INPUT

MARKET FORECAST

United States IT Software & Services Market Forecast, 1997-2002

United States IT Software & Services Market Forecast 1997 - 2002

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Abstract

This report is a summary of the research and analysis carried out by INPUT into the IT Software & Services market in the United States during 1997.

The IT Software & Services market is defined by INPUT as comprising nine major sectors, processing services, turnkey systems, applications software products, system software products, professional services, network services, outsourcing, systems integration and equipment services.

These service delivery modes are further sub-divided into 26 subsectors for forecasting and analysis.

Forecasts are included for 22 vertical industry and cross-industry markets.

Estimates of sector and country market growths are given for the years 1996 and 1997 together with annual size estimates for each year up to 2002.

Major market sectors are examined more fully and with more detailed commentary in separately published INPUT reports.

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United States

Market Forecast Program

United States IT Software and Services Market Forecast : 1997 - 2002

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Table of Contents

A.

List of Exhibits

E

F

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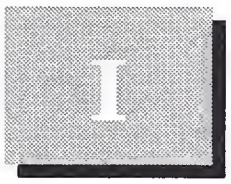


Introduction

This forecast is produced as part of INPUT's *United States Market Forecast Program* for the IT Software & Services industry.

It provides an overview of the US market and is designed to assist vendors by providing a context for assessing developments, changes and opportunities in the IT Software & Services sector.

The report provides market sizes for 1996 and 1997 with forecasts for each year through to the year 2002.

A
Scope of the Report

1. Total IT Expenditure

Respective sections in the report analyze and forecast the total IT budget, including both internal and external IT-related spending. This comprises:

- Equipment sales — expenditure on computer and data communications hardware products.
- Equipment services — expenditure on equipment maintenance and environmental services.
- Software products — all expenditure on systems software products and applications software product licenses including support services where these are included within the basic license fee.
- Information services — all expenditure on professional services, systems integration, outsourcing, processing services, network services, turnkey systems and systems software product support services and applications software product support services.

- Communications — all expenditure on IT-related data communications services.

- Facilities — IT budget expenditure on overheads such as space, heating, lighting, furniture, vehicles etc.

- Staff — direct in-house staff costs including any temporary contract labor.

2. IT Software & Services Categories

Prior to 1994, INPUT defined eight categories within the *IT Software & Services market.*

For the forecasts published for 1995 to 2000 and for the 1997 to 2002 forecasts contained in this report, an additional category has been incorporated, *equipment services*.

The complete list of categories is as follows:

- Professional services.
- Systems integration.
- Outsourcing.
- Processing services.
- Network services.
- Systems software products.
- Applications software products.
- Turnkey systems.
- Equipment services.

3. Industry Sectors

INPUT defines the following industry sectors according to the most recent revision of the Standard Industrial Classification (SIC) code system:

- Discrete manufacturing.

- Process manufacturing.
- Transportation services.
- Telecommunications.
- Utilities.
- Retail trade.
- Wholesale trade.
- Banking and finance.
- Insurance.
- Health services.
- Education.
- Business services.
- Federal Government.
- State and Local Government.
- Miscellaneous industries.

The definition of these sectors by SIC code can be found in Appendix E, Terms and Definitions.

Additionally INPUT recognizes a separate set of Process or Cross-Industry sectors.

These sectors involve multi-industry applications such as human resource systems and accounting systems.

These process-oriented sectors comprise:

- Accounting/Finance.
- Human resources.
- Education and training.

- Office systems.
- Engineering and scientific.
- Planning and analysis.
- Sales and marketing.

Further descriptions of these sectors are provided in the Terms and Definitions section included in this report as Appendix E.

B
Methodology

INPUT's methodology for market analysis and forecasting remains consistent with that used in past years.

Vendors and users are surveyed to determine what is being spent on IT software and services and to anticipate the likely trends in both the short and longer term.

1. Sources

This report is based on research activities conducted by INPUT during 1997:

- Vendor interviews with several hundred software and services vendors.
- IT user interviews to indicate trends and changes within specific market sectors.
- INPUT's continuous analysis of the categories and vertical industry sectors comprising the IT Software & Services market.

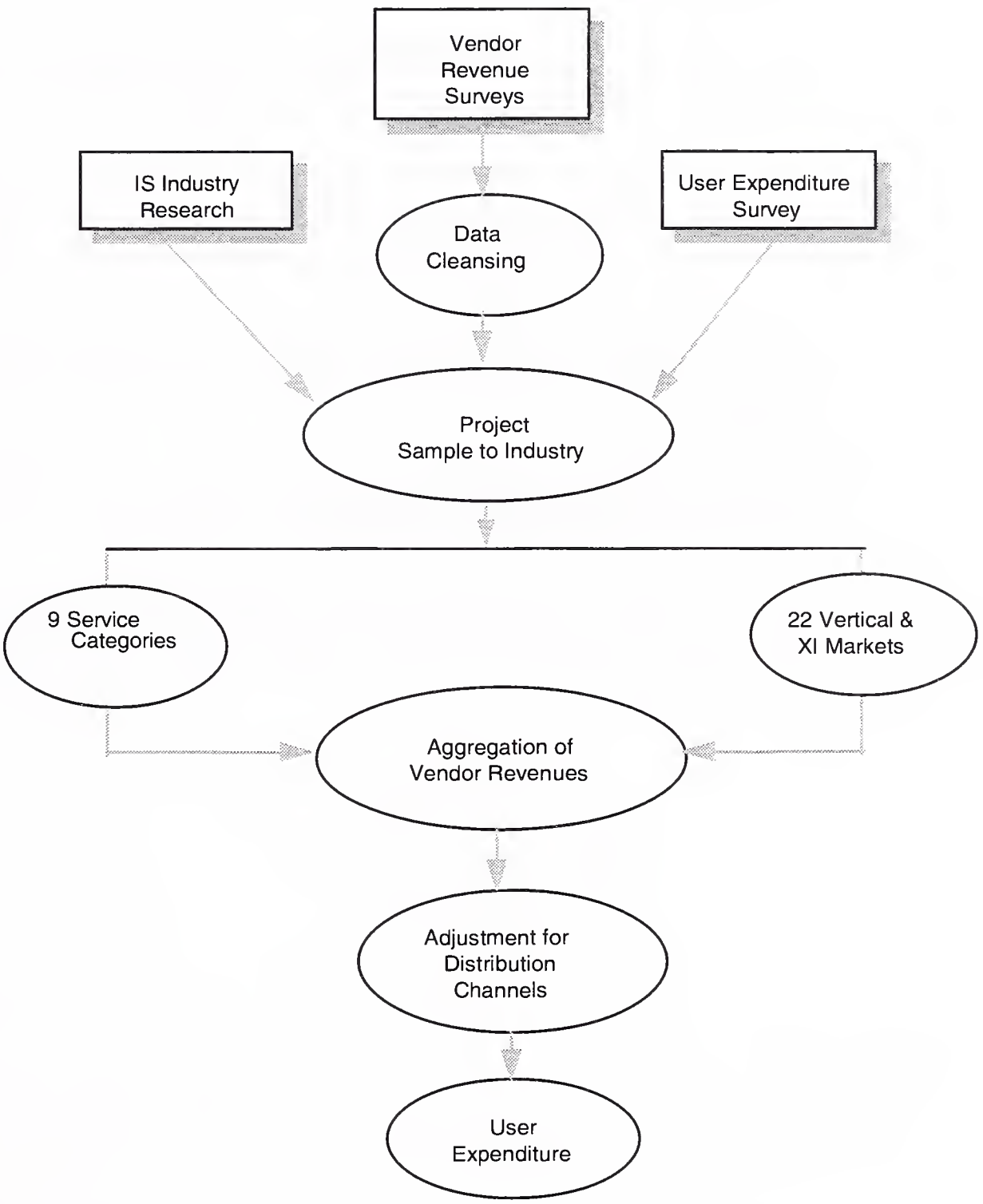
Additionally, INPUT's extensive library and database of information relating to the IT Software & Services industry was used.

2. Market Sizing

The process used to establish the base year market size (total user spending within that year) is shown in Exhibit I-1.

Exhibit I-1

Base Year Market Sizing



Source: INPUT

INPUT determines 'previous-year' software and services revenues for each of the 9 service categories for vendors operating in the United States markets.

INPUT analysts accomplish this research process through interviews, use of public data such as press articles and annual company reports and estimates from major vendors.

The service category and sub-sector revenues of each vendor are recombined to ensure that there is no double counting or overlap.

The data from the vendors is analyzed and projected to represent the revenues of the entire United States market based on INPUT's view of the contribution to be expected from the remaining minor vendors.

Adjustments are made to eliminate errors due to distribution channel overlap or mark-up and to ensure that captive market information is excluded.

Captive markets are those comprising revenues that a vendor receives from within the vendor's parent group of companies.

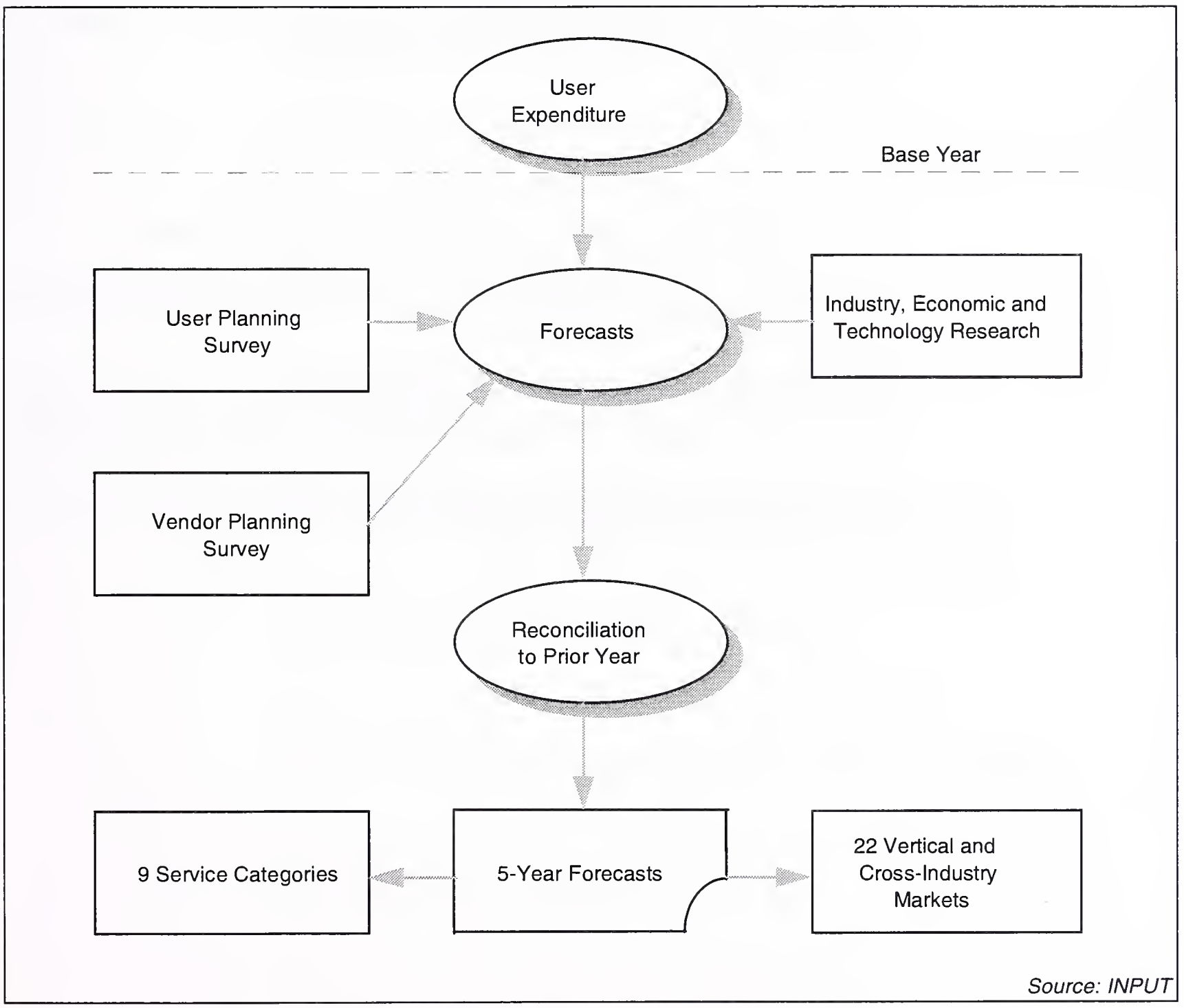
The end result is a base year (in this case 1996) IT Software & Services market figure representing user expenditure for each of the market sectors analyzed.

3. Market Forecasts

In the forecasting step, shown diagrammatically in Exhibit I-2, INPUT surveys IT managers, executives and finance directors to determine their projected expenditure levels on IT in general and IT Software & Services in particular.

Exhibit I-2

Market Forecasts



Source: INPUT

The market model that forms the basis for the forecasts includes the GDP deflator (adjustments for predicted inflation rates) for the United States.

Growth assumptions for each major industry sector are also factored into the forecasts.

In addition, vendor interviews are conducted to establish opinions on the market and expectations of the key opportunities.

These views are then assimilated and specific revenue forecasts are combined into an overall forecast for each segment.

C
Report Structure

The remainder of this report is structured in the following way:

Chapter II provides a summary of the key trends and findings that have emerged from INPUT's research in 1997.

Appendices A through D contain detailed tables of market data, together with forecasts and forecast reconciliation for each of the sectors analyzed.

Appendix E contains *Terms and Definitions* including vendor revenue and user expenditure conversion.

D
Related INPUT Research Reports

The following reports contain detailed analysis of each market sector, offering commentary and recommendations for vendors.

1. US Reports

Desktop Services Opportunities for the U.S. - 1997

Evaluation of Business Continuity Services in the U.S.

IT Customer Services Market Analysis, U.S. 1997-2002

Evaluation of Digital Money Products in U.S. Banking

Impact of Digital Money on Banking, 1997

Evaluation of Federal Program Budgets, 1998

Federal Financial Management Systems Market 1996

Federal Imaging Market 1996-2001

Federal Information Systems and Services Market 1996-2001

Federal Information Systems and Services Market 1997-2002

Federal Telecommunications Market 1996-2001

Impact of Procurement Reform on Federal Government

Outlook for the Federal Professional Services Market 1996-2001

Evaluation of SAP Service Providers in the U.S., 1997

Evaluation of Firewall Solutions, U.S., 1997

Evaluation of Intranet Development Opportunities - U.S.

Outsourcing Vendor Performance Analysis - U.S.

Year 2000 Services Opportunities

2. European Reports

a. Europe Wide Reports

Desktop Services Opportunities - Europe

Evaluation of Business Continuity Services in Europe

Professional Services Market Forecast, Europe, 1997-2002

SAP Services - European User Perspectives

Evaluation of Internet Firewall Solutions, Europe

Evaluation of Intranet Development Opportunities - Europe

Customer Care and Billing Solutions within Telecommunications Providers in Europe, 1996-2000

Operational Services Market Forecast, Europe 1997-2002

Outsourcing Vendor Performance Analysis - Europe

b. French Reports

Evaluation des Opportunites de Services Micros et LANs France, 1997

Evaluation of Business Continuity Services in France

Evaluation of SAP Services Providers in France

Evaluation of Internet Firewall Solutions, France

Opportunites de Services autour d'Intranet, 1996-2001

Les Services D'Exploitation de Centres D'Appels, France

Outsourcing Vendor Performance Analysis - France

c. German Reports

Evaluation of Business Continuity Services in Germany

Outsourcing Vendor Performance Analysis - Germany

d. United Kingdom Reports

Desktop Services Opportunities - UK

Evaluation of Business Continuity Services in the UK

Future of Network Management Support in the U.K.

Evaluation of SAP Service Providers - UK

Evaluation of Intranet Development Opportunities - UK

- Operational Services

Outsourcing Vendor Performance Analysis for the UK

3. Worldwide Profiles

Worldwide Market Profile, 1997-2002

Regional Market Profiles, 1997 - 2002

North America
Latin America
Asia Pacific
Western Europe
Central & Eastern Europe
Middle East / Africa

Country Market Profiles, 1997 - 2002

United States
Canada
Mexico

Australia
China
India
Japan
South Korea
Taiwan
Hong Kong
New Zealand
Singapore

Israel
South Africa

Argentina
Brazil
Venezuela

France
Germany
Italy
United Kingdom

Russia

II

United States IT Software & Services Markets

A
US IT Software & Services Market Overview

1. Current Market Status and Prospects

The total US IT Software & Services market is estimated to have reached about $270 billion in 1997, see Exhibit II-1.

This user expenditure on IT Software & Services, according to INPUT's definitions (see Appendix E), is estimated to represent about 39% of all user expenditures directly related to Information Technology.

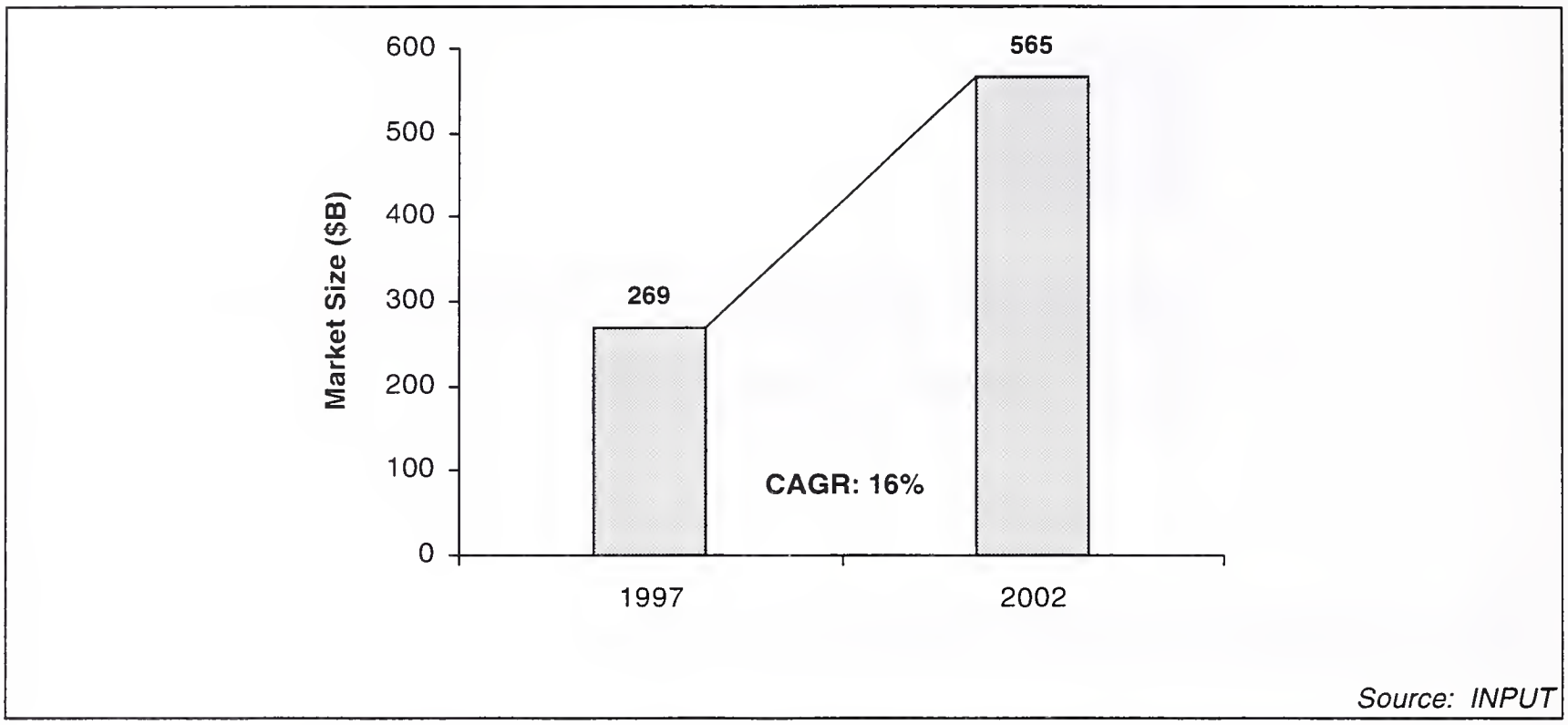
INPUT's definition of the IT Software & Services market places its main emphasis on information technology (IT) – based solutions. Consequently analysis and forecasts are applications and industry oriented.

INPUT addresses questions about where to count expenditures from the buyer's viewpoint-that is, expenditures are categorized according to what customers perceive they are buying.

IT Software & Services are computer/communications related products and services that customers buy to develop and/or use in IT systems.

INPUT prefers *not* to use the term 'Information Services' since this expression is increasingly used to describe 'content services' such as those delivered electronically by the Internet or by other means.

Exhibit II-1



Exhibits II-2 and II-3 provide a global context for the US market for IT Software & Services using the major geographical groupings used by INPUT for its world-wide analysis.

The U.S. market is expected to account for 48% of total global expenditures — twice the size of Europe, whilst Japan accounts for about half of Europe's total in terms of value, as shown in Exhibit II-2.

Exhibit II-2

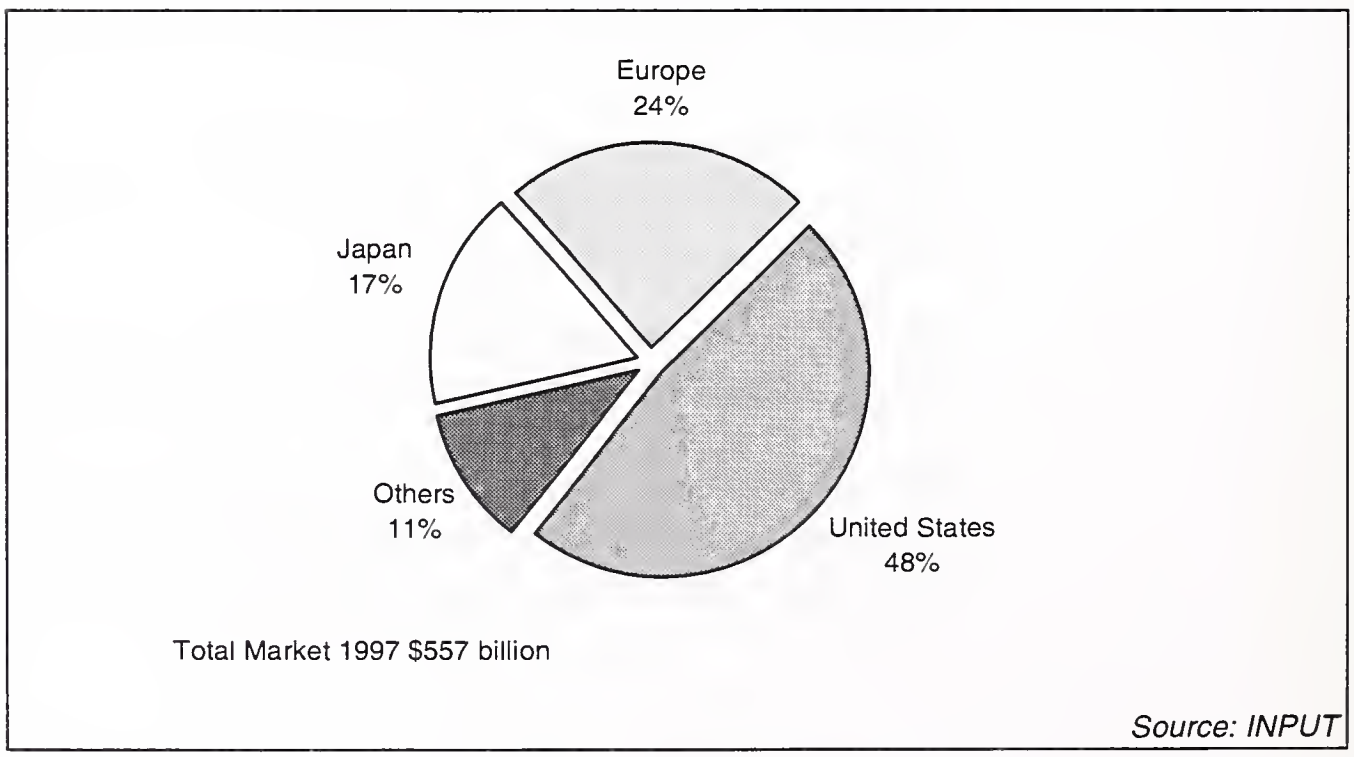
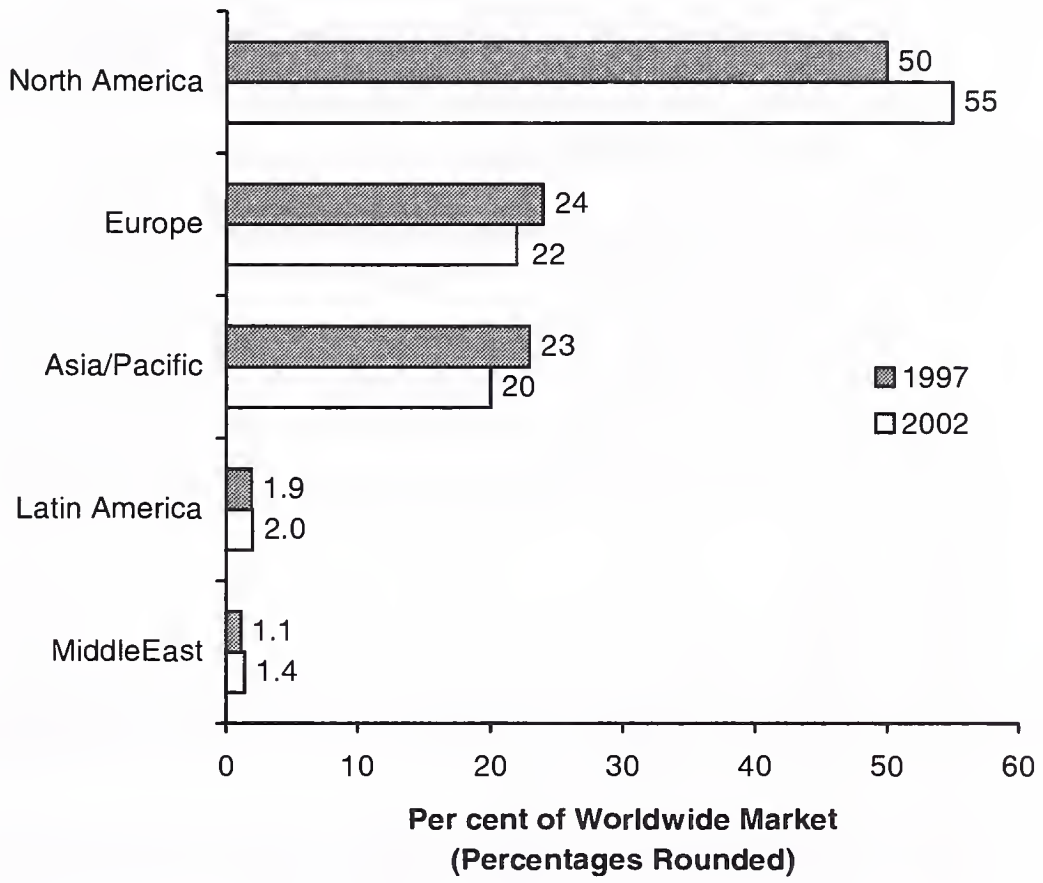


Exhibit II-3

Worldwide IT Software & Services Market Distribution, 1997 and 2002



Source: INPUT

At its current rate of growth (see Exhibit II-1) the US IT Software & Services market is experiencing an annual increase in business volume of very nearly $40 billion per annum at the final demand level.

A major factor for confidence in the continuing growth prospects for the IT Software & Services business is the high rate of obsolescence of computing and related equipment.

With no immediate stabilization of technology in sight vast amounts of investment in services (both people and software products) are required to integrate and operate these systems. This is the oxygen that fuels the IT Software & Services business.

The continuing emphasis on the use of enterprise application systems and solutions (EAS), most notably the use of ERP (Enterprise Resource Planning) products from vendors such as SAP and BAAN, is also fueling strong growth in associated services.

Over the next couple of years the Y2K (year 2000) phenomenon and to a limited extent in the US the transition to EMU (European Monetary Union) will drive additional demand pressures on service supply channels.

Significant levels of service price increases are already happening and will intensify over the years ahead.

Another reason for significant optimism about the prospects for the IT Software & Services industry is the drive towards Electronic Business and Electronic Commerce.

Electronic Commerce, now emancipated by the Internet, will create enormous opportunity for services firms focussed on serving the SME (Small, Medium Enterprise) community as well as major corporations.

Exhibits II-4 summarizes some of the main business drivers supporting IT Software & Services growth over the next five years.

Exhibit II-4

Business Drivers Supporting IT Software & Services Industry Growth

- The continued drive to adopt Internet based technology for networks and distributed information systems
- The shift to electronic business processes and electronic commerce
- Increasing user numbers requiring commoditized support services
- The need for IT applications to support the Year 2000 dateline (Y2K)

Source: INPUT

Inhibiting factors, excluding the occurrence of some unpredictable physical or economic disaster, are principally the following:

- Contractual obligations for resolution of the Y2K issue which are likely to lead to financial and legal difficulties for services firms
- Resource shortages, albeit off-set against price increases, related to Y2K and the need to support IT Software & Services as an increasingly critical part of organizational infrastructure
- Decreasing level of hardware maintenance requirement measured in dollars.

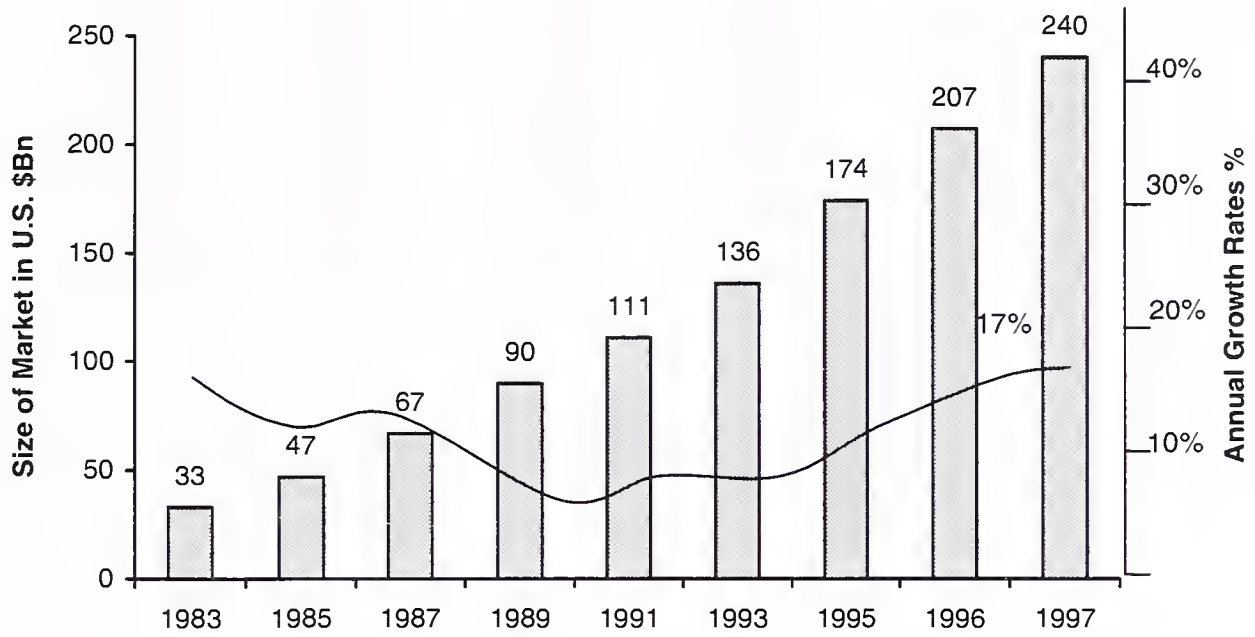
2. Historic Perspective

Exhibits II-5 and II-6 show the historical annual growth rates achieved by the US market for IT Software & Services and the current growth projection.

This definition of the market excludes Equipment Services from INPUT's definition of IT Software & Services for the purpose of this analysis.

Exhibit II-5

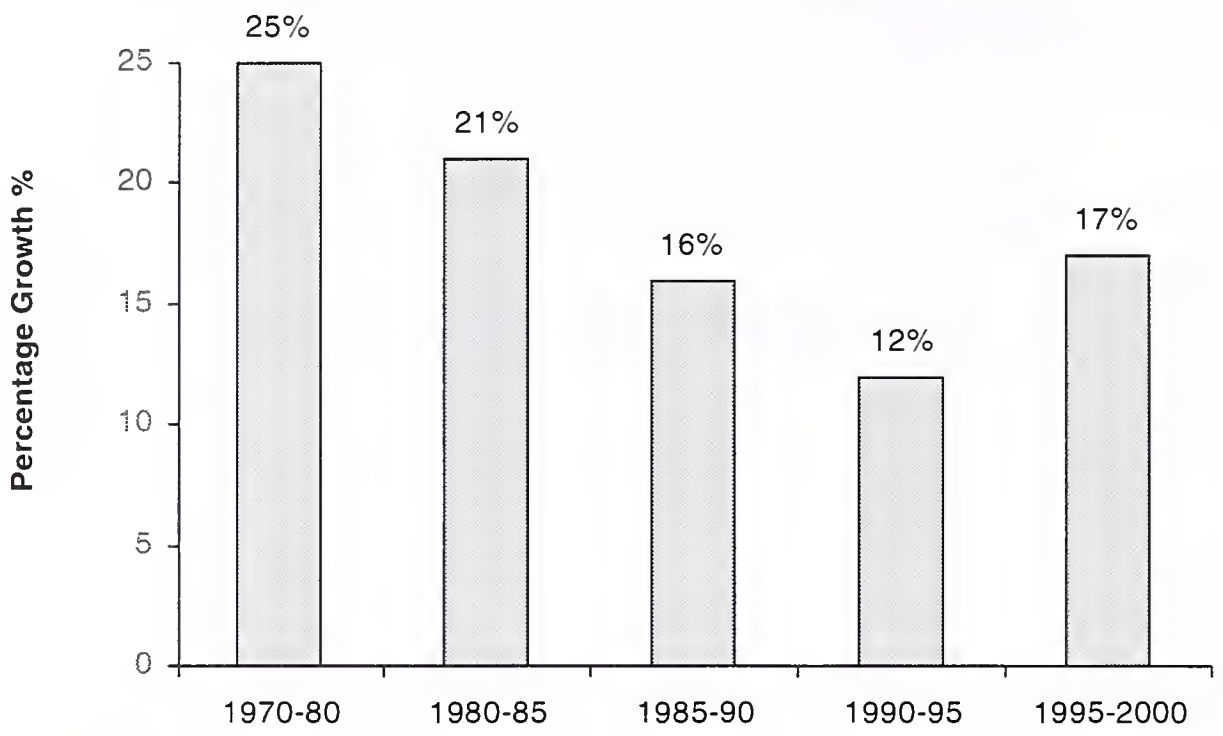
US IT Software & Services 1983-1996



Source: INPUT

Exhibit II-6

US Information Services Market Growth Rates



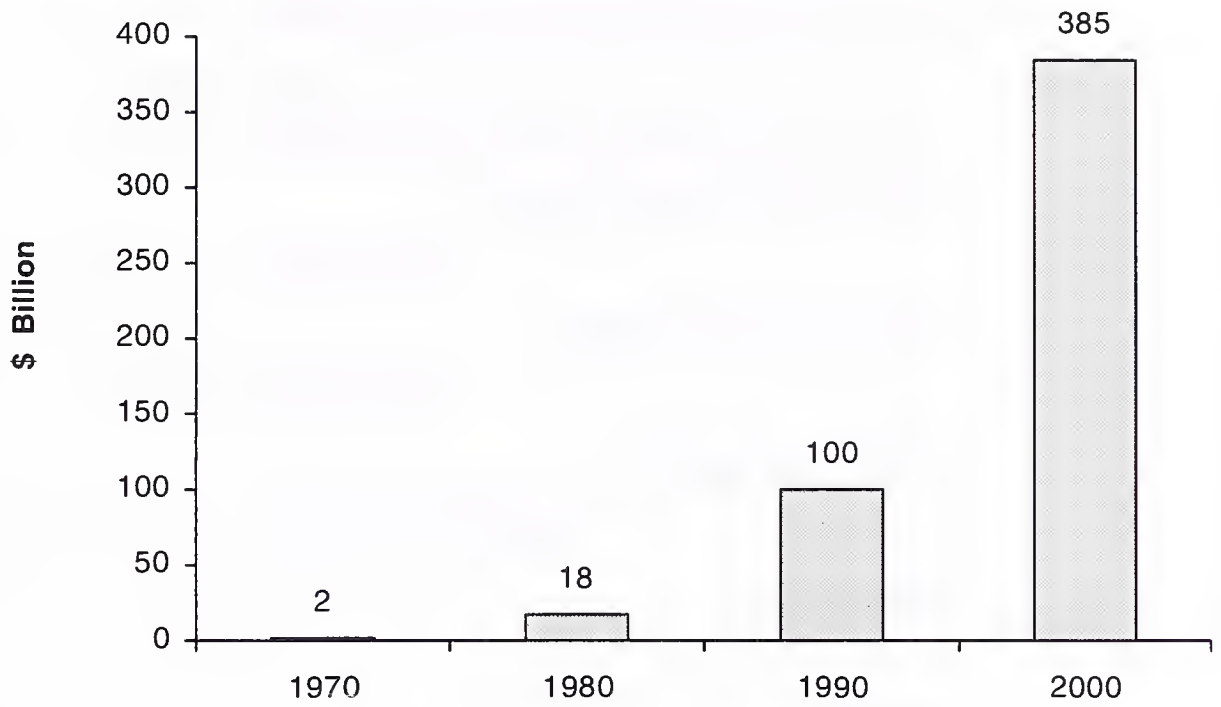
Source: INPUT

Exhibit II-7 shows that the IT Software & Services market is forecast to have increased by a factor of 20 times in size over the period 1980 to 2000.

The US market is now nearly 200 times as large as it was in 1970.

Exhibit II-7

IT Software & Services Market Growth – United States



Source: INPUT

B
Business Environment and Economic Assumptions

1. General Business Climate

The overall economic situation and environment within which the IT Software & Services business operates remains very positive in the US.

However, there are some concerns that effect the US business climate from a worldwide perspective:

- The possibility of a deteriorating Far Eastern situation, in particular the extent to which the Japanese authorities will act to stem their long unresolved economic problems.

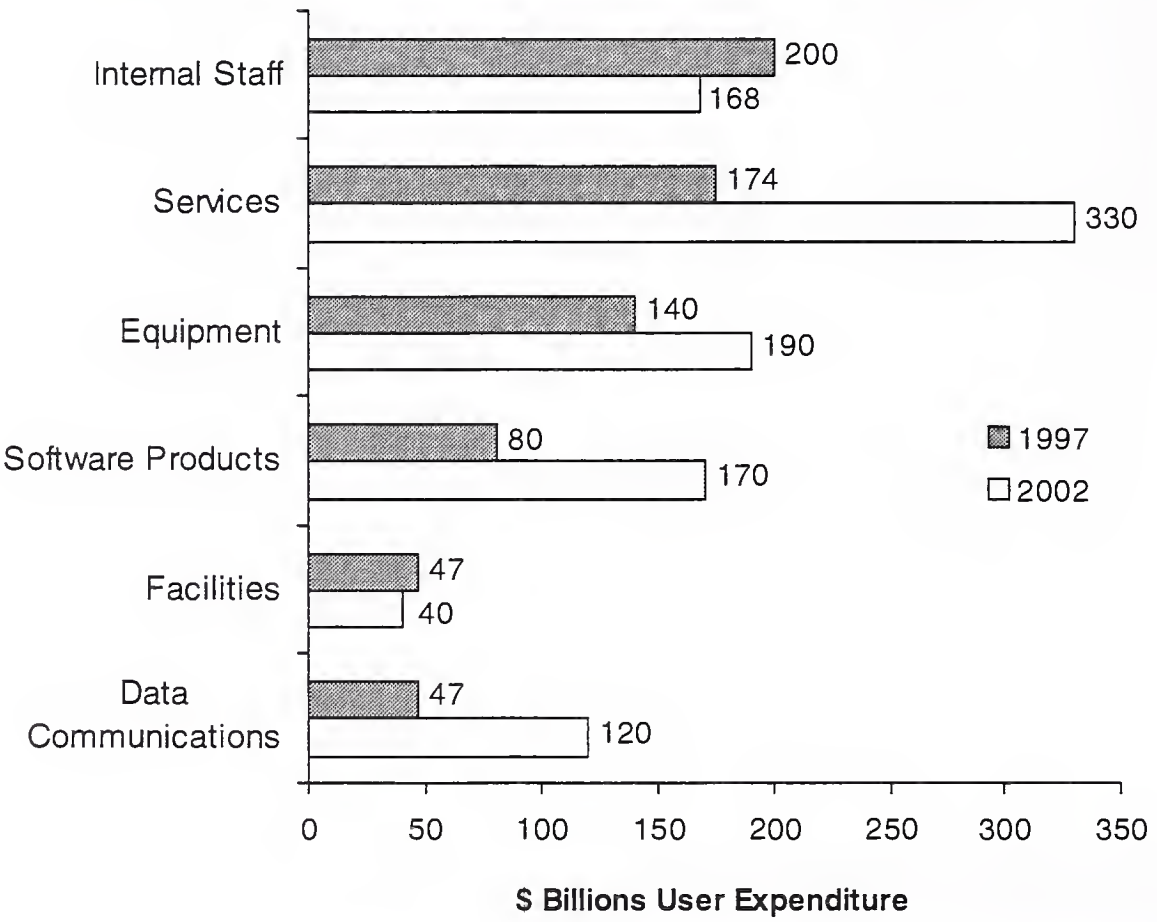
- Concern that these problems will have a global impact despite action by the IMF to pump liquidity back into these challenged economies.

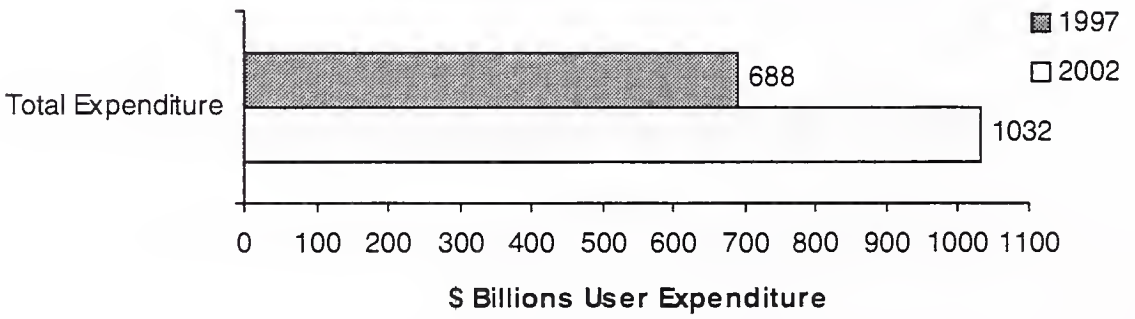
- Longer term concerns about the impact of EMU (the Euro) on the weaker European economies.

An analysis of the total IT expenditure for the US is shown in Exhibit II-8, and for the whole of North America (US, Canada and Mexico) in Exhibit II-9.

Exhibit II-8

Total IT-Related User Expenditures–United States

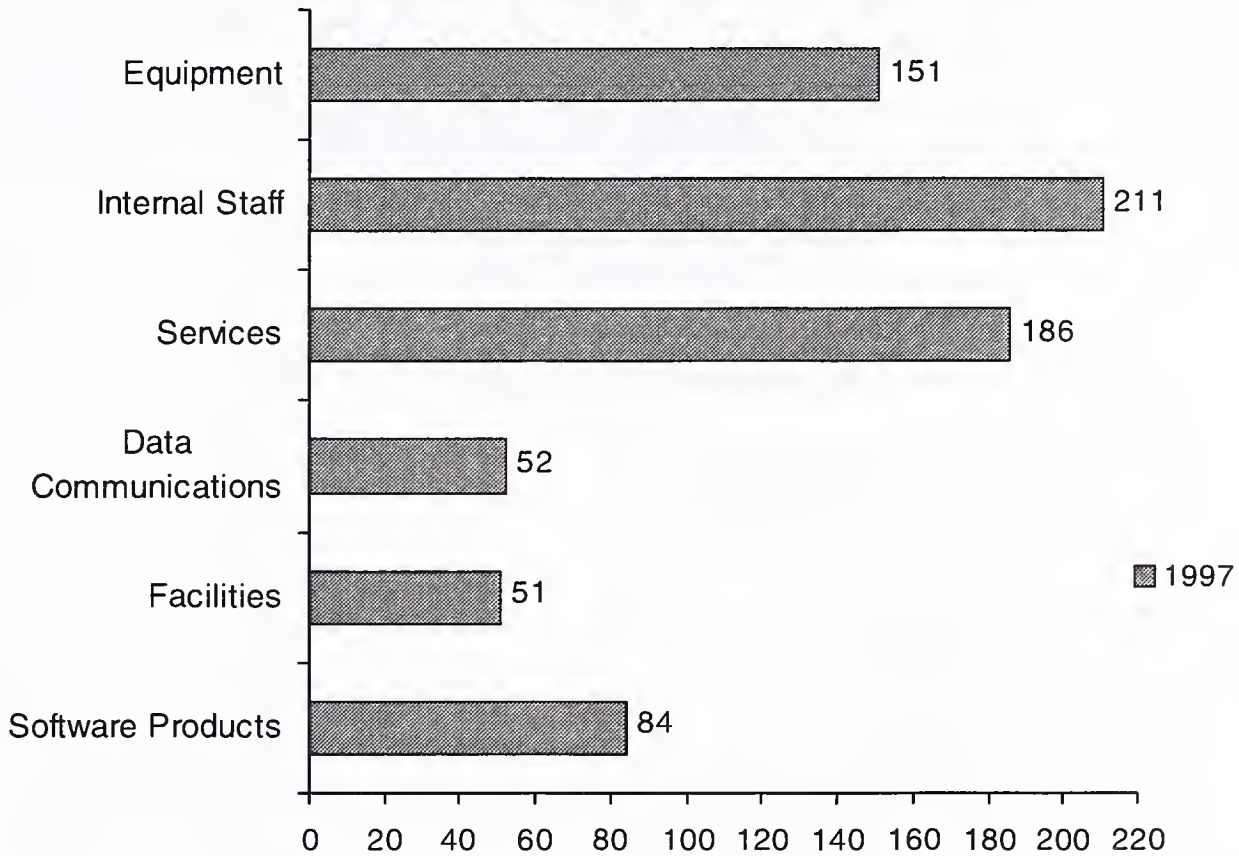


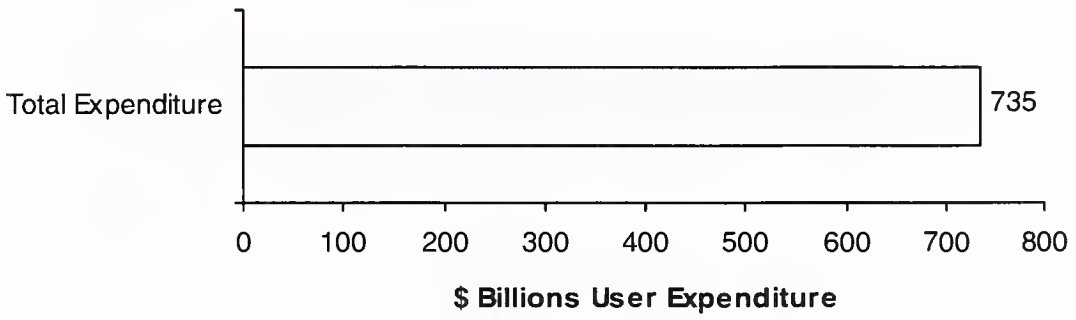


Source: INPUT

Exhibit II-9

Total IT-Related User Expenditures–North America



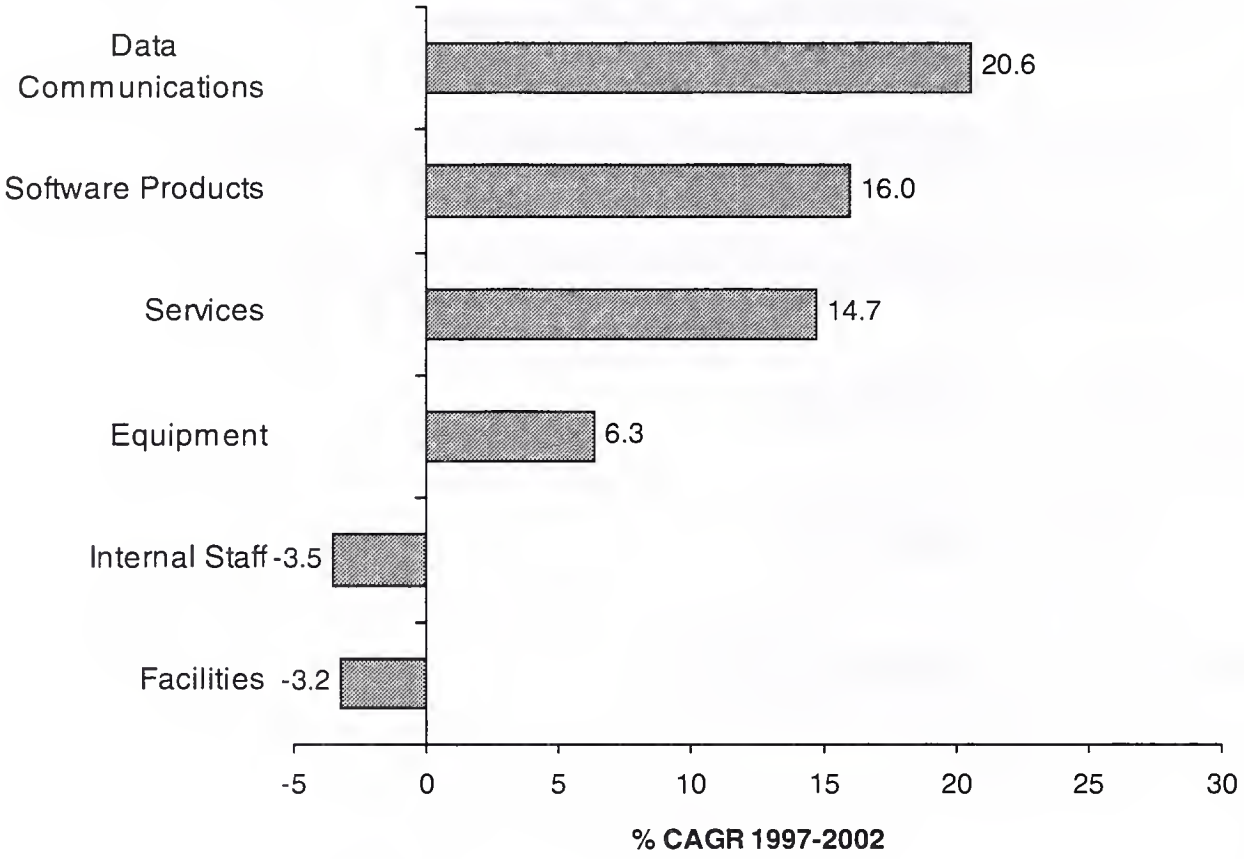


Source: INPUT

Exhibit II-10 shows a comparison of the different growth rates for each principal component of the US IT budget.

Exhibit II-10

Forecast Growth Rates for IT Spending Components–United States



Source: INPUT

Exhibit II-11 provides a comparison of the size and structure of total US IT expenditure with that for Western Europe and Japan.

Exhibit II-11

Comparison of U.S., Western European and Japanese IT Expenditure 1997-2002

Segment		User Expenditures $ Billions		
		1997	CAGR %	2002
Internal Staff	W.E.	110	-3%	95
	U.S.	200	-3.5%	168
	Japan	65	-	64
Services	W.E.	85	7.3%	121
	U.S.	174	14.7%	345
	Japan	71	6%	95
Equipment	W.E.	80	6.6%	110
	U.S.	140	6.3%	190
	Japan	55	7.2	78
Software Products	W.E.	40	9.2	62
	U.S.	80	16.0	169
	Japan	20	7.0	28
Facilities	W.E.	28	-2.2	25
	U.S.	47	-3.2%	40
	Japan	15	1.3%	16
Data Communications	W.E.	22	21.4%	58
	U.S.	47	20.6%	120
	Japan	15	18.5%	35
Total	W.E.	365	5.2	471
	U.S.	688	8.4	1,032
	Japan	241	5.5	316

Source: INPUT

The percentage of organizations annual revenues spent on information technology related expenditures continues to increase.

The overall US percentage is estimated to be 3.8%, well above that for Western Europe, 2.0%, and Japan 2.6%.

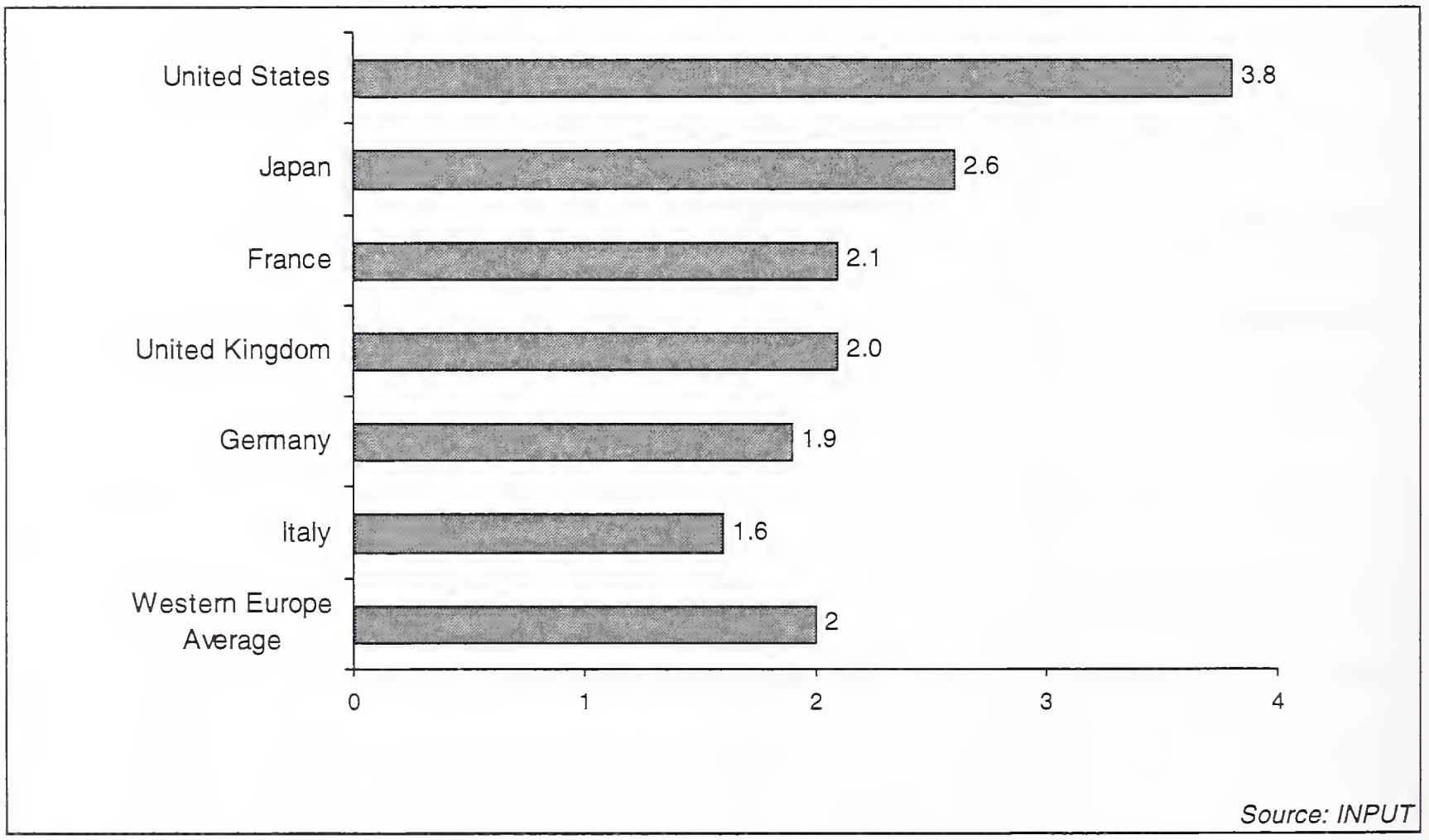
Exhibit II-12 shows a comparison of IT expenditure percentages for the US in comparison to other important country IT markets.

If these percentages are adjusted using the Purchasing Power Parity (PPP) factor a rather different picture emerges on a comparative basis.

Although the US remains unchanged, as does the UK, when PPP factoring is taken into account, Germany's low 1.9 rating, reflecting relatively low levels of IT expenditure in the former Eastern Germany, becomes 2.9 the same level as France.

Exhibit II-12

Percentage of Annual Revenues Spent on IT



Source: INPUT

2. Economic Assumptions

Some economic uncertainties exist even for the buoyant US economy.

Of particular relevance are:

- The possibility of a stockmarket 'correction' that would affect business confidence generally and thus could inhibit IT investment decisions.

- The deteriorating economic stability of the Far Eastern nations, most importantly Japan.

- The issue of the supposed "new economic paradigm" in which the advanced economies are expected to enjoy years of continued economic growth and low inflation as a result of the erosion of the traditional 'business cycle'.

The "new economic paradigm" is based on the theory that technology development and global competition have created a uniquely benign environment for economic growth to continue unhindered by the ups and downs of the normal business cycle.

Technology, particularly IT, it is argued, has improved productivity to such an extent that traditional economics no longer fully applies.

An example of this is computer based JIT systems that eliminate most inventories, one of the key causal factors in the mechanics of the business cycle.

At an overall economic level these arguments are hard to sustain and it would be a high-risk strategy to base forecasts on this scenario.

One of the major counter arguments is the lack of firm evidence to support significant measured productivity improvements in service industries, the most highly developed users of IT systems.

This productivity paradox, huge investments in IT to achieve productivity improvement but little evidence to support it at an industry level or at a macro economic level, is possibly explained by neo-classical economics.

The argument centers on the observation that IT equipment has had the peculiarity of falling rapidly in price even as its functionality has increased, as a result IT has been applied to less and less valuable tasks.

In formulating the forecasts contained in this report INPUT has basically assumed that overall economic growth will continue in the US over the forecast period according to currently predicted rates, without massive shocks imposed from other parts of the world, specifically the Far East.

Economic assumptions for the US economy are summarized below.

Economic growth:
-Official growth target for 1997, 3.8% and 2% targeted for 1998.

Employment:
-50% of the US population is prpresented within the working population.

Unemployment:
-5.4% level for 1996 declined to a slightly improved 5% in 1997 and is expected to increase slightly to 5.1% in 1998.

GDP Deflators are estimated at:

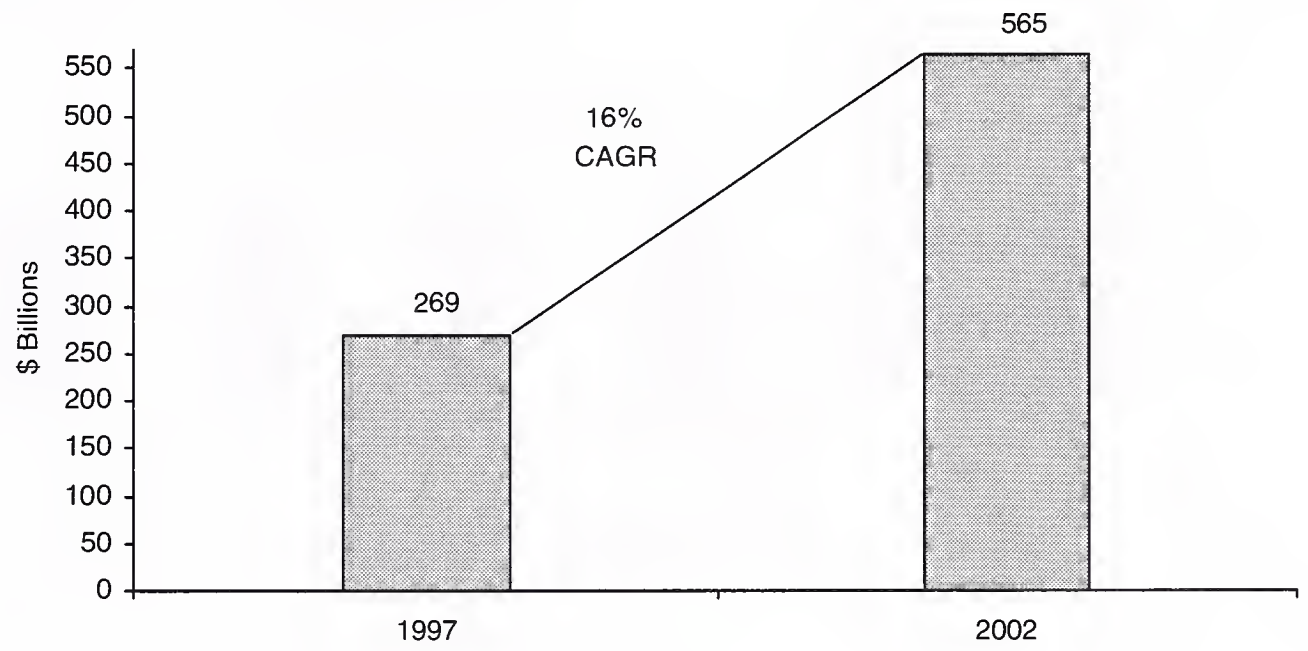
1996 – 2%
1997 – 2%
1998 – 2.2%.

C
Market Size and Forecast

The forecast growth for the US IT Software & Services market, which reached $269 billion in 1997 is shown in Exhibit II-13.

Exhibit II-13

US IT Software & Services 1997-2002

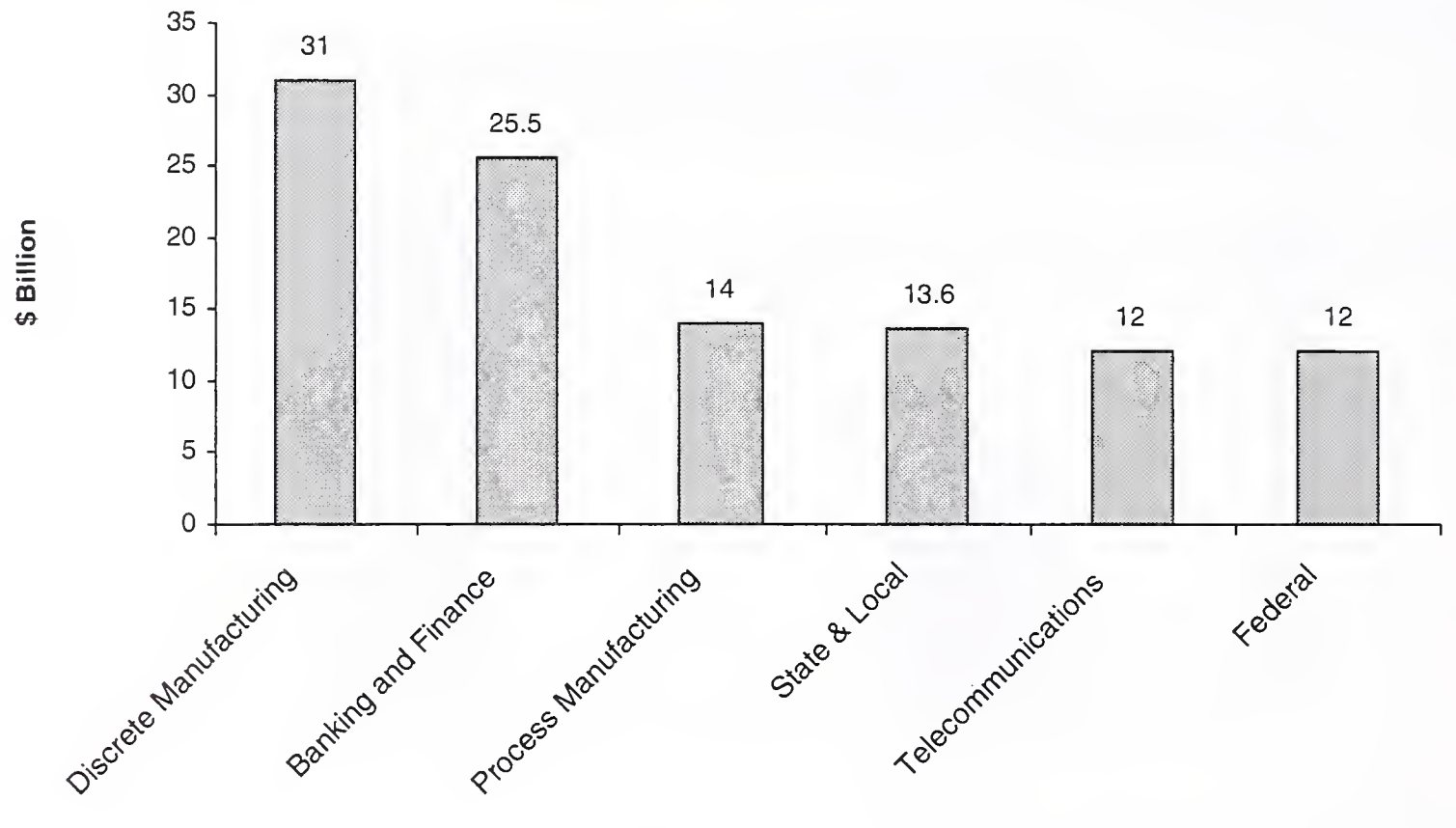


Source: INPUT

Exhibit II-14 shows the distribution of the 1997 market across the largest industry sectors in the US.

Exhibit II-14

Industry Sector Distribution of IT Software & Services Markets - 1997



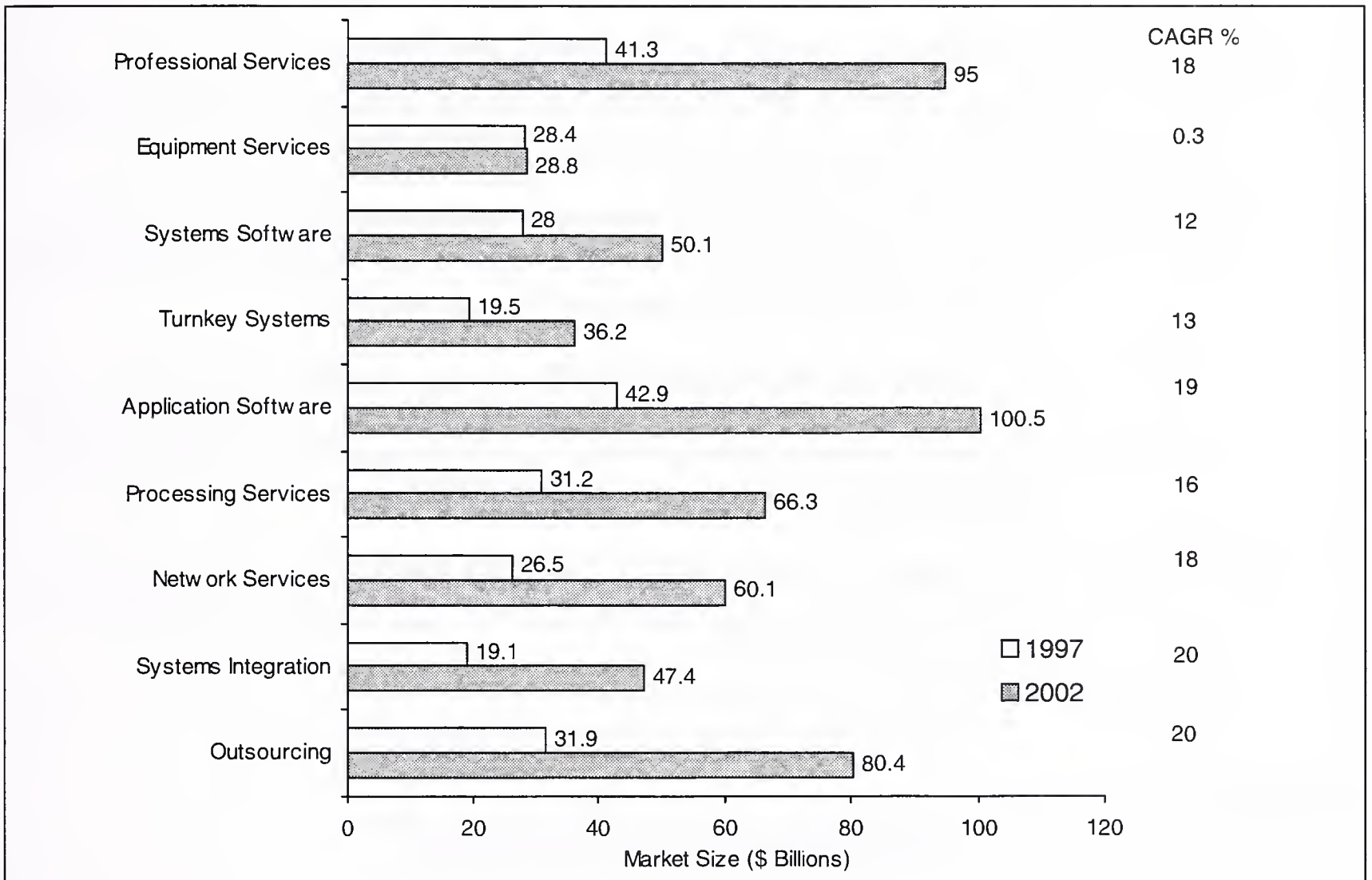
Total Market $269 Billion

Source: INPUT

Exhibit II-15 shows the analysis of the US IT Software & Services market by service delivery mode.

Exhibit II-15

Service Sector Analysis: US IT Software & Services Market, 1997-2002



Source: INPUT

Exhibit II-16 shows the analysis of the Professional Services segment, the largest individual services delivery mode in the US market.

This service category comprises three subcategories: consulting, education and training, and software development.

As can be seen in Exhibit II-16 software development is by far the dominant sector and will remain so over the forecast period even though it is predicted to grow more slowly than the other two subcategories.

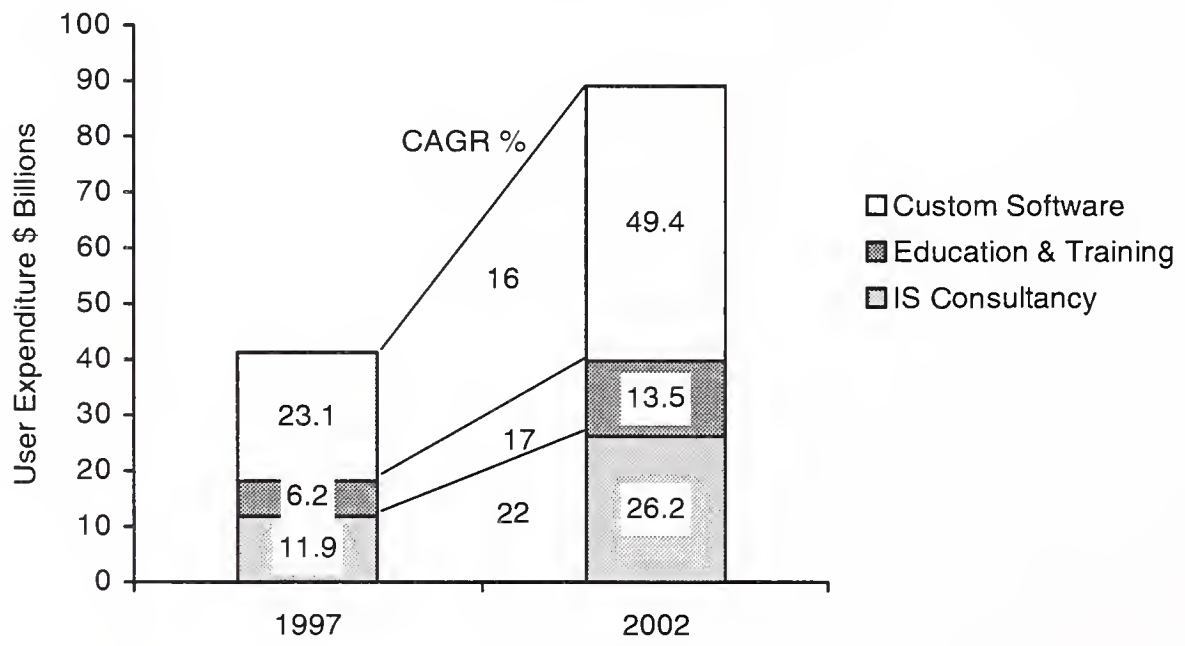
The impact of the Y2K transition challenge is commented upon below. This issue is having and will continue to have a big impact on this sector over the next two to three years.

Whilst there is enormous demand for bought in skills to effect the transition to the year 2000 there also exist significant shortages of skilled staff. This is already manifesting itself in the market through increased charging rates.

These pressures, and the limits on the IT budget are likely to force even more expenditure to be channeled into standard products or limited custom turnkey systems.

Exhibit II-16

US Professional Services Market



Source: INPUT

Exhibit II-17 shows the anticipated development of the Systems Integration market in the US.

Systems Integration is a vendor delivered service that provides a complete solution to an information systems requirement.

The vendor meets the client's needs through the custom selection and implementation of a variety of information systems products and services.

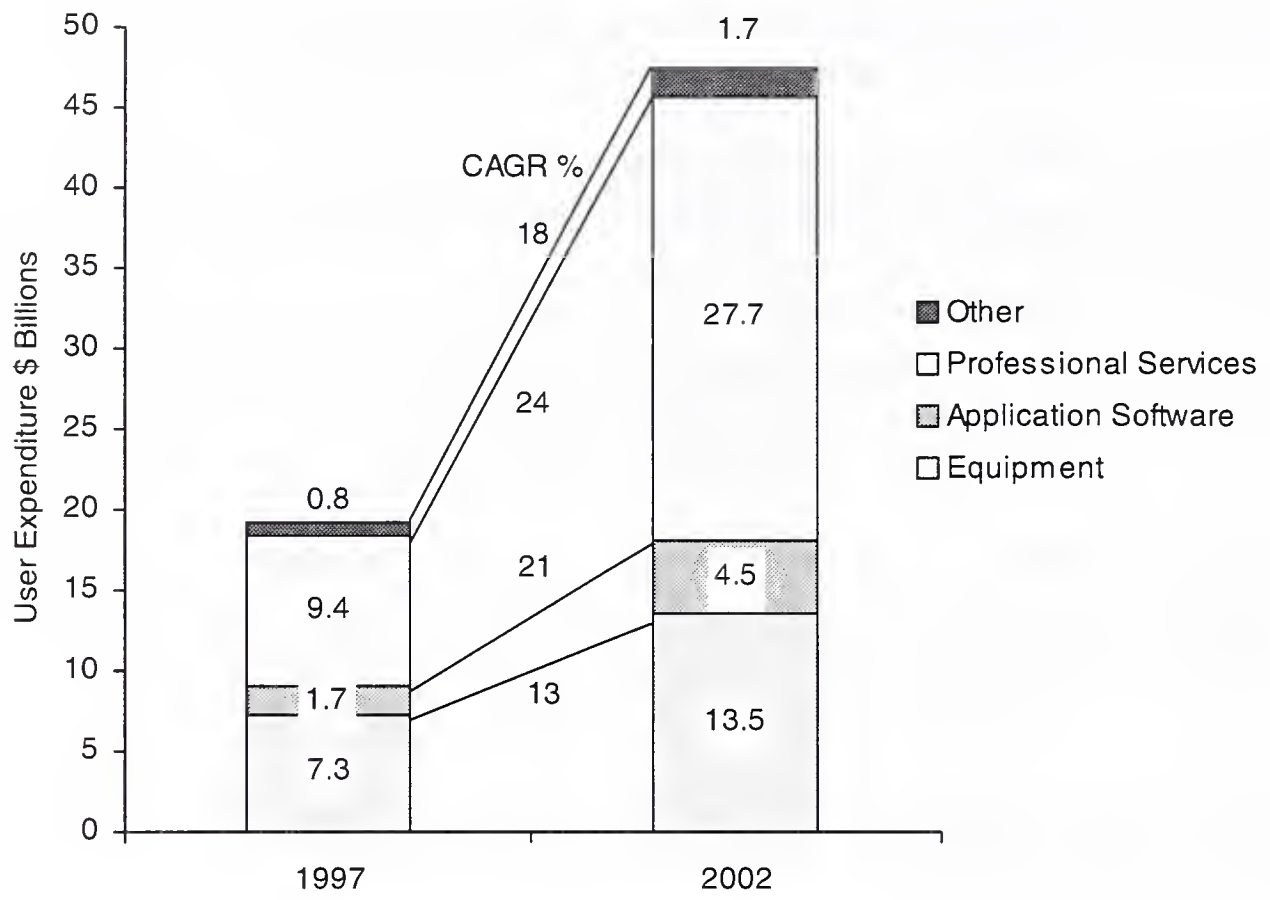
A Systems Integrator is responsible for the overall management of a systems integration contract and is the single point of contact and responsibility to the buyer for the delivery of the specified system function, on schedule and at the contracted price.

The principal components of a systems integration contract are:

- Equipment – the information processing and communications equipment required to build the systems solution.
- Software products – prepackaged applications and systems software products.
- IT-related professional services - the value added element that develops and implements the client solution.
- Other products and services – miscellaneous items such as engineering services, computer supplies and business support services.

Exhibit II-17

US Systems Integration Market



Source: INPUT

Exhibit II-18 shows the growth forecast for the US outsourcing market.

This services category is discussed in Section G below.

Outsourcing is a long-term (greater than one year) relationship between a client and a vendor in which the client delegates all, or a major portion, of an operation or function to the vendor.

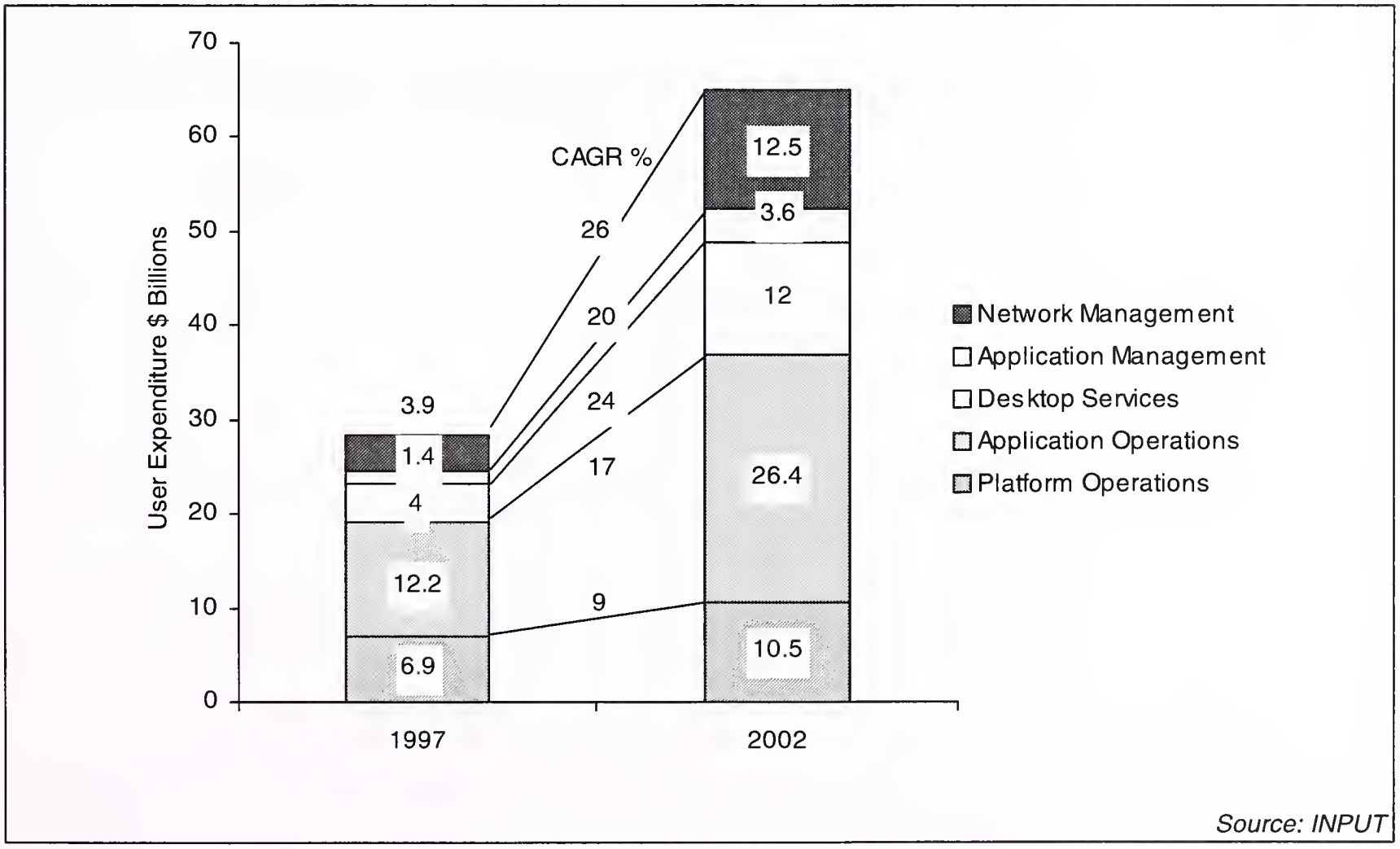
The operation or function may either be solely information systems outsourcing based, or include information systems outsourcing as a major component (at least 30%) of the operation.

The critical components that define an outsourcing service are:

- Delegating an identifiable area of the operation to a vendor.
- Single-vendor responsibility for performing the delegated action.
- Intended, long-term relationship between the client and the vendor.

Exhibit II-18

US Outsourcing Market



Source: INPUT

INPUT has in the course of 1997 introduced the term *Operational Services* to distinguish and group together those services that provide continuous computer/network operations and/or support.

In addition to Outsourcing, described above, this category also includes Processing Services and Network Services.

Exhibits II-19 and II-20 respectively show the development profile in the US for these two delivery modes.

The Processing Services category contains three subcategories:

- Transaction processing – the processing of specific applications and client databases.

- Utility processing – clients develop and/operate their own programs or process data on the vendor' system.

- Other processing services – scanning and other data entry services, laser printing, computer output microfilm (COM), CD preparation and other data output services. This category also included backup, contingency and disaster recovery services.

Network Services include a variety of telecommunications-based functions and operations, including those relating to the Internet.

This category, as can be seen from Exhibit II-20, contains two subcategories:

- Electronic Information Services.

- Network Application Services.

Electronic Information Services are based on databases that provide specific information via a communications network.

Typical applications include stock prices, legal documents, economic indicators, periodical journals, medical diagnosis and airline schedules.

The two main categories of electronic information services are:

- On-line databases – structured, primarily numerical, data on economic and demographic trends, financial instruments, companies, products and materials, etc.

- On-line News (Text) Services – unstructured, primarily textual information on people, companies events, etc. These are most often news services.

There are four types of Network Applications Service:

- Value Added Network Services (VAN Services) – are enhanced transport communications services.

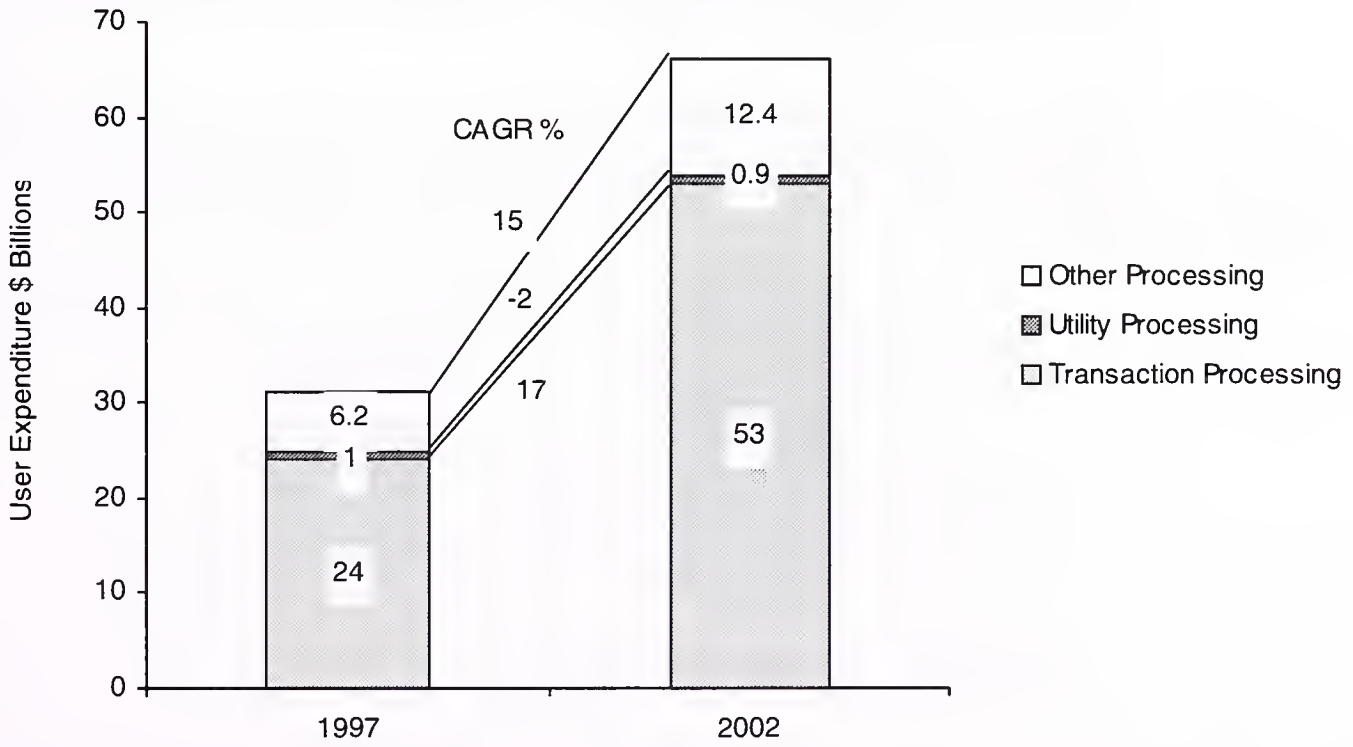
- Electronic Commerce Services – a category that is going to become increasingly significant with the commercial exploitation of the Internet.

- Electronic Data Interchange (EDI) Services – traditional electronic commerce provided as application to application electronic exchange of business data between trade partners or facilitators.

- Electronic Information Interchange – the transmission of messages across an electronic network managed by a service vendor, including electronic mail, voice mail and messaging and including bulletin board services.

Exhibit II-19

US Processing Services Market



Source: INPUT

Exhibit II-20

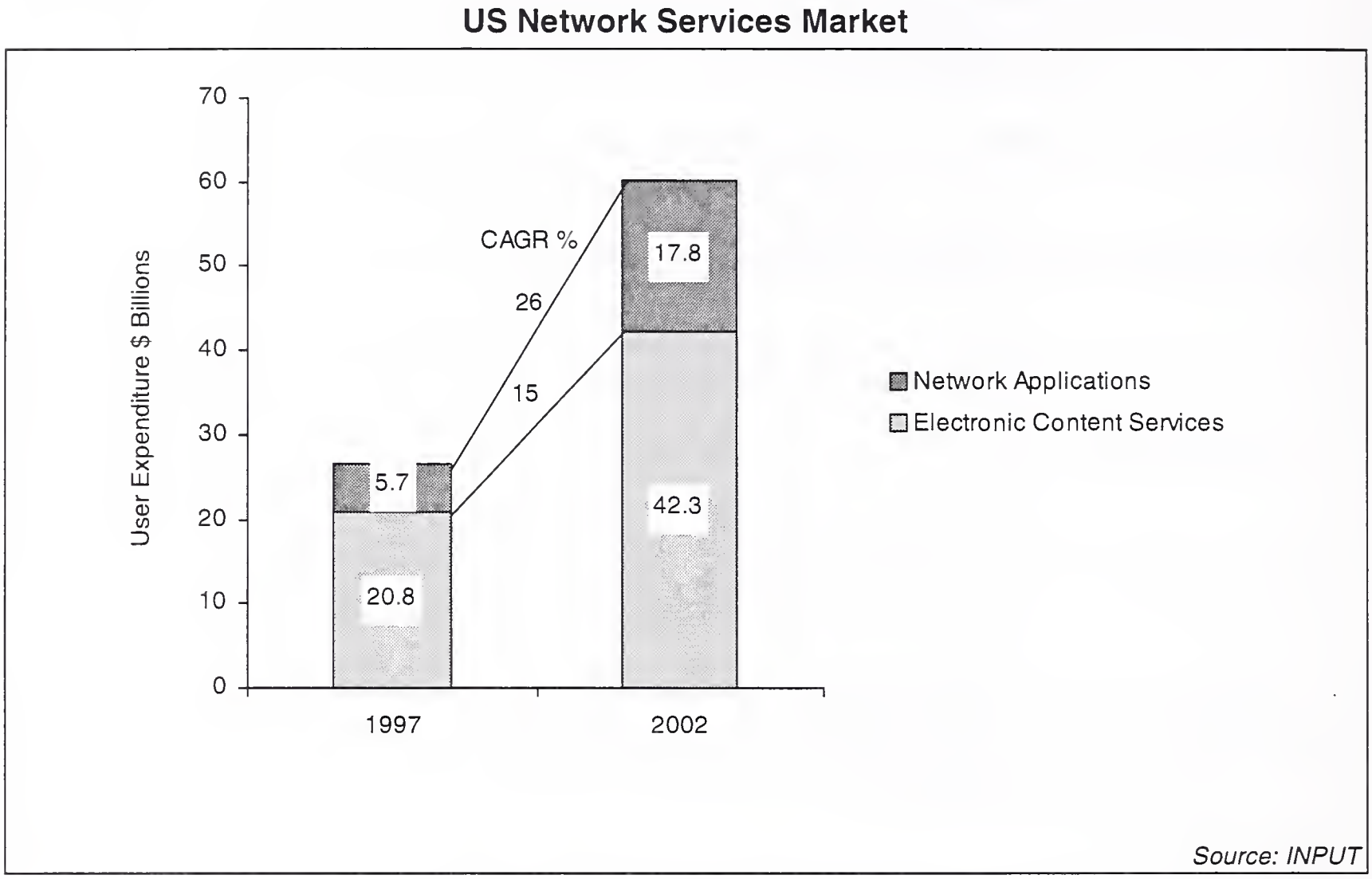


Exhibit II-21 shows the forecast development of the systems software sector in the US.

Systems software products enable the computer/communications system to perform basic machine-oriented or user interface functions.

INPUT divides systems software products into four submodes:

- Systems Control Products.
- Operations Management Tools.
- Application Development Tools.
- Database Management Systems.

Exhibit II-22 shows the forecast development for the Turnkey Systems market.

A turnkey system integrates equipment, systems software and packaged

applications software products into a single product developed to meet a specific set of user requirements.

Value added by the turnkey systems vendor is primarily in the software and professional services provided.

Exhibit II-23 shows the projected growth of the Equipment Services market.

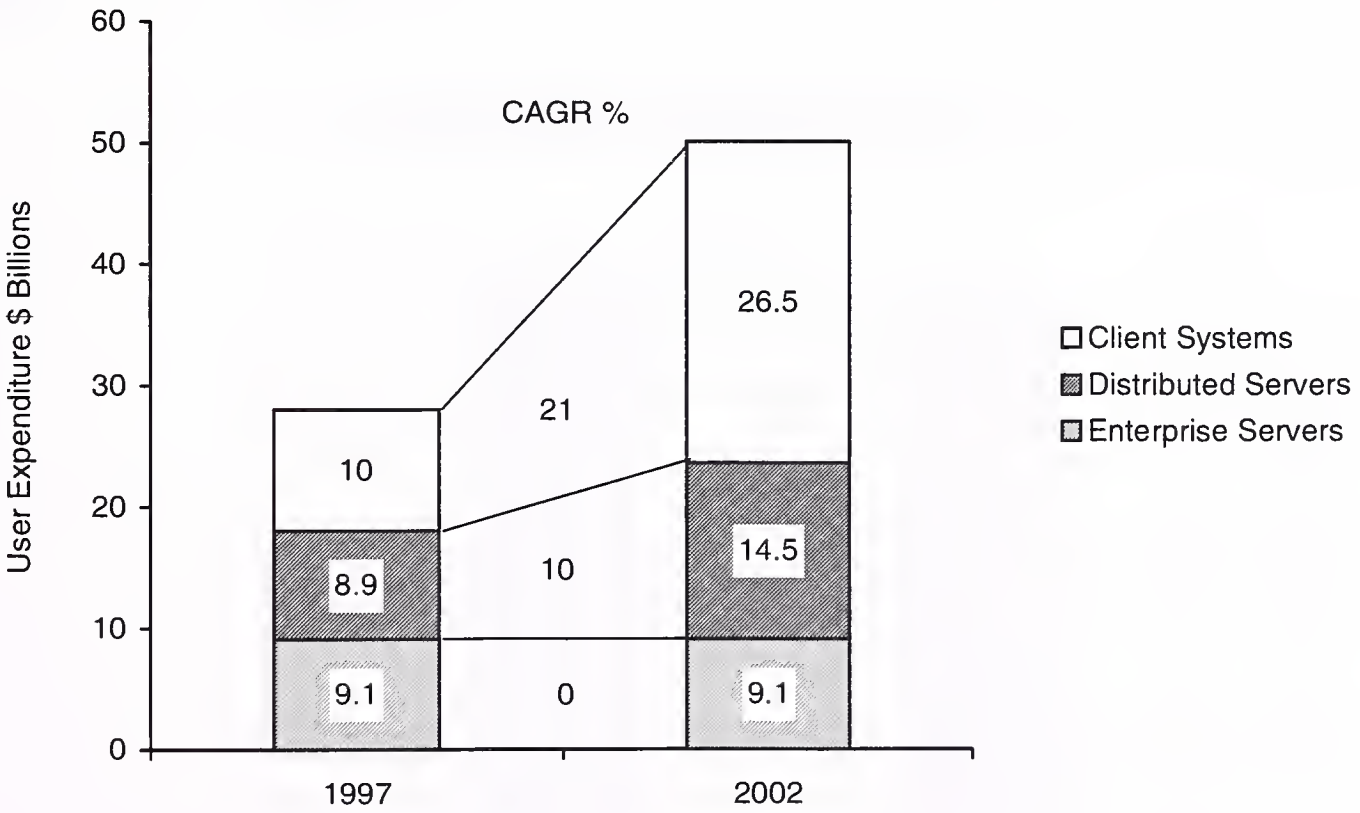
Equipment services comprise systems software product services and support, equipment maintenance and environmental services.

Environmental services are defined as all the planning and implementation services which affect the environment in which computer and communications platforms run.

Environmental services normally involve the installation, upgrade, repair or de-installation of some pieces of equipment, but may be restricted to planning only.

Exhibit II-21

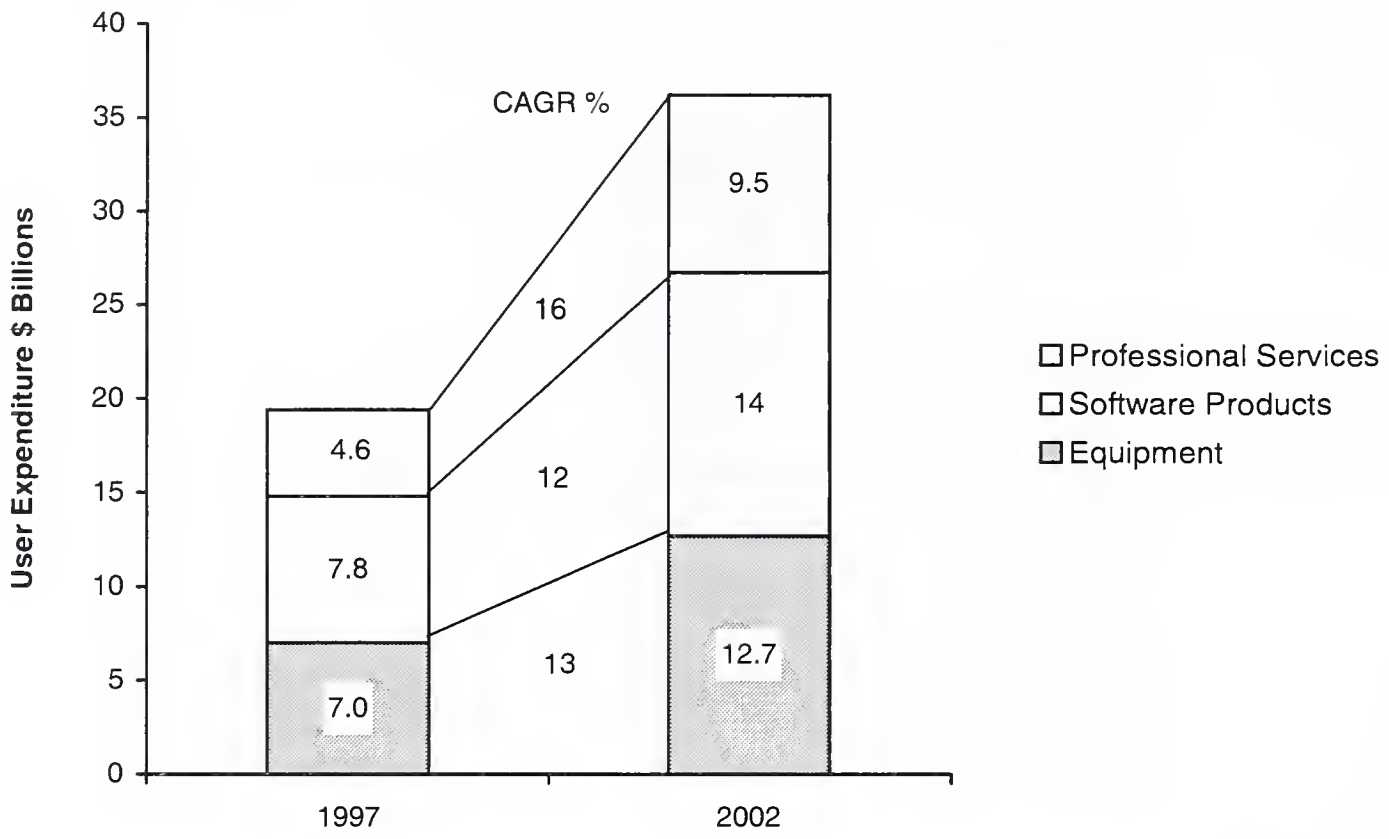
US System Software Services Market



Source: INPUT

Exhibit II-22

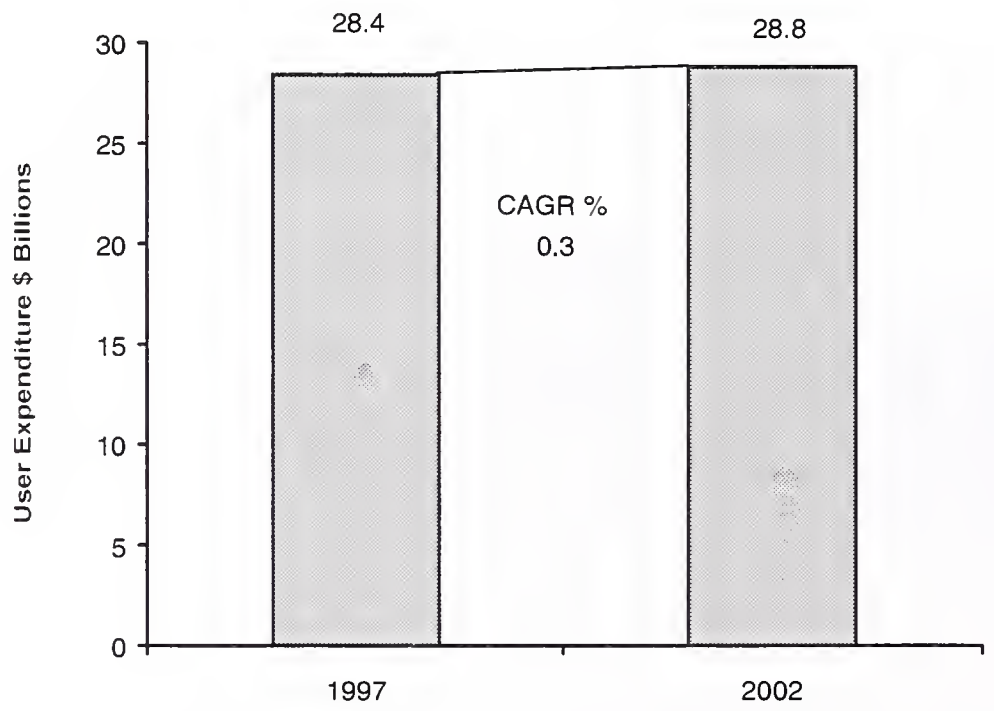
US Turnkey Systems Market



Source: INPUT

Exhibit II-23

US Equipment Services Market



Source: INPUT

D
Critical Market Forces

Certain market forces will be particularly important to the growth of the IT Software & Services Industry over the next few years.

A number of these have separate sections devoted to them below:

- Electronic Commerce.
- Internet technology, notably the diffusion of Intranets.
- Operational services, particularly Outsourcing.
- Enterprise Application Solution products.
- Customer support and services.

Two issues of critical importance to the development of the IT Software & Services market over the next few years are addressed in this section:

- The Year 2000 (Y2K) issue sometimes called the *Millenium bug* challenge.
- The technology challenge of the nexus between client/server and Internet technology designated 3rd generation client/server systems.

1. Y2K Millenium Challenge

The Millenium Change issue, often referred to as 'Y2K', has been heavily publicized in the general media as well as having been a key focus of the specialist IT press.

There remains a growing concern that far too many organizations, whether commercial or public domain, are not yet doing all that is necessary to prepare fully for the Year 2000.

Many people are increasingly coming to the view that is an issue upon which the Federal Government should take an active role and a major level of responsibility.

INPUT's research on this topic indicates that:

- A substantial number of both commercial and government organizations are only now really assessing the problem fully and putting plans into action

- Organizations that have commenced serious Y2K work are finding that they have seriously underestimated the ease with which the transition can be made in terms of both the efficacy of software tools and the associated time/cost commitment.

Some sectors of the economy are of course going to be more vulnerable to Y2K problems than others.

In order of severity of impact, with an estimated severity multiple between top and bottom of the list of a multiple of about 5 times, INPUT's assessment is:

- The Military.

- Manufacturing.

- Financial services.

- Telecommunications.

- Distribution.

- Health care.

Two aspects of the Y2K issue are discussed below:

- Expense estimates for Y2K transition in the US.

- Possible impacts on the IT Software & Services market in the US.

a. Y2K Transition Expense

Enormous cost estimates for Y2K transitions are being increasingly quoted. Over time these estimates become ever larger.

Care needs to be taken in assessing these numbers to distinguish between the natural tendency to include more and more activities under the Y2K umbrella and genuine assessments of the real nature of the problem and the cost of fixing it.

Clearly the risks and costs involve extend far more widely than the basic costs of changing code.

All organizations face costs and risks associated with:

- Loss of customers due to processing errors or other irregularities leading ultimately to the extreme case of going out of business.
- Lawsuits from customers, suppliers and other stakeholders in relation to compliance with regulations, confidentiality or other issues.
- Loss or illegal access to assets whether tangible or intellectual.

For the IT Software & Services industry there is the specific situation of the cost of litigation to settle damage claims for software product or hardware systems failure for Y2K related reasons.

The expense of Y2K transition in the US has been estimated by INPUT at just over $200 billion over the eight year period 1995 through 2002. Of this amount it is estimated that about $34 billion has already been spent.

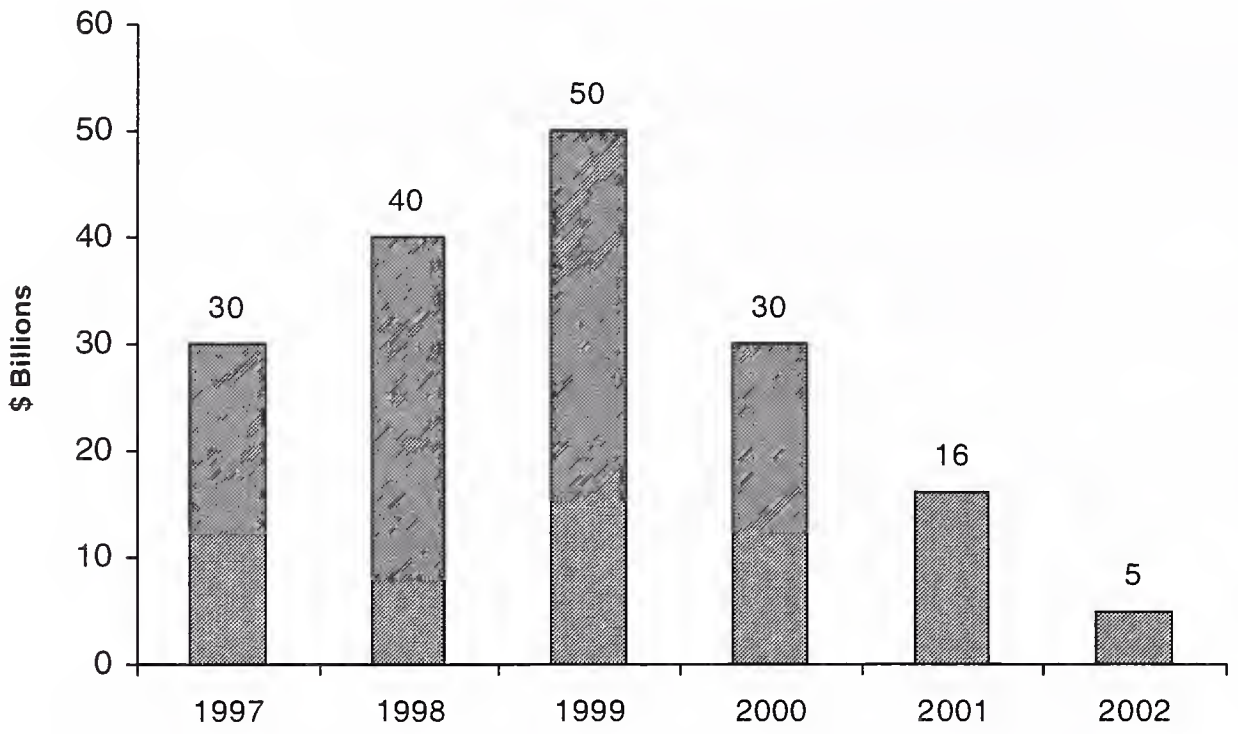
Exhibit II-24 shows the projected rate at which the remaining $170 billion will be expended.

The total $205 billion expected to be spent on Y2K problems between 1995 and the year 2002 in the US comprises the following principal components of expenditure:

- Internal staff expenses - $50 billion.
- Externally provided professional expenses – $75 billion.
- Upgrades of software products - $35 billion.
- New applications software products - $25 billion.
- Other services, e.g. testing - $10 billion.
- New equipment - $10 billion.

Exhibit II-24

Total Y2K Expenditure: U.S. 1997-2002



Source: INPUT

b. IT Software & Services Industry Impact

The imperative to spend a very significant proportion of the total IT budget (see the sub-section above) on Y2K related work is clearly going to impact how buyers allocate their budgets.

Buyers of IT Software & Services only have a limited set of options, our research indicates that they are prioritized in the following order:

- Reduce/cancel future projects.
- Switch from existing project funding.
- Reduce other (i.e. non-IT) expenditures.
- Allocate a new budget or set up contingency budget.

Clearly the amount spent on externally provisioned software and services is only a proportion of the total IT budget.

Supply constraints leading to higher fee rates and the search for offshore resources are already manifest in the market.

Cost inflation for programmers is currently running at about 15% per annum. Professional Services rate increases of about 20% per annum are already being experienced.

The scale of the estimates does however lead to the conclusion that as the costs escalate out of control hard choices will need to be made.

The strategy of replacement of applications by ERP products is now longer a realistic option for many firms due to the length of time taken to engineer this type of transition.

These choices will be about the abandonment of many existing IT based systems because of doubts about their Y2K compliance and their marginal utility when viewed in the light of their transition cost.

As a footnote to the Y2K challenge it is also important to reference the European Monetary Union challenge or common European currency, the Euro.

The significance of the introduction of the Euro for the US market is clearly far less than that for European IT Software & Services markets. However, many US firms operate significant operations in Europe and some transition expense should be factored into IT plans over the next five years.

INPUT estimates that expenditure on Euro adaptation in the US geographical market will total $6.5 billion between 1998 and the year 2002.

Any organization that conducts business with any firm or person in a Euro-based country will need to affect changes or at the least adaptations to their IT systems.

These changes will need to be made irrespective of whether the organization resides in a Euro-based country or not. The date set for the first transactions to be legally conducted in Euros is January 1st 1999.

Principal areas of a business to be affected are:

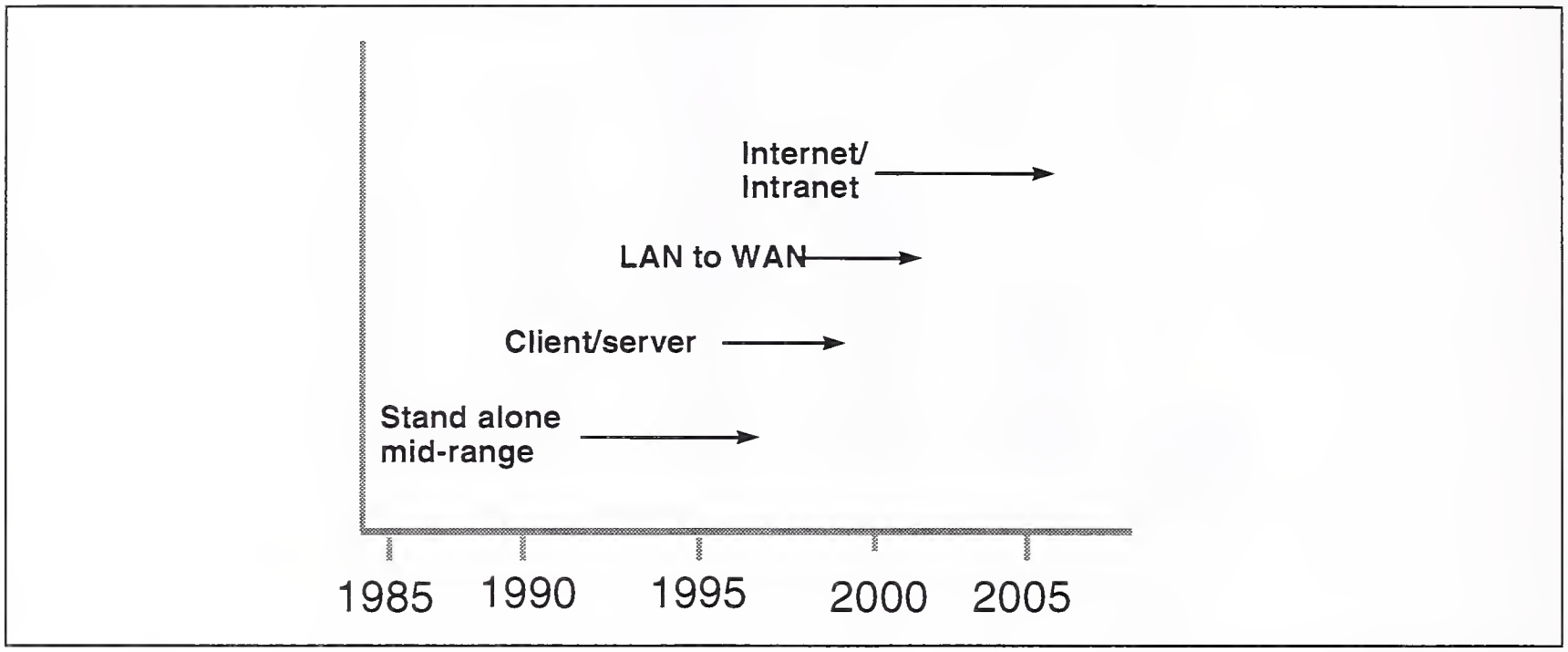
- The whole purchasing cycle of an organization including payments.
- Other accounting functions including financial reporting.
- Treasury management.

2. Technology Drivers

The technology focus of many clients, viewed from a service perspective, is changing, as shown in Exhibit II-25.

Exhibit II-25

Changing Technology Focus for Services



Internet/Intranet issues are overtaking Client/server and networking issues.

Intranets are being adopted as a means of communicating both within an organization and with key partners.

Approximately 60% of major US organizations either have implemented or are currently implementing Intranets

About one third of major US organizations expect to adopt network computers by the year 2000, however we expect the proportion to be much higher, probably nearer one half.

The network computer, despite its potential for control and minimization of support costs, will not though replace the personal computer.

At the moment users are focussed on exploiting the system opportunities being developed in the nexus between client/server technology and Internet based technology. INPUT has categorized this area as third generation client/server systems.

The client/server era emerged as a means of addressing the issue of managing desktop systems in an enterprise environment, but based on proprietary network protocols

3rd generation client/server systems use the open, Internet protocol. Architectural differences of client/server systems are summarized in Exhibit II-26.

Exhibit II-26

Architectural Characteristics of Client/Server Systems

90Need	1st Generation	2nd Generation	3rd Generation
Scope	2-tier	3-tier	n-tier
Network protocol	Proprietary	Proprietary	Open (TCP/IP)
Client-side software	Platform-specific	Platform-specific	Platform-independent
User interface	GUI	GUI	Visual objects
Middleware	Stored procedures	ORBs over Proprietary Networks	ORBs over Internet (IIOP)
Re-use of business logic	No	Yes	Yes

Source: INPUT

The Internet has brought about a revolution in computing and will offer many benefits to users of next generation client/server applications:

- Application flexibility.
- Re-configurability.
- Open application interaction.
- Continuous application enhancement.
- Lower IT costs.
- Applications that extend beyond the boundaries of the enterprise.

The crucial piece of distributed object computing which drives both flexibility and scalability is messaging.

Through encapsulation the application is shielded from the operating environment and separate discrete business processes are separated from one another.

Each of these processes can run on the same or different platforms and is invoked via a message.

Each discrete business process or event can be a client requesting information, a server supplying information, or both a client or a server to another event.

Applications servers built on a distributed and scaleable architecture can scale from a three-tier environment to an n-tier environment.

Third-generation client/server applications also introduce a middle tier, which allows users to use any type or combination of standard database solutions.

Internet servers and browsers from companies like Netscape and Open Market are increasingly being used as platforms for third-generation applications.

Next generation applications utilize distributed servers, upon which reside business applications or objects to be accessed by clients across the Internet.

The servers represent a range of price/performance points to be tailored to specific applications, but they share the common features of interfacing with legacy code and databases and delivering application services to client devices.

The term "Application Server" is a logical distinction and may be combined with Web or object servers.

Because applications are independent of the underlying target client device, the same application is dynamically downloadable, without modification, to a broad range of client devices including "smart" telephones, point-of-sale devices, PCs, workstations, Internet appliances, set-top boxes and more.

INPUT estimates that about one fifth of the client devices purchased by corporations will be Internet appliances or network computers by the year 2000.

Next generation applications can provide quantum improvements in enterprise-wide software maintenance and re-usability.

Next generation enterprise software will have to be implemented using object technology because current procedural methods and tools cannot support the complexity of the operating system and network management needed to control the infrastructure.

The Internet and object browsers will accelerate the movement towards the use of objects to create network-aware applications that extend beyond the boundaries of the corporation.

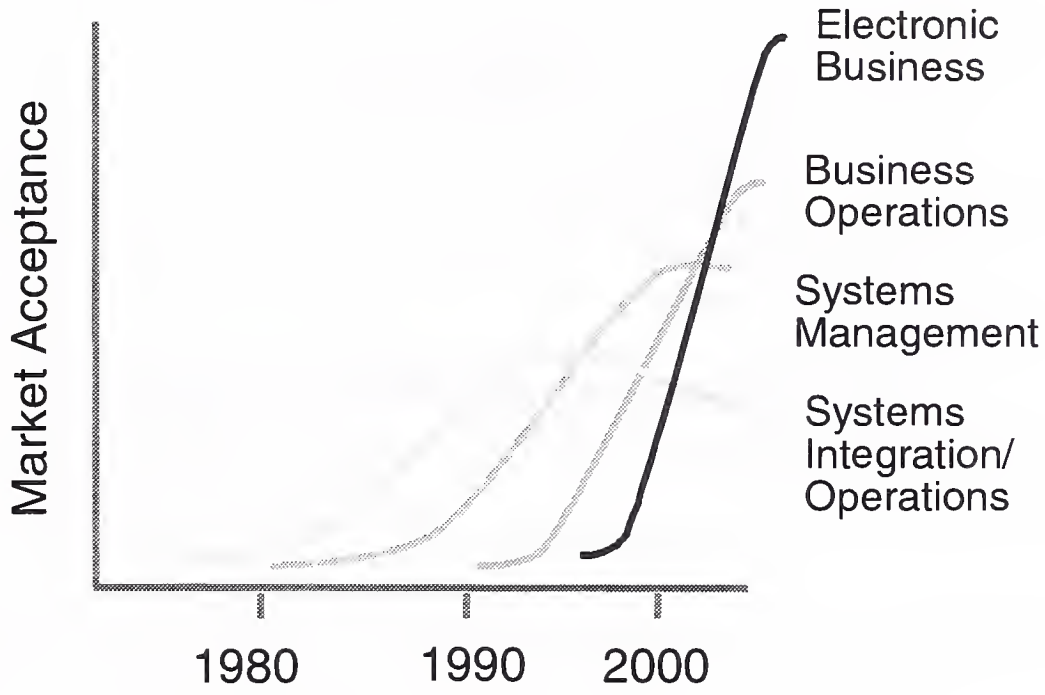
E
Electronic Commerce

1. Introduction

The changes taking place in the IT Software & Services market are summarized in Exhibit II-27.

Exhibit II-27

IT Services Market Waves



Source: INPUT

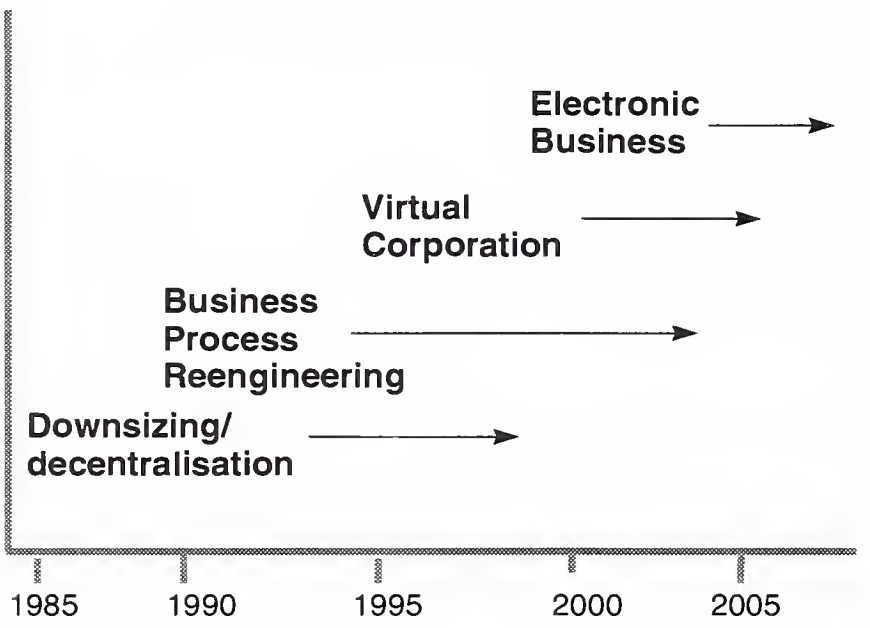
The IT services market is now moving into the Electronic Business phase. Electronic Business is the combination of information technology and business process to form a new way of working. It involves the embedding of IT into a business or other organizational process in order to enable that process to operate.

Electronic Business is typically much more externally focused on the organization's clients and suppliers than the more traditional uses of IT to support internal business processes.

The possibilities created by new technology are leading to an increasing belief in Electronic Business as a way of doing business as shown in Exhibit II-28.

Exhibit II-28

Changing Management Philosophies



Source: INPUT

Over the past couple of years the Internet has experienced explosive growth in the business sector. However, as yet there is only a relatively small amount of business being conducted electronically when viewed at a total economy level.

At the individual company level there are some spectacular success stories e.g.

- Cisco.
- Dell.

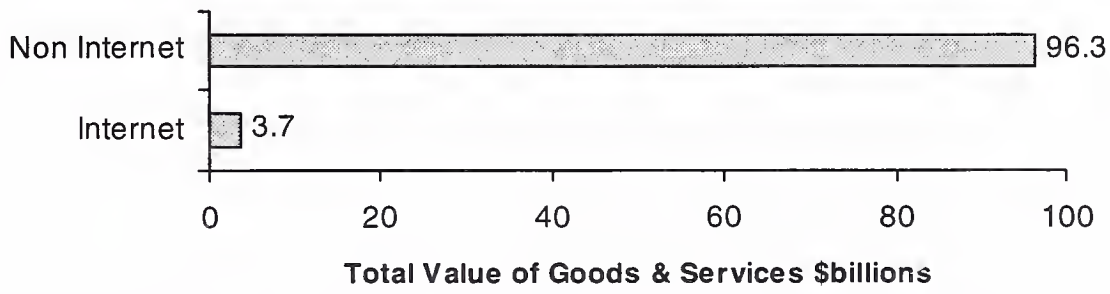
- Amazon.com.

Currently business to Consumer Electronic Commerce WWW activity outruns that of the Business to Business sector. This is predicted to change dramatically.

Exhibit II-29 gives INPUT's estimates of the total value of goods and services sold in the United States via Electronic Commerce.

Exhibit II-29

Total Value of Goods and Services Sold Electronically – United States



Source: INPUT

2. Electronic Commerce Sales Approaches

In the U.S. where there are three goals for Electronic Commerce of nearly equivalent importance:

- Reduction of operational costs.
- Reduction of order-to-delivery time.
- Increased ability to manage business.

Reducing application development time does not appear to be an important objective and need not be emphasized in vendors' marketing approaches.

The impact of electronic commerce integration with enterprise applications is not yet perceived as highly important in accounting, logistics, or production planning.

INPUT believes these areas are likely to constitute a second wave of Electronic Commerce integration, beginning in 1999.

3. Emerging Collaborative Strategies in Electronic Commerce

Until now, players in the Electronic Commerce (EC) market have been characterized by fragmented offerings: security, payments, EDI applications, etc. These offerings provide only partial solutions to a client's EC needs.

As the market develops, however, players are collaborating in a variety of relationships, including alliances, joint ventures, acquisitions and equity stakes, to offer more complete solutions.

As collaborative activities gain momentum, subtle shifts in EC market development are becoming evident, which include:

- Greater focus on the business-to-business segment.
- New interest in the midsize market.
- Market consolidation.

This section presents a brief review of current collaboration in the EC market in the form of alliances, joint ventures, and acquisitions.

a. Alliances

In the current atmosphere of turmoil and uncertainty, players in the EC arena are more comfortable hedging their strategic bets by allying with a variety of partners.

These can include would-be competitors, companies with complementary offerings, even customers and customer communities. Recent examples include:

1. HP and AT&T are allying to deliver products and services that facilitate Electronic Commerce, including electronic storefronts and intranet- and extranet-based activities. The two companies are collaborating with iCat and Open Market as well.

2. Price Waterhouse and Mondex are teaming to provide services for financial firms and merchants implementing the new Mondex electronic cash platform. Mondex develops and markets the smart card for the platform, while Price Waterhouse will provide consulting services.

3. VeriFone, which delivers electronic payment systems to financial institutions, merchants, and consumers, is allying with DIGEX, an independent national Internet carrier, to offer a turnkey electronic storefront solution. The solution incorporates VeriFone's vPOS Merchant Software and Microsoft Merchant Server.

4. Premenos Technology Corp. and IBM Global Services formed a marketing alliance to promote EDI implementation for midsize companies that use IBM's AS/400. This effort will be boosted by IBM's recent launch of the AS/400e as a Web commerce server. The team's solution also leverages Premenos' PowerDox and WebDox trading community solutions, which are designed to make EDI transparent to end users via an electronic forms interface while providing local storage and application integration.

5. Lockheed Martin Information Systems and Technologies (IST) and Information Resource Engineering, Inc. (IRE) are allying to provide secure Electronic Commerce offerings to large organizations in the following markets: telecommunications, finance, insurance, health care, banking, and pharmaceuticals. The team will leverage Lockheed's systems integration expertise and IRE's SafeNet family of Internet security products.

6. HP and SpaceWorks, which offers EC service-bureau services and order management software (OrderManager), are combining to offer electronic, self-service ordering capabilities to supply chain partners in the small to midsize business-to-business market segment.

7. IBM Global Services and Dun and Bradstreet (D&B) are teaming to deliver identity checking capabilities using information from D&B's databases.

8. IBM Global Services partners with Siemens to provide Internet-based trading of electric power for the utilities market. This service, Energy Network Exchange, is similar to two others IBM offers to communities in other vertical markets: Insure-Commerce and PetroConnect.

9. EDS and customer CargoNet are partnering to develop the market for electronic commerce and logistics services among trade and transportation companies in Hong Kong and nearby countries.

10. MCI Systemhouse and startup CommerceOne will partner to provide the Commerce Chain Solution, enabling suppliers to outsource the management of catalogs while continuing to manage their content

updates. MCI will provide the hosting and systems integration services while CommerceOne provides software.

b. Joint Ventures

Sometime competitors are combining strengths more permanently via joint ventures to address emerging needs in the EC market. A sampling of recent EC joint ventures follows.

1. Actra, a joint venture between Netscape and GEIS, combines Netscape's advantage in Internet standards and object technologies with the extensive experience of GEIS in electronic trading to enable EDI users to do business electronically with non-EDI users.

2. Andersen Consulting and BBN, now a unit of GTE, have established a joint venture that provides Internet-based services such as billing and order processing.

3. Microsoft has formed a joint venture with First Data Corp., called MSFDC, to enable Internet-based bill payment for consumers. The venture will enable bill payments over the Net, through Web browsers, e-mail, personal financial software, Web-enabled screen phones, and WebTV. Collaborators on the venture include advisory board members American Express, Chase Manhattan, Citibank, Wells Fargo and Bank of America. Other board members include: American Gas Association, Edison Electric Institute, and the U.S. Telephone Association.

4. Intel Corp and SAP America, Inc. have launched a joint venture, Pandesic LLC, that will offer integrated hardware and software for Internet commerce to small and medium-sized businesses. Pandesic will handle Internet-based accounting, ordering, delivery and inventory updates. Through the alliance, Intel intends to target a new market segment: small to medium-sized companies. Support and systems integration services will be provided by US Web.

c. Acquisitions and Equity Stakes

As the fragmented EC market matures, consolidation is occurring via acquisitions and equity stakes. The purchases provide a range of advantages from market development to expansion of service portfolios. EC acquisitions include:

1. The purchase of Automated Catalogue Services (ACS) by Sterling Commerce will add ACS's capabilities in delivering product

information databases via the Internet and CD ROM to the EC portfolio of Sterling Commerce.

2. IBM's purchase of the 30% share of Advantis formerly owned by Sears, Roebuck & Co. will gain it full ownership of the network. Advantages for IBM will include: greater flexibility, efficiencies, and the ability to make and implement decisions faster. IBM also opted in June to close its World Avenue Internet mall, which had experienced low volume. Both moves reflect a stronger orientation toward the business-to-business segment of electronic commerce.

3. HP, through its acquisition of VeriFone, Inc., will extend its electronic commerce capabilities to include secure payment transactions by leveraging VeriFone's expertise in verifying credit card transactions on the Internet.

4. The acquisition by Sterling Commerce of the French communication software company, Comfirst, SA, will provide additional global presence plus expertise in French banking and manufacturing protocols for automated file transfers.

5. The acquisition by Open Market of Waypoint, producer of an electronic catalog tool, allows Open Market entry into the business-to-business electronic catalog market. Open Market will use the tool for front-ending its OM-Transact electronic commerce software with business-to-business electronic catalogs. This will enable manufacturers and engineers to locate and order parts more efficiently.

6. Sun's JavaSoft Division is acquiring Integrity Arts, a two-year-old smart card startup, which has been funded by the French smart card provider, Gemplus. Sun hopes to promote market development for Java-based smart cards via the acquisition.

7. Integrion Financial Network has acquired Visa Interactive, the remote banking subsidiary of Visa International. The acquisition enables Integrion, which provides interactive banking for financial institutions, to add more than 60 financial institutions to its customer base.

8. Harbinger acquired competitor SupplyTech early in 1997, extending its range of offerings and customer base significantly.

9. Andersen Consulting and ShopLink are teaming to develop proprietary PC-based shopping services for direct sales to consumers.

Andersen Consulting will provide business integration, consulting on the business model for the service and has also taken an equity stake.

10. EDS will work with startup PowerAgent to develop targeted Web-based marketing services and has also purchased an equity stake in the company.

d. Conclusions

Vendors need to recognize that pressures on their clients will drive the demand for fuller, more integrated EC solutions. These pressures include: changing competitive dynamics, market uncertainty, skills shortages, and margin pressures.

Strategies to acquire full EC solution portfolios include:

- Collaboration via alliances and joint ventures. Vendors are doing such partnering with competitors, complementors, customers, and customer communities.

- Expansion of portfolios and markets via equity stakes in startups and acquisitions.

Collaboration with a variety of partners enables vendors to be better prepared to meet all potential future requirements and leverage emerging opportunities. Collaborative strategies can also help vendors to target certain emerging segments of the EC market, such as business-to-business EC and the small – to mid-size business segment.

Vendors will no longer focus on a single solution, but, instead, on several that will be more likely to meet both current and future needs.

Examples of this might include parallel collaborative strategies involving both traditional EDI and the more future-oriented Internet commerce, or a dual orientation that includes offerings for both the large and the midsize markets.

Vendors need to be equipped with a number of partners, so they will be nimble enough to change direction and leverage a variety of opportunities as the market evolves.

F
Internet Technology Impacts

This section reviews the Internet/Intranet services market in the United States and provides a discussion of the specific Intranet related opportunity and possible scenarios for an Intranet enabled IT Industry.

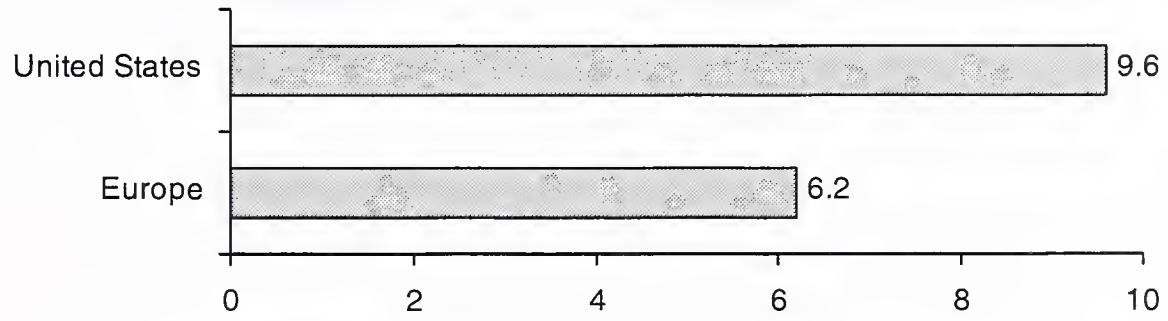
1. US Internet/Intranet Services Markets

Internet/Intranet Services represented 9.6% of the total US IT Software & Services market in 1997.

Exhibit II-30 shows the comparative figure for the European market.

Exhibit II-30

Internet/Intranet Services Relative to Total IT Software & Services

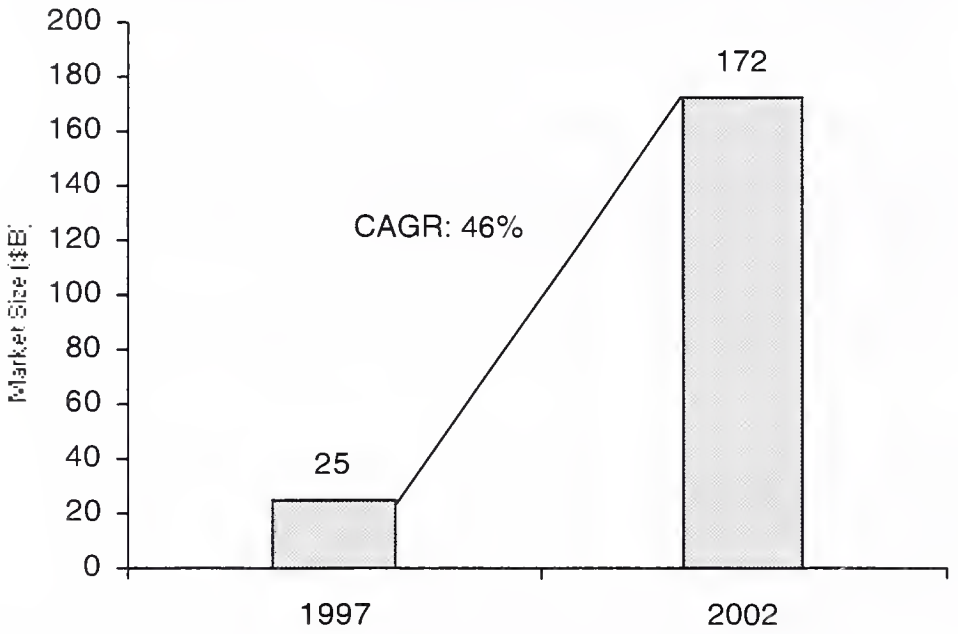


Source: INPUT

Exhibit II-31 shows the expected development of the US Internet/Intranet services market.

Exhibit II-31

US Internet/Intranet Services Market

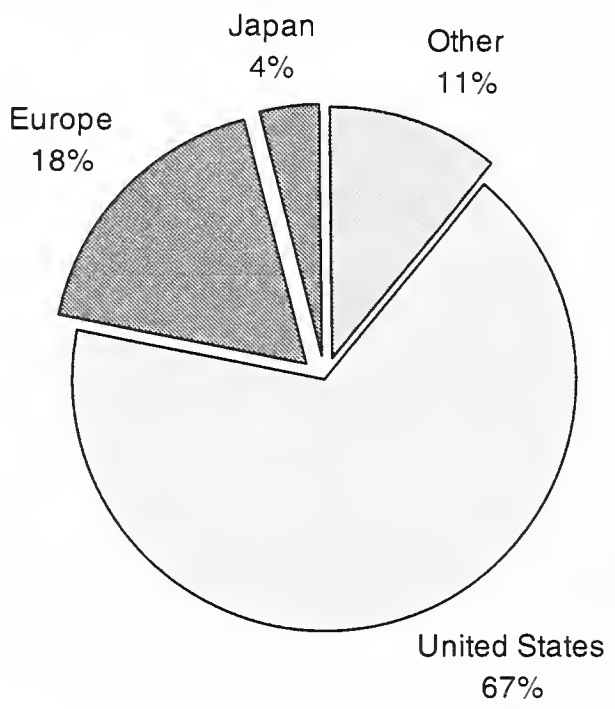


Source: INPUT

Exhibits II-32 and II-33 show the worldwide distribution of Internet/Intranet Services markets.

Exhibit II-32

Worldwide Internet/Intranet Services Market Distribution

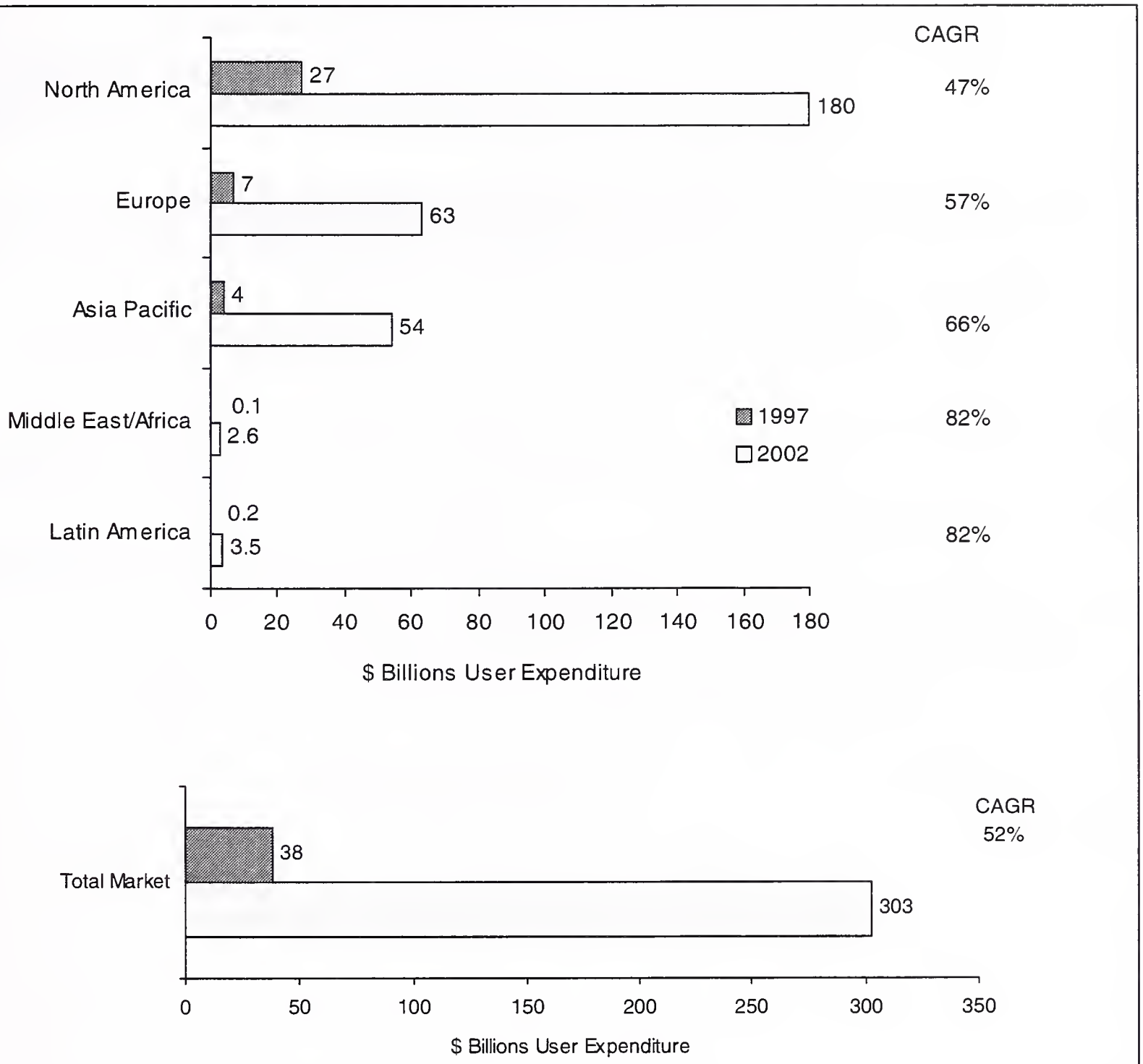


Total Market 1997 $38 Billion

Source: INPUT

Exhibit II-33

Regional Internet/Intranet Services Markets



Source: INPUT

2. Intranet Development in the US

The current situation of Intranets among US organizations is that:

- Intranets are still most commonly used for low-value applications.
- The primary motive for Intranets is to extend the reach of IT within the organization, not to save costs, as is commonly perceived.

- Intranets are developed in-house with moderate use of external services, and are funded from centralized IT budgets.

Intranets are Still in Early Phases of Use. Most large companies, which currently have, or are building Intranets use them for relatively simple applications.

Static information sharing (the equivalent of 'brochureware' on the Internet) is the most common use of Intranets, as evidenced by the following findings:

- The most common use of Intranets is for internal information distribution.

- Administrative departments are the most common beneficiaries of Intranets.

- The most common reason for building an Intranet is ease of access to all types of information.

- Most applications run over Intranets are non-critical.

Exhibit II-34 shows the phases that INPUT defines for Intranet use.

Phase five is not expected to be reached by many, if any, medium-sized or large enterprises by 2000.

Exhibit II-34

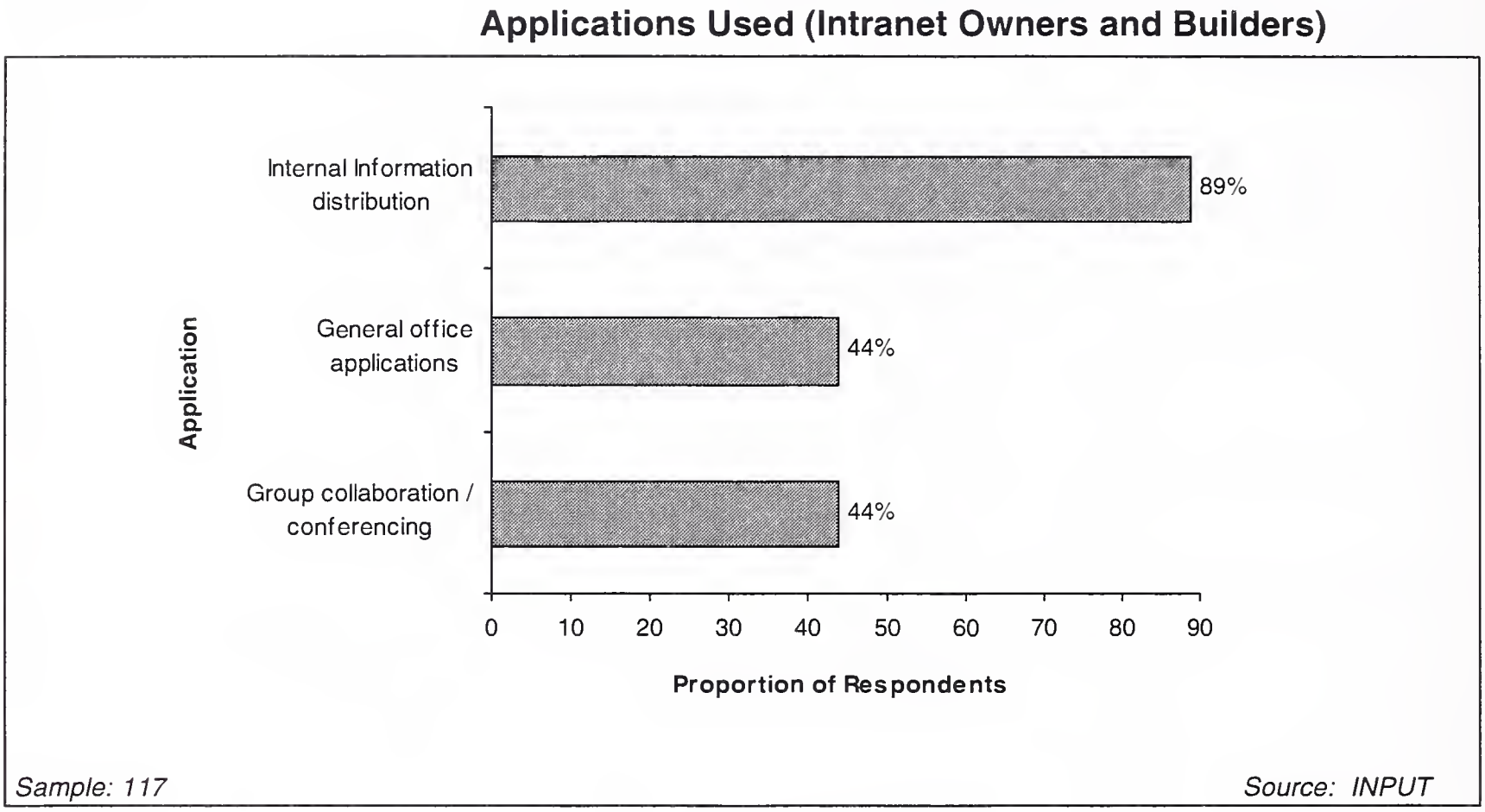
Phases of Intranet Use

Phase	Description	Examples
One	Static information distribution, mostly administrative	Company policy documents, staff and telephone directories and visitor registers
Two	Business unit and departmental information sharing	Product plans, financial data, customer service records and sales contacts
Three	Group collaboration	Project management, groupware and desktop conferencing
Four	Integration of existing systems and applications with Intranet	Web-enabled datawarehouse, Web front end to legacy databases, product design and live customer service querying
Five	Replacement of legacy systems with Intranet equivalents	All current applications

Source: INPUT

Exhibit II-35 shows the top five uses for which Intranets are currently adopted

Exhibit II-35

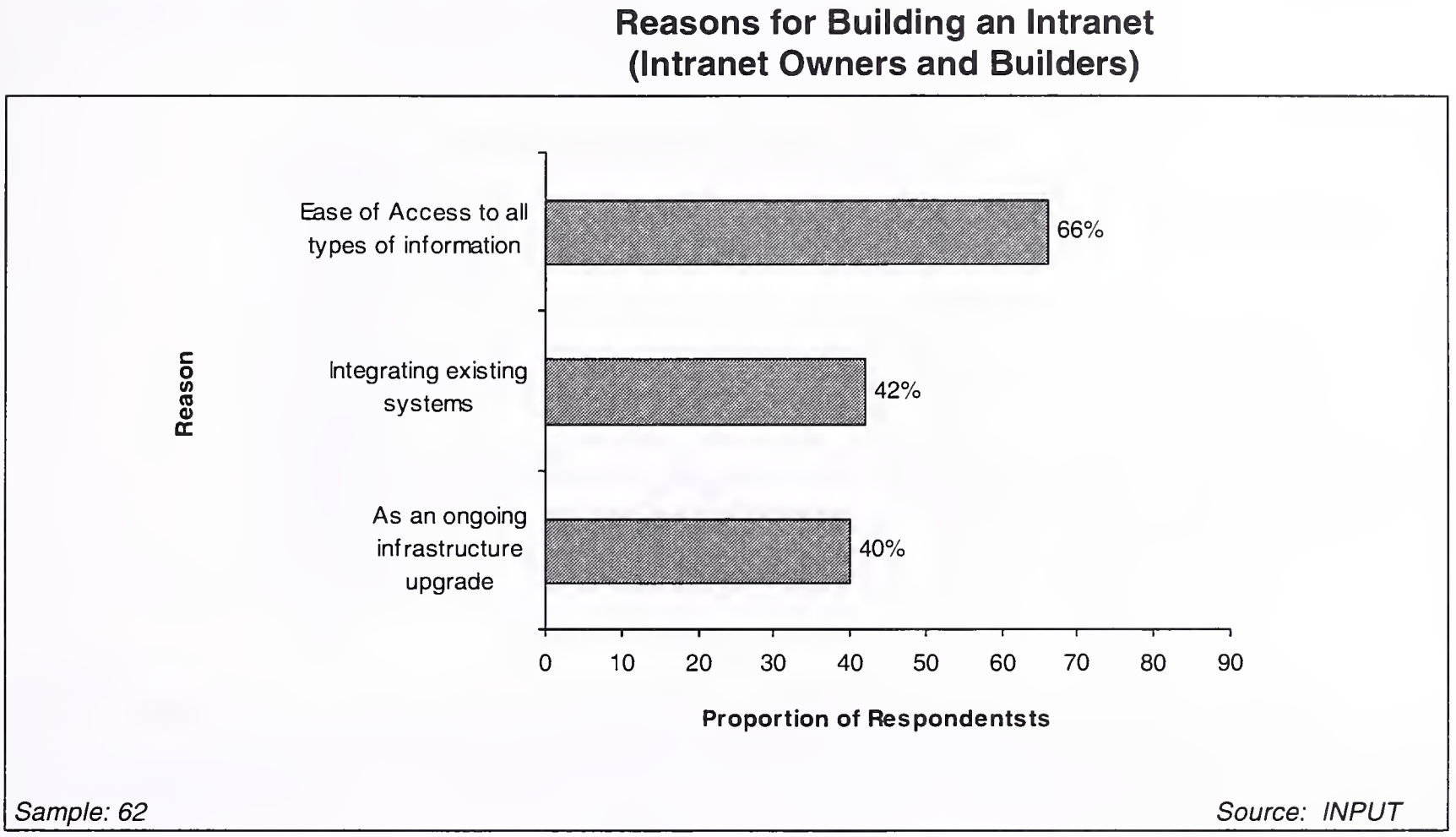


The majority of current Intranet applications are not business-critical.

The criticality of most Intranet applications is forecast as becoming high or of medium importance within three years, due to the increasing integration between Intranets and existing corporate systems.

Intranets are built to extend IT capabilities, not just to save costs. Exhibit II-36 shows the top three reasons given by buyers and builders for their Intranet developments

Exhibit II-36



Sample: 62 *Source: INPUT*

Exhibits II-37 and II-38 show the change in size of the US markets for Intranet-related professional services and systems integration between 1997 and 2001.

Exhibit II-37

US Intranet Professional Services Market, 1997 and 2001

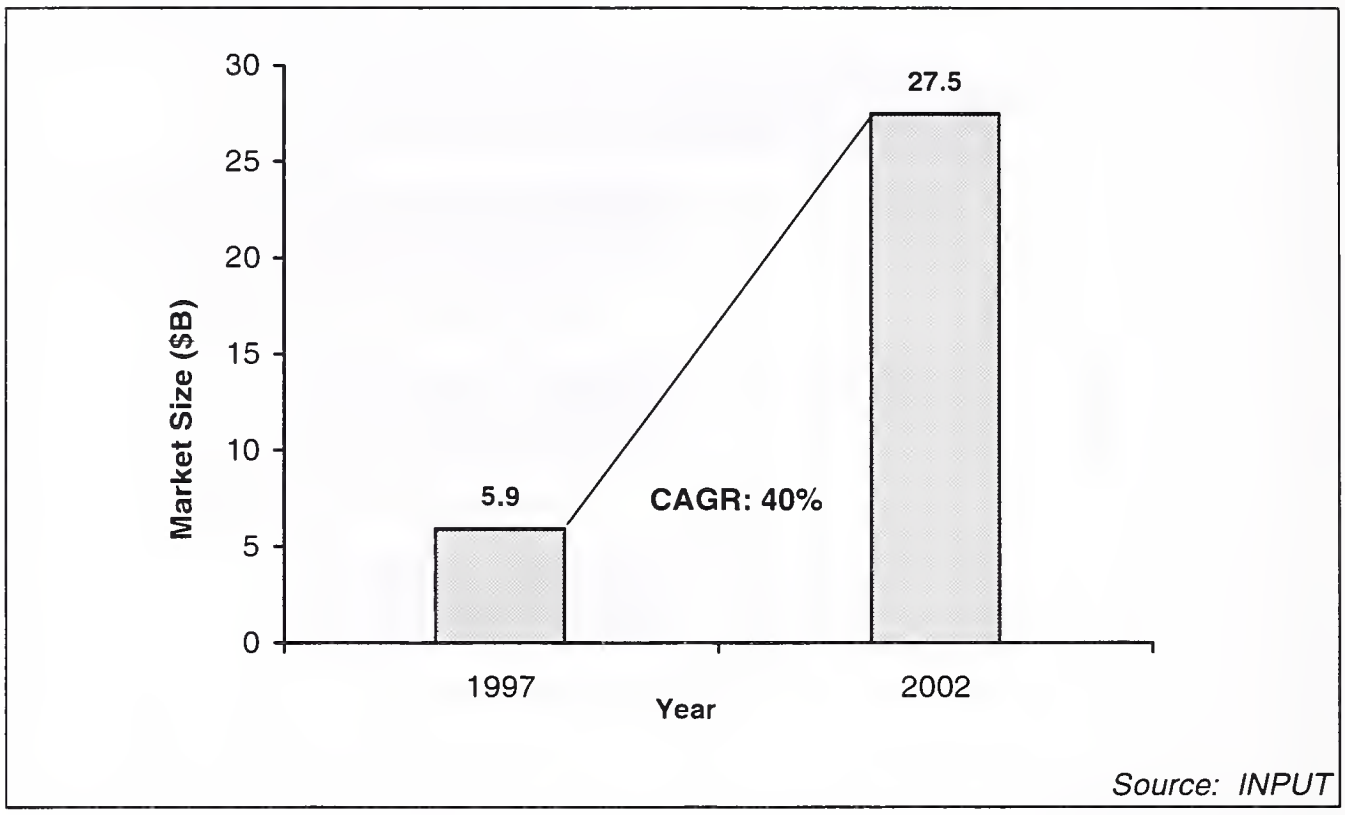
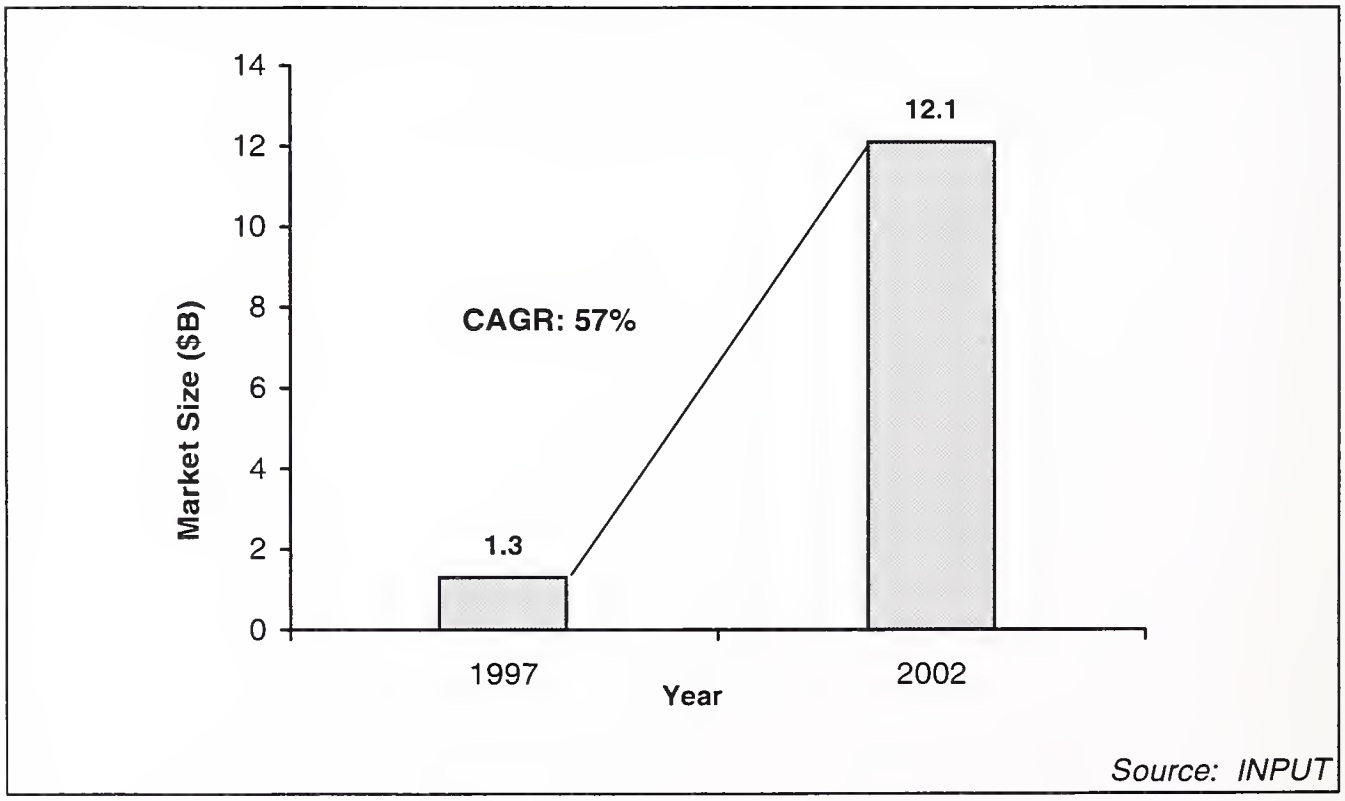


Exhibit II-38

US Intranet Systems Integration Market, 1997 and 2001



Users at different stages of adopting Intranet technology require different types of external service

The different patterns of demand correlate to levels of user experience. Three categories of users are recognized:

'A' = Advanced (already has an Intranet)

'B' = Building (currently developing an Intranet)

'C' = Considering (currently deciding whether to implement an Intranet).

Type Bs have so far made much less use of external services than have other types of organization.

The scenario that would account for this is represented in Exhibit II-39. The demand for third-party services is high both before and after the project is undertaken, but dips during project implementation.

Exhibit II-39

The Changing Services Needs of Users During Intranet Implementation

Stage of Intranet Implementation	Skills	Need for External Services
Considering implementing	Low	High perceived need for external services
About to implement	Medium	Less perceived need for services, but real-world problems not yet faced
Implementing	High	Real-word problems emerging, but project underway
Implemented	High	Problems initially unplanned for = actual need for external services

Source: INPUT

It appears at this stage that Intranet users are more likely to procure applications through third-party custom development than through buying off-the-shelf packages.

The proportion of custom-developed applications is set to decrease as shrink-wrapped packages appear in greater abundance, their quality improves, and 'component-ware' (modular, object-based software) becomes mainstream through such technology as object frameworks and Java.

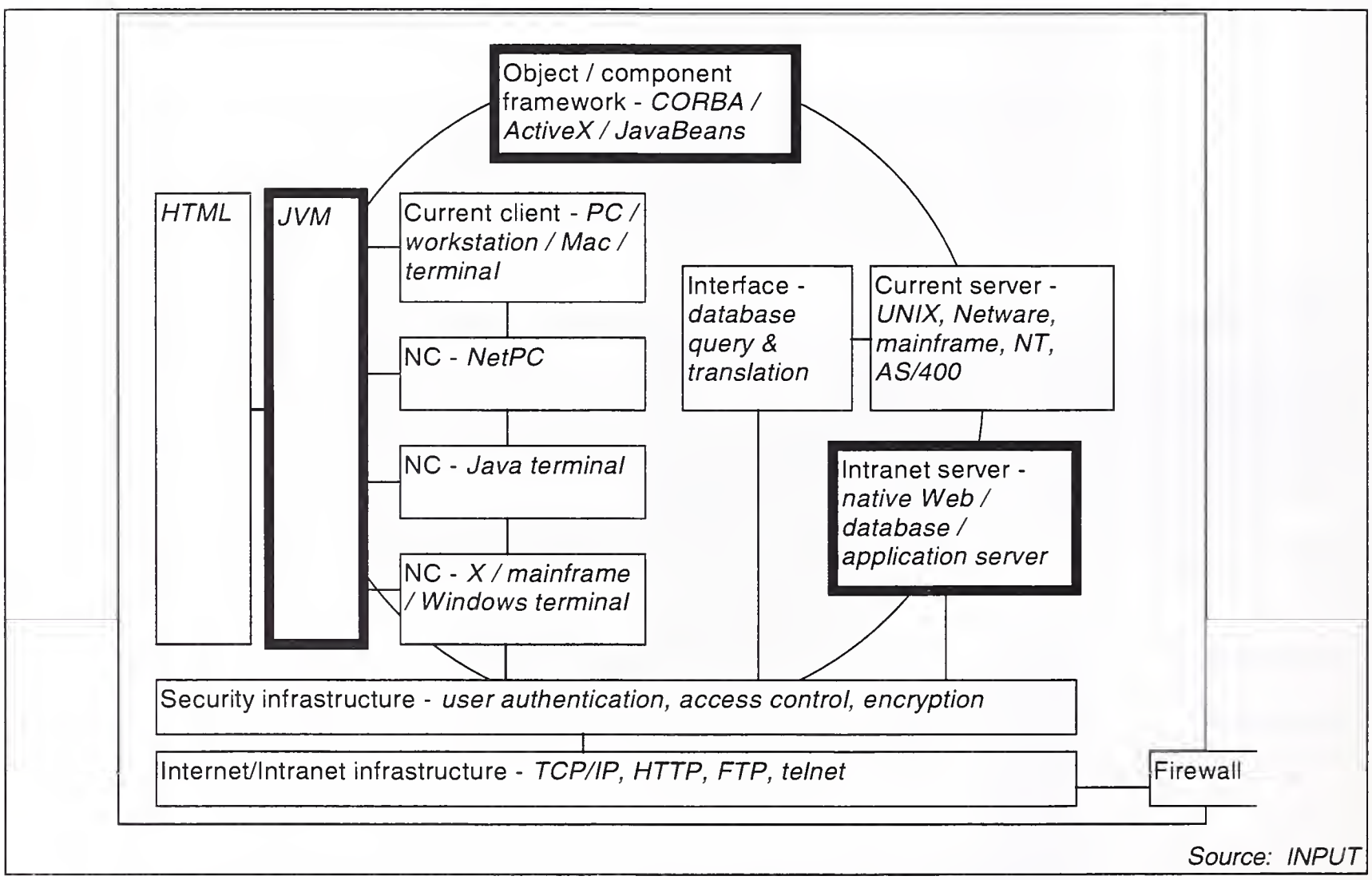
3. Three Scenarios for the Intranet-Enabled IT Industry 2002

Two overarching forces within the IT industry will play a pivotal role in defining the shape of Intranet computing over the next five years (1997 to 2002). Those forces are the Java Virtual Machine (JVM) and Microsoft Corp.

Exhibit II-42 shows the major elements of an Intranet environment; thickly outlined elements are those most directly impacted by future changes.

Exhibit II-40

Major Elements of an Intranet Environment



Source: INPUT

The future of Java and the JVM will fall into one of these three scenarios:

- Java fulfils the open systems promise.
- Java fragments through conflict of interests.
- Java fails to deliver.

Two assumptions are made about computing between 1997 and 2002:

- *Network computing will continue to pervade*—mainstream network-centric computing has gathered considerable momentum during the 1990s. This momentum is being driven not by creating demand but by feeding it. The potential benefits of network computing are too great to make a reversal of this trend likely.

- *Internet/Intranet data access and presentation will remain open*—Internet and Web infrastructure (TCP/IP, HTTP, HTML, etc.) is inherently 'open' and platform-neutral. Attempts will be made to control higher-level services, but the underlying transport layer of the Internet will remain open.

a. Scenario 1—Java Fulfils the Open Systems Promise

In this scenario, the popularity of Java applets and applications leads to the widespread deployment of the JVM as the default application environment on all platforms.

All new client and server platforms (including specialized Internet appliances and embedded devices) would be delivered with the JVM. To software developers and users, the underlying hardware and operating system of a platform would become largely irrelevant.

Most importantly, applications would be decoupled from the underlying operating system and hardware platform, sufficient reasons for Java's success:

- For Java and JVM to fulfil the promise of open systems ("write once, run anywhere"), they must remain standardized.

- NCs would begin to replace PCs currently used for data entry and routine tasks, and would replace most mainframe and X terminals by 2002.

- The impact on the IT services industry would be considerable. Application implementation services would consolidate around the JVM, leading to greater commoditisation of such services.

- Microsoft stands to lose heavily from this scenario, as it loses the dependence of application on operating system that fuelled its growth in the 1990s.

b. Scenario 2—Java Fragments through Conflict of Interests

In this scenario, Java and the JVM achieve widespread deployment, but attempts to bind all JVM implementations together through a single, unified standard fail.

This scenario would lead to a replaying of the UNIX 'wars' witnessed through the late 1980s and 1990s.

Like UNIX today, Java would be promoted as an 'open' environment, but in reality would become a set of fragmented, proprietary implementations of an 'open' system.

NCs would take the place of low-end workstations, but would be sourced in most cases from the same vendor that supplied the back-end server and current workstations.

Fragmentation would occur throughout the emerging Intranet environment, with vendor- and platform-specific implementations from the JVM upwards, caused by suppliers' contrary desires to standardize and yet retain installed base.

A common object model would emerge either slowly or not at all.

ActiveX and CORBA would remain incompatible, although gateway software to facilitate communication between the two environments would form a significant proportion of the middleware market.

The impact on the IT services industry would not be great. Services providers would be affected more by the underlying trends of network computing and Intranets than by any fundamental architectural change that a fragmentation scenario would produce.

Implementation skills would shift to the Java and JVM level, but delineation by vendor's architecture, as is the case today, would continue.

c. Scenario 3—Java Fails to Deliver

In this scenario, Java and the JVM do not achieve widespread success due to escalation of problems experienced today, including: slow performance, irresolvable security issues, and inflexibility caused by lack of access to local client resources.

Code compilation would remain native (specific to the hardware and operating system), and applications would remain tied to the underlying platform

Windows NT would continue to push UNIX out of the midrange server market, driven not only by the integration provided with an increasing proportion of Windows desktops but by its low cost and ease of use.

Software providers' development cycles would endure—developers would be required to target platforms individually, and would therefore target the largest market: Windows on the client and server.

NCs would find a market as replacements for X and mainframe terminals and as handheld devices, but their success in the corporate market would end there. For NCs to be adopted throughout the enterprise, Java must succeed.

The impact on the services industry in this scenario would be minimal. Following the shift in the market, services providers would increase their NT business and de-emphasize UNIX and other platforms.

By 2002, NT will account for most service revenues if Java fails and is not followed by a successful open alternative.

d. Conclusion

The Java/JVM model will fragment as a consequence of conflicting interests among its major proponents. Like UNIX, core compatibility between different implementations will remain, but fragmentation will occur at the 'value-added' level.

Exhibit II-41 describes the likelihood of each scenario occurring over the coming years.

Exhibit II-41

Likelihood of Three Java Scenarios Occurring, 1997-2002

Scenario	Likelihood	Reason
#1 - open platform	Low-medium (25%)	User demand and vendors' Java investments
#2 - Java fragments	High (65%)	Platform vendors' need to retain installed base and market share, combined with platform vendors' ability to direct Java technology and products
#3 - Java fails	Low (10%)	Potential benefits for users and developers are sufficient to continue investment in Java

Source: INPUT

G
Operational Services

Operational Services are those services that provide continuous computer/network operations and /or applications support.

This services category includes:

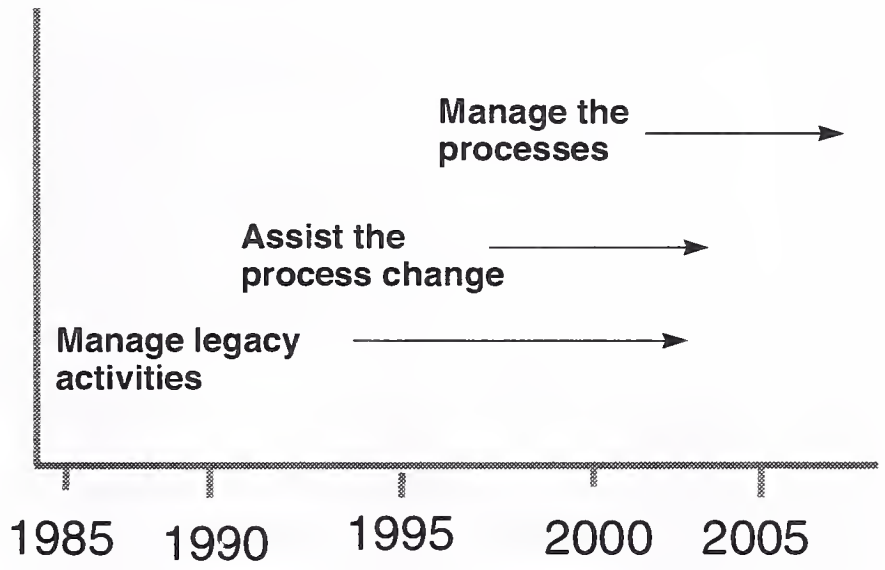
- IT Outsourcing.
- Business Process Outsourcing.
- Processing Services.
- Network Services.

Today the scope of outsourcing has changed.

Outsourcing vendors are facing a complex challenge in addressing client requirements ranging from the residual management of legacy platforms through business process outsourcing as shown in Exhibit II-42.

Exhibit II-42

Changing Client Outsourcing Requirement



Source: INPUT

Business Process Outsourcing is the contracting of IT based processes (eg electronic commerce or customer services).

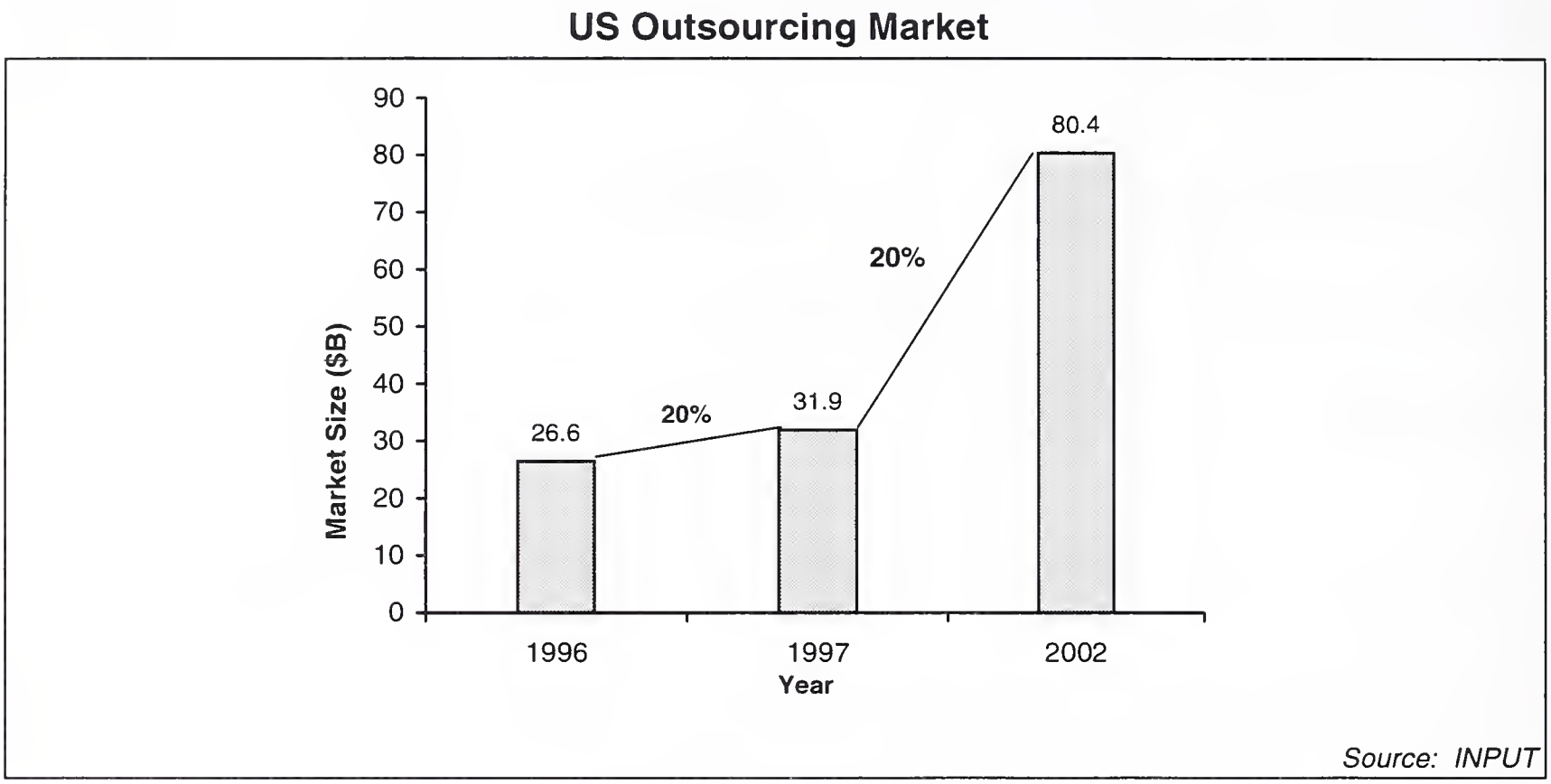
It is the natural embedding of IT into business processes.

Three subjects are discussed in this section; the market forecast for Outsourcing services, managing business processes and the specific opportunity of outsourcing call center operations.

1. Market Forecast

INPUT's overall forecast for the US outsourcing market is shown in Exhibit II-43.

Exhibit II-43

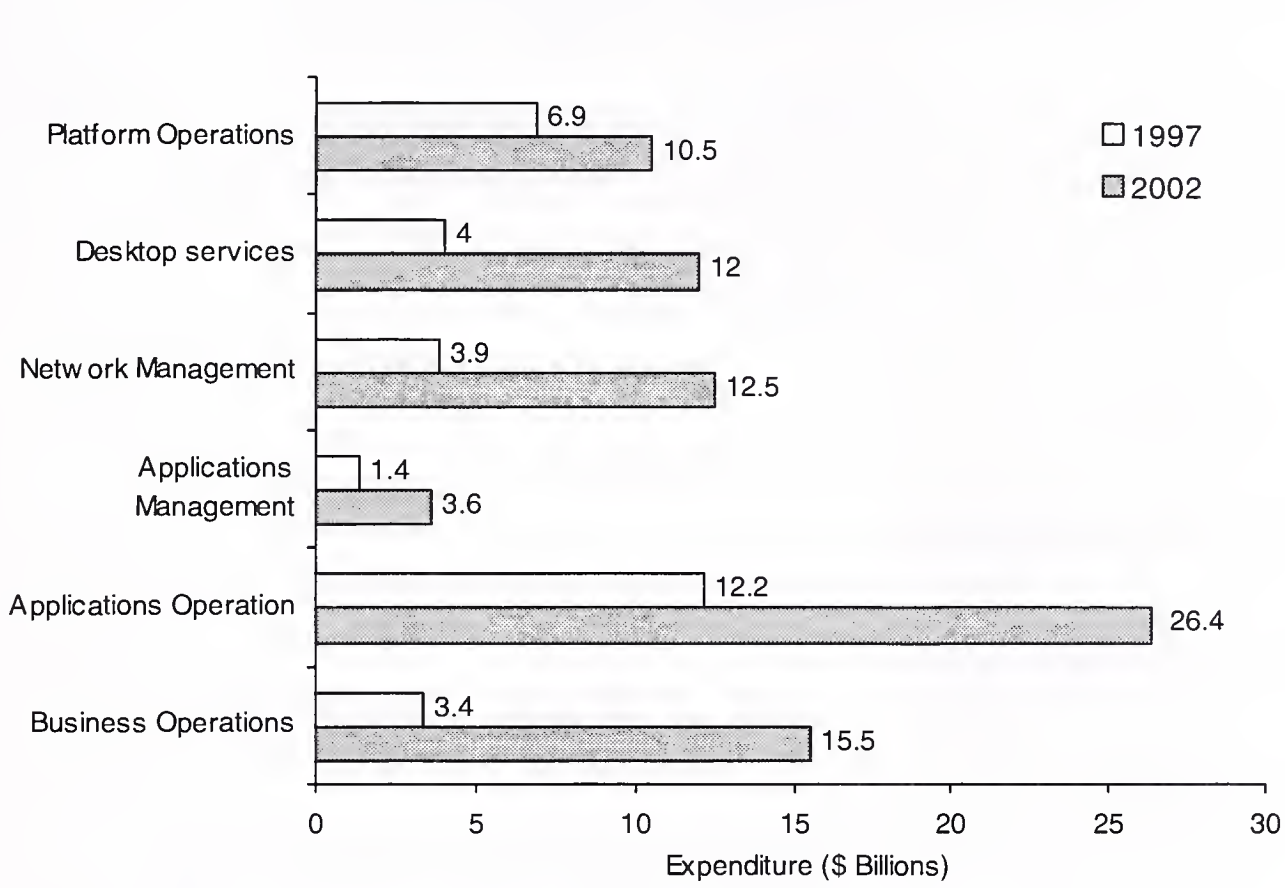


This forecast includes both IT outsourcing and business operations outsourcing.

Exhibit II-44 provides a forecast of the growth in the US outsourcing market by segment.

Exhibit II-44

Outsourcing Market Segments, US 1997-2002



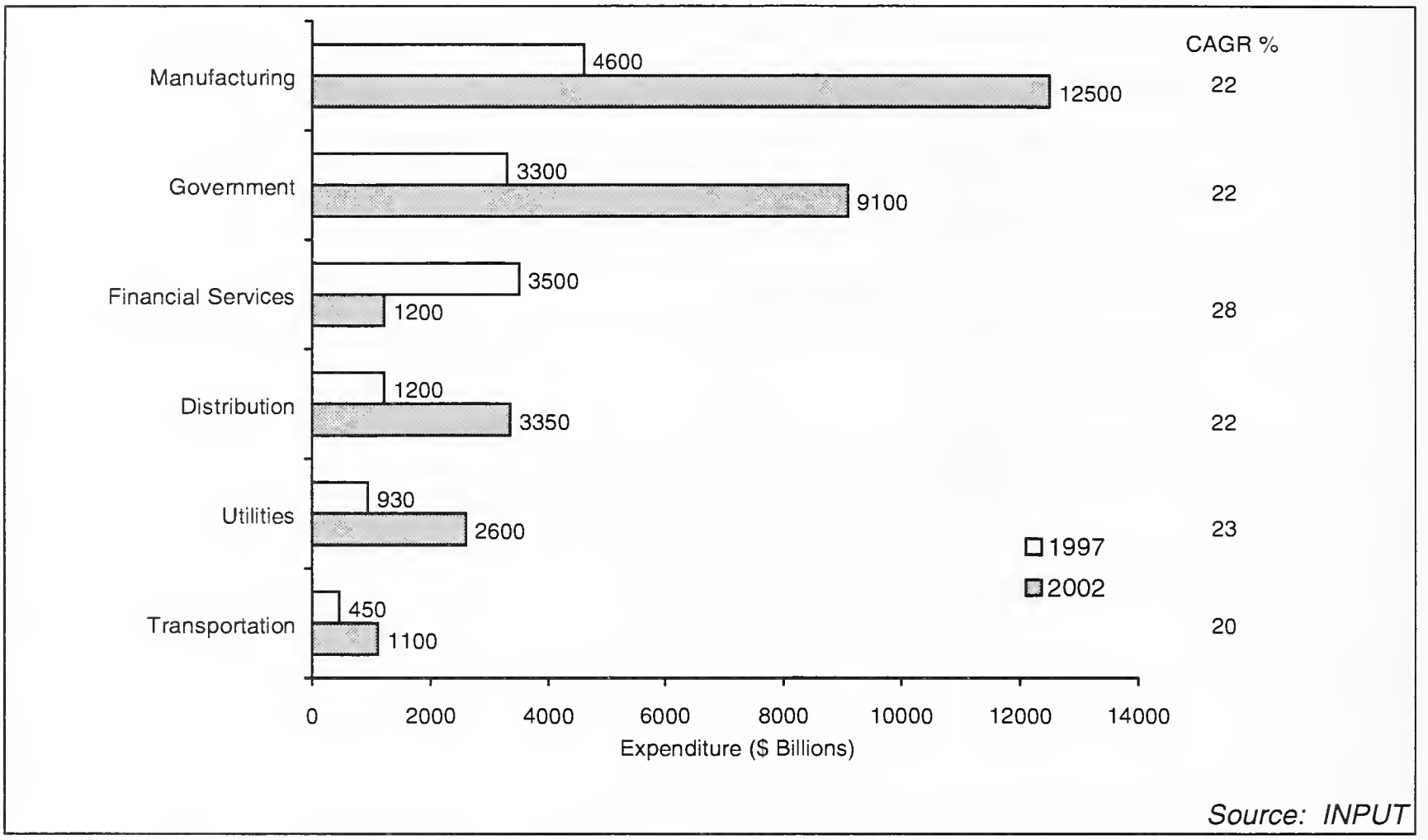
Source: INPUT

The fastest growing sectors of the US outsourcing market are forecast to be business operations and network management. Platform operations will be the lowest growth area.

Exhibit II-45 provides a forecast for the US outsourcing market by industry sector. The forecasts shown in this exhibit include both business operations outsourcing and SAP outsourcing in addition to IS outsourcing.

Exhibit II-45

US Outsourcing Industry Sector Forecast



Source: INPUT

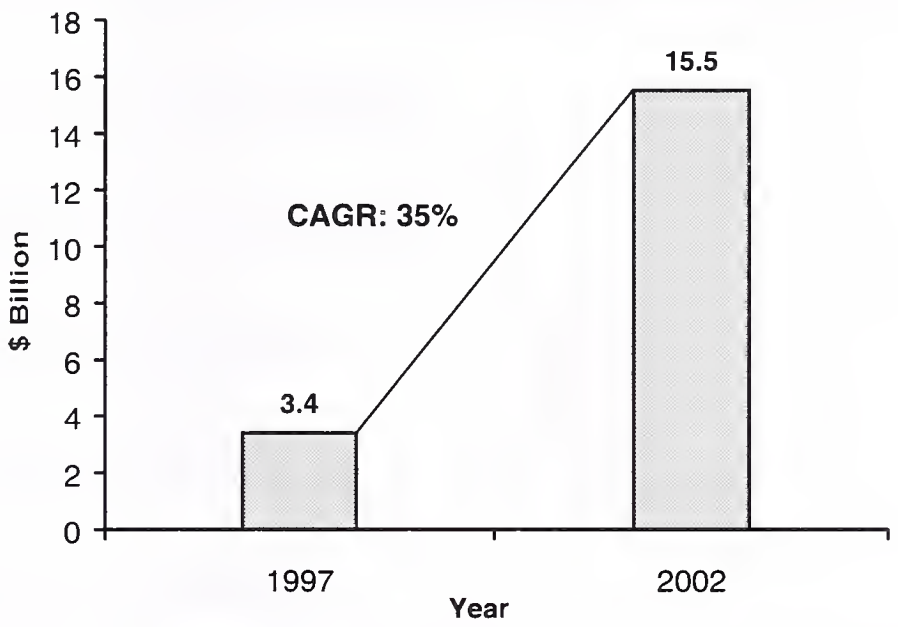
2. Business Process Operations

The business operations outsourcing market is expected to grow significantly over the next few years see Exhibit II-46.

The US market is currently growing at a 35% CAGR and should exceed $15 billion in value by the year 2002.

Exhibit II-46

Business Operations Outsourcing Market - US 1997-2002



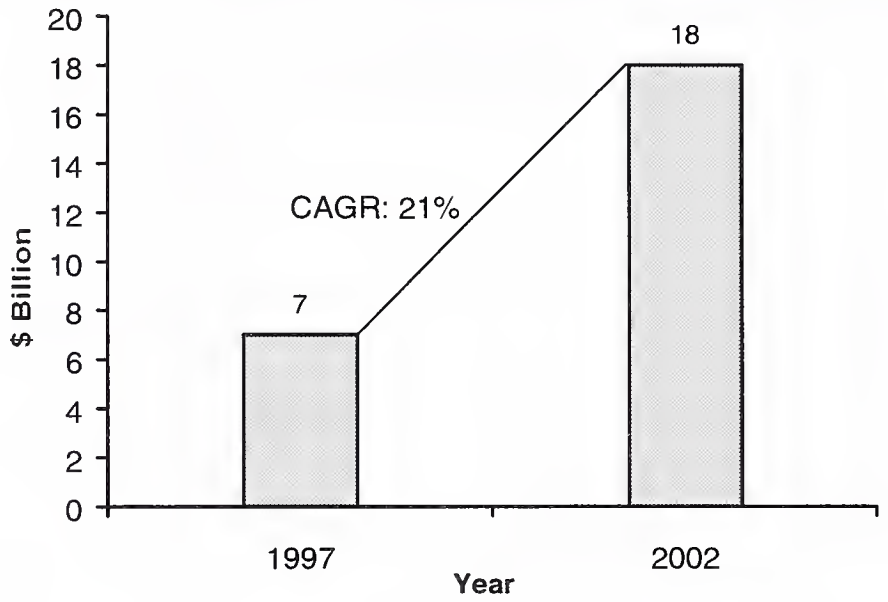
Source: INPUT

3. Call Center Operations

Call center operational services is growing strongly. In 1997, US organizations will spend $2.5 billion with call center operational services suppliers and this market is expected to reach nearly $8 billion by the year 2002 as shown in Exhibit II-47.

Exhibit II-47

Call Center Operational Services Market - US, 1997-2002



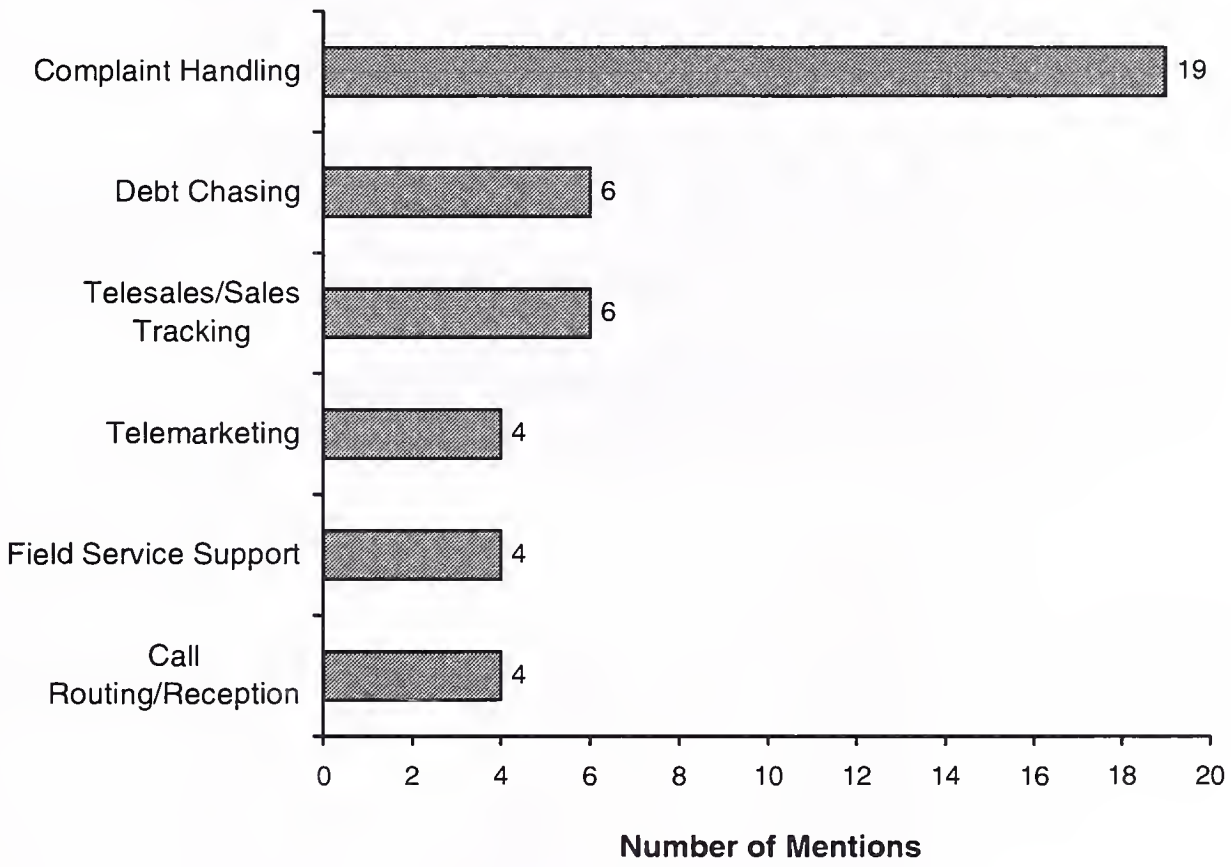
Source: INPUT

Exhibit II-48 shows the principal call center activity handled externally in the US.

Exhibit II-49 shows the level of satisfaction expressed by call center users with operational services provided to them.

Exhibit II-48

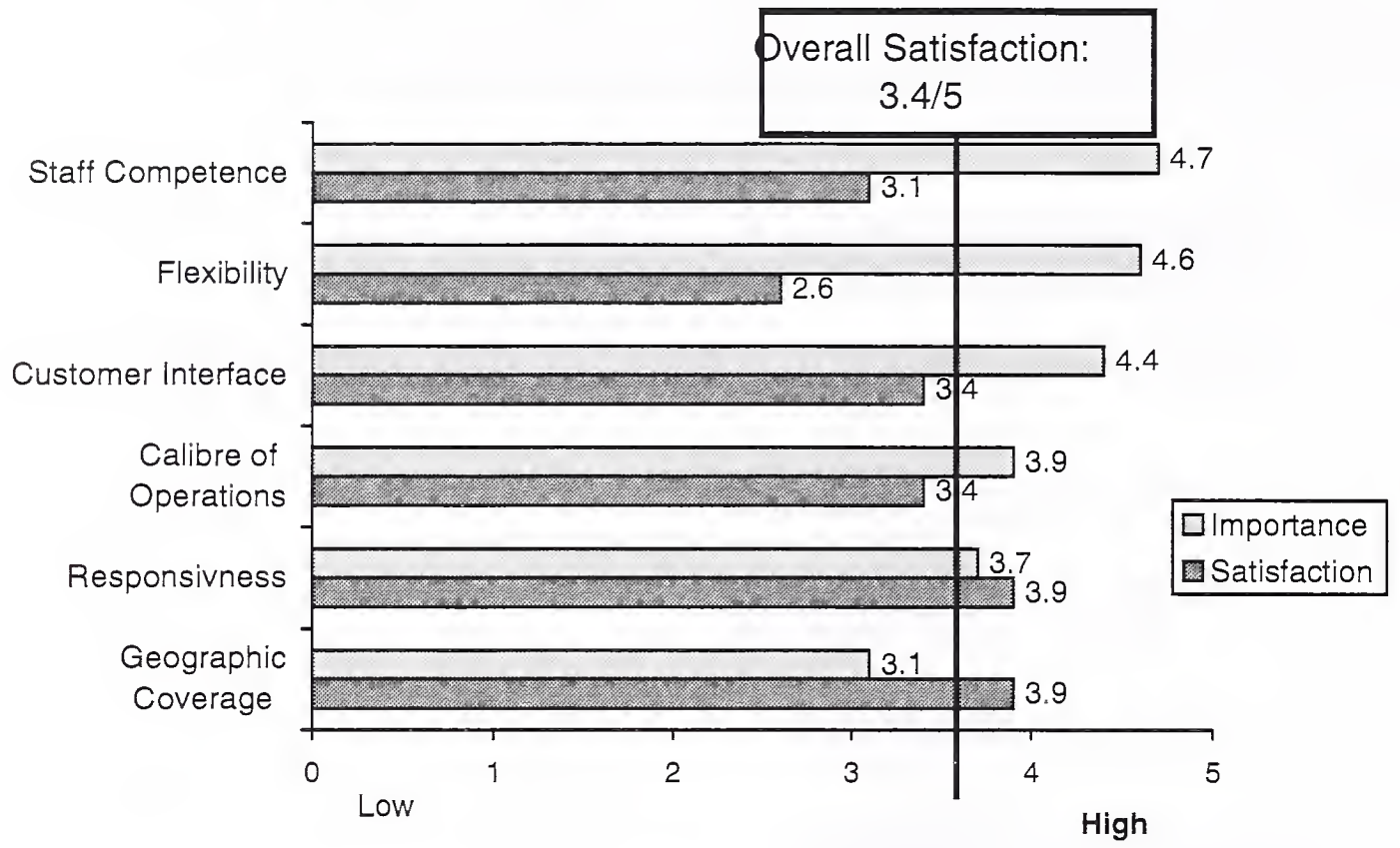
Principal Call Center Activity Handled Externally - US, 1997



Sample of 130 US Organizations *Source: INPUT*

Exhibit II-49

Most Critical External Operational Services - US, 1997



Sample of 28 Organizations

Source: INPUT

H
Enterprise Application Solutions

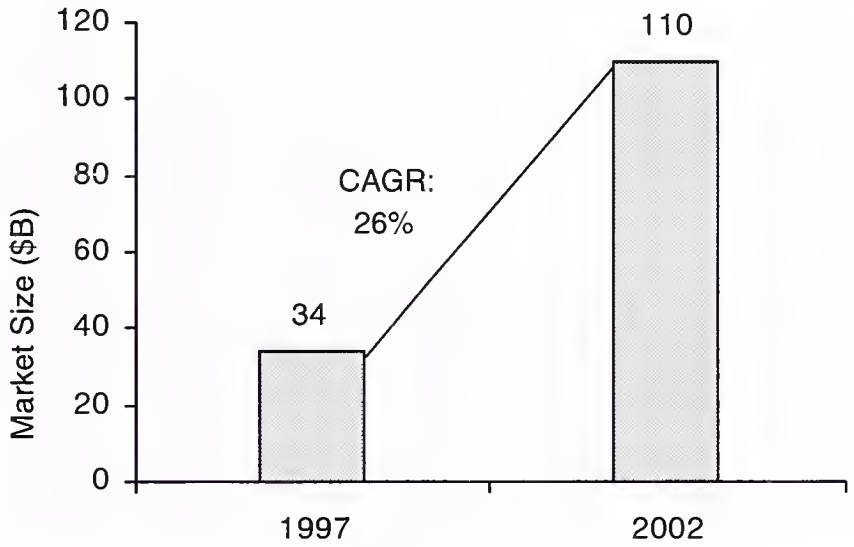
Users have demonstrated mass acceptance of standard Enterprise Applications solutions from a myriad of software product firms, most notably SAP, BAAN, PeopleSoft and Oracle Applications.

During 1997 INPUT has carried out extensive research into the services and support opportunities that have been created, in particular, by the take up of SAP systems in the United States.

INPUT's forecast for the total enterprise application solutions market is shown in Exhibit II-50.

Exhibit II-50

US Enterprise Application Solutions Market



Source: INPUT

However, the enterprise application solutions market can be divided into two major components:

- The software products component.
- The professional services component.

Characteristics of this market over the next few years will include:

- Vendors continuing to place an emphasis on reducing implementation timescales and costs.

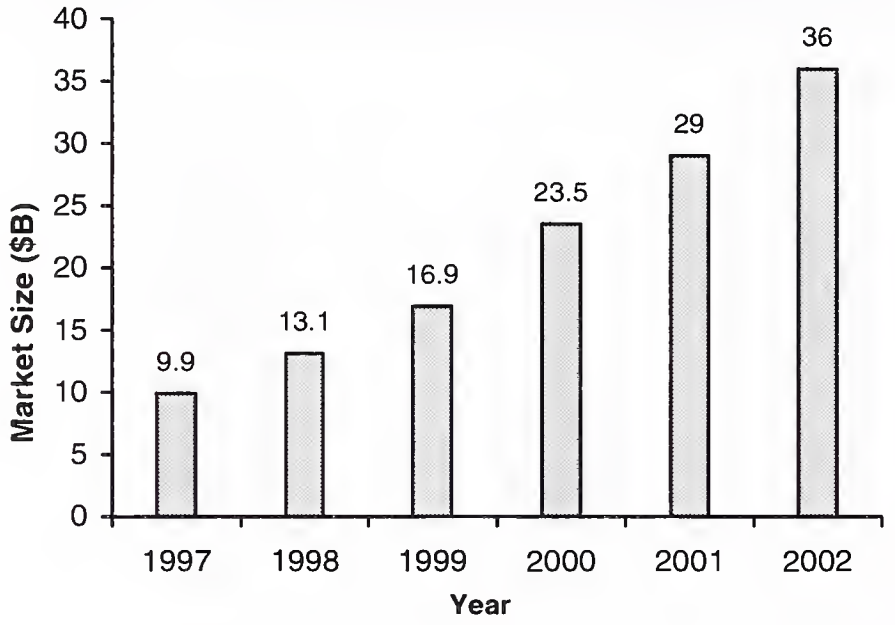
- Organizations increasingly implementing a standard product as the Year 2000 deadline approaches.

- The enterprise application solutions addressing the small and medium-sized organizations, that seek a standard packaged solution.

INPUT's forecast for the enterprise application professional services market is shown in Exhibit II-51.

Exhibit II-51

US Enterprise Application Services Market



Source: INPUT

The factors discussed above will lead to a fall in the size of the enterprise applications services market after the Year 2000.

However, the extent of this fall will be lessened by:

- The move on the part of the major enterprise application solution vendors into new industry sectors where their products have traditionally shown low levels of adoption.

- The need to adapt existing enterprise application solutions for electronic business via Internet/Intranet enabling.

The following analysis provides some insights to the market for SAP services.

In order to deliver an extensive array of services to all of its customers, SAP has chosen to establish a highly publicized partner program.

Successful vendors in the SAP services market are emphasizing:

- Reduced implementation times for SAP products and the offering of fixed price contracts.
- Boosting on-going support and training capabilities.
- Acquiring expertise in IT products that interoperate with SAP products with emphasis on growth areas such as Windows NT and Microsoft's SQL Server.

The complexity of SAP implementations increasingly requires SAP services providers to offer expertise relating to IT products that interoperate with SAP products.

Expertise in the hardware platforms on which SAP products run is critical. Hardware vendors who are also SAP services providers have an innate advantage.

H-P, the leading vendor of hardware on which SAP products run, is reaping benefits from its position.

H-P now has a closer relationship with SAP than any other hardware vendor and is enjoying considerable success in the SAP services market. Indeed, it now sells R/3 pre-installed on both its NT-based NetServers and its HP-UX HP9000 servers.

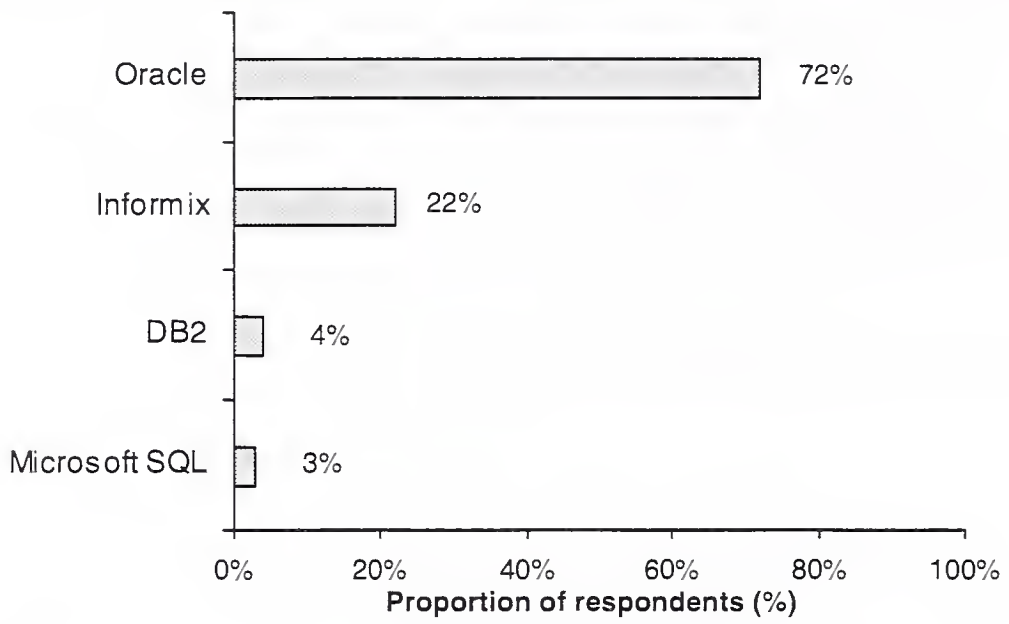
IBM, Digital, Compaq and Sun Microsystems are the other equipment vendors with significant SAP installed bases.

Database expertise is key to the success of many services vendors as SAP projects increasingly require the integration of SAP products with databases.

Oracle reigns supreme as the database of choice for SAP users. Over 70% of R/3 installations run on an Oracle database see Exhibit II-52.

Exhibit II-52

Databases Underlying R/3 – US Market



Sample of 78 respondents

Source: INPUT

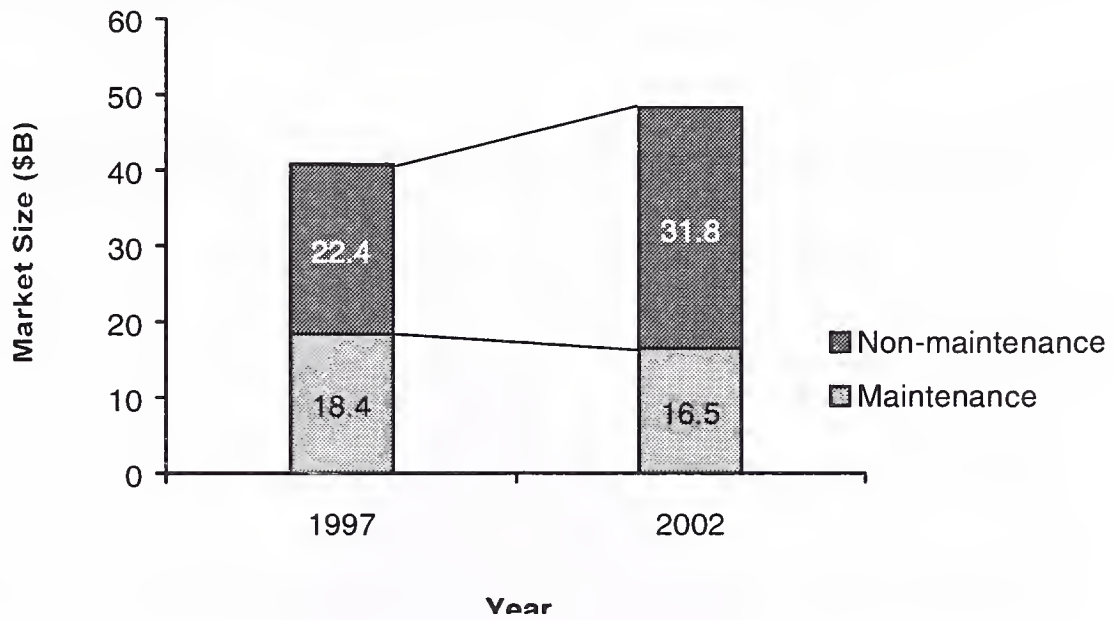
I
Customer Support Services

1. Market Review

Despite continued growth in the IT customer services market as a whole, its largest segment, equipment maintenance, continues to shrink as is shown in Exhibit II-53.

Exhibit II-53

US Customer Services Growth - Maintenance Vs Non-Maintenance Services, 1997-2002



Source: INPUT

The trend in IT equipment sales, however, is towards increased growth during 1997. The hardware market growth will inhibit the decline in the equipment maintenance market for the next few years.

Another major factor to effect the equipment maintenance sector is the quality of the warranties provided with new equipment.

The last couple of years have witnessed an increase in the length and scope of standard warranties being supplied with new IT equipment, most notably with PCs.

Vendors in this sector are:

- Trying to increase margins made from equipment maintenance.

- Focusing on offering more integrated support offerings such as high availability services.

- Introducing flexible payment methods.

Until recently, profits made from equipment maintenance were seen as a means of negating the effects of falling profit margins in the commoditised computer hardware market.

Many systems vendors are struggling in an equipment maintenance market which itself has become commoditised.

Exhibit II-54 summarizes both the downward and upward pressures on equipment maintenance profit margins.

Exhibit II-54

Pressures On Equipment Maintenance Profit Margins

Downward Pressure	Upward Pressure
Increased competition	Focus on high margin components
Used as a 'Loss Leader'	Subcontract low margin components
Increased system reliability	Subcontract administration

Source: INPUT

Many vendors are accentuating the downward trend on margins by using equipment maintenance as a 'loss leader'.

Some vendors are counteracting this downward pressure on equipment maintenance margins by subcontracting low value equipment maintenance activities and administrative activities, and focusing only on profitable equipment maintenance activities.

Other market observations are:

- Average net margins for equipment maintenance services are now approximately 5%.

- Vendors are partnering in order to lower the costs of equipment maintenance provision.

- Equipment maintenance is used as a platform for the sale of more profitable services.

2. Integrated Services

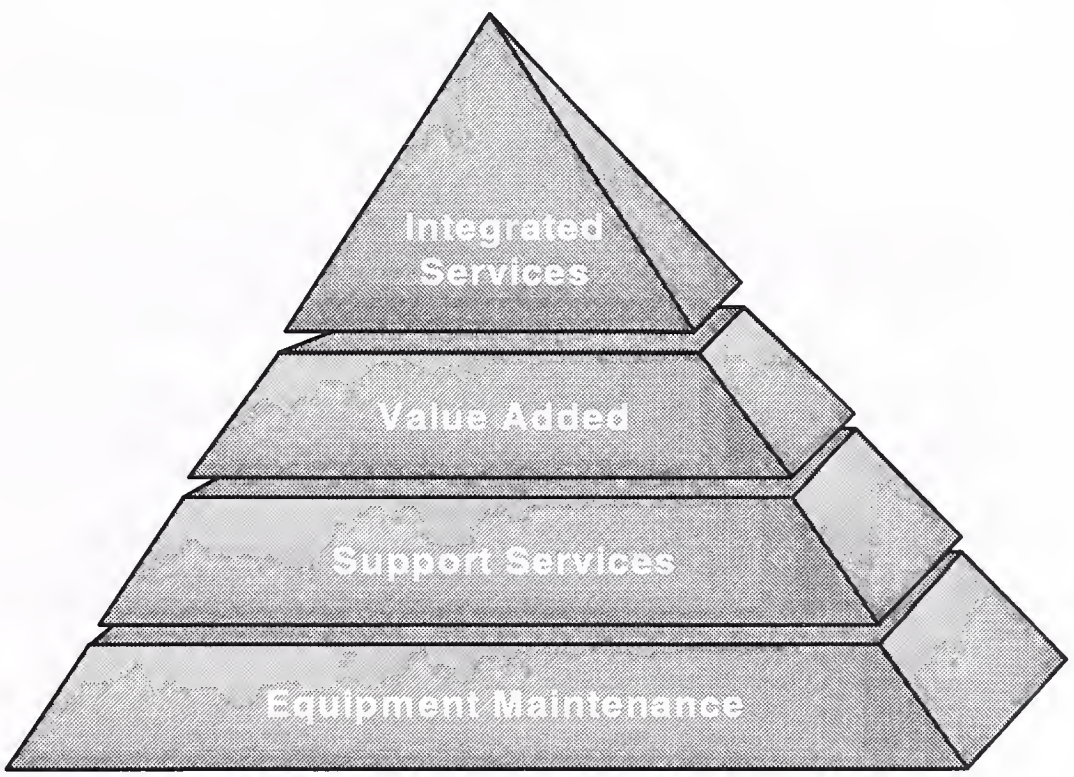
The IT customer services market is reaching a new stage in its development. Exhibit II-55 shows INPUT's concept of the "service mountain", which demonstrates the different stages in the development of the IT customer services market.

Equipment maintenance is the first stage, support services (e.g. software support) is the second, value-added services (e.g. helpdesk services,) and integrated services are the third and final stages respectively within this model.

Currently, many vendors are heavily marketing integrated services.

Exhibit II-55

The Support Pyramid



Source: INPUT

Integrated services typically offer customers a total solution, which usually includes equipment maintenance, support services and value-added services. Such services comprise all the services that are deemed necessary in order to ensure certain levels of availability.

Today, they are often described as high availability services and are perceived to be less expensive than the cost of all the component services when they are sold separately.

3. Key Markets

Exhibit II-56 gives examples of vendors that have already established themselves in key customer support services markets.

Exhibit II-56

Examples of Established Competencies

Expertise	Example Vendors
Windows NT	Digital, HP
Microsoft Exchange	Digital
SAP	HP, Data General
Banking/Finance	NCR, Unisys
Transportation	Unisys, IBM

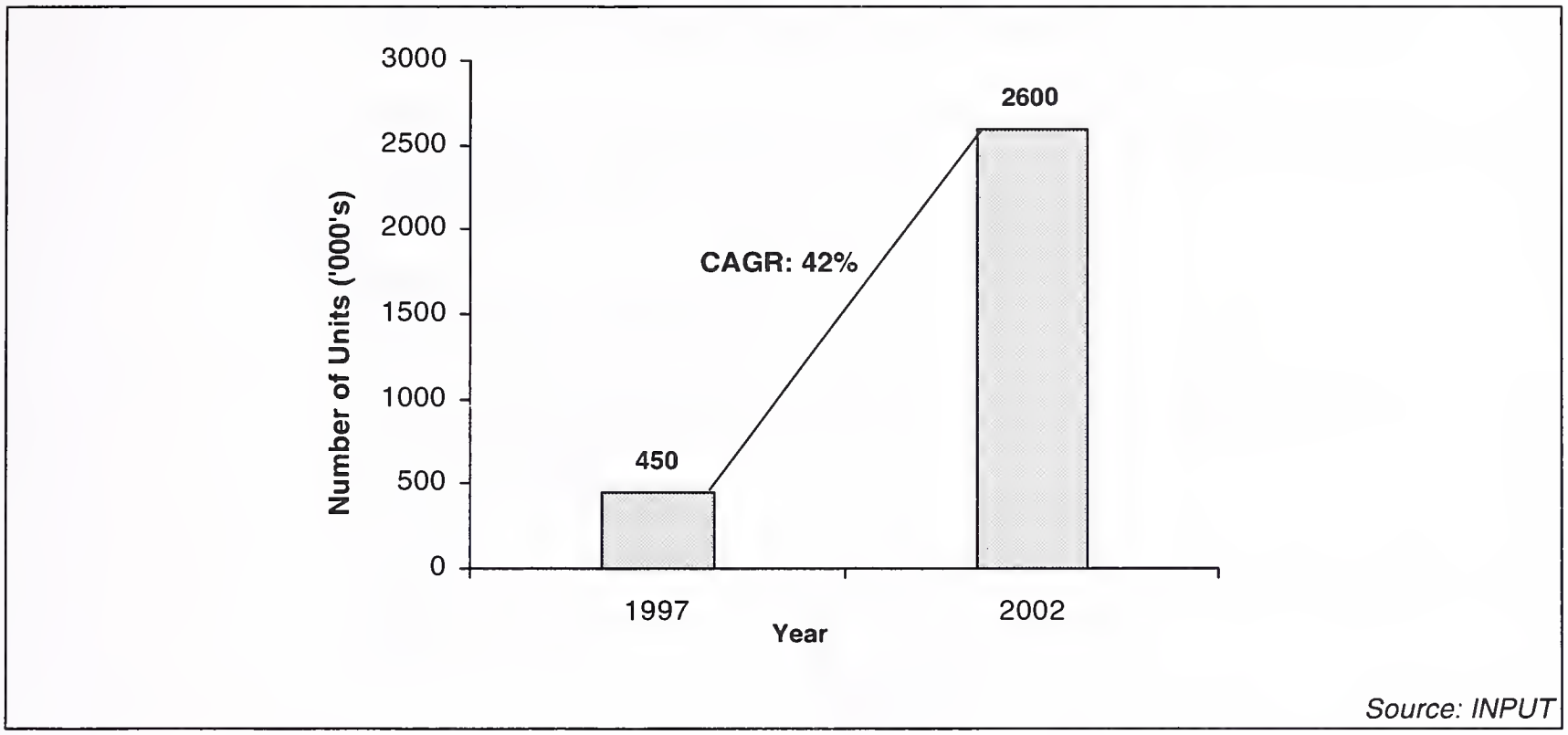
Source: INPUT

Organizations which can offer services which are perceived to be 'best of breed' in a particular market segment will be at a competitive advantage.

Many vendors, such as H-P and Digital, now offer high availability services centered around the increasingly popular Windows NT.

Indeed, NT has eroded the market share of all other operating systems used in mid-range computing and is being taken seriously as an enterprise-level operating system, see Exhibit II-57.

Exhibit II-57



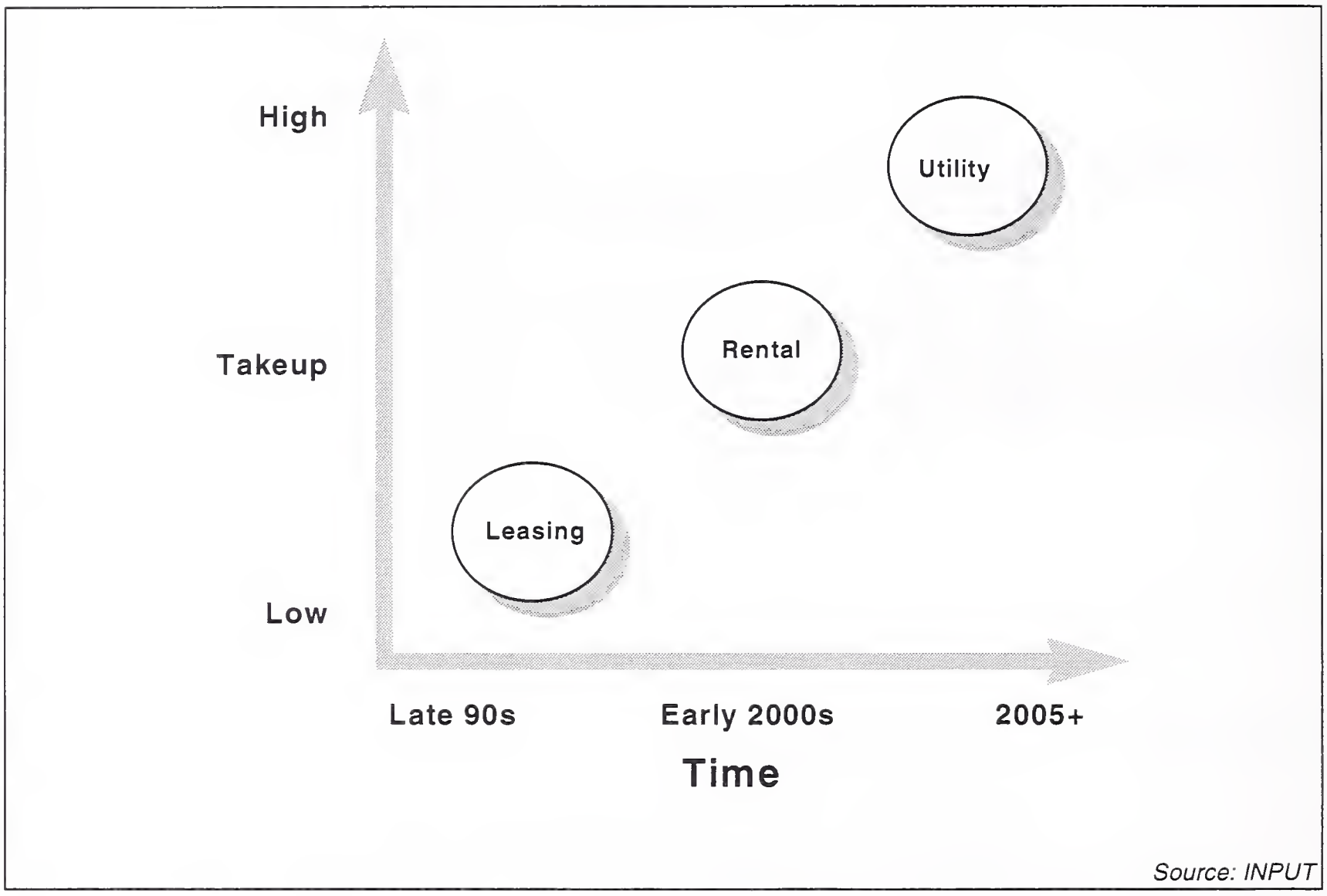
4. Payment Methods

As the issue of IT cost of ownership increases in importance in the minds of customers, vendors who can offer flexible payment methods, which address cost of ownership concerns, will find themselves at a competitive advantage.

Exhibit II-58 shows how payment methods will evolve from leasing to paying on a usage basis between now and the early years of the next century. As payment methods for IT become more flexible, take-up of IT solutions will increase.

Exhibit II-58

Evolution of IT Payment Methods



Source: INPUT

Many IT customer services vendors are enjoying success with their leasing services which are often described as IT customer finance.

Increasingly, vendors are including technology exchange within their offerings. This allows customers to upgrade their IT investments when newer technology is appropriate.

For example, IBM's SystemCare includes a technology exchange element.

Another examples of a service which allows customers to replace their IT investment with the latest technology is Wang's Technology Refresh program.

In addition to offering customers flexibility which can lower the IT cost of ownership, leasing contracts allow customers to control support costs.

Renting IT equipment is emerging as an increasingly popular alternative to leasing. Today, PCs can be rented from a number of suppliers for as little as one week with no punitive charges for ending the contract.

Paying for IT power on a usage basis is likely to be commonplace in environments where NCs are used. Customers will pay services providers for the use of their applications.

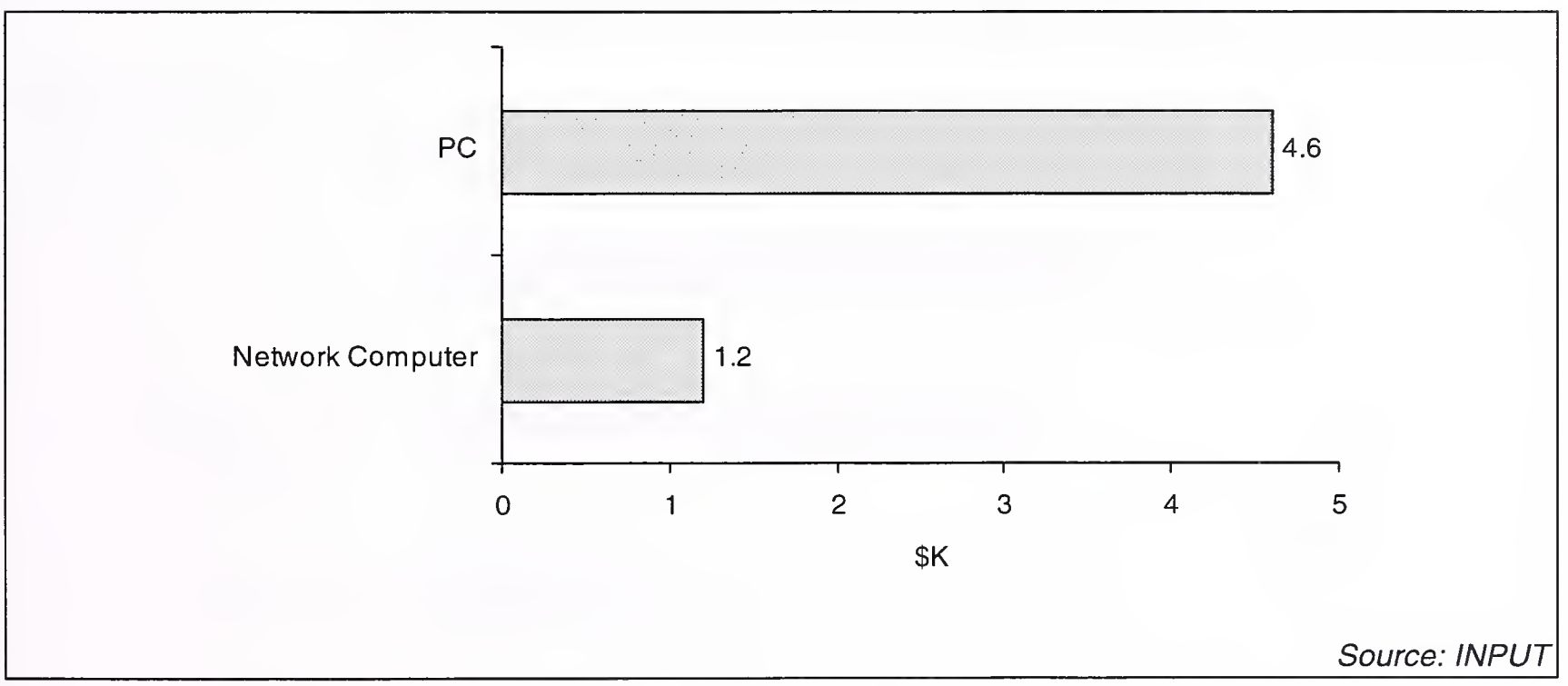
5. Network Computers

Several IT vendors such as Sun and Oracle have started to market network computers (NCs) which are designed to offer a simplified alternative to PCs.

INPUT estimates show that over a five-year lifetime, a PC costs $4,600 per year to support, but an NC will cost only $1,200 per year as shown in Exhibit II-59.

Exhibit II-59

Product Support Costs Per User Per Year



Network computers will not replace existing PCs. Instead they will be used as clients in areas where the cost of PC deployment is not cost effective.

As well as dedicated applications, customer service is already taking place over the Internet through e-mail, on-line knowledge bases, and FAQs, all of which can be accessed easily with a network computer.

Enterprise applications that are currently most suited to network computers are those that involve interaction with customers and suppliers.

6. Business Continuity Services

Business continuity services (BCS) encompass more than just disaster recovery (DR) services.

As logical (i.e. software and systems) threats pose an increasing risk to mission critical business processes, BCS offerings typically include proactive elements which seek to prevent the occurrence of such disasters.

Enterprises do not perceive physical threats such as terrorist bombs, floods and fires to be the main threats to the continuity of their business activities.

The US BCS market is worth $1.4 billion growing to $2.6 billion at a CAGR of 18%.

Exhibit II-60 illustrates the proportion of BCS expenditure that can be attributed to important IT platforms.

Exhibit II-60

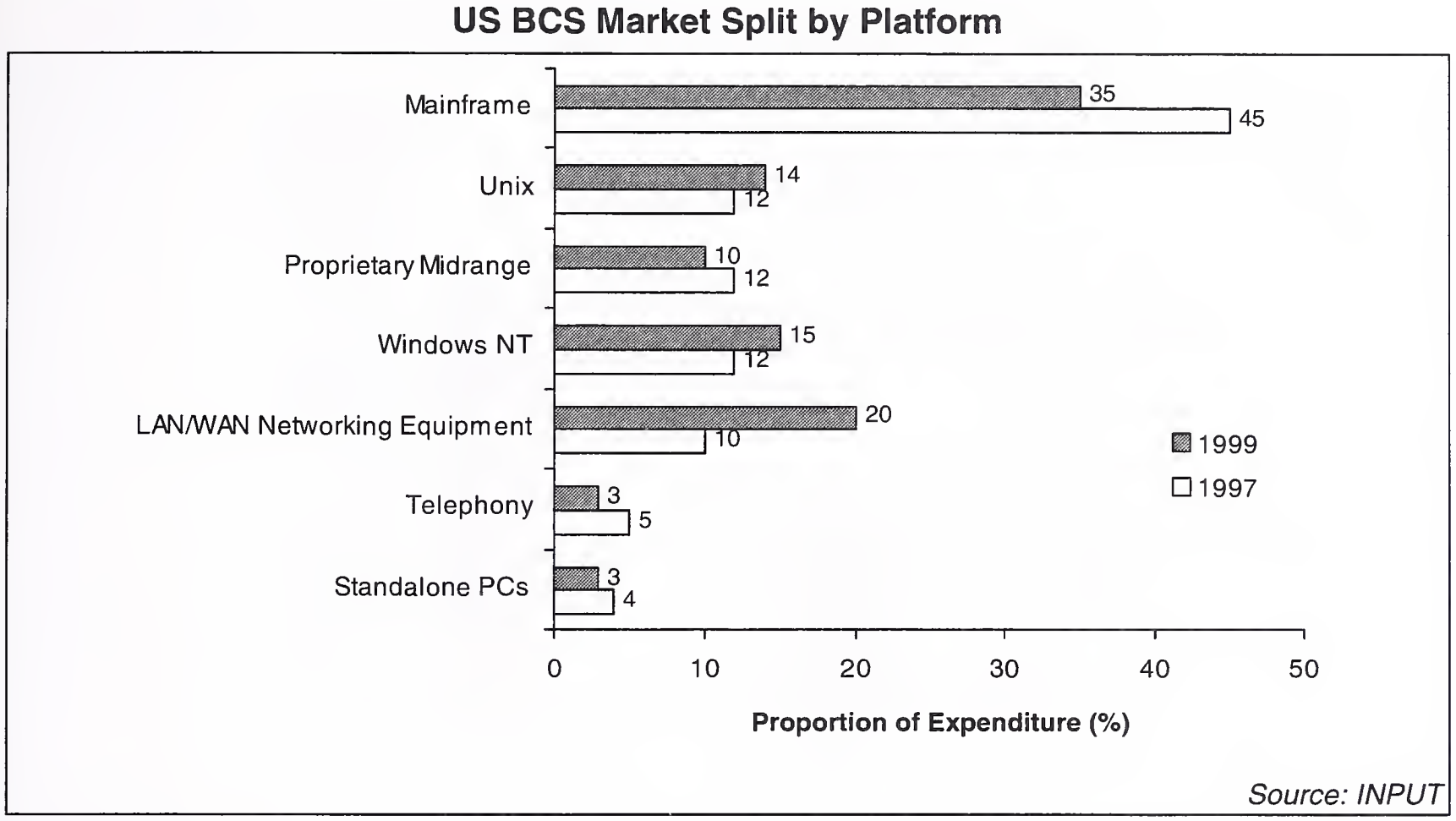
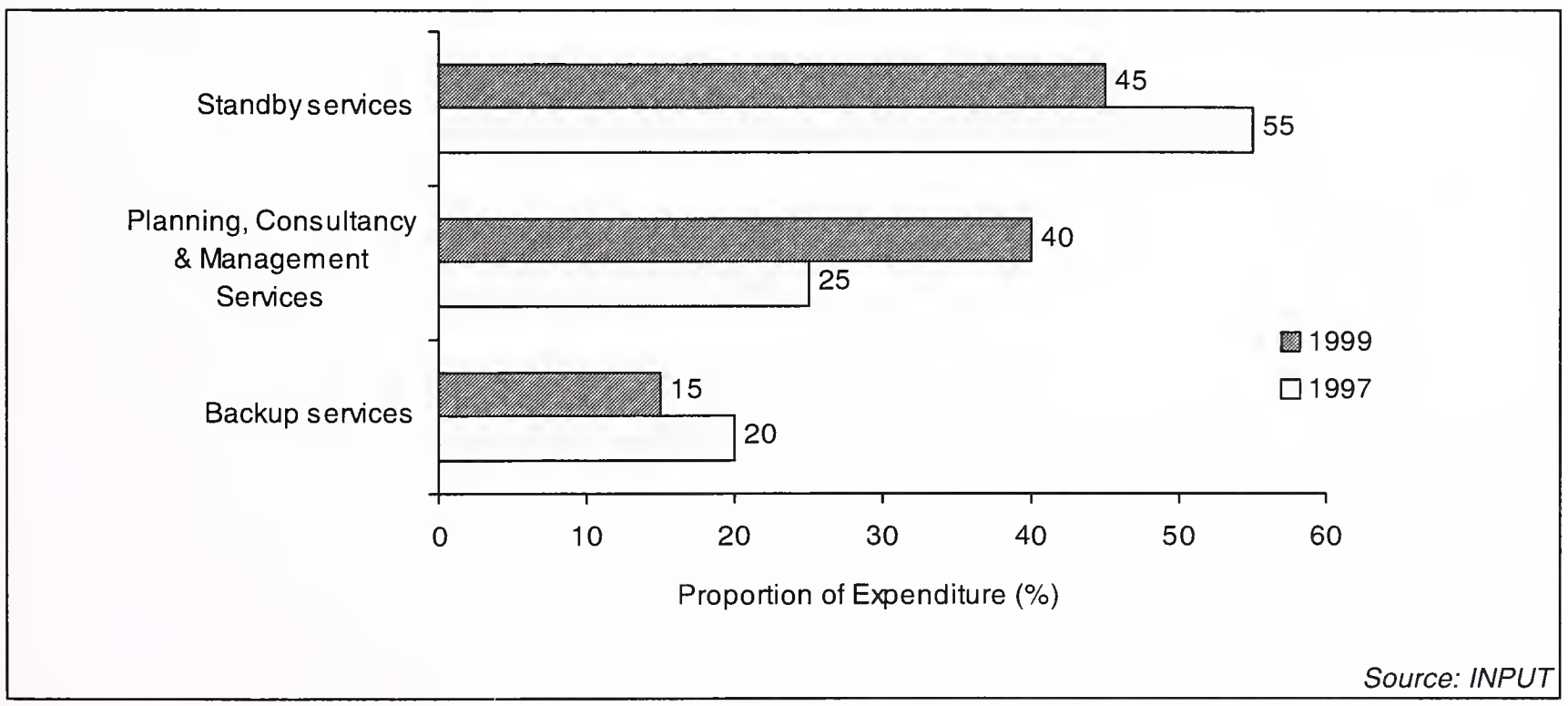


Exhibit II-61 shows that proactive and predictive BCS provisions will account for nearly 35% of the overall US BCS market in two years' time.

Exhibit II-61

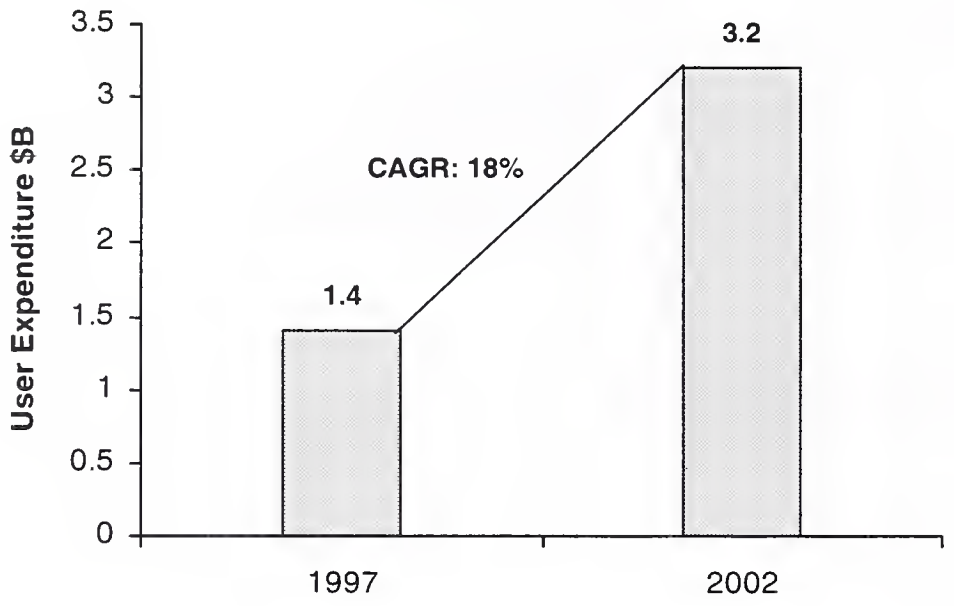


High availability services and business continuity services are converging. Users seek availability guarantees, which cover interruptions to business processes that are caused by unexpected incidents.

The BCS market in terms of the amount spent by users on BCS contracts in 1997 is estimated **to be worth approximately $1.4 billion**, see Exhibit II-62.

Exhibit II-62

US BCS Market, 1997-2002



Source: INPUT

U.S. IT Software & Services Market Forecast

This appendix contains the summary forecasts for the U.S. IT Software & Services market for the period 1997-2002. Each forecast is presented in greater detail in the product/services category, industry and cross industry sector chapters.

Exhibit A-1

U.S. IT Software & Services
Market Size by Product/Service Categories, 1997-2002 ($ Millions)

PRODUCT/SERVICE CATEGORIES	1996 ($)	Growth 96-97 (%)	1997 ($)	1998 ($)	1999 ($)	2000 ($)	2001 ($)	2002 ($)	CAGR 97-02 (%)
INDUSTRY TOTAL	**235,626**	**14%**	**268,631**	**307,244**	**354,100**	**410,880**	**480,172**	**564,709**	**16%**
Professional Services	34,738	19%	41,272	48,529	57,117	67,502	79,931	94,950	18%
- IS Consulting	9,681	23%	11,936	14,482	17,599	21,479	26,210	32,083	22%
- Education & Training	5,283	18%	6,239	7,232	8,422	9,821	11,491	13,476	17%
- Software Development	19,774	17%	23,097	26,815	31,096	36,202	42,230	49,391	16%
Systems Integration	16,373	17%	19,117	22,499	26,820	32,245	38,966	47,364	20%
- Equipment	6,648	9%	7,274	8,093	9,112	10,333	11,769	13,448	13%
- Software Products	1,443	18%	1,700	2,017	2,437	2,966	3,648	4,495	21%
- Professional Services	7,618	23%	9,391	11,529	14,258	17,736	22,098	27,678	24%
- Other	664	13%	751	867	1,019	1,211	1,450	1,743	18%
Outsourcing	26,606	20%	31,904	37,875	45,264	54,482	65,993	80,421	20%
- Platform Operations	6,288	10%	6,931	7,497	8,117	8,817	9,599	10,467	9%
- Applications Operations	10,244	19%	12,219	14,198	16,527	19,282	22,541	26,381	17%
- Desktop Services	3,230	25%	4,032	4,986	6,189	7,705	9,589	11,954	24%
- Network Management	3,145	23%	3,879	4,877	6,149	7,772	9,852	12,509	26%
- Application Management	1,204	20%	1,444	1,725	2,070	2,488	2,994	3,610	20%
- Business Operations	2,496	36%	3,400	4,592	6,213	8,418	11,417	15,500	35%
Processing Services	28,297	10%	31,180	35,961	41,634	48,419	56,549	66,334	16%
- Transaction Processing	21,987	9%	23,982	27,856	32,489	38,079	44,833	53,039	17%
- Utility Processing	1,000	1%	1,005	985	965	945	925	900	-2%
- Other Processing	5,310	17%	6,193	7,120	8,180	9,395	10,790	12,395	15%
Network Services	22,220	19%	26,455	30,751	36,052	42,424	50,315	60,124	18%
- Electronic Information Svcs	17,802	17%	20,803	23,748	27,304	31,393	36,334	42,278	15%
- Network Applications	4,417	28%	5,652	7,003	8,748	11,031	13,981	17,846	26%
Applications SW Products	36,427	18%	42,863	50,365	59,438	70,496	83,992	100,473	19%
- Enterprise Servers	6,707	9%	7,322	7,998	8,766	9,660	10,658	11,808	10%
- Distributed Servers	8,355	12%	9,382	10,657	12,130	13,839	15,823	18,118	14%
- Clients	21,365	22%	26,159	31,710	38,542	46,997	57,512	70,547	22%
Turnkey Systems	17,577	11%	19,481	21,965	24,789	28,066	31,846	36,165	13%
- Equipment	6,638	6%	7,055	7,924	8,905	10,037	11,323	12,745	13%
- Software Products	6,975	12%	7,837	8,756	9,798	11,000	12,382	13,969	12%
- Professional Services	3,964	16%	4,589	5,285	6,085	7,029	8,140	9,451	16%
Systems SW Products	24,888	13%	28,010	30,949	34,486	38,746	43,881	50,079	12%
- Enterprise Servers	8,879	2%	9,100	9,062	9,044	9,043	9,058	9,089	0%
- Distributed Servers	8,022	11%	8,900	9,775	10,757	11,861	13,103	14,502	10%
- Clients	7,987	25%	10,010	12,112	14,686	17,843	21,720	26,488	21%
Equipment Services	28,500	-0.5%	28,350	28,350	28,500	28,500	28,700	28,800	0.3%

Source: INPUT

Exhibit A-2

U.S. IT Software & Services
Market Size by Industry Sectors, 1997-2002 ($ Millions)

PRODUCT/SERVICE CATEGORIES	1996 ($)	Growth 96-97 (%)	1997 ($)	1998 ($)	1999 ($)	2000 ($)	2001 ($)	2002 ($)	CAGR 97-02 (%)
Total U.S. Market	**207,126**	**16%**	**240,281**	**278,895**	**325,600**	**382,380**	**451,472**	**535,910**	**17%**
Total Industry Sector	166,578	17%	194,672	228,567	269,739	319,999	381,416	456,776	19%
Banking and Finance	22,030	16%	25,514	29,865	35,000	41,171	48,551	57,530	18%
Business Services	9,233	16%	10,715	12,689	15,070	17,952	21,459	25,721	19%
Discrete Manufacturing	25,876	20%	30,999	37,544	45,603	55,612	68,072	83,650	22%
Education	3,554	20%	4,263	4,965	5,823	6,833	8,021	9,440	17%
Federal Government	11,663	1%	11,791	12,210	12,844	13,831	15,009	16,400	7%
Health Services	9,010	16%	10,450	12,353	14,657	17,444	20,824	24,966	19%
Insurance	8,260	17%	9,658	11,345	13,364	15,786	18,733	22,272	18%
Miscellaneous	2,258	13%	2,562	2,908	3,377	3,795	4,377	5,064	15%
Process Manufacturing	11,961	18%	14,119	16,827	20,088	24,034	28,803	34,635	20%
Retail Trade	5,405	24%	6,727	8,023	9,593	11,546	13,926	16,906	20%
State and Local Government	11,392	19%	13,609	16,194	19,343	23,171	27,869	33,625	20%
Telecommunications	9,088	31%	11,868	15,023	19,055	24,241	30,923	39,501	27%
Transportation Utilities	6,908	19%	8,192	9,630	11,365	13,481	16,057	19,200	19%
Wholesale Trade	4,443	17%	5,204	5,996	6,927	8,033	9,341	10,900	16%
Total Cross-Industry	21,762	12%	24,481	27,568	31,109	35,195	39,924	45,400	13%
Total Other Markets	15,660	12%	17,599	19,379	21,375	23,635	26,175	29,055	11%
Other Network Services	9,350	11%	10,401	11,274	12,230	13,295	14,460	15,760	9%
- On-line Data Bases	6,200	12%	6,934	7,700	8,550	9,500	10,560	11,740	11%
- On-line News Services	3,150	10%	3,467	3,574	3,680	3,795	3,900	4,020	3%
Other Processing Services	6,310	14%	7,198	8,105	9,145	10,034	11,715	13,295	13%
- Processing Services -Utility	1,000	1%	1,005	985	965	945	925	900	-2%
- Processing Services-Other	5,310	17%	6,193	7,120	8,180	9,395	10,790	12,395	15%
Systems Software Products	24,888	13%	28,010	30,949	34,486	38,746	43,881	50,079	12%

Source: *INPUT*

Exhibit A-3

U.S. IT Software & Services
Market Size by Cross-Industry Sectors, 1997-2002 ($ Millions)

INDUSTRY SECTORS	1996 ($)	Growth 96-97 (%)	1997 ($)	1998 ($)	1999 ($)	2000 ($)	2001 ($)	2002 ($)	CAGR 97-02 (%)
Total Cross-Industry	**21,762**	**12%**	**24,481**	**27,568**	**31,109**	**35,195**	**39,924**	**45,400**	**13%**
Accounting	5,085	14%	5,793	6,784	7,957	9,352	11,022	13,018	18%
Education & Training	574	11%	637	718	813	919	1,047	1,195	13%
Engineering & Scientific	1,398	8%	1,515	1,650	1,810	1,984	2,182	2,400	10%
Human Resources	4,620	9%	5,056	5,570	6,140	6,787	7,504	8,316	10%
Office Systems	4,812	16%	5,572	6,300	7,130	8,079	9,168	10,418	13%
Planning & Analysis	3,694	15%	4,234	4,754	5,349	6,029	6,801	7,683	13%
Sales & Marketing	1,579	6%	1,674	1,792	1,910	2,045	2,200	2,370	7%

Source: *INPUT*

Product/Service Category Forecast

This appendix presents the market forecasts for each of the eight product/service categories used by INPUT to define the U.S. IT Software & Services market.

The product/service forecasts contained in this chapter are presented in the following order:

- Professional Services.
- Systems Integration.
- Outsourcing.
- Processing Services.
- Network Services.
- Applications Software Products.
- Turnkey Systems.
- Systems Software Products.

Exhibit B-1

Professional Services
U.S. Market Size by Industry Sector, 1997 - 2002

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
Total All Sectors	**34,738**	**19%**	**41,272**	**48,529**	**57,117**	**67,502**	**79,931**	**94,950**	**18%**
Banking and Finance	3,740	15%	4,300	4,960	5,700	6,615	7,670	9,015	16%
Business Services	1,385	24%	1,723	2,140	2,658	3,303	4,105	5,105	24%
Discrete Manufacturing	8,305	17%	9,750	11,581	13,769	16,385	19,517	23,270	19%
Education	396	37%	544	645	760	895	1,055	1,250	18%
Federal Government	2,925	3%	3,020	3,236	3,435	3,747	4,119	4,544	9%
Health Services	933	29%	1,200	1,455	1,765	2,140	2,595	3,145	21%
Insurance	2,275	14%	2,595	2,965	3,385	3,860	4,410	5,040	14%
Miscellaneous	287	15%	331	369	414	461	517	576	12%
Process Manufacturing	2,090	17%	4,800	5,724	6,833	8,165	9,767	11,695	19%
Retail Trade	965	34%	1,295	1,500	1,735	2,005	2,315	2,680	16%
State & Local Government	4,465	17%	5,240	6,085	7,075	8,225	9,565	11,135	16%
Telecommunications	2,480	35%	3,350	4,207	5,283	6,636	8,337	10,475	26%
Transportation	549	35%	749	885	1,050	1,250	1,490	1,770	19%
Utilities	1,185	24%	1,475	1,770	2,115	2,530	3,035	3,635	20%
Wholesale Trade	758	19%	900	1,008	1,140	1,285	1,435	1,615	12%

Source: *INPUT*

Exhibit B-2

Systems Integration
U.S. Market Size by Industry Sector, 1997 - 2002

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
Total All Sectors	**16,373**	**17%**	**19,117**	**22,499**	**26,820**	**32,245**	**38,966**	**47,364**	**20%**
Banking and Finance	1,305	15%	1,500	1,733	1,985	2,305	2,675	3,145	16%
Business Services	555	26%	699	891	1,133	1,442	1,841	2,356	27%
Discrete Manufacturing	2,911	20%	3,505	4,232	5,115	6,185	7,495	9,090	21%
Education	263	25%	330	390	480	587	710	856	21%
Federal Government	3,981	-2%	3,915	3,989	4,204	4,508	4,862	5,289	6%
Health Services	607	27%	772	961	1,207	1,510	1,893	2,381	25%
Insurance	547	26%	690	862	1,084	1,362	1,713	2,146	25%
Miscellaneous	141	42%	200	271	367	499	678	921	36%
Process Manufacturing	783	24%	969	1,186	1,453	1,782	2,180	2,685	23%
Retail Trade	765	19%	909	1,078	1,283	1,532	1,828	2,190	19%
State & Local Government	1,657	18%	1,961	2,343	2,809	3,370	4,053	4,875	20%
Telecommunications	935	44%	1,350	1,780	2,358	3,128	4,152	5,516	33%
Transportation	515	30%	671	844	1,061	1,348	1,707	2,155	26%
Utilities	1,033	16%	1,200	1,409	1,652	1,943	2,288	2,700	18%
Wholesale Trade	375	19%	445	531	629	744	891	1,060	19%

Source: *INPUT*

Exhibit B-3

Outsourcing
U.S. Market Size by Industry Sector, 1997 - 2002

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
Total All Sectors	**26,606**	**20%**	**31,904**	**37,875**	**45,264**	**54,482**	**65,993**	**80,421**	**20%**
Banking and Finance	5,470	19%	6,514	7,863	9,545	11,651	14,301	17,650	22%
Business Services	627	16%	728	865	1,036	1,252	1,527	1,880	21%
Discrete Manufacturing	3,390	26%	4,279	5,166	6,265	7,632	9,340	11,480	22%
Education	515	14%	589	669	761	869	996	1,145	14%
Federal Government	1,810	7%	1,942	2,027	2,141	2,322	2,552	2,833	8%
Health Services	2,270	13%	2,568	3,022	3,580	4,269	5,126	6,200	19%
Insurance	2,520	18%	2,963	3,482	4,108	4,865	5,783	6,900	18%
Miscellaneous	124	14%	142	155	170	187	206	228	10%
Process Manufacturing	1,911	20%	2,300	2,715	3,219	3,832	4,581	5,500	19%
Retail Trade	1,107	24%	1,376	1,631	1,944	2,331	2,811	3,410	20%
State & Local Government	3,725	22%	4,528	5,392	6,451	7,754	9,366	11,370	20%
Telecommunications	1,386	33%	1,848	2,361	3,024	3,882	4,994	6,440	28%
Transportation	941	20%	1,132	1,351	1,621	1,958	2,380	2,915	21%
Utilities	355	30%	463	568	702	875	1,098	1,390	25%
Wholesale Trade	454	17%	530	607	698	804	930	1,080	15%

Source: *INPUT*

Exhibit B-4

Processing Services
U.S. Market Size by Industry Sector, 1997 - 2002

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
Total All Sectors	**28,297**	**10%**	**31,180**	**35,961**	**41,634**	**48,419**	**56,549**	**66,334**	**16%**
Banking and Finance	5,245	14%	6,000	6,960	8,075	9,365	10,865	12,600	16%
Business Services	1,960	2%	2,000	2,210	2,445	2,705	2,990	3,305	11%
Discrete Manufacturing	1,060	4%	1,100	1,350	1,650	2,025	2,480	3,040	23%
Education	255	6%	270	330	410	505	620	765	23%
Federal Government	116	-4%	111	110	101	104	109	116	1%
Health Services	735	5%	770	940	1,145	1,395	1,695	2,070	22%
Insurance	485	6%	515	640	795	990	1,230	1,525	24%
Miscellaneous	199	1%	200	227	259	294	335	380	14%
Process Manufacturing	915	4%	950	1,090	1,250	1,435	1,645	1,890	15%
Retail Trade	277	12%	310	420	565	760	1,020	1,375	35%
State & Local Government	542	13%	610	795	1,035	1,350	1,760	2,295	30%
Telecommunications	2,080	18%	2,450	3,165	4,085	5,275	6,815	8,800	29%
Transportation	2,785	7%	2,970	3,330	3,735	4,185	4,695	5,265	12%
Utilities	445	12%	500	645	840	1,085	1,405	1,820	29%
Wholesale Trade	387	3%	400	470	550	645	755	885	17%
Total Cross-Industry	4,501	7%	4,826	5,174	5,549	5,961	6,414	6,908	7%
Other Markets	6,310	14%	7,198	8,105	9,145	10,340	11,715	13,295	13%
- Processing Services-Utility	1,000	0%	1,005	985	965	945	925	900	-2%
- Processing Services-Other	5,310	17%	6,193	7,120	8,180	9,395	10,790	12,395	15%
Cross-Industry Summary									
Accounting	165	1%	167	172	177	182	187	193	3%
Education & Training	4	0%	4	4	4	3	3	3	-6%
Engineering & Scientific	116	-3%	113	111	109	107	104	102	-2%
Human Resources	3,410	9%	3,725	4,060	4,425	4,825	5,260	5,735	9%
Office Systems	25	-4%	24	23	21	20	19	17	-7%
Planning & Analysis	115	-12%	101	89	78	69	61	53	-12%
Sales & Marketing	666	4%	692	715	735	755	780	805	3%
Total Cross-Industry	**4,501**	**7%**	**4,826**	**5,174**	**5,549**	**5,961**	**6,414**	**6,908**	**7%**

Source: *INPUT*

Exhibit B-5

Network Services
U.S. Market Size by Industry Sector, 1997 - 2002

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
Total All Sectors	**22,220**	**19%**	**26,455**	**30,751**	**36,052**	**42,424**	**50,315**	**60,124**	**18%**
Vertical Industry Markets	12,870	22%	16,054	19,478	23,822	29,129	35,855	44,364	22%
Banking and Finance	1,700	15%	1,950	2,260	2,625	3,045	3,530	4,095	16%
Business Services	1,323	21%	1,600	1,905	2,275	2,715	3,240	3,865	19%
Discrete Manufacturing	665	46%	970	1,330	1,825	2,510	3,445	4,750	37%
Education	590	32%	780	945	1,145	1,390	1,680	2,040	21%
Federal Government	1,063	1%	1,070	1,095	1,132	1,183	1,245	1,319	4%
Health Services	1,255	22%	1,530	1,830	2,190	2,620	3,140	3,760	20%
Insurance	550	34%	735	910	1,120	1,380	1,710	2,120	24%
Miscellaneous	424	18%	500	575	723	760	877	1,010	15%
Process Manufacturing	1,930	22%	2,350	2,825	3,405	4,105	4,955	5,985	21%
Retail Trade	741	42%	1,050	1,355	1,745	2,260	2,915	3,775	29%
State & Local Government	325	38%	450	600	805	1,075	1,445	1,930	34%
Telecommunications	362	38%	500	680	930	1,265	1,730	2,365	36%
Transportation	935	33%	1,245	1,550	1,930	2,400	2,990	3,725	25%
Utilities	145	38%	200	238	282	341	403	485	19%
Wholesale Trade	862	31%	1,125	1,380	1,690	2,080	2,550	3,140	23%
Other Markets	9,350	11%	10,401	11,274	12,230	13,295	14,460	15,760	9%
- On-Line Data Bases	6,200	15%	6,934	7,700	8,550	9,500	10,560	11,740	11%
- On-line News Services	3,150	10%	3,467	3,574	3,680	3,795	3,900	4,020	3%

Source: *INPUT*

Exhibit B-6

Applications Software Products
U.S. Market Size by Industry Sector, 1997 - 2002

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
Total All Sectors	**36,427**	**18%**	**42,863**	**50,365**	**59,438**	**70,496**	**83,992**	**100,473**	**19%**
Vertical Industry Markets	**20,865**	**20%**	**24,998**	**29,909**	**35,972**	**43,515**	**52,915**	**64,609**	**21%**
Banking and Finance	3,090	15%	3,550	4,115	4,780	5,540	6,430	7,455	16%
Business Services	2,099	21%	2,550	3,088	3,743	4,545	5,530	6,735	21%
Discrete Manufacturing	4,825	24%	5,995	7,460	9,345	11,795	14,995	19,185	26%
Education	1,214	15%	1,400	1,607	1,857	2,142	2,478	2,870	15%
Federal Government	491	-4%	471	459	462	501	543	584	4%
Health Services	1,870	16%	2,160	2,540	2,995	3,550	4,215	5,030	18%
Insurance	1,505	16%	1,750	2,060	2,430	2,870	3,410	4,050	18%
Miscellaneous	395	14%	450	513	579	659	754	859	14%
Process Manufacturing	1,358	22%	1,650	2,012	2,458	3,015	3,720	4,610	23%
Retail Trade	520	23%	637	759	901	1,073	1,277	1,516	19%
State & Local Government	375	25%	470	586	728	907	1,130	1,405	24%
Telecommunications	975	37%	1,340	1,685	2,110	2,655	3,340	4,195	26%
Transportation	767	24%	950	1,140	1,385	1,690	2,070	2,560	22%
Utilities	417	20%	501	605	729	888	1,073	1,300	21%
Wholesale Trade	964	17%	1,124	1,280	1,470	1,685	1,950	2,255	15%
Cross-Industry Markets	**15,562**	**15%**	**17,865**	**20,456**	**23,466**	**26,981**	**31,077**	**35,864**	**15%**
Accounting	4,325	16%	5,003	5,930	7,035	8,360	9,955	11,870	19%
Education & Training	349	12%	391	451	522	606	705	819	16%
Engineering & Scientific	1,103	10%	1,215	1,340	1,490	1,655	1,842	2,050	11%
Human Resources	1,085	11%	1,200	1,370	1,565	1,800	2,070	2,395	15%
Office Systems	4,643	16%	5,402	6,121	6,945	7,885	8,965	10,205	14%
Planning & Analysis	3,579	15%	4,133	4,665	5,271	5,960	6,740	7,630	13%
Sales & Marketing	478	9%	521	579	638	715	800	895	11%

Source: *INPUT*

Exhibit B-7

Turnkey Systems
U.S. Market Size by Industry Sector, 1997 - 2002

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
Total All Sectors	**17,577**	**11%**	**19,481**	**21,965**	**24,789**	**28,066**	**31,846**	**36,165**	**13%**
Vertical Industry Markets	**15,878**	**11%**	**17,691**	**20,027**	**22,695**	**25,813**	**29,413**	**33,537**	**14%**
Banking and Finance	1,480	15%	1,700	1,975	2,290	2,650	3,080	3,570	16%
Business Services	1,285	10%	1,415	1,590	1,780	1,990	2,225	2,475	12%
Discrete Manufacturing	4,720	14%	5,400	6,425	7,635	9,080	10,800	12,835	19%
Education	321	9%	350	379	409	445	482	514	8%
Federal Government	1,277	-1%	1,262	1,295	1,369	1,467	1,580	1,716	6%
Health Services	1,340	8%	1,450	1,605	1,775	1,960	2,160	2,380	10%
Insurance	378	8%	410	426	442	459	477	491	4%
Miscellaneous	688	7%	739	798	865	935	1,010	1,090	8%
Process Manufacturing	974	13%	1,100	1,275	1,470	1,700	1,955	2,270	16%
Retail Trade	1,030	12%	1,150	1,280	1,420	1,585	1,760	1,960	11%
State & Local Government	303	16%	350	393	440	490	550	615	12%
Telecommunications	870	18%	1,030	1,145	1,265	1,400	1,555	1,710	11%
Transportation	416	14%	475	530	583	650	725	810	11%
Utilities	153	18%	180	191	202	212	224	236	6%
Wholesale Trade	643	6%	680	720	750	790	830	865	5%
Cross-Industry Markets	**1,699**	**5%**	**1,790**	**1,938**	**2,094**	**2,253**	**2,433**	**2,628**	**8%**
Accounting	595	5%	623	682	745	810	880	955	9%
Education & Training	221	10%	242	263	287	310	339	373	9%
Engineering & Scientific	179	4%	187	199	211	222	236	248	6%
Human Resources	125	5%	131	140	150	162	174	186	7%
Office Systems	144	1%	146	156	164	174	184	196	6%
Planning & Analysis	-	n/a	-	-	-	-	-	-	n/a
Sales & Marketing	435	6%	461	498	537	575	620	670	8%

Source: *INPUT*

Exhibit B-8

System Software Products
U.S. Market Size by Product/Service Categories, 1997 - 2002 ($ Millions)

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
Total Systems Software	**24,888**	**13%**	**28,010**	**30,949**	**34,486**	**38,746**	**43,881**	**50,079**	**12%**
Systems Control Products	7,129	6%	7,565	7,840	8,178	8,585	9,066	9,625	5%
- Enterprise Servers	2,149	-6%	2,020	1,841	1,677	1,528	1,393	1,269	-9%
- Distributed Servers	2,427	8%	2,610	2,701	2,795	2,893	2,994	3,099	3%
- Clients	2,552	15%	2,935	3,298	3,706	4,164	4,679	5,258	12%
Operations Management	6,337	11%	7,060	7,714	8,481	9,388	10,464	11,752	11%
- Enterprise Servers	3,071	7%	3,275	3,363	3,454	3,547	3,643	3,741	3%
- Distributed Servers	2,107	10%	2,325	2,519	2,729	2,956	3,203	3,470	8%
- Clients	1,158	26%	1,460	1,832	2,298	2,884	3,619	4,540	25%
Applications Development Tools	11,422	17%	13,385	15,395	17,826	20,773	24,351	28,702	16%
- Enterprise Servers	3,659	4%	3,805	3,858	3,912	3,967	4,022	4,079	1%
- Distributed Servers	3,487	14%	3,965	4,555	5,233	6,011	6,906	7,934	15%
- Clients	4,276	31%	5,615	6,982	8,681	10,795	13,422	16,690	24%

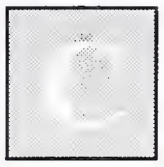
Source: *INPUT*

Exhibit B-9

System Software Products
U.S. Market Size by Platform, 1997 - 2002 ($ Millions)

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
Total Systems Software	**24,888**	**13%**	**28,010**	**30,949**	**34,486**	**38,746**	**43,881**	**50,079**	**12%**
Enterprise Servers	8,879	2%	9,100	9,062	9,044	9,043	9,058	9,089	0%
- Systems Control Products	2,149	-6%	2,020	1,841	1,677	1,528	1,393	1,269	-9%
- Operations Managem'nt Tools	3,071	7%	3,275	3,363	3,454	3,547	3,643	3,741	3%
- Applications Developm'nt T	3,659	4%	3,805	3,858	3,912	3,967	4,022	4,079	1%
Distributed Servers	8,022	11%	8,900	9,775	10,757	11,861	13,103	14,502	10%
- Systems Control Products	2,427	8%	2,610	2,701	2,795	2,893	2,994	3,099	3%
- Operations Managem'nt Tools	2,107	10%	2,325	2,519	2,729	2,956	3,203	3,470	8%
- Applications Developm'nt T	3,487	14%	3,965	4,555	5,233	6,011	6,906	7,934	15%
Clients	7,987	25%	10,010	12,112	14,686	17,843	21,720	26,488	21%
- Systems Control Products	2,552	15%	2,935	3,298	3,706	4,164	4,679	5,258	12%
- Operations Managem'nt Tools	1,158	26%	1,460	1,832	2,298	2,884	3,619	4,540	25%
- Applications Developm'nt T	4,276	31%	5,615	6,982	8,681	10,795	13,422	16,690	24%

Source: *INPUT*



Industry Sector Forecast

This appendix presents the market forecasts for each of the 15 industry sectors used by INPUT to define the U.S. IT Software & Service market.

The industry sector forecasts contained in this chapter are presented in the following order:

- Banking and Finance.
- Business Services.
- Discrete Manufacturing.
- Education.
- Federal Government.
- Health Services.
- Insurance Industry.
- Miscellaneous Industries.
- Process Manufacturing.
- Retail Trade.
- State and Local Government.
- Telecommunications Industry.
- Transportation.
- Utilities Industry.
- Wholesale Trade.

Exhibit C-1

Banking and Finance
U.S. Market Size by Industry Sector, 1997 - 2002

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
INDUSTRY TOTAL	**22,030**	16%	**25,514**	**29,865**	**35,000**	**41,171**	**48,551**	**57,530**	**18%**
Professional Services	3,740	15%	4,300	4,960	5,700	6,615	7,670	9,015	16%
- IS Consulting	1,070	15%	1,235	1,455	1,710	2,030	2,405	2,885	18%
- Education & Training	545	15%	625	715	815	935	1,075	1,255	15%
- Software Development	2,125	15%	2,440	2,790	3,175	3,650	4,190	4,875	15%
Systems Integration	1,305	15%	1,500	1,733	1,985	2,305	2,675	3,145	16%
- Equipment	355	8%	385	410	430	455	480	515	6%
- Software Products	100	18%	118	140	165	200	240	290	20%
- Professional Services	775	17%	910	1,080	1,270	1,510	1,790	2,145	19%
- Other	75	17%	87	103	120	140	165	195	17%
Outsourcing	5,470	19%	6,514	7,863	9,545	11,651	14,301	17,650	22%
- Platform Operations	1,000	8%	1,076	1,142	1,212	1,287	1,366	1,450	3%
- Applications Operations	2,240	18%	2,640	3,116	3,678	4,342	5,125	6,050	16%
- Desktop Services	685	22%	834	1,030	1,273	1,573	1,943	2,400	21%
- Network Management	630	21%	764	983	1,266	1,629	2,098	2,700	20%
- Application Management	265	13%	300	360	433	520	624	750	16%
- Business Operations	650	38%	900	1,231	1,682	2,300	3,145	4,300	23%
Processing Services	5,245	14%	6,000	6,960	8,075	9,365	10,865	12,600	16%
- Transaction Processing	5,245	14%	6,000	6,960	8,075	9,365	10,865	12,600	16%
Network Services	1,700	15%	1,950	2,260	2,625	3,045	3,530	4,095	16%
- Content Services	1,500	15%	1,725	2,000	2,325	2,695	3,125	3,625	16%
- Other Network Services	200	13%	225	260	300	350	405	470	16%
Applications Software	3,090	15%	3,550	4,115	4,780	5,540	6,430	7,455	16%
- Enterprise Servers	1,290	13%	1,460	1,655	1,880	2,130	2,410	2,730	13%
- Distributed Servers	970	14%	1,110	1,290	1,495	1,730	2,005	2,315	16%
- Clients	830	18%	980	1,170	1,405	1,680	2,015	2,410	20%
Turnkey Systems	1,480	15%	1,700	1,975	2,290	2,650	3,080	3,570	16%
- Equipment	560	10%	615	690	775	870	980	1,100	12%
- Software Products	600	18%	705	830	970	1,130	1,325	1,545	17%
- Professional Services	320	19%	380	455	545	650	775	925	19%

Source: *INPUT*

Exhibit C-2

Business Services
U.S. Market Size by Product/Service Categories, 1997-2002 ($ Millions)

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
INDUSTRY TOTAL	**9,233**	**16%**	**10,715**	**12,689**	**15,070**	**17,952**	**21,459**	**25,721**	**19%**
Professional Services	1,385	24%	1,723	2,140	2,658	3,303	4,105	5,105	24%
- IS Consulting	420	30%	545	694	884	1,127	1,435	1,828	27%
- Education & Training	190	20%	228	276	335	406	492	597	21%
- Software Development	775	23%	950	1,169	1,438	1,770	2,178	2,680	23%
Systems Integration	555	26%	699	891	1,133	1,442	1,841	2,356	27%
- Equipment	129	20%	155	185	220	260	310	370	19%
- Software Products	65	26%	82	105	135	170	220	280	28%
- Professional Services	334	29%	430	560	725	945	1,225	1,595	30%
- Other	26	25%	32	41	53	67	86	111	28%
Outsourcing	627	16%	728	865	1,036	1,252	1,527	1,880	21%
- Platform Operations	106	6%	113	121	130	139	149	160	7%
- Applications Operations	271	14%	308	345	387	434	486	545	12%
- Desktop Services	85	18%	100	124	153	189	234	290	24%
- Network Management	62	16%	72	91	114	143	179	225	26%
- Application Management	23	10%	25	30	36	43	50	60	19%
- Business Operations	80	38%	110	154	217	304	427	600	40%
Processing Services	1,960	2%	2,000	2,210	2,445	2,705	2,990	3,305	11%
- Transaction Processing	1,960	2%	2,000	2,210	2,445	2,705	2,990	3,305	11%
Network Services	1,323	21%	1,600	1,905	2,275	2,715	3,240	3,865	19%
- Content Services	1,260	20%	1,515	1,800	2,145	2,550	3,035	3,610	19%
- Other Network Services	63	35%	85	105	130	165	205	255	25%
Applications Software	2,099	21%	2,550	3,088	3,743	4,545	5,530	6,735	21%
- Enterprise Servers	117	7%	125	128	133	140	145	150	4%
- Distributed Servers	332	11%	370	420	475	535	605	680	13%
- Clients	1,650	25%	2,055	2,540	3,135	3,870	4,780	5,905	24%
Turnkey Systems	1,285	10%	1,415	1,590	1,780	1,990	2,225	2,475	12%
- Equipment	405	7%	435	495	560	635	715	800	13%
- Software Products	425	9%	465	515	570	630	700	770	11%
- Professional Services	455	13%	515	580	650	725	810	905	12%

Source: *INPUT*

Exhibit C-3

Discrete Manufacturing
U.S. Market Size by Product/Service Categories, 1997-2002 ($ Millions)

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
INDUSTRY TOTAL	**25,876**	**20%**	**30,999**	**37,544**	**45,603**	**55,612**	**68,072**	**83,650**	**22%**
Professional Services	8,305	17%	9,750	11,581	13,769	16,385	19,517	23,270	19%
- IS Consulting	2,455	23%	3,020	3,745	4,643	5,757	7,138	8,851	24%
- Education & Training	1,350	17%	1,575	1,866	2,211	2,620	3,104	3,678	18%
- Software Development	4,500	15%	5,155	5,970	6,914	8,008	9,274	10,740	16%
Systems Integration	2,911	20%	3,505	4,232	5,115	6,185	7,495	9,090	21%
- Equipment	1,580	18%	1,865	2,185	2,560	3,000	3,515	4,120	17%
- Software Products	215	21%	260	320	395	485	595	735	23%
- Professional Services	1,015	24%	1,260	1,580	1,980	2,480	3,115	3,905	25%
- Other	101	19%	120	147	180	220	270	330	22%
Outsourcing	3,390	26%	4,279	5,166	6,265	7,632	9,340	11,480	22%
- Platform Operations	830	8%	899	967	1,042	1,121	1,207	1,300	8%
- Applications Operations	1,150	29%	1,486	1,783	2,140	2,568	3,083	3,700	20%
- Desktop Services	470	35%	635	783	965	1,190	1,468	1,810	23%
- Network Management	465	34%	623	796	1,017	1,299	1,660	2,120	28%
- Application Management	185	28%	237	290	355	434	531	650	22%
- Business Operations	290	38%	400	546	746	1,019	1,391	1,900	37%
Processing Services	1,060	4%	1,100	1,350	1,650	2,025	2,480	3,040	23%
- Transaction Processing	1,060	4%	1,100	1,350	1,650	2,025	2,480	3,040	23%
Network Services	665	46%	970	1,330	1,825	2,510	3,445	4,750	37%
- Content Services	315	44%	455	600	790	1,045	1,375	1,815	32%
- Other Network Services	350	47%	515	730	1,035	1,465	2,070	2,935	42%
Applications Software	4,825	24%	5,995	7,460	9,345	11,795	14,995	19,185	26%
- Enterprise Servers	465	5%	490	515	540	565	590	620	5%
- Distributed Servers	1,780	13%	2,005	2,265	2,555	2,885	3,255	3,675	13%
- Clients	2,580	36%	3,500	4,680	6,250	8,345	11,150	14,890	34%
Turnkey Systems	4,720	14%	5,400	6,425	7,635	9,080	10,800	12,835	19%
- Equipment	1,600	7%	1,705	2,015	2,380	2,810	3,315	3,900	18%
- Software Products	1,970	16%	2,295	2,700	3,175	3,735	4,390	5,165	18%
- Professional Services	1,150	22%	1,400	1,710	2,080	2,535	3,095	3,770	22%

Source: *INPUT*

Exhibit C-4

Education
U.S. Market Size by Product/Service Categories, 1997-2002 ($ Millions)

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
INDUSTRY TOTAL	**3,554**	**20%**	**4,263**	**4,965**	**5,823**	**6,833**	**8,021**	**9,440**	**17%**
Professional Services	396	37%	544	645	760	895	1,055	1,250	18%
- IS Consulting	116	46%	169	205	245	300	360	435	21%
- Education & Training	69	30%	90	105	125	145	170	200	17%
- Software Development	211	35%	285	335	390	450	525	615	17%
Systems Integration	263	25%	330	390	480	587	710	856	21%
- Equipment	90	26%	113	135	165	195	235	280	20%
- Software Products	22	23%	27	32	39	47	57	70	21%
- Professional Services	145	26%	182	220	270	330	400	485	22%
- Other	6	33%	8	10	12	15	18	21	21%
Outsourcing	515	14%	589	669	761	869	996	1,145	14%
- Platform Operations	282	10%	311	338	367	399	433	470	9%
- Applications Operations	160	16%	185	214	247	285	329	380	15%
- Desktop Services	11	35%	14	18	23	28	36	45	26%
- Network Management	12	24%	15	20	27	35	46	60	31%
- Application Management	21	22%	25	31	38	47	57	70	23%
- Business Operations	30	27%	38	48	60	76	95	120	26%
Processing Services	255	6%	270	330	410	505	620	765	23%
- Transaction Processing	255	6%	270	330	410	505	620	765	23%
Network Services	590	32%	780	945	1,145	1,390	1,680	2,040	21%
- Content Services	385	34%	515	630	770	940	1,145	1,400	22%
- Other Network Services	205	29%	265	315	375	450	535	640	19%
Applications Software	1,214	15%	1,400	1,607	1,857	2,142	2,478	2,870	15%
- Enterprise Servers	84	2%	86	87	87	87	88	90	1%
- Distributed Servers	225	12%	253	275	305	335	365	400	10%
- Clients	905	17%	1,061	1,245	1,465	1,720	2,025	2,380	18%
Turnkey Systems	321	9%	350	379	409	445	482	514	8%
- Equipment	143	8%	154	170	185	205	225	240	9%
- Software Products	121	10%	133	141	150	160	170	180	6%
- Professional Services	57	11%	63	68	74	80	87	94	8%

Source: *INPUT*

Exhibit C-5

Federal Government
U.S. Market Size by Product/Service Categories, 1997-2002 ($ Millions)

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
INDUSTRY TOTAL	**11,663**	**1%**	**11,791**	**12,210**	**12,844**	**13,831**	**15,009**	**16,400**	**7%**
Professional Services	2,925	3%	3,020	3,236	3,435	3,747	4,119	4,544	9%
- IS Consulting	600	9%	651	685	742	813	894	991	9%
- Education & Training	575	8%	619	647	687	746	820	910	8%
- Software Development	1,750	0%	1,750	1,904	2,007	2,188	2,404	2,643	9%
Systems Integration	3,981	-2%	3,915	3,989	4,204	4,508	4,862	5,289	6%
- Equipment	2,207	-6%	2,075	2,090	2,168	2,291	2,440	2,621	5%
- Software Products	385	-6%	363	357	369	393	422	458	5%
- Professional Services	1,155	9%	1,257	1,324	1,443	1,586	1,743	1,933	9%
- Other	234	-6%	220	217	225	239	256	277	5%
Outsourcing	1,810	7%	1,942	2,027	2,141	2,322	2,552	2,833	8%
- Platform Operations	491	7%	524	545	567	612	672	746	7%
- Applications Operations	739	7%	793	827	870	936	1,029	1,141	8%
- Desktop Services	167	8%	180	189	208	241	265	294	10%
- Network Management	249	8%	269	281	297	316	347	385	7%
- Application Management	94	9%	102	108	118	129	142	157	9%
- Business Operations	69	7%	74	77	81	88	96	110	8%
Processing Services	116	-4%	111	110	101	104	109	116	1%
- Transaction Processing	116	-4%	111	110	101	104	109	116	1%
Network Services	1,063	1%	1,070	1,095	1,132	1,183	1,245	1,319	4%
- Content Services	276	1%	278	285	294	308	324	343	4%
- Other Network Services	787	1%	791	810	838	875	921	976	4%
Applications Software	491	-4%	471	459	462	501	543	584	4%
- Enterprise Servers	160	-5%	151	146	148	163	177	193	5%
- Distributed Servers	183	-5%	175	170	173	189	205	224	5%
- Clients	148	-2%	145	143	141	149	162	167	3%
Turnkey Systems	1,277	-1%	1,262	1,295	1,369	1,467	1,580	1,716	6%
- Equipment	567	-1%	560	575	602	645	695	755	6%
- Software Products	478	-1%	472	484	506	543	584	635	6%
- Professional Services	232	-1%	230	236	260	279	300	326	7%

Source: *INPUT*

Exhibit C-6

Health Services
U.S. Market Size by Product/Service Categories, 1997-2002 ($ Millions)

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
INDUSTRY TOTAL	**9,010**	**16%**	**10,450**	**12,353**	**14,657**	**17,444**	**20,824**	**24,966**	**19%**
Professional Services	933	29%	1,200	1,455	1,765	2,140	2,595	3,145	21%
- IS Consulting	290	34%	390	480	585	720	880	1,080	23%
- Education & Training	148	25%	185	220	265	315	380	455	20%
- Software Development	495	26%	625	755	915	1,105	1,335	1,610	21%
Systems Integration	607	27%	772	961	1,207	1,510	1,893	2,381	25%
- Equipment	182	18%	215	255	305	365	435	520	19%
- Software Products	71	28%	91	114	143	179	225	285	26%
- Professional Services	350	31%	460	585	750	955	1,220	1,560	28%
- Other	4	50%	6	7	9	11	13	16	22%
Outsourcing	2,270	13%	2,568	3,022	3,580	4,269	5,126	6,200	19%
- Platform Operations	625	7%	668	718	772	830	893	960	8%
- Applications Operations	665	9%	726	821	928	1,049	1,185	1,340	13%
- Desktop Services	290	13%	329	397	481	581	703	850	21%
- Network Management	340	15%	389	484	600	746	926	1,150	24%
- Application Management	110	15%	126	150	179	212	252	300	19%
- Business Operations	240	38%	330	453	621	851	1,167	1,600	37%
Processing Services	735	5%	770	940	1,145	1,395	1,695	2,070	22%
- Transaction Processing	735	5%	770	940	1,145	1,395	1,695	2,070	22%
Network Services	1,255	22%	1,530	1,830	2,190	2,620	3,140	3,760	20%
- Content Services	640	19%	760	895	1,055	1,240	1,465	1,725	18%
- Other Network Services	615	25%	770	935	1,135	1,380	1,675	2,035	21%
Applications Software	1,870	16%	2,160	2,540	2,995	3,550	4,215	5,030	18%
- Enterprise Servers	495	4%	515	550	590	635	680	730	7%
- Distributed Servers	425	8%	460	520	585	655	735	825	12%
- Clients	950	25%	1,185	1,470	1,820	2,260	2,800	3,475	24%
Turnkey Systems	1,340	8%	1,450	1,605	1,775	1,960	2,160	2,380	10%
- Equipment	545	6%	575	640	710	785	865	950	11%
- Software Products	540	10%	595	655	725	805	890	985	11%
- Professional Services	255	10%	280	310	340	370	405	445	10%

Source: *INPUT*

Exhibit C-7

Insurance Industry
U.S. Market Size by Product/Service Categories, 1997-2002 ($ Millions)

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
INDUSTRY TOTAL	**8,260**	**17%**	**9,658**	**11,345**	**13,364**	**15,786**	**18,733**	**22,272**	**18%**
Professional Services	2,275	14%	2,595	2,965	3,385	3,860	4,410	5,040	14%
- IS Consulting	635	17%	745	885	1,045	1,240	1,465	1,735	18%
- Education & Training	335	13%	380	425	480	535	600	670	12%
- Software Development	1,305	13%	1,470	1,655	1,860	2,085	2,345	2,635	12%
Systems Integration	547	26%	690	862	1,084	1,362	1,713	2,146	25%
- Equipment	83	20%	100	118	140	165	195	225	18%
- Software Products	50	24%	62	77	97	120	155	195	26%
- Professional Services	403	28%	514	650	825	1,050	1,330	1,685	27%
- Other	11	27%	14	17	22	27	33	41	24%
Outsourcing	2,520	18%	2,963	3,482	4,108	4,865	5,783	6,900	18%
- Platform Operations	760	7%	817	882	953	1,029	1,111	1,200	8%
- Applications Operations	850	20%	1,016	1,194	1,404	1,650	1,940	2,280	18%
- Desktop Services	300	21%	362	438	530	641	776	940	21%
- Network Management	275	22%	335	415	514	638	790	980	24%
- Application Management	115	17%	134	157	185	217	255	300	17%
- Business Operations	220	36%	300	396	522	689	909	1,200	32%
Processing Services	485	6%	515	640	795	990	1,230	1,525	24%
- Transaction Processing	485	6%	515	640	795	990	1,230	1,525	24%
Network Services	550	34%	735	910	1,120	1,380	1,710	2,120	24%
- Content Services	405	30%	525	635	765	920	1,110	1,340	21%
- Other Network Services	145	45%	210	275	355	460	600	780	30%
Applications Software	1,505	16%	1,750	2,060	2,430	2,870	3,410	4,050	18%
- Enterprise Servers	415	6%	440	475	510	545	585	625	7%
- Distributed Servers	155	10%	170	190	215	240	270	300	12%
- Clients	935	22%	1,140	1,395	1,705	2,085	2,555	3,125	22%
Turnkey Systems	378	8%	410	426	442	459	477	491	4%
- Equipment	150	5%	157	165	175	185	195	200	5%
- Software Products	150	11%	166	170	173	176	180	185	2%
- Professional Services	78	12%	87	91	94	98	102	106	4%

Source: *INPUT*

Exhibit C-8

Miscellaneous Industries
U.S. Market Size by Product/Service Categories, 1997-2002 ($ Millions)

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
INDUSTRY TOTAL	**1,993**	**29%**	**2,562**	**2,908**	**3,377**	**3,795**	**4,377**	**5,064**	**15%**
Professional Services	287	15%	331	369	414	461	517	576	12%
- IS Consulting	75	19%	89	101	116	132	151	172	14%
- Education & Training	41	15%	47	52	58	64	71	79	11%
- Software Development	171	14%	195	216	240	265	295	325	11%
Systems Integration	141	42%	200	271	367	499	678	921	36%
- Equipment	52	40%	73	93	119	152	194	247	28%
- Software Products	23	17%	27	39	56	80	114	162	43%
- Professional Services	58	41%	82	115	160	225	315	440	40%
- Other	8	125%	18	24	32	42	55	72	32%
Outsourcing	124	14%	142	155	170	187	206	228	10%
- Platform Operations	31	8%	33	35	36	38	39	41	4%
- Applications Operations	46	12%	52	55	58	62	66	70	6%
- Desktop Services	15	22%	18	21	25	29	34	40	17%
- Network Management	18	18%	21	24	27	31	35	39	13%
- Application Management	7	30%	9	10	12	14	16	18	15%
- Business Operations	7	14%	8	10	12	14	17	20	20%
Processing Services	199	1%	200	227	259	294	335	380	14%
- Transaction Processing	199	1%	200	227	259	294	335	380	14%
Network Services	424	18%	500	575	723	760	877	1,010	15%
- Content Services	389	17%	457	523	660	685	785	900	15%
- Other Network Services	35	23%	43	52	63	75	92	110	21%
Applications Software	395	14%	450	513	579	659	754	859	14%
- Enterprise Servers	10	0%	10	10	10	9	9	9	-2%
- Distributed Servers	120	7%	128	138	149	160	175	185	8%
- Clients	265	18%	312	365	420	490	570	665	16%
Turnkey Systems	423	75%	739	798	865	935	1,010	1,090	8%
- Equipment	-	5%	277	300	330	360	395	430	9%
- Software Products	275	7%	295	315	335	355	375	400	6%
- Professional Services	148	13%	167	183	200	220	240	260	9%

Source: *INPUT*

Exhibit C-9

Process Manufacturing
U.S. Market Size by Product/Service Categories, 1997-2002 ($ Millions)

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
INDUSTRY TOTAL	**11,961**	**18%**	**14,119**	**16,827**	**20,088**	**24,034**	**28,803**	**34,635**	**20%**
Professional Services	4,090	17%	4,800	5,724	6,833	8,165	9,767	11,695	19%
- IS Consulting	1,180	24%	1,458	1,822	2,276	2,844	3,553	4,439	25%
- Education & Training	490	15%	564	664	782	921	1,085	1,278	18%
- Software Development	2,420	15%	2,778	3,238	3,775	4,400	5,129	5,978	17%
Systems Integration	783	24%	969	1,186	1,453	1,782	2,180	2,685	23%
- Equipment	265	16%	308	355	410	475	545	630	15%
- Software Products	85	26%	107	135	165	205	250	310	24%
- Professional Services	395	29%	508	640	810	1,020	1,285	1,625	26%
- Other	38	21%	46	56	68	82	100	120	21%
Outsourcing	1,911	20%	2,300	2,715	3,219	3,832	4,581	5,500	19%
- Platform Operations	417	8%	451	482	516	551	589	630	7%
- Applications Operations	799	22%	972	1,128	1,310	1,521	1,766	2,050	16%
- Desktop Services	240	23%	296	367	455	565	701	870	24%
- Network Management	228	24%	283	361	459	585	746	950	27%
- Application Management	83	19%	98	113	131	150	173	200	15%
- Business Operations	145	38%	200	264	348	459	606	800	32%
Processing Services	915	4%	950	1,090	1,250	1,435	1,645	1,890	15%
- Transaction Processing	915	4%	950	1,090	1,250	1,435	1,645	1,890	15%
Network Services	1,930	22%	2,350	2,825	3,405	4,105	4,955	5,985	21%
- Content Services	1,540	20%	1,845	2,180	2,580	3,050	3,610	4,270	18%
- Other Network Services	390	29%	505	645	825	1,055	1,345	1,715	28%
Applications Software	1,358	22%	1,650	2,012	2,458	3,015	3,720	4,610	23%
- Enterprise Servers	247	8%	267	287	308	330	355	385	8%
- Distributed Servers	408	16%	475	555	645	750	875	1,020	17%
- Clients	703	29%	908	1,170	1,505	1,935	2,490	3,205	29%
Turnkey Systems	974	13%	1,100	1,275	1,470	1,700	1,955	2,270	16%
- Equipment	440	9%	479	560	650	755	875	1,020	16%
- Software Products	362	16%	419	480	545	625	710	815	14%
- Professional Services	172	18%	203	235	275	320	370	435	17%

Source: *INPUT*

Exhibit C-10

Retail Trade
U.S. Market Size by Product/Service Categories, 1997-2002 ($ Millions)

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
INDUSTRY TOTAL	**5,405**	**24%**	**6,727**	**8,023**	**9,593**	**11,546**	**13,926**	**16,906**	**20%**
Professional Services	965	34%	1,295	1,500	1,735	2,005	2,315	2,680	16%
- IS Consulting	280	39%	390	460	540	635	745	875	18%
- Education & Training	125	32%	165	190	215	245	275	315	14%
- Software Development	560	32%	740	850	980	1,125	1,295	1,490	15%
Systems Integration	765	19%	909	1,078	1,283	1,532	1,828	2,190	19%
- Equipment	410	15%	472	535	605	690	780	885	13%
- Software Products	58	26%	73	91	114	140	175	220	25%
- Professional Services	273	24%	338	420	525	655	815	1,015	25%
- Other	24	8%	26	32	39	47	58	70	22%
Outsourcing	1,107	24%	1,376	1,631	1,944	2,331	2,811	3,410	20%
- Platform Operations	394	15%	455	493	534	579	627	680	8%
- Applications Operations	316	28%	405	472	550	641	747	870	17%
- Desktop Services	150	29%	194	244	307	386	485	610	26%
- Network Management	103	30%	134	175	227	295	384	500	30%
- Application Management	44	22%	54	66	81	99	122	150	23%
- Business Operations	100	35%	135	182	245	330	445	600	35%
Processing Services	277	12%	310	420	565	760	1,020	1,375	35%
- Transaction Processing	277	12%	310	420	565	760	1,020	1,375	35%
Network Services	741	42%	1,050	1,355	1,745	2,260	2,915	3,775	29%
- Content Services	435	36%	590	745	935	1,180	1,480	1,865	26%
- Other Network Services	306	50%	460	610	810	1,080	1,435	1,910	33%
Applications Software	520	23%	637	759	901	1,073	1,277	1,516	19%
- Enterprise Servers	55	13%	62	69	76	83	92	101	10%
- Distributed Servers	210	21%	255	300	350	410	480	560	17%
- Clients	255	25%	320	390	475	580	705	855	22%
Turnkey Systems	1,030	12%	1,150	1,280	1,420	1,585	1,760	1,960	11%
- Equipment	390	8%	423	475	530	595	665	740	12%
- Software Products	415	12%	467	505	550	600	650	710	9%
- Professional Services	225	16%	261	300	340	390	445	510	14%

Source: *INPUT*

Exhibit C-11

State and Local Government
U.S. Market Size by Product/Service Categories, 1997-2002 ($ Millions)

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
INDUSTRY TOTAL	**11,392**	**19%**	**13,609**	**16,194**	**19,343**	**23,171**	**27,869**	**33,625**	**20%**
Professional Services	4,465	17%	5,240	6,085	7,075	8,225	9,565	11,135	16%
- IS Consulting	1,225	21%	1,480	1,775	2,125	2,550	3,055	3,665	20%
- Education & Training	615	17%	717	815	930	1,055	1,200	1,365	14%
- Software Development	2,625	16%	3,043	3,495	4,020	4,620	5,310	6,105	15%
Systems Integration	1,657	18%	1,961	2,343	2,809	3,370	4,053	4,875	20%
- Equipment	508	12%	569	640	725	815	920	1,035	13%
- Software Products	105	17%	123	145	170	200	240	280	18%
- Professional Services	995	22%	1,209	1,485	1,825	2,245	2,760	3,395	23%
- Other	49	22%	60	73	89	110	133	165	22%
Outsourcing	3,725	22%	4,528	5,392	6,451	7,754	9,366	11,370	20%
- Platform Operations	580	11%	642	698	760	827	900	980	9%
- Applications Operations	1,735	20%	2,088	2,395	2,748	3,153	3,617	4,150	15%
- Desktop Services	475	28%	609	770	972	1,228	1,551	1,960	26%
- Network Management	470	22%	575	722	907	1,140	1,433	1,800	26%
- Application Management	165	18%	195	233	279	334	401	480	20%
- Business Operations	300	40%	420	574	784	1,071	1,464	2,000	37%
Processing Services	542	13%	610	795	1,035	1,350	1,760	2,295	30%
- Transaction Processing	542	13%	610	795	1,035	1,350	1,760	2,295	30%
Network Services	325	38%	450	600	805	1,075	1,445	1,930	34%
- Content Services	105	43%	150	195	260	340	450	590	32%
- Other Network Services	220	36%	300	405	545	735	995	1,340	35%
Applications Software	375	25%	470	586	728	907	1,130	1,405	24%
- Enterprise Servers	85	16%	99	120	142	171	205	245	20%
- Distributed Servers	70	26%	88	108	133	163	200	245	23%
- Clients	220	29%	283	358	453	573	725	915	26%
Turnkey Systems	303	16%	350	393	440	490	550	615	12%
- Equipment	115	11%	128	145	165	185	210	235	13%
- Software Products	120	17%	140	155	170	185	205	225	10%
- Professional Services	68	21%	82	93	105	120	135	155	14%

Source: *INPUT*

Exhibit C-12

Telecommunications Industry
U.S. Market Size by Product/Service Categories, 1997-2002 ($ Millions)

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
INDUSTRY TOTAL	**9,088**	**31%**	**11,868**	**15,023**	**19,055**	**24,241**	**30,923**	**39,501**	**27%**
Professional Services	2,480	35%	3,350	4,207	5,283	6,636	8,337	10,475	26%
- IS Consulting	570	36%	775	991	1,268	1,621	2,073	2,652	28%
- Education & Training	375	37%	515	633	779	958	1,178	1,449	23%
- Software Development	1,535	34%	2,060	2,582	3,237	4,057	5,085	6,374	25%
Systems Integration	935	44%	1,350	1,780	2,358	3,128	4,152	5,516	33%
- Equipment	205	38%	283	345	415	505	615	745	21%
- Software Products	79	70%	134	175	235	310	410	540	32%
- Professional Services	639	43%	914	1,235	1,675	2,270	3,070	4,155	35%
- Other	12	58%	19	25	33	43	57	76	32%
Outsourcing	1,386	33%	1,848	2,361	3,024	3,882	4,994	6,440	28%
- Platform Operations	312	28%	399	477	570	680	812	970	19%
- Applications Operations	535	26%	676	844	1,053	1,315	1,642	2,050	25%
- Desktop Services	175	40%	246	335	456	620	845	1,150	36%
- Network Management	165	43%	236	316	425	571	767	1,030	34%
- Application Management (1)	39	84%	72	95	125	166	219	290	32%
- Business Operations (2)	160	38%	220	295	395	529	709	950	34%
Processing Services	2,080	18%	2,450	3,165	4,085	5,275	6,815	8,800	29%
- Transaction Processing	2,080	18%	2,450	3,165	4,085	5,275	6,815	8,800	29%
Network Services	362	38%	500	680	930	1,265	1,730	2,365	36%
- Content Services	295	37%	404	545	740	995	1,345	1,820	35%
- Other Network Services	67	43%	96	135	190	270	385	545	42%
Applications Software	975	37%	1,340	1,685	2,110	2,655	3,340	4,195	26%
- Enterprise Servers	415	35%	560	695	860	1,065	1,320	1,635	24%
- Distributed Servers	255	37%	348	445	565	725	925	1,180	28%
- Clients	305	42%	432	545	685	865	1,095	1,380	26%
Turnkey Systems	870	18%	1,030	1,145	1,265	1,400	1,555	1,710	11%
- Equipment	330	11%	367	410	455	505	560	610	11%
- Software Products	355	20%	426	465	505	550	600	655	9%
- Professional Services	185	28%	236	270	305	345	395	445	13%

Source: *INPUT*

Exhibit C-13

Transportation
U.S. Market Size by Product/Service Categories, 1997-2002 ($ Millions)

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
INDUSTRY TOTAL	**6,908**	**19%**	**8,192**	**9,630**	**11,365**	**13,481**	**16,057**	**19,200**	**19%**
Professional Services	549	36%	749	885	1,050	1,250	1,490	1,770	19%
- IS Consulting	160	46%	233	285	350	430	530	650	23%
- Education & Training	74	34%	99	115	135	160	190	220	17%
- Software Development	315	32%	417	485	565	660	770	900	17%
Systems Integration	515	30%	671	844	1,061	1,348	1,707	2,155	26%
- Equipment	164	22%	200	235	280	335	400	470	19%
- Software Products	36	39%	50	65	84	110	145	185	30%
- Professional Services	298	34%	398	515	660	855	1,100	1,420	29%
- Other	17	35%	23	29	37	48	62	80	28%
Outsourcing	941	20%	1,132	1,351	1,621	1,958	2,380	2,915	21%
- Platform Operations	195	17%	229	252	277	305	336	370	10%
- Applications Operations	525	17%	615	711	822	950	1,099	1,270	16%
- Desktop Services	62	35%	84	111	148	197	263	350	33%
- Network Management	53	29%	68	91	120	159	211	280	33%
- Application Management	21	27%	27	34	42	53	67	85	26%
- Business Operations	85	29%	110	152	211	292	404	560	38%
Processing Services	2,785	7%	2,970	3,330	3,735	4,185	4,695	5,265	12%
- Transaction Processing	2,785	7%	2,970	3,330	3,735	4,185	4,695	5,265	12%
Network Services	935	33%	1,245	1,550	1,930	2,400	2,990	3,725	25%
- Content Services	650	32%	858	1,065	1,315	1,630	2,020	2,500	24%
- Other Network Services	285	36%	387	485	615	770	970	1,225	26%
Applications Software	767	24%	950	1,140	1,385	1,690	2,070	2,560	22%
- Enterprise Servers	192	11%	214	230	250	270	290	315	8%
- Distributed Servers	163	18%	192	210	230	250	270	295	9%
- Clients	412	32%	544	700	905	1,170	1,510	1,950	29%
Turnkey Systems	416	14%	475	530	583	650	725	810	11%
- Equipment	181	12%	203	230	260	295	335	380	13%
- Software Products	161	13%	182	195	205	220	235	250	7%
- Professional Services	74	22%	90	105	118	135	155	180	15%

Source: *INPUT*

Exhibit C-14

Utilities Industry
U.S. Market Size by Product/Service Categories, 1997-2002 ($ Millions)

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
INDUSTRY TOTAL	**3,733**	**21%**	**4,519**	**5,426**	**6,522**	**7,874**	**9,526**	**11,566**	**21%**
Professional Services	1,185	24%	1,475	1,770	2,115	2,530	3,035	3,635	20%
- IS Consulting	410	27%	522	635	765	930	1,130	1,370	21%
- Education & Training	250	24%	311	375	455	545	660	795	21%
- Software Development	525	22%	642	760	895	1,055	1,245	1,470	18%
Systems Integration	1,033	16%	1,200	1,409	1,652	1,943	2,288	2,700	18%
- Equipment	315	9%	344	380	420	465	515	575	11%
- Software Products	115	23%	142	170	205	245	295	355	20%
- Professional Services	555	18%	657	790	945	1,135	1,360	1,630	20%
- Other	48	19%	57	69	82	98	118	140	20%
Outsourcing	355	30%	463	568	702	875	1,098	1,390	25%
- Platform Operations	103	32%	137	153	171	192	214	240	12%
- Applications Operations	85	23%	105	122	142	166	193	225	16%
- Desktop Services	42	29%	54	66	80	98	119	145	22%
- Network Management	33	30%	43	55	72	93	120	155	29%
- Application Management	12	21%	14	18	23	28	36	45	26%
- Business Operations	80	38%	110	153	214	298	416	580	39%
Processing Services	445	12%	500	645	840	1,085	1,405	1,820	29%
- Transaction Processing	445	12%	500	645	840	1,085	1,405	1,820	29%
Network Services	145	38%	200	238	282	341	403	485	19%
- Content Services	125	34%	168	197	230	275	320	380	18%
- Other Network Services	20	60%	32	41	52	66	83	105	27%
Applications Software	417	20%	501	605	729	888	1,073	1,300	21%
- Enterprise Servers	73	12%	82	92	104	118	133	150	13%
- Distributed Servers	119	18%	141	170	205	250	300	360	21%
- Clients	225	24%	278	343	420	520	640	790	23%
Turnkey Systems	153	18%	180	191	202	212	224	236	6%
- Equipment	61	13%	69	74	78	82	86	90	5%
- Software Products	62	19%	74	78	83	87	92	97	6%
- Professional Services	30	23%	37	39	41	43	46	49	6%

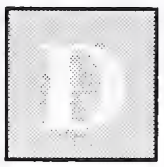
Source: *INPUT*

Exhibit C-15

Wholesale Trade
U.S. Market Size by Product/Service Categories, 1997-2002 ($ Millions)

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
INDUSTRY TOTAL	**4,443**	**17%**	**5,204**	**5,996**	**6,927**	**8,033**	**9,341**	**10,900**	**16%**
Professional Services	758	19%	900	1,008	1,140	1,285	1,435	1,615	12%
- IS Consulting	195	20%	234	265	305	350	395	455	14%
- Education & Training	101	18%	119	133	150	170	190	210	12%
- Software Development	462	18%	547	610	685	765	850	950	12%
Systems Integration	375	19%	445	531	629	744	891	1,060	19%
- Equipment	103	14%	117	132	150	165	190	210	12%
- Software Products	34	21%	41	52	65	82	105	130	26%
- Professional Services	227	20%	272	330	395	475	570	690	20%
- Other	11	36%	15	17	19	22	26	30	15%
Outsourcing	454	17%	530	607	698	804	930	1,080	15%
- Platform Operations	161	11%	178	193	210	229	248	270	9%
- Applications Operations	128	20%	153	170	189	210	234	260	11%
- Desktop Services	64	22%	78	94	113	137	166	200	21%
- Network Management	42	25%	52	63	76	92	111	135	21%
- Application Management	20	22%	25	29	34	40	47	55	17%
- Business Operations	40	13%	45	58	75	96	124	160	29%
Processing Services	387	3%	400	470	550	645	755	885	17%
- Transaction Processing	387	3%	400	470	550	645	755	885	17%
Network Services	862	31%	1,125	1,380	1,690	2,080	2,550	3,140	23%
- Content Services	132	19%	157	180	210	245	285	335	16%
- Other Network Services	730	33%	968	1,200	1,480	1,835	2,265	2,805	24%
Applications Software	964	17%	1,124	1,280	1,470	1,685	1,950	2,255	15%
- Enterprise Servers	287	3%	297	310	320	335	350	365	4%
- Distributed Servers	192	8%	208	225	250	270	295	320	9%
- Clients	485	28%	619	745	900	1,080	1,305	1,570	20%
Turnkey Systems	643	6%	680	720	750	790	830	865	5%
- Equipment	255	2%	261	280	295	315	335	350	6%
- Software Products	255	7%	274	285	295	305	315	325	3%
- Professional Services	133	9%	145	155	160	170	180	190	6%

Source: *INPUT*



Cross-Industry Sector Forecast

This appendix presents the market forecasts for each of the seven cross-industry sectors used by INPUT in its definition of the U.S. IT Software & Services market. Cross-industry product/service categories are limited to processing services, applications software products and turnkey systems solutions tailored to each specific cross-industry sector. The four product/service categories not included here-systems integration, network services, professional services and outsourcing-are excluded because they are normally only used with industry-specific information services projects and activities, and thus are included in the appropriate industry sector forecasts.

The cross-industry sector forecasts contained in this chapter are presented in the following order:

- Accounting.
- Education and Training.
- Engineering and Scientific.
- Human Resources.
- Office Systems.
- Planning and Analysis.
- Sales and Marketing.

Exhibit D-1

Accounting
U.S. Market Size by Product/Service Categories, 1997-2002

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
CROSS-INDUSTRY TOTAL	**5,085**	**14%**	**5,793**	**6,784**	**7,957**	**9,352**	**11,022**	**13,018**	**18%**
Processing Services	165	1%	167	172	177	182	187	193	3%
- Transaction Processing	165	1%	167	172	177	182	187	193	3%
Applications Software	4,325	16%	5,003	5,930	7,035	8,360	9,955	11,870	19%
- Enterprise Servers	1,175	9%	1,279	1,415	1,560	1,725	1,905	2,105	10%
- Distributed Servers	970	16%	1,122	1,340	1,600	1,910	2,285	2,730	19%
- Clients	2,180	19%	2,602	3,175	3,875	4,725	5,765	7,035	22%
Turnkey Systems	595	5%	623	682	745	810	880	955	9%
- Equipment	215	3%	222	245	270	295	320	350	10%
- Software Products	240	5%	253	272	295	315	340	365	8%
- Professional Services	140	6%	148	165	180	200	220	240	10%

Source: *INPUT*

Exhibit D-2

Education and Training
U.S. Market Size by Product/Service Categories, 1997-2002

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
CROSS-INDUSTRY TOTAL	**574**	**11%**	**637**	**718**	**813**	**919**	**1,047**	**1,195**	**13%**
Processing Services	4	0%	4	4	4	3	3	3	-6%
- Transaction Processing	4	0%	4	4	4	3	3	3	-6%
Applications Software	349	12%	391	451	522	606	705	819	16%
- Enterprise Servers	57	0%	57	58	58	59	60	60	1%
- Distributed Servers	35	9%	38	41	44	47	50	54	7%
- Clients	257	15%	296	352	420	500	595	705	19%
Turnkey Systems	221	10%	242	263	287	310	339	373	9%
- Equipment	86	7%	92	100	110	120	132	150	10%
- Software Products	88	10%	97	105	114	122	133	142	8%
- Professional Services	47	13%	53	58	63	68	74	81	9%

Source: *INPUT*

Exhibit D-3

Engineering and Scientific
U.S. Market Size by Product/Service Categories, 1997-2002

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
CROSS-INDUSTRY TOTAL	**1,398**	**8%**	**1,515**	**1,650**	**1,810**	**1,984**	**2,182**	**2,400**	**10%**
Processing Services	116	-3%	113	111	109	107	104	102	-2%
- Transaction Processing	116	-3%	113	111	109	107	104	102	-2%
Applications Software	1,103	10%	1,215	1,340	1,490	1,655	1,842	2,050	11%
- Enterprise Servers	183	4%	190	195	200	210	214	220	3%
- Distributed Servers	360	6%	380	405	435	465	498	535	7%
- Clients	560	15%	645	740	855	980	1,130	1,295	15%
Turnkey Systems	179	4%	187	199	211	222	236	248	6%
- Equipment	64	0%	64	67	69	71	73	75	3%
- Software Products	74	5%	78	83	88	93	99	104	6%
- Professional Services	41	10%	45	49	54	58	64	69	9%

Source: *INPUT*

Exhibit D-4

Human Resources
U.S. Market Size by Product/Service Categories, 1997-2002

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
CROSS-INDUSTRY TOTAL	**4,620**	**9%**	**5,056**	**5,570**	**6,140**	**6,787**	**7,504**	**8,316**	**10%**
Processing Services	3,410	9%	3,725	4,060	4,425	4,825	5,260	5,735	9%
- Transaction Processing	3,410	9%	3,725	4,060	4,425	4,825	5,260	5,735	9%
Applications Software	1,085	11%	1,200	1,370	1,565	1,800	2,070	2,395	15%
- Enterprise Servers	280	4%	292	300	310	320	330	340	3%
- Distributed Servers	340	7%	363	415	470	540	610	700	14%
- Clients	465	17%	545	655	785	940	1,130	1,355	20%
Turnkey Systems	125	5%	131	140	150	162	174	186	7%
- Equipment	43	-2%	42	43	45	47	49	50	4%
- Software Products	48	8%	52	56	60	65	70	76	8%
- Professional Services	34	9%	37	41	45	50	55	60	10%

Source: *INPUT*

Exhibit D-5

Office Systems
U.S. Market Size by Product/Service Categories, 1997-2002

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
CROSS-INDUSTRY TOTAL	**4,812**	**16%**	**5,572**	**6,300**	**7,130**	**8,079**	**9,168**	**10,418**	**13%**
Processing Services	25	-4%	24	23	21	20	19	17	-7%
- Transaction Processing	25	-4%	24	23	21	20	19	17	-7%
Applications Software	4,643	16%	5,402	6,121	6,945	7,885	8,965	10,205	14%
- Enterprise Servers	143	-1%	141	136	130	125	120	115	-4%
- Distributed Servers	760	7%	812	870	930	995	1,065	1,140	7%
- Clients	3,740	19%	4,449	5,115	5,885	6,765	7,780	8,950	15%
Turnkey Systems	144	1%	146	156	164	174	184	196	6%
- Equipment	54	-2%	53	55	56	57	58	60	3%
- Software Products	58	3%	60	65	69	74	79	85	7%
- Professional Services	32	3%	33	36	39	43	47	51	9%

Source: *INPUT*

Exhibit D-6

Planning and Analysis
U.S. Market Size by Product/Service Categories, 1997-2002

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
CROSS-INDUSTRY TOTAL	**3,694**	**15%**	**4,234**	**4,754**	**5,349**	**6,029**	**6,801**	**7,683**	**13%**
Processing Services	115	-12%	101	89	78	69	61	53	-12%
- Transaction Processing	115	-12%	101	89	78	69	61	53	-12%
Applications Software	3,579	15%	4,133	4,665	5,271	5,960	6,740	7,630	13%
- Enterprise Servers	269	6%	285	295	310	320	335	345	4%
- Distributed Servers	185	3%	191	200	211	220	230	245	5%
- Clients	3,125	17%	3,657	4,170	4,750	5,420	6,175	7,040	14%
Turnkey Systems	0	0	0	0	0	0	0	0	0
- Equipment	-	-	-	-	-	-	-	-	-
- Software Products	-	-	-	-	-	-	-	-	-
- Professional Services	-	-	-	-	-	-	-	-	-

Source: *INPUT*

Exhibit D-7

Sales and Marketing
U.S. Market Size by Product/Service Categories, 1997-2002

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
CROSS-INDUSTRY TOTAL	**1,579**	**6%**	**1,674**	**1,792**	**1,910**	**2,045**	**2,200**	**2,370**	**7%**
Processing Services	666	4%	692	715	735	755	780	805	3%
- Transaction Processing	666	4%	692	715	735	755	780	805	3%
Applications Software	478	9%	521	579	638	715	800	895	11%
- Enterprise Servers	210	5%	220	230	240	255	265	280	5%
- Distributed Servers	98	0%	98	105	110	115	125	130	6%
- Clients	170	19%	203	244	288	345	410	485	19%
Turnkey Systems	435	6%	461	498	537	575	620	670	8%
- Equipment	169	3%	174	190	205	220	240	260	8%
- Software Products	178	7%	190	202	215	225	240	255	6%
- Professional Services	88	10%	97	106	117	130	140	155	10%

Source: *INPUT*

Exhibit D-8

Turnkey Systems
U.S. Market Size by Product/Service Categories, 1997-2002

PRODUCT/SERVICE CATEGORY	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
TURNKEY SYSTEMS	1,699	5%	1,790	1,938	2,094	2,253	2,433	2,628	8%
- Equipment	631	3%	647	700	755	810	872	945	8%
- Software Products	686	6%	730	783	841	894	961	1,027	7%
- Professional Services	382	8%	413	455	498	549	600	656	10%

Source: *INPUT*

Exhibit D-9

Application Software Products
U.S. Market Size by Product/Service Categories, 1997-2002

MARKET SECTORS	1996 ($M)	Growth 96-97 (%)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	2001 ($M)	2002 ($M)	CAGR 97-02 (%)
APPLICATION SOFTWARE	15,562	15%	17,865	20,456	23,466	26,981	31,077	35,864	15%
- Mainframe	2,317	6%	2,464	2,629	2,808	3,014	3,229	3,465	7%
- Minicomputer	2,748	9%	3,004	3,376	3,800	4,292	4,863	5,534	13%
- Workstation/PC	10,497	18%	12,397	14,451	16,858	19,675	22,985	26,865	17%

Source: *INPUT*

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Market Forecast Reconcilation US IT Software & Services

This appendix contains a reconciliation between the forecasts contained in this report and those previously published by INPUT.

The Equipment Service category is excluded from this analysis since it was not included in INPUT's published forecasts in 1997.

Exhibit E-1

U.S. IT Software & Services Market Forecast Reconciliation
Market Size by Product/Service Categories, 1997-2002 ($ Millions)

Currency: US$ Million	1996 Market				2001 Market					
Delivery Mode	1996 Forecast Report	1997 Forecast Report	1996-1997 Variance (Amount)	1996-1997 Variance (%)	1996 Forecast Report	1997 Forecast Report	1996-1997 Variance (Amount)	1996-1997 Variance (%)	1996 Forecast %CAGR	1997 Forecast %CAGR
INDUSTRY TOTAL	**200,196**	**207,126**	**6,930**	**3%**	**419,932**	**457,472**	**31,540**	**8%**	**16%**	**16%**
Professional Services	32,074	34,738	2,664	8%	68,388	79,931	11,543	17%	16%	18%
- IS Consulting	8,796	9,681	85	10%	22,077	26,210	4,133	19%	20%	22%
- Education & Training	4,842	5,283	441	9%	9,711	11,491	1,780	18%	15%	17%
- Software Development	18,437	19,774	1,338	7%	36,600	42,230	5,630	14%	15%	16%
Systems Integration	15,619	16,373	754	5%	37,448	38,966	1,518	4%	19%	20%
- Equipment	6,451	6,448	197	3%	11,545	11,769	224	2%	12%	13%
- Software Products	1,387	1,443	56	4%	3,459	3,648	189	5%	20%	21%
- Professional Services	7,143	7,618	475	7%	21,022	22,098	1,076	5%	24%	24%
- Other	637	664	2	4%	1,422	1,450	28	2%	17%	18%
Outsourcing	22,041	26,606	4,566	21%	55,551	65,993	10,442	19%	20%	20%
- Platform Operations	5,456	6,288	832	15%	8,527	9,599	1,072	13%	9%	9%
- Applications Operations	9,158	10,244	1,086	12%	23,245	22,541	(704)	-3%	20%	17%
- Desktop Services	2,765	3,230	465	17%	9,000	9,589	589	7%	27%	24%
- Network Management	2,636	3,145	509	19%	8,343	9,852	1,509	18%	26%	26%
- Application Management	1,015	1,204	189	19%	2,693	2,994	302	11%	22%	20%
- Business Operations	1,010	2,496	1,486	147%	3,743	11,417	7,674	205%	30%	35%
Processing Services	27,446	28,297	851	3%	56,023	56,549	52	1%	15%	16%
- Transaction Processing	21,196	21,987	791	4%	44,623	44,833	210	0%	16%	17%
- Utility Processing	1,000	1,000	-	0%	900	925	25	3%	-2%	-2%
- Other Processing	5,250	5,310	60	1%	10,500	10,790	290	3%	15%	15%
Network Services	19,613	22,220	2,607	13%	42,895	50,315	7,419	17%	17%	18%
- Electronic Information Svcs	15,377	17,802	2,426	16%	30,930	36,334	5,403	17%	15%	15%
- Network Applications	4,236	4,417	181	4%	11,965	13,981	2,016	17%	23%	26%
Applications SW Products	38,160	36,427	(1,733)	-5%	84,756	83,992	(764)	-1%	17%	19%
- Enterprise Servers	6,884	6,707	(177)	-3%	10,237	10,658	412	4%	8%	10%
- Distributed Servers	8,577	8,355	(222)	-3%	15,802	15,823	21	0%	13%	14%
- Clients	2,699	21,365	(1,334)	-6%	58,717	57,512	(1,206)	-2%	21%	22%
Turnkey Systems	18,018	17,577	(504)	-3%	28,231	31,846	3,615	13%	9%	13%
- Equipment	6,888	6,638	(250)	-4%	8,163	11,323	3,160	39%	3%	13%
- Software Products	7,122	6,975	(148)	-2%	12,061	12,382	322	3%	11%	12%
- Professional Services	4,071	3,964	(106)	-3%	8,007	8,140	133	2%	14%	16%
Systems SW Products	27.162	24,888	(2,274)	-8%	46,640	43,881	(2,759)	-6%	11%	12%
- Enterprise Servers	9,688	8,879	(809)	-8%	9,584	9,058	(526)	-5%	0%	0%
- Distributed Servers	8,709	8,022	(687)	-8%	14,094	13,103	(991)	-7%	10%	10%
- Workstation/PC	8,766	7,987	(778)	-9%	22,962	21,720	(1,242)	-5%	21%	21%

Source: *INPUT*

Exhibit E-2

U.S. IT Software & Services Market Forecast Reconciliation
Market Size by Industry Sectors, 1997-2002 ($ Millions)

Currency: US$ Million	1996 Market				2001 Market					
Delivery Mode	1996 Forecast Report	1997 Forecast Report	1996-1997 Variance (Amount)	1996-1997 Variance (%)	1996 Forecast Report	1997 Forecast Report	1996-1997 Variance (Amount)	1996-1997 Variance (%)	1996 Forecast %CAGR	1997 Forecast %CAGR
Total U.S. Market	**200,196**	**204,625**	**4,429**	**2%**	**419,932**	**447,507**	**27,576**	**7%**	**16%**	**17%**
Total Industry Sector	158,734	164,620	5,886	4%	349,692	379,597	29,906	9%	17%	19%
Banking and Finance	21,765	22,030	265	1%	44,954	48,551	3,597	8%	16%	18%
Business Services	7,823	9,233	1,411	18%	17,722	21,576	3,854	22%	18%	19%
Discrete Manufacturing	23,741	25,876	2,136	9%	59,139	68,630	9,491	16%	20%	22%
Education	3,193	3,554	361	11%	6,997	8,051	1,054	15%	17%	17%
Federal Government	12,591	11,663	(928)	-7%	15,797	15,009	(788)	-5%	5%	7%
Health Services	8,161	9,010	849	10%	18,930	20,899	1,969	10%	18%	19%
Insurance	7,979	8,260	282	4%	18,168	18,859	690	4%	18%	18%
Miscellaneous	1,741	2,258	517	30%	3,047	4,392	1,345	44%	12%	15%
Process Manufacturing	11,759	11,961	203	2%	27,796	29,082	1,287	5%	19%	20%
Retail Trade	4,594	5,405	811	18%	11,582	13,992	2,410	21%	20%	20%
State and Local Government	11,307	11,392	86	1%	28,079	28,143	64	0%	20%	20%
Telecommunications	8,062	9,088	1,026	13%	25,370	31,161	5,792	23%	26%	27%
Transportation	6,646	6,908	262	4%	14,934	16,100	1,166	8%	18%	19%
Utilities	2,912	3,733	821	28%	7,638	9,613	1,975	26%	21%	21%
Wholesale Trade	4,234	4,443	209	5%	8,832	9,382	550	6%	16%	16%
Total Cross-Industry	22,228	19,804	(2,424)	-11%	40,708	36,157	(4,551)	-11%	13%	13%
Total Other Markets	14,300	15,660	1,360	10%	23,600	26,175	2,575	11%	11%	11%
Other Network Services	8,050	9,350	1,300	16%	12,200	14,460	2,260	19%	9%	9%
-On-line Data Bases	5,300	6,200	900	17%	9,000	10,560	1,560	17%	11%	11%
-On-line News Services	2,750	3,150	400	15%	3,200	3,900	700	22%	3%	3%
Other Processing Services	6,250	6,310	60	1%	11,400	11,715	315	3%	13%	13%
-Processing Services-Utility	1,000	1,000	-	0%	900	925	25	3%	-2%	-2%
-Processing Services-Other	5,250	5,310	60	1%	10,500	10,790	290	3%	15%	15%

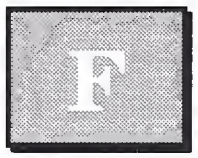
Source: *INPUT*

Exhibit E-3

U.S. IT Software & Services Market Size by Cross-Industry Sectors, 1997-2002

Currency: US$ Million	1996 Market				2001 Market					
Delivery Mode	1996 Forecast Report	1997 Forecast Report	1996-1997 Variance (Amount)	1996-1997 Variance (%)	1996 Forecast Report	1997 Forecast Report	1996-1997 Variance (Amount)	1996-1997 Variance (%)	1996 Forecast %CAGR	1997 Forecast %CAGR
Total Cross-Industry Sectors	**22,228**	**21,762**	**(466)**	**-2%**	**40,708**	**39,924**	**(784)**	**-2**	**13%**	**13%**
Accounting	5,052	5,085	33	1%	11,214	11,022	(192)	-2%	17%	18%
Education & Training	560	574	14	3%	1,028	1,047	19	2%	13%	13%
Engineering & Scientific	1,411	1,398	(13)	-1%	2,192	2,182	(10)	0%	9%	10%
Human Resources	4,596	4,620	24	1%	7,536	7,504	(32)	0%	10%	10%
Office Systems	5,107	4,812	(295)	-6%	9,485	9,168	(317)	-3%	13%	13%
Planning & Analysis	3,947	3,694	(253)	-6%	7,115	6,801	(314)	-4%	13%	13%
Sales & Marketing	1,555	1,579	24	2%	2,138	2,200	62	3%	7%	7%

Source: *INPUT*



Terms and Definitions

A Introduction

- This document provides:
  - Definitions of the industry and market segments normally addressed by research projects.
  - A guide to the terminology employed in the written documents.
  - Specification of the structure used for market analysis and forecasts.
- Clients have the benefit of being able to track market forecast data from year to year against a proven and consistent foundation of definitions.
- Each year INPUT reviews its definitions with clients and makes changes if they are required. When changes are made, they are carefully documented and the new definitions and forecasts reconciled to the prior definitions and forecasts.

B
Market Forecast Structure

1. Market Sectors

- Market Sectors, or markets, are groupings of the buyers of products/ services. There are three market sector categories:

– Vertical Industry markets, such as banking and finance, transportation, utilities, etc. These are called "industry-specific" markets and correspond broadly to with SIC codes.

– Functional or Process markets, such as human resources, accounting, etc., which are common across industries. These are called "cross-industry" markets.

– Generic markets, which are neither industry- nor application-specific, such as the market for systems software products, and much of the Internet and electronic content (database) markets.

2. Product/Service Categories

- Product/Service Categories are groupings of products and services that satisfy a given need. While Market Sectors specify who the buyer is, Product/Service Categories specify what the customer is buying.

- INPUT's main emphasis is on information technology (IT)-based solutions. Consequently analysis and forecasts are heavily applications and industry oriented: they also focus on software and services rather than on the basic technology or hardware.

3. Market Size Measurement and Terminology

- All market sizes are estimates of user expenditures.

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

  – Double counting, which can occur by using total vendor revenues to express market sizes when there is significant reselling within the industry (e.g., software sales to turnkey vendors for repackaging and resale)

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

- Expenditures for products and services provided by a vendor that is part of the same parent corporation as the buyer are 'captive' expenditures. These expenditures are not included in INPUT market Expenditures for products and services provided by a vendor that is forecasts. They are used in some vendor size rankings.

- Expenditures to vendors that have a different parent corporation from the buyer are noncaptive or open. These expenditures are open to competitive bid, they form INPUT market forecasts.

- When questions arise about the proper place to count these expenditures, INPUT addresses them from the buyer's viewpoint – that is, expenditures are categorized according to what customers perceive they are buying.

- Terminology describing market and organizational relationships is as follows:

  - "Vendor" – the purveyor of goods or services.

  - "Buyer" – the person or organization that purchases goods or services.

  - "User" – the person or organization that employs the goods and services directly or through an internal intermediary

  - "Customer" – the company or organization in which buyers and users are employed.

  - "End User" – use of this pejorative term is avoided as much as possible. It might be used to differentiate an individual who uses a product/service from the department or company in which they work which is described as the "user" of a product/service. Preferred terminology would be "individual user" or "personal user".

  - At times the "customer", "buyer" and "user" may be the same individual or unit but in many cases they are separate individuals.

C
Analytical Framework

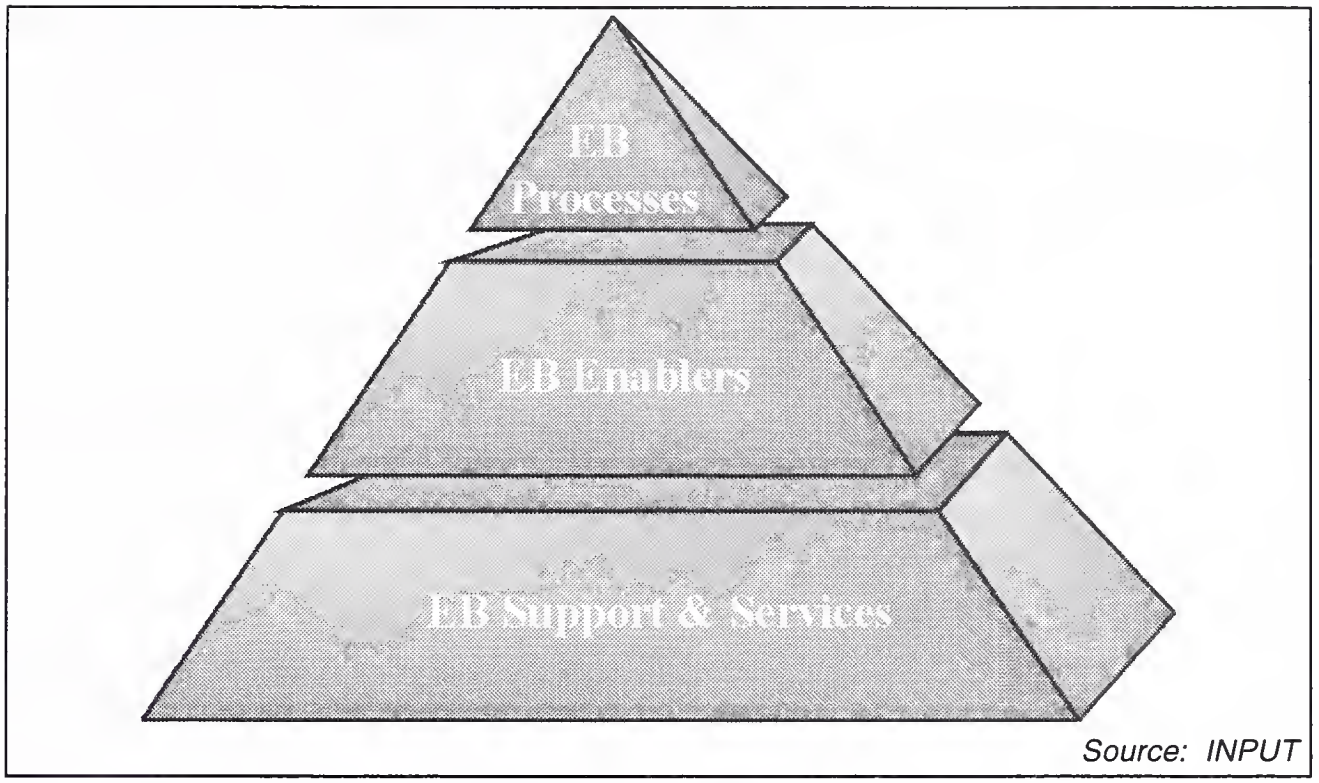
- As mentioned above INPUT analyses the use of IT (broadly computer and telecommunications devices and systems) rather than the technology itself:
  - This orientation emphasizes applications and solutions.
  - Historically IT applications and solutions have primarily supported business and other processes.
  - Today and in the future they are increasingly an integral part of the process itself, resulting in Electronic Business (EB).
- INPUT now analyses two broad market segments:
  - Electronic Business (EB).
  - IT Software and Services, particularly those that enable and support EB.

1. Electronic Business (EB)

- EB is the combination of Information Technology and business processes to form a new way of working.
- EB is the most important change affecting organizations as we go into the 21st Century.
- Electronic Business is the embedding of IT into a business or other organizational process in order to enable that process to operate:
  - It differs from the old model whereby IT was used to support the operation of such a process.
  - A critical difference is whether or not the process can operate at all if the IT system is inoperable.
    - A reservation clerk that uses a reservation system to make airline reservations is not an EB application.
    - UAL's on-line system whereby a passenger makes a booking directly is EB
- INPUT analyses three levels of EB as shown in Exhibit F-1.

Exhibit F-1

Electronic Business World



- EB Processes are those normal organizational processes to which IT is applied. They fall into two categories:
  - Industry Specific.
  - Cross Industry (Function) Specific.
- Industry specific EB Processes:
  - Electronic Banking, Electronic Government, Electronic Retailing, Electronic Brokerage, etc. (sometimes shortened to e- Banking, e-Retailing, etc.)
  - They can also be non-information intensive as e-Manufacturing, e-Utilities, etc.
  - The information content of supposedly non-information companies is increasing; for example there are utility companies without any generation capability .
- Cross industry EB Processes:
  - Electronic Commerce (EC); this is inter - company trading.
  - Electronic HR (Human Resources).

  - Electronic Customer Service.

- Only certain EB processes are analyzed (and defined) by INPUT at present:
  - Electronic Banking.
  - Electronic Commerce.
  - Electronic Government.

Definitions for each of these are provided in the following sections.

i. Electronic Banking

- Electronic banking is the application of IT to enable customers to carry out banking functions directly through computer networks.
- Electronic banking includes all the major banking functions:
  - Retail Banking, including Home Banking.
  - Wholesale or Commercial Banking including Cash Management and similar services.
  - Trust and Investment Services.
- A particular emphasis is on the impact of digital money (e-cash, electronic cash, cybercash or whatever other terminology is employed).
- Because of the relationship of e-banking with electronic commerce, there is a strong emphasis on the analysis of the payment process which involves banks but is not strictly banking.

ii. Electronic Commerce

- IT is playing a major role in reengineering organizations internal and external operations, such as the value chain or Trading Communities in which companies operate. As a result electronic commerce is growing rapidly.
- Electronic commerce is the use of IT systems to carry out the interorganizational business processes of buying and selling goods and services.

- A trading community is a group of organizations—commercial and non-commercial—involved in the trade of a particular type of goods or services, such as food, steel, electronics, etc.

- Electronic Commerce is strictly trade among organizations. However, contemporary use now includes what is actually Electronic Retailing (selling to individuals as consumers). INPUT therefore covers:

  - Business to Business (BTB).

  - Business to Consumer (BTC).

- The impact of the Internet in Electronic Commerce will be huge. However, the majority of Electronic Commerce (in terms of the value of goods/services traded) is today non-Internet based and will continue to be so for the next few years. Electronic Commerce delivery mechanisms are analysed into:

  - Internet Commerce.

  - Non-Internet Commerce.

- A related factor in Electronic Commerce is the nature of the relationship between buyer and seller:

  - In pre-negotiated EC, there is a prior agreement between the buyer and seller, a contract. Orders and payments are placed against that contract.

  - In ad-hoc EC there is no prior agreement. The buyer may or may not be a repeat customer.

- Electronic Commerce markets are measured in three ways:

  - Value of goods and services traded.

  - Volume of transactions.

  - Value (cost) of operation of the IT network infrastructure supporting EC.

- To the extent possible EC markets are mapped into categories of goods and services corresponding to industry sector definitions:

  - Manufactured goods.

  - Travel.

  - Financial services (Investment and Banking).
  - Insurance.
  - Business Services.

iii. Electronic Government

- Electronic government is the application of IT to enable agencies and their publics to carry out government functions directly through computer networks:
  - Legislature.
  - Judicial and Police.
  - Administrative.
- To date there is little legislative activity (electronic citizen voting) or judicial and police activity (electronic trials). Most of the activity is in service-to-the-citizen areas, such as license renewal.
- One major area of electronic government activity is procurement. The U.S. Federal Government is placing great emphasis on reducing the cost of and streamlining the procurement process through the use of IT, particularly the "Information Superhighway" or Internet.

a. Electronic Business Enablers

- EB Enablers are those tools and services that allow or enable EB to be carried out. Enablers are primarily:
  - Networks (Internet being the most important).
  - Software (Particularly Enterprise Resource Planning (ERP) and Customer Management Systems (CMS) software).
  - Data (Particularly Data Warehousing/Mining).
- The two areas of EB Enablers covered by INPUT in detail are:
  - Enterprise Applications Solutions.
  - Internet/Intranet.

- Enterprise Applications Solutions are IT systems based on software packages from companies such as SAP, Baan, Oracle Applications and Peoplesoft. This software includes Enterprise Resource Planning Application (ERP) and similar software: also included is customer management systems (CMS):
  - Solutions are made of the packages and implementation.
  - Implementation and support are often provided by third party service companies.
- Internet is an aggregation of open networks that allow universal access based on standard protocols.
- Intranets are private networks using Internet protocols, technology and in some cases services.
- Internet services themselves may be used in two ways:
  - Completely open allowing public access to a server, content or application: qualifiers may subsequently be applied.
  - Privately; where an organization only allows access to a limited set of people or organizations.
- Some people use the term 'Extranet' signifying an Intranet that is accessible by people or organizations other than the Intranet owner. INPUT does not generally use this term as the boundaries of organizations are almost never rigid these days so that Intranets almost be definition often extend beyond an organization chart.

b. EB Support and Services

- EB Support and Services activities either operate a business process directly (Business Process Outsourcing) or support that operation. Two segments analyzed are:
  - Customer services and support to keep the Electronic Business functioning through disasters, upgrades and routine maintenance events.
  - -- Operational services including outsourcing, computer processing services and network services.

- IT Customer Services and Support covers traditional product maintenance and support. It includes:
  - Computer and communications.
  - Equipment and software.
  - Environmental services.
  - Maintenance.
  - Call centers, helpdesk, interactive services.
  - Non-IT services.
- Electronic Customer Service will be added as an EB Process program in the future:
  - Customer Service in all industries is changing rapidly.
  - Customer Management Systems (CMS) are increasingly technology based.
- Operational Services are those services that provide continuous computers/network operations and/or support.
  - IT Outsourcing.
  - Business Process Outsourcing.
  - Processing Services.
  - Network Services.
  - ISPs.
  - Other Services.
- Outsourcing is an outgrowth of facilities management (a popular 1970s term). It involves long term contracts for significant processes:
  - IT outsourcing is the contracting of various types of IT services.
  - The scope of outsourcing has changed; it is no longer just data center focused; network management, DTS (Desktop Services), application management, etc. have been added

  - Business Process Outsourcing is the contracting for IT-based processes (e.g. Electronic Commerce or customer services); it is the natural outgrowth of the embedding of IT into business processes.

  - Processing and network services contracts can be very similar in nature to outsourcing contracts but do not involve long term commitments.

- Processing Services are not often application or function related and, although they almost always involve Network Access, the computers processing part of the application is the most important. Classic examples are disaster recovery, payroll processing, health claim processing, etc.

- Network services are suitable but in this case the Network is more important then the processing: e-mail, EDI, value added Network Services are included here.

  - Internet services are most often Network Services. However, transaction services that simply use the Internet for connection are classified as processing services.

  - Because of the interaction of business process, computer processing and networks in this area, there is a high potential for overlap, double counting, poor definition and confusion. This is compounded by rapid change in the environment largely caused by the Internet phenomenon.

2. IT Market Structure

- As described in section C above INPUT now recognizes two broad market segments, Electronic Business (EB) and IT Software & Services .

- IT Software & Services expenditures are a component of total user expenditure on IT which also includes equipment and in-house personnel.

- INPUT provides an analysis of total user IT expenditure in its World-wide Market Forecast Program. In this analysis it recognizes six major discrete components of expenditure:

  - Equipment – expenditure on computer and data communications hardware products.

- Communications – all expenditure on IT - related data communications services.

- Software Products – all expenditure on systems software products and applications software product licences including support services where these are included within the basic license fee.

- IT Services – all expenditure on professional services, systems integration, outsourcing, processing services, network services, turnkey systems.

- Staff – direct in - house staff costs directly concerned with IT or the support of it.

- Facilities – IT budget expenditure on overheads such as space, heating, lighting, furniture, vehicles etc.

- INPUT's service sectors, described in detail below, can involve the delivery of a combination of components of people, computer processing and software products.

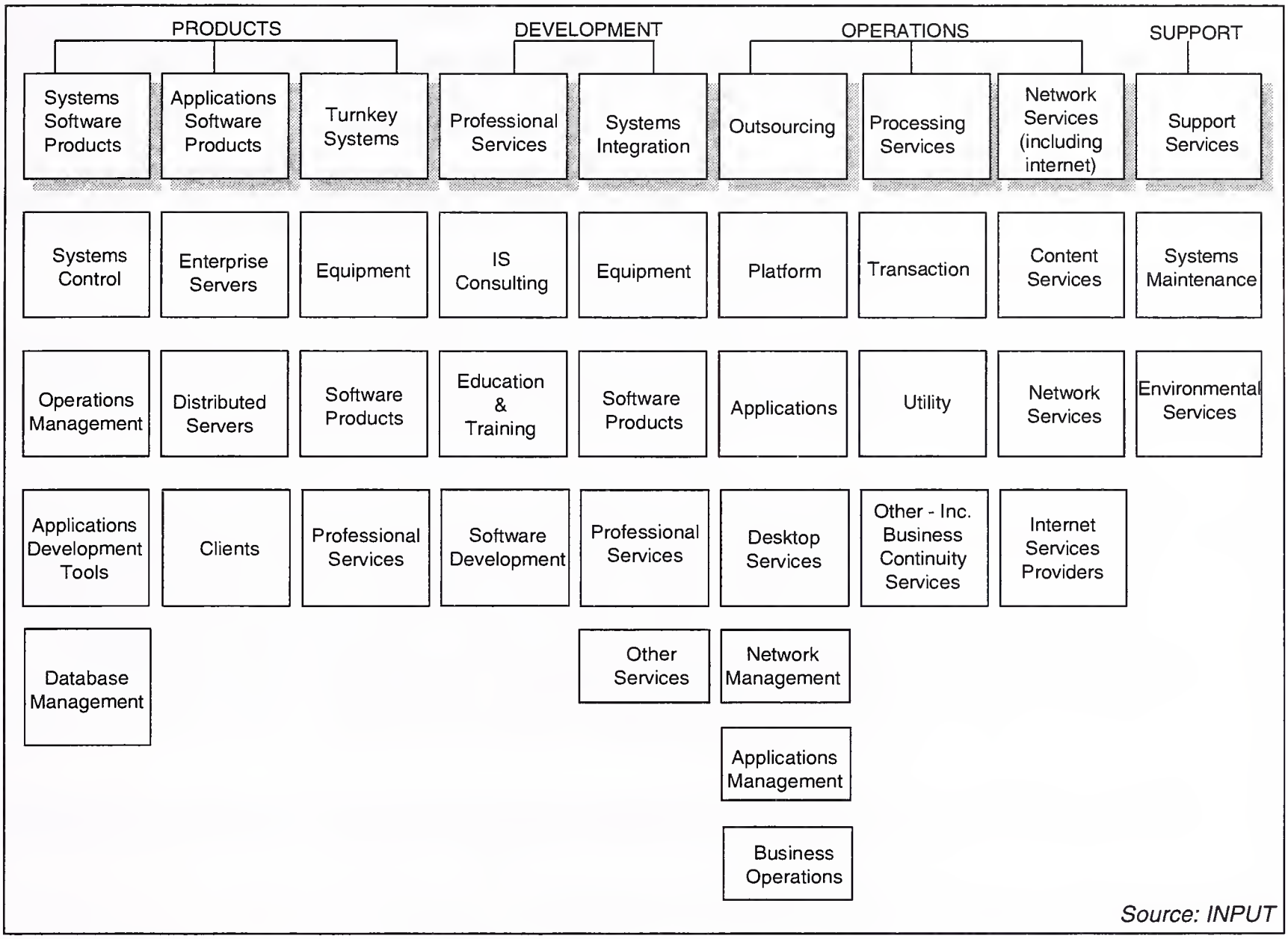
- The six categories defined above represent, however, the basic components or `inputs' to the operation of IT by a user

- N.B that the IT Services category defined above does not correspond to INPUT'S definition of the IT Software & Services market since the latter includes all software products and the equipment delivered through service channels.

- The structure and components of the IT Software & Services market are shown in ExhibitF-2.

Exhibit F-2

IT Software & Services Market Structure



Source: INPUT

3. IT Software and Services Markets

- IT Software and Services are computer/communications related products and services that customers buy to develop and/or use in IT systems.

- The term 'Information Services' has been dropped since it is increasingly used to describe 'content services' such as those delivered electronically by the Internet or other means.

- In general, the IT Software & Services market does not involve providing equipment to users. The exception is when the equipment is part of an overall service offering such as a turnkey system, an outsourcing contract, or a systems integration project.

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

- IT Software & Services typically involve one or more of the following:

- Platform and development products and services:

- Packaged software products, including systems software or applications software (called *Software Products*).

- A combination of computer equipment, packaged software and associated support services that will meet an applications systems need (called *Turnkey Systems*).

- A combination of products (software and equipment) and services in which the vendor assumes responsibility for the development of a custom solution, or part of a solution, to an information systems need (called *Systems Integration*).

- People services that support users in planning, developing and operating information systems (called *Professional Services*).

  – Operational services:

- Services that provide operation and management of all or a significant

part of a user's information systems or telecommunications functions under a long-term contract (called *Outsourcing*).

- Use of vendor-provided computers to develop or run applications or provide services such as disaster recovery or data entry (called *Processing Services*).

- Network Services has two components:

  - *Services that provide* or support the operation of a customer's computer/communications network or network facility; these are typically services such as Internet services provision (ISPs), value added network services (VANs), electronic mail services, etc. (called *Network Services).*

  - Services that provide network access to and use of public and/or proprietary information such as financial data bases and news (called *Electronic Content Services*).

- Services that support the installation, operation and maintenance of computer and digital communications equipment and software products (called *Customer Services*).

- The analytical framework of the IT Software & Services industry consists of the following interacting factors:

  - Overall and industry-specific business environment (trends, events and issues).

  - Technology environment; user/buyer IT requirements.

  - Size and structure of markets; vendors and their products, services and revenues; distribution channels; and competitive issues.

- A particular aspect of the whole industry is the Internet:

  - The Internet will have an increasing impact on each product/service category in the IT Software & Services industry.

  - Internet related markets are defined as subsets within each of the categories.

  - This allows aggregation into an overall Internet market.

D
IT Software & Services Market Definitions

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

1. Software Products

- The software product support business is those continuing activities provided by a vendor that are necessary to make the product work, outside the delivery of the product itself. Included are associated support activities such as telephone support, problem anaylis and remote software diagnostics, software updates, software configuration and turning, software installation, on-site support and initial training

- Software product support is often provided by the vendor as part of the licence agreement. Where it is provided be a third - party for a separate charge it is included in Customer Services.

a. Systems Software Products

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

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

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

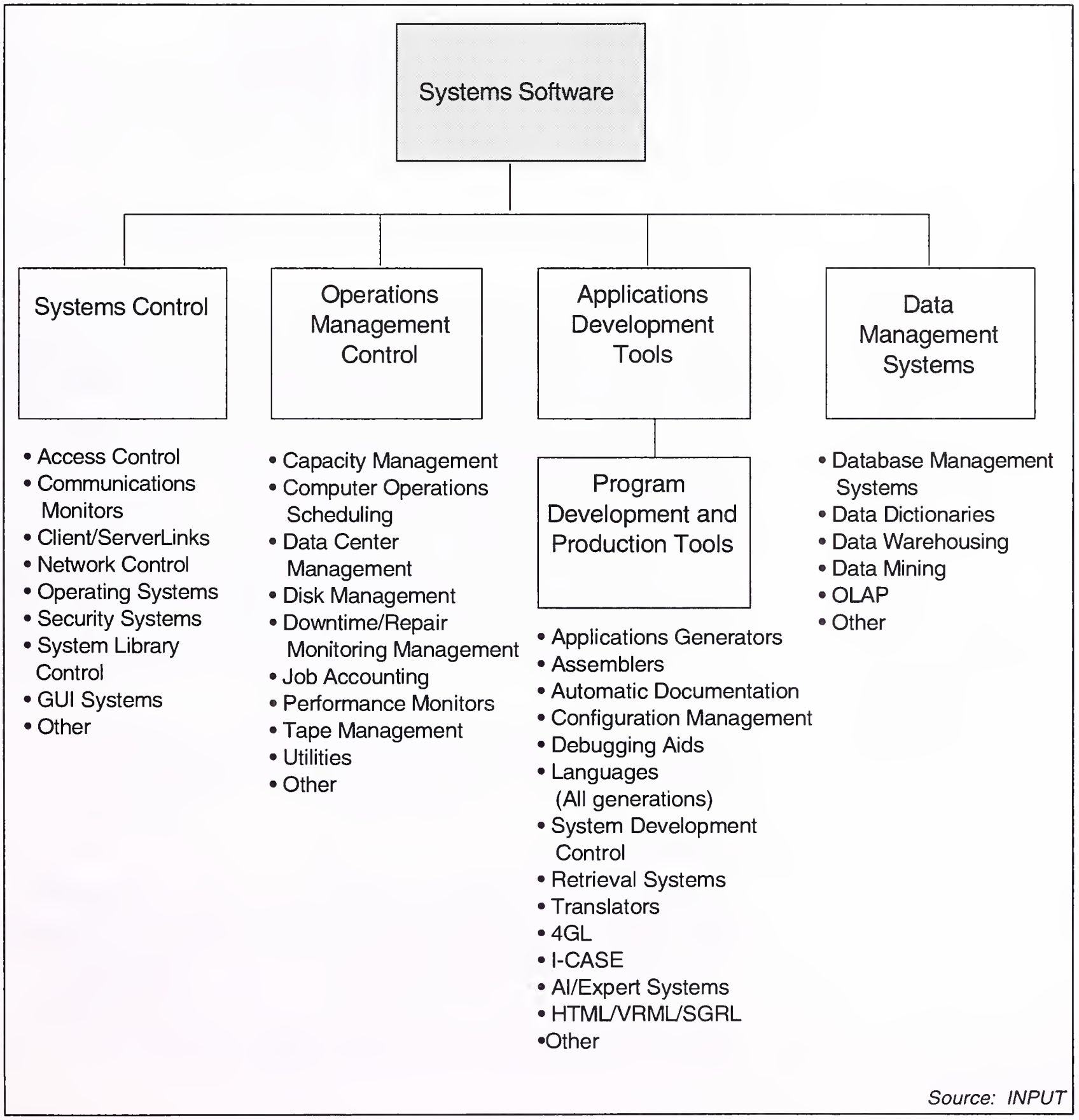
– Applications Development Tools - Software programs used to prepare applications for execution by assisting in designing, programming, testing, and related functions. Included are traditional programming

languages, 4GLs, data dictionaries, database management systems, report writers, project control systems, CASE systems and other development productivity aids.

– Database Management Systems - Database management systems (DBMSs), data dictionaries and database-related management software

Exhibit F-3

Systems Software Products Market Structure



Source: INPUT

- INPUT also forecasts systems software products by platform: mainframe, minicomputer and workstation/PC. These terms reflect a traditional view of processing platforms based upon size or computational capability.

- In some reports, INPUT uses terms for the three platforms based upon functionality, not size or processing power, e.g: enterprise server, departmental server and client.

b. Applications Software Products

- Applications software products enable a user or group of users to support an operational or administrative process within an organization. Examples include accounts payable, order entry, project management and office systems.

- INPUT categorizes applications software products into two groups (see Exhibit F-4):

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

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

- INPUT also forecasts the applications software product/service category by platform: as for systems software products.

2. Turnkey Systems

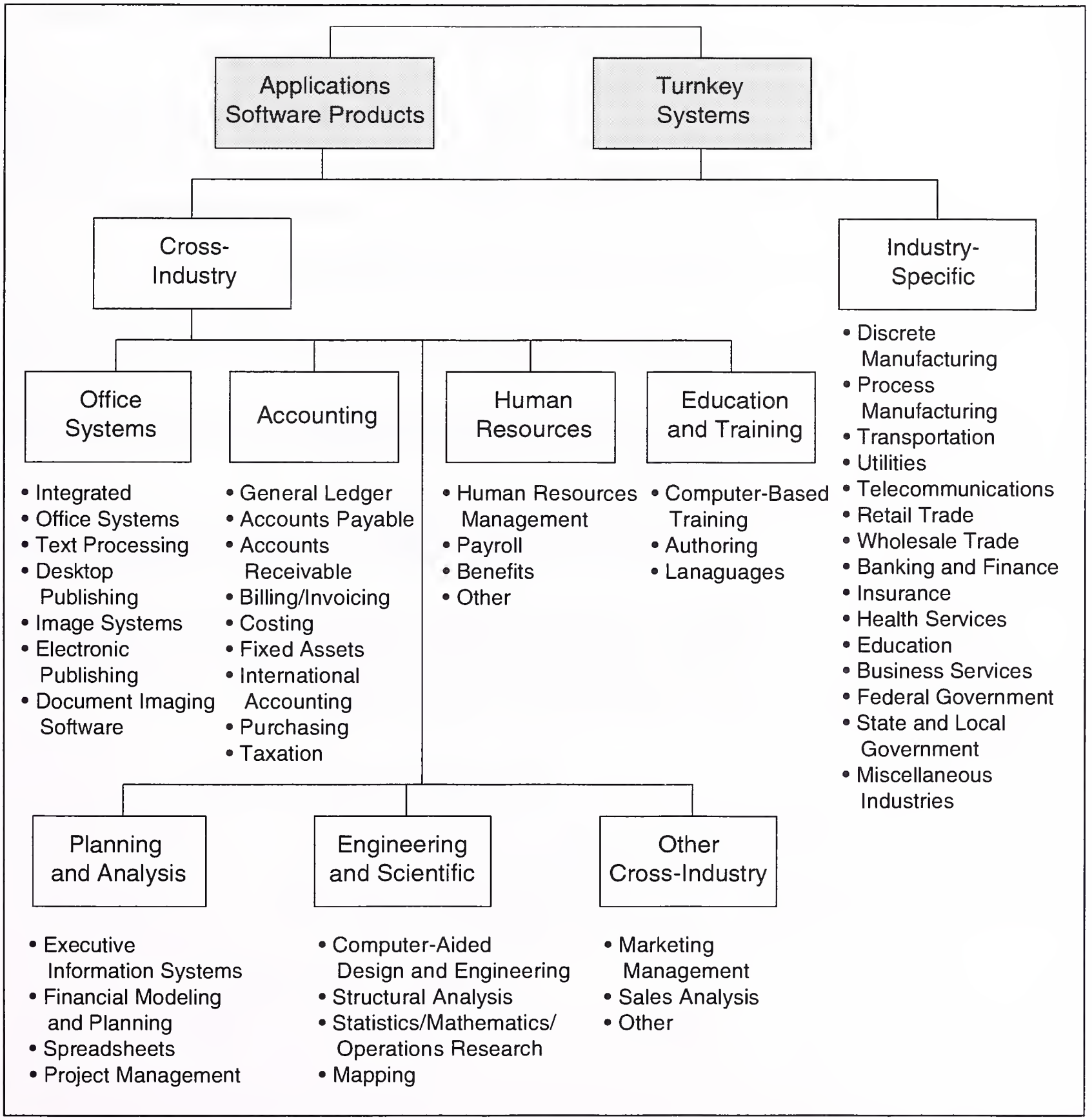
- A turnkey system integrates equipment (e.g., CPU, peripherals), systems software, and packaged applications software into a single product developed to meet a specific set of user requirements.

- Value added by the turnkey system vendor is primarily in the software and professional services provided.

- INPUT classifies turnkey systems into two groups, as it does for applications software products (see Exhibit F-4)—those systems that are industry-specific and those applicable to the cross-industry markets. Many CAD/CAM systems and small business systems are turnkey systems.

Exhibit F-4

Application Products and Turnkey Systems Market Structure



Source: INPUT

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

- Most turnkey systems are sold through channels known as value-added resellers (or VARs) and defined below:

  – Value-Added Reseller (VAR) - A VAR adds value to computer hardware and/or software and then resells it.

  – The major value added is usually applications software for a vertical or cross-industry market, but also may include many of the other components of a turnkey systems solution, such as professional services, software support, and applications upgrades.

- Turnkey systems have three components:

  – Equipment - computer hardware supplied as part of the turnkey system.

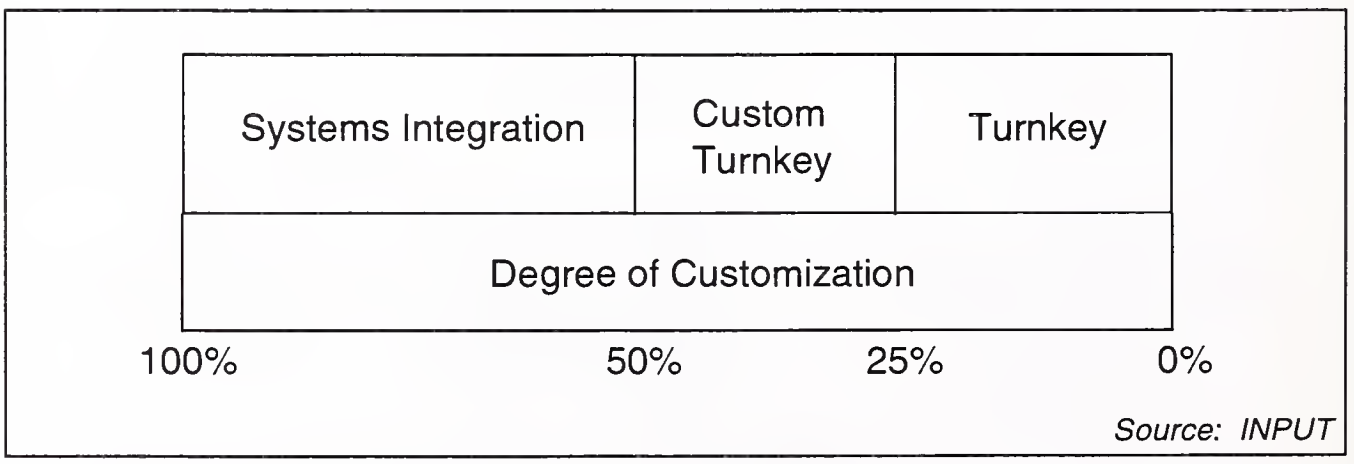
  – Software Products - prepackaged systems and applications software products.

  – Professional Services - services to install or customize the system or train the user, provided as part of the turnkey system sale.

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

Exhibit F-5

The Customization Spectrum

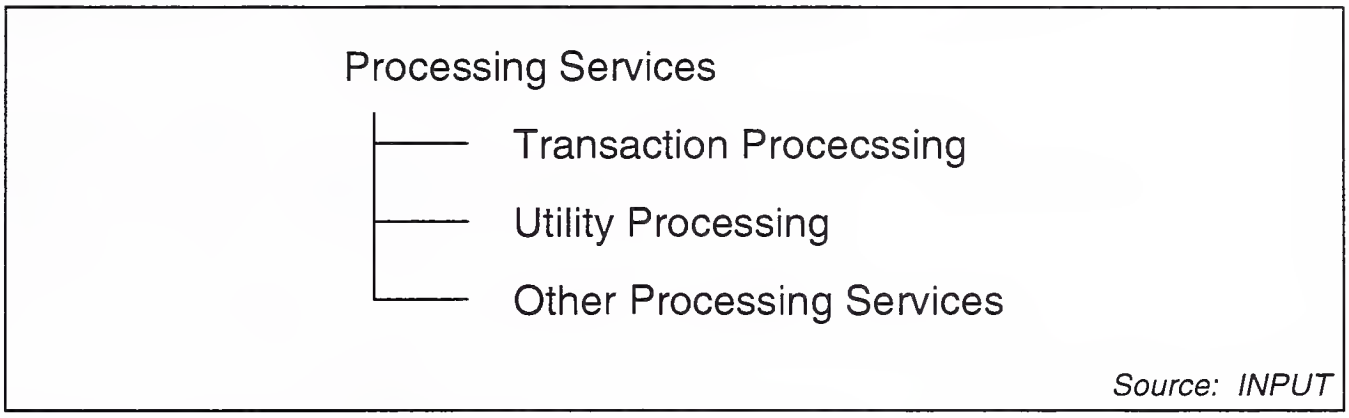


3. Processing Services

- This product/service category includes three subcategories: transaction processing, utility processing, and "other" processing services. See Exhibit F-6.

Exhibit F-6

Processing Services Market Structure



Source: INPUT

- The three processing services subcategories are:

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

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

  - Other Processing Services - The vendor provides a service—usually at the vendor site—such as scanning and other data entry services, laser printing, computer output microfilm (COM), CD preparation and other data output services. This category also includes backup, contingency and disaster recovery services.

4. Outsourcing

- Outsourcing (previously called Systems Operations and Facilities Management) was introduced as a product/service category in the 1990 Market Analysis and Systems Operations programs.

- Outsourcing is a long-term (greater than one year) relationship between a client and a vendor in which the client delegates all, or a major portion, of an operation or function to the vendor.

- The operation or function may either be solely information systems outsourcing-based, or include information systems outsourcing as a major component (at least 30%) of the operation.

- The critical components that define an outsourcing service are:

  - Delegating an identifiable area of the operation to a vendor

  - Single-vendor responsibility for performing the delegated function

  - Intended, long-term relationship between the client and the vendor, where:

    - The contract term is for at least one year

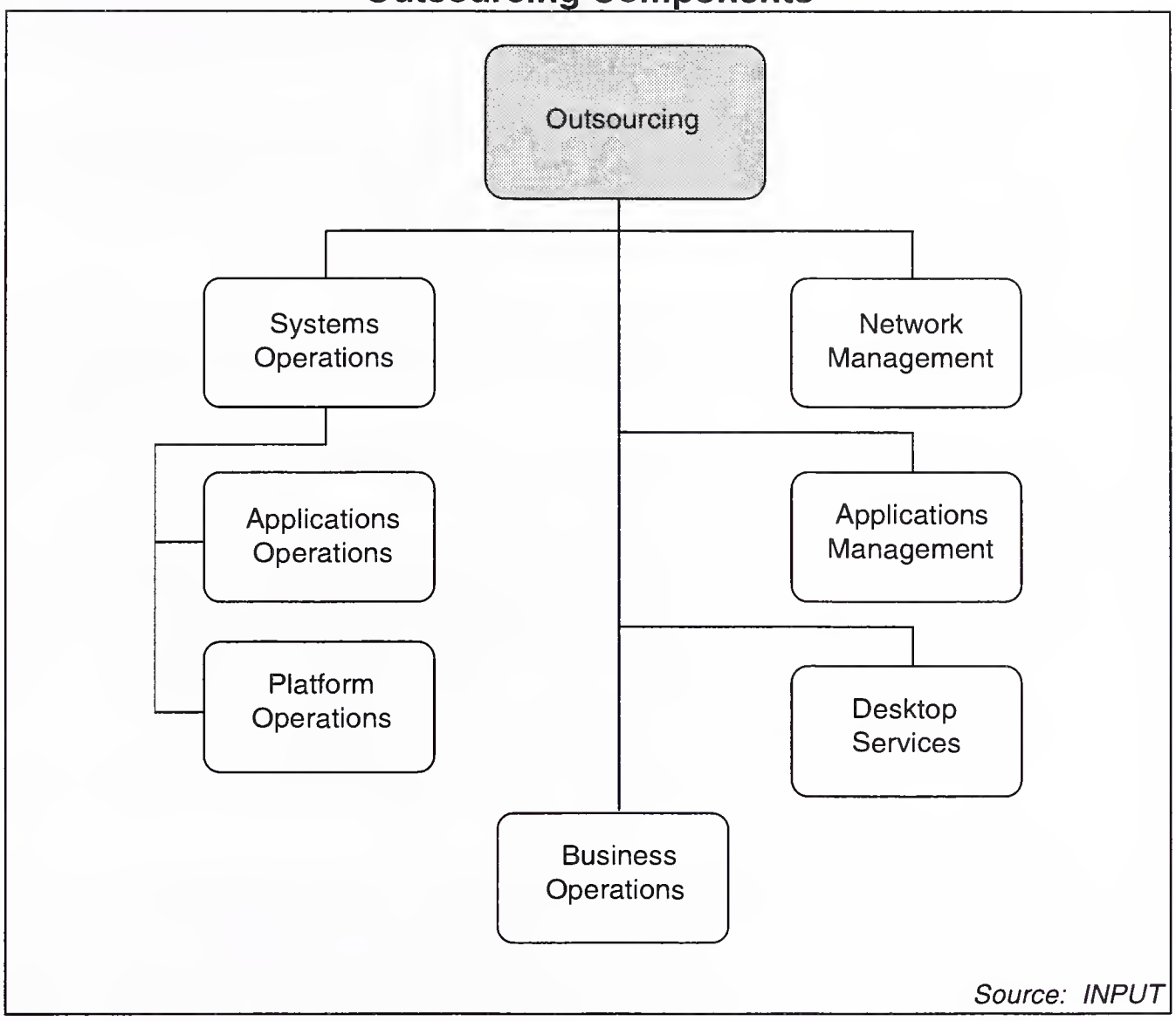
    - The client's intent is not to perform the function with internal resources

  - The contract may include non-information systems outsourcing activities, but information systems outsourcing must be an integral part of the contract.

- The outsourcing product/service subcategories have been defined as shown in Exhibit F-7 and defined below:

Exhibit F-7

Outsourcing Components



Source: INPUT

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

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

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

- *Desktop Services* - The vendor assumes responsibility for the deployment, maintenance, and connectivity among the personal computers and/or workstations in the client organization. The services may also include performing the help-desk function. Equipment as well as services can be part of a desktop services outsourcing contract.
  - Note: This type of client service can also be provided through traditional professional services where the contractual criteria of outsourcing are not present.

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

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

- These services may be provided in combination or separately from platform outsourcing.

- *Business Operations* - Business operations outsourcing (also known as business outsourcing or functional outsourcing) is a relationship in which one vendor is responsible for performing an entire business/operations function, including the information systems outsourcing that supports it. The information systems outsourcing content of such a contract must be at least 30% of the total annual expenditure in order for INPUT to include it in the outsourcing market. Examples of business operations that are outsourced include telephone company billing and employee benefits processing.

- Outsourcing vendors now provide a wide variety of services in support of existing information systems. The vendor can plan, control, provide, operate, maintain and manage any or all components of the client's information systems environment (equipment, networks, applications systems), either at the client's site or the vendor's site.
  - Note: In the US Federal Government market, systems operation services are also defined by equipment ownership with the terms "COCO" (Contractor-Owned, Contractor-Operated), and "GOCO" (Government-Owned, Contractor-Operated).

5. Systems Integration (SI)

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

- The components of a systems integration project (see Exhibit F-8) are the following:

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

  - Software Products - Prepackaged applications and systems software products.

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

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

Exhibit F-8

Products and Services Included in Systems Integration Projects

Equipment

- Information systems
- Communications

Software Products

- Systems software
- Applications software

IT Related Professional Services

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

Other Miscellaneous Products/Services

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

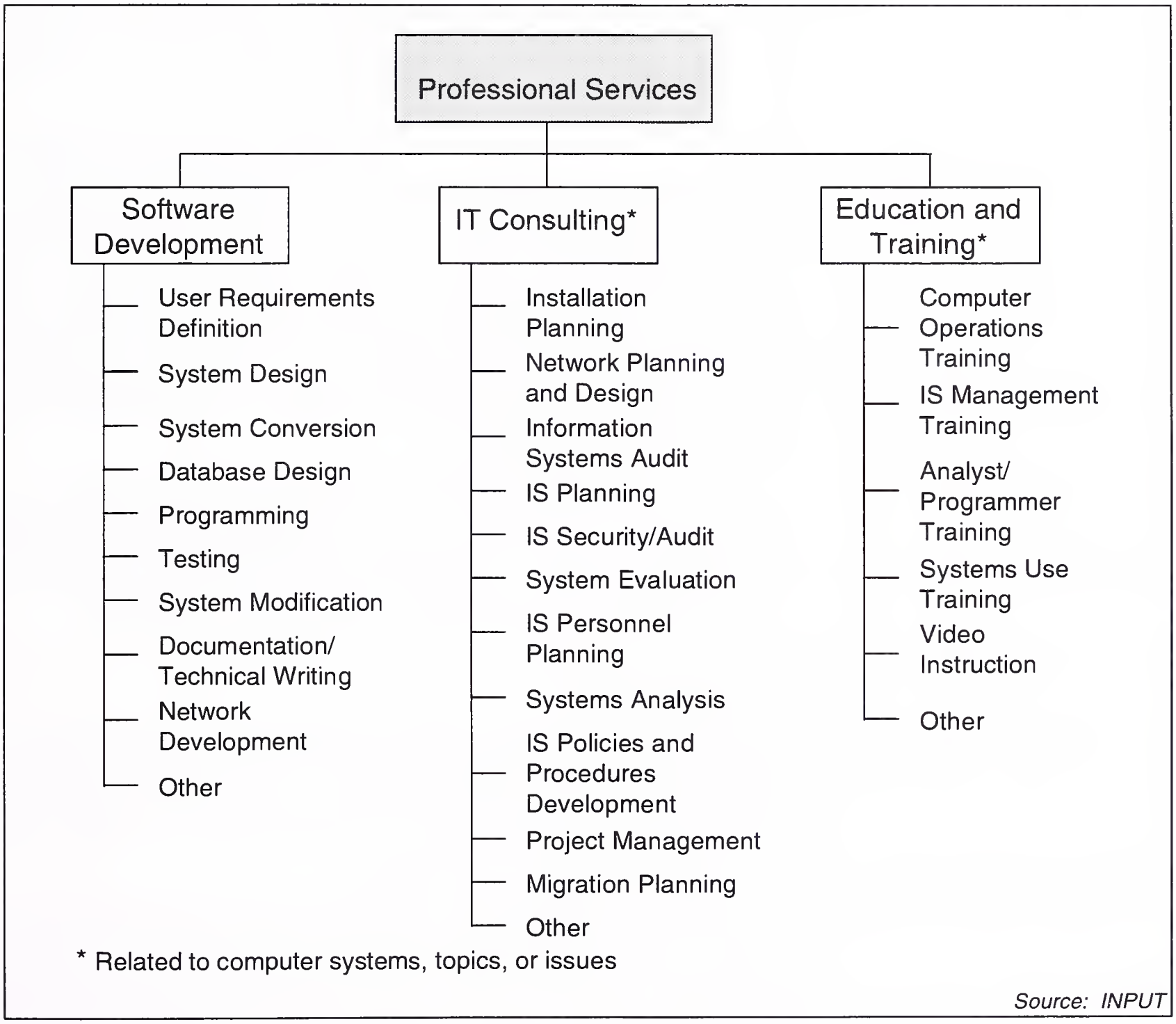
Source: INPUT

6. Professional Services

- This product/service category includes three subcategories: consulting, education and training, and software development. Exhibit F-9 provides additional detail.

Exhibit F-9

Professional Services Market Structure



* Related to computer systems, topics, or issues

Source: INPUT

- The three subcategories are defined as follows:

  - IT Consulting - Services include information technology consulting (related only to information systems, and not general business consulting) in a broad range of areas, including planning, design, audit, evaluation and analysis; information systems re-engineering; feasibility analysis and cost-effectiveness studies; and project management assistance. Services may be related to any aspect of the information system, including equipment, software, networks and outsourcing.

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

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

7. Network Services

- Network services include a variety of telecommunications-based functions and operations, including those related to the Internet. This category includes two subcategories, as diagrammed in Exhibit F-10. Each is defined in greater detail below.

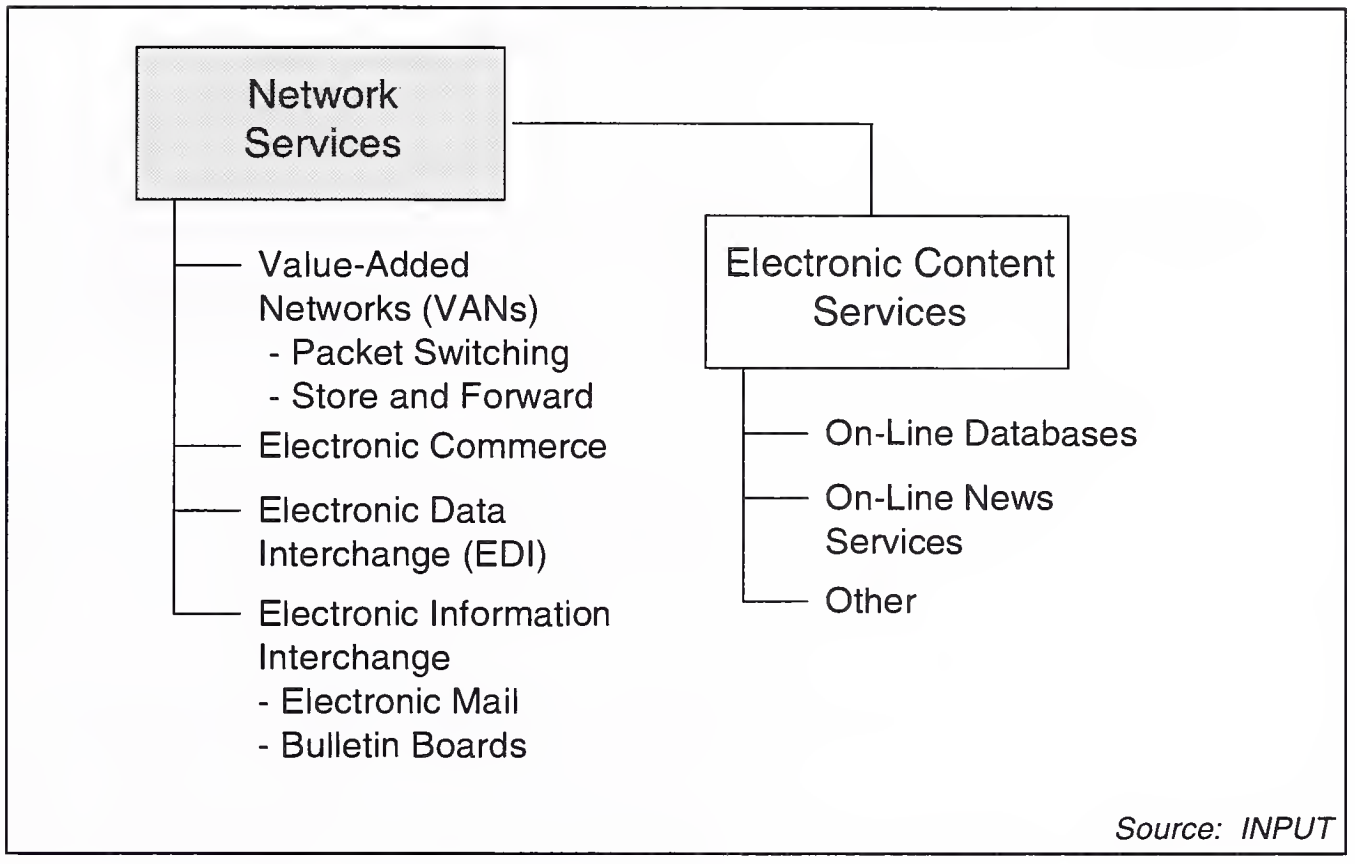
- *Electronic Information Services* - Electronic information services are data bases that provide specific information via terminal- or computer-based inquiry, including topics such as stock prices, legal precedents, economic indicators, periodical literature, medical diagnosis, airline schedules, and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

- Users inquire into and extract information from the databases and they may load extracted data into their own computer systems. The vendor does not provide data processing or manipulation capability as

part of the electronic information service and users cannot update the vendor's databases. However, the vendor may offer other services (network applications or processing services) that do offer processing or manipulation capability.

Exhibit F-10

Network Services Market Structure



Source: INPUT

- The two major categories of electronic information services are:
  - On-line Databases - Structured, primarily numerical data on economic and demographic trends, financial instruments, companies, products, materials, etc.
  - On-line News (Text) Services - Unstructured, primarily textual information on people, companies, events, etc. These are most often news services.
- While electronic information services have traditionally been delivered via networks, there is a growing trend toward the use of CD ROM (optical disks) to support or supplant on-line services, and these optical disk-based systems are included in the definition of this delivery mode.

- *Network Applications Services* - The three types of network applications services are:

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

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

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

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

8. Customer Services

a. Services

The Customer Service sector is defined by INPUT as follows:

- *Equipment maintenance* - the repair or routine preventive maintenance of computer systems hardware or hardware components. Included are associated support activities such as telephone support, problem analysis and remote diagnostics. Contracts may be for one or more years; alternating repairs may be effected on an ad hoc basis.

- *Environmental Services* - are defined as all planning and implementation services which affect the environments in which computer platforms are expected to run. For these purposes, environment can mean any of the following:

  - The computer room fixtures and fittings

  - Cabling between computers and other devices in a system or network.
  - Physical environment, such as: electrical power, air conditioning, water cooling, smoke or fire detection equipments.
  - Network attachments.
  - Buildings in which computers or network devices or terminals must reside.

- Environmental services normally involve the installation, upgrade, repair or de-installation of some piece of equipment, but may be restricted to planning only.

b. Equipment

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

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

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

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

- Communication Devices - Includes modems, encryption equipment, special interfaces, and error-control devices.

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

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

- Personal Computers (PCs) - Smaller computers using 8-, 16-, or 32-bit computer technology, generally designed as desktop or laptop devices—e.g., to sit on a desktop or as a portable for individual use. Prices are generally less than $3,000. These devices form the bulk of the clients in a client/server environment.

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

- Departmental Servers - These are generally minicomputers or midsized computers priced from $5,000 to $350,000. Many client/server computers are in this category.

- Enterprise Servers - Traditional mainframe and supercomputers costing more than $350,000.

- *Client / server computing* - Client/server is an architecture that assembles applications software and databases, systems software, and computer and networking equipment into a usable form for the purpose of leveraging information technology investments. Broadly defined, it can include any kind of server, such as file servers and network servers, that are accessed by any kind of client, including a nonintelligent terminal. INPUT has elected to use the narrower and newer definition, by which application and data processing is shared between a client and a server. It is through the act of sharing that the greatest benefit is derived in terms of leveraging information technology investments. It is also the cause of the greatest change for vendors and users. As noted above, using client/server terminology, computers can be segmented into three broad categories—enterprise servers, departmental servers and clients—roughly corresponding to the platform categories: mainframes, minicomputers and workstation/PCs.

E
Industry Sectors

1. Industry Sector Definitions

Industry sectors are based on the most recent revision of the Standard Industrial Classification (SIC) code system, as shown in Exhibit F-11.

Exhibit F-11

Industry Sector Definitions

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

Source: INPUT

Exhibit F-11 (continued)

Industry Sector Definitions

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

Source: INPUT

Exhibit F-11 (continued)

Industry Sector Definitions

Industry Sector	SIC Code	Description
Business Services	65xx	Real estate
	70xx	Hotels, rooming houses, camps, and other lodging places
	72xx	Personal services
	73xx	Business services (except hotel reservation services in 7389)
	7389	Hotel reservation services
	75xx	Automotive repair, services and parking
	76xx	Miscellaneous repair services
	78xx	Motion pictures
	79xx	Amusement and recreation services
	81xx	Legal services
	83xx	Social services
	84xx	Museums, art galleries, and botanical/zoological gardens
	86xx	Membership organizations
	87xx	Engineering, accounting, research, management, and related services
	89xx	Miscellaneous services
Federal Government	9xxx	
State and Local Government	9xxx	
Miscellaneous Industries	01xx	Agricultural production - crops
	02xx	Agricultural production - livestock/animals
	07xx	Agricultural services
	08xx	Forestry
	09xx	Fishing, hunting, and trapping
	15xx	Building construction - general contractors, operative builders
	16xx	Heavy construction - contractors
	17xx	Construction - special trade contractors
Personal Households	88xx	

Source: INPUT

2. Process or Cross-Industry Sector Definitions

- These sectors or markets involve multi-industry applications such as human resource systems, accounting systems, etc. In order to be included in an industry sector, the service or product delivered must be specific to that sector only. If a service or product is used in more than one industry sector, it is counted as cross-industry.

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

- The cross-industry markets are:

a. Accounting/Finance

- Consists of such functions as:
  - General ledger
  - Financial management
  - Accounts payable
  - Accounts receivable
  - Billing/invoicing
  - Fixed assets
  - International accounting
  - Purchasing
  - Taxation
  - Financial consolidation.
- Excluded are accounting products and services directed to a specific industry, such as tax processing services for CPAs and accountants within the business services industry sector.

b. Human Resources

- Human resources companies:
  - Benefits administration.
  - Government compliance.
  - Employee relations.
  - Manpower planning.
  - Compensation administration.
  - Applicant tracking.
  - Position control.
  - Payroll processing.

c. Education and Training

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

d. Office Systems

- Office systems companies the following six categories:
  - (1) *Integrated Office Systems (IOSs)* - IOSs integrate the applications that perform common office tasks. Typically, these tasks include the following core applications, all of which are accessed from the same terminal, microcomputer, or workstation:
    - Electronic mail/groupware.
    - Decision support systems.
    - Time management/workflow.
    - Filing systems/document management.

- (2) *Text Processing* - is the most common microcomputer application and is a basic application within the office systems sector. Text processing addresses several levels of functionality, from the production of simple correspondence to large document generation in which many people from different departments have input.

- (3) *Desktop Publishing (DTP)* - refers to the page-design software programs that allow small and midsized organizations to publish printed documents (brochures, catalogs, newsletters, reports, etc.) from the desktop. The primary functions of DTP software include the manipulation of the following functions:

  - Layout and design of columns
  - Text manipulation (font type)
  - Graphic manipulation
  - Print Control (color type, paper type)

- (4) *Electronic Publishing* - includes composition, printing, and editing software for documents containing multiple typefaces and graphics, including charts, diagrams, computer-aided design (CAD) drawings, line art, and photographs. Electronic publishing products may also have different data formats such as text, graphs, images, voice and video.

  - The fundamental difference between electronic publishing and desktop publishing is that electronic publishing facilitates document management and control from a single point, regardless of how many authors/locations work on a document. Desktop publishing (DTP), on the other hand, is considered a personal productivity tool and is generally a lower-end product residing on a personal computer.

  - (5) *Graphics* - Graphics packages that are used for presentations or freehand drawings and/or are ancillary to desktop publishing are part of office systems. Thus, the graphics component of office systems sector includes the following elements:

- Presentation graphics represent the bulk of office systems graphics. Most presentations involve a combination of graphs and text. They are used to communicate a series of messages to an audience rather than to analyze data.

- Paint and line art drawing programs are used for illustrations, while page layout programs are used to integrate text and graphics.

- Electronic form programs allow users to create and print forms in-house. Some applications work with OCR scanners, allowing users to scan pictures and logos directly onto forms.

  – (6) *Document Imaging Software* - allows users to manipulate (store, retrieve, print) images that have been scanned from paper documents. The applications that imaging software generates include: full text retrieval, document management, and database management. Document imaging software is a component of an imaging system. Hardware components of imaging systems include: scanners, image servers, workstations, optical drives, printers, and storage devices.

e. Engineering and Scientific

- Engineering and scientific activities encompass the following applications:

  – Computer-aided design and engineering (CAD and CAE).

  – Structural analysis.

  – Statistics/mathematics/operations research.

  – Mapping/GIS (Geographic Information Systems).

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

f. Planning and Analysis

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

  – Executive Information Systems (EIS).

  – Financial modeling or planning systems.

  – Spreadsheets.

- Project management.

g. Sales and Marketing

- Sales and marketing encompasses the following marketing/sales applications:
  - Sales analysis.
  - Marketing management.
  - Demographic market planning models.

h. Other Processes

- Two other process areas that are emerging as significant cross-industry sectors are Customer Services and Logistics. They comprise the following:
- Customer Care/Services:
  - Support.
  - Repair/diagnostics.
  - Help desk.
  - Consulting.
- Logistics:
  - Invoice management.
  - Replenishment.
  - Distribution.

3. Product/Service Category Reporting by Sector

- This section describes how the product/service forecasts relate to the market sector forecasts. Exhibit F-12 summarizes the relationships.
  - Processing Services - The transaction processing services subcategory is forecasted for each industry and cross-industry market sector. The utility and other processing services subcategories are forecasted in total in the general market sector.

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

- Applications Software Products - Applications software products are forecast for the 15 industry and 7 cross-industry sectors.

- Outsourcing - Each of the outsourcing subcategories is forecasted for each of the 15 industry sectors.

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

- *Professional Services* - Professional services and each of its subcategories are forecasted for each of the 15 industry sectors.

Exhibit F-12

Product/Service Category versus Market Sector Forecast Content

Product/Service Category	Product/Service Subcategory	Industry Sectors	Cross-Industry Sectors	General
Processing Services	Transaction	✔	✔	
	Utility			✔
	Other			✔
Turnkey Systems		✔	✔	
Applications Software Products		✔	✔	
Outsourcing	Platform Ops.	✔		
	Application Ops.	✔		
	Desktop Svcs.	✔		
	Network Svcs.	✔		
	ApplicationsMgmt.	✔		
	Business Ops.	✔		
Systems Integration		✔		
Professional Services		✔		
Network Services	Network Services.	✔		
	Electronic Info. Svcs.	✔		✔
Systems Software Products				✔
Equipment Svcs.				✔

Source: INPUT

- Network Services - The network applications subcategory of network is services forecasted for each of the 15 industry sectors. Industry and cross-industry electronic information services are forecast in relevant market sectors. The remainder of electronic information services is forecasted in total for the general market sector.

- *Systems Software Products* - Systems software products are forecasted in total for the general market sector.

- *Equipment Services* - Equipment services and its subcategories are forecasted in total in the general market sector.