Market Analysis
Program (MAP)

# U.S. Information Services Industry 1991-1996

## Executive Overview

INPUT®

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JANUARY 1992

# U.S. INFORMATION SERVICES INDUSTRY

# 1991-1996

# EXECUTIVE OVERVIEW

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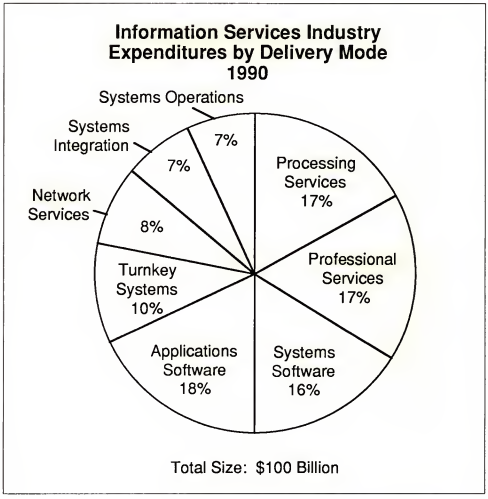
# Market Overview

I

# Market Overview

In 1990, overall United States information services user expenditures reached $100 billion, as INPUT had projected. Growth during 1990 was 11%, increasing from the $90 billion level in 1989. Exhibit I-1 shows the distribution of 1990 expenditures by delivery mode. The two software products sectors total 34% of the market, whereas processing services plus systems operations total 24%, and professional services plus systems integration represent another 24% of the industry.

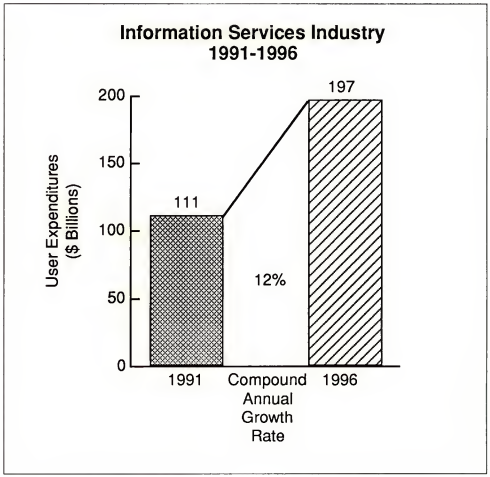
EXHIBIT I-1



In 1990 INPUT created a new delivery mode—systems operations—by combining the systems operations (facilities management) submodes from processing services and professional services. This delivery mode is the focal point of the major outsourcing trend tracked by INPUT for the past two years and will be a continued focus of INPUT's 1992 Outsourcing and Market Analysis Programs.

The growth rate during 1991 is anticipated to have been 11%, with expenditures reaching $111 billion. This rate represents the second year of much more modest growth for the U.S. information services industry. For the five-year forecast period, INPUT projects a 12% compound annual growth rate (CAGR), resulting in a $197 billion market in 1996, as shown in Exhibit I-2. This CAGR is down from the 13% forecasted for the 1990-1995 period one year ago and is down from a 15% five-year CAGR forecasted in 1989.

EXHIBIT I-2

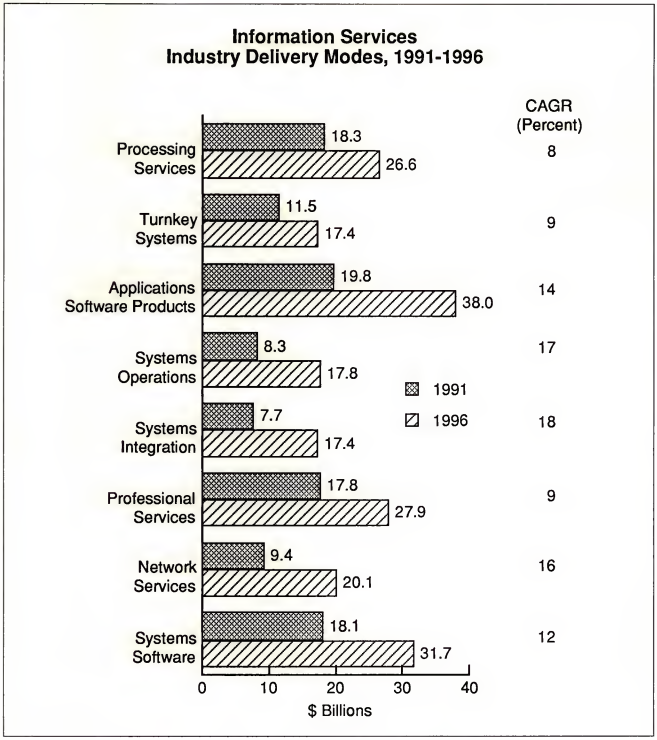


The revision in the five-year forecast reflects a downward revision in growth expectations for the information services industry. Chapter II discusses the factors behind this slowdown, including the economic environment.

The size and growth rates of the eight delivery modes tracked by INPUT are shown in Exhibit I-3. Systems operations, systems integration, and network services reflect the highest CAGRs for the 1991-1996 period. The growth rate projections are lower than last year's projections for all delivery modes except systems operations where the growth rate increased from 16% to 17%.

Overall, the information services industry remains stable and is growing much faster than the U.S. economy as a whole. However, the rate of growth continues to experience decline, and—as Chapter II discusses—there are a number of factors impacting the industry in addition to the economy. Opportunities remain numerous, but a number of underlying revolutions are causing significant disruption.

EXHIBIT I-3



# Information Services Environment

II

# Information Services Environment

## A
## Primary Industry Forces

The primary forces impacting the information services market in the early 1990s are listed in Exhibit II-1.

EXHIBIT II-1

**Primary Forces**
**1991-1996**

- Weak economy
- Market size—$100 billion
- Increasing influence of large vendors
- Downsizing—shifting technology foundation
- The changing buyer
- Outsourcing—users making larger decisions
- The standards process

The economic slowdown and recession of 1990 and 1991 have caused a significant decrease in the year-to-year growth rates for the information services industry. Rates have decreased from typical annual rates of over 15% to just over 10% growth in 1991.

- The information services industry is still growing much faster than the overall economy, but the exciting growth of the 1980s is not expected in the near term.

- When the economy recovers in 1992 or beyond, the information services industry will see some improvement, but will not experience the quick recovery that followed prior recessions.

The market has reached some level of maturity, with $100 billion in expenditures in 1990 and a projected market size of $111 billion in 1991. An industry of this size finds it harder to grow, but also benefits from increased stability in downturns.

The largest vendors continue to increase in size at least as quickly as the industry grows. Through acquisition and merger as well as true revenue growth, the larger vendors are increasing their dominance. This dominance results in slower change within the industry as the smaller, more nimble vendors are absorbed. And in the information services industry, slower change tends to correlate with slower growth.

- The recent and continuing efforts by IBM to find a new organizational formula for growth exemplify this belief.

- Slower growth by Andersen Consulting and other large services firms in 1991 is a further measure of the challenge. Firms may grow faster than the overall industry, but not without some difficulty and retrenchment or acquisition activity.

Exhibit II-2 lists the leading vendors and their 1990 market share.

The newest major force in the information technology area is downsizing. Downsizing has numerous meanings, but in general relates to a fundamental shift within the information technology foundation from very singular large processing capability to distributed but integrated processors of all sizes. The more correct description for this trend may be rightsizing.

- In the immediate term, the apparent benefits of downsizing are very attractive and are causing many information systems organizations to rethink overall IT strategies. But gaining full benefit can require major re-engineering of key application systems and their underlying data bases, which takes time and resources in a period of economic recession.

- Over the next five years, INPUT believes that downsizing—or rightsizing—will become a revolution within the IT arena and cause major changes in the information systems function and process, as well as the information software and services industry.

EXHIBIT II-2

**Selected Leading Information Services Vendors, 1990**

| Vendor | 1990 U.S. Revenues ($ Billions) | Market Share (Percent) |
|---|---|---|
| IBM | 5.8 | 6 |
| EDS* | 2.4 | 2 |
| ADP | 1.7 | 2 |
| Computer Sciences | 1.5 | 2 |
| Digital Equipment | 1.3 | 1 |
| Andersen Consulting | 1.2 | 1 |
| Unisys | 0.9 | 1 |
| First Financial Mgmt. | 0.9 | 1 |
| Microsoft | 0.8 | 1 |
| Computer Associates | 0.7 | 1 |
| American Express ISC | 0.7 | 1 |
| PRC | 0.7 | 1 |
| Total | 18.6 | 20 |

* Excluding GM

- Refer to the recently completed INPUT report, *Putting Downsizing in Perspective*, for an in-depth assessment of the downsizing revolution.

Throughout the 1980s, business managers at all levels became more involved in the information systems processes of their organizations—first as users of fourth-generation languages, then of personal computers, and finally of LANs, relational data bases, etc. At the same time, information systems became more essential in tying the organization together. A direct result—which will have significant impact in the early 1990s—is general management is now deeply involved in major information systems decisions. General management often totally controls the budget decision.

- For the using organization this control means that the information systems executive is more defensive and more fully drawn into the operation, thus the decision criteria changes.

- For the information services vendor this control means there are often two buyers with different priorities and needs. The selling process may be harder and more complex.

- In the 1990s, INPUT believes the buyer of information technology and services will become—to a major degree—the true end user, not the traditional information systems manager of the 1970s and 1980s.

The end of the 1980s saw the beginning of a major shift in the information services market—the movement to outsourcing. Information services and products have always been outsourced, but the degree or breadth of many outsourcing decisions and the amount of risk that the vendor was willing to accept were different.

INPUT recorded these shifts with the definition of two new delivery modes—systems integration and systems operations—over the past three years. These two delivery modes are now the fastest growing delivery modes (17% CAGR for systems operations and 18% CAGR for systems integration). Together they comprise 15% of the information services market and their share will increase throughout the 1990s.

- The movement toward outsourcing offers major opportunities to the aggressive and larger vendors and signals a need for major changes in the strategies of information services vendors of all sizes.

- Outsourcing also creates significant new challenges for information services vendors. A true outsourcing relationship increases the business risk assumed by the vendor, broadens the level of responsibility assumed and the skills required by the vendor, and typically shifts the financial relationship toward a fixed-price structure.

Outsourcing will be the fastest growing sector of the market for the next five years. Buyers and vendors have much to learn about how this type of relationship evolves and brings financial benefit to both organizations.

In the late 1980s and to date in the 1990s, the standards process has had major impact on the information services industry. Although most of the impacts are beneficial to users, INPUT believes that these impacts currently negatively affect growth within the industry.

- Usually progress in standards is slow and causes a wait-and-see attitude among users or buyers. The benefits are attractive and appear worth waiting for.

- The current open systems phenomenon has both crystallized and confused the impacts of standards. Promises of true interoperability and all that it implies suggest there is great value in an open systems-based IT strategy, but the technology is not really available. The result is a slowdown in long-range IT decisions and an inclination to make current, short-range IT decisions.

- INPUT believes that by the middle of the decade (perhaps as early as 1993) the impacts of the standards process on industry growth will be much more favorable.

## B
## Industry Sector Markets

The 15 industry market sectors are displayed in Exhibit II-3.

Banking and finance, historically the largest sector, has experienced perhaps the greatest impacts of the current economic slowdown as well as most of the other primary forces affecting the information services industry. Banking is now the primary market for outsourcing services, but overall the projected growth is just 11% CAGR over the next five years and may decline further,

The two manufacturing sectors continue to provide growth levels at or above the industry average.

Industries expected to experience below industry-average growth over the next five years are transportation, business services, education, miscellaneous industries, and banking and finance.

Above industry-average growth is projected for telecommunications, state and local government, and the retail distribution industry.

The information services industry has always contained significant opportunities at the vertical-industry level. INPUT believes opportunities will increase in importance throughout the 1990s as organizations seek ever more specialized applications solutions.

During 1991 INPUT began to analyze the U.S. information services industry on a regional basis. Early studies have confirmed that there are significant variations in markets across the U.S. and within vertical-industry sectors in different parts of the U.S.

EXHIBIT II-3

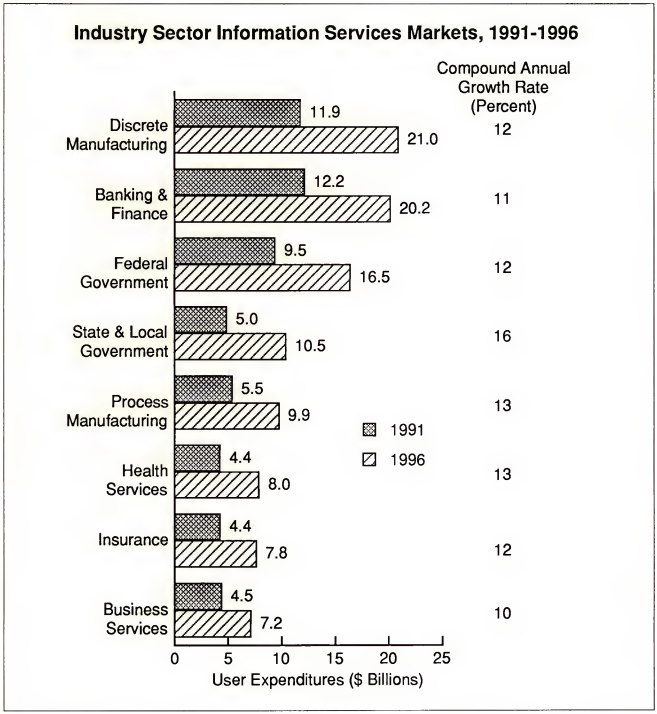
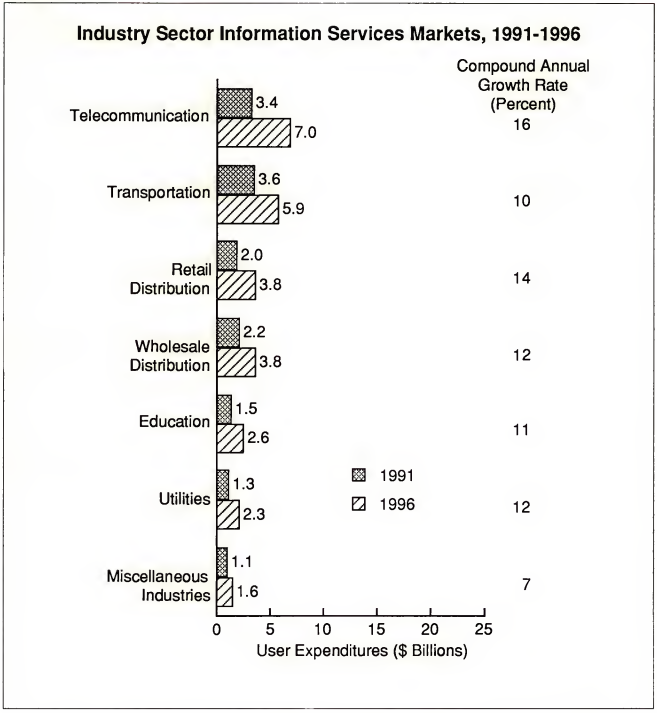


EXHIBIT II-3 Cont.




# Delivery Mode Forecasts


# Delivery Mode Forecasts

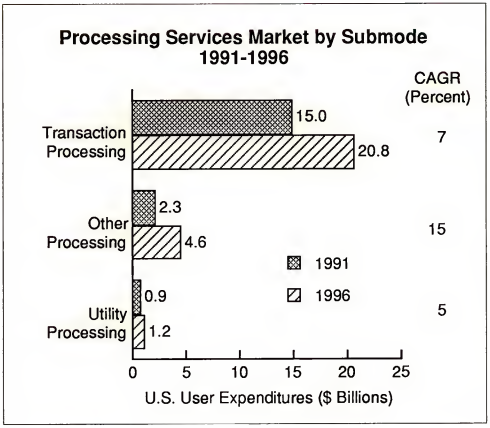
## A
## Processing Services

INPUT defines the processing services market as including three market sectors: transaction processing, utility processing, and "other" processing.

INPUT has sized the 1991 processing services market at $18 billion and projects that it will grow at a modest compound annual rate of 8% to about $27 billion in 1996. This growth rate compares to a 9% CAGR forecasted in 1990. A significant factor in the conservative growth estimate is the effect of the recession, which has decreased growth in transaction volumes to some degree and increased price competition.

Exhibit III-1 provides the forecasts for each submode.

EXHIBIT III-1




- The dominant submode is transaction processing where growth is projected at only a 7% CAGR, resulting in an almost $21 billion market in 1996. In 1990, INPUT projected a growth rate of 9% per year for the next five years.

- Other processing services will grow at a 15% rate through 1996, reaching $4.6 billion. The fastest-growing portion of this submode is disaster recovery services.

- The utility submode will only grow at 5% as these types of services continue to move to internal capabilities using workstation- and LAN-based processing. Utility processing services represents a modest $1 billion dollar market segment.

The inhibiting forces in the processing services industry fall into two broad categories: the economy and specific trends within the processing services industry. These forces are summarized in Exhibit III-2.

EXHIBIT III-2

**Processing Services Inhibiting Forces**

- Delayed economic recovery
- Tight budgets
- Competition from other information services modes
- Limited planning
- Short supply of technical skills
- Use of shared resources

In order of average importance to respondents.

In addition to the economy, the processing services sector is impacted by general budgetary constraints and the growing use of systems operations or lower cost downsized-technology solutions.

- Some application services traditionally sourced from processing services vendors are being reviewed for conversion to internal approaches.

- The strong growth experienced in the systems operations area has a downward impact on transaction processing services. The result is that most processing services firms are already or will soon consider offering services under the framework of platform or application systems operations.

## B

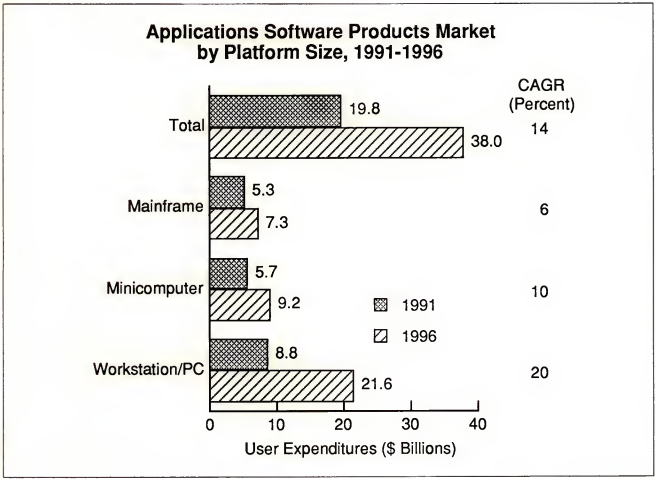
## Applications Software Products and Turnkey Systems

Applications software products and turnkey systems provide users with an application solution.

As shown in Exhibit III-3, the applications software products market will expand from $19.8 billion in 1991 user expenditures to $38 billion by 1996, a CAGR of 14%, which is unchanged from the 1990 projection.

- The mainframe sector will experience the least growth with a five-year CAGR of only 6%. This submode will grow from $5.3 billion in 1991 to $7.3 billion by 1996.

EXHIBIT III-3

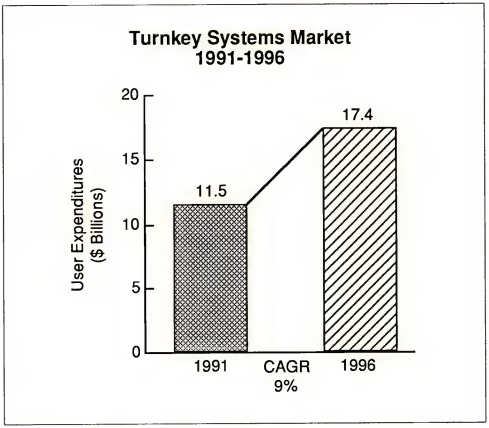



- The minicomputer submode with $5.7 billion in 1991 will see growth of 10% per year to $9.2 billion by 1996. Much of this growth will be on larger client/servers.

- The workstation/PC submode will see the greatest growth, increasing from $8.8 billion in 1991 to $21.6 billion by 1996. In spite of strong growth over the past few years, this platform level continues to command significant expenditure as processors upgrade and the movement to Windows grows.

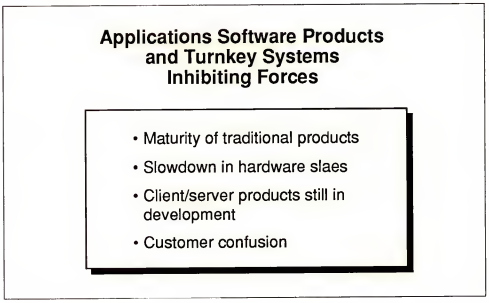
Growth for turnkey systems, on the other hand, will be markedly lower—expanding from $11.5 billion in 1991 to $17.4 billion in 1996 at a CAGR of 9%, as shown in III-4. The lower growth is tied to the continuing shift of traditional turnkey systems vendors to only applications software products. The strength in this market is at the workstation/PC and low-end client/server level where unit sales are relatively low and the contribution of the hardware to the total sale modest.

EXHIBIT III-4




The factors negatively impacting growth in these two delivery modes are listed in Exhibit III-5.

EXHIBIT III-5



In general, the applications software products and turnkey systems markets have felt few, if any, effects of a slowed economy and recession. The fact that hardware sales will slow further in the short term due to the economy is offset by pressure on profits at end-user organizations; expensive in-house development projects are put on hold, thus enhancing the possibility for additional external purchases of applications software products.

Turnkey systems vendors are experiencing moderately adverse effects from the slowed economy, principally because of slower hardware sales and because a significant part of their customer base—manufacturing industry sectors and small companies—is feeling adverse effects from the slowdown.

In addition to the economy, other forces impacting growth in application solutions markets include:

- Computer shipments will continue to fuel application solutions growth—albeit at a slower rate—over the next five years. Lower cost client/server processors will soon be supported by new applications software product offerings, which will help sustain growth in these delivery modes.

- The product transition to client/server architectures is a growth inhibitor in the short term. Client/server products from most leading vendors will enter the market in 1992 and 1993. The growth benefits will follow, but until products are available, confusion in the applications software products and turnkey markets restrains growth.

## C
## Systems Operations

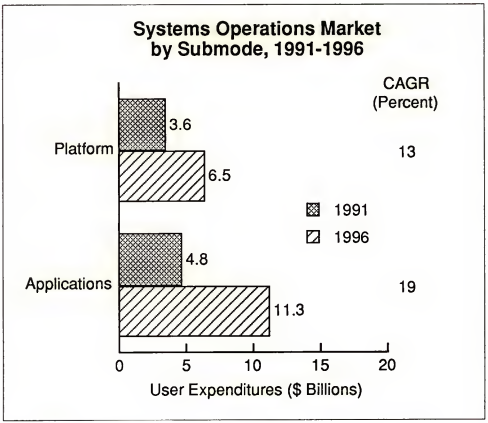
In 1991, INPUT changed the submodes for systems operations to platform and applications systems operations. Under the platform submode, the vendor assumes responsibility for the operation of the primary data center and often the network and secondary data centers or LANs. Under the applications systems operations submode, the vendor also assumes responsibility for support (maintenance and possibly new development) of the primary applications systems.

Exhibit III-6 presents the forecast for the two submodes.

- Platform systems operations will grow at a compound annual rate of 13%, with revenues increasing from $3.6 billion in 1991 to $6.5 billion in 1996. The platform systems operations growth rate varies significantly within each industry market, however, because of forces in each sector.

- Applications systems operations will grow at a compound annual rate of 19%, from $4.8 billion in 1991 to $11.3 billion in 1996. This compares with an 18% CAGR projected in 1990.

EXHIBIT III-6




The accelerated growth in the applications sector reflects an increasing desire by users to off-load applications development and maintenance, and industry specialization by many of the systems operations vendors to meet users' needs. As a result, vendors are developing proprietary software to apply to specific industry problems.

The issues facing the systems operations market are relatively unchanged from 1990. The development and growth of this market sector has not been hampered by the recession and, in fact, is more likely positively impacted. The opportunity to off-load the investment decision and capital costs to the vendors is very attractive to companies of all sizes.

## D
## Systems Integration

U.S. businesses, more than ever, are feeling the pressure of competition from domestic and foreign companies. This pressure has forced organizations to look closely at their core businesses to identify solutions that differentiate their products and services from the competition's products and services. In many cases, the application of information technology can make the difference in offering a superior service faster or reducing the length of product development cycles.

The result has been the continuing willingness to turn to systems integrators to find complex solutions to key information systems requirements.

Exhibit III-7 presents the revised INPUT forecast for 1991-1996 for the commercial and federal government sectors. The commercial sector will grow at a 19% CAGR, reaching over $10 billion in 1996, while the federal sector will reach almost $7 billion with a 16% CAGR for the same period.

EXHIBIT III-7

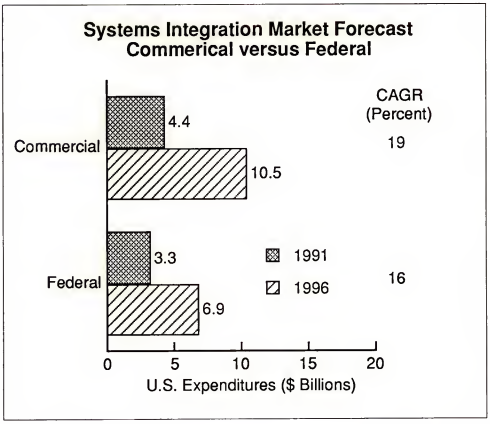
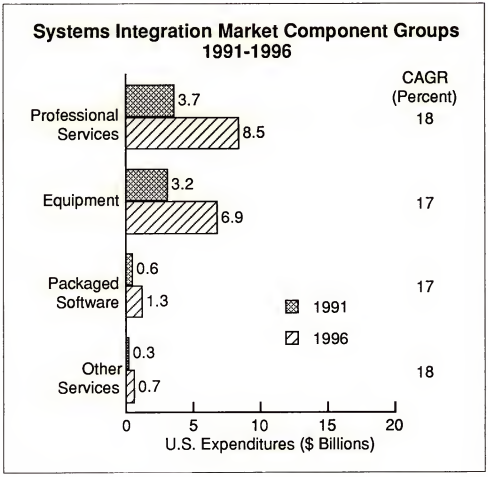


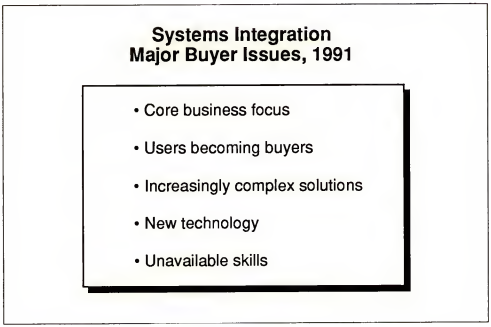
Exhibit III-8 presents the same forecast by the four components of the typical systems integration project: professional services, equipment, software products, and other services. The equipment and professional services components comprise the greatest proportion of the systems integration market.

EXHIBIT III-8



In Exhibit III-9 INPUT identifies the major buyer issues in the systems integration submode for 1991 and beyond.

EXHIBIT III-9




An increasing amount of information systems expenditures is no longer controlled by internal information systems organizations. The organizations are, in many cases, becoming the buyers of solutions and are controlling the solution budgets. 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.

In many instances, the systems integrator can routinely implement the new technology and solution faster than the internal information systems function.

The economic recession has had some impact on the systems integration market. In the near term, existing projects are being completed faster than planned and new projects are both smaller and taking longer to be contracted. INPUT has lowered its systems integration forecast by 1% for the next five years, but continues to see a strong and viable market for those vendors that are capable of assuming the risk of total project responsibility and have a record of demonstrated success.

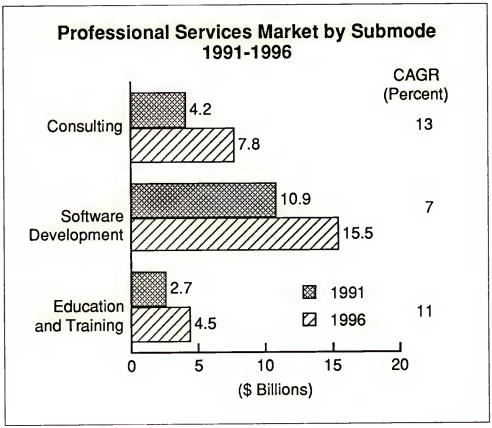
The growth in demand is focused in a few vertical industries and is not uniformly spread among those industries facing increasing competition.

## E

## Professional Services

The professional services segment of the information services market has suffered the most from the current recession. As a result, INPUT has lowered the five-year forecast for professional services to just 9% CAGR from 12% in 1990. Exhibit III-10 presents that forecast for each of the three submodes of professional services: consulting services, software development, and education and training.

EXHIBIT III-10




- The consulting services submode will experience the strongest growth with a CAGR of 13% reaching $7.8 billion in 1996. There remains a strong willingness to look outside to identify new approaches to past and future information technology requirements.

- Software development is the largest submode, representing over 60% of the total professional services market. At the same time, software development is experiencing the greatest decline in growth because of the recession and the turn to systems integration. A 7% CAGR will increase a $10.9 billion market in 1991 to $15.5 billion in 1996.

As indicated in Exhibit III-11, the current environment for professional services is marked by an increasing impact from the economic downturn. Also listed are other factors inhibiting growth.

EXHIBIT III-11

**Professional Services Inhibiting Forces**

- Lingering recession
- Increasing use of applications software products
- Impact of shift to systems integration
- New competitors
- New buyers and shift to solutions buying

The traditional professional services vendor is learning to compete increasingly with the alternatives of purchased software products and systems integration. In many instances, this competition is leading such vendors to form significant alliances and to broaden offerings to include systems integration in areas of specific strength.

Increasing price competition within the software development submode is leading to decreased margins in the near term.

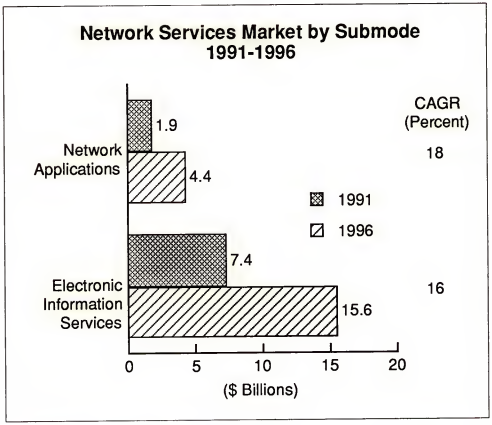
## F
## Network Services

The network services market will increase at a CAGR of 16% between 1991 and 1996, growing to a level of $20 billion in user expenditures in 1996.

The growth rate for network services is down slightly from the 1990 forecast of 17%, continuing a small year-to-year decrease from rates of 20% in the late 1980s.

Exhibit III-12 provides the market size and growth rates for the network services submodes—network applications and electronic information services.

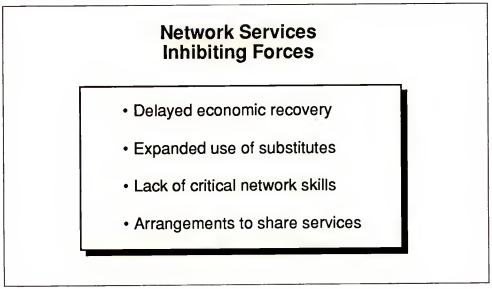
EXHIBIT III-12




- The smaller segment, network applications, will see the greatest growth with a 18% CAGR driven by the continuing increase in use of EDI, electronic mail, and other value-added network services.
- The electronic information services submode will grow at 16% during the 1991-1996 period.

Exhibit III-13 identifies the inhibiting forces currently constraining the network services market.

EXHIBIT III-13




## G

## Systems Software Products

The overall systems software products market will expand from $18.1 billion in 1991 to $31.7 billion by 1996, at a compound annual growth rate of 12%. This rate is down from the 14% forecast in 1990.

Exhibit III-14 shows this forecast by platform level. The growth rates range from a low of 10% for the mainframe level to 19% for the workstation/PC level.

EXHIBIT III-14

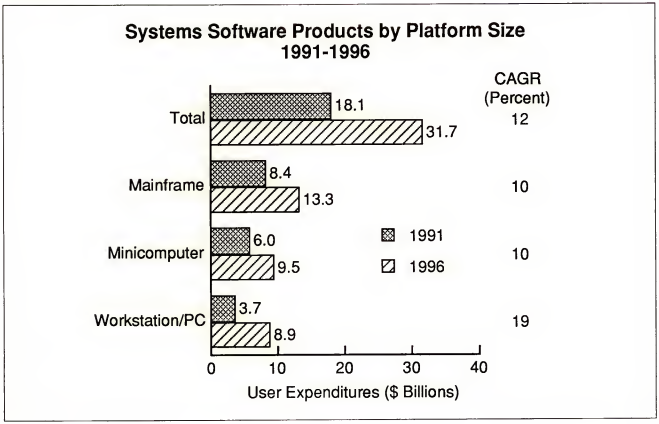
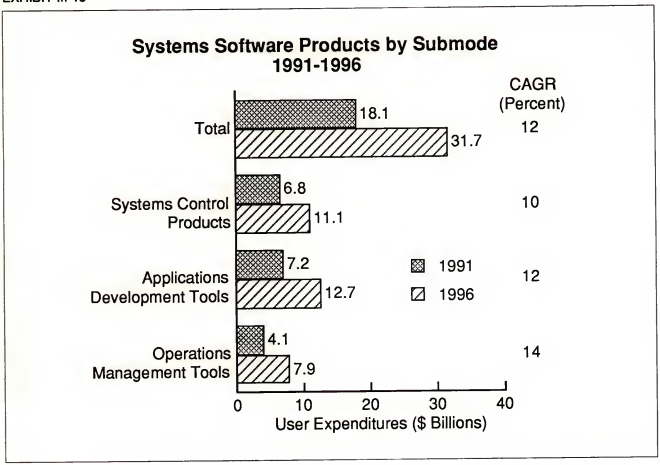


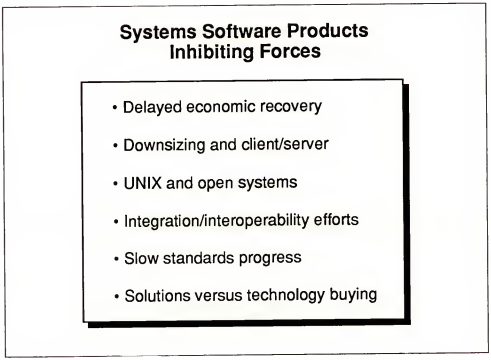
Exhibit III-15 provides this forecast by the three submodes for systems software products: systems control products, applications development tools, and operations management tools. The growth rates range from 10% for systems control to 14% for applications development tools.

EXHIBIT III-15




The market for systems software products is being affected by both the economic environment and the shifting technology environment. Exhibit III-16 lists key forces impacting growth.

EXHIBIT III-16




The systems software products market is primarily driven by hardware sales, which have declining growth rates even for personal computers. The current consolidation in data centers both drives and inhibits systems software demand, as does the emphasis on network integration.

Another inhibiting factor is the beginning movement to client/server technology. As with any new technology, a learning curve slows purchases early in a technology's life.

Other technology issues impacting growth are the standards process, confusion about open systems, and a tendency to wait for true interoperability.

A final factor is the growing preference to buy a solution instead of the underlying technology, particularly as buying becomes a general management and not an information systems function.

# IV

# Conclusions


# Conclusions

Exhibit IV-1 summarizes INPUT's current outlook for the U.S. information services industry. In summary, these conclusions describe a changing industry. Growth will come from different sources, the winning vendors will change, and the characteristics of computer manufacturers—such as IBM, DEC, and Unisys—will change.

INPUT believes some revolutions are underway—outsourcing, downsizing, networking, and re-engineering of the information systems process. These revolutions are just becoming apparent, and the depth and degree of their influence remains to be fully understood. The information services industry may see a new beginning in the next five years. The successful vendor will be more flexible, with closer ties to its customers and a solution versus technology orientation to its customer offerings, whether service- or software products-based.

EXHIBIT IV-1

## U.S. Information Services Industry Conclusions

- Slower growth for 1991-1996
  - Slow rebound in 1992
  - Market growth of 10% per year through 1993
  - Maturity in some sectors, confusion in others
- Outsourcing will be the bright spot
  - Services versus products
  - Solutions versus systems
  - Primary versus secondary vendors
  - Functions as well as projects
  - Long-term relationships with users
  - Increased reliance on vendor
  - Increased risk for vendor
- Confusion about technology alternatives
  - Client/server in the learning stage
  - LAN-based applications being tested
  - Open systems unproven
  - Waiting for standards benefits
- The buyer has changed
  - Users comfortable with information technology decisions
  - Vendor must learn to sell to user, not information systems
- Influence of large vendors will grow

# 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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