

Market  
Analysis  
Program  
(MAP)

U.S. Systems  
 Integration  
 and Systems  
 Operations  
 Markets

1991-1996

Market Summary

**INPUT**<sup>®</sup>

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**Market Analysis Program**

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

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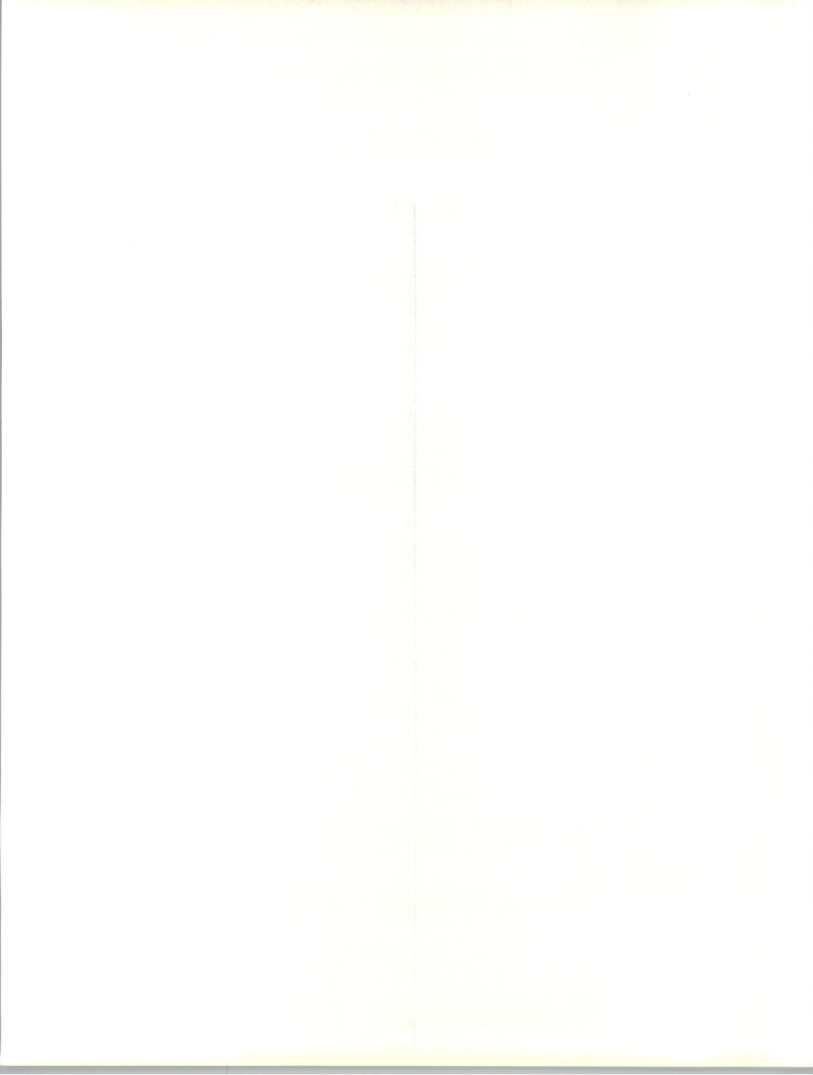
U.S. SYSTEMS INTEGRATION  
AND SYSTEMS OPERATIONS  
MARKETS  
1991-1996

MARKET SUMMARY



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# I

## Introduction

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## Introduction

This report is part of a series of market analysis reports written each year by INPUT on the key sectors (delivery modes) of the United States Information Services Market. The delivery modes analyzed during 1991 are as follows:

1. Applications software products
2. Turnkey systems
3. Processing services
4. Systems software products
5. Network services
6. Professional services
7. Systems integration
8. Systems operations

The first six delivery modes are covered in reports included as part of INPUT's Market Analysis Program, a planning service for information services vendors. The other two delivery modes are covered in market analysis reports included in INPUT's Systems Integration and Systems Operations Programs.

### A

#### Purpose and Organization of the Report

##### 1. Purpose

This report, *U.S. Systems Integration and Systems Operations Markets—1991-1996*, provides a summary of the systems integration and systems operations sectors of the U.S. information services market. The report summarizes the trends and events within these sectors to provide the reader with comprehensive foundation for understanding this market sector and anticipating future directions.

For a complete analysis of these two market sectors, see the following reports:



- *U.S. Systems Integration Market Analysis Report, 1991-1996*
- *U.S. Systems Operations Market Analysis Report, 1991-1996*

## **2. Report Organization**

This report is organized as follows:

- Chapter II, Systems Integration, summarizes the market outlook for systems integration.
- Chapter III, Systems Operations, summarizes the market outlook for systems operations.
- Chapter IV, Summary, provides a brief comparison with the other six market sectors (delivery modes) analyzed by INPUT within the U.S. Information Services Industry.
- Appendix A, Definitions, defines the terms used throughout INPUT's market analysis work.
- Appendix B, Forecast Data Base, summarizes the forecast for these market sectors and reconciles the current forecast with the 1989-1990 forecast.

## **B**

### **Scope and Methodology**

#### **1. Scope**

This report addresses the U.S. information services market for the systems integration and systems operations sectors (delivery modes). It includes user expenditures that are noncaptive (generally available to vendors). Many large organizations have portions of their information services requirements satisfied by internal divisions. The resulting expenditure is not available for competitive bid by the general vendor community and is not included in INPUT's projections. The noncaptive distinction is important and is addressed in more detail in Appendix A.

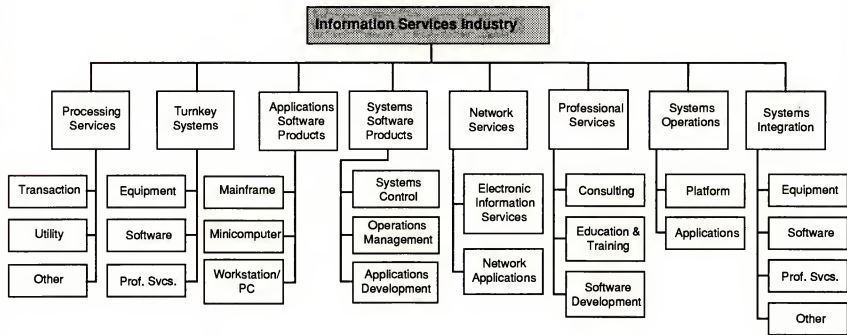
#### **a. Information Service Industry Structure**

Exhibit I-1 defines the structure of the information services industry as used by INPUT in its market analysis and forecasts. The market consists of eight delivery modes, each of which contains a number of submodes.

- INPUT develops a five-year forecast for each of the submodes listed.
- The following delivery modes are forecasted on a vertical-industry and cross-industry basis—applications software products, turnkey systems, processing services, professional services, systems integration, and systems operations.



## Information Services Industry Structure—1991



Source: INPUT



- The systems software products and network services delivery modes are forecasted for the U.S. market as a whole.

For a more complete discussion of INPUT's information services industry structure and terminology, please refer to Appendix A, *Definitions*.

#### **b. Delivery Mode Description**

Exhibits I-2 and I-3 provide definitions of these two delivery modes. Both represent the shift within the information services industry for vendors to offer greater systems management services and to assume greater risk for the services offered. Equally important, both of these delivery modes reflect the growing trend for major organizations to entrust major portions of their information systems programs to outside resources (the trend called outsourcing). Today the relationship between information services vendor and customer is multiyear and often strategic.

EXHIBIT I-2

#### **System's Integration Market Definition**

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





## EXHIBIT I-3

**Systems Operations Definitions**

- Delivery Modes
  - Platform operations—vendor operates computer system/network only
  - Application operations—vendor has responsibility for system/network and applications software

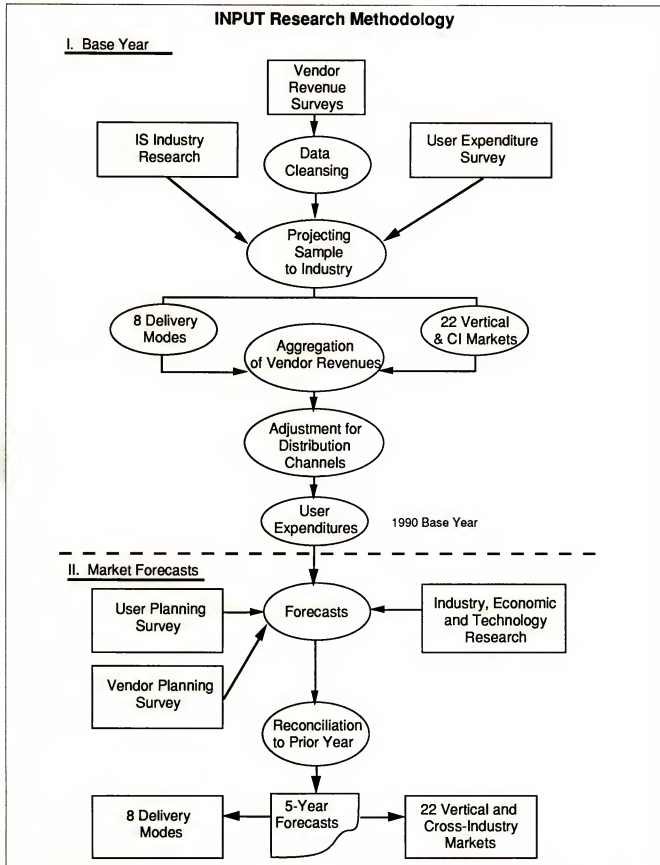
**2. Methodology**

INPUT's methodology for market analysis and forecasting is summarized in Exhibit I-4. As in past years, INPUT has continued the process of surveying information services vendors to determine their U.S. information services revenues, polling information systems organizations to determine their expenditure and outside services acquisition plans, and interviewing vendors a second time to understand their views of the market opportunities over the short and longer term.

INPUT's annual forecasting process is broken into two major parts: (1) base year expenditure calculations and (2) market forecasts. Each is briefly described below.



EXHIBIT I-4





#### **a. Base Year Expenditure Calculations**

- INPUT determines previous-year information services revenues for the eight delivery modes and 22 vertical and cross-industry sectors for hundreds of vendors. This determination is accomplished through interviews, use of public data, and INPUT estimates.
- The initial data are projected to represent the entire information services market.
- Adjustments are made to eliminate duplications from distribution channel overlap and to assure that captive information services expenditures are not included.
- The result is a base year, 1990, user expenditure for each of the 22 vertical and cross-industry sectors and the 8 delivery modes.

#### **b. Market Forecasts**

- In the forecasting step, INPUT surveys information systems executives to determine projected expenditure levels, both in aggregate and for each of the outside information services categories.
- In addition, a second set of vendor interviews is conducted later in the year to obtain an understanding of how key vendors view the market and its opportunities.
- The result is a five-year forecast for each of the 22 vertical and cross-industry sectors and the 8 delivery modes.

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

## **C**

### **Economic Assumptions**

Exhibit I-5 provides the economic assumptions used in developing 1991-1996 U.S. information services market forecasts. As with the 1990-1995 forecasts, INPUT has again used the CONSENSUS<sup>TM</sup> economic forecast published by Blue Chip Economic Indicators.

This economic forecast, when compared to that of the previous year, reflects the impacts of the late 1990 recession on the U.S. economy.



- Nominal growth and inflation in 1990 were less than forecasted, with Real GNP growth less than 1%.
- The primary effect of the recession is being felt in 1991, where Real GNP growth will be close to zero and with controlled inflation will result in a Nominal GNP growth of less than 4%, or about 1.5% less than projected one year ago.
- U.S. economic growth is projected in the CONSENSUS forecast to average about 2.5% Real GNP growth per year from 1992 through 1996 with inflation (GNP Deflator) under 4% and Nominal GNP growth averaging just above 6%.

The impact on INPUT forecasts in general is to continue the more modest growth rates forecasted in 1990 into 1991 and 1992. Though the impact varies by delivery mode, the recession is lingering into the second half of 1991 and INPUT does not see a quick recovery for information services spending.

- It is likely that most 1992 information systems budgets will be developed under the current economic pressures and will reflect spending constraints for 1992. The existence of budget constraints may slow spending increases even if recovery comes sooner.





## EXHIBIT I-5

### U.S. GNP Inflation Growth Assumptions 1990-1996 (Percent)

1990 Report Assumptions*	1990E	1991E	1992E	1993E	1994E	1995E	1996E
Nominal GNP	5.4	5.4	6.7	6.7	6.7	6.5	6.4
GNP Deflator	4.4	4.6	4.1	4.0	4.0	3.9	3.8
Real GNP	1.0	0.8	2.6	2.7	2.7	2.5	2.6
1991 Report Assumptions**	1990A	1991E	1992E	1993E	1994E	1995E	1996E
Nominal GNP	5.0	3.8	6.3	6.7	6.5	6.0	6.2
GNP Deflator	4.1	3.9	3.6	3.9	3.9	3.8	3.7
Real GNP	0.9	(0.1)	2.7	2.8	2.6	2.2	2.5

Source: CONSENSUS™ forecast, Blue Chip Economic Indicators

\* Blue Chip Economic Indicators —Vol. 15, No. 10, October 10, 1990

\*\* Blue Chip Economic Indicators —1991 and 1992 from Vol. 16, No. 7, July 10, 1991  
—1993-1996 from Vol. 16, No. 3, March 10, 1991

## D

### Related Reports

Related reports of possible interest to the reader include:

#### 1. U.S. Markets

- *U.S. Applications Solutions Market Analysis Report, 1991-1996*
- *U.S. Processing Services Market Analysis Report, 1991-1996*
- *U.S. Systems Software Products Market Analysis Report, 1991-1996*
- *U.S. Professional Services Market Analysis Report, 1991-1996*
- *U.S. Systems Integration Market Analysis Report, 1991-1996*



- *U.S. Systems Operations Market Analysis Report, 1991-1996*
- *U.S. Processing Services Market Analysis Report, 1991-1996*
- *U.S. Industry Sector Markets, 1990-1995 (15 reports on all major industry sectors, e.g., Insurance)*
- *U.S. Cross-Industry Sector Markets, 1990-1995 (7 reports on information services markets that serve all vertical-industry sectors—e.g., accounting)*

## **2. European Markets**

- *The Western European Market for Computer Software and Services, 1991-1996*
- *Systems Software Products - Western European, 1991-1996*
- *Trends in Processing Services - Western European, 1991-1996*
- *Systems Integration Market Forecast - Western European, 1991-1996*
- *Systems Operations Market Forecast - Western European, 1991-1996*
- *Western European Network Services Markets, 1991-1996*

INPUT also analyzes the European markets on a vertical basis for discrete and process manufacturing, insurance, banking and finance, and retail and wholesale distribution.





## Systems Integration







## Systems Integration

### A

#### Major Buyer Issues

U.S. businesses, more than ever, are feeling the pressure of competition from domestic and foreign companies. This pressure is forcing organizations to look closely at their core businesses to identify solutions that differentiate their products and services from the competition's. In many cases, the application of technology can make the difference in offering a superior service faster or in reducing the length of product development cycles. These new solutions are becoming increasingly complex as they change traditional business processes and serve new organizational structures that often are required to operate around the clock and throughout the world. Exhibit II-1 identifies the major buyer issues in 1991.

EXHIBIT II-1

#### **Systems Integration Major Buyer Issues—1991**

- Core business focus
- Competitive demands
- Users becoming buyers
- Increasingly complex solutions
- New technology application
- Unavailable skills





As INPUT studies information systems budgets, it has become apparent that an increasing amount of information systems expenditures are no longer controlled by internal information systems organizations. This is because user organizations are in many cases becoming the buyers of solutions and control the budgets for them. 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 application knowledge and experience in new technologies that are required for the solutions being sought.

**B****Market Forecast  
1991-1996**

During 1990 the domestic economy slowed and domestic industry spent \$533 billion for plant and equipment, an increase of 5.0% over 1989. This was less than one half of the 1988-to-1989 increase of 11%. An increase of just 2.5%, to \$533 billion, is projected for 1991. While industry will continue to invest in new capital equipment, INPUT believes that the recession will slow the number of new commercial SI projects started in 1991.

Problem-solving actions by industry to solve the problems it faced increased expenditures for commercial systems integration to \$3.8 billion in 1990, despite predictions of a lower GNP. INPUT forecasts that a still-cautious industry will selectively invest in new and expanded information systems in the near term, and that expenditures for vendor-provided SI solutions will reach \$10.5 billion in 1996. This sum represents a CAGR of 19%, down from the 23% predicted last year. Narrowing margins and reluctance to invest in new information systems solutions, and much less use of outside vendors to implement them, are expected to continue to hinder demand for systems integration. Exhibit II-2 provides the forecast for both the commercial and federal markets.

When considering the overall Commercial Systems Integration (CSI) market, several points are of particular note.

- The recession, overall economic lethargy, and financial difficulties in specific industries (manufacturing, banking, and finance in particular), have contributed to slow growth of the systems integration market over the past year.
- The length of projects has become shorter. Organizations indicate a need for short-term payback from new systems. This need has contributed to the definition of projects that are smaller, require less time to implement, and result in shorter-term paybacks.



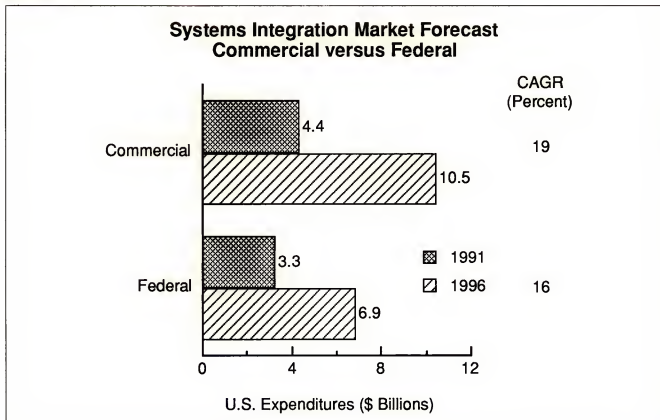
- With smaller project sizes, project values have also declined. Organizations indicate that they are spending half as much on new projects as they were two to three years ago. The reduced spending reflects keen competition for capital and the need for shorter-term investment benefits.

The net result of shifts in project size, project value, and the impact of economic pressures has been to bring the forecast for the systems integration market more in line with the overall growth of the information services industry, at least in the short term.

In the longer term, INPUT expects the systems integration market to rebound and outpace the overall market, but significant changes should not be expected until economic confidence returns and companies are more confident that they can make additional investments.

The growth in demand is focused in a few vertical industries, and is not uniformly spread across those facing increasing competition.

EXHIBIT II-2





There are several important points to note about the five-year forecast for the commercial and federal systems integration markets.

- The commercial market is expected to experience a somewhat shallow growth rate (12-13%) over the next one, perhaps two, years. Capital remains limited and there are numerous conflicting priorities.
- The commercial market is expected to rebound in the latter years of the forecast period, assuming that the economy picks up. Organizations note that there are numerous committed projects that need to be funded.
- Because of slower market growth in the 1989-to-1991 timeframe, the overall size of the market has been reduced. INPUT believes that the market size projected for 1995 will be realized in 1996.
- The federal market exhibits somewhat different characteristics. The market was previously projected to grow 15% between 1989 and 1990. The actual growth over the same period was in excess of 45%, establishing a higher base than projected.
- Growth reflects spending for projects that had been previously committed but not initiated, rather than a dramatic increase in growth rate.
- Because of the changes in the federal market, INPUT projects that the federal systems integration (FSI) market will exhibit a slow rate of growth through 1991 as agencies begin to absorb committed expenditures. Following 1991, additional new projects will be funded, contributing to a five-year growth rate of 16%.

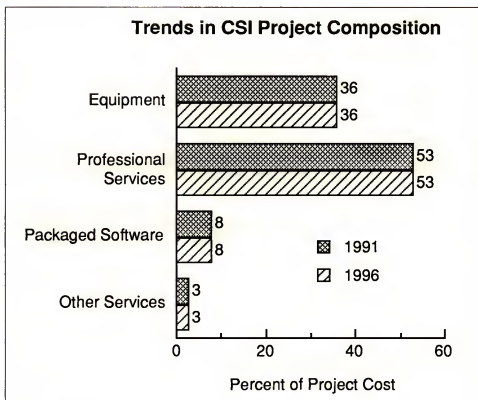
## C

### SI Projected Composition Trends

SI expenditures can be broken into four basic components: computing and telecommunications equipment, professional services, systems and applications software, and other ancillary expenditures. The distribution of these expenditures in 1991 and 1996 is in Exhibit II-3.



EXHIBIT II-3



Earlier forecasts projected that expenditures for equipment would decline as a percent of the total, and they have, but the decline appears to be bottoming out. Analysis of hardware expenditures indicates that price declines are being more than offset by increases in the acquisition of client/server equipment and networks that integrate the delivery of information throughout the organization.

Of particular note is the somewhat higher rate of growth for consulting and design/integration services (20%), as compared to the overall industry growth rate of 19%. Organizations in nearly all industries note a need to better understand the relationship between integrated systems and integrated business operations. This need results in greater expenditures for consulting and design/integration.

## D

### Forecast by Industry Sector

Discrete manufacturing was the largest market for systems integration in 1990 and will continue to be throughout the forecast period. The key business functions continue to be streamlining and integrating the entire product development, manufacturing, and distribution processes. This is a massive undertaking for most companies but is essential to retain competitiveness and market share.





## EXHIBIT II-4

### Systems Integration Forecast by Industry Sector

Sector	\$ Billions		CAGR (Percent)
	1991	1996	
Discrete Manufacturing	1.1	3.0	22
State and Local Governments	.64	1.61	21
Utilities	.51	.92	12
Banking and Finance	.40	1.0	20

State and local governments will be the second largest SI market over the forecast period. These organizations have many of the same problems as the federal government, and provide integrators with an opportunity to replicate a solution over a sizeable number of governments.

The third largest CSI market is utilities. This industry has a special set of applications, generation plant, and network management systems that provide opportunities for a number of industry-focused vendors. Although utilities' growth rate is relatively slow (a CAGR of 12%), it will continue to provide opportunities over the five-year forecast period, but will slip from third to fourth in size by 1996.

The fourth largest CSI market in 1990 is banking and finance, and it will be third largest in 1996. This sector will continue to recover from the impacts of deregulation, the thrift crises, and from lower brokerage volume. There will still be a need for integration of a number of individual services into systems that include all of a customer's activities with the institution. However, the growth of these opportunities (CAGR of 20%) will be slower than forecasted in 1990 (CAGR of 30%).

## E

#### Vendor Goals and Objectives

Most of the vendor goals and objectives identified in Exhibit II-5 are market driven. Systems integration is a very 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 U.S. industry. Vendors that do not have access to this channel fear that they will lose market share and control of their existing customers.



## EXHIBIT II-5

**Systems Integration  
Vendor Goals and Objectives**

- Long-term account control
- Decentralized services
- Full-service image and offerings
- Industry knowledge and skills
- Market coverage
- Proprietary products and methodologies
- Market participation

The information industry has evolved from a product to a services orientation and from an environment where the customer was totally responsible for implementation to one where vendors are assuming responsibility. Customers are seeking one-stop shopping and vendors are striving to add additional products and services so as to become full-service providers. User organizations are clearly looking outside for a single point of responsibility.

Product and service providers are adding front-end consulting and back-end operations. Some are seeking to achieve these goals by building from within or by making acquisitions, and others look to alliances to provide this full-service image. In 1990 there was a recognition that these services needed to be located physically close to the customer. So a number of vendors abandoned centralized SI organizations and moved SI resources into field organizations.

Vendors recognize the importance of understanding the client's business, particularly in an environment where long-term relationships are important. To achieve this goal, vendors are making significant investments in industry architectures and solutions, hiring industry experts, and establishing alliances with consulting firms or professional services firms that already have industry expertise.



The larger vendors that already have product industry coverage have established goals to improve SI vertical-industry coverage to protect existing customer relationships. Smaller vendors are honing niche skills and gaining market coverage through alliances with the larger vendors that seek vertical-industry skills.

Vendors are building and marketing proprietary products and methodologies. Solid methodologies for requirements analysis, systems design, program management, and integration and implementation improve the odds for program success and reduce the risk of catastrophic failure. These methodologies also build a record of success that can be used for reference selling. Framework products continue to be developed that can be tailored to satisfy a client's specific business needs.

Finally, a growing number of secondary vendors are seeking participation in the market. Many have products that were previously sold as standalone systems but are now candidates for integration into larger solutions. These products include basic computing equipment as well as robots, warehouse storage and retrieval systems, on-board computers, and a variety of communications products. Other vendors seeking SI participation include companies that have developed solutions internally and want to market these skills to others in their industry.

## F

### Vendor Market Share, 1990

Exhibit II-6 shows market shares of the top five vendors in 1990.

IBM was the leader in the commercial and government sectors of systems integration in 1990. IBM has increased its focus on the SI market with the formation of the Applications Systems line of business. This organization goes beyond systems integration and is focused at providing a full range of solutions—from packaged application software to large, tailored integrated solutions. During 1990, IBM moved its tactical commercial SI resources from its former Systems Integration Division directly into the field marketing organization and thus closer to the customer.

Andersen Consulting, little known in the information services industry just a few years ago, continues to demonstrate dramatic growth in the SI market. Ranked third in 1989, Andersen moved to second in 1990, based almost entirely on commercial SI revenues, where it is now the revenue leader. Andersen has followed a long-term strategy that focuses on its clients' entire business processes. It starts with business consulting to assist in client management of change in organization and business processes, flows into implementation, and in some cases continues with a long-term systems operations contract. Andersen is vertical-industry-oriented and has skills, technology, and/or demonstration centers and software products to address most industries.



## EXHIBIT II-6

### Systems Integration Vendor Market Share, 1990

Vendor	Revenue (\$ Millions)	Percent
IBM	1,280	17
Andersen Consulting	686 (1)	10
EDS	644 (2)	9
DEC	525	8
CSC	441	6

1. Excludes equipment revenues
2. Non-GM business

EDS is the leading processing services/SI vendor, runs second in SI revenues to IBM in the federal sector, and is third overall. One of EDS' strengths is familiarity with vertical markets based on experience in remote data processing and/or systems operations (facilities management) in most industry sectors.

EDS also benefits from the manufacturing industry and telecommunications experience of its parent. Systems integration is an excellent vehicle for EDS to protect existing systems operations customers and develop new ones. Strong project management and risk management practices have made EDS an aggressive competitor. A major reorganization in 1989 focused on continual and aggressive vertical-market penetration.

CSC made its SI mark in the government sector (state and federal) by employing its extensive experience as a full-service vendor to win contracts. This firm is third in the federal sector and a frequent competitor of EDS. CSC also has broad commercial SI experience and has enlarged this business through an aggressive acquisition program.

Digital Equipment's (DEC) ranking has jumped significantly over the past year, resulting in DEC replacing Unisys in the top-five vendor ranking. Over the past year, DEC has made significant strides in unifying its systems integration business. An estimated 90% of DEC's revenues are from the commercial market. A significant portion is in the manufacturing sector, where DEC has established a strong foothold from its equipment business.





**G****Recommendations**

Systems integration is one of the services that clients seek as they continue to move toward a broad range of outsourcing alternatives. Clients want services that range from front-end consulting, through SI, to systems operations. INPUT believes that commercial businesses and public-sector organizations will continue to choose vendors that can offer the full range of these services. Equally important is the notion that once a vendor is selected to do the front-end consulting, it is in a favored position to win the systems integration and even systems operations contracts. Vendors should strive to present this full-service image, as indicated in Exhibit II-7.

EXHIBIT II-7

**Systems Integration  
Recommendations**

- Present full-service image
- Leverage unique capabilities and products
- Establish strategic partnerships (alliances)
- Manage risk containment (program managers)
- Develop focused market strategies

Vendors should assess their current skills and capabilities and build strategies that use both effectively. SI includes too much risk to attempt to provide broad industry coverage if the vendor does not have the necessary skills or experience.

SI is a very complex business. Few vendors have all of the products, skills, and capabilities to satisfy the complete requirements of systems integration programs. Teaming, program partners, and alliances are common approaches to a client's integration requirements. Vendors must establish a set of relationships and alliances for long-term success in this market. Partners should be selected carefully and the resulting alliances managed thoughtfully.

Systems integration is a big-stakes game, with great potential for success and failure. Some clients are aware of the gamble and will give higher rewards to the vendor that can demonstrate a good track record of risk management and containment. Vendors must have trained and qualified program managers.



Success and customer acceptance is based on confidence in the vendor's track record in providing solutions for the customer's industry. Therefore, to be successful, vendors must develop focused strategies for each market.









## Systems Operations









## Systems Operations

### A

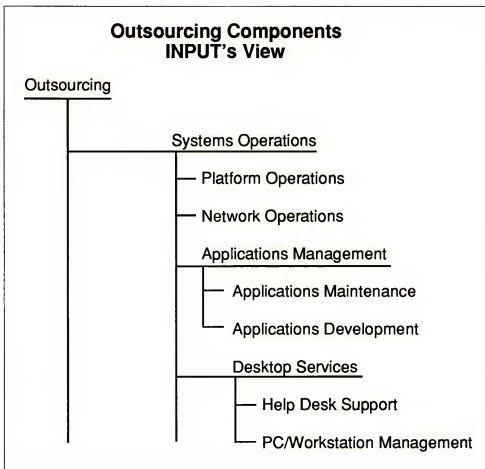
#### Outsourcing/ Systems Operations

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

All of the elements in the outsourcing category represent functions or processes that are performed, rather than projects that are accomplished. Platform operations and network operations are obviously functions upon which an organization depends for its survival. In the same vein, the maintenance and/or management of an organization's applications software is a function crucial to the successful accomplishment of its mission. Applications management can include applications development and/or applications maintenance. Finally, desktop services—which include such functions as the user help desk and the maintenance of workstations and PCs in the user environment—represent another function crucial to the daily operational efficiency of an organization.



EXHIBIT III-1

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

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

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

The market in which firms are operating continues to be extremely competitive as the shrinking consumer dollar must be courted by more firms, both domestic and foreign. Companies must serve their customers better and, in turn, they must get high-quality service from their IS departments.



Many companies are becoming convinced that outside vendors can provide a higher level of service than their own internal organizations. They often feel they have more leverage over a vendor's resources than over their own.

## EXHIBIT III-2

**Systems Operations  
Major Buyer Issues—1991**

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

Constantly changing technology breeds two problems for the user community: not only is senior management finding it difficult to understand the new technology, but it is also finding it increasingly difficult to recruit staffs that can apply the new technology to meet competitive needs.

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

One major concern still troubles companies considering outsourcing. Many feel there is no turning back once they have turned their IS operations over to a vendor. They are probably right if they have not carefully planned to create a return path from the vendor. As the relationship between the vendor and the user organization gets more firmly established, the user becomes less capable of reassuming responsibility for IS operations. This is not necessarily bad, but the user must be aware that this is the route taken.

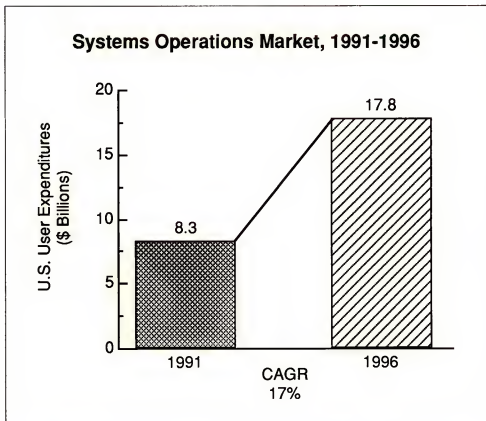


## C

Market Forecast,  
1991-1996

INPUT projects that user expenditures for systems operations will be \$8.3 billion for 1991 for the combined commercial and federal markets. Growing at a compound annual growth rate of 17%, these expenditures will reach \$17.8 billion in 1996, as illustrated in Exhibit III-3. This represents a slight increase in the growth rate over that reported last year and reflects the continued health of the market, increasing acceptance of the outsourcing option as a viable one, and improving economic conditions in the later years of the forecast.

EXHIBIT III-3



There continue to be major differences between conditions in the federal government and commercial markets. In the federal market, the emphasis on budget constraints and the recurring federal budget deficit are the overriding considerations. Defense budgets are being cut drastically, leading to consolidation of a number of information systems by the Pentagon. Federal government IS expenditures for 1991 are expected to be \$1.7 billion, growing to \$2.6 billion in 1996, for a compound annual growth rate of 9%—slightly lower than the 10% CAGR predicted last year.





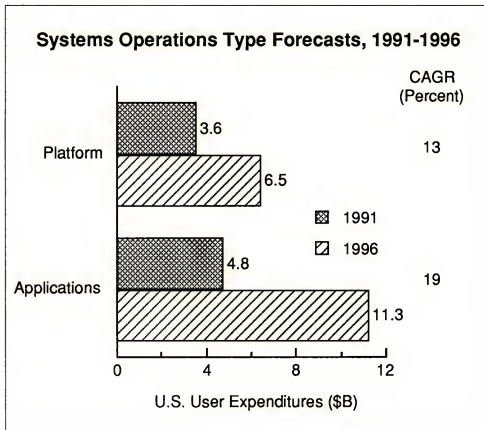
Interest in systems operations continues to increase in the commercial market, resulting in a compound annual growth of 18% for the period from 1991 to 1996—a slight increase over the 17% forecast last year by INPUT. Systems operations expenditures by commercial enterprises in 1991 are expected to be \$6.6 billion, growing to \$15.2 billion in 1996.

## D

### Systems Operations Components Forecast

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

EXHIBIT III-4





INPUT projects that applications systems operations, already the dominant mode, will grow at a compound annual growth rate of 19% through the period. Expenditures will grow from \$4.8 billion in 1991 to \$11.3 billion in 1996. Platform operations expenditures will grow from \$3.6 billion to \$6.5 billion in the same period, at a CAGR of 13%. The difference reflects the client community's greater acceptance of the concept of total systems management by vendors.

## E

### Forecast of Key Vertical Industry Sectors

Annual expenditures for systems operations services from 1991 to 1996 for the four leading industry market sectors are included in the table in Exhibit III-5. The industries are ranked based on projected 1996 user expenditures.

EXHIBIT III-5

#### Systems Operations Leading Vertical Industry Markets, 1991-1996

Industry	User Expenditures (\$ Billions)		CAGR (Percent)
	1991	1996	
Banking/Finance	2.0	4.7	18
Federal Government	1.7	2.6	9
State/Local Government	1.1	2.4	18
Health Services	0.9	2.0	18
Total	5.7	11.7	15

Ranked by 1996 user expenditures

As seen in the exhibit, the top four industries—banking and finance, federal government, state and local government, and health services—represent 67% of the expenditures in 1991 and 66% in 1996.



**F****Vendor Market Share, 1990**

Exhibit III-6 lists the leading systems operations vendors in 1990 based on reported annual revenues.

## EXHIBIT III-6

**Leading Systems Operations Vendors  
1990**

Vendor	Market Share (Percent)
EDS	14
CSC	6
Systematics	3
IBM	3
ACS	2
SMS	2
SIAC*	2

\*Securities Industries Automation Corporation

This year IBM appears on the list for the first time. The restructuring of its SO efforts into the ISSC subsidiary has resulted in new revenue, plus a redistribution of revenues that were counted in other revenue categories.

CSC obtained most of its revenues from the federal market, but its recent win of the General Dynamics contract will change that next year. However, EDS is still more widely dispersed across various vertical industries. The other firms in the list specialize in three or fewer industries and have demonstrated strength within their markets.



**G****Client Selection Process**

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

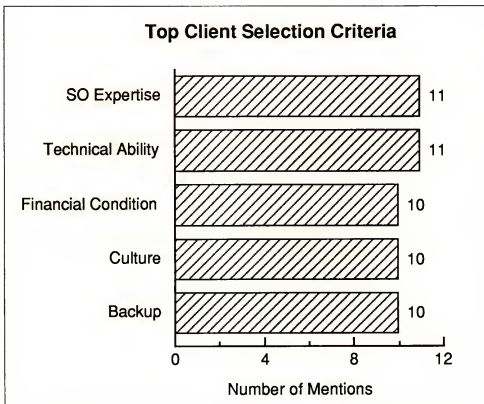
Fifty percent (50%) of the prospects interviewed by INPUT prepared a formal solicitation document. The prospect's purpose is to provide vendors with common data upon which to base their proposals.

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

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

Certain vendor capabilities repeatedly appeared on selection criteria. Exhibit III-7 presents the data on the number of times the major evaluation criteria were mentioned by the respondents to an earlier INPUT study.

EXHIBIT III-7







The most frequently mentioned items were the related criteria, systems operations experience and technical ability. Note that experience was defined as prior systems operations experience. Buyers wanted to entrust their data processing centers to experienced hands, not to new players in the game.

The next most frequently mentioned items included the financial stability of the prospective vendor. Buyers are looking for some assurance that the selected vendor will be a viable provider for the long term. For that reason they weigh the financial condition of the vendor heavily as an important characteristic.

Several other selection criteria were less frequently mentioned by respondents to INPUT's user survey. A more thorough discussion of these less important items can be found in INPUT's report, *Systems Operations Buyer Issues and Alternatives*.

## H

### Recommendations

The set of recommendations presented in Exhibit III-8 is derived from the analysis of the market this study represents.

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

EXHIBIT III-8

### Systems Operations Recommendations

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



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

- Select prospects carefully. Capitalize on existing knowledge and relationships in the target industry.
- Enhance credibility by demonstrating prior success, either with that prospect or within the prospect's industry.
- Capitalize on long-term pre-existing relationships with the prospect, who feels that such a relationship is, indeed, the best choice for him.
- Establish strong alliances with partners that can supplement industry expertise and provide additional cost-effective resources.
- Understand that the vendor will need to assume some financial risk, usually involving a capital investment or assumption of some of the client's assets.
- Develop contractual terms that protect against undue risk for both parties.

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

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

Vendors that successfully master the development of partnerships will be the major systems operations/outsourcing vendors that benefit most from this expanding market segment.



# IV

## Summary

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## Summary

Systems integration, systems operations, and network services represent the three fastest growing sectors in the U.S. information services industry. Exhibit IV-1 positions these three markets against the five other markets used by INPUT to define this industry.

EXHIBIT IV-1

### U.S. Information Services Industry Market Comparison

Market Sector	1991 Forecasted User Expenditures (\$ Billions)	1991-1996 CAGR (Percent)
Processing services	18.3	8
Turnkey systems	11.5	9
Application software products	19.8	14
Systems operations	8.3	17
Systems integration	7.8	18
Professional services	17.8	9
Network services	9.4	17
Systems software products	18.1	12
Total information services market	111.0	12





Both systems integration and systems operations reflect two significant trends within the information systems industry.

- First, the pressure on the information systems organization to provide increased value at a quicker pace through the deployment of information technology
- Second, the willingness for today's information services vendor to assume greater management responsibility and business risk in providing services and products

The overall trend to outsource major information technology projects and the operation of an organization's data center and information network reflects a maturing of the information systems process and industry. Over the next five to ten years, these two types of services are expected to continue to grow at a rate greater than that for the overall industry. The leading vendors will continue to accept increasing breadth of responsibility as both the information systems function and senior management in general look to them to speed the return on the investment in information technology.



# Appendixes







## Definitions

No industry-specific definitions are used in this report.

See the separate volume, INPUT's *Definition of Terms*, for general definitions of industry structure and delivery modes used throughout INPUT reports.









B

## Forecast Data Base

A

## Systems Integration

EXHIBIT B-1

**Systems Integration  
User Expenditure Forecast by Market Sector  
1990-1996**

Market Sectors	1990 (\$M)	Growth 90-91 (%)	1991 (\$M)	1992 (\$M)	1993 (\$M)	1994 (\$M)	1995 (\$M)	1996 (\$M)	CAGR 91-96 (%)
<b>Delivery Mode Total</b>	<b>6,884</b>	<b>12</b>	<b>7,685</b>	<b>9,060</b>	<b>10,682</b>	<b>12,658</b>	<b>14,735</b>	<b>17,397</b>	<b>18</b>
<i>Vertical-Industry Markets</i>	6,884	12	7,685	9,060	10,682	12,658	14,735	17,397	18
Discrete Manufacturing	943	20	1,136	1,406	1,744	2,126	2,552	3,042	22
Process Manufacturing	152	12	170	192	225	270	324	391	18
Transportation	146	12	164	191	220	277	336	412	20
Utilities	467	10	512	572	658	741	819	914	12
Telecommunications	180	12	201	231	279	336	406	488	19
Retail Distribution	224	22	273	322	380	465	576	704	21
Wholesale Distribution	138	13	156	180	213	247	286	331	16
Banking and Finance	354	14	404	470	548	651	799	1,022	20
Insurance	186	13	210	239	277	320	392	481	18
Medical/Health Services	224	10	247	277	309	339	375	419	11
Education	81	12	91	106	121	140	166	200	17
Business Services	127	21	152	188	235	307	356	438	24
Federal Government	3,103	7	3,322	3,916	4,522	5,308	5,987	6,897	16
State and Local Government	554	21	640	764	936	1,123	1,350	1,644	21
Miscellaneous Industries	6	0	6	6	7	8	11	14	18

Numbers may not add due to rounding.



EXHIBIT B-2

**1991 MAP Data Base Reconciliation  
Systems Integration Market**

Industry Sector	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) (\$M)	1991 Report (Actual) (\$M)	Variance from 1990 Report		1990 Report (Fcst) (\$M)	1991 Report (Fcst) (\$M)	Variance from 1990 Report			
			(\$M)	(%)			(\$M)	(%)		
Discrete Manufacturing	976	943	-33	-3	2,933	2,552	-381	-13	25	22
Process Manufacturing	158	152	-6	-4	412	324	-88	-21	21	18
Transportation	157	146	-11	-7	371	336	-35	-9	19	20
Utilities	469	467	-2	0	924	819	-105	-11	15	12
Telecommunications	183	180	-3	-2	481	406	-75	-16	21	19
Retail Distribution	241	224	-17	-7	830	576	-254	-30	28	21
Wholesale Distribution	140	138	-2	-1	277	286	9	-3	15	16
Banking and Finance	369	354	-15	-15	1,280	799	-481	-38	28	20
Insurance	198	186	-12	-6	615	392	-223	-36	25	18
Health Services	231	224	-7	-3	427	375	-52	-12	13	11
Education	82	81	-1	-1	188	166	-22	-12	18	17
State and Local Gov't.	576	554	-22	-4	1,642	1,350	-292	-18	23	21
Federal Government	2,493	3,103	610	24	4,573	5,987	1,414	31	13	16
Business Services/ Miscellaneous Industries	135	132	-3	-2	427	367	-60	-14	26	24
<b>Total</b>	<b>6,408</b>	<b>6,884</b>	<b>476</b>	<b>7</b>	<b>15,380</b>	<b>14,735</b>	<b>-645</b>	<b>-4</b>	<b>19</b>	<b>18</b>



## B

## Systems Operations

## EXHIBIT B-3

### Systems Operations User Expenditure Forecast Total, 1990-1996

Industry Sector	1990 (\$M)	Growth 90-91 (%)	1991 (\$M)	1992 (\$M)	1993 (\$M)	1994 (\$M)	1995 (\$M)	1996 (\$M)	CAGR 91-96 (%)
Discrete Manufacturing	486	18	574	688	828	989	1,175	1,400	20
Process Manufacturing	395	18	466	559	674	807	960	1,146	20
Transportation	124	20	148	181	226	269	318	377	20
Utilities	25	14	28	32	38	43	47	55	17
Telecommunications	64	15	74	84	102	126	147	175	19
Wholesale Distribution	66	19	79	94	111	131	154	181	18
Retail Distribution	150	22	182	227	285	360	446	552	25
Banking/Finance	1,761	16	2,046	2,419	2,861	3,367	3,970	4,659	18
Insurance	778	16	902	1,038	1,227	1,416	1,632	1,885	16
Health Services	753	15	866	1,024	1,212	1,429	1,682	1,986	18
Business Services	80	22	97	119	144	177	216	261	22
Federal Government	1,546	9	1,686	1,837	2,002	2,182	2,379	2,593	9
State/Local Government	921	14	1,052	1,242	1,471	1,727	2,017	2,358	18
Education	73	14	83	95	107	120	136	155	13
Miscellaneous	15	15	17	20	23	26	30	35	15
<b>Total</b>	<b>7,237</b>	<b>15</b>	<b>8,300</b>	<b>9,659</b>	<b>11,311</b>	<b>13,169</b>	<b>15,309</b>	<b>17,818</b>	<b>17</b>



EXHIBIT B-4

### 1991 MAP Data Base Reconciliation Systems Operations Market

Delivery Mode	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) (\$M)	1991 Report (Actual) (\$M)	Variance from 1990 Report		1990 Report (Fcst) (\$M)	1991 Report (Fcst) (\$M)	Variance from 1990 Report			
			(\$M)	(%)			(\$M)	(%)		
Discrete Manufacturing	482	486	+4	+1	1,330	1,175	-155	-12	22	20
Process Manufacturing	521	395	-126	-24	1,113	960	-153	-14	16	20
Transportation	51	124	+73	+143	106	318	+212	+200	16	20
Utilities	45	25	-20	-44	90	47	-43	-47	15	14
Telecommunications	65	64	-1	0	134	147	+13	+11	16	19
Wholesale Distribution	92	66	-26	-28	216	154	-62	-29	19	18
Retail Distribution	76	150	+74	+97	222	446	+224	+100	24	25
Banking/Finance	1,931	1,761	-170	-9	4,057	3,970	-87	-2	16	18
Insurance	801	778	-23	-3	1,301	1,632	+331	+25	10	16
Health Services	833	753	-80	-10	1,825	1,682	-143	-8	17	18
Business Services	42	80	+38	+90	108	216	+108	+100	18	22
Federal Government	1,271	1,546	+275	+22	2,090	2,379	+289	+14	10	9
State/Local Government	956	921	-35	-4	2,495	2,017	-478	-19	21	18
Education	94	73	-21	-22	165	136	-29	-17	14	13
Miscellaneous	0	15	+15	N/A	0	30	+30	N/A	N/A	15
<b>Total</b>	<b>7,260</b>	<b>7,237</b>	<b>-23</b>	<b>-3</b>	<b>15,252</b>	<b>15,309</b>	<b>+57</b>	<b>+3</b>	<b>16</b>	<b>17</b>





# About INPUT

INPUT provides planning information, analysis, and recommendations for the information technology industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions.

Subscription services, proprietary research/consulting, merger/acquisition assistance, and multiclient studies are provided to users and vendors of information systems and services. INPUT specializes in the software and services industry which includes software products, systems operations, processing services, network services, systems integration, professional services, turnkey systems, and customer services. Particular areas of expertise include CASE analysis, information systems planning, and outsourcing.

Many of INPUT's professional staff members have more than 20 years' experience in their areas of specialization. Most have held senior management positions in operations, marketing, or planning. This expertise enables INPUT to supply practical solutions to complex business problems.

Formed as a privately held corporation in 1974, INPUT has become a leading international research and consulting firm. Clients include more than 100 of the world's largest and most technically advanced companies.

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