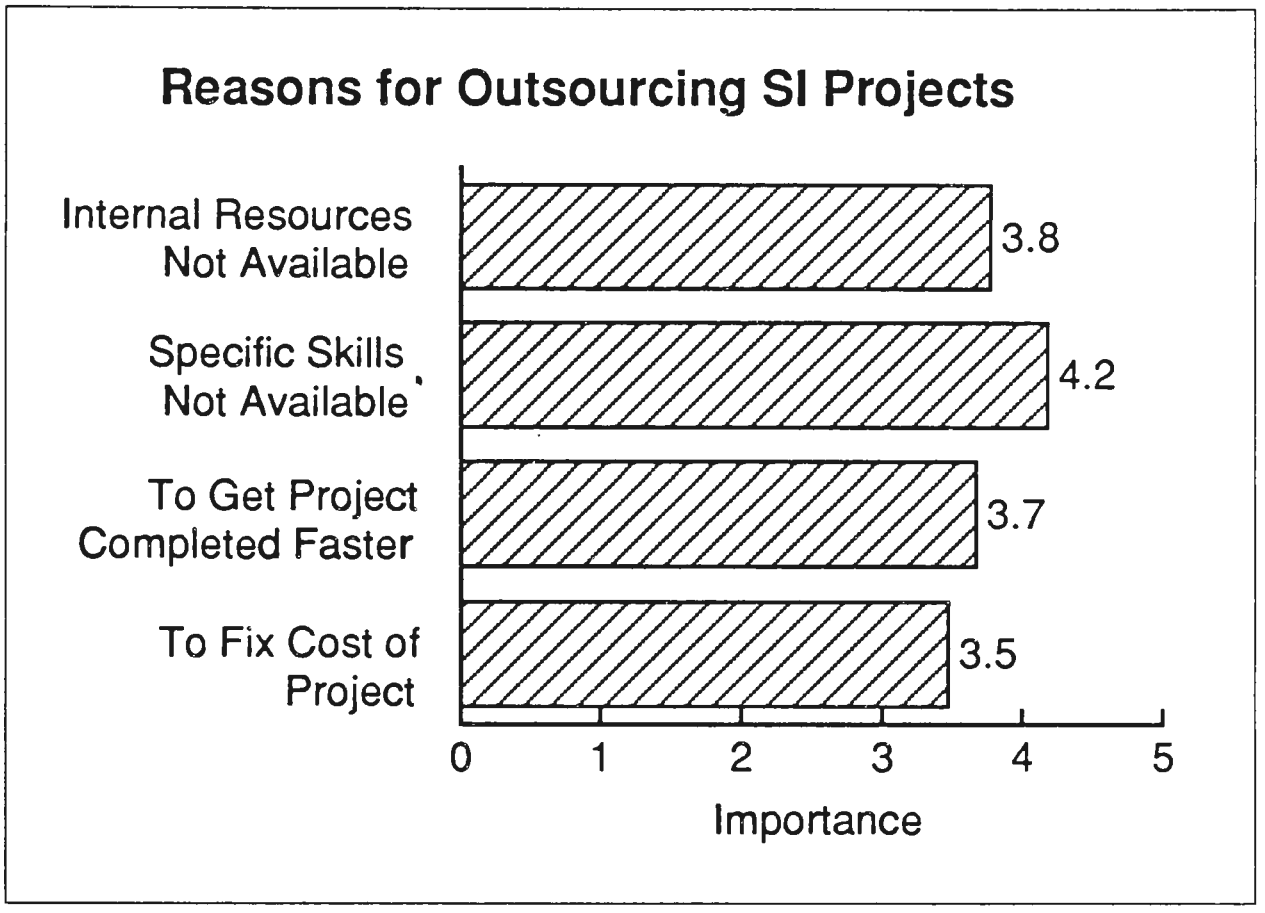
As in previous sections of this report, INPUT asked vendors questions about the three delivery modes described earlier. An analysis of their responses follows.

1. Systems Integration

Of the 15 vendors contacted by INPUT, 13 claimed to offer systems integration services. This is the one service that users have most often outsourced. Nothing in this or the comparable survey of users suggests that this trend is likely to reverse itself.

Exhibit VI-2 rates the reasons vendors give why organizations use systems integrators to complete projects.

EXHIBIT VI-2



It is interesting to compare these results with those of the users' survey discussed in Chapter IV. There is substantial agreement about the first two reasons—that internal resources and specific skills were not available internally. But vendors are much more likely than users to identify getting a project completed faster, and especially, fixing the cost of a project as reasons to outsource.

Several vendors suggested other reasons that organizations use systems integrators. Reasons include the availability of resources and skills to get the job done, the risks of not getting the project completed internally, and the competitive advantage successful vendors can bestow on their clients.

Exhibit VI-3 also shows that SI vendors were less emphatic than SO vendors in believing that they had to offer the full panoply of systems management services.

2. Systems Operations

As with systems integration, the majority of vendors surveyed claimed to be doing systems operations. Both users and vendors ranked lower operating expenses and better or more flexible service as the principal reasons for outsourcing systems operations. Exhibit VI-4 shows vendor responses.

EXHIBIT VI-3

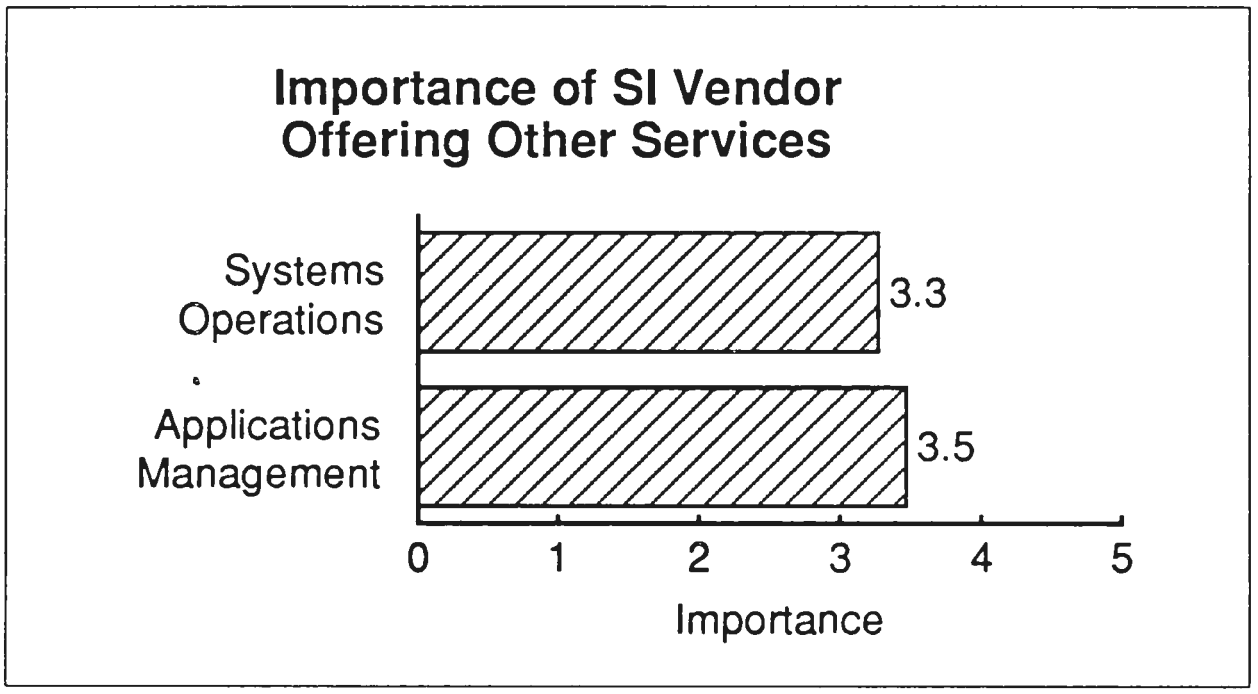
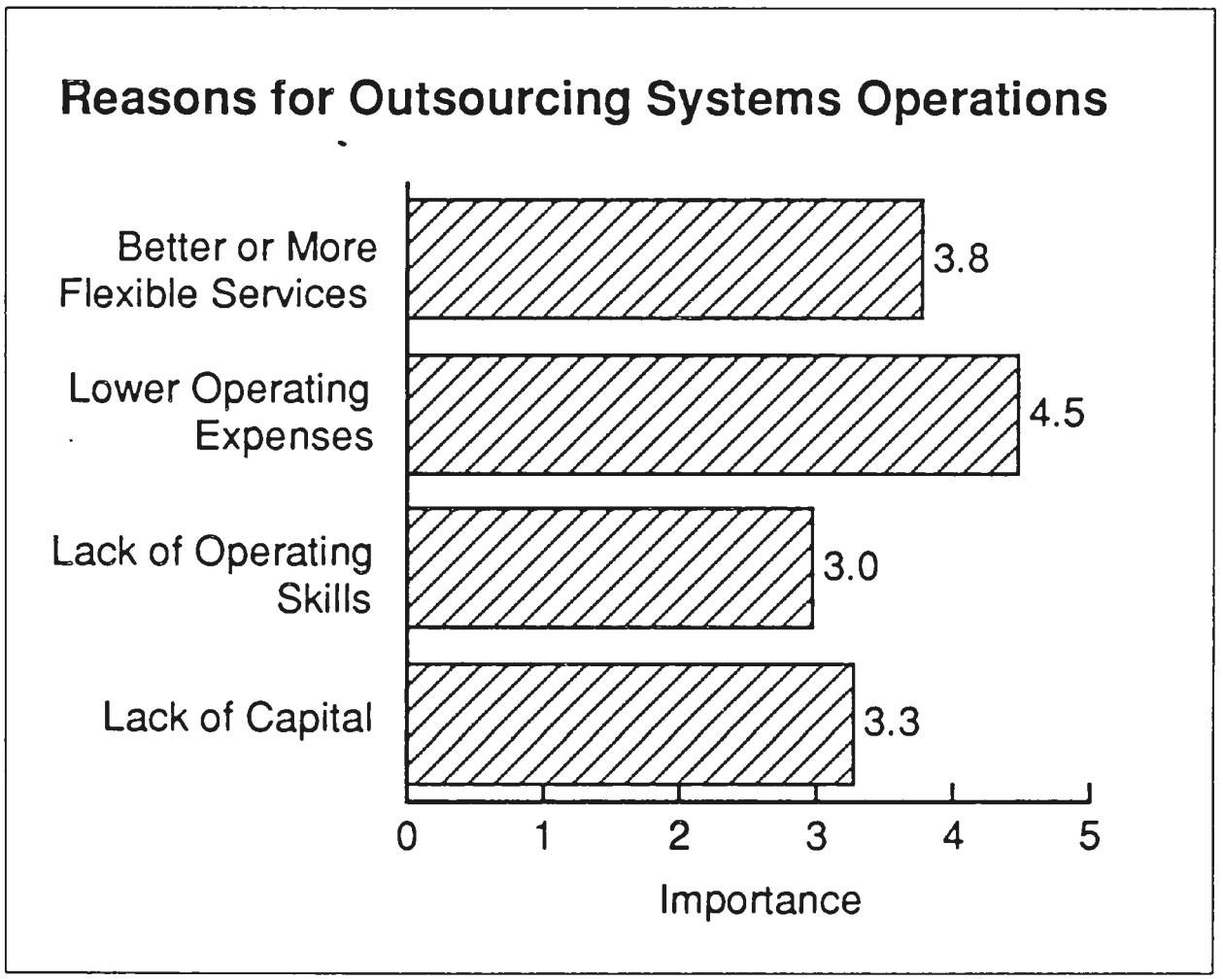


EXHIBIT VI-4

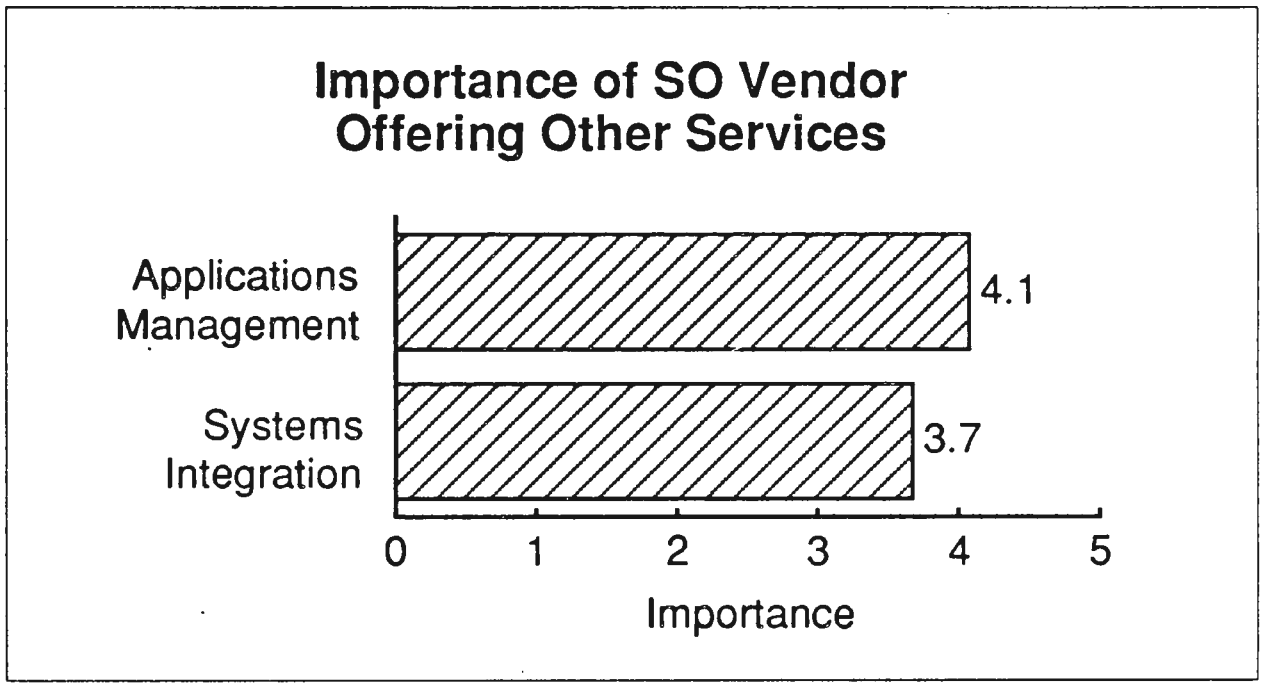


The major contrast between vendor and user responses pertains to the weight attached to better or more flexible service. The vendors clearly see this as a very important reason to outsource. One senior executive noted that bringing in an outside firm to run a data center gives clients more focus: "They don't want to worry about the technology, but they want access to it."

On other matters, there was no clear consensus. Vendors were almost equally divided on the question of who develops the majority of the software they operate in their SO contracts. On the other hand, 11 of the 14 vendors who responded asserted that they managed the applications inventory in these contracts, with the other three claiming that the client did.

This tallies with another vendor perception—that it is quite important for an SO vendor to offer systems integration and applications management services, as Exhibit VI-5 shows.

EXHIBIT VI-5



The reasons for the striking divergence between vendors and users are not clear. A vendor—at any rate, a successful one—will have many clients. Users, on the other hand, are interested in their particular problems, ones that may or may not require a full-service vendor. The vendor response, then, stems from the fact that vendors must know their markets, which comprise of a variety of customers. Users need not know those markets, or at least not to the same degree.

3. Applications Management

Eleven out of 15 vendors surveyed claimed to offer applications management services, all but one of whom claimed to manage both the technology application and the user interface of a logical set of applications.

There was no single source for the majority of software that vendors managed under their SO contracts. Exhibit VI-6 breaks out these sources.

EXHIBIT VI-6

Sources of Software Managed under SO Contracts

- Vendors' organizations (3)
- Client (2)
- Third party (4)
- Client/third party (1)
- Vendor/third party (1)

Asked if they typically provide applications management as part of a systems operations contract, separately, or both, six of the vendors said that they did both. This response seems to confirm that large user organizations want full-service vendors—firms that can manage large SI projects, operate their data centers, *and* manage and upgrade software for applications that are often complex and highly specialized.

There was consensus that companies outsource applications management for the same reasons that they contract for other systems management services. Firms want to bring overhead costs down, use their internal staff in more strategic areas, or increase the flexibility of using the data the applications generate. In short, as one vendor said, companies are outsourcing in this area "to get more bang from the contract buck."

Vendors also asserted, though with more hesitation, that the lack of in-house technical expertise was a major reason for outsourcing applications management. This was a problem found in both commercial and federal sectors, although it was more severe in the latter. Federal agencies depend more on vendors for applications management because of the difficulty in attracting qualified staff, the specialized nature of many federal applications, the huge size of the installed base, and the modifications that constantly changing laws and regulations require of agencies' applications software.

C

Vendor Strategies

This analysis of vendor responses points to a particular type of strategy for increasing market penetration:

- Two-thirds of the vendors surveyed claimed to offer a full line of systems management services. While few, if any, were equally involved in all three services, all of them wanted to be perceived as being able to move easily from one to another. Typically, a vendor used on a systems integration project would try to compete for contracts to manage a client's data center and installed base of applications software.

- Clients want firms that can do more than routine maintenance and operations. On the basis of the user and vendor surveys INPUT conducted, there seems to be a shift of corporate resources away from computer operations to more demanding systems development and applications management. Exhibit VI-7 shows vendor responses when asked what percentage of client organization IS monies are going to the three systems management areas that are the subject of this report.

EXHIBIT VI-7

Percentage of Funds Going to Systems Management Services

	Percent
Computer operations (including existing data center equipment)	37.5
Systems development (including new project equipment)	30.0
Applications management	32.5

- Even systems operations is becoming less routine than it may once have been. The larger SO contracts are multiyear contracts that often require the vendor to upgrade and add to the client's installed software and hardware base.

Indeed, it is becoming harder than ever to draw a hard and fast distinction between systems development and systems operations, since the former often leads to management contracts, while the latter requires the vendor to "refresh" the technologies on which the client operates.

There are some countercurrents that suggest that the trend toward outsourcing may be reversible. One vendor contacted by INPUT thought that with outsourcing, organizations may lose control of their operations. Another vendor went further; organizations will move applications in house once they master the technology. According to this view, outsourcing is a strategy for the short term, for some large clients.

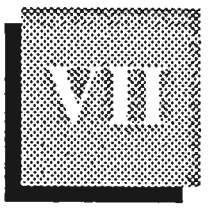
Yet this is distinctly a minority view. When INPUT asked users for their level of satisfaction with the outsourcing of systems management services, it was generally high: 3.050 for systems integration, 3.7 for systems operations, and 3.75 for applications management. While some clients may bring services back in house, the greater threat to vendors is that potential customers will not "buy in" in the first place.

This is why vendors are presenting themselves not simply as full-service organizations, but as organizations capable of doing the job more efficiently than prospective clients can. In effect, vendors have to be able to convince their customers that they can do three things:

- Add value to existing applications. As mentioned, both the larger full-service vendors and the more specialized smaller ones do not simply replace the customer's personnel with their own. Running the applications software or data centers of a large, complex firm demands the ability to assess new technology, incorporate it into the existing base without disrupting operations, and still keep costs down.

- Bring all available resources to bear on very complex technical operations. Again, such vendors as EDS and PRC have formed strategic alliances or have made carefully focused acquisitions to bring in capabilities they do not possess. Thus EDS and the Spanish national telephone company, Telefonica, established a joint-venture company to develop, market, and install Telefonica's packet-switching system. PRC entered into a hardware maintenance contract with DEC. And KPMG Peat Marwick formed a strategic alliance with XA Systems to develop and market software engineering/CASE tools. In these and other cases, the prime contractor could assure its clients that the tools for major systems management endeavors would be there when needed.

- Free the client to concentrate on core businesses. Outsourcing does not make the client's internal DP staff unnecessary. On the contrary, it is more necessary than before. But instead of focusing on routine work at one end or advanced applications that are better handled by vendors at the other, the internal staff's role becomes one of overseeing the vendor and doing long-range planning. As commercial and government organizations shrink, the roles of internal staff and vendors become more clearly defined. Freed from the day-to-day responsibility of running DP operations, internal staff can focus on the long-term changes that technology will bring to their organizations.



Systems Management Vendors

In this chapter INPUT examines the emerging systems management marketplace. Earlier studies, referenced in Chapter I, examined systems integration and systems operations as separate entities. INPUT selected this topic for study because it is apparent that more vendors are offering a broader range of services that cover the full range of IS activities. For example, EDS has a systems management service that can assume all of a user's information systems functions. Other vendors such as IBM, Andersen Consulting, CSC, and Digital Equipment are offering services to accomplish most, if not all, of the IS activities that internal staff currently accomplish.

INPUT is studying this area to provide comprehensive data and trends that will assist vendors in developing strategies to compete in this evolving market. This chapter considers two areas. After classifying vendors in each of the three areas comprising systems management, it profiles six of the leading vendors. The profiles are intended to accomplish two things. Firstly, they describe vendor activity in each of the three subsidiary systems management areas. Secondly, they consider the strategies each vendor has adopted to provide its customers with end-to-end service and, thereby, increase its shares of IS markets.

A Vendor Classification

Parallel to the user survey discussed in Chapter IV, INPUT conducted a survey of 15 vendors that offer systems management. For the purposes of this study, INPUT defined systems management as consisting of three primary services: systems integration, systems operations, and applications management. The definitions are the following:

- Systems integration is a service where a vendor provides a complete solution to a set of complex information systems requirements, usually through the custom selection and implementation of information products and services.

- Systems operations is the management of the majority of the user's data processing facilities under a long-term contract. This service is sometimes called facilities management.

- Under applications management, the vendor maintains a logical set of applications, including both end-user requirements and technology implementation under a long-term contract.

All 15 vendors were providing at least one of these services, three were providing two services, and nine were providing all of them. Exhibit VII-1 is a matrix of service and service providers.

EXHIBIT VII-1

Matrix of Vendors and Systems Management Services Provided

Vendors	Services		
	SI	SO	AM
Andersen Consulting	X	X	X
Automatic Data Processing	X	X	X
Ciber, Inc.		X	X
Computer Sciences	X	X	X
Computer Task Group	X	X	X
Coopers & Lybrand	X	X	X
Electronic Data Systems	X	X	X
Groupe Bull	X		
Legent Corporation		X	
Litton Computer Services	X	X	X
McDonnell Douglas SI	X	X	X
NCR Corporation	X		
Planning Research Corporation	X	X	
Systematics, Inc.	X	X	X
Unisys	X	X	

There is no single pattern of vendor involvement in systems management. At one end, a vendor providing applications management is proposing to move downstream to systems operations. At the other, hardware manufacturers like IBM and Digital Equipment, which were not surveyed, and Groupe Bull and Unisys, which were, are aggressively positioning themselves as information services vendors. Perhaps no better recent example of this trend is available than the outsourcing of Eastman Kodak's data processing operations to IBM and DEC. Under this arrangement, IBM supports most of Kodak's computer operations, while DEC manages its telecommunications.

There is, nevertheless, a common thread that runs through all the vendor responses. Virtually all of the respondents believe that the IS market is moving toward one where users are asking for, and vendors are providing, a full set of services, from business consulting to systems integration, systems operations, and applications management. The hardware vendors and larger professional services and processing services firms are implementing this strategy to accommodate their clients and provide an additional source of revenue. Vendors that lack all of the resources to satisfy this customer requirement are establishing alliances to provide the perception that they are full-service vendors. Even the largest vendors—firms like EDS, Andersen Consulting, IBM, and CSC—are using alliances to add services they do not offer, or where they lack cost-effective expertise.

In effect, the evolving IS market is the result of both vendor *push* and user *pull*. Management is increasingly under pressure to preserve capital and reduce expenses. Shrinking margins in many commercial industries, changing demand patterns for goods, and a general slowdown in the economy are all affecting the availability of funds. The restrictions on new spending add to the pressure to do more with existing funds. Under these conditions, the economies of scale and leveraging of resources offered by full-service systems management vendors become very attractive.

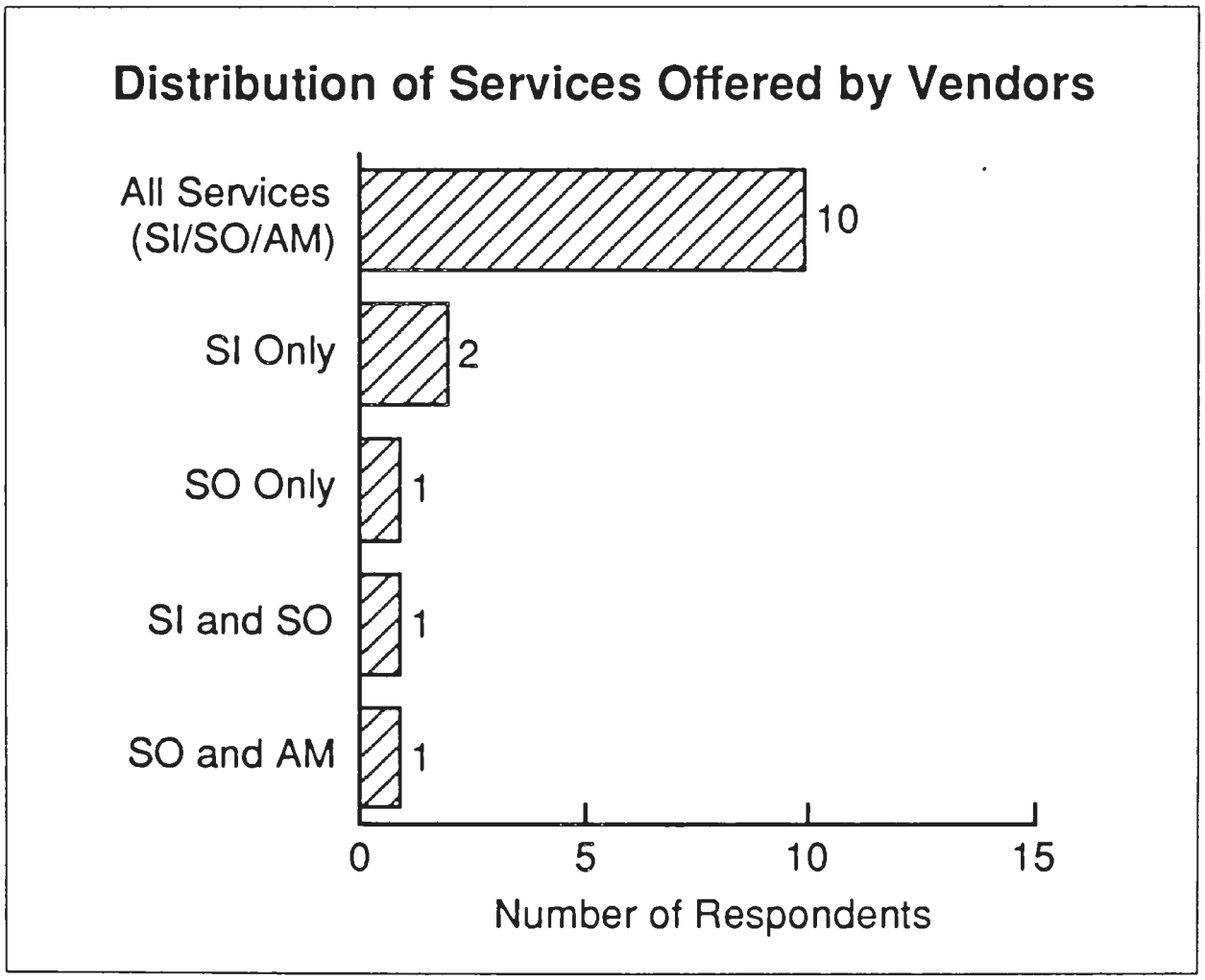
These constraints are affecting commercial and government users alike. Although the federal government constitutes only one vertical market, it is the largest. Aside from budget constraints, policy laid down by the Office of Management and Budget requires executive agencies to look to the private sector for commercial services. Additionally, the government has been consolidating certain functions—especially payroll, personnel, and financial processing—at a few large data centers. This consolidation offers vendors opportunities to provide service in all areas of systems management.

As the profiles in the next section indicate, the vendors INPUT contacted are aware of the opportunities the current environment offers. With a few exceptions, most believe that clients who use all three systems management services prefer a single vendor to provide all three services. The reason stated by one of them was, "because they [full-service vendors] can provide total solutions."

In light of these conditions, INPUT grouped the vendors surveyed into three categories, depending on the mix of services they offer. There were firms that claimed to offer all three services, those that offered only one, and those that offered two (such as systems integration and systems operation, or systems operation and applications management). Yet these claims must be scrutinized carefully. Many firms clearly emphasized one service or another; thus, a firm with a history of systems integration might be growing a new business as a systems operator. And even the large full-service firms tend to have very different client mixes and business strategies.

Exhibit VII-2 shows the distribution of information services offered by respondents.

EXHIBIT VII-2



Based on the vendor survey, INPUT concludes that vendors tend to move from being one- to full-service firms for several reasons.

- Vendors add services because they believe that clients expect it of them. Once a firm has done systems integration for a client, it may be an additional step to take over its data centers. From there, it becomes natural to manage the customer's applications inventory.

- Professional services firms are entering systems operations, either as an outgrowth of their systems integration business or as a follow-on to other professional services engagements, where they were providing personnel to develop or maintain applications software or to operate existing hardware.

- Equipment manufacturers like IBM and DEC developed an interest in systems integration and systems operations as they saw the other SI and SO segments begin to penetrate their client bases. They recognize these services can provide new sources of revenue as equipment margins fall, but also understand they must participate to protect distribution channels for their traditional products.

- The growth of on-line transaction processing, as in banking, airline reservations, and claims and benefits processing, has also led to demands for full-service vendors. The ongoing restructuring of the U.S. banking industry has accentuated this trend. As large regional banks merge, there is a need for firms that can mesh different computer systems, run regional data centers (or at least many back-office operations), and upgrade financial and accounting software.

Thus, many financial services firms are looking for vendors that understand the industry's special need for reliability, system security, and the telecommunications support that allows them to interface with other banks and the Federal Reserve System.

These points are brought out in the vendor profiles below. Of the six firms profiled, three (EDS, Andersen Consulting, and CSC) are full-service systems management firms. Yet there are important differences among the three. Where EDS and CSC are major federal contractors, almost 90% of Andersen's practice is in the commercial sector. And even between EDS and CSC, there are subtle differences. EDS has long struck a balance between its federal and commercial practices, with just over 50% of its revenues coming from its corporate parent, General Motors. CSC, on the other hand, has been moving aggressively into commercial markets while increasing its backlog of federal orders.

Of the three remaining vendors, PRC is a systems integrator and operator, most of whose business comes from federal contracts. IBM, as the computer industry's leading manufacturer, is moving toward becoming a full-service systems management vendor. Computer Task Group is a professional services firm moving into systems integration, systems operations, and applications management.

B

Vendor Profiles

1. Andersen Consulting

a. Description of Principal Business

Andersen Consulting provides technology consulting services to clients in nearly every business and government sector. Andersen helps clients use information competitively in all phases of their management activity—strategic, operations, and financial. In September 1989, Andersen Consulting assumed the operations, activities, and personnel of the former management consulting practice of the accounting firm of Arthur Andersen and Company.

Andersen Consulting is a separate, legal entity not involved in accounting or tax work. None of the partners in Arthur Andersen is an active partner in Andersen Consulting, and vice versa. Both firms are members of the Arthur Andersen Worldwide Organization, which can be accurately described as a global professional services firm.

A breakdown of Andersen Consulting's services is as follows:

- General management consulting
- Information systems consulting
- Packaged applications software
- Computer-aided software engineering products
- Integrated solutions to business needs
- Organizational change management services

Andersen Consulting has been one of the most phenomenal knowledge-related businesses of the last 20 years. Respected at times by its competitors in the information services marketplace, and not taken seriously at others, the consulting operation has consistently shown significant growth rates.

Andersen Consulting reports a full-time worldwide IS staff of 18,000. INPUT estimates that 7,150 of the 11,000 individuals involved directly in the U.S. information systems consulting practice are directly involved in the SI practice.

b. Markets Served

Although Andersen is a full-service firm offering all systems management services, its primary emphasis is on systems integration. As Exhibit VII-3 shows, Andersen's SI business focuses almost exclusively on vertical markets, but in effect, covers almost all of the commercial and government sectors.

EXHIBIT VII-3

Vertical Market Focus—Andersen Consulting

• State and Local Government	• Manufacturing
• Wholesale and Retail Distribution	• Financial Services
• Health Care	• Insurance
• Utilities	• Process Manufacturing
• Transportation	• Telecommunications
• Energy and Gas	• Federal Government

Exhibit VII-4 shows the service sectors in which Andersen is involved.

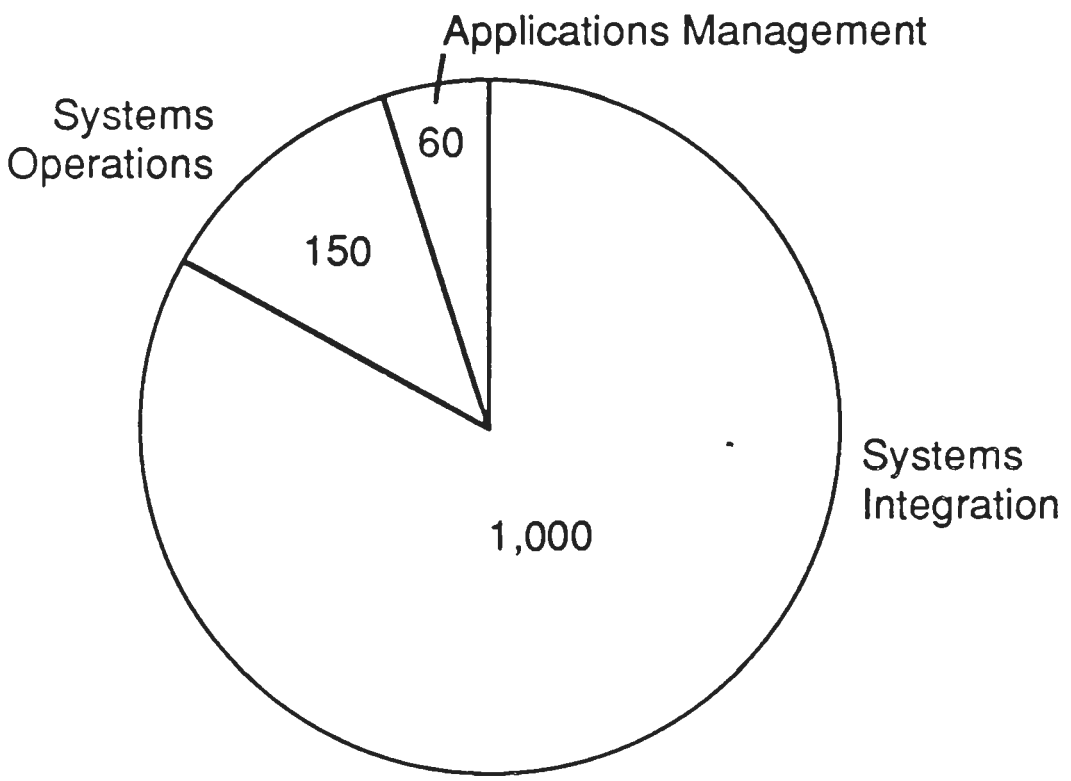
With its historic commitment to systems integration, Andersen is fairly new to the systems operations business. Although Andersen has, for several years, operated client data centers as an accommodation for clients, it has only been aggressively pursuing this market for two years. This contrasts with some other firms that INPUT has investigated that have been providing systems operations support for nearly 30 years. Andersen has not yet entered the federal systems operations market.

Although Andersen's presence in systems operations is small, the business in growing rapidly. In 1990, Andersen realized $150 million in SO revenue, up five-fold from 1989. It considers its primary competitors to be:

- IBM
- EDS
- Regional players

EXHIBIT VII-4

Revenues by Service Sector—Andersen Consulting



$ Millions

1990 IS Consulting Revenue - $1,210.0 Million

It is interesting to compare Andersen with its two leading rivals. Each brings different credentials to the market:

- Andersen has extensive industry-specific systems development experience, helping it to understand its clients' needs.
- IBM provides unparalleled hardware and software experience, possessing a greater understanding of the technology's potential than either of the other two.
- EDS has dramatically more systems operations experience and network management experience than its two prime competitors combined.

c. Business Objectives

Andersen defines systems management as the sharing of responsibility for an IS organization with an outside party, usually with an ongoing, multiyear agreement. Within that definition, Andersen sees its industry and government clients turning more and more to outsourcing as a more acceptable alternative to doing the work internally.

Andersen Consulting's strategy is to maintain its strong position as a systems integrator, while moving aggressively into systems operations and applications management. To further this strategy, Andersen has established significant alliances with hardware and applications software vendors—alliances that enable it to provide hardware at competitive prices, give it early access to new technologies, and supplement areas where it has limited capabilities.

Andersen intends to focus on the commercial side of its IS businesses. Company executives believe that operating margins are increasing for commercial work, while remaining fairly flat for federal work. With 80% of its commercial SI clients coming from its existing account base, Andersen has been quite successful in developing long-term relationships with larger firms. It has been less successful, however, in creating such relationships with federal agencies. Only 50% of its federal contracts come from existing accounts, perhaps reflecting Andersen's more recent entry into that marketplace and the fact that the market is more RFP driven.

2. Computer Sciences Corporation

a. Description of Principal Business

Computer Sciences Corporation (CSC) is almost purely a computer services organization. It manufactures minimal amounts of equipment, primarily specialized communication interfaces, in low volume. It promotes itself as a leading systems integrator and software developer.

The company also provides specialized proprietary services to markets such as finance, health care, claims processing, network management, and income tax processing. CSC also provides remote computing services to private industry and government.

Although historically some 65% of CSC revenues come from federal contracts, CSC is making a major thrust to expand its business into the commercial market through its consulting and industry services groups, which represented almost 40% of its 1990 business. These services include consulting and systems development and integration services for commercial, financial, industrial, and international clients. Also included are consumer credit, health and insurance processing services, and a segment that provides income tax processing services.

b. Markets Served

Although federal business generated over 60% of CSC's 1990 revenues, this actually marked a drop from early years, where it was over 70%. In fact, CSC has been moving to win more commercial business while holding its commanding position in government markets.

CSC had not played a major role in the commercial professional services market before 1987, when it announced a goal of attaining 50% of its profits from commercial business by 1992, based on increasing its commercial revenues to 40% of the total. The company also announced at that time that it had $200 million to spend on acquisitions to augment its existing commercial business. It has since made several significant acquisitions, and has sold a majority interest in its worldwide public network subsidiary, Infonet, to a group of European and Pacific telecommunications administrations.

Like Andersen Consulting and EDS, CSC is a full-service computer services firm offering systems integration, systems operations, and applications management services to government and commercial clients. With overall 1990 revenues of $1.7 billion, CSC recognized $1.2 billion in systems management activities. Twenty-nine percent (29%) of its revenues came from systems integration, about 27% from systems operations, and an estimated 15% from applications management. Exhibit VII-5 shows the breakdown of CSC revenues by service.

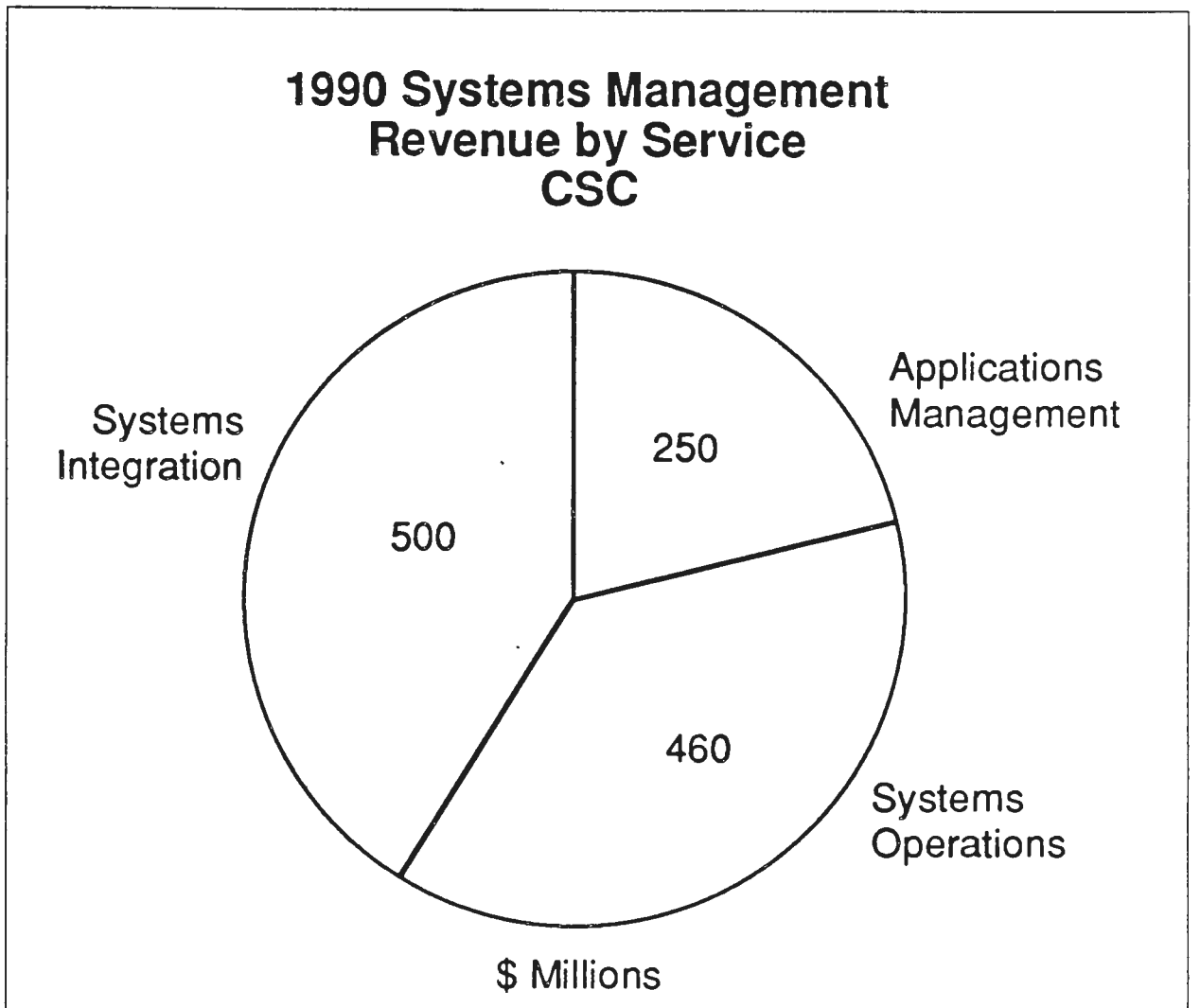
The experience gained by CSC in federal contract work is transferable to its commercial practice. CSC currently provides a variety of services to government agencies, ranging from its responsibility as prime contractor for office automation at NASA's Kennedy Space Center, to providing systems integration services for the Air Force's new Stock Control and Distribution system, to designing, operating and maintaining the Treasury Department's Consolidated Data Network. In 1990 CSC received the System 90 contract, a major Treasury program to upgrade the regional financial centers that generate $500 billion annually in government payments.

All of this experience applies well to other industry sectors. For example:

- Cincinnati Gas and Electric—CSC is developing a new on-line customer service system that includes subsystems for order entry and tracking, billing, and financial records processing.

- AT&T—CSC maintains, enhances, and develops the circuit provisioning system used nationwide by AT&T to issue and track service orders, maintain an inventory of equipment and facilities, and design long-distance circuits.

EXHIBIT VII-5



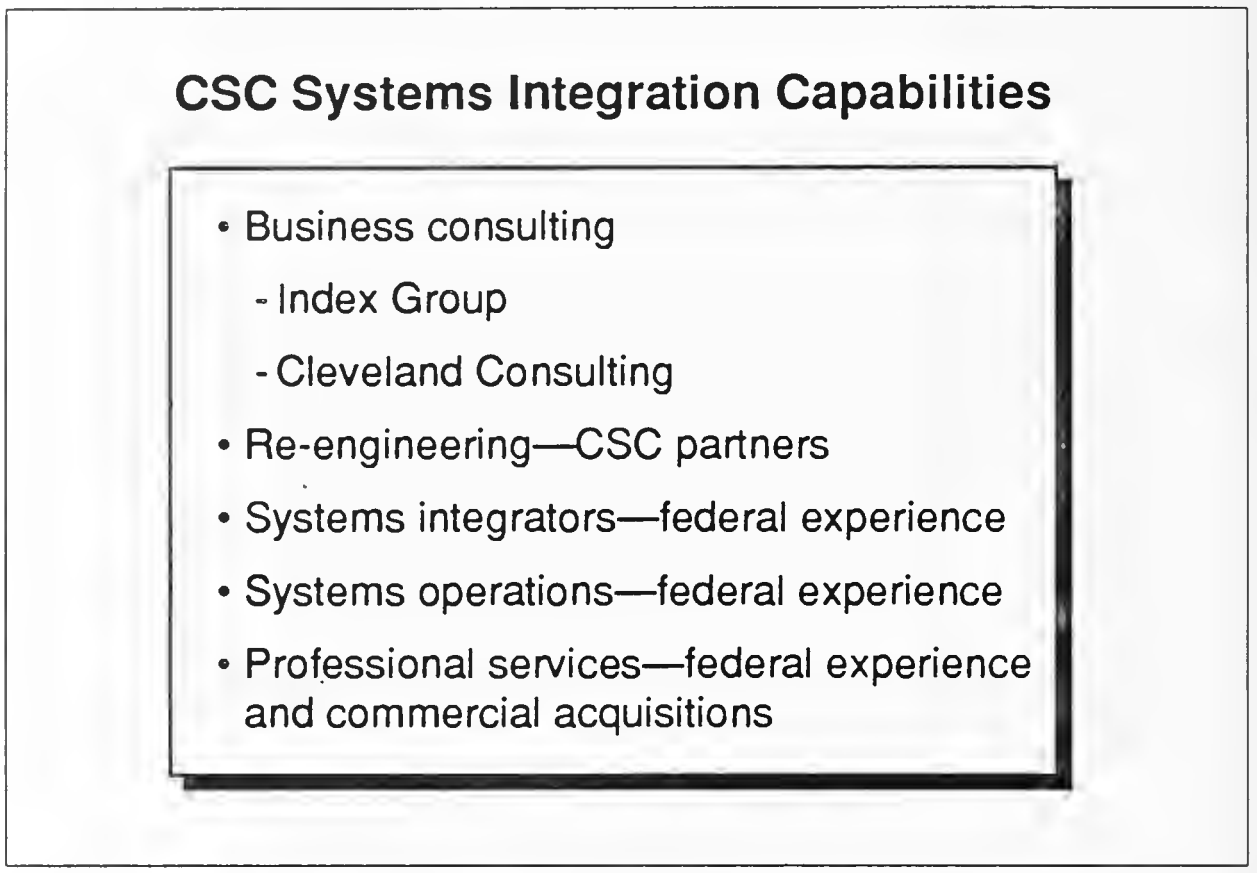
- Weirton Steel—CSC is developing an Integrated Manufacturing Information System to improve inventory control and scheduling.

c. Business Objectives

CSC clearly sees its future tied to enterprise-oriented outsourcing as a way of deepening its commercial practice. Exhibit VII-6 lists some of the capabilities the company will use to penetrate the systems management market.

CSC executives recognize that industry is looking for business and information consulting and business solutions, and has established a primary objective of responding to these customer demands. Their perception is that clients prefer to have systems management services provided through a single vendor like CSC, because if they want to focus on their core businesses, they do not want to manage vendors with overlapping responsibilities.

EXHIBIT VII-6



3. Computer Task Group

a. Description of Principal Business

Computer Task Group (CTG) is a leading provider of computer-related professional services to the commercial marketplace. CTG designs, builds, implements, and in some cases maintains information systems. The company's services consist of consulting, systems analysis, systems design, systems integration, and programming. Areas of special expertise include business systems programming, engineering, scientific, process control, and automated software conversions.

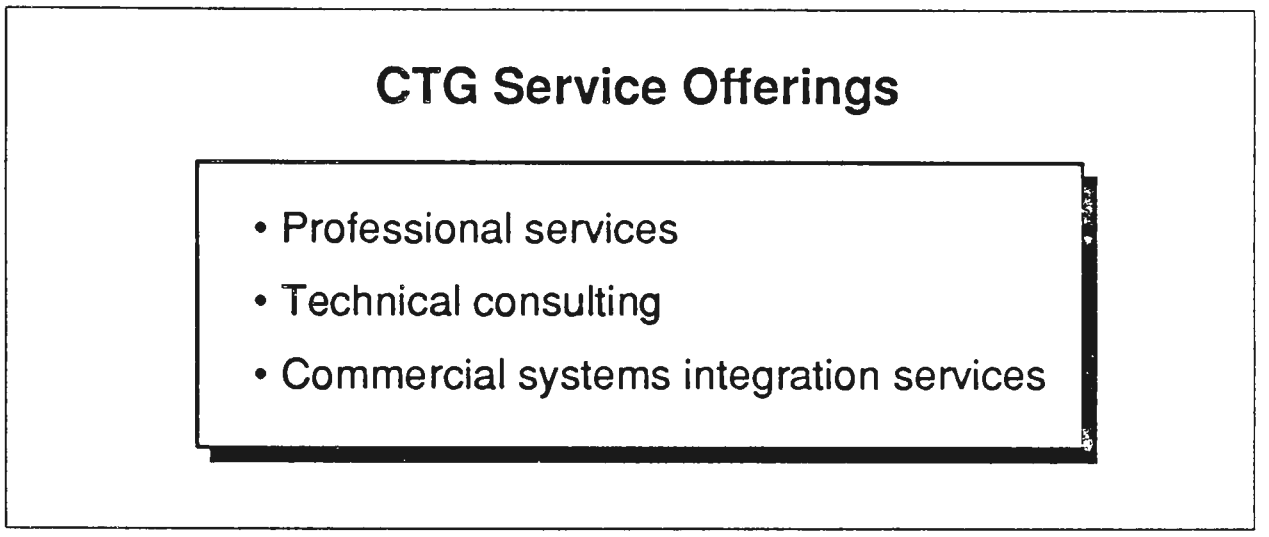
CTG makes extensive use of software automation in its professional services contracts. Typically, CTG's professional staff augments and becomes part of the client's on-site software development team on a specific application or project. However, in recent years CTG has established approximately 20 Software Development Centers to support off-site development and implementation in support of client projects.

Exhibit VII-7 classifies the services CTG offers:

- Professional services—The company's major source of revenue is derived from this area, which includes programming, systems analysis, project management, and systems operations.

- Consulting—Specialty areas include information engineering, data base consulting, telecommunications/network consulting, conversions, and document management.

EXHIBIT VII-7



- Commercial systems integration services provided through the Scientific Systems Services (SSS) subsidiary—Services include systems architecture services, hardware and system software selection, project implementation, and management consulting. SSS focuses primarily on manufacturing opportunities.

In 1990 CTG's SI revenues amounted to approximately $40 million, or slightly over one-sixth of the company's $233 million revenue. Currently, systems operations represent approximately 5% of CTG's sales. A significant number of CTG's SO contracts are in partnership with IBM, which holds an equity stake in the company. CTG does not break out its applications management revenues separately.

b. Business Development Approach

Compared to other systems integration vendors, CTG has developed above average capabilities to participate in the market, particularly in the middle of the systems integration life cycle—overall design through implementation. CTG's strengths are not in front-end business consulting or follow-on maintenance activities. In most areas where there appear to be some weaknesses, CTG has developed effective alliances or is rapidly on its way to building or acquiring an internal capability to meet the need.

CTG carries its philosophy of being a full-service provider into the systems integration marketing effort. While the company does not have all the capabilities to support that position in house, it has made great strides in recent years through acquisitions and alliances to cover the approach successfully.

CTG is just getting started in the systems operations business. In 1989, SO revenues represented less than 3% of the firm's overall business. Its two current clients, IBM and USS/POSCO (a joint venture of USX and Pohang Steel), represent too small a sample from which to draw any conclusions. Since CTG views systems operations as a highly profitable

business, INPUT expects it to increase both sales and marketing efforts in the near term. CTG sees the market segmenting into a number of solutions based on system size. For large mainframe opportunities, it plans to partner with IBM and to provide complete services in smaller situations.

4. Electronic Data Systems

a. Description of Principal Business

Electronic Data Systems (EDS) was founded in 1962 by Ross Perot to provide systems operations services to insurance companies, government-funded health insurance programs, and financial institutions. Today, it provides systems operations, processing services, professional services, and systems integration services to nearly all vertical industries and to the federal government. In addition, EDS may act as a fiscal agent for a client, taking full responsibility for data processing as well as other administrative duties, such as paying and processing insurance claims.

With more than 60,000 employees and more than 7,000 clients in all 50 states and 27 countries, EDS is the largest systems operations and processing provider in the world. EDS had worldwide 1990 revenues of $6.1 billion and net income of $497 million. As a wholly owned subsidiary of General Motors since 1984, EDS provides virtually all information processing services to the parent company and derives about 52% of its revenues from captive GM business.

EDS has a strong set of information services capabilities and resources—including consulting, systems development, applications management, systems integration, and systems operations. Its operational data processing experience, which includes developing and operating large and small data centers, makes it a leader in the efficient and cost-effective use of technology. The assumption of all information systems responsibility for GM provided it with real business experience in the manufacturing, retail, distribution, and networking areas, and its alliance with GM-Hughes gives EDS aerospace industry knowledge.

b. Markets Served

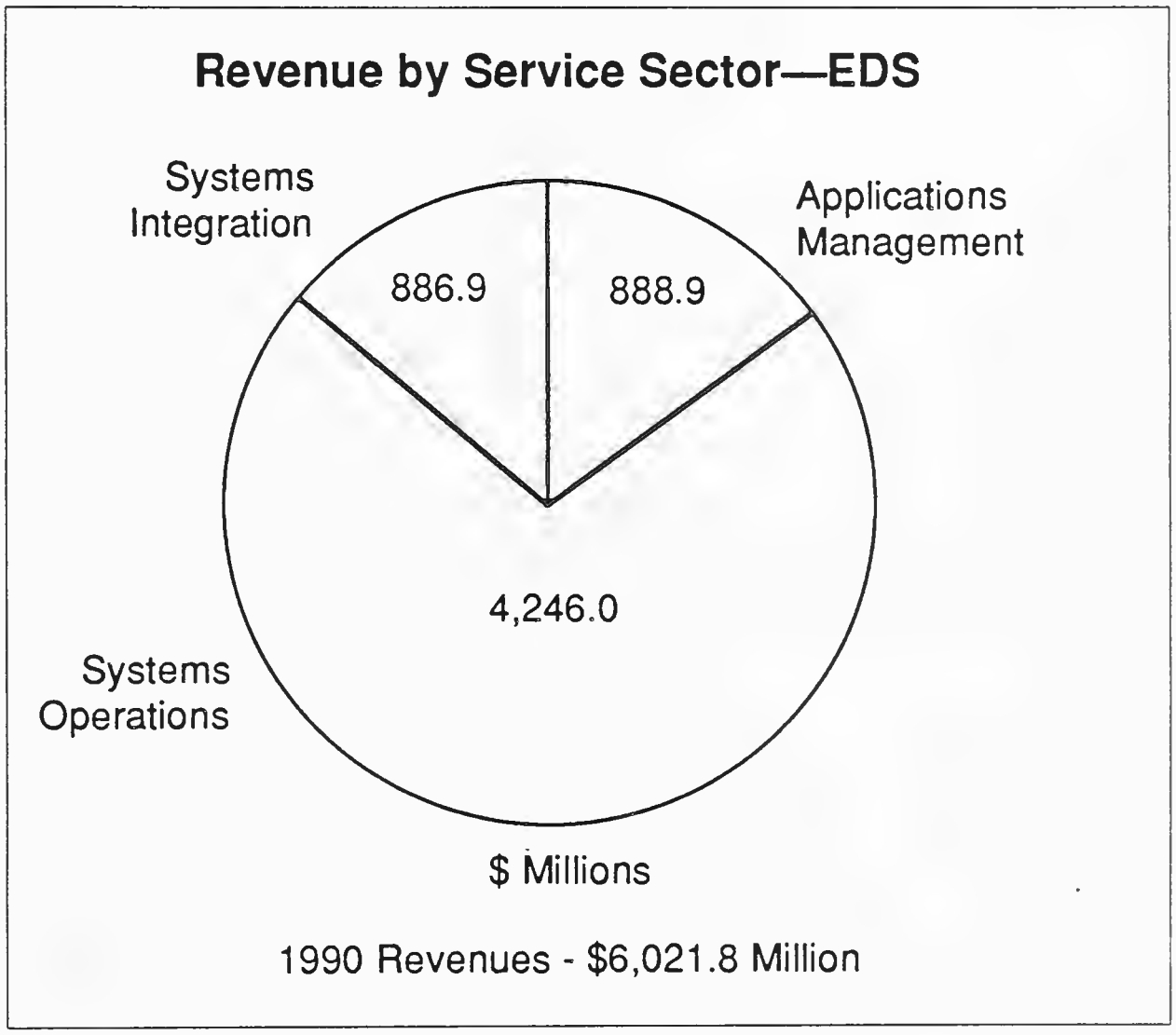
To become a major systems integrator, EDS targeted the federal government, discrete and process manufacturing, aerospace, and retail distribution vertical markets. It also undertook major effort to expand this capability into the international market.

Over a year ago, EDS restructured its organization into over 30 divisions, each focused on an internal or external market segment. The internally focused divisions provide services to different segments of EDS' parent, General Motors. The externally focused divisions offer services to virtually all commercial vertical markets and the federal government.

While EDS' expertise is aimed primarily at vertical industries, the company has targeted two key cross-industry markets—engineering and networking—both areas where the company has gained a great deal of experience through its work at GM.

EDS' 1990 revenues, including captive GM revenues, were divided by service area as shown in Exhibit VII-8.

EXHIBIT VII-8



The percentage of revenues derived from systems operations reflects EDS' history as a facilities manager. Even now, EDS defines systems management to include facilities management, which itself includes security and information utilities. According to an EDS source, the company does not define systems management as including systems integration or applications management. These are, nevertheless, areas where EDS is expanding aggressively.

c. Business Objectives

EDS' business objectives include reducing its GM-derived revenues to 50%, maintaining a client renewal rate in excess of 80%, and offering systems integration in response to customer demands, to maintain control over its existing customer base and to attract new systems operations candidates.

Based on its recent activity, EDS' strategy also appears to include investments in a number of companies that can provide it with industry-oriented software or the ability to provide information services to a specific industry. Examples are EDI contracts with Continental Airlines and National Car Rental in the transportation industry, and with ASK Computer for manufacturing industry software.

EDS has very strong capabilities and few weaknesses in the SI and SO arenas. In the latter, it has outstanding information systems operating knowledge in the service industries, and it has similar experience with federal, state, and local government customers.

EDS expects to continue to grow significantly in the systems operations market, both by expanding penetration in current markets and by entering new ones. In the latter case, the selection criteria to identify new markets will include the size of companies in that sector, the changes occurring in that sector, and how these changes will influence the receptivity of prospects to systems operations. Additionally, the market sector will have to include enough viable prospects to make entry a profitable venture for the company.

Applications management is ancillary to EDS' other businesses. Except for an ownership position in Hitachi, USA, EDS lacks hardware and software products, and instead prefers to obtain other vendor's off-the-shelf products through its strong set of alliances. INPUT does not consider this a weakness because EDS has strong financial resources and buying power.

INPUT does not believe that EDS has significant weaknesses. However, its traditional systems operations focus may limit its competitiveness in some systems integration opportunities. Some prospects that are committed to running their own data processing operations will be reluctant to ignore EDS' traditional motivations when an SI solution is proposed. This is justified, since it appears to INPUT that in most cases systems operations are the underlying motivation for EDS' SI activities.

5. International Business Machines

a. Description of Principal Business

International Business Machines (IBM) is the world's largest vendor of computer hardware and related software and services. The company has traditionally been known more for its marketing strength and customer support than its technical leadership. IBM has the broadest product line of any supplier and serves virtually all vertical markets. IBM's 1990 worldwide revenues and after-tax profits were $69 billion and $6 billion respectively.

b. IBM Capabilities

INPUT has examined IBM's systems management capabilities, as described below:

- Project Management—Already an extremely formidable competitor in information services, IBM's recent establishment of a wholly owned information services subsidiary is likely to make it even more so. In particular, its experience on very large federal systems integration contracts has positioned it to enter other markets. IBM can rely on its Federal Sector Division for program management skills for very large commercial projects, and on its field professional services organization to manage smaller ones.

- Software Development—IBM has a great deal of experience developing complex systems software, but less in developing applications software. Its application solutions strategy is based on a variety of applications packages, many developed by equity partners, that IBM will tailor to meet its clients' needs. When a great deal of custom software development is required, IBM currently looks to subcontractors: As AD/Cycle becomes available, INPUT expects IBM to use its own personnel more for developing custom software.

- Packaged Application Software—While IBM has developed packaged application software, few of its internally developed products have been widely accepted. In some cases IBM has taken equity positions in firms that have existing application packages or the industry knowledge and skills to assist IBM in building its own.

- Packaged Systems Software—This is one of IBM's major strengths. There are few practical alternatives to the industry standards IBM has established in the mainframe area with MVS, CICS, IMS, and DB2. IBM offers effective systems software programs on its smaller systems; through its Systems Applications Architecture, it is beginning to solve all of the interoperability and connectivity issues that exist among mainframes, minicomputers, and personal computers.

- Standard Computer Hardware—IBM is the world leader in the breadth and depth of its product lines.

- Network Management and Operations—Over the course of the last two years, IBM has entered the systems operations business in a big way. Because this represents a fundamental shift of emphasis, it is discussed below.

c. Business Strategies

Since the mid-1980s IBM has been working hard to convert a marketing organization that is product-sales oriented to one that is focused on providing solutions to its customers. Systems integration has become a major vehicle that IBM, through its subsidiaries, uses to design and implement industry-specific solutions.

In May 1991 it announced a wholly owned subsidiary, the Integrated Systems Solutions Corporation (ISSC), its new information services subsidiary. ISSC replaced the IBM Systems Services Division established in November 1990, but otherwise little changed. The move was made to give IBM maximum flexibility in responding to market conditions. The service offerings listed in Exhibit VII-9 show the company's determination to go beyond what the earlier IBM systems operations unit offered.

EXHIBIT VII-9

ISSC Service Offerings

- Systems operations
- Consulting
- Systems integration
- Business recovery services
- Network management services
- Custom application development
- Application software maintenance
- Help desk
- Education and training
- Data services

ISSC will offer consulting and systems integration services, in addition to its basic systems operations services. It will bid on any systems integration project that the local trading area staff feels it is not capable of addressing.

ISSC will offer the full range of application software services, including custom development and maintenance, to commercial industries and state and local government clients. (The Federal Sector Division will continue to serve federal markets.) Help desk services are being expanded and will include support to distributed systems environments—both IBM and non-IBM.

This most recent reorganization emphasizes IBM's resolve to become an even more significant player in the information services industry. In this area, the company has impressive strengths. IBM has outstanding systems operations experience. Its on-line marketing and support systems have been industry leaders for many years. IBM's internal planning process and quality programs have made its internal IS operations extremely efficient. This permits it to price proposals very competitively in the systems operations market.

As a subsidiary of a technology leader, ISSC knows the product developments that are coming and will build them into its proposals. In addition, as a captive entity, ISSC will enjoy extremely low equipment and software product costs.

6. PRC, Inc.

a. Description of Principal Business

Founded in 1954, Planning Research Corp.—now PRC—is a subsidiary of Black & Decker, a manufacturer of home appliances and power tools. When Black & Decker acquired Emhart Corp. in 1989, it acquired both PRC and Advanced Technology, and subsequently merged them under the PRC title.

PRC's principal lines of business remain what they were at the time of the acquisition: management consulting and advisory services, professional services (information systems design, development and operations), systems integration, and systems operations.

PRC is heavily involved in two of the three principal systems management areas: systems integration and systems operations. PRC's 1990 revenues were approximately $300 million in systems integration and $100 million in systems operations. The company is not involved in applications management directly. PRC regards systems management as outsourcing, which includes assuming responsibility for data processing facilities and development work.

b. Markets Served

PRC's systems management work is rather evenly split between commercial and federal projects, with the latter accounting for the greater part of its profits—as much as four times greater than average commercial SI projects.

Through its Applied Management and Engineering Technology Groups, PRC has worked for virtually every federal agency of any size. Exhibit VII-10 lists several of the company's larger current projects.

EXHIBIT VII-10

Examples of PRC's Current Federal Projects

- Patent and Trademark Office Automated Patent System
- Department of Veterans Affairs Integrated Hospital System
- U.S. Senate Integrated Network
- NASA Headquarters Operations Management and Communications Network Design

PRC's Commercial Systems Group provides nationwide computer-based Multiple Listing Service operations, and computer-aided dispatch systems. This unit is the company's commercial SI arm.

In both its government and commercial work, PRC offers a full range of SI services. INPUT concludes from the concentration of SI effort in the area of application design and development that this is the area of PRC's greatest capability and, therefore, where it has greatest marketing potential. PRC was one of the first companies to deploy an open systems operation based on the design of the Patent and Trademark Office project. PRC is a recognized industry pioneer and leader in open systems architectures.

c. Business Strategies

PRC is positioning itself primarily as a full-service SI vendor, capable of responding to a variety of customer demands. Leveraging its record of on-time delivery, its technical strength, and long-term track record, PRC emphasizes its implementation and integration capabilities and its post-implementation operations support offerings.

PRC is nearly unique in the scope of its alliances. Other vendors, such as DEC, may have more alliance partners, but few others use alliances in so many areas. PRC takes a pragmatic view with respect to strategic alliances, using them, as appropriate, to accomplish the following goals:

- New market penetration
- Access to new technology development and product distribution
- Reduced development costs in specialized areas
- To permit PRC to participate as prime or subcontractor, as appropriate

Unlike most of the vendors INPUT surveyed, PRC does not believe that clients will necessarily use a single vendor to provide all systems management services. A PRC executive noted that clients may well prefer to buy from separate vendors, provided that "duality" is acceptable. A systems integrator, in his view, does not have to do systems operations. In any event, PRC has the capabilities to provide both services as well as applications management, depending on the client's needs.

Conclusions and Recommendations

VIII

Conclusions and Recommendations

A Conclusions

A review of conclusions drawn from research for this report indicates clearly that the issues related to growth of the systems management market are predominantly business, not technical, issues. Exhibit VIII-1 highlights key conclusions.

EXHIBIT VIII-1

Conclusions

- Increasing core business focus
- Shifting vendor strategies to outsourcing IS functions
- Full-service vendors sought
- Alliances offer full range of services
- Outsourcing activity increasing
- Applications management important vendor-provided service
- In-house IS staff role shift to strategic planning

- Companies are focusing increasingly on their core businesses. Activities that detract from executive attention on competitive positioning, product differentiation and strategy, or overall growth are candidates for outsourcing. While there is resistance to contracting for systems management, the resistance is primarily from information systems management, not executives.

- The progressive information systems and services vendors are shifting their strategies to provide broad, flexible products and services to meet outsourcing requirements. These vendors market a combination of professional services, systems operations, applications development, and support—and within vertical industries, focus on applications software as well.

- Companies seek full-service vendors for many reasons: to lower costs, increase flexibility, remain competitive, or use skills unavailable in-house. In systems management, one thing often leads to another. A vendor brought in on a systems integration project may very well receive a contract to manage the customer's data center and upgrade its installed base of applications software.

- Because even the largest full-service vendors are stronger in some areas than in others, they are turning to other firms to supplement their skills. Such relations range from joint ventures, to temporary alliances, to the acquisition of smaller firms with niche specialties. Just as clients discovered that they could not do everything themselves, vendors discovered the same thing.

- The fastest growing delivery modes within the information management market are tied to outsourcing. Systems integration is growing faster than professional services, and systems operations is outgrowing processing services.

- As clients discover that they need full-service vendors, they will require them to manage their installed base of applications software. Particularly in vertical markets like banking/finance, with highly specialized applications, the success of vendors will depend upon their ability to support those applications.

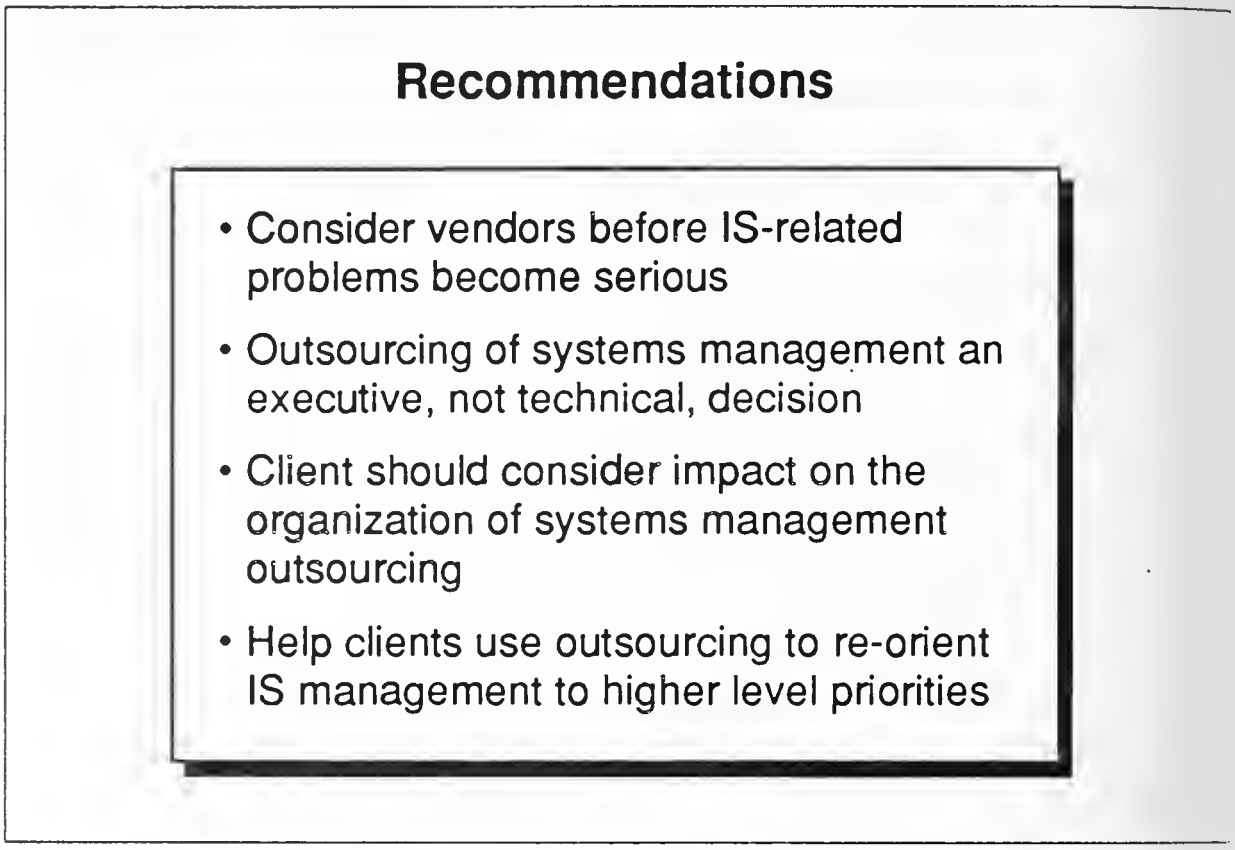
- As in-house staff remove themselves from routine operations, their function will become more that of monitoring vendor activities, defining the scope of work for every kind of outsourcing, and doing strategic long-range planning to determine the kinds of technology and operating systems the organization will need several years down the road.

B

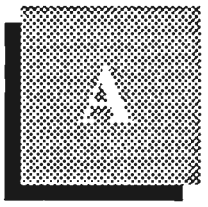
Recommendations

INPUT's recommendations to clients suggest that IS managers and the executives to whom they report should be convinced to consider systems integration, systems operations, and applications management as parts of a single function—systems management, as shown in Exhibit VIII-2.

EXHIBIT VIII-2



In the systems management market, vendors need to play a more proactive marketing role. Clients need to be sold on considering outsourcing systems management functions as an alternative for each major information systems program. By themselves or allied to other firms, vendors are now capable of providing across-the-board support to organizations as large as General Motors or the military departments of the Department of Defense. Rather than an unpalatable alternative to keeping the work "*i*nside the walls", outsourcing (when used properly) can provide solutions to complex technical problems that the internal staff may not have the resources, the skills or the time, to tackle.



Appendix: Systems Management Vendor Questionnaire

Hello, my name is _____ and I represent INPUT, an international market research and consulting firm. We are conducting research on the changing role of information systems organizations in businesses today. There has been a great deal of discussion of outsourcing systems operations recently. We would like to discuss this area with you, as well as outsourcing of systems development and applications management.

We have already surveyed a number of user organizations regarding their equipment and would now like to get the vendors' perspectives. We would like to ask you a number of questions regarding your views on systems management, and in return for your participation in this study, we will provide you a copy of the executive summary of the resulting report.

Would you spend about 15 minutes with me now to answer a few questions, or would you prefer that I call back at a more convenient time? ____ Y/N

What would be a convenient time for me to call you back?

Let's proceed with the interview.

1. Systems management is a description of a service being offered by several information services vendors. Does your firm use the term ***systems management?*** ____ Y/N

IF NO, GO TO QUESTION 2.

1a. Would you please define, in your own words, what it means to you?

---

2. For the purpose of this study, INPUT has defined systems management as consisting of three primary services. They are systems integration, systems operations, and applications management. I will read INPUT's definition for each of these services to you.

Systems integration is a service where a vendor provides a complete solution to a set of complex information systems requirements, usually through the custom selection and implementation of information products and services.

Systems operations is the management of the majority of the users' data processing facilities under a long-term contract. This service is sometimes call ***facilities management.***

Under applications management the vendor maintains a logical set of applications, including both end-user requirements and technology implementation under a long-term contract.

Now, let's examine systems integration. Does your organization offer systems integration services? ____ Y/N

3. I will read a list of reasons why organizations tell us they have used systems integrators to complete projects. Would you please rate their importance from your perspective, using a scale of 1 to 5, where 1 is unimportant and 5 is very important?

Internal resources not available	1	2	3	4	5
Specific skills not available	1	2	3	4	5
To get project completed faster	1	2	3	4	5
To fix the cost of a project	1	2	3	4	5
Other, explain _____	1	2	3	4	5
Other _____	1	2	3	4	5

3a. From your perspective, on a scale of 1 to 5 (where 1 is unimportant and 5 is very important), how important is it for an SI vendor to offer:

Systems operations services	1	2	3	4	5
Applications management services	1	2	3	4	5

4. Now, looking at systems operations, does your organization offer systems operations services? ____ Y/N

4a. Who develops the majority of the software you operate in your SO contracts?

Your organization	____
The client	____
A third party	____

4b. Who is responsible for managing the applications inventory in this (these) contract(s)?

Your organization	____
The client	____
A third party	____

5. I will read a list of reasons why organizations tell us they have outsourced systems operations. From your perspective, would you please rate their importance as reasons to outsource operations? Use a scale of 1 to 5 (where 1 is unimportant and 5 is very important).

Better or more flexible services	1	2	3	4	5
Lower operating expenses	1	2	3	4	5
Lack of operating skills	1	2	3	4	5
Lack of capital	1	2	3	4	5
Other, explain _____	1	2	3	4	5

6. On a scale of 1 to 5, with 1 representing unimportant and 5 representing very important, how important is it for an SO vendor to also offer:

Applications management services	1	2	3	4	5
Systems integration services	1	2	3	4	5

7. Shifting gears again, does your organization offer applications management services? ____ Y/N

7a. What percentage of a client's applications management workload do you typically manage? ____%

7b. Does your organization actually manage both the technology application and user interface of a logical set of applications? ____ Y/N

IF NO, GO TO QUESTION 9.

7c. What are the two or three most important reasons for your decision to outsource applications management?

1. _____
2. _____
3. _____

8. Approximately what percentage of your organization's IS spending is budgeted to the three areas we have been discussing?

Computer operations (including existing data center equipment)	____%
Systems development (including new project equipment)	____%
Applications management	____%

9. If you are not currently participating in all three systems management submarkets, what is the likelihood that you will offer these services in the next three years, with 1 representing unlikely and 5 representing very likely?

Systems integration	1	2	3	4	5
Systems operations	1	2	3	4	5
Applications management	1	2	3	4	5

10. If you were to utilize all three of the services we have discussed, would you prefer to use separate vendors for each service or a single vendor to provide all three services?

Separate vendors ____
A single vendor ____
Briefly describe why.

_____

_____

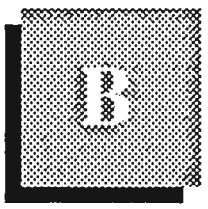
11. What major new changes in the U.S. business environment do you anticipate in the next few years that will encourage or discourage systems management outsourcing?

1. _____
2. _____
3. _____
4. _____

Thank you for your participation in this study.

Please give me your title and address so that I can mail you the executive summary.

_____



Appendix: Systems Management User/Client Questionnaire

Hello, my name is _____ and I represent INPUT, an international information services market research and consulting firm. We are conducting research on the changing role of information systems organizations in businesses today. There has been a great deal of discussion of outsourcing systems operations recently and we would like to focus specifically on your views on that topic, as well as the outsourcing of systems development and applications management.

This research is being conducted to assist vendors in identifying and developing the type of information services that will help organizations like yours accomplish your responsibilities. We would like to ask you a number of questions regarding your views on this topic and, in return for your participation in this study, we will provide you a copy of the executive summary of the resulting report.

Would you spend about 15 minutes with me now to answer a few questions, or would you prefer that I call back at a more convenient time? ____ Y/N

What would be a convenient time for me to call you back?

Let's proceed with the interview.

1. To help me understand your responses, please tell me if your views represent the corporation, a division, or some other organization.

Corporate Staff ____
Division ____
Other _____

2. Are the information systems activities in your organization controlled centrally or decentrally?

Centrally ____
Decentrally ____
Both ____
Explain _____

---

3. Systems management is a description of a service being offered by several information services vendors. Are you familiar with the term ***systems management***?? ____ Y/N

IF NO, GO TO QUESTION 4.

3a. Would you please define, in your own words, what it means to you?

---

4. INPUT believes that systems management consists of three primary services. They are systems integration, systems operations, and applications management. I will read INPUT's definition for each of these services for you.

Systems integration is a service where a vendor provides a complete solution to a set of complex information systems requirements, usually through the custom selection and implementation of information products and services.

Systems operations is the management of the majority of the users' data processing facilities under a long-term contract. This service is sometimes called **facilities management.**

Under applications management, the vendor maintains a logical set of applications, including both end-user requirements and technology implementation under a long-term contract.

Now, let's examine systems integration. Has your organization contracted with a vendor for implementation of a systems integration project? ____ Y/N

IF YES, GO TO QUESTION 4a.

Why haven't you used a systems integrator?

GO TO QUESTION 5.

4a. Who was the vendor and what was the application?

4b. What is your level of satisfaction with the results of systems integration project(s)? Please rate, on a scale of 1 to 5, where 1 is dissatisfied and 5 is very satisfied.

1 2 3 4 5

5. Will your organization outsource future systems development projects to systems integrators? ____ Y/N

If no, briefly describe why not.

5a. I will read a list of reasons why organizations tell us they have used systems integrators to complete projects. Would you please rate their importance from your perspective, using a scale of 1 to 5, where 1 is unimportant and 5 is very important?

Internal resources not available	1	2	3	4	5
Specific skills not available	1	2	3	4	5
To get project completed faster	1	2	3	4	5
To fix the cost of a project	1	2	3	4	5
Other, explain _____	1	2	3	4	5
Other _____	1	2	3	4	5

5b. From your perspective, on a scale of 1 to 5 (with 1 representing unimportant and 5 representing very important), how important is it for an SI vendor to offer:

Systems operations services	1	2	3	4	5
Applications management services	1	2	3	4	5

5c. Which vendors, by name, do you think are best at providing systems integration services?

---

6. Now, looking at systems operations, has your organization contracted the management of a majority of operations for the company, a division, or a data center to an outside vendor?

____ Y/N

IF YES, GO TO QUESTION 6a.

Why haven't you used a systems operations firm?

_____

GO TO QUESTION 7.

6a. Who was the vendor? _____

6b. What is your level of satisfaction with the results of outsourcing systems operations, on a scale of 1 to 5 (1 is dissatisfied and 5 is very satisfied)?

1 2 3 4 5

6c. Who developed the majority of the software operated by the systems operations vendor?

Your organization ____
The systems operations vendor ____
A third party ____

6d. Who is responsible for managing the applications inventory in this (these) contract(s)?

Your organization ____
The systems operations vendor ____
A third party ____

7. Does your organization intend to outsource data center operations in the future?
____ Y/N

If no, briefly describe why not.

_____

_____

7a. I will read a list of reasons why organizations tell us they have outsourced systems operations. From your perspective, would you please rate their importance as reasons to outsource operations? Use a scale of 1 to 5 (with 1 representing unimportant and 5 represents very important).

Better or more flexible service	1	2	3	4	5
Lower operating expenses	1	2	3	4	5
Lack of operating skills	1	2	3	4	5
Lack of capital	1	2	3	4	5
Other, explain _____	1	2	3	4	5

7b. On a scale of 1 to 5, with one representing unimportant and 5 representing very important, how important is it for an SO vendor to also offer?

Application management services	1	2	3	4	5
Systems integration services	1	2	3	4	5

7c. Which vendors, by name, do you think are best at providing systems operations services?

_____

_____

8. Shifting gears again, has your organization contracted with an outside vendor to perform any of your applications management workload? ____ Y/N

IF YES, GO TO QUESTION 8a.

Why have you decided not to outsource applications management?

_____

_____

GO TO QUESTION 9.

8a. Who was the vendor? _____

8b. What percentage of your applications management workload have you outsourced? _____%

8c. Does the vendor actually manage both the technology application and user interface of a logical set of applications? ____ Y/N

IF NO, GO TO QUESTION 9.

8d. What are the two or three most important reasons for your decision to outsource applications management?

1. _____
2. _____
3. _____

8e. What is your level of satisfaction with the results of outsourcing applications management, on a scale of 1 to 5 (1 is dissatisfied and 5 is very satisfied)?

1 2 3 4 5

9. Which vendors, by name, do you think are best at providing applications management services?

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10. Approximately what percentage of your IS spending is budgeted to the three areas we have been discussing?

Computer operations (including existing data center equipment)	____%
Systems development (including new project equipment)	____%
Applications management	____%

11. Of the three services we have discussed, please rate your likelihood of using them in the future, with 1 representing unlikely and 5 representing very likely.

Systems integration	1	2	3	4	5
Systems operations	1	2	3	4	5
Applications management	1	2	3	4	5

12. Which information vendors, in your opinion, are capable of providing the full range of systems management services we have been discussing?

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13. If you were to utilize all three of the services we have discussed, would you prefer to use separate vendors for each service or a single vendor to provide all three services?

Separate vendors ____

A single vendor ____

Briefly describe why.

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14. Are there additional factors you anticipate in the next few years that will encourage or discourage systems management outsourcing?

1. _____
2. _____
3. _____
4. _____

Thank you for your participation in this study.

Please give me your title and address so that I can mail you the executive summary.
