

INPUT

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## MARKET FORECAST

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# European Software and Services Market Forecast 1996-2001

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Market Analysis Programme – Europe





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# **European Software & Services Market Forecast: 1996-2001**

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# Abstract

This report is a summary of the research and analysis carried out by INPUT into the Computer Software and Services market.

The report examines the performance, status and growth potential of the computer software and services market. Forecasts are included for each individual European country market, with the exception of the former communist central and eastern European countries which are treated as a group.

The computer software and services market is defined by INPUT as comprising eight major sectors, processing services, turnkey systems, applications software products, system software products, professional services, network services, outsourcing and systems integration.

The addition of the equipment services sector defines a market referred to as information services.

These different sectors, or delivery modes are further sub-divided into 24 subsectors for forecasting and analysing by country within the report.

Estimates of sector and country market growths are given for the years 1995 and 1996 together with annual size estimates for each year up to 2001.

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

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**Market Analysis Programme — Europe**

***European Software & Services Market  
Forecast: 1996-2001***

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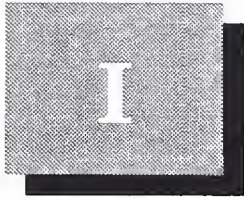
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# Introduction

This forecast is produced as part of INPUT's European *IT Intelligence Service* for the computer software and services industry. It provides an overview of the whole European market and is designed to assist vendors in identifying growing and declining markets. It can be read in conjunction with other INPUT reports in order to identify key market and product trends, vendor strategies and opportunities.

The report provides market sizes for 1995 and 1996 with forecasts for each year through to 2001.

## A

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### Scope of the Report

For each European country, respective sections in the report analyse and forecast the total IT budget, including both internal and external IT-related spending. This is split into:

- Equipment sales — expenditure on hardware products
- Equipment services — expenditure on equipment maintenance and environmental services
- Software products — all expenditure on systems software products and applications software product licences
- 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 telecommunications equipment or services, including routers and hubs
- Facilities — IT budget expenditure on overheads such as space, heating, lighting, furniture, vehicles etc.
- Staff — direct in-house staff costs including any temporary contract labour.

### 1. Information Services Delivery Modes

Prior to 1994, INPUT defined eight delivery modes within the *software and services market*. However, for the forecasts published for 1995 to 2000 and for the 1996 to 2001 forecasts contained herein, an additional delivery mode has been incorporated, pertaining to *equipment services*. Adding this to the original eight, INPUT collectively describes this as the *information services market*. The complete list is as follows:

- Professional services
- Systems integration
- Outsourcing (previously systems operations - see below)
- Processing services
- Network services
- Systems software products
- Applications software products
- Turnkey systems
- Equipment services.

In order to standardise terminologies with other INPUT reports, the delivery mode referred to as *Systems Operations* in previous market forecasts has been modified to *Outsourcing*.

Whereas Systems Operations contained only three sub modes, namely (1) platform operations, (2) application operations and (3) desktop services,

for the first time, Outsourcing incorporates these three plus two other sub modes, namely (1) application management and (2) network management.

In this report, application management is therefore no longer incorporated in Professional Services and network management has been eliminated from Network Services.

Given that the overall number of sub modes remains unchanged compared to previous years, total market size comparisons remain valid.

## **B**

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### **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 software and services and to anticipate the likely trends in both the short and long term.

#### **1. Sources**

This report is based principally on research activities conducted by INPUT during 1996:

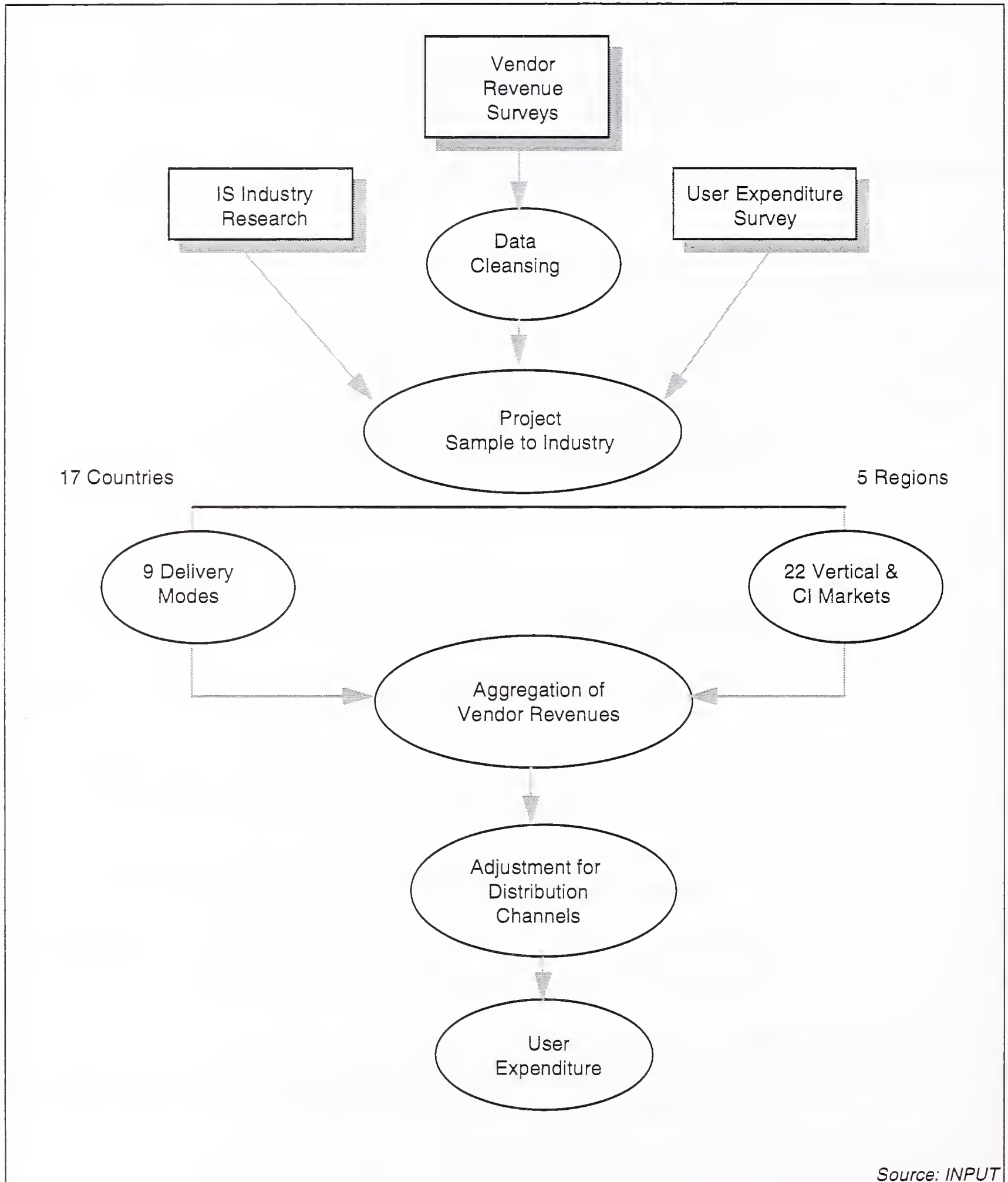
- A vendor research programme of interviews with over five hundred software and services vendors across Europe
- Further vendor and user interviews across European markets to determine trends and opinions within specific market sectors
- INPUT's continuous analysis of the delivery modes and vertical industry sectors comprising the information services market.

Additionally, INPUT's extensive library and database of information relating to the software and 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**



INPUT determines 'previous-year' software and services revenues for each country in 9 delivery modes for vendors operating throughout European markets. This research process is accomplished through interviews, use of public data such as press articles and annual company reports and estimates by INPUT consultants.

The country, delivery mode and sub-sector revenues of each vendor are recombined to ensure that there is no double counting or overlap, for example between countries. Only revenues derived from within a country are included in the vendor revenues for that country.

The initial local currency data from the vendors is analysed and projected to represent the revenues of the entire country 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 revenues which a vendor receives from within the vendor's parent group of companies.

Demographic data have also been used to validate the market sizes. INPUT uses such sources as the *panorama of EC Industry* published by the European Commission, to check trends in sector expenditures and employee levels in different industries.

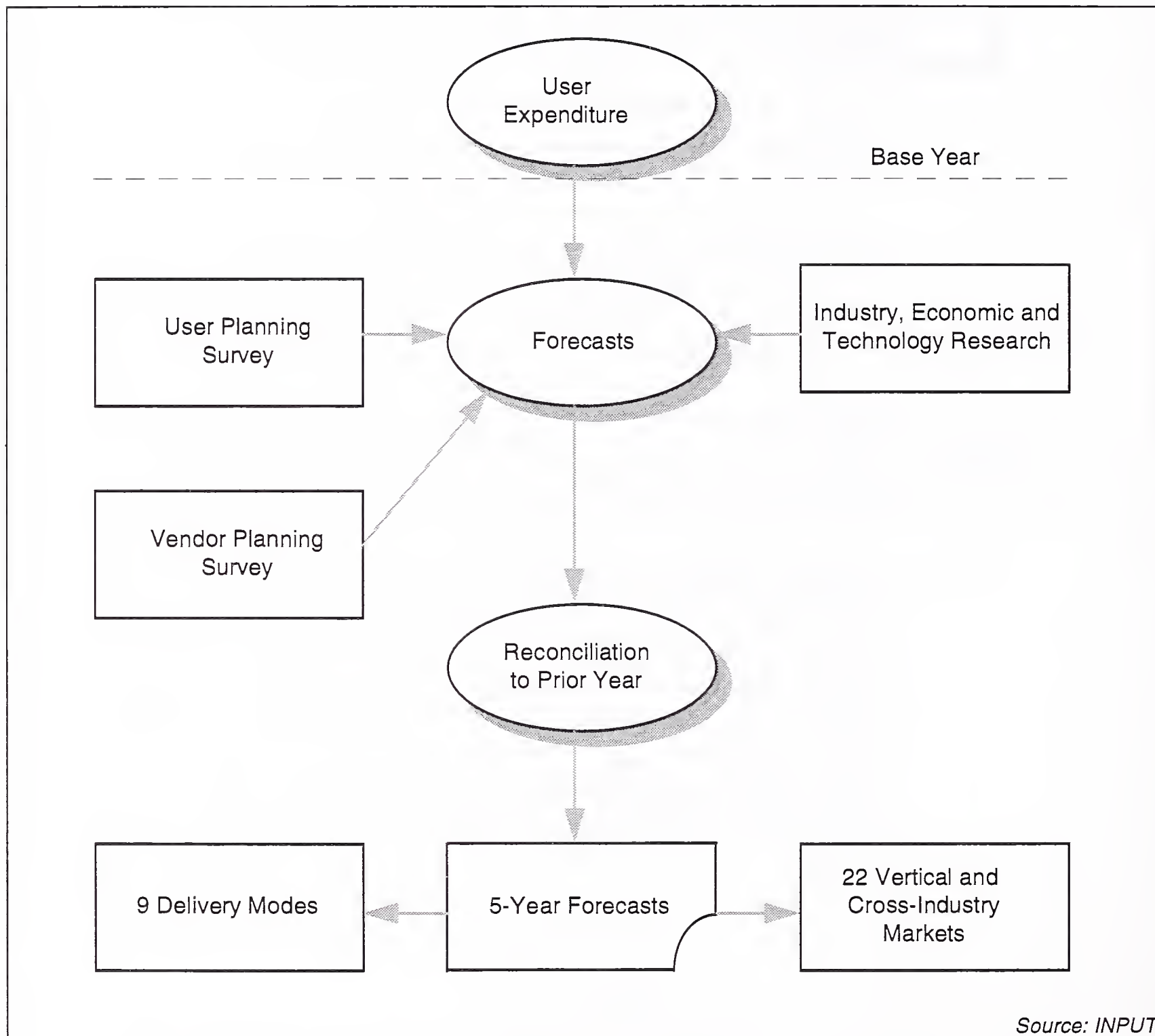
Across the different countries of Europe there is little consistency of methodology between different secondary sources. Different countries measure things differently. So INPUT has in most cases modified the resulting market assessments to provide a consistent view which better reflects the market understanding obtained from INPUT's continuous user and vendor research. The end result is a base year (in this case 1995) software and services market figure representing user expenditure for each of the market sectors or delivery modes analysed for each country.

### 3. Market Forecasts

In the forecasting step, shown in Exhibit I-2, INPUT surveys IS (Information Systems) executives and finance directors to determine their projected expenditure levels on IT in general and software and services in particular.

Exhibit I-2

#### Country Market Forecasts



The market model which forms the basis for the forecasts includes GDP deflators (adjustments for predicted inflation rates) for each country.

Economic growth assumptions for each country and for each major industry sector are also factored into the forecasts.

In addition, vendor interviews are conducted to establish opinions of 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 for Europe as a region.

## C

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### Report Structure

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

Chapter II is an executive summary of key points from the report.

Appendices A through R contain detailed tables of market data, together with forecasts and forecast reconciliations for each of the 17 countries analysed as part of the European Market Analysis Programme.

Appendix S contains a definition of terms including vendor revenue and user expenditure conversion.



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**D**

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**Related INPUT Research Programme and Reports**

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

**1. European Market Sector Reports**

*European Market for Software and Services, 1996*

*Business Integration Market Analysis and Forecast, 1996-2001*

*Information Systems Outsourcing Market Analysis, Europe 1996-2001*

*Software Product Support — European Market Futures 1996-2001*

*IT Customer Services Market, Europe 1996-2001*

**2. US Reports**

*US Information Services Annual Report*

*Forecast Compendium*

*US Professional Services Market*

*US Systems Software Product Market*

*US Processing Services Market*

*US Information Systems Outsourcing Market*

*US Applications Solutions Market*

*US Network Services Market*

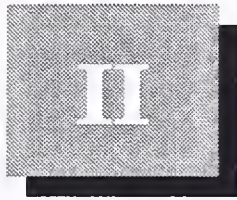
*US Equipment Services Market*

*US Industry Market Reports*

*US Cross Industry Market Reports*

**3. Worldwide Report**

*Worldwide Market Forecast, 1995-2000*



## Executive Summary

### A

#### European Information Services Growth Accelerates, Led by Outsourcing and Network Investment

A year ago, INPUT reported that total European IT expenditure (in-house and external) grew by just 1% in 1994, with growth suppressed by a contraction of in-house IT staff levels and facilities. This low growth, low inflation pattern has been prevalent throughout most of the early 1990's, as European economies have struggled through recession.

In 1995, business conditions showed signs of improvement: the total European IT expenditure grew by 7% (see Exhibit II-1) and the external software and services market—the non-captive element forming the basis of INPUT research—grew by 10.5% (see Exhibit II-2).

Exhibit II-1

#### Total IT Spending — Europe 1996-2001 Forecast Growth Rates by Budget Category

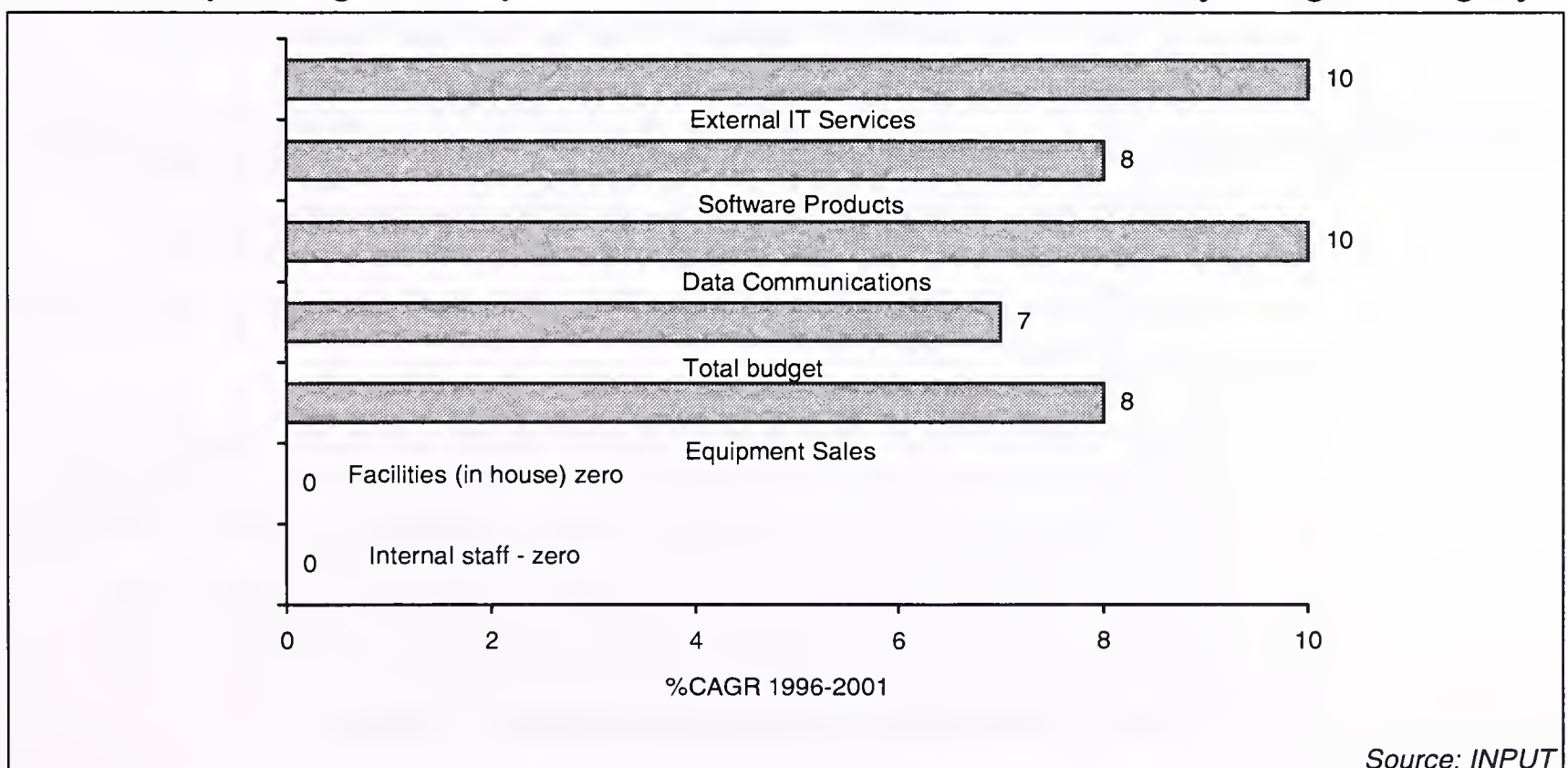
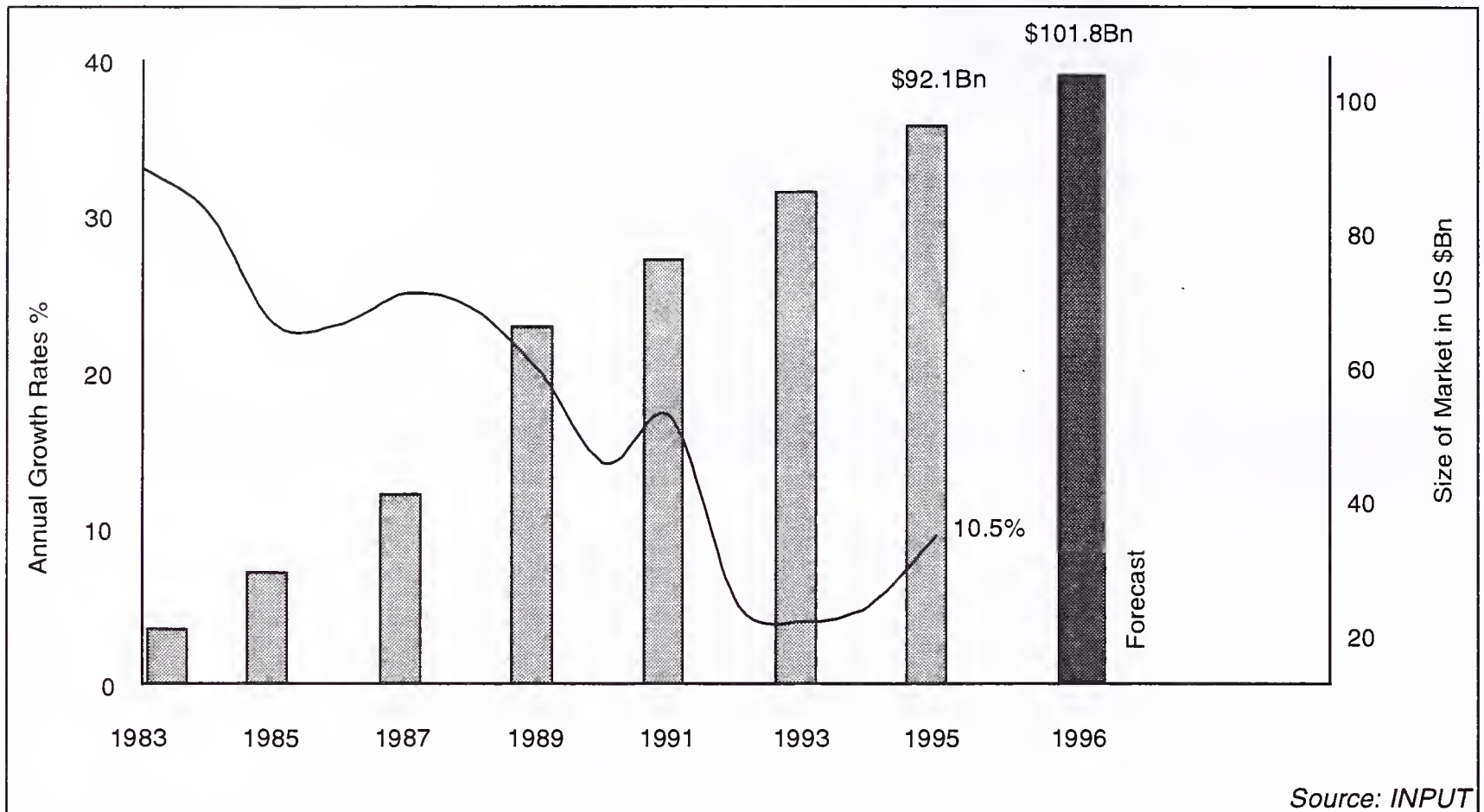


Exhibit II-2

**European Software & Services 1983-1996**

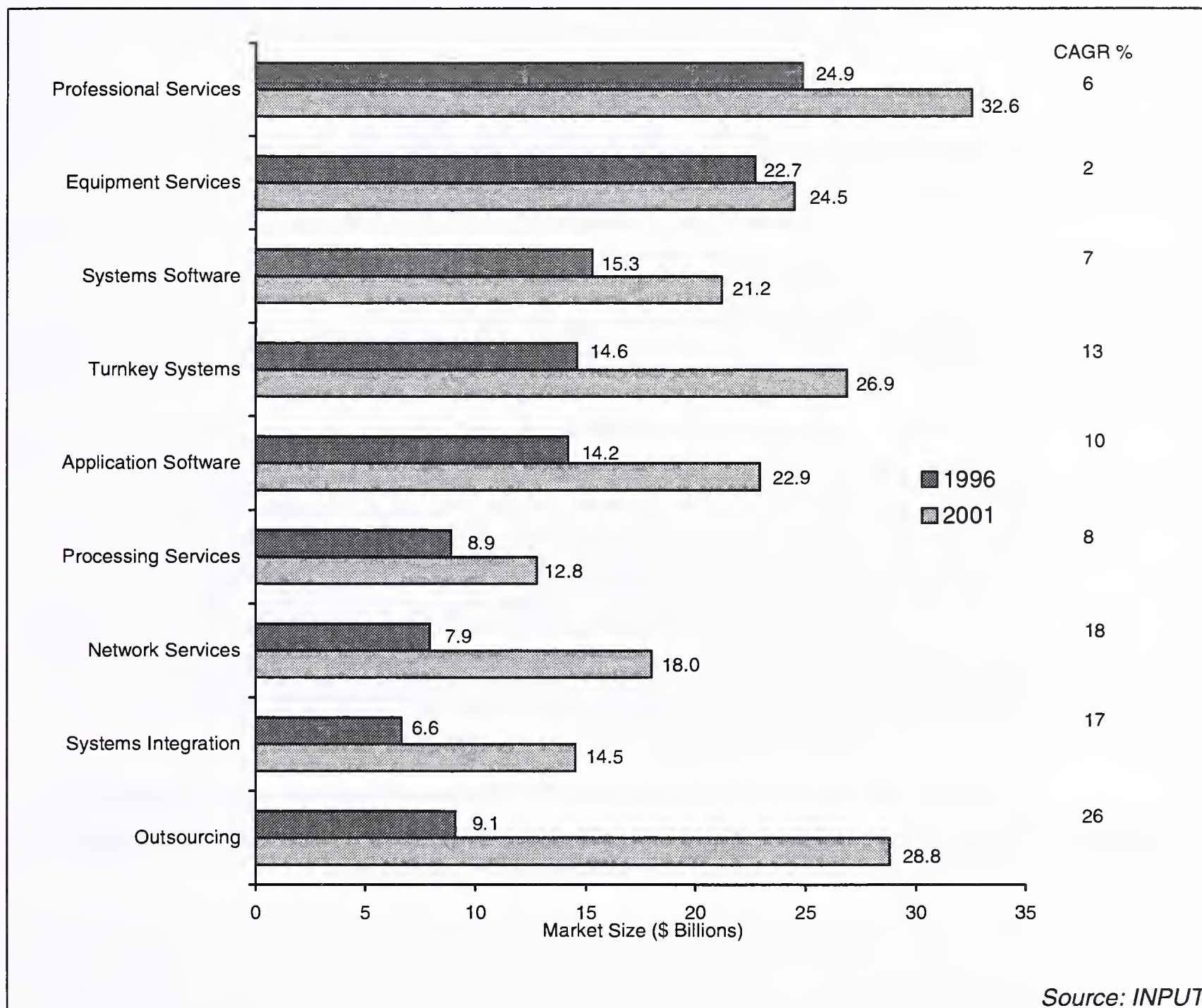
The main driver underpinning this upturn is a vigorous level of investment in the network market, evidenced by a 1995 increase of 35% in network applications services and a 96% increase in network management outsourcing (both figures use actual not forecast data.) In 1996, further increases of 23% and 42% are predicted respectively.

Across all delivery modes, outsourcing is destined to generate the highest relative growth and, for the first time, the highest absolute growth. As illustrated in Exhibit II-3, between 1996-2001, revenues will increase from \$9.1 billion in 1996 to \$28.8 billion in 2001. In turn this will transform outsourcing from being the fourth smallest sector to the second largest delivery mode.

At the opposite end of the growth spectrum, the equipment maintenance market (comprising environmental services and equipment maintenance sub modes) will grow at a 2% CAGR. Here, moderate growth of 8% CAGR between 1996 and 2001 for environmental services will be offset by a CAGR of -5% over the same period for equipment maintenance. This decline is due to the increased reliability of hardware and the commoditised nature of maintenance support services.



Exhibit II-3

**Delivery Mode Analysis: European Information Services Market, 1996-2001**

## B

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### IS Market Continues to Grow Faster Than European Economy as a Whole

Whilst there is an undeniable relationship between European macroeconomic fundamentals and Information Services prospects, the link should not be overstated. Software and IT services remain a relatively immature market in relation to the total economy, and growth rates—particularly in external service usage—continue to grow faster than European economies as a whole. For example, according to the OECD, real GDP growth in the UK grew at 2.7% in 1995 with a forecast increase of 2.4% in 1996. In contrast, the UK software and services sector grew at 11.5% in 1995, with a further forecast rise of 14% in 1996.

The reason for this weak correlation is that the demand for software and services does not depend on levels of economic activity alone: a high proportion of external growth continues to be because of a *substitution effect* as many organisations find it more cost effective to focus on core activities, leaving IT software and services provision to third parties. This trend seems set to continue: recent evidence suggests that where once the trend to IS and business outsourcing was restricted to the manufacturing sector, it is gaining popularity in several other areas—most notably in the support of banking and finance operations and privatised utilities.

Looking ahead, several business drivers which are likely to have a negative, deflationary impact on the economy as a whole, will be positive growth factors for the IT sector. The Year 2000 issue is such an example.

Ensuring that systems employing computerised date fields do not revert to 1900 in three years time is proving to be a costly and time-consuming exercise which, throughout business as a whole, will divert a significant proportion of users' investment from more 'strategic' issues. There will inevitably also be some cannibalisation of IT budgets—by some forecasts as much as 20-30%.

However, INPUT user research suggests that this possible decanting of budgets will *not* create significant loss of IT investment ear-marked for other more productive areas. On the contrary, given the time sensitive nature of the problem, it is likely to *bring forward* new investment which will circumvent the problem—by INPUT estimates, between 1996 to 2000 to the tune of \$60 billion in Europe alone.

Fiscal tightening required by single European currency convergence criteria will force governments to lower levels of public spending and this too will create a deflationary impact. Paradoxically, whereas this will lower consumption in many



sectors, the IT software and services sector will be one of the few net gainers given the need to make financial systems compatible. On this issue, two observations are of note from the perspective of opportunity recognition:

- In a recent survey of financial institutions in the UK, France, Germany and Italy, approximately half of UK banks still had no IT strategy in place to handle the changeover—the lowest percentage of the four countries surveyed
- The emergence of a single currency will tend to accelerate moves towards pan-European banking and consolidation of the sector—in turn, this will generate significant opportunities for large scale systems integrators with capabilities to knit together complex and fragmented banking systems.

Weighed against these opportunities, the strains on the IT industry of handling the single European currency issue on top of the Year 2000 issue will lead to staff resource limitations, not only at code-cutting level but also for key personnel with vertical market / project management expertise.

Exhibits II-4 and II-5 set out the main business drivers supporting and inhibiting IT growth over the next three to five years, with further analysis provided in Section D.

Exhibit II-4

### **Business Drivers Supporting External Information Services Revenue Growth**

- Increased business need for integrated networks and distributed architectures
- The need to resolve the Year 2000 issue (positive benefits for those companies not forced to support legacy systems)
- The shift to electronic business and electronic commerce
- The need for IT applications to support the implementation of a single European Currency
- The commoditisation of price-elastic IT hardware, increasing the pool of users requiring support services
- Enhanced need for CTI, supported by liberalisation of the European telecommunications sector
- Major governmental initiatives towards privatisation and automation of essential services.

*Source: INPUT*



Exhibit II-5

### Business Drivers Inhibiting External IT Software and Services Revenue Growth

- Resource shortages in key IT personnel
- The need for vendors to resolve the Year 2000 issue (resource restrictions for those companies forced to support legacy systems)
- The commoditisation of systems and applications software
- Enhanced levels of component reliability, reducing hardware maintenance requirements

Source: INPUT

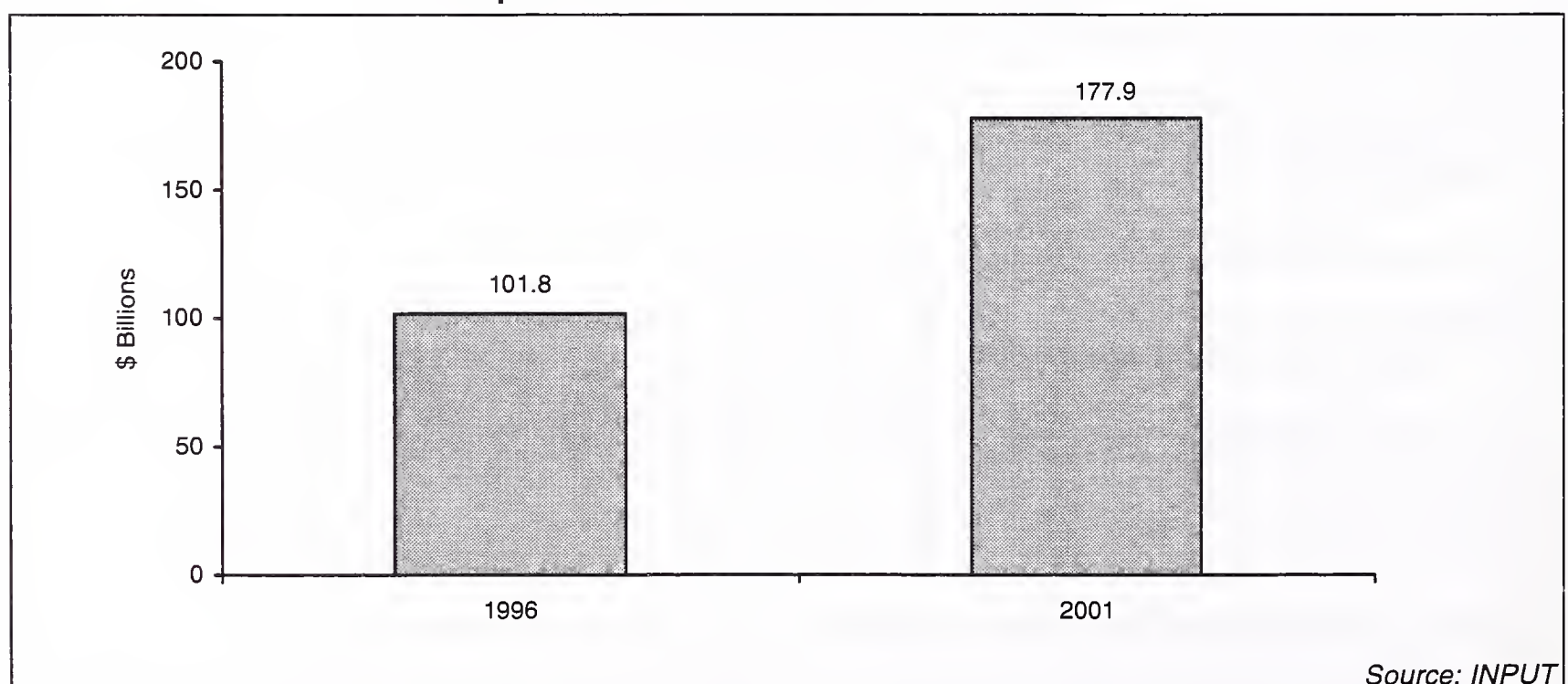
## C

### European IS Market Will to Grow to \$178 billion by 2001

The European Information Services market, worth \$92.1 billion in 1995, is forecast to increase to \$101.8 billion in 1996, representing 11% growth. Thereafter, for the five years between 1996 and 2001, the external software and services market is forecast to grow at a compound annual rate of 12%, resulting in a total market size of just under \$178 billion by the year 2001 (see Exhibit II-6).

Exhibit II-6

### European Information Services 1996-2001



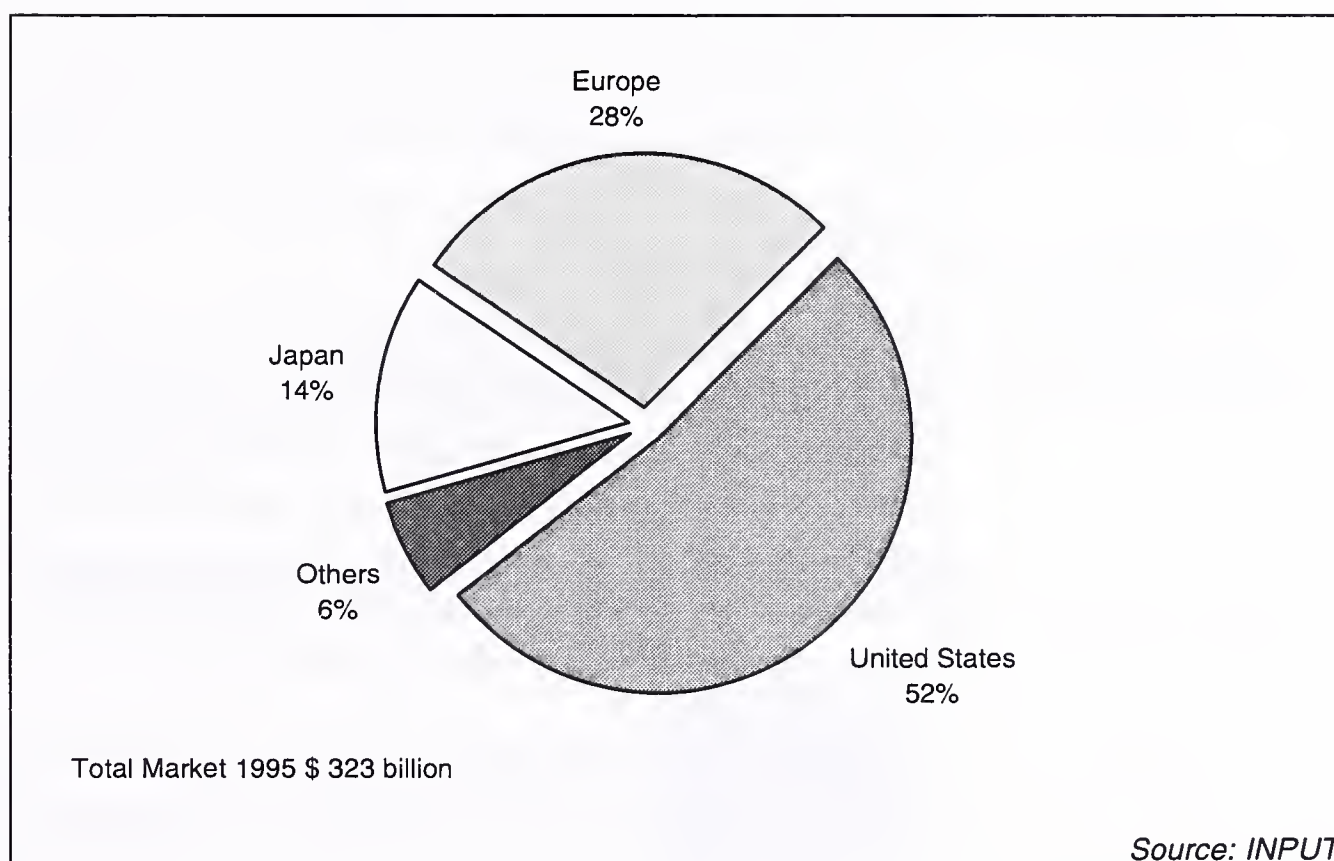
Source: INPUT

Whilst this growth constitutes a more solid performance than earlier in the decade, it still trails the United States, where growth of about 15% is forecast over the same period up to 2001. This difference may be accounted for by relatively higher levels of IT investment shown to be spent among smaller companies and the continued propensity of U.S. businesses to invest in technology for technology's sake.

Worldwide, in 1995, the U.S. market accounted for 52% of total revenues—more than twice the size of Europe, whilst Japan accounts for less than half Europe's total in terms of value, as shown in Exhibit II-7.

Exhibit II-7

### Global Distribution of Information Services Markets, 1995



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**D**

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**Major Trends Supporting the Upturn in Growth**

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**1. Shift to Globalised Markets and Customised Niches—Both Trends Generate Major Networking Opportunities**

During the 1990's, many companies have been forced to restructure operations, either to compete globally, through a high volume, low cost approach, or otherwise through market niching, with customised value-added goods and services.

Those organisations with globalised operations have become high spenders on reliable, network centric communication across different continents and time zones. IBM, for example, is increasingly using its ability to offer 24 hour seamless support services across Europe as a means to provide competitive differentiation from independent software vendors—many of whom have restricted geographical reach and can only offer daytime support.

Network centricity also has a strategic role to play when companies choose to become focused 'niche' players. In the manufacturing sector for example, as developing nations have taken an increasing slice of World output in commoditised goods, it has become necessary for industrialised nations to shift up the value chain via a focus on elaborately transformed manufactures (ETMs). Many of these products require reduced time to market, as product life cycles are often short.

Here, and critically through the application of IT, we perceive an important trend in *flexible manufacturing* emerging. Whereas it was once not possible to target the sale of ETMs at small market niches (a) because many companies still operated on a high-volume, production line principle, and (b) because lengthy retooling times simply made low batch volumes unviable, the increased use of Just In Time techniques of inventory handling, coupled with advances in CAD/CAM technology have made it possible to allow cost-effective short production runs and rapid retooling.

Networks integrating design shops to production facilities are vital to this process, as is the adoption of increasingly comprehensive Enterprise Resource Planning (ERP) systems. INPUT estimates that SAP currently holds about one-fifth of the ERP market in Europe—more than three times the size of market share held by its next nearest competitors Computer Associates and SNI. In future, vendors able to optimise the



link between relational databases and ERP systems (such as Oracle) are likely to hold the strategic trump cards.

## 2. Major Changes to Organisational Structures in Business Make the Network a Major Strategic Asset

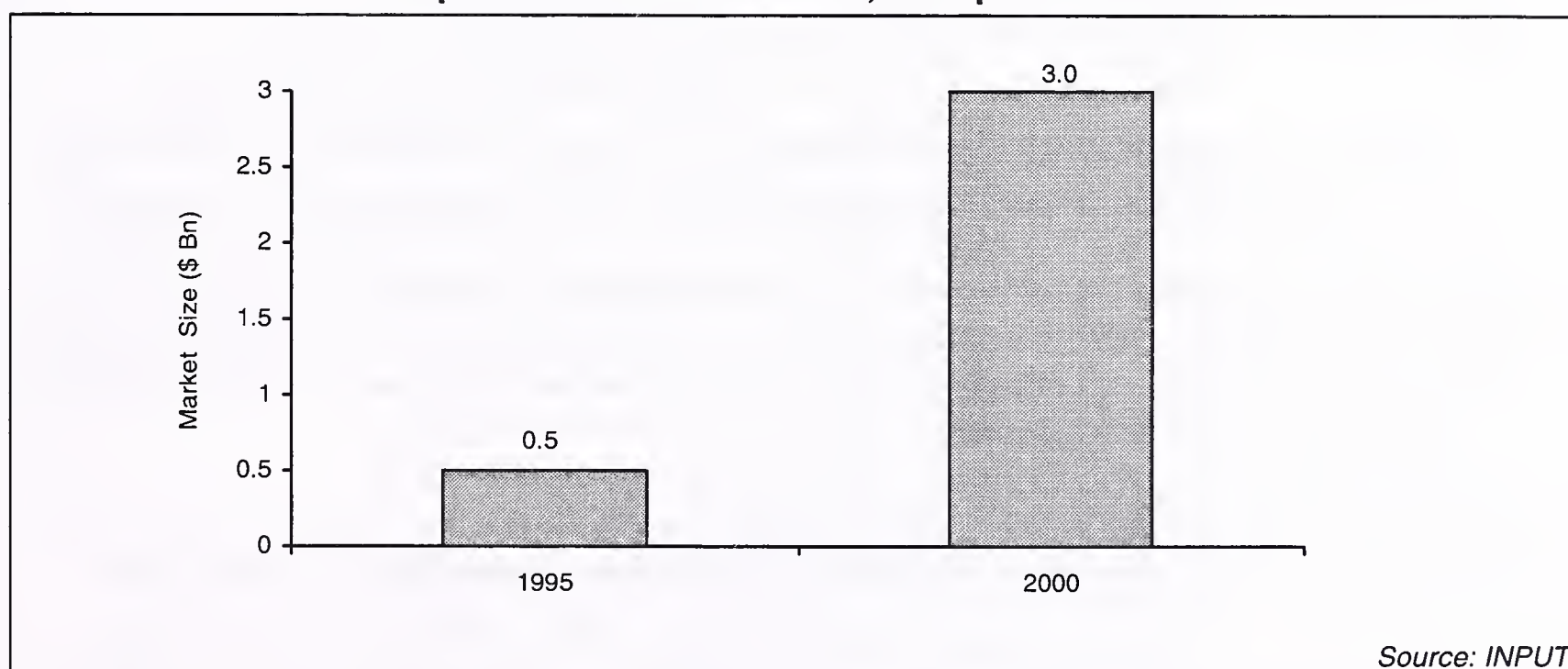
From an organisational perspective, as corporate structures have become flatter, the need for greater empowerment of employees has necessitated enhanced levels of distributed computing architectures. This is especially true in service industries, where a customer's positive impression of an organisation is heavily dependent upon the 'moment of truth' when the customer interfaces with front line staff.

Correspondingly, companies seeking competitive advantage have been investing heavily in computer telephony integration (CTI) software, help desk facilities, data warehousing and reliable, integrated networks.

INPUT estimates that as much as \$11 billion is currently being spent on help desk services in Europe, less than 5% of which (approximately \$500 million) is spent with third party suppliers. However, we forecast that this embryonic market will grow to \$3 billion by the year 2000, as shown in Exhibit II-8.

Exhibit II-8

### Help Desk Services Market, Europe 1995-2000



Enhanced networks are the backbone of the 'virtual organisation'—an entity becoming increasingly common as flexible working or 'tele-commuting' gains acceptance and increasing quantities of business are handled electronically. Recent estimates suggest that there are now up to one and a half million tele-workers in the UK alone and that by the year 2010, between 10% to 25% of Europe's work force will be telecommuting, as the economics of network enabled remote working continue to fall in relation to the high fixed costs of centralised business premises.

### **3. Intranets Begin to Take Off**

Central to the explosion in computer networking, the impact of the Internet/Intranets cannot be underestimated. As recently as one year ago, we were unable to predict with any certainty that they would become de facto platforms for business applications by 1998. Now this a certainty.

In the UK, INPUT estimates that 8% of large corporations already have, or are developing an intranet and a further 7-10% plan to do so during 1997. Uptake is also advanced in the Netherlands and the Nordic countries, with France and Germany some way behind. This lower level of uptake is related to the fact that intranet adoption tends to parallel (but lag) Internet use, and here, French and German companies have invested less in Internet migration owing to the large scale investments already made in the Minitel and T-On-line systems.

Whereas in the 1980's, PCs brought large scale productivity improvements to business through new applications such as word processing and spreadsheets, barring the development of a 'killer app', future productivity gains will derive chiefly from the ability of corporate Intranets to vastly expand cross-functional information sharing. Here, enabling better access to existing information sounds almost prosaic as a future goal, and yet the 'islands of information' that have built up around previous IT systems have been the greatest single cause of dissatisfaction for many IT users.

Claims that the uptake of dumb network computers and 'pay as you use' Java applets will also decrease hardware and software support costs, remain to be proven. On one hand, vendors' ability to automatically provide the latest version of software on-line will eliminate the endless problem of reloading upgrades and patches. On the other, a new tier of network computers grafted on to legacy systems will generate abundant new opportunities for large scale systems integrators.

#### **4. Electronic Business and Electronic Commerce Set to Expand dramatically**

Certain technologies only gather momentum when they develop in conjunction with other technological developments. Together, these clusters create a platform for new processes to emerge, offering the potential for commercial exploitation.

To this extent, a confluence of technologies appear to be at work which are likely to result in major expansion of electronic business.

Firstly, as noted above, the Internet and corporate intranets are on the verge of major functionality enhancements, as the first wave of Java-based applets come on stream in 1997.

Secondly, and intrinsically tied to the development of the Internet, database vendors such as IBM and Oracle are enabling their databases for Web connectivity. By doing so, it will be possible for users to publish their data on the Web as well as using proprietary search engines to query the data more effectively. In turn, improved data extraction will:

- Permit users to enhance levels of customer service through quicker response times and on-line access to customers' particulars
- Offer marketing departments the ability to undertake refined segmentation analysis and the facility to more accurately predict customer loyalty.

Thirdly, perhaps the greatest impact of Internet-enabled corporate databases will be the immediacy given to Internet shopping.

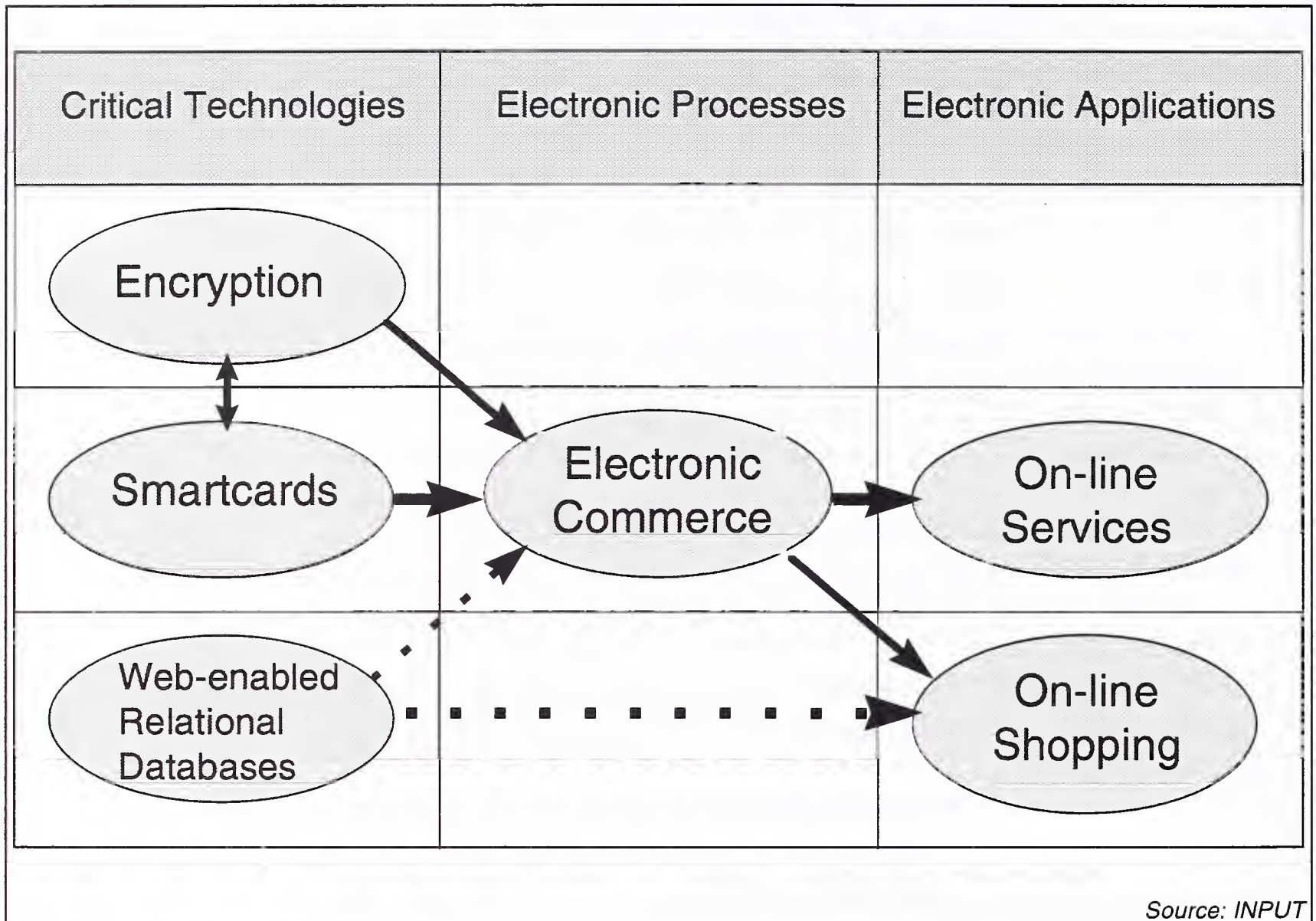
To date, electronic shopping has floundered because of the cumbersome way that purchasers must interact through Internet malls. These malls are a clear example of how physical domains should not be transposed directly into an electronic medium. They constitute a 'product push' strategy in an age when market saturation demands 'demand pull'. In this context, by permitting any Web user the scope to surf a multitude of corporate databases directly, the mall will become an unnecessary part of the loop.

The relationship between these emerging technologies and the electronic processes and applications they support is shown in Exhibit II-9.



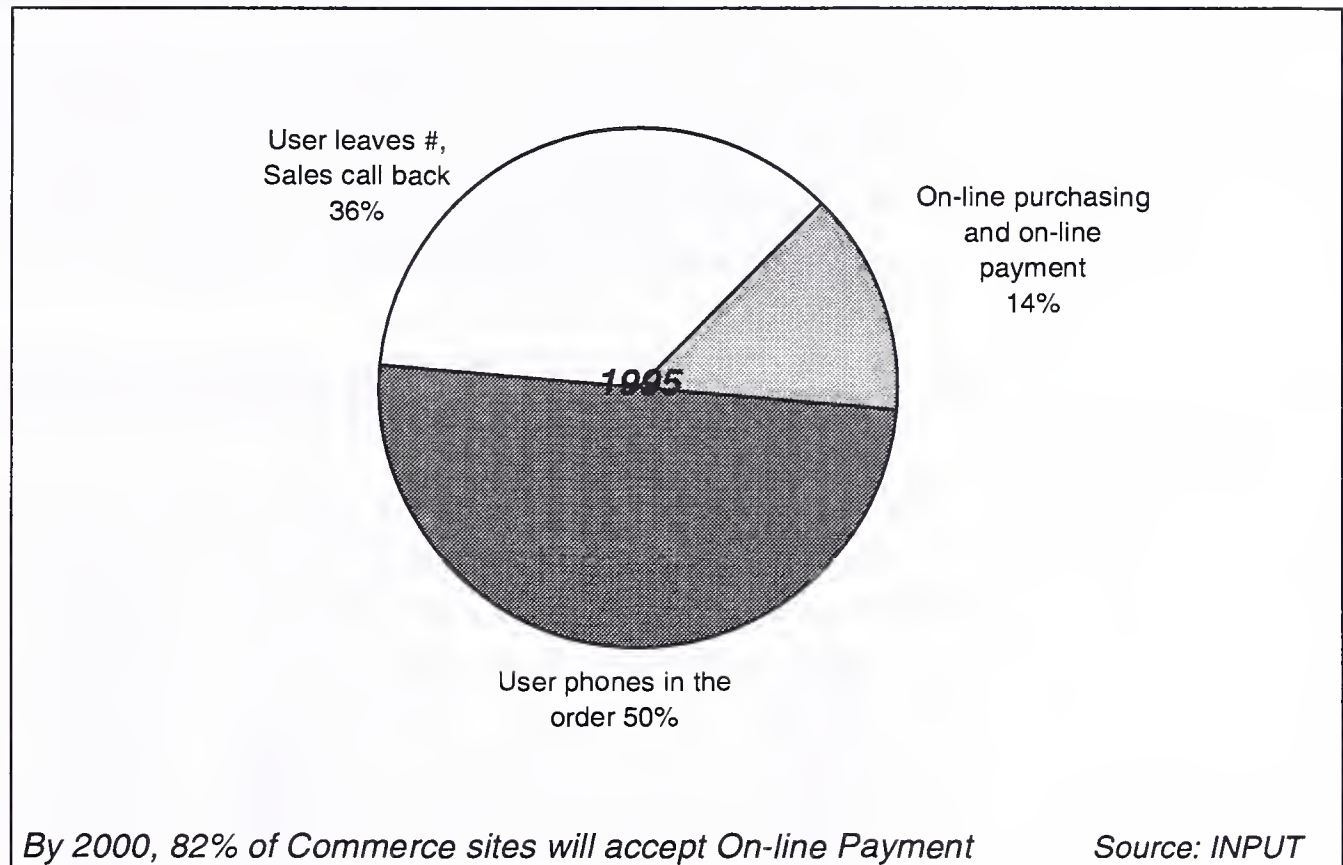
Exhibit II-9

### Dependencies between Emerging Technologies and the Processes and Applications they support



Placing these trends into forecast parameters, whereas in 1995, only 14% of Internet business transactions could be paid for via on-line payments, by 2000, INPUT estimates that 82% of commerce sites will offer this facility (see Exhibit II-10).

## Exhibit II-10

**Payment Methods Used at Commerce Sites**

In terms of on-line services provision, greater connectivity is being felt first in the area of home banking. This trend is largely cost driven: for example, it is estimated by Booz Allen that whilst a typical branch transaction costs approximately 77 cents, and a telephone transaction costs about 54 cents, in contrast, an Internet-based transaction costs only 12 cents.

Fundamentals such as these have encouraged new financial institutions such as BankNet—claimed to be Europe's first Internet bank—to offer cost-effective 24 hour services without the encumbrance of costly branch networks. Similarly, the Royal Bank of Scotland has recently announced its decision to offer Internet banking to half a million of its existing telephone based clients by Spring 1998.

The above trends indicate that electronic business is on the cusp of a major growth phase. For IT services vendors, this means that being able to connect customers to customer's customers is becoming an increasingly important growth area and a necessary core competency. In addition, given the greater focus on outputs, a further prerequisite is greater knowledge of specific vertical markets.



## **5. Information Technology Set to Transcend Mass Markets, with NCs and an Explosion of On-line Services at the Helm**

Pundits have long been predicting a greater penetration of IT into domestic markets than the level that has actually occurred. Firstly, residential sales appear to be far more price sensitive than business sales, and for many, a \$2000 asking price for system and software has simply been too expensive to warrant the investment.

Secondly, existing PCs often appear difficult to use and their level of functionality is severely restricted outside of main business applications.

Over the next two to three years, both of these current limitations will be mitigated. Cost-effective computing will be achieved through the application of low cost network computers fused ubiquitously with domestic appliances. Once this infrastructure is in place, demands for better networks and more bandwidth are set to escalate dramatically—stimulated by the possibilities of an array of new on-line services and a core of recently commercialised multimedia applications.

Recent INPUT research into the multi-media sector suggests that the roll-out in on-line services will be follow on-line banking into many other areas including:

- Insurance (on-line quotes)
- Business support (remote secretarial services, typesetting, on-line stockbroking)
- Travel agencies (live Internet video link-ups to resorts, on-line ticketing)
- Entertainment (mass participation Internet games, video on demand, music on demand)
- Education (remote learning)
- Logistics (end-to-end inventory tracking).

Whilst INPUT has previously remained sceptical of the much lauded multi-media revolution, to date, the three technological areas showing greatest commercial potential are non-immersive virtual reality, speech recognition and Internet enabled video compression.



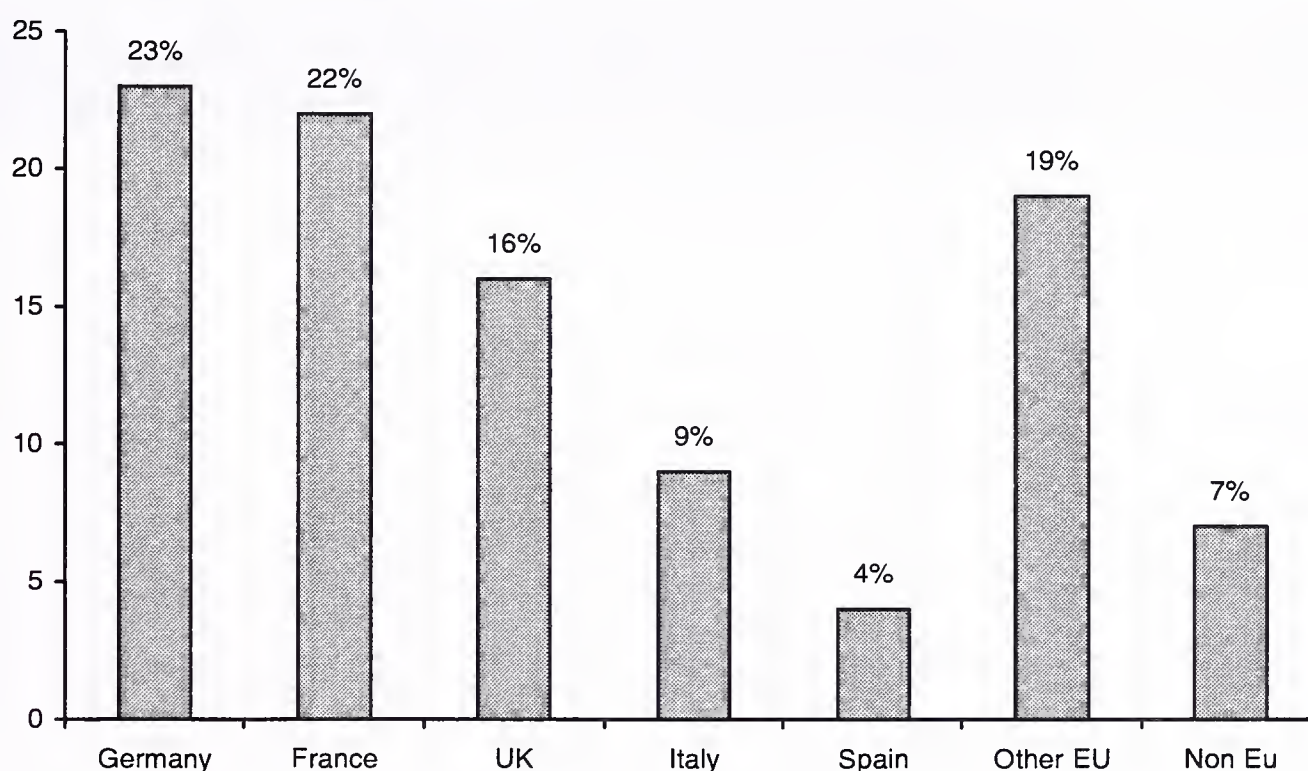
## E

## Country Market Analysis of Four Major Economies

As illustrated in Exhibit II-11, France Germany Italy and the UK account for 70% of all European Information Services revenues. For the first time, France has been overtaken by Germany as the largest market for software and services in Europe.

Exhibit II-11

### European Distribution of Information Services 1995



*N.B. These figures do not include SAP outsourcing for Germany and the UK*

*Source: INPUT*

The French market, worth FF 106 billion (\$ 21.6 billion) in 1996, represents a European market share of 22%. Germany's information services market (excluding equipment services), in 1996 is DM 33.4 billion (\$23.4 billion)—a European market share of 23%.

By 2001, the information services market in France will be worth FF 17.4 billion (\$35.5 billion). This reflects a compound annual growth rate over 5 years of 10% p.a. The German market will be worth DM 51.8 billion (\$40.6 billion) in 2001 representing a slightly higher growth rate of 12% p.a. over the same period.

The reason for this movement is due to specific growth opportunities within Germany in the outsourcing, processing services, network services, system integration and application software markets. These will all grow at above the average European rate for each of these sectors. By way of contrast, France has no segments which are growing faster than the average European rate. Exhibit II-12 analyses where the growth opportunities lie for the four major economies when compared on this basis.

Exhibit II-12

### Growth Opportunities for France, Germany, United Kingdom and Italy 1996-2001

Segment	Average European Growth Rate %	France	Germany	UK	Italy
Professional Services	5	B	C	C	B
Systems Integration	17	B	A	C	B
Outsourcing	28	C	B	A	A
Processing Services	7	C	A	B	C
Network Services	17	B	A	A	B
Systems Software	7	B	B	B	A
Application Software	12	C	A	A	A
Turnkey Systems	9	C	C	A	B
Equipment Services	1	C	B	C	C
A = Above Average	Total A	0	4	4	3
B = Average	B	4	3	2	4
C = Below Average	C	5	2	3	2

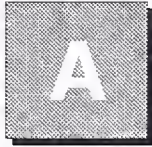
Source: INPUT

Of the four major economies, whilst Germany is forecast to have the greatest number of average or above average growth sectors, in terms of aggregated growth across the whole IS market, the UK is expected to be the most buoyant. These projections are based on: (1) continued positive performance in key IT intensive vertical markets—the UK business services sector grew by 10% in 1996, coupled with 9% growth in the banking sector—and (2) anticipated higher uptake of emerging technologies.

Accordingly, the gap between the size of the UK and French external software and services market is closing: by 2001, INPUT forecasts that they will be almost equal in size, with UK accounting for 19% of the European total and France about 20%. By way of comparison, in five years time, the Italian and German markets are forecast to account for about 9% with 23% of the European total respectively.



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# Forecast Database, 1996-2001

## Europe

A

Market Forecast

Exhibit A-1

### Top Level IT Expenditure,

US \$ Million

Sector

1995

95-96 (%)

1996

1997

1998

1999

2000

2001

96-01 CAGR (%)

Equipment Sales

Mainframe

Minicomputer

PC/Workstation

Equipment Services

Software Products

Other Information Services

Data Communications

Facilities/Administration

In-house Staff

IT Budget Total

60,350

9,640

14,840

35,870

22,450

26,920

56,860

23,070

27,910

86,910

304,500

9

2

4

14

1

9

12

9

-1

-1

5

65,920

72,090

78,570

85,000

91,300

98,190

8

2

5

11

2

8

14

10

0

0

7

Exhibit A-2

**Information Services Market**  
**Forecast by Delivery Mode and Submode**  
**Europe, 1996-2001**

Delivery Modes	US\$ Million								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-01 CAGR(%)
<b>Software and Services Total</b> (ex. Equipment Services)	92,100	11	101,800	114,200	128,400	143,900	160,200	177,900	12
<b>Professional Services</b>	23,810	5	24,940	26,320	27,900	29,400	31,020	32,620	6
- IS Consulting	3,970	11	4,390	4,910	5,500	6,160	6,870	7,640	12
- Education & Training	2,980	8	3,230	3,470	3,720	3,980	4,280	4,620	7
- Custom Software	16,820	3	17,290	17,910	18,460	19,260	19,820	20,430	3
<b>Systems Integration</b>	5,660	17	6,630	7,830	9,240	10,810	12,560	14,500	17
- Equipment	1,350	9	1,470	1,610	1,790	1,990	2,180	2,390	10
- Application Software	1,070	23	1,320	1,650	2,100	2,610	3,250	3,990	25
- System Software	420	14	480	570	660	770	890	1,030	16
- Professional Services	2,570	21	3,120	3,720	4,390	5,100	5,880	6,690	16
- Other	240	8	260	280	310	330	370	420	10
<b>Outsourcing</b>	7,110	28	9,130	12,080	15,970	19,980	24,230	28,820	26
- Platform Operations	1,480	22	1,810	2,210	2,650	3,010	3,400	3,760	16
- Application Operations	3,270	25	4,080	5,340	7,130	8,580	10,070	11,550	23
- Desktop Services	550	35	740	1,010	1,330	1,730	2,170	2,660	29
- Application Management	700	34	940	1,350	1,880	2,440	3,040	3,720	32
- Network Management	1,100	42	1,560	2,150	2,980	4,220	5,540	7,120	35
<b>Processing Services</b>	8,330	7	8,880	9,510	10,260	11,080	11,890	12,790	8
- Transaction Processing	7,030	6	7,460	7,960	8,540	9,160	9,800	10,480	7
- Utility Processing	300	3	310	310	320	330	350	370	4
- Other Processing	1,000	12	1,120	1,260	1,400	1,560	1,730	1,920	11
<b>Network Services</b>	6,750	17	7,870	9,240	10,920	12,910	15,270	17,970	18
- Electronic Info Svcs	4,320	13	4,880	5,530	6,350	7,280	8,420	9,680	15
- Network Applications	2,440	23	3,010	3,700	4,580	5,610	6,850	8,280	22
<b>System Software</b>	14,350	7	15,360	16,620	17,700	18,870	20,110	21,240	7
- Mainframe	5,870	0	5,870	5,870	5,940	6,020	6,140	6,230	1
- Minicomputer	4,550	6	4,840	5,160	5,550	5,930	6,340	6,740	7
- Workstation /PC	3,930	19	4,670	5,510	6,160	6,850	7,570	8,290	12
<b>Application Software</b>	12,760	12	14,230	16,170	18,030	19,590	21,320	22,900	10
- Mainframe	950	-3	920	910	880	880	840	830	-2
- Minicomputer	3,570	6	3,800	4,070	4,360	4,680	5,010	5,330	7
- Workstation /PC	8,320	15	9,590	11,220	12,840	14,100	15,370	16,740	12
<b>Turnkey Systems</b>	13,380	9	14,560	16,410	18,590	21,130	23,840	26,900	13
- Equipment	6,340	6	6,750	7,390	8,140	8,950	9,830	10,940	10
- Application Software	2,780	12	3,120	3,650	4,270	5,050	5,880	6,720	17
- System Software	720	11	800	910	1,020	1,140	1,270	1,390	12
- Professional Services	3,530	10	3,870	4,440	5,160	5,960	6,850	7,840	15
<b>Equipment Services</b>	22,580	1	22,730	22,910	23,120	23,470	23,950	24,540	2
- Equipment Maintenance	13,560	-4	13,040	12,440	11,830	11,340	10,840	10,230	-5
- Environmental Services	9,030	6	9,580	10,480	11,170	12,130	13,110	14,200	8
<b>Grand Total</b> Information Service Market	114,410	8	124,000	137,890	151,630	167,240	183,070	202,740	10



B

**Forecast Database in ECUs**

Exhibit A-3

**Forecast Database in ECUs Europe, 1996-2001**

Delivery Modes	ECU Millions (rounded)								96-01 CAGR(%)
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	
<b>Software and Services Total</b> (ex. Equipment Services)	71,900	11	79,500	89,200	100,300	112,400	125,100	138,900	12
<b>Professional Services</b>	18,596	5	19,478	20,556	21,790	22,961	24,227	25,476	6
- IS Consulting	3,101	11	3,429	3,835	4,296	4,811	5,365	5,967	12
- Education & Training	2,327	8	2,523	2,710	2,905	3,108	3,343	3,608	7
- Custom Software	13,136	3	13,503	13,988	14,417	15,042	15,479	15,956	3
<b>Systems Integration</b>	4,420	17	5,178	6,115	7,216	8,443	9,809	11,325	17
- Equipment	1,054	9	1,148	1,257	1,398	1,554	1,703	1,867	10
- Application Software	836	23	1,031	1,289	1,640	2,038	2,538	3,116	25
- System Software	328	14	375	445	515	601	695	804	16
- Professional Services	2,007	21	2,437	2,905	3,429	3,983	4,592	5,225	16
- Other	187	8	203	219	242	258	289	328	10
<b>Outsourcing</b>	5,553	28	7,131	9,434	12,473	15,604	18,924	22,508	26
- Platform Operations	1,156	22	1,414	1,726	2,070	2,351	2,655	2,937	16
- Application Operations	2,554	25	3,186	4,171	5,569	6,701	7,865	9,021	23
- Desktop Services	430	35	578	789	1,039	1,351	1,695	2,077	29
- Application Management	547	34	734	1,054	1,468	1,906	2,374	2,905	32
- Network Management	859	42	1,218	1,679	2,327	3,296	4,327	5,561	35
<b>Processing Services</b>	6,506	7	6,935	7,427	8,013	8,653	9,286	9,989	8
- Transaction Processing	5,490	6	5,826	6,217	6,670	7,154	7,654	8,185	7
- Utility Processing	234	3	242	242	250	258	273	289	4
- Other Processing	781	12	875	984	1,093	1,218	1,351	1,500	11
<b>Network Services</b>	5,272	17	6,146	7,216	8,529	10,083	11,926	14,035	18
- Electronic Info Svcs	3,374	13	3,811	4,319	4,959	5,686	6,576	7,560	15
- Network Applications	1,906	23	2,351	2,890	3,577	4,381	5,350	6,467	22
<b>System Software</b>	11,207	7	11,996	12,980	13,824	14,737	15,706	16,588	7
- Mainframe	4,584	0	4,584	4,584	4,639	4,702	4,795	4,866	1
- Minicomputer	3,554	6	3,780	4,030	4,335	4,631	4,952	5,264	7
- Workstation /PC	3,069	19	3,647	4,303	4,811	5,350	5,912	6,474	12
<b>Application Software</b>	9,966	12	11,114	12,629	14,081	15,300	16,651	17,885	10
- Mainframe	742	-3	719	711	687	687	656	648	-2
- Minicomputer	2,788	6	2,968	3,179	3,405	3,655	3,913	4,163	7
- Workstation /PC	6,498	15	7,490	8,763	10,028	11,012	12,004	13,074	12
<b>Turnkey Systems</b>	10,450	9	11,371	12,816	14,519	16,503	18,619	21,009	13
- Equipment	4,952	6	5,272	5,772	6,357	6,990	7,677	8,544	10
- Application Software	2,171	12	2,437	2,851	3,335	3,944	4,592	5,248	17
- System Software	562	11	625	711	797	890	992	1,086	12
- Professional Services	2,757	10	3,022	3,468	4,030	4,655	5,350	6,123	15
<b>Equipment Services</b>	17,635	1	17,752	17,893	18,057	18,330	18,705	19,166	2
- Equipment Maintenance	10,590	-4	10,184	9,716	9,239	8,857	8,466	7,990	-5
- Environmental Services	7,052	6	7,482	8,185	8,724	9,474	10,239	11,090	8
<b>Grand Total</b>	89,354	8	96,844	107,692	118,423	130,614	142,978	158,340	10
<b>Information Service Market</b>									

C

**Information Services Forecast Reconciliation**

Exhibit A-4

**Forecast Reconciliation, Europe, 1995-2000**

Currency: US\$ Million	1995 Market				2000 Market				1995	1996
Delivery Mode	1995 Report (Fcst)	1996 Report (Act)	1995-1996 Variance		1995 Report (Fcst)	1996 Report (Fcst)	1995-1996 Variance		Report %CAGR (Fcst)	Report %CAGR (Fcst)
			(Amount)	(%)			(Amount)	(%)		
Software and Services Total										
(ex Equipment Services)	89,100	92,100	3,000	3	133,300	160,200	26,900	20	8	12
Professional Services	23,930	23,810	-120	-1	28,860	31,020	2,160	7	4	5
- IS Consulting	3,940	3,970	30	1	6,270	6,870	600	10	10	12
- Education & Training	2,820	2,980	160	6	3,870	4,280	410	11	7	8
- Custom Software	16,780	16,820	40	0	17,810	19,820	2,010	11	1	3
Systems Integration	0	5,660	5,660	N/A	0	12,560	12,560	N/A	0	17
- Equipment	5,260	1,350	-3,910	-74	9,600	2,180	-7,420	-77	13	10
- Application Software	1,260	1,070	-190	-15	1,560	3,250	1,690	108	4	25
- System Software	990	420	-570	-58	2,640	890	-1,750	-66	22	16
- Professional Services	390	2,570	2,180	559	670	5,880	5,210	778	11	18
- Other	2,400	240	-2,160	-90	4,260	370	-3,890	-91	12	9
Outsourcing	0	7,110	7,110	N/A	0	24,230	24,230	N/A	0	28
- Platform Operations	4,570	1,480	-3,090	-68	11,180	3,400	-7,780	-70	20	18
- Application Operations	1,170	3,270	2,100	179	2,010	10,070	8,060	401	11	25
- Desktop Services	2,730	550	-2,180	-80	6,990	2,170	-4,820	-69	21	32
- Application Management	650	700	50	8	2,160	3,040	880	41	27	34
- Network Management	0	1,100	1,100	N/A	0	5,540	5,540	N/A	0	38
Processing Services	7,240	8,330	1,090	15	8,320	11,890	3,570	43	3	7
- Transaction Processing	270	7,030	6,760	2504	280	9,800	9,520	3400	1	7
- Utility Processing	1,030	300	-730	-71	1,690	350	-1,340	-79	10	3
- Other Processing	0	1,000	1,000	N/A	0	1,730	1,730	N/A	0	12
Network Services	4,090	6,750	2,660	65	6,270	15,270	9,000	144	9	18
- Electronic Info Svcs	2,180	4,320	2,140	98	7,180	8,420	1,240	17	27	14
- Network Applications	620	2,440	1,820	294	1,310	6,850	5,540	423	16	23
System Software	14,130	14,350	220	2	17,440	20,110	2,670	15	4	7
- Mainframe	5,310	5,870	560	11	3,840	6,140	2,300	60	-6	1
- Minicomputer	4,480	4,550	70	2	5,750	6,340	590	10	5	7
- Workstation/PC	4,330	3,930	-400	-9	7,890	7,570	-320	-4	13	14
Application Software	12,230	12,760	530	4	21,730	21,320	-410	-2	12	11
- Mainframe	800	950	150	19	630	840	210	33	-5	-2
- Minicomputer	3,250	3,570	320	10	4,830	5,010	180	4	8	7
- Workstation/PC	8,190	8,320	130	2	16,180	15,370	-810	-5	15	13
Turnkey Systems	13,530	13,380	-150	-1	19,460	23,840	4,380	23	8	12
- Equipment	6,410	6,340	-70	-1	7,760	9,830	2,070	27	4	9
- Application Software	2,840	2,780	-60	-2	4,870	5,880	1,010	21	11	16
- System Software	750	720	-30	-4	1,000	1,270	270	27	6	12
- Professional Services	3,560	3,530	-30	-1	5,790	6,850	1,060	18	10	14
Equipment Services	20,990	22,580	1,590	8	21,790	23,950	2,160	10	1	1
- Equipment Maintenance	12,760	13,560	800	6	10,360	10,840	480	5	-4	-4
- Environmental Services	8,340	9,030	690	8	11,440	13,110	1,670	15	7	8
Grand Total	110,200	114,410	4,210	4	155,180	183,070	27,890	18	7	10

D

## Delivery Mode

Exhibit A-5

## Software and Services Country Comparisons, Europe

Country	US\$ Million								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-01 CAGR(%)
Total (rounded)	92,000	11	100,000	115,000	130,000	145,000	160,000	180,000	12
France	20,000	8	21,500	23,500	26,500	29,500	32,000	36,000	10
Germany	21,500	10	23,500	26,500	29,500	33,000	37,000	41,000	12
United Kingdom	15,000	14	17,000	20,000	23,500	26,500	30,000	34,000	15
Italy	8,100	11	9,000	10,000	11,500	12,500	14,000	15,500	11
Sweden	3,300	11	3,600	4,100	4,700	5,300	6,000	6,700	13
Denmark	2,200	12	2,450	2,700	3,000	3,300	3,600	4,000	10
Norway	2,050	9	2,250	2,450	2,700	2,950	3,200	3,500	10
Finland	1,400	12	1,550	1,750	1,900	2,100	2,400	2,650	11
Netherlands	4,900	13	5,500	6,100	6,800	7,600	8,500	9,400	11
Belgium	2,750	8	2,950	3,200	3,500	3,700	4,100	4,300	8
Switzerland	3,000	9	3,300	3,600	4,000	4,400	4,800	5,300	10
Austria	2,050	10	2,250	2,500	2,800	3,200	3,600	3,900	12
Spain	3,200	11	3,600	3,900	4,300	4,800	5,400	6,100	11
Portugal	440	22	530	620	710	820	930	1,050	15
Greece	440	15	510	600	700	810	930	1,050	16
Ireland	870	13	990	1,150	1,250	1,400	1,600	1,800	13
Eastern Europe	1,050	16	1,200	1,450	1,650	1,900	2,200	2,500	16



## D

## Delivery Mode

Exhibit A-5

## Software and Services Country Comparisons, Europe

Country	US\$ Million								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-01 CAGR(%)
Total (rounded)	92,000	11	100,000	115,000	130,000	145,000	160,000	180,000	12
France	20,000	8	21,500	23,500	26,500	29,500	32,000	36,000	10
Germany	21,500	10	23,500	26,500	29,500	33,000	37,000	41,000	12
United Kingdom	15,000	14	17,000	20,000	23,500	26,500	30,000	34,000	15
Italy	8,100	11	9,000	10,000	11,500	12,500	14,000	15,500	11
Sweden	3,300	11	3,600	4,100	4,700	5,300	6,000	6,700	13
Denmark	2,200	12	2,450	2,700	3,000	3,300	3,600	4,000	10
Norway	2,050	9	2,250	2,450	2,700	2,950	3,200	3,500	10
Finland	1,400	12	1,550	1,750	1,900	2,100	2,400	2,650	11
Netherlands	4,900	13	5,500	6,100	6,800	7,600	8,500	9,400	11
Belgium	2,750	8	2,950	3,200	3,500	3,700	4,100	4,300	8
Switzerland	3,000	9	3,300	3,600	4,000	4,400	4,800	5,300	10
Austria	2,050	10	2,250	2,500	2,800	3,200	3,600	3,900	12
Spain	3,200	11	3,600	3,900	4,300	4,800	5,400	6,100	11
Portugal	440	22	530	620	710	820	930	1,050	15
Greece	440	15	510	600	700	810	930	1,050	16
Ireland	870	13	990	1,150	1,250	1,400	1,600	1,800	13
Eastern Europe	1,050	16	1,200	1,450	1,650	1,900	2,200	2,500	16

Exhibit A-6

**Professional Services Country Comparisons, Europe**

Country	US\$ Million								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-01 CAGR(%)
Total (rounded)	24,000	5	25,000	26,500	28,000	29,500	31,000	33,000	6
France	6,100	3	6,300	6,600	6,900	7,300	7,500	7,800	4
Germany	4,500	2	4,500	4,700	4,800	4,900	5,000	5,200	3
United Kingdom	3,000	2	3,100	3,200	3,300	3,300	3,400	3,400	2
Italy	2,200	3	2,300	2,400	2,600	2,800	3,000	3,100	7
Sweden	1,100	11	1,200	1,350	1,500	1,600	1,800	1,950	10
Denmark	510	9	550	580	620	630	660	680	4
Norway	490	8	520	560	610	670	740	820	9
Finland	340	13	390	430	480	530	600	680	12
Netherlands	1,500	10	1,650	1,750	1,900	2,000	2,100	2,200	6
Belgium	800	3	830	850	880	910	950	970	3
Switzerland	730	5	770	800	850	850	880	910	3
Austria	600	13	670	760	860	970	1,100	1,150	12
Spain	1,050	10	1,150	1,250	1,350	1,500	1,650	1,850	10
Portugal	235	15	270	310	350	400	450	500	13
Greece	195	17	230	270	310	370	430	490	17
Ireland	320	15	370	420	480	540	610	690	13
Eastern Europe	100	17	115	135	155	180	210	245	16

## Exhibit A-7

## Systems Integration Country Comparisons, Europe

Country	US\$ Million								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-01 CAGR(%)
Total (rounded)	5,700	17	6,600	7,800	9,200	11,000	12,500	14,500	17
France	1,100	17	1,300	1,550	1,850	2,150	2,500	2,850	17
Germany	980	25	1,200	1,500	1,850	2,250	2,750	3,300	22
United Kingdom	1,600	15	1,850	2,150	2,500	2,850	3,300	3,700	15
Italy	360	19	430	510	580	660	740	840	14
Sweden	61	20	73	91	110	140	170	215	25
Denmark	55	13	63	75	91	110	135	160	20
Norway	41	61	65	76	90	105	125	145	17
Finland	50	12	56	66	80	99	120	145	21
Netherlands	205	6	220	255	300	360	410	470	16
Belgium	195	12	220	250	285	320	360	390	12
Switzerland	175	13	195	225	250	285	320	350	12
Austria	65	17	75	86	100	115	135	150	15
Spain	230	15	265	300	350	410	480	580	17
Portugal	20	26	25	30	37	45	53	64	20
Greece	15	25	19	24	30	37	47	59	26
Ireland	21	15	24	30	39	50	63	77	26
Eastern Europe	470	14	540	620	700	790	890	1,000	13



Exhibit A-8

## Systems Operations Country Comparisons, Europe

Country	US\$ Million								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-01 CAGR(%)
Total (rounded)	7,100	28	9,100	12,000	16,000	20,000	24,000	29,000	26
France	1,400	23	1,700	2,300	3,000	3,800	4,500	5,400	26
Germany	1,100	26	1,400	1,850	2,450	3,100	3,800	4,400	25
United Kingdom	2,550	32	3,400	4,500	6,100	7,700	9,300	11,000	27
Italy	420	45	610	830	1,050	1,300	1,550	1,850	25
Sweden	470	24	580	780	1,000	1,250	1,500	1,800	25
Denmark	72	20	87	110	140	165	195	235	22
Norway	60	21	72	91	115	140	165	195	22
Finland	115	23	140	175	215	260	310	370	21
Netherlands	380	28	480	620	790	980	1,250	1,450	25
Belgium	135	18	160	195	235	295	360	440	22
Switzerland	125	29	160	210	270	340	410	500	25
Austria	32	23	39	50	62	76	93	110	23
Spain	165	22	200	265	350	430	540	650	26
Portugal	15	24	19	25	32	40	47	57	25
Greece	5	22	6	8	10	13	16	18	24
Ireland	21	15	24	34	40	48	61	71	24
Eastern Europe	30	40	42	54	69	84	105	125	24

## Exhibit A-9

## Processing Services Country Comparisons, Europe

Country	US\$ Million								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-01 CAGR(%)
Total (rounded)	8,300	7	8,900	9,500	10,500	11,000	12,000	13,000	8
France	1,600	3	1,650	1,700	1,800	1,900	2,000	2,150	6
Germany	1,550	11	1,700	1,900	2,150	2,450	2,650	2,900	11
United Kingdom	930	8	1,000	1,100	1,200	1,300	1,400	1,550	9
Italy	750	4	790	820	880	940	1,000	1,100	7
Sweden	410	7	430	460	490	530	560	600	7
Denmark	380	6	400	420	450	460	480	490	4
Norway	600	5	630	660	700	740	790	830	6
Finland	230	4	240	245	250	255	255	260	2
Netherlands	560	7	600	650	700	760	820	890	8
Belgium	270	4	285	300	320	330	350	360	5
Switzerland	350	9	380	410	450	480	520	570	8
Austria	220	5	230	245	260	280	295	300	6
Spain	310	7	330	350	370	390	420	450	6
Portugal	27	13	31	35	39	43	47	51	11
Greece	46	9	50	54	59	65	70	77	9
Ireland	58	8	63	66	69	74	77	82	6
Eastern Europe	60	12	67	76	84	93	105	120	12

Exhibit A-10

## Network Services Country Comparisons, Europe

Country	US\$ Million								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-01 CAGR(%)
Total (rounded)	6,800	17	7,900	9,200	11,000	13,000	15,500	18,000	18
France	1,550	14	1,750	2,000	2,350	2,750	3,200	3,700	16
Germany	1,700	19	2,050	2,400	2,850	3,400	4,100	4,800	19
United Kingdom	1,500	18	1,750	2,100	2,500	2,950	3,500	4,200	19
Italy	450	17	530	610	720	860	1,000	1,200	18
Sweden	140	14	160	185	220	265	310	360	18
Denmark	125	17	150	175	205	240	275	320	16
Norway	83	12	92	105	120	135	155	175	14
Finland	65	18	76	86	97	110	125	145	14
Netherlands	295	18	350	410	500	610	740	880	21
Belgium	175	13	200	235	270	310	360	400	15
Switzerland	185	14	215	245	285	340	400	460	16
Austria	97	17	115	135	165	190	230	270	19
Spain	185	14	210	245	285	340	390	440	16
Portugal	23	29	30	39	50	64	81	100	28
Greece	21	21	25	30	36	44	52	62	20
Ireland	72	16	83	98	115	135	150	175	16
Eastern Europe	95	17	110	130	155	180	215	250	18



Exhibit A-11

**System Software Country Comparisons, Europe**

Country	US\$ Million								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-01 CAGR(%)
Total (rounded)	14,500	7	15,500	16,500	17,500	19,000	20,000	21,500	7
France	3,300	6	3,500	3,600	3,900	4,100	4,400	4,600	6
Germany	4,000	7	4,300	4,700	5,000	5,300	5,700	6,100	7
United Kingdom	1,700	7	1,800	2,000	2,100	2,300	2,400	2,500	7
Italy	1,600	12	1,800	2,000	2,200	2,400	2,600	2,700	9
Sweden	330	3	340	360	370	380	410	420	4
Denmark	350	11	380	420	460	510	550	600	9
Norway	255	8	270	310	320	340	360	380	7
Finland	180	3	185	195	195	205	210	215	3
Netherlands	660	7	700	750	790	830	850	880	5
Belgium	410	6	430	460	490	510	540	550	5
Switzerland	540	3	560	580	610	640	670	710	5
Austria	330	6	350	370	390	420	440	450	5
Spain	430	3	450	460	480	510	550	580	5
Portugal	37	12	42	47	52	57	61	66	9
Greece	52	12	58	67	73	80	89	97	11
Ireland	105	5	110	120	120	125	130	130	4
Eastern Europe	140	19	165	200	235	275	320	380	18

Exhibit A-12

## Applications Software Country Comparisons, Europe

Country	US\$ Million								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-01 CAGR(%)
Total (rounded)	13,000	12	14,500	16,000	18,000	19,500	21,500	23,000	10
France	3,100	10	3,400	3,800	4,200	4,700	5,000	5,400	9
Germany	3,000	14	3,400	3,900	4,400	4,800	5,200	5,600	10
United Kingdom	1,500	15	1,700	2,000	2,200	2,300	2,600	2,800	10
Italy	1,600	14	1,800	2,100	2,400	2,600	2,800	3,000	10
Sweden	380	8	410	440	470	510	540	570	7
Denmark	330	14	370	430	490	550	620	690	13
Norway	260	10	290	330	360	390	420	460	10
Finland	215	11	240	300	340	360	410	440	13
Netherlands	690	12	770	860	950	1,050	1,100	1,200	9
Belgium	380	11	420	470	510	550	590	610	8
Switzerland	390	14	440	490	550	600	660	720	11
Austria	240	10	260	290	330	360	400	420	10
Spain	380	8	410	440	470	510	550	590	8
Portugal	23	16	27	31	36	40	44	49	13
Greece	38	16	44	50	58	65	76	85	14
Ireland	110	10	125	150	165	170	180	190	9
Eastern Europe	110	20	130	170	200	220	260	300	18

## Exhibit A-13

## Turnkey Systems Country Comparisons, Europe

Country	US\$ Million								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-01 CAGR(%)
Total (rounded)	13,500	9	14,500	16,500	18,500	21,000	24,000	27,000	13
France	1,950	2	2,000	2,150	2,450	2,750	3,100	3,500	12
Germany	4,500	5	4,700	5,300	5,900	6,700	7,500	8,400	12
United Kingdom	2,250	15	2,600	3,000	3,500	4,000	4,500	5,000	14
Italy	690	9	750	860	980	1,150	1,300	1,500	15
Sweden	370	10	410	460	530	600	710	820	15
Denmark	380	16	440	500	580	660	740	830	13
Norway	260	13	295	330	370	420	470	530	12
Finland	185	19	220	245	275	310	340	380	12
Netherlands	620	15	710	820	930	1,050	1,250	1,450	15
Belgium	370	9	400	440	480	520	570	610	9
Switzerland	520	10	570	650	740	850	980	1,100	14
Austria	450	3	470	550	650	760	900	1,000	17
Spain	480	17	560	620	690	770	850	960	11
Portugal	55	62	89	100	115	130	150	165	13
Greece	70	17	82	98	115	140	160	180	17
Ireland	170	14	190	215	240	270	320	360	13
Eastern Europe	40	15	46	54	62	71	79	88	14



Exhibit A-14

**Equipment Services Country Comparisons, Europe**

Country	US\$ Million								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-01 CAGR(%)
Total (rounded)	22,500	1	22,500	23,000	23,000	23,500	24,000	24,500	2
France	4,050	0	4,040	4,040	4,050	4,090	4,130	4,140	0
Germany	4,800	0	4,800	4,800	4,800	4,900	5,000	5,200	2
United Kingdom	3,700	0	3,700	3,700	3,700	3,700	3,800	3,900	1
Italy	2,300	0	2,300	2,300	2,300	2,300	2,300	2,300	0
Sweden	950	5	990	1,050	1,100	1,150	1,200	1,200	4
Denmark	560	2	570	580	590	600	600	610	1
Norway	460	1	460	470	470	470	480	490	1
Finland	380	2	390	390	400	400	410	420	2
Netherlands	1,550	1	1,550	1,600	1,600	1,650	1,650	1,700	2
Belgium	665	-2	655	650	650	650	650	650	0
Switzerland	1,200	2	1,250	1,250	1,300	1,300	1,350	1,350	2
Austria	470	1	470	480	490	500	510	520	2
Spain	970	2	990	1,000	1,050	1,050	1,100	1,100	3
Portugal	125	4	130	135	140	145	155	165	5
Greece	39	1	39	38	37	36	35	35	-2
Ireland	115	1	120	115	115	115	115	115	-1
Eastern Europe	280	11	310	360	410	460	530	610	14

## Exhibit A-15

## Information Services Country Comparisons, Europe

Country	US\$ Million								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-01 CAGR(%)
Total (rounded)	115,000	9	125,000	140,000	150,000	165,000	185,000	205,000	10
France	24,000	7	26,000	28,000	30,000	34,000	36,000	40,000	9
Germany	26,000	8	28,000	31,000	34,000	38,000	41,000	46,000	11
United Kingdom	19,000	12	21,000	24,000	27,000	30,000	34,000	38,000	13
Italy	10,000	9	11,000	13,000	14,000	15,000	16,000	18,000	9
Sweden	4,200	10	4,600	5,200	5,800	6,400	7,200	8,000	12
Denmark	2,700	13	3,100	3,300	3,600	4,000	4,400	4,500	8
Norway	2,500	8	2,700	2,900	3,200	3,400	3,700	4,000	8
Finland	1,750	9	1,900	2,100	2,350	2,500	2,800	3,100	10
Netherlands	6,500	9	7,000	7,700	8,500	9,300	10,000	11,000	10
Belgium	3,400	6	3,600	3,900	4,100	4,400	4,700	5,000	7
Switzerland	4,200	7	4,500	4,900	5,300	5,700	6,200	6,700	8
Austria	2,500	8	2,650	2,950	3,300	3,700	4,100	4,400	11
Spain	4,200	9	4,600	4,900	5,400	5,900	6,500	7,200	10
Portugal	560	18	660	750	850	970	1,100	1,200	13
Greece	480	15	550	640	730	840	970	1,100	15
Ireland	990	11	1,100	1,250	1,400	1,500	1,700	1,900	11
Eastern Europe	1,350	15	1,550	1,800	2,050	2,350	2,700	3,100	15



# Information Services Industry Forecast Database, 1996-2001 Austria

A

Forecast Database in Local Currency (Sch Millions)

Exhibit B-1

## Top Level IT Expenditure, Austria

Sch Millions

Sector

1995

95-96 (%)

1996

1997

1998

1999

2000

2001

CAGR (%)

Total IT Spending

Equipment Sales

Mainframe

Minicomputer

PC/Workstation

Equipment Services

Software Products

Other Information Services

Data Communications

Facilities/Administration

In-house Staff

58,500

4

61,000

64,500

69,500

73,500

79,000

83,000

6

15,500

5

16,300

17,400

18,500

19,700

21,100

22,100

6

2,700

-4

2,600

2,500

2,400

2,300

2,200

2,000

-5

4,050

1

4,100

4,200

4,300

4,300

4,400

4,400

1

8,700

10

9,600

10,700

11,800

13,100

14,500

15,700

10

4,700

1

4,750

4,800

4,900

5,000

5,100

5,200

2

5,700

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6,150

6,650

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7,850

8,500

8,800

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15,700

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3,200

9

3,500

3,900

4,300

4,800

5,300

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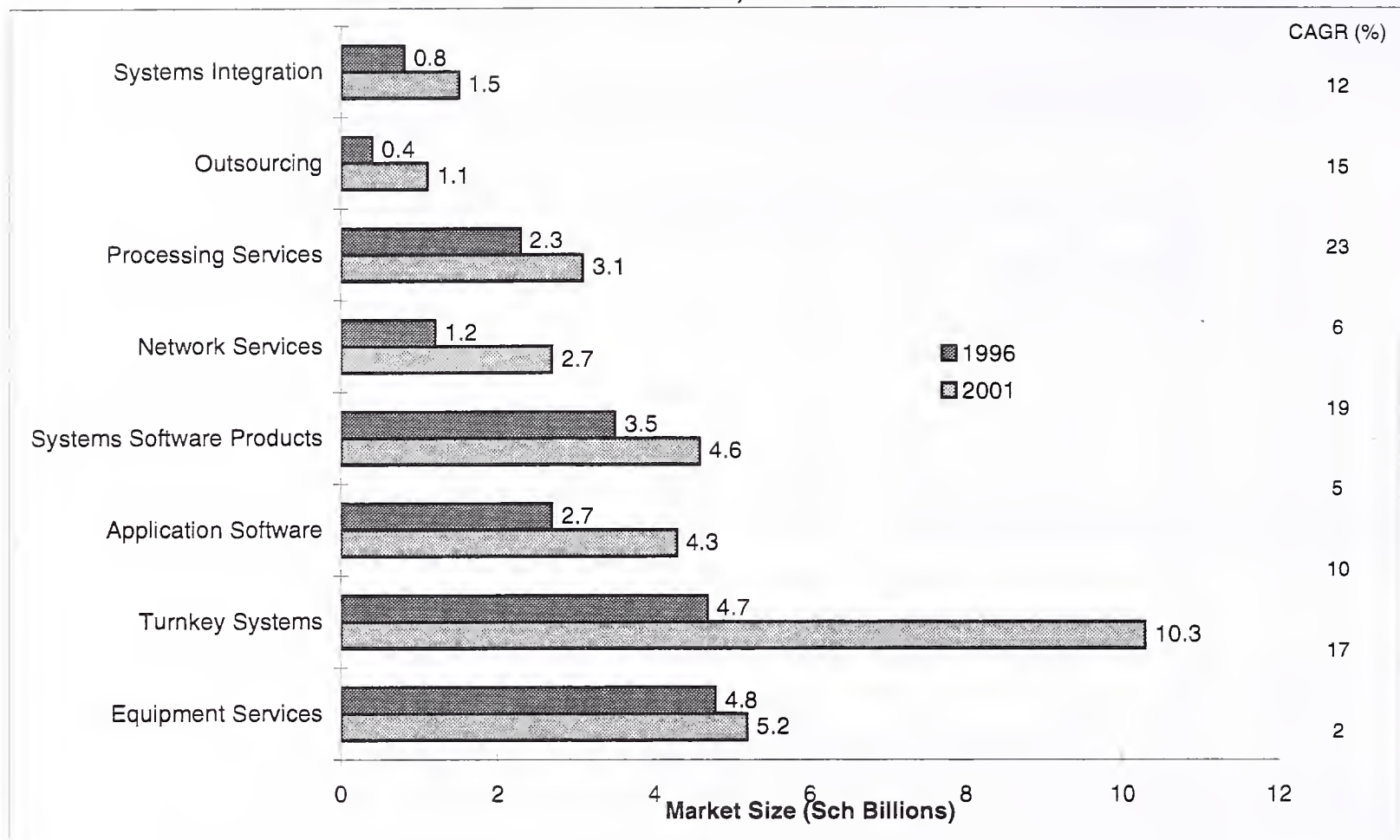
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## Exhibit B-2

## Software and Services Market, Austria 1996-2001



## Exhibit B-3

**Information Services Market**  
**Forecast by Delivery Mode and Submode Austria, 1996-2001**

Delivery Modes	Sch Millions								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b>									
(ex. Equipment Services)	20,500	10	22,500	25,000	28,500	32,000	36,000	39,500	12
<b>Professional Services</b>	6,010	13	6,780	7,630	8,630	9,730	10,990	11,790	12
- IS Consulting	901	17	1,050	1,230	1,440	1,680	1,960	2,180	16
- Education & Training	720	15	830	950	1,090	1,250	1,430	1,560	13
- Custom Software	4,387	12	4,900	5,450	6,100	6,800	7,600	8,050	10
<b>Systems Integration</b>	650	17	760	870	1,010	1,170	1,350	1,510	15
- Equipment	157	8	170	185	200	215	230	240	7
- Application Software	150	23	185	225	275	335	410	480	21
- System Software	59	10	65	71	78	86	94	99	9
- Professional Services	275	16	320	370	430	500	580	645	15
- Other	13	23	16	20	25	31	38	45	23
<b>Outsourcing</b>	320	23	395	500	625	765	935	1,120	23
- Platform Operations	70	14	80	95	110	125	140	160	15
- Application Operations	160	25	200	260	325	390	470	540	22
- Desktop Services	25	20	30	40	52	67	87	110	30
- Application Management	35	29	45	57	75	95	120	150	27
- Network Management	30	33	40	50	65	90	120	160	32
<b>Processing Services</b>	2,200	5	2,320	2,460	2,620	2,810	2,990	3,050	6
- Transaction Processing	1,900	6	2,010	2,120	2,260	2,420	2,570	2,620	5
- Utility Processing	75	4	78	81	84	88	92	92	3
- Other Processing	220	7	235	255	275	300	325	340	8
<b>Network Services</b>	975	17	1,145	1,370	1,640	1,930	2,315	2,740	19
- Electronic Info Svcs	725	16	840	985	1,160	1,340	1,580	1,835	17
- Network Applications	250	22	305	385	480	590	735	905	24
<b>System Software</b>	3,300	6	3,500	3,700	3,950	4,200	4,450	4,550	5
- Mainframe	1,350	0	1,350	1,340	1,340	1,340	1,330	1,260	-1
- Minicomputer	1,120	8	1,210	1,300	1,400	1,510	1,620	1,670	7
- Workstation/PC	830	13	936	1,054	1,188	1,339	1,509	1,630	12
<b>Application Software</b>	2,400	10	2,650	2,950	3,350	3,650	4,050	4,250	10
- Mainframe	195	0	195	200	205	205	205	195	0
- Minicomputer	690	10	760	840	930	1,010	1,100	1,140	8
- Workstation/PC	1,500	13	1,690	1,920	2,195	2,450	2,740	2,930	12
<b>Turnkey Systems</b>	4,550	3	4,700	5,540	6,520	7,700	9,080	10,310	17
- Equipment	2,135	2	2,170	2,510	2,900	3,360	3,880	4,310	15
- Application Software	1,000	11	1,105	1,380	1,720	2,145	2,675	3,210	24
- System Software	275	0	275	310	350	400	450	490	12
- Professional Services	1,135	1	1,150	1,340	1,550	1,790	2,070	2,300	15
<b>Equipment Services</b>	4,700	1	4,750	4,800	4,900	5,000	5,100	5,200	2
- Equipment Maintenance	2,840	-2	2,785	2,700	2,620	2,515	2,415	2,295	-4
- Environmental Services	1,850	7	1,980	2,120	2,290	2,470	2,670	2,880	8
<b>Grand Total</b>	25,100	8	27,000	29,800	33,200	37,000	41,300	44,500	11

## B

## Forecast Database in U.S. Dollars

Exhibit B-4

## Software and Services Market Forecast in Dollars

Delivery Modes	U.S. \$ Million (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
Software and Services Total (ex. Equipment Services)	2,030	10	2,230	2,475	2,820	3,170	3,565	3,910	12
<b>Professional Services</b>	595	13	670	755	855	965	1,090	1,165	12
- IS Consulting	89	17	104	122	143	167	194	216	16
- Education & Training	72	15	82	94	108	124	142	155	13
- Custom Software	435	12	485	540	605	675	750	795	10
<b>Systems Integration</b>	65	17	75	86	100	116	134	150	15
- Equipment	16	8	17	19	20	22	23	24	7
- Application Software	15	23	18	22	27	33	41	48	21
- System Software	6	10	6	7	8	9	9	10	9
- Professional Services	27	16	32	37	43	50	58	64	15
- Other	1	23	2	2	3	3	4	4	23
<b>Outsourcing</b>	32	23	39	50	62	76	93	111	23
- Platform Operations	7	14	8	10	11	13	14	16	15
- Application Operations	16	25	20	26	32	39	47	54	22
- Desktop Services	3	20	3	4	5	7	9	11	30
- Application Management	3	29	4	6	7	9	12	15	27
- Network Management	3	33	4	5	7	9	12	16	32
<b>Processing Services</b>	218	5	230	244	260	278	296	302	6
- Transaction Processing	188	6	199	210	224	240	255	260	5
- Utility Processing	8	4	8	8	9	9	9	9	3
- Other Processing	22	7	24	25	27	30	32	34	8
<b>Network Services</b>	97	17	114	136	163	191	229	272	19
- Electronic Info Svcs	72	16	83	98	115	133	157	182	17
- Network Applications	25	22	30	38	48	59	73	90	24
<b>System Software</b>	325	6	345	365	390	415	440	450	5
- Mainframe	134	0	134	133	133	133	132	125	-1
- Minicomputer	111	8	120	129	139	150	161	166	7
- Workstation/PC	82	13	93	105	118	133	150	162	12
<b>Application Software</b>	240	10	260	290	330	360	400	420	10
- Mainframe	20	0	20	20	21	21	21	20	0
- Minicomputer	69	10	75	83	92	100	109	113	8
- Workstation/PC	150	13	165	190	215	245	270	290	12
<b>Turnkey Systems</b>	451	3	466	549	646	763	899	1,021	17
- Equipment	212	2	215	249	287	333	384	427	15
- Application Software	99	11	110	137	171	213	265	318	24
- System Software	27	0	27	31	35	40	45	49	12
- Professional Services	113	1	114	133	154	177	205	228	15
<b>Equipment Services</b>	465	1	470	475	485	495	505	515	2
- Equipment Maintenance	280	-2	275	265	260	250	240	225	-4
- Environmental Services	185	7	195	210	225	245	265	285	8
Grand Total	2,500	8	2,650	2,950	3,300	3,650	4,100	4,400	11



C

## Forecast Database in ECUs

Exhibit B-5

## Software and Services Market Forecast in ECUs

Delivery Modes	ECU Millions (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
Software and Services Total									
(ex. Equipment Services)	1,655	10	1,815	2,015	2,300	2,580	2,905	3,185	12
<b>Professional Services</b>	485	13	545	615	695	785	885	950	12
- IS Consulting	73	17	85	99	116	136	158	176	16
- Education & Training	58	15	67	77	88	101	116	126	13
- Custom Software	355	12	395	440	490	550	615	650	10
<b>Systems Integration</b>	53	17	62	70	82	95	109	122	15
- Equipment	13	8	14	15	16	18	19	20	7
- Application Software	12	23	15	18	22	27	33	39	21
- System Software	5	10	5	6	6	7	8	8	9
- Professional Services	22	16	26	30	35	41	47	52	15
- Other	1	23	1	2	2	3	3	4	23
<b>Outsourcing</b>	26	23	32	41	51	62	76	91	23
- Platform Operations	6	14	7	8	9	10	12	13	15
- Application Operations	13	25	16	21	26	32	38	44	22
- Desktop Services	2	20	2	3	4	5	7	9	30
- Application Management	3	29	4	5	6	8	10	12	27
- Network Management	3	33	3	4	5	8	10	13	32
<b>Processing Services</b>	177	5	188	198	211	227	241	246	6
- Transaction Processing	153	6	162	171	183	195	208	212	5
- Utility Processing	6	4	7	7	7	7	8	8	3
- Other Processing	18	7	19	21	22	24	26	28	8
<b>Network Services</b>	79	17	93	111	133	156	187	221	19
- Electronic Info Svcs	59	16	68	80	94	108	128	148	17
- Network Applications	20	22	25	31	39	48	60	73	24
<b>System Software</b>	265	6	280	300	320	340	360	365	5
- Mainframe	109	0	109	108	108	108	108	102	-1
- Minicomputer	91	8	98	105	113	122	131	135	7
- Workstation/PC	67	13	76	85	96	108	122	132	12
<b>Application Software</b>	195	10	215	240	270	295	325	345	10
- Mainframe	16	0	16	16	17	17	17	16	0
- Minicomputer	56	10	62	68	75	82	89	92	8
- Workstation/PC	121	13	137	155	177	198	221	237	12
<b>Turnkey Systems</b>	367	3	379	447	526	621	733	832	17
- Equipment	172	2	175	203	234	271	313	348	15
- Application Software	81	11	89	112	139	173	216	259	24
- System Software	22	0	22	25	28	32	36	40	12
- Professional Services	92	1	93	108	125	145	167	186	15
<b>Equipment Services</b>	380	1	385	385	395	405	410	420	2
- Equipment Maintenance	230	-2	225	220	210	205	195	185	-4
- Environmental Services	150	7	160	170	185	200	215	230	8
Grand Total	2,000	8	2,200	2,400	2,700	3,000	3,350	3,600	11

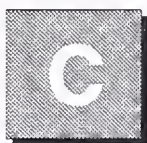
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## Information Services Forecast Reconciliation in Local Currency

Exhibit B-6

## Forecast Reconciliation, Austria, 1995-2000

Delivery Mode	1995 Report (Fcst)	1996 Report (Act)	1995-1996 Variance		1995 Report (Fcst)	1996 Report (Fcst)	1995-1996 Variance		Report %CAGR (Fcst)	Report %CAGR (Fcst)
			(Amount)	(%)			(Amount)	(%)		
Software and Services Total (ex Equipment Services)	18,000	20500	2,500	14	25,500	36,000	10,500	41	7	12
<b>Professional Services</b>	3,817	6008	2,191	176	4,419	10,990	6,571	149	3	13
- IS Consulting	570	901	331	58	840	1,960	1,120	133	8	17
- Education & Training	447	720	273	61	529	1,430	901	170	3	15
- Custom Software	2,800	4387	1,587	57	3,050	7,600	4,550	149	2	12
<b>Systems Integration</b>	630	650	20	3	1,150	1,350	200	17	13	0
- Equipment	155	157	2	1	196	230	34	17	5	16
- Application Software	140	150	10	7	323	410	87	27	18	8
- System Software	50	59	9	18	81	94	13	16	10	22
- Professional Services	267	275	8	3	508	580	72	14	14	10
- Other	15	13	-2	-13	46	38	-8	-17	25	16
<b>Outsourcing</b>	324	320	-4	10	762	937	175	23	20	0
- Platform Operations	52	70	18	35	90	140	50	56	12	24
- Application Operations	145	160	15	10	340	470	130	38	19	15
- Desktop Services	55	25	-30	-55	180	87	-93	-52	27	24
- Application Management	22	35	13	59	57	120	63	111	21	28
- Network Management	50	30	-20	-40	95	120	25	26	14	32
<b>Processing Services</b>	1,940	2200	260	13	2,080	2,990	910	44	1	6
- Transaction Processing	1,690	1900	210	12	1,790	2,570	780	44	1	6
- Utility Processing	66	75	9	14	57	92	35	61	-3	4
- Other Processing	180	220	40	22	230	325	95	41	5	8
<b>Network Services</b>	925	975	50	30	1,755	2,315	560	32	14	19
- Electronic Info Svcs	735	725	-10	-1	1,190	1,580	390	33	10	17
- Network Applications	190	250	60	32	565	735	170	30	24	24
<b>System Software</b>	3,300	3300	0	0	4,350	4,450	100	2	6	6
- Mainframe	1,230	1350	120	10	1,100	1,330	230	21	-2	0
- Minicomputer	1,120	1120	0	0	1,630	1,620	-10	-1	8	8
- Workstation/PC	955	830	-125	-13	1,636	1,509	-127	-8	11	13
<b>Application Software</b>	2,500	2400	-100	-4	4,500	4,050	-450	-10	12	11
- Mainframe	165	195	30	18	155	205	50	32	-1	1
- Minicomputer	700	690	-10	-1	1,070	1,100	30	3	9	10
- Workstation/PC	1,640	1500	-140	-9	3,275	2,740	-535	-16	15	13
<b>Turnkey Systems</b>	4,480	4550	70	2	6,670	9,080	2,410	36	8	15
- Equipment	2,100	2135	35	2	2,810	3,880	1,070	38	6	13
- Application Software	990	1000	10	1	1,910	2,675	765	40	14	22
- System Software	260	275	15	6	345	450	105	30	6	10
- Professional Services	1,130	1135	5	0	1,600	2,070	470	29	7	13
<b>Equipment Services</b>	4,700	4700	0	0	4,850	5,100	250	5	1	2
- Equipment Maintenance	2,832	2840	8	0	2,333	2,415	82	4	-4	-3
- Environmental Services	1,844	1850	6	0	2,515	2,670	155	6	6	8
Grand Total	22,600	25100	2,500	11	30,600	41,300	10,700	35	6	10



# Information Services Industry Forecast Database, 1996-2001 Belgium

A

Forecast Database in Local Currency (BF Millions)

Exhibit C-1

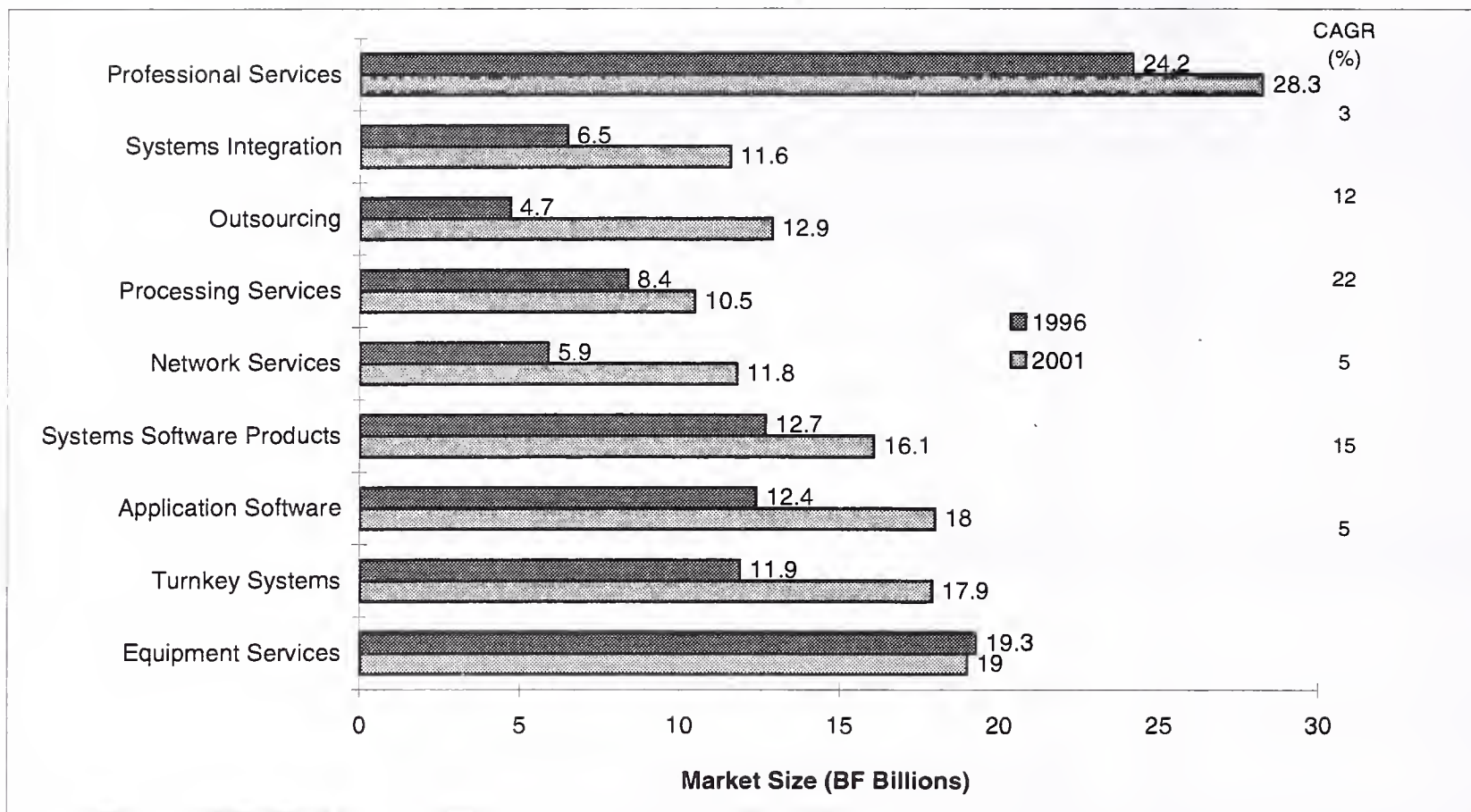
## Top Level IT Expenditure, Belgium

Sector	BF Millions								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	CAGR (%)
Total IT Spending	282,000	4	293,000	308,000	323,000	339,000	354,000	365,000	4
Equipment Sales	53,500	7	57,000	60,900	65,300	69,400	73,300	77,200	6
Mainframe	13,000	-1	12,900	12,800	12,700	12,500	12,200	11,800	-2
Minicomputer	12,500	3	12,900	13,400	13,900	14,200	14,400	14,500	2
PC/Workstation	28,000	11	31,200	34,700	38,700	42,700	46,700	50,900	10
Equipment Services	19,600	-2	19,300	19,000	19,000	19,000	19,000	19,000	0
Software Products	23,200	8	25,100	27,200	29,100	31,000	32,900	34,100	6
Other Information Services	51,500	7	55,200	59,700	65,400	71,100	77,700	84,300	9
Data Communications	24,000	8	26,000	28,500	31,200	33,800	36,600	38,800	8
Facilities/Administration	24,300	0	24,200	24,300	24,400	24,300	24,100	23,400	-1
In-house Staff	86,000	0	86,000	88,000	89,000	90,000	90,000	88,000	0



## Exhibit C-2

## Software Services Market, Belgium, 1996-2001



## Exhibit C-3

**Information Services Market**  
**Forecast by Delivery Mode and Submode, Belgium 1996-2001**

Delivery Modes	BF Millions								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b> (ex. Equipment Services)	80,500	8	86,600	93,800	101,500	110,000	119,400	127,100	8
<b>Professional Services</b>	23,500	3	24,200	25,000	25,900	26,800	27,900	28,300	3
- IS Consulting	4,235	11	4,680	5,170	5,710	6,300	6,960	7,520	10
- Education & Training	1,880	4	1,960	2,050	2,140	2,230	2,330	2,380	4
- Custom Software	17,405	1	17,600	17,800	18,000	18,300	18,600	18,400	1
<b>Systems Integration</b>	5,750	12	6,450	7,300	8,300	9,350	10,550	11,600	12
- Equipment	1,320	6	1,400	1,500	1,600	1,700	1,800	1,850	6
- Application Software	1,260	19	1,500	1,800	2,150	2,550	3,000	3,450	18
- System Software	515	7	550	590	630	680	720	750	6
- Professional Services	2,410	13	2,730	3,100	3,520	3,990	4,480	4,950	13
- Other	230	17	270	320	380	450	530	620	18
<b>Outsourcing</b>	4,000	18	4,720	5,670	6,930	8,630	10,450	12,880	22
- Platform Operations	1,300	15	1,500	1,750	2,000	2,300	2,600	2,850	14
- Application Operations	2,000	15	2,300	2,700	3,200	3,900	4,650	5,700	20
- Desktop Services	200	35	270	350	460	590	740	930	28
- Application Management	200	30	260	360	530	740	960	1,200	36
- Network Management	300	30	390	510	735	1,100	1,500	2,200	41
<b>Processing Services</b>	8,000	4	8,350	8,810	9,330	9,730	10,250	10,490	5
- Transaction Processing	7,100	4	7,400	7,800	8,250	8,600	9,050	9,250	5
- Utility Processing	200	2	205	210	215	215	220	220	1
- Other Processing	700	6	745	800	860	915	980	1,020	6
<b>Network Services</b>	5,200	13	5,900	6,900	7,900	9,100	10,600	11,800	15
- Electronic Info Svcs	3,400	10	3,750	4,200	4,700	5,200	5,850	6,250	11
- Network Applications	1,800	19	2,150	2,650	3,200	3,850	4,700	5,500	21
<b>System Software</b>	12,000	6	12,700	13,500	14,200	14,900	15,700	16,100	5
- Mainframe	5,200	2	5,300	5,450	5,550	5,650	5,700	5,650	1
- Minicomputer	4,200	7	4,500	4,850	5,150	5,500	5,850	6,100	6
- Workstation/PC	2,600	12	2,900	3,200	3,450	3,700	4,100	4,300	8
<b>Application Software</b>	11,200	11	12,400	13,700	14,900	16,100	17,200	18,000	8
- Mainframe	900	0	900	900	900	900	900	850	-1
- Minicomputer	3,200	9	3,500	3,850	4,200	4,600	5,050	5,400	9
- Workstation/PC	7,100	12	7,950	8,905	9,795	10,580	11,215	11,775	8
<b>Turnkey Systems</b>	10,880	9	11,870	12,900	14,070	15,340	16,790	17,920	9
- Equipment	5,005	6	5,300	5,600	5,900	6,200	6,600	6,800	5
- Application Software	2,500	14	2,850	3,200	3,650	4,150	4,700	5,200	13
- System Software	435	9	475	520	570	625	680	730	9
- Professional Services	2,935	10	3,240	3,580	3,950	4,360	4,810	5,190	10
<b>Equipment Services</b>	19,600	-2	19,300	19,000	19,000	19,000	19,000	19,000	0
- Equipment Maintenance	12,600	-5	11,970	11,250	10,800	10,370	9,850	9,360	-5
- Environmental Services	7,000	5	7,350	7,720	8,180	8,670	9,190	9,650	6
<b>Grand Total</b>	100,000	6	106,000	113,000	121,000	129,000	138,000	146,000	7

## B

## Forecast Database in U.S. Dollars

Exhibit C-4

Software and Services Market Forecast in Dollars  
Belgium, 1996-2001

Delivery Modes	U.S. \$ Million (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b> (ex. Equipment Services)	2,755	7	2,960	3,195	3,470	3,740	4,050	4,320	8
<b>Professional Services</b>	800	3	825	850	880	910	950	965	3
- IS Consulting	144	11	159	176	194	215	237	256	10
- Education & Training	64	4	67	70	73	76	80	81	4
- Custom Software	590	1	600	605	610	620	635	625	1
<b>Systems Integration</b>	196	12	220	249	283	318	359	395	12
- Equipment	45	6	48	51	55	58	61	63	6
- Application Software	43	19	51	61	73	87	102	117	18
- System Software	18	7	19	20	21	23	25	26	6
- Professional Services	82	13	93	106	120	136	153	169	13
- Other	8	17	9	11	13	15	18	21	18
<b>Outsourcing</b>	136	18	161	193	236	294	356	438	22
- Platform Operations	44	15	51	60	68	78	89	97	14
- Application Operations	68	15	78	92	109	133	158	194	20
- Desktop Services	7	35	9	12	16	20	25	32	28
- Application Management	7	30	9	12	18	25	33	41	36
- Network Management	10	30	14	18	25	38	51	75	41
<b>Processing Services</b>	272	4	284	300	318	331	349	357	5
- Transaction Processing	242	4	252	266	281	293	308	315	5
- Utility Processing	7	2	7	7	8	8	8	8	1
- Other Processing	24	6	26	27	30	31	34	35	6
<b>Network Services</b>	177	13	201	235	269	310	361	402	15
- Electronic Info Svcs	116	10	128	143	160	177	199	213	11
- Network Applications	61	19	73	90	109	131	160	187	21
<b>System Software</b>	410	6	430	460	485	505	535	550	5
- Mainframe	177	2	181	186	189	192	194	192	1
- Minicomputer	143	7	153	165	175	187	199	208	6
- Workstation/PC	89	12	99	109	118	126	140	147	8
<b>Application Software</b>	380	11	420	465	505	550	585	610	8
- Mainframe	31	0	31	31	31	31	31	29	-1
- Minicomputer	109	9	119	131	143	157	172	184	9
- Workstation/PC	240	12	270	305	335	360	380	400	8
<b>Turnkey Systems</b>	370	9	404	439	479	522	571	610	9
- Equipment	170	6	181	191	201	211	225	232	5
- Application Software	85	14	97	109	124	141	160	177	13
- System Software	15	9	16	18	19	21	23	25	9
- Professional Services	100	10	110	122	135	149	164	177	10
<b>Equipment Services</b>	665	-2	655	645	645	645	645	645	0
- Equipment Maintenance	430	-5	405	385	365	355	335	320	-5
- Environmental Services	240	5	250	265	280	295	315	330	6
<b>Grand Total</b>	3,400	6	3,600	3,850	4,100	4,400	4,700	4,950	7



C

## Forecast Database in ECUs

Exhibit C-5

Software and Services Market Forecast in ECUs  
Belgium, 1996-2001

Delivery Modes	ECU Millions (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
Software and Services Total (ex. Equipment Services)	2,150	7	2,310	2,495	2,705	2,920	3,155	3,370	8
<b>Professional Services</b>	625	3	640	665	685	710	740	750	3
- IS Consulting	113	11	124	137	152	167	185	200	10
- Education & Training	50	4	52	55	57	59	62	63	4
- Custom Software	460	1	465	470	475	485	495	490	1
<b>Systems Integration</b>	153	12	171	194	220	248	280	308	12
- Equipment	35	6	37	40	43	45	48	49	6
- Application Software	33	19	40	48	57	68	80	92	18
- System Software	14	7	15	16	17	18	19	20	6
- Professional Services	64	13	73	82	94	106	119	132	13
- Other	6	17	7	9	10	12	14	16	18
<b>Outsourcing</b>	106	18	125	151	184	229	277	342	22
- Platform Operations	35	15	40	47	53	61	69	76	14
- Application Operations	53	15	61	72	85	104	124	151	20
- Desktop Services	5	35	7	9	12	16	20	25	28
- Application Management	6	30	7	10	14	20	26	32	36
- Network Management	8	30	11	14	20	29	40	59	41
<b>Processing Services</b>	212	4	222	234	248	258	272	278	5
- Transaction Processing	189	4	197	207	219	228	240	246	5
- Utility Processing	6	2	6	6	6	6	6	6	1
- Other Processing	19	6	20	21	23	25	26	27	6
<b>Network Services</b>	138	13	157	183	210	242	281	313	15
- Electronic Info Svcs	90	10	100	112	125	138	155	166	11
- Network Applications	48	19	57	71	85	102	125	146	21
<b>System Software</b>	320	6	335	360	375	395	415	425	5
- Mainframe	138	2	141	145	147	150	151	150	1
- Minicomputer	112	7	120	129	137	146	155	162	6
- Workstation/PC	69	12	77	85	92	98	109	114	8
<b>Application Software</b>	295	11	330	365	395	425	455	475	8
- Mainframe	24	0	24	24	24	24	24	23	-1
- Minicomputer	85	9	93	102	112	122	134	143	9
- Workstation/PC	189	12	211	236	260	281	298	313	8
<b>Turnkey Systems</b>	289	9	315	342	373	407	446	476	9
- Equipment	133	6	141	149	157	165	175	181	5
- Application Software	67	14	76	85	97	110	125	138	13
- System Software	12	9	13	14	15	17	18	19	9
- Professional Services	78	10	86	95	105	116	128	138	10
<b>Equipment Services</b>	520	-2	510	505	505	505	505	505	0
- Equipment Maintenance	335	-5	320	300	285	275	260	250	-5
- Environmental Services	185	5	195	205	215	230	245	255	6
<b>Grand Total</b>	2,650	6	2,800	3,000	3,200	3,400	3,650	3,850	7

D

**Information Services Forecast Reconciliation in Local Currency**

Exhibit C-6

**Forecast Reconciliation, Belgium, 1995-2000**

Currency: BF Millions	1995 Market				2000 Market				1995	1996
Delivery Mode	1995 Report (Fcst)	1996 Report (Act)	1995-1996 Variance		1995 Report (Fcst)	1996 Report (Fcst)	1995-1996 Variance		Report %CAGR (Fcst)	Report %CAGR (Fcst)
			(Amount)	(%)			(Amount)	(%)		
<b>Software and Services Total</b> (ex Equipment Services)	95,000	80500	-14,500	-15	135,000	119,400	-15,600	-12	7	8
<b>Professional Services</b>	29,908	23520	-6,388	-67	34,637	27,890	-6,747	-19	3	3
- IS Consulting	5,440	4235	-1,205	-22	8,720	6,960	-1,760	-20	10	10
- Education & Training	2,468	1880	-588	-24	2,917	2,330	-587	-20	3	4
- Custom Software	22,000	17405	-4,595	-21	23,000	18,600	-4,400	-19	1	1
<b>Systems Integration</b>	0	5750	5,750	0	0	10,550	10,550	0	0	0
- Equipment	4,700	1320	-3,380	-72	8,950	1,800	-7,150	-80	14	13
- Application Software	1,081	1260	179	17	1,517	3,000	1,483	98	7	6
- System Software	1,034	515	-519	-50	2,499	720	-1,779	-71	19	19
- Professional Services	423	2410	1,987	470	625	4,480	3,855	617	8	7
- Other	1,974	230	-1,744	-88	3,927	530	-3,397	-87	15	13
<b>Outsourcing</b>	7,420	4000	-3,420	-105	16,860	10,450	-6,410	-38	0	0
- Platform Operations	3,710	1300	-2,410	-65	8,430	2,600	-5,830	-69	18	21
- Application Operations	1,150	2000	850	74	2,050	4,650	2,600	127	12	15
- Desktop Services	2,300	200	-2,100	-91	5,500	740	-4,760	-87	19	18
- Application Management	260	200	-60	-23	880	960	80	9	28	30
- Network Management	0	300	300	0	0	1,500	1,500	0	0	38
<b>Processing Services</b>	6,550	8000	1,450	22	6,200	10,250	4,050	65	-1	5
- Transaction Processing	195	7100	6,905	3,541	175	9,050	8,875	5,071	-2	5
- Utility Processing	720	200	-520	-72	960	220	-740	-77	6	2
- Other Processing	0	700	700	0	0	980	980	0	0	7
<b>Network Services</b>	2,515	5200	2,685	1,036	5,960	10,550	4,590	77	9	15
- Electronic Info Svcs	2,350	3400	1,050	45	5,600	5,850	250	4	19	11
- Network Applications	165	1800	1,635	991	360	4,700	4,340	1,206	17	21
<b>System Software</b>	15,100	12000	-3,100	-21	18,800	15,700	-3,100	-16	4	6
- Mainframe	6,350	5200	-1,150	-18	6,000	5,700	-300	-5	-1	2
- Minicomputer	5,000	4200	-800	-16	6,650	5,850	-800	-12	6	7
- Workstation/PC	3,750	2600	-1,150	-31	6,100	4,100	-2,000	-33	10	10
<b>Application Software</b>	16,800	11200	-5,600	-33	29,700	17,200	-12,500	-42	12	9
- Mainframe	1,050	900	-150	-14	1,000	900	-100	-10	-1	0
- Minicomputer	4,700	3200	-1,500	-32	7,550	5,050	-2,500	-33	10	10
- Workstation/PC	11,075	7100	-3,975	-36	21,145	11,215	-9,930	-47	14	10
<b>Turnkey Systems</b>	11,460	10880	-580	-5	15,590	16,790	1,200	8	6	9
- Equipment	5,200	5005	-195	-4	5,700	6,600	900	16	2	6
- Application Software	2,650	2500	-150	-6	4,450	4,700	250	6	11	13
- System Software	500	435	-65	-13	615	680	65	11	4	9
- Professional Services	3,110	2935	-175	-6	4,820	4,810	-10	0	9	10
<b>Equipment Services</b>	19,800	19600	-200	-1	18,900	19,000	100	1	-1	-1
- Equipment Maintenance	12,672	12600	-72	-1	10,118	9,850	-268	-3	-4	-5
- Environmental Services	7,088	7000	-88	-1	8,790	9,190	400	5	4	6
<b>Grand Total</b>	<b>115,000</b>	<b>100000</b>	<b>-15,000</b>	<b>-13</b>	<b>154,000</b>	<b>138,000</b>	<b>-16,000</b>	<b>-10</b>	<b>6</b>	<b>7</b>



# Information Services Industry Forecast Database, 1996-2001 Denmark

A

Forecast Database in Local Currency (DK Millions)

Exhibit D-1

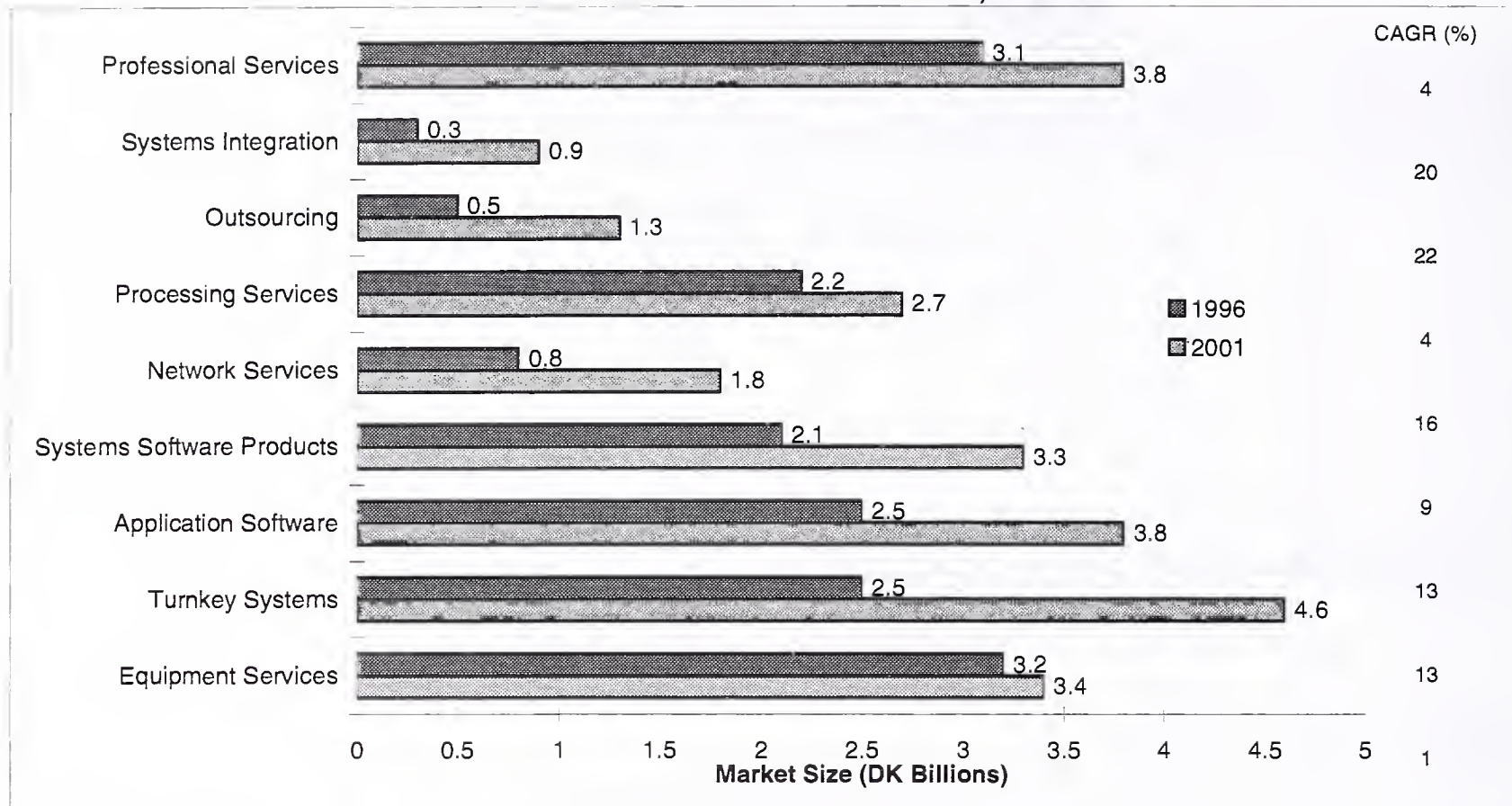
## Top Level IT Expenditure, Denmark

Sector	DK Millions								CAGR (%)
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	
Total IT Spending	39,000	5	41,000	43,500	46,500	49,500	52,000	54,500	6
<b>Equipment Sales</b>	8,100	7	8,700	9,400	10,200	10,800	11,200	11,800	6
Mainframe	1,300	0	1,300	1,300	1,300	1,200	1,100	1,100	-3
Minicomputer	1,800	6	1,900	2,000	2,100	2,200	2,200	2,200	3
PC/Workstation	5,000	10	5,500	6,100	6,800	7,400	7,900	8,500	9
<b>Equipment Services</b>	3,100	2	3,170	3,220	3,270	3,300	3,330	3,350	1
<b>Software Products</b>	3,700	12	4,150	4,650	5,250	5,850	6,450	7,100	11
<b>Other Information Services</b>	7,400	11	8,200	9,100	10,000	11,000	12,000	13,100	10
<b>Data Communications</b>	3,000	8	3,250	3,550	3,850	4,150	4,500	4,800	8
<b>Facilities/Administration</b>	3,200	0	3,200	3,300	3,300	3,300	3,300	3,300	1
<b>In-house Staff</b>	10,500	0	10,500	10,500	10,500	11,000	11,000	11,000	1



Exhibit D-2

## Software and Services Market — Denmark, 1996-2001



## Exhibit D-3

**Information Services Market**  
**Forecast by Delivery Mode and Submode Denmark, 1996-2001**

Delivery Modes	DK Millions								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b> (ex. Equipment Services)	12,100	12	13,500	15,000	16,700	18,400	20,200	22,100	10
<b>Professional Services</b>	2,800	9	3,050	3,200	3,400	3,500	3,650	3,750	4
- IS Consulting	540	13	610	680	750	810	880	950	9
- Education & Training	250	8	270	280	290	300	310	310	3
- Custom Software	2,000	8	2,150	2,250	2,350	2,400	2,450	2,500	3
<b>Systems Integration</b>	305	13	345	415	505	615	735	875	20
- Equipment	67	12	75	85	100	115	130	145	14
- Application Software	52	25	65	85	115	155	205	270	33
- System Software	24	4	25	30	35	40	45	50	15
- Professional Services	140	14	160	190	230	275	325	380	19
- Other	21	5	22	24	26	28	30	31	7
<b>Outsourcing</b>	400	20	480	610	770	920	1,090	1,290	22
- Platform Operations	100	15	115	140	165	180	200	220	14
- Application Operations	185	16	215	270	340	390	450	510	19
- Desktop Services	30	33	40	57	77	100	120	140	28
- Application Management	45	22	55	75	100	130	160	200	29
- Network Management	40	30	52	68	88	120	160	220	33
<b>Processing Services</b>	2,100	6	2,220	2,330	2,470	2,560	2,660	2,730	4
- Transaction Processing	1,850	6	1,960	2,050	2,170	2,250	2,330	2,390	4
- Utility Processing	53	2	54	55	57	58	58	57	1
- Other Processing	195	8	210	225	240	255	270	280	6
<b>Network Services</b>	700	17	820	960	1,130	1,320	1,520	1,750	16
- Electronic Info Svcs	400	10	440	490	540	590	630	670	9
- Network Applications	300	27	380	470	590	730	890	1,080	23
<b>System Software</b>	1,900	11	2,100	2,300	2,550	2,800	3,050	3,300	9
- Mainframe	680	7	730	780	830	870	900	930	5
- Minicomputer	650	11	720	810	910	1,000	1,100	1,210	11
- Workstation/PC	570	14	650	730	820	920	1,030	1,155	12
<b>Application Software</b>	1,800	14	2,050	2,350	2,700	3,050	3,400	3,800	13
- Mainframe	90	4	94	99	104	108	110	112	4
- Minicomputer	500	12	560	625	695	765	835	910	10
- Workstation/PC	1,200	17	1,400	1,640	1,900	2,170	2,450	2,770	15
<b>Turnkey Systems</b>	2,100	16	2,440	2,790	3,200	3,650	4,110	4,590	13
- Equipment	947	13	1,070	1,195	1,335	1,480	1,620	1,760	10
- Application Software	421	19	500	590	695	810	940	1,075	17
- System Software	126	16	146	168	193	220	247	275	14
- Professional Services	610	18	720	840	980	1,140	1,300	1,480	16
<b>Equipment Services</b>	3,100	2	3,170	3,220	3,270	3,300	3,330	3,350	1
- Equipment Maintenance	1,700	-2	1,665	1,600	1,535	1,460	1,385	1,305	-5
- Environmental Services	1,400	7	1,500	1,620	1,730	1,835	1,945	2,040	6
<b>Grand Total</b>	15,000	13	17,000	18,000	20,000	22,000	24,000	25,000	8

## B

## Forecast Database in U.S. Dollars

Exhibit D-4

## Software and Services Market Forecast in Dollars Denmark, 1996-2001

Delivery Modes	U.S. \$ Million (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
Software and Services Total									
(ex. Equipment Services)	2,185	12	2,435	2,710	3,015	3,320	3,645	3,990	10
<b>Professional Services</b>	505	9	550	580	615	630	660	675	4
- IS Consulting	98	13	110	123	136	146	159	172	9
- Education & Training	45	8	49	51	53	54	56	56	3
- Custom Software	360	8	390	405	425	435	440	450	3
<b>Systems Integration</b>	55	13	63	75	91	111	133	158	20
- Equipment	12	12	14	16	18	21	24	26	14
- Application Software	9	25	12	15	21	28	37	49	33
- System Software	4	4	5	5	6	7	8	9	15
- Professional Services	26	14	29	35	42	50	59	69	19
- Other	4	5	4	4	5	5	5	6	7
<b>Outsourcing</b>	72	20	87	110	139	166	197	233	22
- Platform Operations	18	15	21	26	30	33	36	40	14
- Application Operations	34	16	39	49	62	71	81	92	19
- Desktop Services	5	33	7	10	14	18	22	25	28
- Application Management	8	22	10	14	18	23	29	36	29
- Network Management	7	30	10	13	16	22	29	40	33
<b>Processing Services</b>	379	6	401	421	446	462	480	493	4
- Transaction Processing	334	6	354	370	392	406	421	432	4
- Utility Processing	10	2	10	10	11	11	11	11	1
- Other Processing	35	8	38	41	44	46	49	51	6
<b>Network Services</b>	127	17	148	174	204	239	275	316	16
- Electronic Info Svcs	72	10	80	89	98	107	114	121	9
- Network Applications	54	27	69	85	107	132	161	195	23
<b>System Software</b>	345	11	380	415	460	505	550	595	9
- Mainframe	123	7	132	141	150	157	163	168	5
- Minicomputer	118	11	130	146	165	181	199	219	11
- Workstation/PC	103	14	118	132	148	166	186	209	12
<b>Application Software</b>	325	14	370	425	485	550	615	685	13
- Mainframe	16	4	17	18	19	20	20	20	4
- Minicomputer	91	12	101	113	126	138	151	165	10
- Workstation/PC	215	17	255	295	345	390	440	500	15
<b>Turnkey Systems</b>	379	16	441	504	578	659	742	829	13
- Equipment	171	13	193	216	241	267	293	318	10
- Application Software	76	19	91	107	126	146	170	194	17
- System Software	23	16	26	30	35	40	45	50	14
- Professional Services	110	18	130	152	177	206	235	267	16
<b>Equipment Services</b>	560	2	570	580	590	595	600	605	1
- Equipment Maintenance	305	-2	300	290	275	265	250	235	-5
- Environmental Services	255	7	270	290	310	330	350	370	6
<b>Grand Total</b>	<b>2,700</b>	<b>13</b>	<b>3,050</b>	<b>3,250</b>	<b>3,600</b>	<b>3,950</b>	<b>4,350</b>	<b>4,500</b>	<b>8</b>



## Exhibit D-5

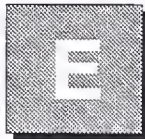
## Software and Services Market Forecast in ECUs Denmark, 1996-2001

Delivery Modes	ECU Millions (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b>									
(ex. Equipment Services)	1,705	12	1,900	2,115	2,350	2,590	2,845	3,115	10
<b>Professional Services</b>	395	9	430	450	480	495	515	530	4
- IS Consulting	76	13	86	96	106	114	124	134	9
- Education & Training	35	8	38	40	41	43	44	44	3
- Custom Software	280	8	305	315	330	340	345	350	3
<b>Systems Integration</b>	43	13	49	59	71	87	104	123	20
- Equipment	10	12	11	12	14	16	19	21	14
- Application Software	7	25	9	12	16	22	29	38	33
- System Software	3	4	4	4	5	6	6	7	15
- Professional Services	20	14	23	27	33	39	46	54	19
- Other	3	5	3	3	4	4	4	4	7
<b>Outsourcing</b>	57	20	68	86	109	130	154	182	22
- Platform Operations	14	15	16	20	23	26	28	31	14
- Application Operations	26	16	31	38	48	55	64	72	19
- Desktop Services	4	33	6	8	11	14	17	20	28
- Application Management	7	22	8	11	14	19	23	28	29
- Network Management	6	30	8	10	13	17	23	31	33
<b>Processing Services</b>	296	6	313	328	348	361	375	384	4
- Transaction Processing	261	6	276	289	306	317	328	337	4
- Utility Processing	8	2	8	8	8	8	8	8	1
- Other Processing	28	8	30	32	34	36	38	40	6
<b>Network Services</b>	99	17	116	135	159	186	214	247	16
- Electronic Info Svcs	57	10	62	69	76	83	89	95	9
- Network Applications	43	27	54	66	83	103	126	152	23
<b>System Software</b>	270	11	295	325	360	395	430	465	9
- Mainframe	96	7	103	110	117	123	127	131	5
- Minicomputer	92	11	102	114	128	141	155	171	11
- Workstation/PC	81	14	92	103	116	130	145	163	12
<b>Application Software</b>	255	14	290	330	380	430	480	535	13
- Mainframe	13	4	13	14	15	15	16	16	4
- Minicomputer	71	12	79	88	98	108	118	128	10
- Workstation/PC	169	17	197	231	268	306	345	390	15
<b>Turnkey Systems</b>	296	16	344	393	451	514	579	647	13
- Equipment	134	13	151	169	188	209	228	248	10
- Application Software	60	19	71	83	98	114	133	152	17
- System Software	18	16	21	24	27	31	35	39	14
- Professional Services	86	18	102	119	138	161	183	209	16
<b>Equipment Services</b>	435	2	445	455	460	465	470	470	1
- Equipment Maintenance	240	-2	235	225	215	205	195	185	-5
- Environmental Services	195	7	210	230	245	260	275	285	6
<b>Grand Total</b>	2,100	13	2,400	2,550	2,800	3,100	3,400	3,500	8

## Exhibit D-6

## Forecast Reconciliation, Denmark, 1995-2000

Currency: DK Millions	1995 Market				2000 Market				1995
Delivery Mode	1995 Report (Fcst)	1996 Report (Act)	1995-1996 Variance		1995 Report (Fcst)	1996 Report (Fcst)	1995-1996 Variance		Report %CAGR (Fcst)
			(Amount)	(%)			(Amount)	(%)	
Software and Services Total									
(ex Equipment Services)	13,600	12100	-1,500	-11	18,500	20,200	1,700	9	6
<b>Professional Services</b>	3,214	2790	-424	-39	4,439	3,640	-799	-18	7
- IS Consulting	630	540	-90	-14	1,070	880	-190	-18	11
- Education & Training	284	250	-34	-12	369	310	-59	-16	5
- Custom Software	2,300	2000	-300	-13	3,000	2,450	-550	-18	5
<b>Systems Integration</b>	330	305	-25	-8	610	735	125	20	13
- Equipment	73	67	-6	-8	103	130	27	26	7
- Application Software	56	52	-4	-7	170	205	35	21	25
- System Software	26	24	-2	-8	43	45	2	5	11
- Professional Services	152	140	-12	-8	268	325	57	21	12
- Other	23	21	-2	-9	24	30	6	25	1
<b>Outsourcing</b>	320	400	80	144	730	1,090	360	49	18
- Platform Operations	70	100	30	43	125	200	75	60	12
- Application Operations	125	185	60	48	265	450	185	70	16
- Desktop Services	70	30	-40	-57	220	120	-100	-45	26
- Application Management	30	45	15	50	70	160	90	129	18
- Network Management	25	40	15	60	50	160	110	220	15
<b>Processing Services</b>	2,940	2100	-840	-29	2,690	2,660	-30	-1	-2
- Transaction Processing	2,670	1850	-820	-31	2,400	2,330	-70	-3	-2
- Utility Processing	52	53	1	2	44	58	14	32	-3
- Other Processing	215	195	-20	-9	245	270	25	10	3
<b>Network Services</b>	730	700	-30	-8	1,380	1,520	140	10	13
- Electronic Info Svcs	420	400	-20	-5	630	630	0	0	8
- Network Applications	310	300	-10	-3	750	890	140	19	19
<b>System Software</b>	1,950	1900	-50	-3	2,500	3,050	550	22	5
- Mainframe	690	680	-10	-1	640	900	260	41	-1
- Minicomputer	680	650	-30	-4	890	1,100	210	24	6
- Workstation/PC	580	570	-10	-2	985	1,030	45	5	11
<b>Application Software</b>	1,750	1800	50	3	3,100	3,400	300	10	12
- Mainframe	83	90	7	8	73	110	37	51	-3
- Minicomputer	495	500	5	1	710	835	125	18	7
- Workstation/PC	1,170	1200	30	3	2,300	2,450	150	7	14
<b>Turnkey Systems</b>	2,310	2100	-210	-9	3,030	4,110	1,080	36	6
- Equipment	1,030	947	-83	-8	1,105	1,620	515	47	1
- Application Software	460	421	-39	-8	690	940	250	36	8
- System Software	143	126	-17	-12	178	247	69	39	4
- Professional Services	680	610	-70	-10	1,060	1,300	240	23	9
<b>Equipment Services</b>	3,120	3100	-20	-1	3,260	3,330	70	2	1
- Equipment Maintenance	1,712	1700	-12	-1	1,339	1,385	46	3	-5
- Environmental Services	1,409	1400	-9	-1	1,922	1,945	23	1	6
Grand Total	17,000	15000	-2,000	-12	22,000	24,000	2,000	9	5



# Information Services Industry Forecast Database, 1996-2001 Central and Eastern Europe

A

Forecast Database in Local Currency (US\$ Millions)

Exhibit E-1

## Top Level IT Expenditure, Central and Eastern Europe

Sector	US\$ Millions								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	CAGR (%)
Total IT Spending	9,350	11	10,400	11,650	13,100	14,800	16,650	18,900	13
Equipment Sales	2,900	17	3,401	3,992	4,692	5,522	6,395	7,543	17
Mainframe	300	25	375	469	586	733	902	1,128	25
Minicomputer	530	10	583	641	705	776	838	922	10
PC/Workstation	2,070	18	2,443	2,882	3,401	4,013	4,655	5,493	18
Equipment Services	280	11	310	355	405	460	525	605	14
Software Products	250	19	298	372	433	495	585	677	18
Other Information Services	670	18	790	920	1,070	1,240	1,430	1,650	16
Data Communications	750	14	855	985	1,135	1,315	1,525	1,770	16
Facilities/Administration	1,500	2	1,530	1,575	1,620	1,685	1,755	1,825	4
In-house Staff	3,000	7	3,210	3,470	3,750	4,080	4,450	4,850	9



## Exhibit E-2

## Software and Services Market, Central and Eastern Europe, 1996-2001

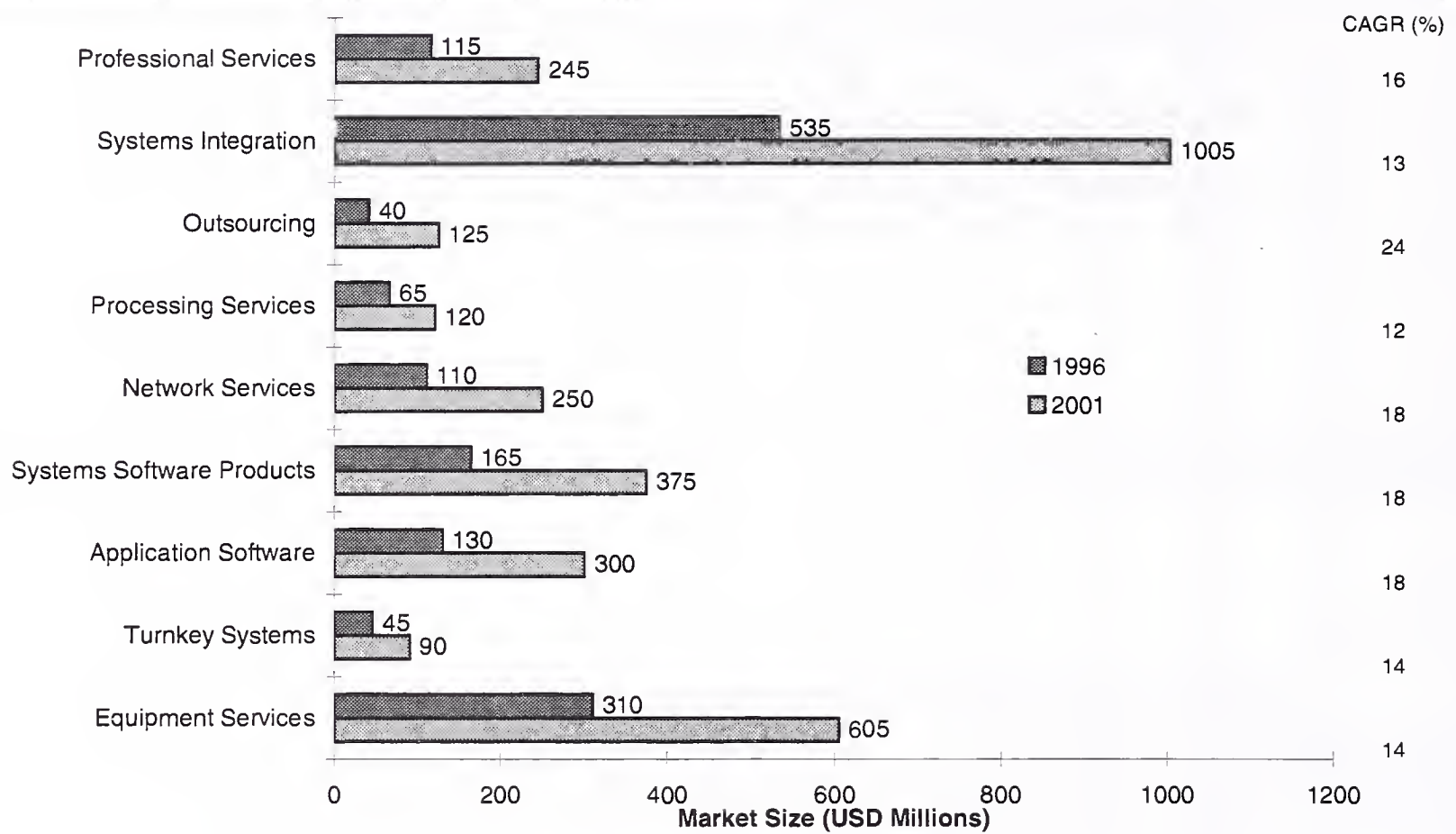


Exhibit E-3

**Information Services Market**  
**Forecast by Delivery Mode and Submode**  
**Central & Eastern Europe, 1996-2001**

Delivery Modes	US\$ Millions								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b> (ex. Equipment Services)	1,045	16	1,215	1,440	1,660	1,895	2,185	2,510	16
<b>Professional Services</b>	100	17	117	135	156	182	211	246	16
- IS Consulting	2	50	3	4	5	7	9	12	32
- Education & Training	58	17	68	79	92	108	126	147	17
- Custom Software	40	15	46	52	59	67	76	87	14
<b>Systems Integration</b>	470	14	535	615	700	790	890	1,005	13
- Equipment	103	7	110	120	125	130	135	140	5
- Application Software	75	20	90	110	130	155	185	220	20
- System Software	33	6	35	40	45	50	55	60	11
- Professional Services	221	18	260	305	355	410	470	540	16
- Other	38	5	40	42	44	45	46	47	3
<b>Outsourcing</b>	30	40	42	54	69	84	103	125	24
- Platform Operations	7	43	10	12	15	20	25	30	25
- Application Operations	14	43	20	25	32	37	42	50	20
- Desktop Services	3	33	4	6	8	10	13	17	34
- Application Management	3	133	4	5	6	8	11	13	0
- Network Management	3	33	4	6	8	9	12	15	30
<b>Processing Services</b>	60	12	67	76	84	93	105	120	12
- Transaction Processing	30	17	35	40	46	52	61	71	15
- Utility Processing	18	6	19	21	22	24	25	28	8
- Other Processing	12	8	13	15	16	17	19	21	10
<b>Network Services</b>	95	17	111	132	154	180	214	251	18
- Electronic Info Svcs	60	15	69	81	93	107	125	143	16
- Network Applications	35	20	42	51	61	73	90	108	21
<b>System Software</b>	140	19	166	201	234	273	323	378	18
- Mainframe	50	8	54	58	64	70	77	85	9
- Minicomputer	40	13	45	51	59	68	78	90	15
- Workstation/PC	50	34	67	92	111	135	168	203	25
<b>Application Software</b>	110	20	132	171	199	222	262	299	18
- Mainframe	15	7	16	16	16	16	17	17	1
- Minicomputer	35	17	41	48	55	63	73	84	15
- Workstation/PC	60	25	75	107	128	143	172	198	21
<b>Turnkey Systems</b>	40	15	46	54	62	71	79	88	14
- Equipment	19	16	22	26	30	35	39	44	15
- Application Software	7	14	8	9	10	11	12	13	10
- System Software	1	0	1	2	2	2	3	3	25
- Professional Services	13	15	15	17	20	23	25	28	13
<b>Equipment Services</b>	280	11	310	355	405	460	525	605	14
- Equipment Maintenance	220	9	240	270	300	330	360	390	10
- Environmental Services	60	17	70	85	105	130	165	215	25
<b>Grand Total</b>	1,330	15	1,530	1,800	2,070	2,360	2,710	3,120	15

## B

## Forecast Database in U.S. Dollars

Exhibit E-4

Software and Services Market Forecast in Dollars  
Central & Eastern Europe, 1996-2001

Delivery Modes	U.S. \$ Million (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
Software and Services Total (ex. Equipment Services)	1,045	16	1,215	1,440	1,660	1,895	2,185	2,510	16
<b>Professional Services</b>	100	17	117	135	156	182	211	246	16
- IS Consulting	2	50	3	4	5	7	9	12	32
- Education & Training	58	17	68	79	92	108	126	147	17
- Custom Software	40	15	46	52	59	67	76	87	14
<b>Systems Integration</b>	470	14	535	615	700	790	890	1,005	13
- Equipment	103	7	110	120	125	130	135	140	5
- Application Software	75	20	90	110	130	155	185	220	20
- System Software	33	6	35	40	45	50	55	60	11
- Professional Services	221	18	260	305	355	410	470	540	16
- Other	38	5	40	42	44	45	46	47	3
<b>Outsourcing</b>	30	40	42	54	69	84	103	125	24
- Platform Operations	7	43	10	12	15	20	25	30	25
- Application Operations	14	43	20	25	32	37	42	50	20
- Desktop Services	3	33	4	6	8	10	13	17	34
- Application Management	3	133	4	5	6	8	11	13	0
- Network Management	3	33	4	6	8	9	12	15	30
<b>Processing Services</b>	60	12	67	76	84	93	105	120	12
- Transaction Processing	30	17	35	40	46	52	61	71	15
- Utility Processing	18	6	19	21	22	24	25	28	8
- Other Processing	12	8	13	15	16	17	19	21	10
<b>Network Services</b>	95	17	111	132	154	180	214	251	18
- Electronic Info Svcs	60	15	69	81	93	107	125	143	16
- Network Applications	35	20	42	51	61	73	90	108	21
<b>System Software</b>	140	19	166	201	234	273	323	378	18
- Mainframe	50	8	54	58	64	70	77	85	9
- Minicomputer	40	13	45	51	59	68	78	90	15
- Workstation/PC	50	34	67	92	111	135	168	203	25
<b>Application Software</b>	110	20	132	171	199	222	262	299	18
- Mainframe	15	7	16	16	16	16	17	17	1
- Minicomputer	35	17	41	48	55	63	73	84	15
- Workstation/PC	60	25	75	107	128	143	172	198	21
<b>Turnkey Systems</b>	40	15	46	54	62	71	79	88	14
- Equipment	19	16	22	26	30	35	39	44	15
- Application Software	7	14	8	9	10	11	12	13	10
- System Software	1	0	1	2	2	2	3	3	25
- Professional Services	13	15	15	17	20	23	25	28	13
<b>Equipment Services</b>	280	11	310	355	405	460	525	605	14
- Equipment Maintenance	220	9	240	270	300	330	360	390	10
- Environmental Services	60	17	70	85	105	130	165	215	25
<b>Grand Total</b>	1,330	15	1,530	1,800	2,070	2,360	2,710	3,120	15



# C

## Forecast Database in ECUs

Exhibit E-5

### Software and Services Market Forecast in ECUs Central & Eastern Europe, 1996-2001

Delivery Modes	ECU Millions (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b> (ex. Equipment Services)	1,338	16	1,556	1,844	2,125	2,426	2,798	3,214	16
<b>Professional Services</b>	128	17	150	173	200	233	270	315	16
- IS Consulting	3	50	4	5	6	9	12	15	32
- Education & Training	74	17	87	101	118	138	161	188	17
- Custom Software	51	15	59	67	76	86	97	111	14
<b>Systems Integration</b>	602	14	685	788	896	1,012	1,140	1,287	13
- Equipment	132	7	141	154	160	167	173	179	5
- Application Software	96	20	115	141	166	198	237	282	20
- System Software	42	6	45	51	58	64	70	77	11
- Professional Services	283	18	333	391	455	525	602	691	16
- Other	49	5	51	54	56	58	59	60	3
<b>Outsourcing</b>	38	40	54	69	88	108	132	160	24
- Platform Operations	9	43	13	15	19	26	32	38	25
- Application Operations	18	43	26	32	41	47	54	64	20
- Desktop Services	4	33	5	8	10	13	17	22	34
- Application Management	4	133	5	6	8	10	14	17	0
- Network Management	4	33	5	8	10	12	15	19	30
<b>Processing Services</b>	77	12	86	97	107	119	134	153	12
- Transaction Processing	38	17	45	51	59	67	78	91	15
- Utility Processing	23	6	24	27	28	31	32	36	8
- Other Processing	15	8	17	19	20	22	24	26	10
<b>Network Services</b>	122	17	142	169	197	231	274	321	18
- Electronic Info Svcs	77	15	88	103	118	136	159	183	16
- Network Applications	45	20	54	65	78	94	115	138	21
<b>System Software</b>	179	19	213	257	300	350	414	484	18
- Mainframe	64	8	69	74	82	90	99	109	9
- Minicomputer	51	13	58	65	76	87	100	115	15
- Workstation/PC	64	34	86	118	142	173	215	260	25
<b>Application Software</b>	141	20	169	219	255	284	335	383	18
- Mainframe	19	7	21	21	21	21	22	22	1
- Minicomputer	45	17	53	62	70	81	94	108	15
- Workstation/PC	77	25	96	137	164	183	220	254	21
<b>Turnkey Systems</b>	51	15	59	69	79	91	101	113	14
- Equipment	24	16	28	33	38	45	50	56	15
- Application Software	9	14	10	12	13	14	15	17	10
- System Software	1	0	1	3	3	3	4	4	25
- Professional Services	17	15	19	22	26	29	32	36	13
<b>Equipment Services</b>	359	11	397	455	519	589	672	775	14
- Equipment Maintenance	282	9	307	346	384	423	461	499	10
- Environmental Services	77	17	90	109	134	166	211	275	25
<b>Grand Total</b>	1,700	15	1,950	2,300	2,640	3,020	3,470	3,990	15

## D

## Information Services Forecast Reconciliation in Local Currency

Exhibit E-6

## Forecast Reconciliation, Central and Eastern Europe, 1995-2000

Currency: US\$ Millions	1995 Market				2000 Market				1995	1996
Delivery Mode	1995 Report (Fcst)	1996 Report (Act)	1995-1996 Variance		1995 Report (Fcst)	1996 Report (Fcst)	1995-1996 Variance		Report %CAGR (Fcst)	Report %CAGR (Fcst)
			(Amount)	(%)			(Amount)	(%)		
Software and Services Total (ex Equipment Services)	830	1045	215	26	1,955	2,185	230	12	19	16
Professional Services	81	100	19	48	165	211	46	28	15	16
- IS Consulting	2	2	0	0	2	9	7	350	0	35
- Education & Training	47	58	11	23	105	126	21	20	17	17
- Custom Software	32	40	8	25	58	76	18	31	13	14
Systems Integration	460	470	10	2	1,010	890	-120	-12	17	0
- Equipment	101	103	2	2	172	135	-37	-22	11	14
- Application Software	74	75	1	1	262	185	-77	-29	29	6
- System Software	32	33	1	3	71	55	-16	-23	17	20
- Professional Services	216	221	5	2	444	470	26	6	16	11
- Other	37	38	1	3	61	46	-15	-25	11	16
Outsourcing	30	30	0	-32	79	103	24	30	22	0
- Platform Operations	12	7	-5	-42	35	25	-10	-29	24	28
- Application Operations	11	14	3	27	22	42	20	91	15	29
- Desktop Services	4	3	-1	-25	15	13	-2	-13	30	25
- Application Management	0	3	3	0	0	11	11	0	0	34
- Network Management	3	3	0	7	7	12	5	71	20	32
Processing Services	25	60	35	140	79	105	26	33	26	12
- Transaction Processing	12	30	18	150	24	61	37	154	15	15
- Utility Processing	7	18	11	157	10	25	15	150	7	7
- Other Processing	6	12	6	100	45	19	-26	-58	49	9
Network Services	7	95	89	12,383	50	214	165	332	45	18
- Electronic Info Svcs	1	60	60	11,900	3	125	122	4,050	43	16
- Network Applications	6	35	29	483	47	90	43	92	51	21
System Software	81	140	59	73	202	323	121	60	20	18
- Mainframe	15	50	35	233	16	77	61	381	1	9
- Minicomputer	25	40	15	60	60	78	18	30	19	14
- Workstation/PC	41	50	9	22	126	168	42	33	25	27
Application Software	113	110	-3	-3	260	262	2	1	18	19
- Mainframe	10	15	5	50	11	17	6	55	2	3
- Minicomputer	35	35	0	0	71	73	2	3	15	16
- Workstation/PC	68	60	-8	-12	178	172	-6	-3	21	23
Turnkey Systems	33	40	7	21	111	79	-32	-29	27	15
- Equipment	16	19	3	19	48	39	-9	-19	25	15
- Application Software	6	7	1	17	22	12	-10	-45	30	11
- System Software	1	1	0	0	4	3	-1	-25	32	25
- Professional Services	10	13	3	30	37	25	-12	-32	30	14
Equipment Services	270	280	10	4	495	525	30	6	13	13
- Equipment Maintenance	213	220	7	3	333	360	27	8	9	10
- Environmental Services	57	60	3	5	163	165	2	1	23	22
Grand Total	1,100	1325	225	20	2,450	2,710	260	11	17	15



# Information Services Industry Forecast Database, 1996-2001 Finland

A

Forecast Database in Local Currency (FM Millions)

Exhibit F-1

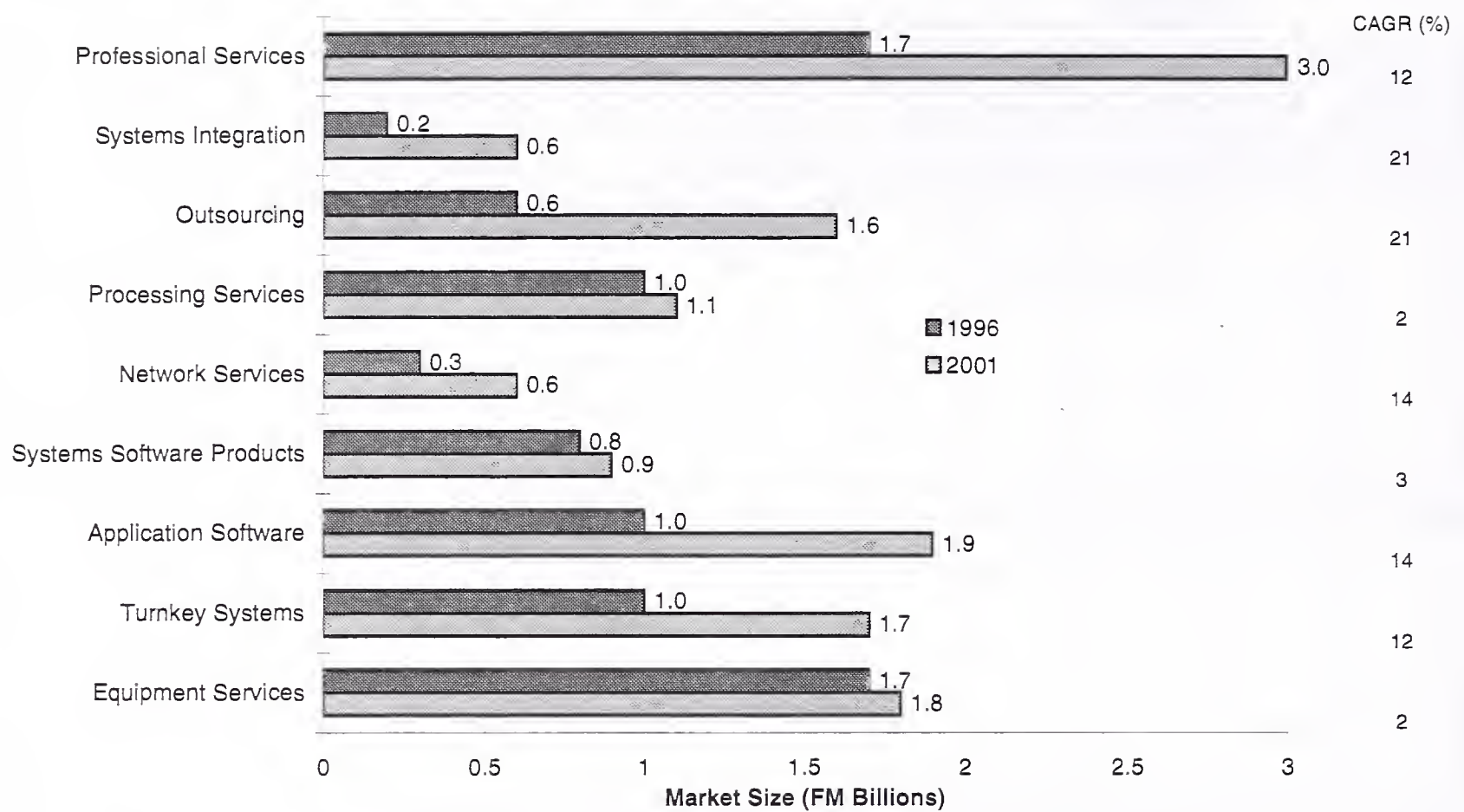
## Top Level IT Expenditure, Finland

Sector	FM Millions								CAGR (%)
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	
Total IT Spending	23,000	4	24,000	25,500	26,500	27,500	29,000	30,500	5
Equipment Sales	5,100	4	5,300	5,500	5,700	5,800	5,900	6,100	3
Mainframe	950	-5	900	900	850	800	750	700	-5
Minicomputer	1,200	4	1,250	1,250	1,250	1,300	1,300	1,300	1
PC/Workstation	2,950	7	3,150	3,350	3,550	3,700	3,850	4,100	5
Equipment Services	1,630	2	1,670	1,690	1,710	1,740	1,780	1,830	2
Software Products	1,720	7	1,840	2,160	2,310	2,440	2,670	2,860	9
Other Information Services	3,900	13	4,400	4,900	5,500	6,200	7,000	7,900	12
Data Communications	2,200	9	2,400	2,550	2,750	2,900	3,100	3,300	7
Facilities/Administration	2,100	0	2,100	2,100	2,100	2,100	2,100	2,100	0
In-house Staff	6,300	2	6,400	6,400	6,400	6,400	6,400	6,400	0



Exhibit F-2

## Software and Services Market — Finland, 1996-2001



## Exhibit F-3

### Information Services Market Forecast by Delivery Mode and Submode Finland, 1996-2001

Delivery Modes	FM Millions								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b> (ex. Equipment Services)	5,980	12	6,670	7,550	8,340	9,210	10,300	11,460	11
<b>Professional Services</b>	1,480	13	1,670	1,860	2,070	2,300	2,600	2,960	12
- IS Consulting	266	17	310	360	415	480	565	665	16
- Education & Training	132	15	152	156	162	170	179	190	5
- Custom Software	1,077	12	1,210	1,340	1,490	1,650	1,860	2,100	12
<b>Systems Integration</b>	215	12	240	285	345	430	520	625	21
- Equipment	45	11	50	54	62	73	88	106	16
- Application Software	35	17	41	57	80	103	135	162	32
- System Software	18	6	19	23	24	26	31	37	14
- Professional Services	104	8	112	134	159	202	234	281	20
- Other	15	13	17	18	21	26	31	37	17
<b>Outsourcing</b>	495	23	610	760	930	1,130	1,365	1,610	21
- Platform Operations	120	17	140	170	200	225	250	270	14
- Application Operations	240	21	290	345	410	480	570	660	18
- Desktop Services	45	33	60	80	100	130	165	200	27
- Application Management	50	30	65	90	120	155	190	240	30
- Network Management	40	38	55	75	100	140	190	240	34
<b>Processing Services</b>	990	4	1,030	1,055	1,075	1,095	1,110	1,120	2
- Transaction Processing	875	4	910	930	945	965	975	980	1
- Utility Processing	29	0	29	28	28	27	26	26	-2
- Other Processing	85	7	91	96	100	105	109	114	5
<b>Network Services</b>	280	18	330	370	420	480	550	630	14
- Electronic Info Svcs	170	12	190	210	230	250	275	300	10
- Network Applications	110	23	135	160	190	225	270	325	19
<b>System Software</b>	780	3	800	850	850	880	910	940	3
- Mainframe	280	-5	265	250	230	220	205	195	-6
- Minicomputer	270	6	285	300	310	330	350	370	5
- Workstation/PC	225	11	250	295	305	325	350	375	8
<b>Application Software</b>	940	11	1,040	1,310	1,460	1,560	1,760	1,920	13
- Mainframe	65	-2	64	62	59	57	54	52	-4
- Minicomputer	265	9	290	315	340	365	395	425	8
- Workstation/PC	610	13	690	935	1,065	1,140	1,315	1,440	16
<b>Turnkey Systems</b>	800	19	950	1,060	1,190	1,330	1,480	1,650	12
- Equipment	361	15	415	455	495	540	585	635	9
- Application Software	168	22	205	235	270	310	355	410	15
- System Software	48	15	55	60	65	70	76	82	8
- Professional Services	225	20	270	310	355	405	460	525	14
<b>Equipment Services</b>	1,630	2	1,670	1,690	1,710	1,740	1,780	1,830	2
- Equipment Maintenance	960	-2	940	905	865	835	790	750	-4
- Environmental Services	670	8	725	780	845	905	985	1,075	8
<b>Grand Total</b>	7,600	9	8,300	9,200	10,100	10,900	12,100	13,300	10

B

**Forecast Database in U.S. Dollars**

Exhibit F-4

**Software and Services Market Forecast in Dollars Finland, 1996-2001**

Delivery Modes	U.S. \$ Million (rounded)								96-1 CAGR(%)
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	
<b>Software and Services Total</b>									
(ex. Equipment Services)	1,380	12	1,535	1,740	1,920	2,120	2,375	2,640	11
<b>Professional Services</b>	340	13	385	430	475	530	600	680	12
- IS Consulting	62	17	72	83	96	111	130	153	16
- Education & Training	31	15	35	36	38	39	41	44	5
- Custom Software	250	12	280	310	345	380	430	485	12
<b>Systems Integration</b>	50	12	56	66	80	99	120	144	21
- Equipment	11	11	12	13	15	17	21	25	16
- Application Software	8	17	9	13	18	24	31	37	32
- System Software	4	6	4	5	6	6	7	9	14
- Professional Services	24	8	26	31	37	47	54	65	20
- Other	3	13	4	4	5	6	7	9	17
<b>Outsourcing</b>	114	23	141	175	215	261	315	371	21
- Platform Operations	28	17	33	39	46	52	58	62	14
- Application Operations	56	21	67	80	95	111	132	152	18
- Desktop Services	10	33	14	18	23	30	38	46	27
- Application Management	12	30	15	21	28	36	44	55	30
- Network Management	9	38	13	18	23	33	44	56	34
<b>Processing Services</b>	228	4	238	243	248	253	256	258	2
- Transaction Processing	202	4	210	215	218	223	225	226	1
- Utility Processing	7	0	7	7	7	6	6	6	-2
- Other Processing	20	7	21	22	23	24	25	27	5
<b>Network Services</b>	65	18	76	86	97	111	127	145	14
- Electronic Info Svcs	39	12	44	49	53	58	64	69	10
- Network Applications	26	23	31	37	44	52	62	75	19
<b>System Software</b>	180	3	185	195	195	205	210	215	3
- Mainframe	65	-5	61	58	53	51	47	45	-6
- Minicomputer	62	6	66	69	72	76	81	86	5
- Workstation/PC	52	11	58	68	71	75	81	87	8
<b>Application Software</b>	215	11	240	300	335	360	405	440	13
- Mainframe	15	-2	15	15	14	13	13	12	-4
- Minicomputer	61	9	67	73	79	84	91	98	8
- Workstation/PC	140	13	160	215	245	265	305	330	16
<b>Turnkey Systems</b>	185	19	219	244	274	307	341	380	12
- Equipment	83	15	96	105	114	125	135	147	9
- Application Software	39	22	47	54	62	72	82	95	15
- System Software	11	15	13	14	15	16	18	19	8
- Professional Services	52	20	62	72	82	94	106	121	14
<b>Equipment Services</b>	375	2	385	390	395	400	410	420	2
- Equipment Maintenance	220	-2	215	210	200	190	180	175	-4
- Environmental Services	155	8	165	180	195	210	225	250	8
<b>Grand Total</b>	1,750	9	1,900	2,100	2,350	2,500	2,800	3,050	10



C

## Forecast Database in ECUs

Exhibit F-5

## Software and Services Market Forecast in ECUs Finland, 1996-2001

Delivery Modes	ECU Millions (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b> (ex. Equipment Services)	1,120	12	1,250	1,415	1,565	1,730	1,930	2,150	11
<b>Professional Services</b>	280	13	315	350	390	430	490	555	12
- IS Consulting	50	17	58	68	78	90	106	125	16
- Education & Training	25	15	29	30	31	32	34	36	5
- Custom Software	200	12	225	250	280	310	350	395	12
<b>Systems Integration</b>	41	12	45	54	65	81	98	118	21
- Equipment	9	11	10	10	12	14	17	20	16
- Application Software	7	17	8	11	15	19	25	30	32
- System Software	3	6	4	4	5	5	6	7	14
- Professional Services	20	8	21	25	30	38	44	53	20
- Other	3	13	3	3	4	5	6	7	17
<b>Outsourcing</b>	93	23	115	143	175	212	256	302	21
- Platform Operations	23	17	27	32	38	42	47	51	14
- Application Operations	45	21	55	65	77	90	107	124	18
- Desktop Services	8	33	11	15	19	24	31	38	27
- Application Management	10	30	12	17	23	29	36	45	30
- Network Management	8	38	11	14	19	27	36	45	34
<b>Processing Services</b>	186	4	193	198	202	206	209	210	2
- Transaction Processing	164	4	171	175	178	181	183	184	1
- Utility Processing	6	0	6	6	6	5	5	5	-2
- Other Processing	16	7	17	18	19	20	21	22	5
<b>Network Services</b>	53	18	62	70	79	90	103	118	14
- Electronic Info Svcs	32	12	36	40	43	47	52	57	10
- Network Applications	21	23	26	30	36	42	51	61	19
<b>System Software</b>	145	3	150	160	160	165	170	175	3
- Mainframe	53	-5	50	47	43	42	39	37	-6
- Minicomputer	51	6	54	57	58	62	66	70	5
- Workstation/PC	42	11	47	56	57	61	66	71	8
<b>Application Software</b>	175	11	195	245	275	295	330	360	13
- Mainframe	12	-2	12	12	11	11	10	10	-4
- Minicomputer	50	9	55	59	64	69	74	80	8
- Workstation/PC	115	13	130	176	200	214	247	270	16
<b>Turnkey Systems</b>	150	19	178	199	224	250	278	310	12
- Equipment	68	15	78	86	93	102	110	119	9
- Application Software	32	22	39	44	51	58	67	77	15
- System Software	9	15	10	11	12	13	14	15	8
- Professional Services	42	20	51	58	67	76	87	99	14
<b>Equipment Services</b>	305	2	315	315	320	325	335	345	2
- Equipment Maintenance	180	-2	175	170	160	155	150	140	-4
- Environmental Services	125	8	135	145	160	170	185	200	8
<b>Grand Total</b>	1,450	9	1,550	1,750	1,900	2,050	2,250	2,500	10

## D

**Information Services Forecast Reconciliation in Local Currency**

Exhibit F-6

**Forecast Reconciliation, Finland, 1995-2000**

Currency: FM Millions	1995 Market				2000 Market				1995	1996
Delivery Mode	1995 Report (Fcst)	1996 Report (Act)	1995-1996 Variance		1995 Report (Fcst)	1996 Report (Fcst)	1995-1996 Variance		Report %CAGR (Fcst)	Report %CAGR (Fcst)
			(Amount)	(%)			(Amount)	(%)		
Software and Services Total										
(ex Equipment Services)	6,350	5980	-370	-6	9,300	10,300	1,000	11	8	11
Professional Services	1,642	1475	-167	-34	2,290	2,604	314	14	7	12
- IS Consulting	300	266	-34	-11	500	565	65	13	11	16
- Education & Training	152	132	-20	-13	190	179	-11	-6	5	6
- Custom Software	1,190	1077	-113	-9	1,600	1,860	260	16	6	12
Systems Integration	240	215	-25	-10	465	520	55	12	14	0
- Equipment	53	45	-8	-15	79	88	9	11	8	19
- Application Software	38	35	-3	-8	120	135	15	13	26	14
- System Software	19	18	-1	-5	28	31	3	11	8	31
- Professional Services	113	104	-9	-8	208	234	26	13	13	11
- Other	17	15	-2	-12	28	31	3	11	10	18
Outsourcing	423	495	72	564	863	1,365	502	58	15	0
- Platform Operations	127	120	-7	-6	225	250	25	11	12	22
- Application Operations	213	240	27	13	450	570	120	27	16	16
- Desktop Services	33	45	12	36	88	165	77	88	22	19
- Application Management	8	50	42	525	20	190	170	850	20	30
- Network Management	42	40	-2	-5	80	190	110	138	14	37
Processing Services	950	990	40	4	945	1,110	165	17	0	2
- Transaction Processing	845	875	30	4	825	975	150	18	0	2
- Utility Processing	24	29	5	21	18	26	8	44	-6	-2
- Other Processing	80	85	5	6	100	109	9	9	5	5
Network Services	305	280	-25	-18	590	545	-45	-8	14	14
- Electronic Info Svcs	180	170	-10	-6	285	275	-10	-4	10	10
- Network Applications	125	110	-15	-12	305	270	-35	-11	20	20
System Software	770	780	10	1	880	910	30	3	3	3
- Mainframe	250	280	30	12	165	205	40	24	-8	-6
- Minicomputer	270	270	0	0	340	350	10	3	5	5
- Workstation/PC	250	225	-25	-10	375	350	-25	-7	8	9
Application Software	960	940	-20	-2	1,820	1,760	-60	-3	14	13
- Mainframe	55	65	10	18	45	54	9	20	-4	-4
- Minicomputer	275	265	-10	-4	465	395	-70	-15	11	8
- Workstation/PC	625	610	-15	-2	1,310	1,315	5	0	16	17
Turnkey Systems	1,050	800	-250	-24	1,440	1,480	40	3	7	13
- Equipment	470	361	-109	-23	550	585	35	6	3	10
- Application Software	220	168	-52	-24	350	355	5	1	10	16
- System Software	64	48	-16	-25	87	76	-11	-13	6	10
- Professional Services	295	225	-70	-24	455	460	5	1	9	15
Equipment Services	1,630	1630	0	0	1,720	1,780	60	3	1	2
- Equipment Maintenance	960	960	0	0	767	790	23	3	-4	-4
- Environmental Services	669	670	1	0	956	985	29	3	7	8
Grand Total	8,000	7600	-400	-5	11,000	12,100	1,100	10	7	10



# Information Services Industry Forecast Database, 1996-2001 France

A

Forecast Database in Local Currency (FF Millions)

Exhibit G-1

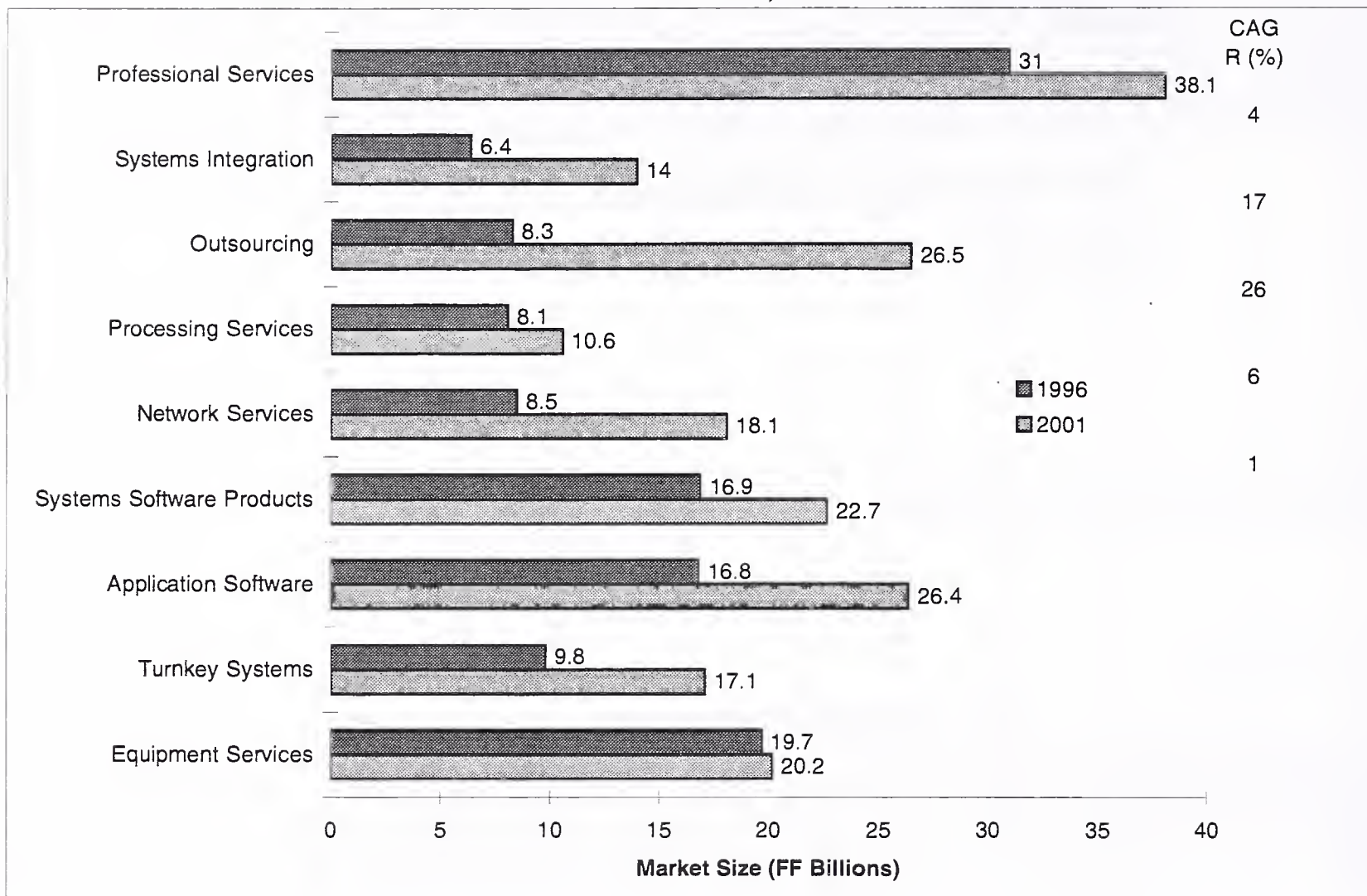
## Top Level IT Expenditure, France

Sector	FF Millions								CAGR (%)
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	
Total IT Spending	301,000	3	311,000	324,000	343,000	364,000	384,000	407,000	6
<b>Equipment Sales</b>	47,800	7	51,000	54,400	58,000	61,700	65,200	69,100	6
Mainframe	8,000	-3	7,800	7,700	7,700	7,900	8,100	8,300	1
Minicomputer	13,800	2	14,080	14,360	14,790	15,380	16,000	16,800	4
PC/Workstation	26,000	12	29,100	32,300	35,500	38,400	41,100	44,000	9
<b>Equipment Services</b>	19,800	0	19,730	19,760	19,790	20,000	20,170	20,210	0
<b>Software Products</b>	31,200	8	33,700	36,400	39,500	42,800	45,900	49,100	8
<b>Other Information Services</b>	60,800	9	66,200	73,000	82,200	93,100	103,300	115,200	12
<b>Data Communications</b>	21,200	10	23,300	25,700	28,800	31,700	34,200	36,300	9
<b>Facilities/Administration</b>	32,200	-1	31,900	31,900	31,900	31,600	31,300	31,000	-1
<b>In-house Staff</b>	87,500	-3	84,900	83,200	83,200	83,200	84,000	85,700	0



Exhibit G-2

## Software and Services Market — France, 1996-2001



## Exhibit G-3

### Information Services Market Forecast by Delivery Mode and Submode France, 1996-2001

Delivery Modes	FF Millions								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b>									
(ex. Equipment Services)	98,000	8	106,000	116,000	129,000	144,000	158,000	174,000	10
<b>Professional Services</b>	30,000	3	31,000	32,300	33,900	35,500	36,700	38,100	4
- IS Consulting	3,800	8	4,100	4,450	4,850	5,300	5,800	6,300	9
- Education & Training	3,100	7	3,315	3,580	3,830	4,100	4,345	4,650	7
- Custom Software	23,100	2	23,550	24,250	25,200	26,100	26,600	27,150	3
<b>Systems Integration</b>	5,450	17	6,400	7,600	9,050	10,550	12,150	14,050	17
- Equipment	1,364	10	1,500	1,700	1,950	2,200	2,400	2,650	12
- Application Software	1,032	21	1,250	1,550	1,950	2,400	2,900	3,500	23
- System Software	437	14	500	590	700	830	970	1,130	18
- Professional Services	2,510	20	3,010	3,580	4,260	4,900	5,640	6,490	17
- Other	109	19	130	155	180	210	245	290	17
<b>Outsourcing</b>	6,800	23	8,330	11,150	14,800	18,500	22,200	26,550	26
- Platform Operations	1,600	13	1,800	2,300	2,900	3,300	3,800	4,200	18
- Application Operations	3,000	17	3,500	4,600	6,000	7,200	8,300	9,500	22
- Desktop Services	500	36	680	950	1,300	1,700	2,100	2,600	31
- Application Management	700	36	950	1,400	1,900	2,600	3,200	4,000	33
- Network Management	1,000	40	1,400	1,900	2,700	3,700	4,800	6,250	35
<b>Processing Services</b>	7,800	3	8,050	8,300	8,700	9,250	9,850	10,600	6
- Transaction Processing	6,600	2	6,750	6,900	7,200	7,600	8,050	8,650	5
- Utility Processing	355	0	355	360	365	375	385	395	2
- Other Processing	825	12	925	1,035	1,150	1,265	1,390	1,530	11
<b>Network Services</b>	7,500	14	8,525	9,845	11,535	13,510	15,715	18,115	16
- Electronic Info Svcs	4,700	12	5,250	6,000	6,900	7,950	9,150	10,500	15
- Network Applications	2,800	17	3,275	3,845	4,635	5,560	6,565	7,615	18
<b>System Software</b>	15,900	6	16,900	17,800	18,900	20,000	21,300	22,700	6
- Mainframe	6,300	-1	6,250	6,250	6,250	6,300	6,450	6,650	1
- Minicomputer	5,300	5	5,550	5,850	6,150	6,500	6,900	7,300	6
- Workstation/PC	4,300	18	5,055	5,710	6,450	7,160	7,945	8,740	12
<b>Application Software</b>	15,300	10	16,800	18,600	20,600	22,800	24,600	26,400	9
- Mainframe	890	-4	855	825	800	785	770	755	-2
- Minicomputer	4,400	2	4,490	4,625	4,875	5,265	5,575	5,720	5
- Workstation/PC	10,010	14	11,410	13,125	14,965	16,760	18,270	19,915	12
<b>Turnkey Systems</b>	9,600	2	9,800	10,600	11,900	13,500	15,200	17,100	12
- Equipment	4,589	1	4,650	4,900	5,350	5,900	6,450	7,050	9
- Application Software	2,294	5	2,400	2,650	3,000	3,500	4,050	4,600	14
- System Software	191	2	195	210	235	270	310	345	12
- Professional Services	2,485	1	2,510	2,840	3,270	3,790	4,400	5,060	15
<b>Equipment Services</b>	19,800	0	19,730	19,760	19,790	20,000	20,170	20,210	0
- Equipment Maintenance	11,800	-6	11,090	10,425	9,800	9,310	8,845	8,315	-6
- Environmental Services	8,000	8	8,640	9,330	9,985	10,685	11,325	11,890	7
<b>Grand Total</b>	118,000	7	126,000	136,000	149,000	164,000	178,000	194,000	9



B

## Forecast Database in U.S. Dollars

Exhibit G-4

## Software and Services Market Forecast in Dollars France, 1996-2001

Delivery Modes	U.S. \$ Million (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
Software and Services Total									
(ex. Equipment Services)	20,040	8	21,675	23,720	26,380	29,450	32,310	35,585	10
Professional Services	6,135	3	6,340	6,605	6,935	7,260	7,505	7,790	4
- IS Consulting	777	8	839	910	992	1,084	1,186	1,289	9
- Education & Training	634	7	678	732	783	839	889	951	7
- Custom Software	4,725	2	4,815	4,960	5,155	5,335	5,440	5,550	3
Systems Integration	1,115	17	1,309	1,554	1,851	2,158	2,485	2,873	17
- Equipment	279	10	307	348	399	450	491	542	12
- Application Software	211	21	256	317	399	491	593	716	23
- System Software	89	14	102	121	143	170	198	231	18
- Professional Services	514	20	616	732	871	1,002	1,154	1,327	17
- Other	22	19	27	32	37	43	50	59	17
Outsourcing	1,391	23	1,704	2,280	3,027	3,783	4,540	5,430	26
- Platform Operations	327	13	368	471	593	675	777	859	18
- Application Operations	614	17	716	941	1,227	1,473	1,698	1,943	22
- Desktop Services	102	36	139	194	266	348	429	532	31
- Application Management	143	36	194	286	389	532	654	818	33
- Network Management	205	40	287	389	552	757	982	1,278	35
Processing Services	1,595	3	1,646	1,698	1,779	1,892	2,015	2,168	6
- Transaction Processing	1,350	2	1,381	1,411	1,473	1,554	1,646	1,769	5
- Utility Processing	73	0	73	74	75	77	79	81	2
- Other Processing	169	12	189	212	235	259	285	313	11
Network Services	1,534	14	1,744	2,014	2,359	2,763	3,214	3,705	16
- Electronic Info Svcs	961	12	1,074	1,227	1,411	1,626	1,871	2,147	15
- Network Applications	573	17	670	787	948	1,137	1,343	1,558	18
System Software	3,250	6	3,455	3,640	3,865	4,090	4,355	4,640	6
- Mainframe	1,289	-1	1,278	1,278	1,278	1,289	1,319	1,360	1
- Minicomputer	1,084	5	1,135	1,197	1,258	1,329	1,411	1,493	6
- Workstation/PC	880	18	1,034	1,168	1,319	1,464	1,625	1,788	12
Application Software	3,130	10	3,435	3,805	4,215	4,665	5,030	5,400	9
- Mainframe	182	-4	175	169	164	161	158	155	-2
- Minicomputer	900	2	918	946	997	1,077	1,140	1,170	5
- Workstation/PC	2,045	14	2,335	2,685	3,060	3,425	3,735	4,075	12
Turnkey Systems	1,963	2	2,004	2,168	2,434	2,761	3,109	3,497	12
- Equipment	939	1	951	1,002	1,094	1,207	1,319	1,442	9
- Application Software	469	5	491	542	614	716	828	941	14
- System Software	39	2	40	43	48	55	63	71	12
- Professional Services	508	1	514	581	669	775	900	1,035	15
Equipment Services	4,050	0	4,035	4,040	4,045	4,090	4,125	4,135	0
- Equipment Maintenance	2,415	-6	2,270	2,130	2,005	1,905	1,810	1,700	-6
- Environmental Services	1,635	8	1,765	1,910	2,040	2,185	2,315	2,430	7
Grand Total	24,150	7	25,750	27,800	30,450	33,550	36,400	39,650	9



C

## Forecast Database in ECUs

Exhibit G-5

## Software and Services Market Forecast in ECUs France, 1996-2001

Delivery Modes	ECU Millions (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
Software and Services Total									
(ex. Equipment Services)	15,630	8	16,905	18,500	20,575	22,965	25,200	27,750	10
Professional Services	4,785	3	4,945	5,150	5,405	5,660	5,855	6,075	4
- IS Consulting	606	8	654	710	774	846	925	1,005	9
- Education & Training	495	7	529	571	611	654	693	742	7
- Custom Software	3,685	2	3,755	3,870	4,020	4,165	4,240	4,330	3
Systems Integration	869	17	1,021	1,212	1,444	1,683	1,938	2,241	17
- Equipment	218	10	239	271	311	351	383	423	12
- Application Software	165	21	199	247	311	383	463	558	23
- System Software	70	14	80	94	112	132	155	180	18
- Professional Services	401	20	480	571	680	782	900	1,035	17
- Other	17	19	21	25	29	34	39	46	17
Outsourcing	1,085	23	1,329	1,779	2,361	2,951	3,541	4,235	26
- Platform Operations	255	13	287	367	463	527	606	670	18
- Application Operations	479	17	558	734	957	1,149	1,324	1,515	22
- Desktop Services	80	36	108	152	207	271	335	415	31
- Application Management	112	36	152	224	303	415	511	638	33
- Network Management	160	40	224	303	431	590	766	997	35
Processing Services	1,241	3	1,281	1,323	1,390	1,474	1,567	1,687	6
- Transaction Processing	1,053	2	1,077	1,101	1,149	1,212	1,284	1,380	5
- Utility Processing	57	0	57	58	58	60	62	63	2
- Other Processing	132	12	148	165	184	202	222	244	11
<i>Network Services</i>	1,196	14	1,360	1,570	1,840	2,155	2,507	2,889	16
- Electronic Info Svcs	750	12	838	957	1,101	1,268	1,460	1,675	15
- Network Applications	447	17	523	613	739	887	1,047	1,215	18
System Software	2,535	6	2,695	2,840	3,015	3,190	3,395	3,620	6
- Mainframe	1,005	-1	997	997	997	1,005	1,029	1,061	1
- Minicomputer	846	5	885	933	981	1,037	1,101	1,165	6
- Workstation/PC	686	18	806	911	1,029	1,142	1,267	1,394	12
Application Software	2,440	10	2,680	2,965	3,285	3,635	3,925	4,210	9
- Mainframe	142	-4	137	132	128	125	123	121	-2
- Minicomputer	702	2	716	738	778	840	889	913	5
- Workstation/PC	1,597	14	1,820	2,094	2,387	2,673	2,914	3,176	12
Turnkey Systems	1,531	2	1,563	1,691	1,898	2,153	2,424	2,728	12
- Equipment	732	1	742	782	854	941	1,029	1,125	9
- Application Software	366	5	383	423	479	558	646	734	14
- System Software	30	2	31	34	38	43	49	55	12
- Professional Services	397	1	401	453	522	605	702	807	15
Equipment Services	3,160	0	3,145	3,150	3,155	3,190	3,215	3,225	0
- Equipment Maintenance	1,880	-6	1,770	1,665	1,565	1,485	1,410	1,325	-6
- Environmental Services	1,275	8	1,380	1,490	1,595	1,705	1,805	1,895	7
Grand Total	18,800	7	20,100	21,700	23,750	26,150	28,400	30,950	9

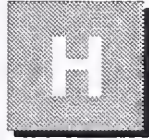
D

## Information Services Forecast Reconciliation in Local Currency

Exhibit G-6

## Forecast Reconciliation, France, 1995-2000

Currency: FF Millions	1995 Market				2000 Market				1995
Delivery Mode	1995 Report (Fcst)	1996 Report (Act)	1995-1996 Variance		1995 Report (Fcst)	1996 Report (Fcst)	1995-1996 Variance		Report %CAGR (Fcst)
			(Amount)	(%)			(Amount)	(%)	
Software and Services Total									
(ex Equipment Services)	112,000	98000	-14,000	-13	151,000	158,000	7,000	5	6
Professional Services	39,027	30000	-9,027	-70	41,318	36,745	-4,573	-11	1
- IS Consulting	5,300	3800	-1,500	-28	7,150	5,800	-1,350	-19	6
- Education & Training	3,827	3100	-727	-19	5,218	4,345	-873	-17	6
- Custom Software	29,900	23100	-6,800	-23	28,950	26,600	-2,350	-8	-1
Systems Integration	5,850	5450	-400	-7	9,650	12,150	2,500	26	11
- Equipment	1,460	1364	-96	-7	1,641	2,400	759	46	2
- Application Software	1,109	1032	-77	-7	2,703	2,900	197	7	20
- System Software	467	437	-30	-6	676	970	294	43	8
- Professional Services	2,684	2510	-174	-6	4,248	5,640	1,392	33	10
- Other	117	109	-8	-7	386	245	-141	-37	27
Outsourcing	6,875	6800	-75	61	15,580	22,200	6,620	42	17
- Platform Operations	1,770	1600	-170	-10	2,900	3,800	900	31	10
- Application Operations	3,070	3000	-70	-2	6,850	8,300	1,450	21	17
- Desktop Services	700	500	-200	-29	2,500	2,100	-400	-16	29
- Application Management	350	700	350	100	1,100	3,200	2,100	191	26
- Network Management	985	1000	15	2	2,230	4,800	2,570	115	18
Processing Services	8,900	7800	-1,100	-12	10,000	9,850	-150	-2	2
- Transaction Processing	7,600	6600	-1,000	-13	8,150	8,050	-100	-1	1
- Utility Processing	355	355	0	0	350	385	35	10	0
- Other Processing	965	825	-140	-15	1,475	1,390	-85	-6	9
Network Services	8,115	7500	-615	-15	16,550	15,715	-835	-5	16
- Electronic Info Svcs	5,100	4700	-400	-8	7,650	9,150	1,500	20	8
- Network Applications	3,015	2800	-215	-7	8,900	6,565	-2,335	-26	24
System Software	16,500	15900	-600	-4	19,300	21,300	2,000	10	3
- Mainframe	6,050	6300	250	4	4,250	6,450	2,200	52	-7
- Minicomputer	5,500	5300	-200	-4	6,750	6,900	150	2	4
- Workstation/PC	4,935	4300	-635	-13	8,305	7,945	-360	-4	11
Application Software	15,600	15300	-300	-2	23,100	24,600	1,500	6	8
- Mainframe	740	890	150	20	430	770	340	79	-10
- Minicomputer	4,380	4400	20	0	5,505	5,575	70	1	5
- Workstation/PC	10,475	10010	-465	-4	17,190	18,270	1,080	6	10
Turnkey Systems	11,400	9600	-1,800	-16	15,800	15,200	-600	-4	7
- Equipment	5,500	4589	-911	-17	6,450	6,450	0	0	3
- Application Software	2,750	2294	-456	-17	4,400	4,050	-350	-8	10
- System Software	200	191	-9	-5	270	310	40	15	6
- Professional Services	2,960	2485	-475	-16	4,700	4,400	-300	-6	10
Equipment Services	19,500	19800	300	2	19,700	20,170	470	2	0
- Equipment Maintenance	11,718	11800	82	1	9,065	8,845	-220	-2	-5
- Environmental Services	7,811	8000	189	2	10,649	11,325	676	6	6
Grand Total	132,000	118000	-14,000	-11	171,000	178,000	7,000	4	5



# Information Services Industry Forecast Database, 1996-2001 Germany

A

Forecast Database in Local Currency (DM Millions)

Exhibit H-1

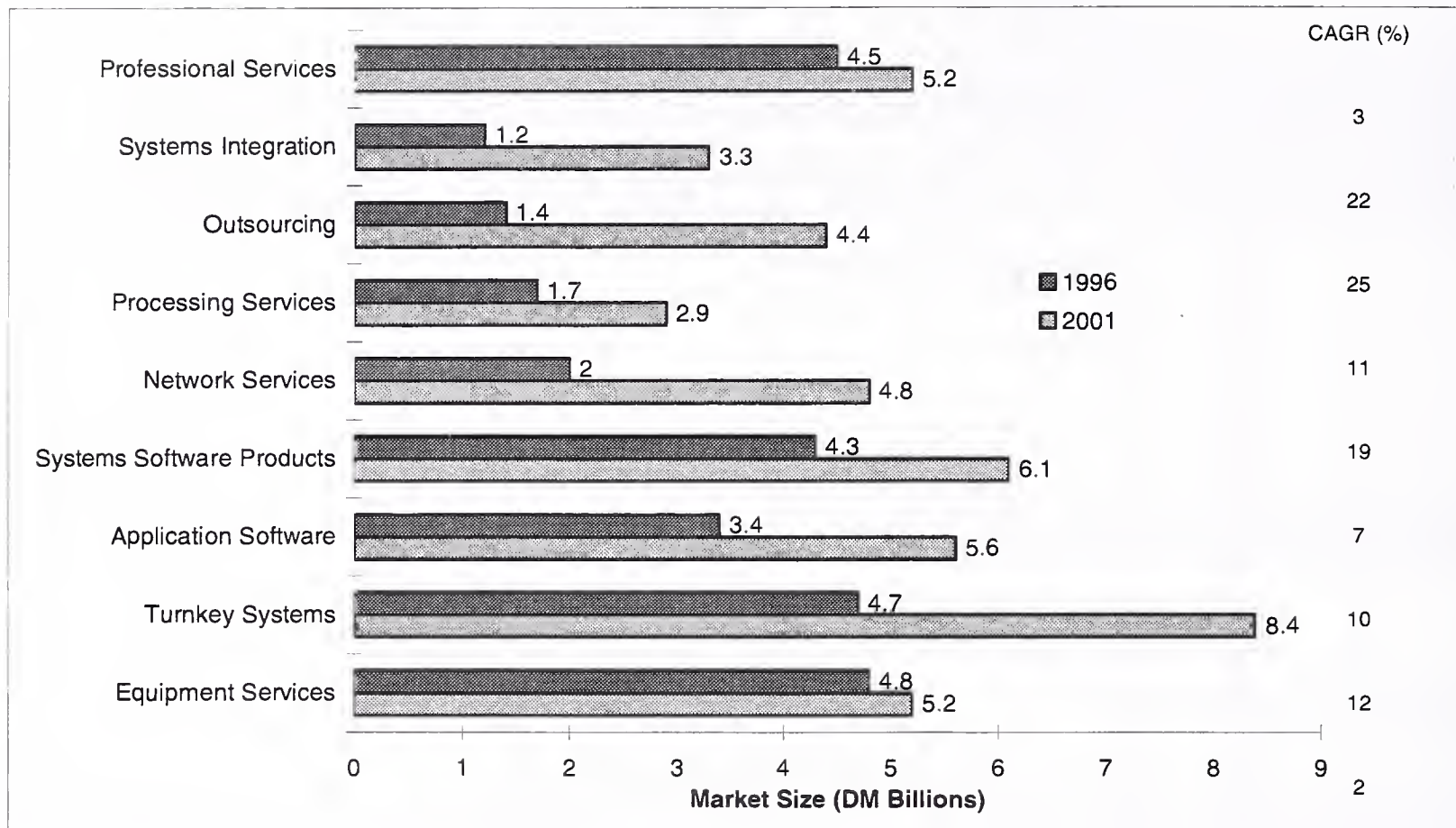
## Top Level IT Expenditure, Germany

Sector	DM Millions								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	CAGR (%)
Total IT Spending	115,000	5	121,000	128,000	136,000	143,000	151,000	158,000	5
<b>Equipment Sales</b>	25,300	11	28,200	31,200	34,200	36,800	39,500	41,600	8
Mainframe	3,800	5	4,000	4,100	4,100	4,200	4,300	4,400	2
Minicomputer	6,500	4	6,790	7,400	7,990	8,630	8,980	9,380	7
PC/Workstation	15,000	16	17,400	19,700	22,100	24,000	26,200	27,800	10
<b>Equipment Services</b>	6,850	0	6,850	6,850	6,850	6,950	7,150	7,450	2
<b>Software Products</b>	10,000	10	11,000	12,300	13,400	14,500	15,500	16,700	9
<b>Other Information Services</b>	17,100	11	19,000	21,600	24,600	28,300	32,200	36,200	14
<b>Data Communications</b>	9,100	10	10,000	11,200	12,500	13,700	14,800	15,800	10
<b>Facilities/Administration</b>	8,900	-2	8,700	8,600	8,500	8,500	8,400	8,400	-1
<b>In-house Staff</b>	37,800	-1	37,400	36,700	35,600	34,500	33,300	32,100	-3



## Exhibit H-2

## Software and Services Market, Germany 1996-2001



## Exhibit H-3

## Information Services Market Forecast by Delivery Mode and Submode

Delivery Modes	DM Millions								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b> (ex. Equipment Services)	30,500	10	33,400	37,600	42,000	47,100	52,300	58,100	12
<b>Professional Services</b>	6,400	2	6,500	6,700	6,800	7,000	7,200	7,400	3
- IS Consulting	1,280	7	1,370	1,495	1,645	1,810	1,975	2,155	9
- Education & Training	1,408	7	1,500	1,600	1,700	1,800	1,950	2,100	7
- Custom Software	3,711	-2	3,650	3,600	3,500	3,400	3,300	3,150	-3
<b>Systems Integration</b>	1,400	25	1,750	2,150	2,650	3,250	3,900	4,700	22
- Equipment	364	4	380	415	475	555	645	740	14
- Application Software	308	17	360	465	615	805	1,045	1,340	30
- System Software	98	22	120	150	185	225	270	325	22
- Professional Services	560	46	820	1,040	1,280	1,560	1,870	2,210	22
- Other	70	0	70	75	80	85	90	100	7
<b>Outsourcing</b>	1,600	26	2,020	2,680	3,500	4,430	5,390	6,270	25
- Platform Operations	350	17	410	500	610	700	760	820	15
- Application Operations	800	25	1,000	1,350	1,750	2,200	2,650	3,000	25
- Desktop Services	160	34	215	300	400	510	670	830	31
- Application Management	160	38	220	300	420	550	700	860	31
- Network Management	130	31	170	230	320	470	610	760	35
<b>Processing Services</b>	2,200	11	2,450	2,750	3,100	3,500	3,800	4,150	11
- Transaction Processing	1,800	11	2,000	2,250	2,550	2,850	3,100	3,350	11
- Utility Processing	100	0	100	105	105	110	110	115	3
- Other Processing	320	13	360	410	465	525	590	660	13
<b>Network Services</b>	2,450	19	2,905	3,445	4,085	4,835	5,795	6,895	19
- Electronic Info Svcs	1,500	14	1,710	1,950	2,245	2,580	3,045	3,595	16
- Network Applications	950	26	1,195	1,495	1,840	2,255	2,750	3,300	23
<b>System Software</b>	5,700	7	6,100	6,700	7,100	7,600	8,100	8,700	7
- Mainframe	2,600	0	2,600	2,600	2,650	2,700	2,800	2,850	2
- Minicomputer	1,650	6	1,750	1,850	2,000	2,150	2,300	2,450	7
- Workstation/PC	1,450	23	1,785	2,210	2,440	2,725	3,025	3,360	13
<b>Application Software</b>	4,300	14	4,900	5,600	6,300	6,900	7,400	8,000	10
- Mainframe	400	-3	390	385	375	365	355	345	-2
- Minicomputer	1,250	10	1,370	1,500	1,635	1,780	1,945	2,120	9
- Workstation/PC	2,650	20	3,180	3,720	4,295	4,725	5,100	5,510	12
<b>Turnkey Systems</b>	6,450	5	6,760	7,530	8,470	9,560	10,670	12,030	12
- Equipment	3,030	1	3,050	3,250	3,500	3,750	4,000	4,500	8
- Application Software	1,290	9	1,400	1,650	1,950	2,350	2,750	3,100	17
- System Software	387	15	445	505	560	610	665	720	10
- Professional Services	1,741	7	1,860	2,120	2,460	2,850	3,250	3,710	15
<b>Equipment Services</b>	6,850	0	6,850	6,850	6,850	6,950	7,150	7,450	2
- Equipment Maintenance	4,000	-5	3,800	3,570	3,320	3,090	2,905	2,760	-6
- Environmental Services	2,850	7	3,050	3,265	3,525	3,875	4,265	4,690	9
<b>Grand Total</b>	<b>37,000</b>	<b>8</b>	<b>40,000</b>	<b>44,000</b>	<b>49,000</b>	<b>54,000</b>	<b>59,000</b>	<b>66,000</b>	<b>11</b>

## B

## Forecast Database in U.S. Dollars

Exhibit H-4

## Software and Services Market Forecast in Dollars Germany 1996-2001

Delivery Modes	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b>									
(ex. Equipment Services)	21,300	10	23,400	26,300	29,400	32,900	36,600	40,600	12
<b>Professional Services</b>	4,500	2	4,500	4,700	4,800	4,900	5,000	5,200	3
- IS Consulting	900	7	960	1,050	1,150	1,270	1,380	1,510	9
- Education & Training	980	7	1,050	1,120	1,190	1,260	1,360	1,470	7
- Custom Software	2,600	-2	2,600	2,500	2,400	2,400	2,300	2,200	-3
<b>Systems Integration</b>	980	25	1,220	1,500	1,850	2,270	2,730	3,290	22
- Equipment	250	4	270	290	330	390	450	520	14
- Application Software	215	17	252	325	430	563	731	937	30
- System Software	69	22	84	105	129	157	189	227	22
- Professional Services	390	46	570	730	900	1,090	1,310	1,550	22
- Other	49	0	49	52	56	59	63	70	7
<b>Outsourcing</b>	1,120	26	1,410	1,870	2,450	3,100	3,770	4,380	25
- Platform Operations	240	17	290	350	430	490	530	570	15
- Application Operations	560	25	700	940	1,220	1,540	1,850	2,100	25
- Desktop Services	112	34	150	210	280	357	469	580	31
- Application Management	112	38	154	210	294	385	490	601	31
- Network Management	90	31	120	160	220	330	430	530	35
<b>Processing Services</b>	1,540	11	1,710	1,920	2,170	2,450	2,660	2,900	11
- Transaction Processing	1,260	11	1,400	1,570	1,780	1,990	2,170	2,340	11
- Utility Processing	70	0	70	70	70	80	80	80	3
- Other Processing	220	13	250	290	330	370	410	460	13
<b>Network Services</b>	1,710	19	2,030	2,410	2,860	3,380	4,050	4,820	19
- Electronic Info Svcs	1,050	14	1,200	1,360	1,570	1,800	2,130	2,510	16
- Network Applications	660	26	840	1,050	1,290	1,580	1,920	2,310	23
<b>System Software</b>	4,000	7	4,300	4,700	5,000	5,300	5,700	6,100	7
- Mainframe	1,820	0	1,820	1,820	1,850	1,890	1,960	1,990	2
- Minicomputer	1,150	6	1,220	1,290	1,400	1,500	1,610	1,710	7
- Workstation/PC	1,010	23	1,250	1,550	1,710	1,910	2,120	2,350	13
<b>Application Software</b>	3,000	14	3,400	3,900	4,400	4,800	5,200	5,600	10
- Mainframe	280	-3	270	270	260	260	250	240	-2
- Minicomputer	870	10	960	1,050	1,140	1,240	1,360	1,480	9
- Workstation/PC	1,900	20	2,200	2,600	3,000	3,300	3,600	3,900	12
<b>Turnkey Systems</b>	4,510	5	4,730	5,270	5,920	6,690	7,460	8,410	12
- Equipment	2,120	1	2,130	2,270	2,450	2,620	2,800	3,150	8
- Application Software	900	9	980	1,150	1,360	1,640	1,920	2,170	17
- System Software	271	15	311	353	392	427	465	503	10
- Professional Services	1,220	7	1,300	1,480	1,720	1,990	2,270	2,590	15
<b>Equipment Services</b>	4,800	0	4,800	4,800	4,800	4,900	5,000	5,200	2
- Equipment Maintenance	2,800	-5	2,700	2,500	2,300	2,200	2,000	1,900	-6
- Environmental Services	2,000	7	2,100	2,300	2,500	2,700	3,000	3,300	9
<b>Grand Total</b>	26,000	8	28,000	31,000	34,000	38,000	41,000	46,000	11



C

**Forecast Database in ECUs**

Exhibit H-5

**Software and Services Market Forecast in ECUs Germany 1996-2001**

Delivery Modes	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b>									
(ex. Equipment Services)	16,700	10	18,300	20,500	23,000	25,700	28,600	31,700	12
<b>Professional Services</b>	3,500	2	3,600	3,700	3,700	3,800	3,900	4,000	3
- IS Consulting	700	7	750	820	900	990	1,080	1,180	9
- Education & Training	770	7	820	870	930	980	1,070	1,150	7
- Custom Software	2,000	-2	2,000	2,000	1,900	1,900	1,800	1,700	-3
<b>Systems Integration</b>	770	25	960	1,170	1,450	1,780	2,130	2,570	22
- Equipment	200	4	210	230	260	300	350	400	14
- Application Software	168	17	197	254	336	440	571	732	30
- System Software	54	22	66	82	101	123	148	178	22
- Professional Services	310	46	450	570	700	850	1,020	1,210	22
- Other	38	0	38	41	44	46	49	55	7
<b>Outsourcing</b>	870	26	1,100	1,460	1,910	2,420	2,950	3,430	25
- Platform Operations	190	17	220	270	330	380	420	450	15
- Application Operations	440	25	550	740	960	1,200	1,450	1,640	25
- Desktop Services	87	34	117	164	219	279	366	454	31
- Application Management	90	38	120	160	230	300	380	470	31
- Network Management	70	31	90	130	170	260	330	420	35
<b>Processing Services</b>	1,210	11	1,340	1,510	1,700	1,900	2,080	2,250	11
- Transaction Processing	980	11	1,090	1,230	1,390	1,560	1,690	1,830	11
- Utility Processing	50	0	50	60	60	60	60	60	3
- Other Processing	170	13	200	220	250	290	320	360	13
<b>Network Services</b>	1,340	19	1,590	1,880	2,230	2,640	3,170	3,770	19
- Electronic Info Svcs	820	14	930	1,070	1,230	1,410	1,660	1,960	16
- Network Applications	520	26	650	820	1,010	1,230	1,500	1,800	23
<b>System Software</b>	3,100	7	3,300	3,700	3,900	4,200	4,400	4,800	7
- Mainframe	1,420	0	1,420	1,420	1,450	1,480	1,530	1,560	2
- Minicomputer	900	6	960	1,010	1,090	1,170	1,260	1,340	7
- Workstation/PC	790	23	980	1,210	1,330	1,490	1,650	1,840	13
<b>Application Software</b>	2,300	14	2,700	3,100	3,400	3,800	4,000	4,400	10
- Mainframe	220	-3	210	210	200	200	190	190	-2
- Minicomputer	680	10	750	820	890	970	1,060	1,160	9
- Workstation/PC	1,450	20	1,740	2,030	2,350	2,580	2,790	3,010	12
<b>Turnkey Systems</b>	3,520	5	3,690	4,110	4,630	5,220	5,830	6,570	12
- Equipment	1,660	1	1,670	1,780	1,910	2,050	2,190	2,460	8
- Application Software	700	9	770	900	1,070	1,280	1,500	1,690	17
- System Software	211	15	243	276	306	333	363	393	10
- Professional Services	950	7	1,020	1,160	1,340	1,560	1,780	2,030	15
<b>Equipment Services</b>	3,700	0	3,700	3,700	3,700	3,800	3,900	4,100	2
- Equipment Maintenance	2,200	-5	2,100	2,000	1,800	1,700	1,600	1,500	-6
- Environmental Services	1,600	7	1,700	1,800	1,900	2,100	2,300	2,600	9
<b>Grand Total</b>	20,000	8	22,000	24,000	27,000	30,000	32,000	36,000	11

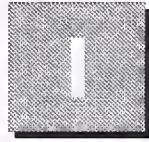
## D

**Information Services Forecast Reconciliation in Local Currency**

Exhibit H-6

**Forecast Reconciliation Germany 1995-2000**

Delivery Mode	1995 Report (Fcst)	1996 Report (Act)	1995-1996 Variance		1995 Report (Fcst)	1996 Report (Fcst)	1995-1996 Variance		Report %CAGR (Fcst)
			(Amount)	(%)			(Amount)	(%)	
<b>Software and Services Total</b>									
(ex Equipment Services)	29,200	30500	1,300	4	45,400	52,300	6,900	15	9
<b>Professional Services</b>	5,328	6399	1,071	61	6,227	7,225	998	16	3
- IS Consulting	1,040	1280	240	23	1,780	1,975	195	11	11
- Education & Training	1,188	1408	220	19	1,697	1,950	253	15	7
- Custom Software	3,100	3711	611	20	2,750	3,300	550	20	-2
<b>Systems Integration</b>	1,250	1400	150	12	2,150	3,900	1,750	81	11
- Equipment	321	364	43	13	344	645	301	88	1
- Application Software	272	308	36	13	602	1,045	443	74	17
- System Software	86	98	12	14	151	270	119	79	12
- Professional Services	494	560	66	13	946	1,870	924	98	14
- Other	62	70	8	13	108	90	-18	-17	12
<b>Outsourcing</b>	1,000	1600	600	497	2,800	5,390	2,590	93	24
- Platform Operations	115	350	235	204	200	760	560	280	12
- Application Operations	495	800	305	62	1,500	2,650	1,150	77	25
- Desktop Services	145	160	15	10	570	670	100	18	31
- Application Management	45	160	115	256	140	700	560	400	25
- Network Management	200	130	-70	-35	390	610	220	56	14
<b>Processing Services</b>	2,800	2200	-600	-21	3,950	3,800	-150	-4	7
- Transaction Processing	2,300	1800	-500	-22	3,100	3,100	0	0	6
- Utility Processing	120	100	-20	-17	120	110	-10	-8	0
- Other Processing	395	320	-75	-19	720	590	-130	-18	13
<b>Network Services</b>	1,850	2450	600	93	4,630	5,795	1,165	25	20
- Electronic Info Svcs	1,320	1500	180	14	1,960	3,045	1,085	55	8
- Network Applications	530	950	420	79	2,670	2,750	80	3	38
<b>System Software</b>	5,600	5700	100	2	6,700	8,100	1,400	21	4
- Mainframe	2,300	2600	300	13	1,350	2,800	1,450	107	-10
- Minicomputer	1,600	1650	50	3	2,100	2,300	200	10	6
- Workstation/PC	1,660	1450	-210	-13	3,275	3,025	-250	-8	15
<b>Application Software</b>	4,200	4300	100	2	8,500	7,400	-1,100	-13	15
- Mainframe	370	400	30	8	310	355	45	15	-3
- Minicomputer	1,150	1250	100	9	2,265	1,945	-320	-14	15
- Workstation/PC	2,665	2650	-15	-1	5,950	5,100	-850	-14	17
<b>Turnkey Systems</b>	7,100	6450	-650	-9	10,400	10,670	270	3	8
- Equipment	3,300	3030	-270	-8	3,800	4,000	200	5	3
- Application Software	1,450	1290	-160	-11	2,700	2,750	50	2	13
- System Software	470	387	-83	-18	595	665	70	12	5
- Professional Services	1,910	1741	-169	-9	3,260	3,250	-10	0	11
<b>Equipment Services</b>	6,800	6850	50	1	6,750	7,150	400	6	0
- Equipment Maintenance	4,055	4000	-55	-1	3,071	2,905	-166	-5	-5
- Environmental Services	2,745	2850	105	4	3,673	4,265	592	16	6
<b>Grand Total</b>	<b>36,000</b>	<b>37000</b>	<b>1,000</b>	<b>3</b>	<b>52,000</b>	<b>59,000</b>	<b>7,000</b>	<b>13</b>	<b>8</b>



# Information Services Industry Forecast Database, 1996-2001 Greece

A

## Forecast Database in Local Currency (Dra Millions)

Exhibit I-1

### Top Level IT Expenditure, Greece

Sector	Dra Millions								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	CAGR (%)
Total IT Spending	320,000	9	350,000	385,000	425,000	470,000	520,000	580,000	11
<b>Equipment Sales</b>	57,000	13	64,500	74,000	85,500	97,500	111,000	129,000	15
Mainframe	6,200	2	6,300	6,600	6,800	7,000	7,100	7,300	3
Minicomputer	14,000	4	14,600	15,400	16,200	16,900	17,500	18,400	5
PC/Workstation	37,000	18	43,800	52,200	62,300	73,700	86,500	103,200	19
<b>Equipment Services</b>	9,200	1	9,300	9,100	8,800	8,600	8,400	8,200	-2
<b>Software Products</b>	21,300	13	24,120	27,670	30,930	34,170	38,880	43,290	12
<b>Other Information Services</b>	75,000	16	87,000	103,000	121,000	142,000	165,500	192,000	17
<b>Data Communications</b>	27,000	11	30,100	33,400	37,200	41,400	46,100	51,300	11
<b>Facilities/Administration</b>	30,600	1	31,000	31,400	31,800	32,200	32,600	33,000	1
<b>In-house Staff</b>	101,000	3	104,000	108,000	112,000	115,000	119,000	123,000	3



## Exhibit I-2

## Software and Services Market, Greece, 1996-2001

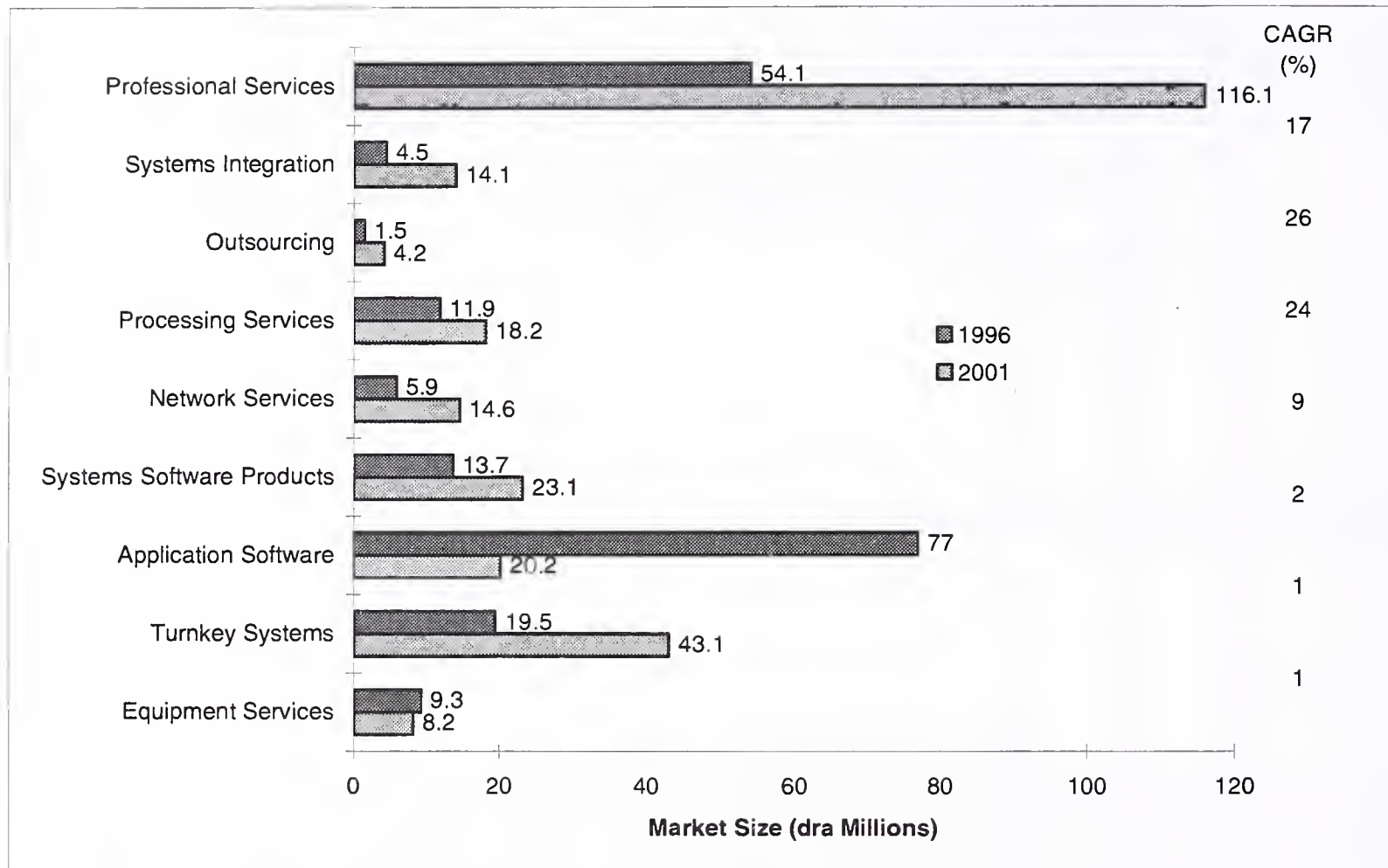


Exhibit I-3

**Information Services Market Forecast by Delivery Mode and Submode  
Greece, 1996-2001**

Delivery Modes	Dra Millions								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b> (ex. Equipment Services)	105,000	15	121,000	142,000	165,000	191,000	221,000	254,000	16
<b>Professional Services</b>	46,200	17	54,100	63,400	74,300	87,200	100,700	116,100	17
- IS Consulting	5,546	25	6,950	8,700	10,900	13,650	16,850	20,750	24
- Education & Training	3,697	12	4,150	4,660	5,230	5,870	6,470	7,120	11
- Custom Software	36,972	16	43,000	50,000	58,200	67,700	77,400	88,200	15
<b>Systems Integration</b>	3,550	25	4,450	5,600	7,050	8,850	11,150	14,050	26
- Equipment	817	22	1,000	1,225	1,500	1,835	2,245	2,745	22
- Application Software	569	34	760	1,010	1,350	1,800	2,400	3,200	33
- System Software	284	21	345	420	515	630	770	940	22
- Professional Services	1,600	25	2,000	2,500	3,150	3,950	4,950	6,200	25
- Other	284	21	345	420	515	630	770	940	22
<b>Outsourcing</b>	1,200	22	1,460	1,850	2,415	2,910	3,630	4,210	24
- Platform Operations	270	19	320	400	500	580	660	740	18
- Application Operations	660	21	800	1,000	1,300	1,500	1,900	2,100	21
- Desktop Services	90	22	110	140	180	240	310	400	29
- Application Management	70	29	90	130	185	250	320	420	36
- Network Management	110	27	140	180	250	340	440	550	31
<b>Processing Services</b>	10,920	9	11,910	12,860	14,030	15,290	16,675	18,200	9
- Transaction Processing	9,470	9	10,350	11,210	12,250	13,390	14,635	16,000	9
- Utility Processing	500	6	530	550	580	610	640	680	5
- Other Processing	950	8	1,030	1,100	1,200	1,290	1,400	1,520	8
<b>Network Services</b>	4,850	21	5,850	7,050	8,550	10,400	12,250	14,600	20
- Electronic Info Svcs	2,550	14	2,910	3,330	3,810	4,350	4,800	5,340	13
- Network Applications	2,300	27	2,930	3,730	4,750	6,050	7,460	9,270	26
<b>System Software</b>	12,300	12	13,720	15,770	17,230	18,870	20,980	23,090	11
- Mainframe	4,250	1	4,305	4,360	4,415	4,470	4,530	4,590	1
- Minicomputer	4,450	13	5,040	5,710	6,470	7,330	8,305	9,410	13
- Workstation/PC	3,600	21	4,370	5,700	6,340	7,070	8,140	9,090	16
<b>Application Software</b>	9,000	16	10,400	11,900	13,700	15,300	17,900	20,200	14
- Mainframe	560	-4	540	530	520	510	490	480	-2
- Minicomputer	2,250	13	2,550	2,900	3,300	3,750	4,250	4,800	13
- Workstation/PC	6,150	18	7,260	8,490	9,850	11,020	13,130	14,890	15
<b>Turnkey Systems</b>	16,600	17	19,500	23,300	27,700	32,600	37,400	43,100	17
- Equipment	7,797	14	8,850	10,200	11,650	13,200	14,550	16,050	13
- Application Software	3,815	21	4,600	5,600	6,800	8,200	9,600	11,250	20
- System Software	663	18	780	930	1,100	1,290	1,470	1,680	17
- Professional Services	4,313	22	5,250	6,550	8,100	9,900	11,800	14,100	22
<b>Equipment Services</b>	9,200	1	9,300	9,100	8,800	8,600	8,400	8,200	-2
- Equipment Maintenance	8,100	1	8,180	7,855	7,460	7,165	6,875	6,530	-4
- Environmental Services	1,050	7	1,125	1,200	1,310	1,430	1,555	1,710	9
<b>Grand Total</b>	<b>114,000</b>	<b>15</b>	<b>131,000</b>	<b>151,000</b>	<b>174,000</b>	<b>200,000</b>	<b>229,000</b>	<b>262,000</b>	<b>15</b>

## B

## Forecast Database in U.S. Dollars

Exhibit I-4

## Software and Services Market Forecast in Dollars Greece, 1996-2001

Delivery Modes	U.S. \$ Million (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b> (ex. Equipment Services)	443	15	511	599	696	806	932	1,072	16
<b>Professional Services</b>	195	17	228	268	314	368	425	490	17
- IS Consulting	23	25	29	37	46	58	71	88	24
- Education & Training	16	12	18	20	22	25	27	30	11
- Custom Software	156	16	181	211	246	286	327	372	15
<b>Systems Integration</b>	15	25	19	24	30	37	47	59	26
- Equipment	3	22	4	5	6	8	10	12	22
- Application Software	2	34	3	4	6	8	10	14	33
- System Software	1	21	1	2	2	3	3	4	22
- Professional Services	7	25	8	11	13	17	21	26	25
- Other	1	21	1	2	2	3	3	4	22
<b>Outsourcing</b>	5	22	6	8	10	12	15	18	24
- Platform Operations	1	19	1	2	2	2	3	3	18
- Application Operations	3	21	3	4	6	6	8	9	21
- Desktop Services	0	22	0	1	1	1	1	2	29
- Application Management	0	29	0	1	1	1	1	2	36
- Network Management	1	27	1	1	1	1	2	2	31
<b>Processing Services</b>	46	9	50	54	59	65	70	77	9
- Transaction Processing	40	9	44	47	52	57	62	68	9
- Utility Processing	2	6	2	2	2	3	3	3	5
- Other Processing	4	8	4	5	5	5	6	6	8
<b>Network Services</b>	21	21	25	30	36	44	52	62	20
- Electronic Info Svcs	11	14	12	14	16	18	20	23	13
- Network Applications	10	27	12	16	20	26	32	39	26
<b>System Software</b>	52	12	58	67	73	80	89	97	11
- Mainframe	18	1	18	18	19	19	19	19	1
- Minicomputer	19	13	21	24	27	31	35	40	13
- Workstation/PC	15	21	18	24	27	30	34	38	16
<b>Application Software</b>	38	16	44	50	58	65	76	85	14
- Mainframe	2	-4	2	2	2	2	2	2	-2
- Minicomputer	10	13	11	12	14	16	18	20	13
- Workstation/PC	26	18	31	36	42	46	55	63	15
<b>Turnkey Systems</b>	70	17	82	98	117	138	158	182	17
- Equipment	33	14	37	43	49	56	61	68	13
- Application Software	16	21	19	24	29	35	41	48	20
- System Software	3	18	3	4	5	5	6	7	17
- Professional Services	18	22	22	28	34	42	50	60	22
<b>Equipment Services</b>	39	1	39	38	37	36	35	35	-2
- Equipment Maintenance	34	1	35	33	31	30	29	28	-4
- Environmental Services	4	7	5	5	6	6	7	7	9
<b>Grand Total</b>	480	15	550	640	730	840	970	1,110	15



C

## Forecast Database in ECUs

Exhibit I-5

## Software and Services Market Forecast in ECUs Greece 1996-2001

Delivery Modes	ECU Millions (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b>									
(ex. Equipment Services)	361	15	416	488	567	656	759	873	16
<b>Professional Services</b>	159	17	186	218	255	300	346	399	17
- IS Consulting	19	25	24	30	38	47	58	71	24
- Education & Training	13	12	14	16	18	20	22	25	11
- Custom Software	127	16	148	172	200	233	266	303	15
<b>Systems Integration</b>	12	25	15	19	24	30	38	48	26
- Equipment	3	22	3	4	5	6	8	9	22
- Application Software	2	34	3	3	5	6	8	11	33
- System Software	1	21	1	1	2	2	3	3	22
- Professional Services	6	25	7	9	11	14	17	21	25
- Other	1	21	1	1	2	2	3	3	22
<b>Outsourcing</b>	4	22	5	6	8	10	13	15	24
- Platform Operations	1	19	1	1	2	2	2	3	18
- Application Operations	2	21	3	3	5	5	7	7	21
- Desktop Services	0	22	0	0	1	1	1	1	29
- Application Management	0	29	0	0	1	1	1	1	36
- Network Management	0	27	1	1	1	1	2	2	31
<b>Processing Services</b>	38	9	41	44	48	53	57	63	9
- Transaction Processing	33	9	36	39	42	46	50	55	9
- Utility Processing	2	6	2	2	2	2	2	2	5
- Other Processing	3	8	4	4	4	4	5	5	8
<b>Network Services</b>	17	21	20	24	29	36	42	50	20
- Electronic Info Svcs	9	14	10	11	13	15	17	18	13
- Network Applications	8	27	10	13	16	21	26	32	26
<b>System Software</b>	42	12	47	54	59	65	72	79	11
- Mainframe	15	1	15	15	15	15	16	16	1
- Minicomputer	15	13	17	20	22	25	29	32	13
- Workstation/PC	12	21	15	20	22	24	28	31	16
<b>Application Software</b>	31	16	36	41	47	53	62	69	14
- Mainframe	2	-4	2	2	2	2	2	2	-2
- Minicomputer	8	13	9	10	11	13	15	17	13
- Workstation/PC	21	18	25	29	34	38	45	51	15
<b>Turnkey Systems</b>	57	17	67	80	95	112	129	148	17
- Equipment	27	14	30	35	40	45	50	55	13
- Application Software	13	21	16	19	23	28	33	39	20
- System Software	2	18	3	3	4	4	5	6	17
- Professional Services	15	22	18	23	28	34	41	49	22
<b>Equipment Services</b>	32	1	32	31	30	30	29	28	-2
- Equipment Maintenance	28	1	28	27	26	25	24	22	-4
- Environmental Services	4	7	4	4	5	5	5	6	9
<b>Grand Total</b>	390	15	450	520	600	690	790	900	15

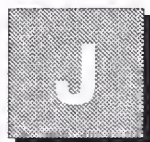
## D

**Information Services Forecast Reconciliation in Local Currency**

Exhibit I-6

**Forecast Reconciliation, Greece, 1995-2000**

Currency: Dra Millions	1995 Market				2000 Market				1995	1996
Delivery Mode	1995 Report (Fcst)	1996 Report (Act)	1995-1996 Variance		1995 Report (Fcst)	1996 Report (Fcst)	1995-1996 Variance		1995 Report %CAGR (Fcst)	1996 Report %CAGR (Fcst)
			(Amount)	(%)			(Amount)	(%)		
<b>Software and Services Total</b> (ex Equipment Services)	76,000	105000	29,000	38	136,000	221,000	85,000	63	12	16
<b>Professional Services</b>	21,387	46215	24,828	335	34,696	100,720	66,024	190	10	17
- IS Consulting	2,500	5546	3,046	122	4,650	16,850	12,200	262	13	25
- Education & Training	1,887	3697	1,810	96	2,646	6,470	3,824	145	7	12
- Custom Software	17,000	36972	19,972	117	27,400	77,400	50,000	182	10	16
<b>Systems Integration</b>	1,350	3550	2,200	163	2,750	11,150	8,400	305	15	0
- Equipment	315	817	502	159	413	2,245	1,832	444	6	26
- Application Software	219	569	350	160	717	2,400	1,683	235	27	22
- System Software	110	284	174	158	193	770	577	299	12	33
- Professional Services	617	1600	983	159	1,240	4,950	3,710	299	15	22
- Other	110	284	174	158	193	770	577	299	12	25
<b>Outsourcing</b>	1,190	1200	10	-39	2,730	3,630	900	33	18	0
- Platform Operations	270	270	0	0	550	660	110	20	15	25
- Application Operations	660	660	0	0	1,550	1,900	350	23	19	20
- Desktop Services	95	90	-5	-5	315	310	-5	-2	27	24
- Application Management	0	70	70	0	0	320	320	0	0	28
- Network Management	165	110	-55	-33	315	440	125	40	14	32
<b>Processing Services</b>	11,100	10920	-180	-2	16,950	16,675	-275	-2	9	9
- Transaction Processing	9,800	9470	-330	-3	15,100	14,635	-465	-3	9	9
- Utility Processing	440	500	60	14	570	640	70	12	5	5
- Other Processing	870	950	80	9	1,280	1,400	120	9	8	8
<b>Network Services</b>	4,100	4850	750	52	9,510	12,260	2,750	29	18	20
- Electronic Info Svcs	2,610	2550	-60	-2	4,790	4,800	10	0	13	13
- Network Applications	1,490	2300	810	54	4,720	7,460	2,740	58	26	27
<b>System Software</b>	12,600	12300	-300	-2	20,400	20,980	580	3	10	11
- Mainframe	4,250	4250	0	0	3,750	4,530	780	21	-2	1
- Minicomputer	4,600	4450	-150	-3	8,950	8,305	-645	-7	14	13
- Workstation/PC	3,720	3600	-120	-3	7,730	8,140	410	5	16	18
<b>Application Software</b>	9,500	9000	-500	-5	22,100	17,900	-4,200	-19	18	15
- Mainframe	570	560	-10	-2	500	490	-10	-2	-3	-3
- Minicomputer	2,350	2250	-100	-4	4,850	4,250	-600	-12	16	14
- Workstation/PC	6,560	6150	-410	-6	16,730	13,130	-3,600	-22	21	16
<b>Turnkey Systems</b>	14,900	16600	1,700	11	27,100	37,400	10,300	38	13	18
- Equipment	6,850	7797	947	14	10,450	14,550	4,100	39	9	13
- Application Software	3,300	3815	515	16	7,150	9,600	2,450	34	17	20
- System Software	750	663	-87	-12	1,160	1,470	310	27	9	17
- Professional Services	3,950	4313	363	9	8,300	11,800	3,500	42	16	22
<b>Equipment Services</b>	8,400	9200	800	10	6,900	8,400	1,500	22	-4	-2
- Equipment Maintenance	7,515	8100	585	8	5,693	6,875	1,182	21	-5	-3
- Environmental Services	848	1050	202	24	1,223	1,555	332	27	8	8
<b>Grand Total</b>	<b>85,000</b>	<b>114000</b>	<b>29,000</b>	<b>34</b>	<b>143,000</b>	<b>229,000</b>	<b>86,000</b>	<b>60</b>	<b>11</b>	<b>15</b>



# Information Services Industry Forecast Database, 1996-2001 Ireland

A

Forecast Database in Local Currency (IP Millions)

Exhibit J-1

## Top Level IT Expenditure, Ireland

Sector	IP Millions								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	CAGR (%)
Total IT Spending	1,230	8	1,330	1,440	1,550	1,660	1,780	1,910	8
<b>Equipment Sales</b>	240	17	280	280	305	315	335	350	5
Mainframe	40	63	65	49	54	58	62	66	0
Minicomputer	60	7	64	68	72	74	76	78	4
PC/Workstation	140	7	150	165	180	185	195	205	6
<b>Equipment Services</b>	73	1	74	73	72	71	71	71	-1
<b>Software Products</b>	135	8	146	167	178	185	193	202	7
<b>Other Information Services</b>	360	14	410	475	545	620	710	810	15
<b>Data Communications</b>	72	7	77	83	89	96	103	111	8
<b>Facilities/Administration</b>	78	0	78	79	79	80	80	80	1
<b>In-house Staff</b>	270	0	270	280	280	290	290	290	1



## Exhibit J-2

## Software and Services Market, Ireland, 1996-2001

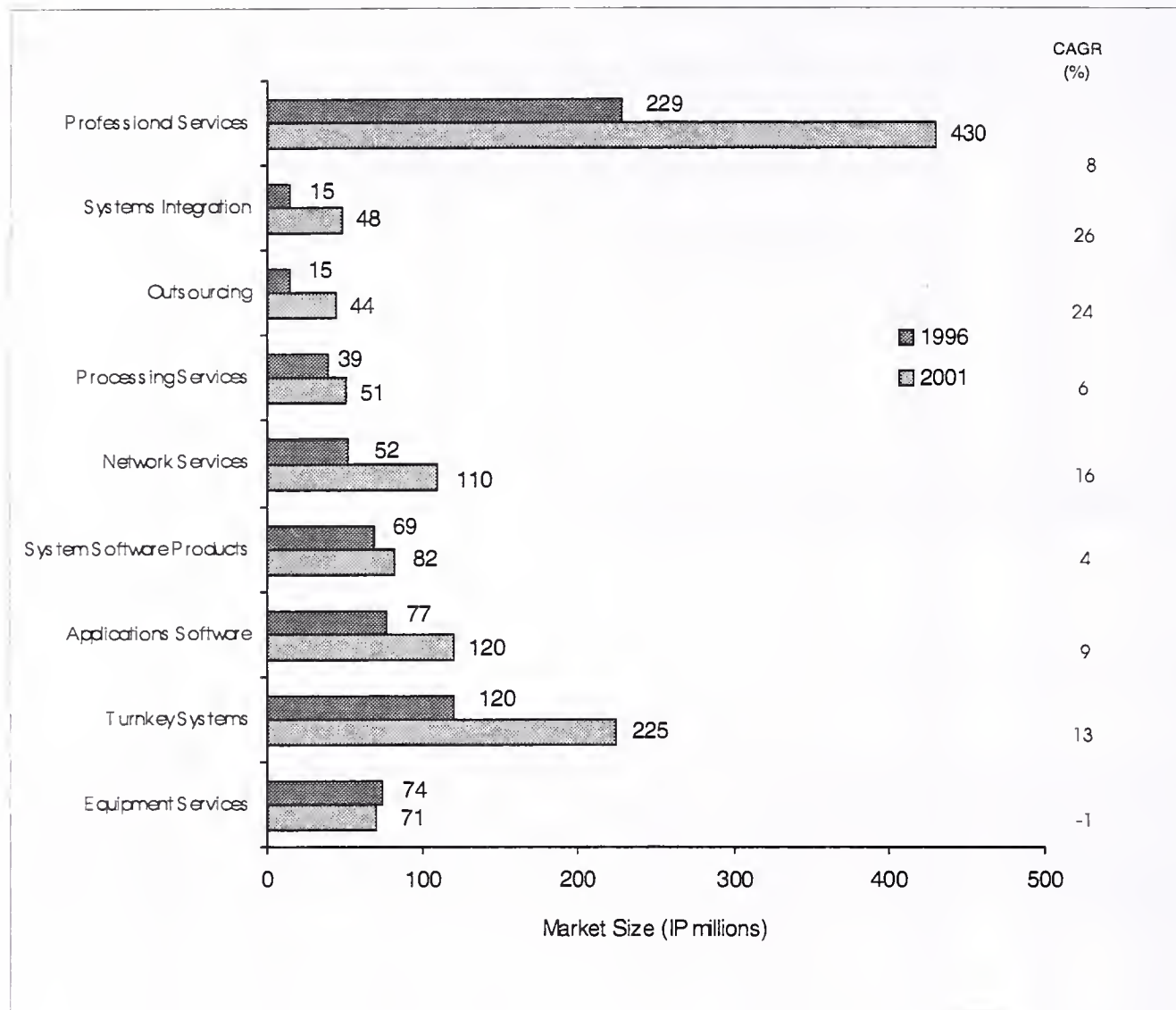


Exhibit J-3

**Information Services Market Forecast by Delivery Mode and Submode  
Ireland, 1996-2001**

Delivery Modes	IP Millions								96-1 CAGR(%)
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	
<b>Software and Services Total</b> (ex. Equipment Services)	545	13	615	705	790	880	990	1,110	13
<b>Professional Services</b>	200	15	229	261	298	335	380	430	13
- IS Consulting	23	15	27	31	35	40	45	51	14
- Education & Training	19	11	21	24	26	29	32	35	11
- Custom Software	158	15	181	207	237	267	303	344	14
<b>Systems Integration</b>	13	15	15	19	24	31	39	48	26
- Equipment	3	33	4	4	4	5	6	7	12
- Application Software	2	0	2	4	6	8	10	13	45
- System Software	1	0	1	1	2	3	3	4	32
- Professional Services	6	17	7	9	11	14	18	22	26
- Other	1	0	1	1	1	1	2	2	15
<b>Outsourcing</b>	13	15	15	21	25	30	38	44	24
- Platform Operations	4	25	5	6	7	8	9	10	15
- Application Operations	6	17	7	9	12	13	18	20	23
- Desktop Services	1	0	1	2	2	3	4	5	38
- Application Management	1	0	1	2	2	3	3	4	32
- Network Management	1	0	1	2	2	3	4	5	38
<b>Processing Services</b>	36	8	39	41	43	46	48	51	6
- Transaction Processing	27	7	29	31	32	34	36	38	6
- Utility Processing	1	0	1	1	1	1	1	1	0
- Other Processing	8	6	9	9	10	11	11	12	7
<b>Network Services</b>	45	16	52	61	71	83	94	110	16
- Electronic Info Svcs	25	14	29	33	37	42	47	54	14
- Network Applications	20	18	24	29	34	41	47	56	19
<b>System Software</b>	65	5	69	74	76	79	80	82	4
- Mainframe	30	0	30	30	30	29	28	28	-2
- Minicomputer	20	5	21	23	24	25	25	26	4
- Workstation/PC	15	17	18	22	23	25	27	28	10
<b>Application Software</b>	70	10	77	93	102	106	113	120	9
- Mainframe	10	0	10	10	10	10	9	9	-2
- Minicomputer	20	8	22	23	25	26	28	30	7
- Workstation/PC	40	13	45	60	67	70	76	81	12
<b>Turnkey Systems</b>	105	14	120	135	150	170	200	225	13
- Equipment	49	14	56	60	65	71	79	90	10
- Application Software	23	22	28	32	38	43	51	59	16
- System Software	2	0	2	3	3	4	5	5	20
- Professional Services	29	17	34	39	45	54	63	72	16
<b>Equipment Services</b>	73	1	74	73	72	71	71	71	-1
- Equipment Maintenance	48	-2	47	45	43	40	38	35	-6
- Environmental Services	25	8	27	28	29	31	33	36	6
<b>Grand Total</b>	620	11	690	780	860	950	1,065	1,180	11

## B

## Forecast Database in U.S. Dollars

Exhibit J-4

## Software and Services Market Forecast in Dollars Ireland, 1996-2001

Delivery Modes	U.S. \$ Million (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b>									
(ex. Equipment Services)	873	13	986	1,130	1,266	1,410	1,587	1,779	13
<b>Professional Services</b>	321	15	367	418	478	537	609	689	13
- IS Consulting	37	15	43	49	56	63	72	82	14
- Education & Training	30	11	34	38	42	46	51	56	11
- Custom Software	253	15	290	332	380	428	486	551	14
<b>Systems Integration</b>	21	15	24	30	39	50	63	77	26
- Equipment	5	33	6	6	6	8	10	11	12
- Application Software	3	0	3	6	10	13	16	21	45
- System Software	2	0	2	2	3	5	5	6	32
- Professional Services	10	17	11	14	18	22	29	35	26
- Other	2	0	2	2	2	2	3	3	15
<b>Outsourcing</b>	21	15	24	34	40	48	61	71	24
- Platform Operations	6	25	8	10	11	13	14	16	15
- Application Operations	10	17	11	14	19	21	29	32	23
- Desktop Services	2	0	2	3	3	5	6	8	38
- Application Management	2	0	2	3	3	5	5	6	32
- Network Management	2	0	2	3	3	5	6	8	38
<b>Processing Services</b>	58	8	63	66	69	74	77	82	6
- Transaction Processing	43	7	47	50	51	55	58	61	6
- Utility Processing	2	0	2	2	2	2	2	2	0
- Other Processing	13	6	14	14	16	17	18	19	7
<b>Network Services</b>	72	16	83	98	114	133	151	176	16
- Electronic Info Svcs	40	14	46	52	59	67	75	87	14
- Network Applications	32	18	38	46	55	65	75	90	19
<b>System Software</b>	104	5	110	119	122	126	128	131	4
- Mainframe	48	0	48	48	47	47	45	44	-2
- Minicomputer	32	5	34	36	38	39	40	42	4
- Workstation/PC	24	17	28	35	37	40	43	45	10
<b>Application Software</b>	112	10	123	149	163	170	181	192	9
- Mainframe	16	0	16	16	16	16	14	14	-2
- Minicomputer	32	8	35	37	39	42	45	48	7
- Workstation/PC	64	13	72	96	107	112	122	130	12
<b>Turnkey Systems</b>	168	14	192	216	240	272	321	361	13
- Equipment	79	14	90	96	104	114	127	144	10
- Application Software	37	22	45	51	61	69	82	95	16
- System Software	3	0	3	5	5	6	8	8	20
- Professional Services	47	17	55	63	72	87	101	115	16
<b>Equipment Services</b>	117	1	119	117	115	114	114	114	-1
- Equipment Maintenance	77	-2	75	72	69	64	61	56	-6
- Environmental Services	40	8	43	45	46	50	53	58	6
<b>Grand Total</b>	990	11	1,110	1,250	1,380	1,520	1,710	1,890	11



## C

## Forecast Database in ECUs

Exhibit J-5

## Software and Services Market Forecast in ECUs Ireland, 1996-2001

Delivery Modes	ECU Millions (rounded)								96-1 CAGR(%)
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	
<b>Software and Services Total</b>									
(ex. Equipment Services)	681	13	769	881	988	1,100	1,238	1,388	13
<b>Professional Services</b>	250	15	286	326	373	419	475	538	13
- IS Consulting	29	15	33	38	44	49	56	64	14
- Education & Training	24	11	26	29	33	36	39	44	11
- Custom Software	198	15	226	259	296	334	379	430	14
<b>Systems Integration</b>	16	15	19	24	30	39	49	60	26
- Equipment	4	33	5	5	5	6	8	9	12
- Application Software	3	0	3	5	8	10	13	16	45
- System Software	1	0	1	1	3	4	4	5	32
- Professional Services	8	17	9	11	14	18	23	28	26
- Other	1	0	1	1	1	1	3	3	15
<b>Outsourcing</b>	16	15	19	26	31	38	48	55	24
- Platform Operations	5	25	6	8	9	10	11	13	15
- Application Operations	8	17	9	11	15	16	23	25	23
- Desktop Services	1	0	1	3	3	4	5	6	38
- Application Management	1	0	1	3	3	4	4	5	32
- Network Management	1	0	1	3	3	4	5	6	38
<b>Processing Services</b>	45	8	48	51	54	57	60	64	6
- Transaction Processing	34	7	36	39	40	43	45	48	6
- Utility Processing	1	0	1	1	1	1	1	1	0
- Other Processing	10	6	11	11	13	13	14	15	7
<b>Network Services</b>	56	16	65	76	89	104	118	138	16
- Electronic Info Svcs	31	14	36	41	46	53	59	68	14
- Network Applications	25	18	29	36	43	51	59	70	19
<b>Systems Software</b>	81	5	86	93	95	98	100	102	4
- Mainframe	38	0	38	38	37	36	35	34	-2
- Minicomputer	25	5	26	28	29	31	31	33	4
- Workstation/PC	19	17	22	27	29	31	34	35	10
<b>Application Software</b>	88	10	96	116	128	133	141	150	9
- Mainframe	13	0	13	13	13	13	11	11	-2
- Minicomputer	25	8	27	29	31	33	35	38	7
- Workstation/PC	50	13	56	75	84	88	95	101	12
<b>Turnkey Systems</b>	131	14	150	169	188	213	250	281	13
- Equipment	61	14	70	75	81	89	99	113	10
- Application Software	29	22	35	40	48	54	64	74	16
- System Software	3	0	3	4	4	5	6	6	20
- Professional Services	36	17	43	49	56	68	79	90	16
<b>Equipment Services</b>	91	1	93	91	90	89	89	89	-1
- Equipment Maintenance	60	-2	59	56	54	50	48	44	-6
- Environmental Services	31	8	34	35	36	39	41	45	6
<b>Grand Total</b>	780	11	860	980	1,080	1,190	1,330	1,480	11

## D

**Information Services Forecast Reconciliation in Local Currency**

Exhibit J-6

**Forecast Reconciliation, Ireland, 1995-2000**

Currency: IP Millions	1995 Market				2000 Market				1995
Delivery Mode	1995 Report (Fcst)	1996 Report (Act)	1995-1996 Variance		1995 Report (Fcst)	1996 Report (Fcst)	1995-1996 Variance		Report %CAGR (Fcst)
			(Amount)	(%)			(Amount)	(%)	
Software and Services Total (ex Equipment Services)	390	545	155	40	560	990	430	77	8
Professional Services	96	200	104	328	135	380	245	181	7
- IS Consulting	11	23	12	109	15	45	30	200	6
- Education & Training	9	19	10	111	11	32	21	186	4
- Custom Software	76	158	82	108	109	303	194	178	7
Systems Integration	11	13	2	18	17	39	22	129	9
- Equipment	2	3	1	50	3	6	3	100	8
- Application Software	2	2	0	0	5	10	5	100	20
- System Software	1	1	0	0	1	3	2	200	0
- Professional Services	5	6	1	20	7	18	11	157	7
- Other	1	1	0	0	1	2	1	100	0
Outsourcing	12	13	1	17	27	38	11	41	18
- Platform Operations	6	4	-2	-33	12	9	-3	-25	15
- Application Operations	4	6	2	50	9	18	9	100	18
- Desktop Services	1	1	0	0	4	4	0	0	32
- Application Management	0	1	1	0	0	3	3	0	0
- Network Management	1	1	0	0	2	4	2	100	15
Processing Services	36	36	0	0	36	48	12	33	0
- Transaction Processing	26	27	1	4	23	36	13	57	-2
- Utility Processing	1	1	0	0	1	1	0	0	0
- Other Processing	9	8	-1	-6	12	11	-1	-4	6
Network Services	15	45	30	411	32	94	63	198	16
- Electronic Info Svcs	9	25	16	178	17	47	30	176	14
- Network Applications	6	20	14	233	15	47	33	224	19
System Software	60	65	5	8	68	80	13	19	2
- Mainframe	23	30	7	30	17	28	12	70	-6
- Minicomputer	20	20	1	3	23	25	2	9	3
- Workstation/PC	18	15	-3	-14	28	27	-1	-4	10
Application Software	59	70	11	19	92	113	21	23	9
- Mainframe	5	10	5	100	3	9	6	200	-10
- Minicomputer	14	20	7	48	19	28	10	51	7
- Workstation/PC	40	40	0	0	70	76	6	9	12
Turnkey Systems	100	105	5	5	155	200	45	29	9
- Equipment	49	49	1	1	62	79	18	28	5
- Application Software	22	23	1	5	42	51	9	21	14
- System Software	3	2	-1	-33	3	5	2	67	0
- Professional Services	28	29	2	5	50	63	13	26	13
Equipment Services	69	73	4	6	66	71	5	8	-1
- Equipment Maintenance	46	48	2	4	36	38	2	6	-5
- Environmental Services	23	25	2	9	30	33	3	10	5
Grand Total	460	620	160	35	630	1,065	435	69	6



# Information Services Industry Forecast Database, 1996-2001 Italy

A

Forecast Database in Local Currency (Li Billions)

Exhibit K-1

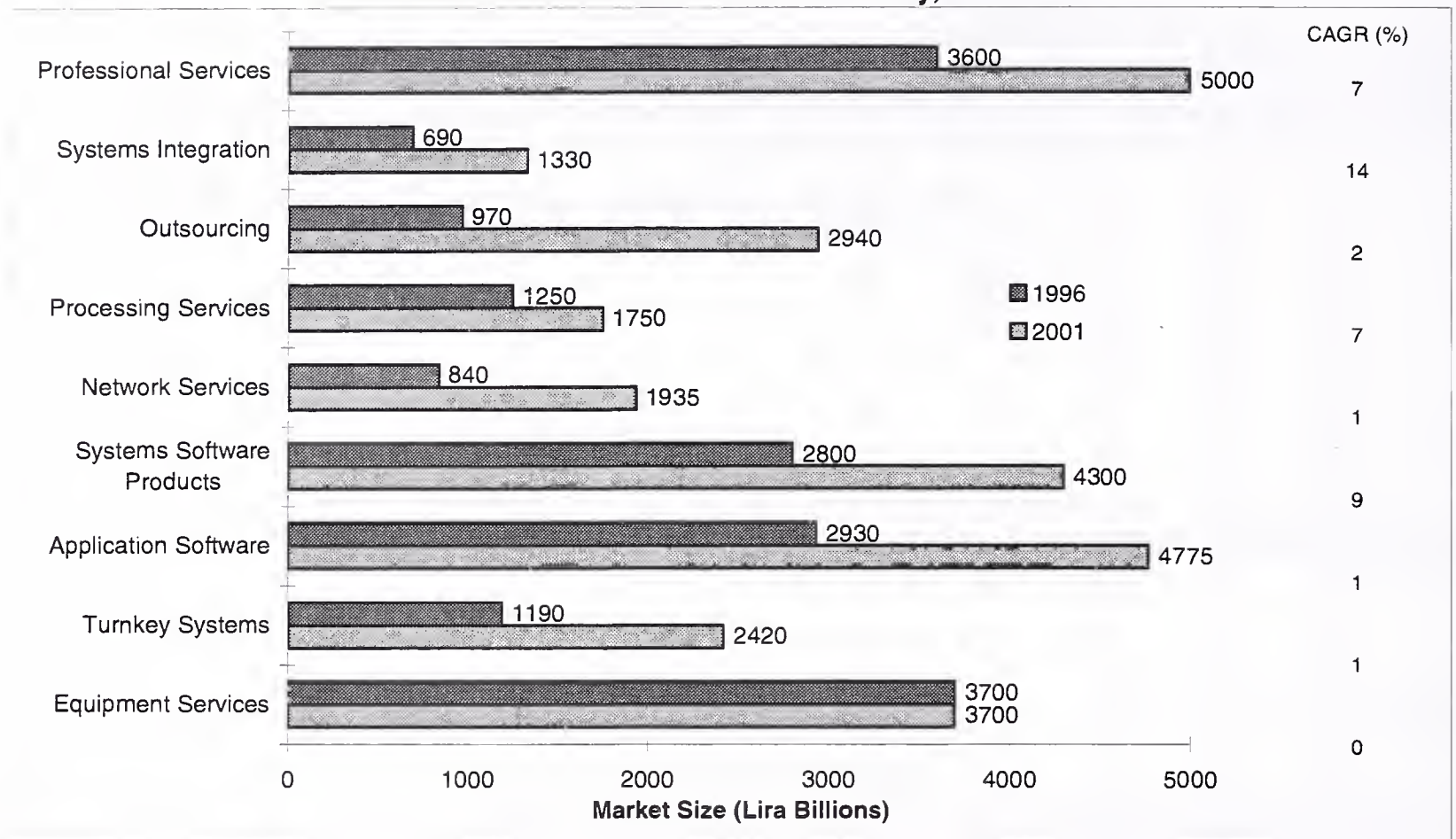
## Top Level IT Expenditure, Italy

Sector	Li Billions								CAGR (%)
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	
Total IT Spending	43,900	5	45,900	48,600	51,700	54,900	57,800	61,000	6
Equipment Sales	8,000	9	8,700	9,650	10,550	11,350	11,850	12,500	8
Mainframe	910	-1	900	880	860	850	840	830	-2
Minicomputer	1,590	2	1,620	1,655	1,705	1,775	1,830	1,885	3
PC/Workstation	5,500	13	6,200	7,100	8,000	8,700	9,200	9,800	10
Equipment Services	3,700	0	3,700	3,700	3,700	3,700	3,700	3,700	0
Software Products	5,070	13	5,730	6,595	7,365	7,980	8,575	9,075	10
Other Information Services	7,100	10	7,800	8,700	9,900	11,200	12,500	14,100	13
Data Communications	3,170	9	3,460	3,770	4,150	4,600	5,110	5,670	10
Facilities/Administration	4,350	-4	4,190	4,080	4,040	4,050	4,040	4,040	-1
In-house Staff	12,500	-2	12,300	12,100	12,000	12,000	12,000	11,900	-1



Exhibit K-2

## Software and Services Market — Italy, 1996-2001



## Exhibit K-3

**Information Services Market**  
**Forecast by Delivery Mode and Submode Italy, 1996-2001**

Delivery Modes	Li Billions								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b> (ex. Equipment Services)	12,850	11	14,250	16,150	18,200	20,200	22,250	24,450	11
<b>Professional Services</b>	3,500	3	3,600	3,800	4,100	4,400	4,700	5,000	7
- IS Consulting	624	11	695	790	925	1,080	1,265	1,480	16
- Education & Training	277	5	290	320	365	415	475	535	13
- Custom Software	2,566	2	2,615	2,695	2,775	2,860	2,915	2,975	3
<b>Systems Integration</b>	580	19	690	810	930	1,050	1,180	1,330	14
- Equipment	139	12	155	170	185	200	215	230	8
- Application Software	110	32	145	180	220	260	310	370	21
- System Software	41	22	50	60	70	75	85	95	14
- Professional Services	279	18	330	385	440	500	555	615	13
- Other	11	9	12	13	14	16	17	19	9
<b>Outsourcing</b>	670	45	970	1,320	1,690	2,070	2,480	2,940	25
- Platform Operations	150	100	300	400	470	540	620	700	18
- Application Operations	300	25	375	500	660	800	950	1,100	24
- Desktop Services	90	33	120	170	220	290	360	450	30
- Application Management	60	33	80	115	150	200	250	310	31
- Network Management	70	29	90	130	190	240	300	375	33
<b>Processing Services</b>	1,200	4	1,250	1,300	1,400	1,500	1,600	1,750	7
- Transaction Processing	1,050	4	1,090	1,145	1,205	1,280	1,380	1,490	6
- Utility Processing	20	0	20	20	20	20	25	25	5
- Other Processing	130	8	140	155	165	180	200	220	9
<b>Network Services</b>	720	17	840	975	1,150	1,365	1,620	1,935	18
- Electronic Info Svcs	440	10	485	530	585	645	710	780	10
- Network Applications	280	27	355	445	565	720	910	1,155	27
<b>System Software</b>	2,500	12	2,800	3,200	3,500	3,800	4,100	4,300	9
- Mainframe	835	0	835	840	855	870	890	910	2
- Minicomputer	820	9	895	975	1,065	1,150	1,240	1,340	8
- Workstation/PC	840	29	1,085	1,335	1,575	1,780	1,940	2,095	14
<b>Application Software</b>	2,570	14	2,930	3,395	3,865	4,180	4,475	4,775	10
- Mainframe	190	-5	181	172	162	153	146	139	-5
- Minicomputer	630	3	649	682	709	731	752	775	4
- Workstation/PC	1,750	20	2,100	2,540	2,995	3,295	3,575	3,860	13
<b>Turnkey Systems</b>	1,090	9	1,190	1,360	1,565	1,815	2,100	2,420	15
- Equipment	543	8	585	665	750	840	940	1,045	12
- Application Software	250	14	285	330	385	460	545	645	18
- System Software	22	11	25	28	33	38	43	49	15
- Professional Services	273	8	295	335	395	475	570	680	18
<b>Equipment Services</b>	3,700	0	3,700	3,700	3,700	3,700	3,700	3,700	0
- Equipment Maintenance	2,400	-2	2,350	2,305	2,235	2,145	2,060	1,960	-4
- Environmental Services	1,260	5	1,325	1,390	1,460	1,550	1,640	1,755	6
<b>Grand Total</b>	16,500	9	18,000	20,000	22,000	24,000	26,000	28,000	9

## B

## Forecast Database in U.S. Dollars

Exhibit K-4

Software and Services Market Forecast in Dollars  
Italy, 1996-2001

Delivery Modes	U.S. \$ Million (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b>									
(ex. Equipment Services)	8,100	11	9,000	10,200	11,400	12,700	14,000	15,400	11
<b>Professional Services</b>	2,200	3	2,300	2,400	2,600	2,800	3,000	3,100	7
- IS Consulting	390	11	440	500	580	680	800	930	16
- Education & Training	170	5	180	200	230	260	300	340	13
- Custom Software	1,600	2	1,600	1,700	1,700	1,800	1,800	1,900	3
<b>Systems Integration</b>	360	19	430	510	580	660	740	840	14
- Equipment	90	12	100	110	120	130	140	140	8
- Application Software	69	32	91	113	138	164	195	233	21
- System Software	26	22	31	38	44	47	53	60	14
- Professional Services	180	18	210	240	280	310	350	390	13
- Other	7	9	8	8	9	10	11	12	9
<b>Outsourcing</b>	420	45	610	830	1,060	1,300	1,560	1,850	25
- Platform Operations	90	100	190	250	300	340	390	440	18
- Application Operations	190	25	240	310	420	500	600	690	24
- Desktop Services	57	33	75	107	138	182	226	283	30
- Application Management	38	33	50	72	94	126	157	195	31
- Network Management	40	29	60	80	120	150	190	240	33
<b>Processing Services</b>	750	4	790	820	880	940	1,010	1,100	7
- Transaction Processing	660	4	690	720	760	810	870	940	6
- Utility Processing	10	0	10	10	10	10	20	20	5
- Other Processing	80	8	90	100	100	110	130	140	9
<b>Network Services</b>	450	17	530	610	720	860	1,020	1,220	18
- Electronic Info Svcs	280	10	310	330	370	410	450	490	10
- Network Applications	180	27	220	280	360	450	570	730	27
<b>System Software</b>	1,600	12	1,800	2,000	2,200	2,400	2,600	2,700	9
- Mainframe	530	0	530	530	540	550	560	570	2
- Minicomputer	520	9	560	610	670	720	780	840	8
- Workstation/PC	530	29	680	840	990	1,120	1,220	1,320	14
<b>Application Software</b>	1,600	14	1,800	2,100	2,400	2,600	2,800	3,000	10
- Mainframe	120	-5	110	110	100	100	90	90	-5
- Minicomputer	400	3	410	430	450	460	470	490	4
- Workstation/PC	1,100	20	1,300	1,600	1,900	2,100	2,200	2,400	13
<b>Turnkey Systems</b>	690	9	750	860	980	1,140	1,320	1,520	15
- Equipment	340	8	370	420	470	530	590	660	12
- Application Software	160	14	180	210	240	290	340	410	18
- System Software	14	11	15	18	20	24	27	31	15
- Professional Services	170	8	190	210	250	300	360	430	18
<b>Equipment Services</b>	2,300	0	2,300	2,300	2,300	2,300	2,300	2,300	0
- Equipment Maintenance	1,500	-2	1,500	1,400	1,400	1,300	1,300	1,200	-4
- Environmental Services	800	5	800	900	900	1,000	1,000	1,100	6
<b>Grand Total</b>	10,000	9	11,000	13,000	14,000	15,000	16,000	18,000	9



C

## Forecast Database in ECUs

Exhibit K-5

Software and Services Market Forecast in ECUs  
Italy, 1996-2001

Delivery Modes	ECU Millions (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b>									
(ex. Equipment Services)	6,300	11	7,000	8,000	9,000	10,000	11,000	12,000	11
<b>Professional Services</b>	1,700	3	1,800	1,900	2,000	2,200	2,300	2,500	7
- IS Consulting	310	11	340	390	460	530	620	730	16
- Education & Training	140	5	140	160	180	200	230	260	13
- Custom Software	1,300	2	1,300	1,300	1,400	1,400	1,400	1,500	3
<b>Systems Integration</b>	290	19	340	400	460	520	580	660	14
- Equipment	70	12	80	80	90	100	110	110	8
- Application Software	54	32	71	89	108	128	153	182	21
- System Software	20	22	25	30	34	37	42	47	14
- Professional Services	140	18	160	190	220	250	270	300	13
- Other	5	9	6	6	7	8	8	9	9
<b>Outsourcing</b>	330	45	480	650	830	1,020	1,220	1,450	25
- Platform Operations	70	100	150	200	230	270	310	340	18
- Application Operations	150	25	180	250	330	390	470	540	24
- Desktop Services	44	33	59	84	108	143	177	222	30
- Application Management	30	33	40	60	70	100	120	150	31
- Network Management	30	29	40	60	90	120	150	180	33
<b>Processing Services</b>	590	4	620	650	680	730	790	850	7
- Transaction Processing	520	4	540	560	590	630	680	730	6
- Utility Processing	10	0	10	10	10	10	10	10	5
- Other Processing	60	8	70	80	80	90	100	110	9
<b>Network Services</b>	350	17	410	480	570	670	800	950	18
- Electronic Info Svcs	220	10	240	260	290	320	350	380	10
- Network Applications	140	27	170	220	280	350	450	570	27
<b>System Software</b>	1,200	12	1,400	1,600	1,700	1,900	2,000	2,100	9
- Mainframe	410	0	410	410	420	430	440	450	2
- Minicomputer	400	9	440	480	520	570	610	660	8
- Workstation/PC	410	29	530	660	780	880	960	1,030	14
<b>Application Software</b>	1,300	14	1,400	1,700	1,900	2,100	2,200	2,400	10
- Mainframe	90	-5	90	80	80	80	70	70	-5
- Minicomputer	310	3	320	340	350	360	370	380	4
- Workstation/PC	860	20	1,030	1,250	1,480	1,620	1,760	1,900	13
<b>Turnkey Systems</b>	540	9	590	670	770	890	1,030	1,190	15
- Equipment	270	8	290	330	370	410	460	510	12
- Application Software	120	14	140	160	190	230	270	320	18
- System Software	11	11	12	14	16	18	21	24	15
- Professional Services	130	8	150	170	190	230	280	330	18
<b>Equipment Services</b>	1,800	0	1,800	1,800	1,800	1,800	1,800	1,800	0
- Equipment Maintenance	1,200	-2	1,200	1,100	1,100	1,100	1,000	1,000	-4
- Environmental Services	600	5	700	700	700	800	800	900	6
<b>Grand Total</b>	8,000	9	9,000	10,000	11,000	12,000	13,000	14,000	9

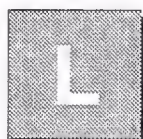
## D

## Information Services Forecast Reconciliation in Local Currency

Exhibit K-6

## Forecast Reconciliation, Italy, 1995-2000

Currency: Li Billions	1995 Market				2000 Market				1995
Delivery Mode	1995 Report (Fcst)	1996 Report (Act)	1995-1996 Variance		1995 Report (Fcst)	1996 Report (Fcst)	1995-1996 Variance		Report %CAGR (Fcst)
			(Amount)	(%)			(Amount)	(%)	
Software and Services Total									
(ex Equipment Services)	12,600	12850	250	2	18,700	22,250	3,550	19	8
<b>Professional Services</b>	3,360	3467	107	6	3,940	4,655	715	18	3
- IS Consulting	605	624	19	3	985	1,265	280	28	10
- Education & Training	280	277	-3	-1	360	475	115	32	5
- Custom Software	2,475	2566	91	4	2,595	2,915	320	12	1
<b>Systems Integration</b>	585	580	-5	-1	980	1,180	200	20	11
- Equipment	140	139	-1	-1	167	215	48	29	4
- Application Software	111	110	-1	-1	274	310	36	13	20
- System Software	41	41	0	0	69	85	16	23	11
- Professional Services	280	279	-1	0	431	555	124	29	9
- Other	12	11	-1	-8	39	17	-22	-56	27
<b>Outsourcing</b>	668	670	2	91	1,675	2,480	805	48	21
- Platform Operations	130	150	20	15	225	620	395	176	12
- Application Operations	350	300	-50	-14	940	950	10	1	22
- Desktop Services	90	90	0	0	300	360	60	20	27
- Application Management	33	60	27	82	80	250	170	213	19
- Network Management	65	70	5	8	130	300	170	131	15
<b>Processing Services</b>	1,150	1200	50	4	1,250	1,600	350	28	2
- Transaction Processing	1,010	1050	40	4	1,065	1,380	315	30	1
- Utility Processing	15	20	5	33	15	25	10	67	0
- Other Processing	120	130	10	8	165	200	35	21	7
<b>Network Services</b>	780	720	-60	-18	1,715	1,620	-95	-6	17
- Electronic Info Svcs	440	440	0	0	510	710	200	39	3
- Network Applications	340	280	-60	-18	1,205	910	-295	-24	29
<b>System Software</b>	2,600	2500	-100	-4	3,300	4,100	800	24	5
- Mainframe	830	835	5	1	610	890	280	46	-6
- Minicomputer	835	820	-15	-2	965	1,240	275	28	3
- Workstation/PC	920	840	-80	-9	1,695	1,940	245	14	13
<b>Application Software</b>	2,340	2570	230	10	4,315	4,475	160	4	13
- Mainframe	137	190	53	39	102	146	44	43	-6
- Minicomputer	456	630	175	38	315	752	438	139	-7
- Workstation/PC	1,745	1750	5	0	3,900	3,575	-325	-8	17
<b>Turnkey Systems</b>	1,100	1090	-10	-1	1,535	2,100	565	37	7
- Equipment	555	543	-12	-2	670	940	270	40	4
- Application Software	255	250	-5	-2	410	545	135	33	10
- System Software	14	22	8	57	20	43	24	121	7
- Professional Services	275	273	-2	-1	435	570	135	31	10
<b>Equipment Services</b>	3,600	3700	100	3	3,700	3,700	0	0	1
- Equipment Maintenance	2,355	2400	45	2	2,043	2,060	17	1	-3
- Environmental Services	1,253	1260	7	1	1,661	1,640	-21	-1	6
Grand Total	16,000	16500	500	3	22,500	26,000	3,500	16	7



# Information Services Industry Forecast Database, 1996-2001 Netherlands

A

## Exhibit L-1

Dfl Millions

Sector	Dfl Millions								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	CAGR (%)
Total IT Spending	23,500	9	25,500	27,500	29,500	31,500	34,000	36,500	7
<b>Equipment Sales</b>	4,700	11	5,200	5,800	6,500	7,200	7,900	8,800	11
Mainframe	820	4	850	850	850	850	850	850	0
Minicomputer	1,050	5	1,100	1,150	1,200	1,250	1,300	1,350	4
PC/Workstation	2,850	14	3,250	3,800	4,400	5,050	5,750	6,600	15
<b>Equipment Services</b>	2,460	1	2,490	2,530	2,560	2,600	2,670	2,750	2
<b>Software Products</b>	2,150	9	2,350	2,560	2,780	2,980	3,140	3,310	7
<b>Other Information Services</b>	5,100	16	5,900	6,600	7,400	8,500	9,600	10,900	13
<b>Data Communications</b>	1,700	9	1,850	2,050	2,250	2,450	2,700	2,950	10
<b>Facilities/Administration</b>	1,900	3	1,950	1,950	2,000	2,000	2,050	2,100	1
<b>In-house Staff</b>	5,700	0	5,700	5,800	5,800	5,900	5,900	5,900	1



Exhibit L-2

## Software and Services Market — Netherlands, 1996-2001

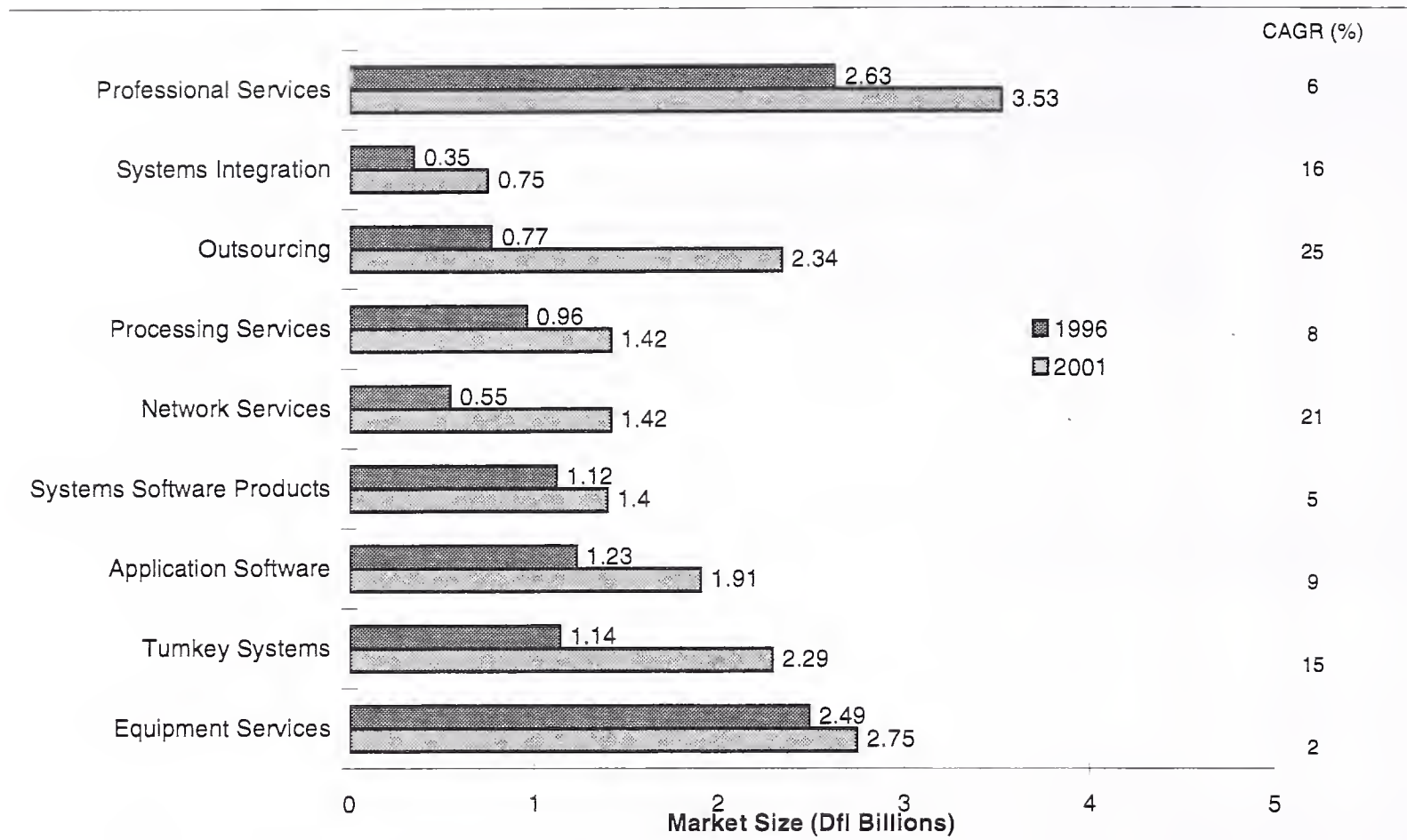


Exhibit L-3

**Information Services Market**  
**Forecast by Delivery Mode and Submode Netherlands, 1996-2001**

Delivery Modes	Dfl Millions								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b> (ex. Equipment Services)	7,800	13	8,800	9,800	10,900	12,200	13,600	15,100	11
<b>Professional Services</b>	2,400	10	2,630	2,810	3,000	3,160	3,350	3,530	6
- IS Consulting	340	12	380	425	475	520	575	630	11
- Education & Training	298	29	385	412	441	476	514	561	8
- Custom Software	1,762	6	1,860	1,970	2,080	2,160	2,260	2,340	5
<b>Systems Integration</b>	330	6	350	405	480	570	660	750	16
- Equipment	78	-5	74	77	87	91	105	120	10
- Application Software	52	29	67	81	111	142	171	196	24
- System Software	26	8	28	32	34	40	46	53	14
- Professional Services	149	9	162	190	226	273	310	353	17
- Other	23	-9	21	24	24	23	26	30	7
<b>Outsourcing</b>	600	28	770	985	1,260	1,560	1,960	2,345	25
- Platform Operations	110	18	130	160	190	220	250	280	17
- Application Operations	350	30	455	570	710	870	1,100	1,300	23
- Desktop Services	40	38	55	73	100	130	160	200	29
- Application Management	55	31	72	100	140	180	230	285	32
- Network Management	45	33	60	82	120	160	220	280	36
<b>Processing Services</b>	900	7	960	1,040	1,120	1,210	1,310	1,420	8
- Transaction Processing	800	6	850	920	990	1,070	1,160	1,260	8
- Utility Processing	25	4	26	27	28	29	30	31	4
- Other Processing	75	9	82	89	98	108	119	132	10
<b>Network Services</b>	470	18	555	660	800	970	1,180	1,415	21
- Electronic Info Svcs	270	11	300	335	380	430	485	535	12
- Network Applications	200	28	255	325	420	540	695	880	28
<b>System Software</b>	1,050	7	1,120	1,190	1,260	1,320	1,360	1,400	5
- Mainframe	400	1	405	410	415	420	410	405	0
- Minicomputer	330	6	350	370	395	420	435	450	5
- Workstation/PC	320	14	365	410	445	475	515	540	8
<b>Application Software</b>	1,100	12	1,230	1,370	1,520	1,660	1,780	1,910	9
- Mainframe	70	0	70	70	70	70	70	70	0
- Minicomputer	330	9	360	395	430	465	495	530	8
- Workstation/PC	700	14	800	900	1,020	1,120	1,210	1,310	10
<b>Turnkey Systems</b>	990	15	1,140	1,310	1,490	1,700	1,960	2,290	15
- Equipment	436	11	485	535	585	640	710	795	10
- Application Software	248	19	295	355	420	500	595	720	20
- System Software	60	15	69	80	92	106	122	142	16
- Professional Services	248	17	290	340	395	455	535	630	17
<b>Equipment Services</b>	2,460	1	2,490	2,530	2,560	2,600	2,670	2,750	2
- Equipment Maintenance	1,430	-4	1,375	1,320	1,250	1,190	1,130	1,075	-5
- Environmental Services	1,026	9	1,118	1,210	1,305	1,410	1,535	1,675	8
<b>Grand Total</b>	10,300	9	11,200	12,300	13,500	14,800	16,200	17,800	10

## B

## Forecast Database in U.S. Dollars

Exhibit L-4

Software and Services Market Forecast in Dollars  
Netherlands, 1996-2001

Delivery Modes	U.S. \$ Million (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b>									
(ex. Equipment Services)	4,875	13	5,500	6,125	6,815	7,625	8,500	9,440	11
<b>Professional Services</b>	1,500	10	1,645	1,755	1,875	1,975	2,095	2,205	6
- IS Consulting	213	12	238	266	297	325	360	394	11
- Education & Training	187	29	241	258	276	298	322	351	8
- Custom Software	1,100	6	1,165	1,230	1,300	1,350	1,415	1,465	5
<b>Systems Integration</b>	207	6	219	253	300	357	413	469	16
- Equipment	49	-5	47	48	55	57	66	75	10
- Application Software	33	29	42	51	69	89	107	123	24
- System Software	16	8	18	20	21	25	29	33	14
- Professional Services	93	9	102	119	142	171	194	221	17
- Other	14	-9	13	15	15	14	16	19	7
<b>Outsourcing</b>	375	28	482	616	788	975	1,225	1,466	25
- Platform Operations	69	18	82	100	119	138	157	175	17
- Application Operations	219	30	285	357	444	544	688	813	23
- Desktop Services	25	38	34	46	63	81	100	125	29
- Application Management	34	31	45	63	88	113	144	178	32
- Network Management	28	33	38	52	75	100	138	175	36
<b>Processing Services</b>	563	7	600	650	700	757	819	888	8
- Transaction Processing	500	6	532	575	619	669	725	788	8
- Utility Processing	16	4	17	17	18	18	19	20	4
- Other Processing	47	9	52	56	62	68	75	83	10
<b>Network Services</b>	294	18	347	413	500	607	738	885	21
- Electronic Info Svcs	169	11	188	210	238	269	303	335	12
- Network Applications	125	28	160	203	263	338	435	550	28
<b>System Software</b>	655	7	700	745	790	825	850	875	5
- Mainframe	250	1	253	257	260	263	257	253	0
- Minicomputer	207	6	219	232	247	263	272	282	5
- Workstation/PC	200	14	228	257	278	297	322	338	8
<b>Application Software</b>	690	12	770	855	950	1,040	1,115	1,195	9
- Mainframe	44	0	44	44	44	44	44	44	0
- Minicomputer	207	9	225	247	269	291	310	332	8
- Workstation/PC	440	14	500	565	640	700	755	820	10
<b>Turnkey Systems</b>	619	15	713	819	932	1,063	1,225	1,432	15
- Equipment	273	11	303	335	366	400	444	497	10
- Application Software	155	19	185	222	263	313	372	450	20
- System Software	38	15	43	50	58	66	76	89	16
- Professional Services	155	17	182	213	247	285	335	394	17
<b>Equipment Services</b>	1,540	1	1,555	1,580	1,600	1,625	1,670	1,720	2
- Equipment Maintenance	895	-4	860	825	780	745	705	670	-5
- Environmental Services	640	9	700	755	815	880	960	1,045	8
<b>Grand Total</b>	6,450	9	7,000	7,700	8,450	9,250	10,150	11,150	10



C

## Forecast Database in ECUs

Exhibit L-5

Software and Services Market Forecast in ECUs  
Netherlands, 1996-2001

Delivery Modes	ECU Millions (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b> (ex. Equipment Services)	3,805	13	4,295	4,780	5,315	5,950	6,635	7,365	11
<b>Professional Services</b>	1,170	10	1,285	1,370	1,465	1,540	1,635	1,720	6
- IS Consulting	166	12	186	208	232	254	281	308	11
- Education & Training	146	29	188	201	215	232	251	274	8
- Custom Software	860	6	905	960	1,015	1,055	1,100	1,140	5
<b>Systems Integration</b>	161	6	171	198	234	278	322	366	16
- Equipment	38	-5	36	38	43	45	51	59	10
- Application Software	25	29	33	40	54	69	83	96	24
- System Software	13	8	14	16	17	20	22	26	14
- Professional Services	73	9	79	93	110	133	151	172	17
- Other	11	-9	10	12	12	11	13	15	7
<b>Outsourcing</b>	293	28	376	481	615	761	956	1,144	25
- Platform Operations	54	18	64	78	93	108	122	137	17
- Application Operations	171	30	222	278	347	425	537	634	23
- Desktop Services	20	38	27	36	49	63	78	98	29
- Application Management	27	31	35	49	69	88	112	139	32
- Network Management	22	33	30	40	59	78	108	137	36
<b>Processing Services</b>	439	7	468	506	545	589	639	694	8
- Transaction Processing	390	6	415	449	483	522	566	615	8
- Utility Processing	12	4	13	13	14	14	15	15	4
- Other Processing	37	9	40	44	48	53	58	65	10
<b>Network Services</b>	230	18	271	322	390	473	576	690	21
- Electronic Info Svcs	132	11	147	164	186	210	237	261	12
- Network Applications	98	28	125	159	205	264	339	430	28
<b>System Software</b>	510	7	545	580	615	645	665	685	5
- Mainframe	195	1	198	200	203	205	200	198	0
- Minicomputer	161	6	171	181	193	205	212	220	5
- Workstation/PC	156	14	178	200	217	232	251	264	8
<b>Application Software</b>	535	12	600	670	740	810	870	930	9
- Mainframe	34	0	34	34	34	34	34	34	0
- Minicomputer	161	9	176	193	210	227	242	259	8
- Workstation/PC	342	14	390	439	498	547	590	639	10
<b>Turnkey Systems</b>	483	15	556	639	727	830	956	1,117	15
- Equipment	213	11	237	261	286	312	347	388	10
- Application Software	121	19	144	173	205	244	290	351	20
- System Software	29	15	34	39	45	52	60	69	16
- Professional Services	121	17	142	166	193	222	261	308	17
<b>Equipment Services</b>	1,200	1	1,215	1,235	1,250	1,270	1,300	1,340	2
- Equipment Maintenance	700	-4	670	645	610	580	550	525	-5
- Environmental Services	500	9	545	590	635	690	750	815	8
<b>Grand Total</b>	5,000	9	5,450	6,000	6,600	7,200	7,900	8,700	10

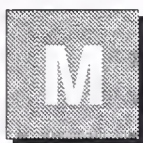
## D

## Information Services Forecast Reconciliation in Local Currency

Exhibit L-6

## Forecast Reconciliation, Netherlands, 1995-2000

Currency: Dfl Millions	1995 Market				2000 Market				1995	1996
Delivery Mode	1995 Report (Fcst)	1996 Report (Act)	1995-1996 Variance		1995 Report (Fcst)	1996 Report (Fcst)	1995-1996 Variance		1995 Report %CAGR (Fcst)	1996 Report %CAGR (Fcst)
			(Amount)	(%)			(Amount)	(%)		
Software and Services Total										
(ex Equipment Services)	9,200	7800	-1,400	-15	13,700	13,600	-100	-1	8	12
<b>Professional Services</b>	3,175	2400	-775	-73	4,581	3,349	-1,232	-27	8	7
- IS Consulting	460	340	-120	-26	800	575	-225	-28	12	11
- Education & Training	385	298	-87	-23	561	514	-47	-8	8	12
- Custom Software	2,330	1762	-568	-24	3,220	2,260	-960	-30	7	5
<b>Systems Integration</b>	350	330	-20	-6	645	660	15	2	13	0
- Equipment	84	78	-6	-7	103	105	2	2	4	15
- Application Software	56	52	-4	-7	168	171	3	2	25	6
- System Software	28	26	-2	-7	45	46	1	2	10	27
- Professional Services	158	149	-9	-6	303	310	7	2	14	12
- Other	25	23	-2	-8	26	26	0	0	1	16
<b>Outsourcing</b>	438	600	162	113	1,140	1,960	820	72	21	0
- Platform Operations	95	110	15	16	185	250	65	35	14	27
- Application Operations	160	350	190	119	385	1,100	715	186	19	18
- Desktop Services	95	40	-55	-58	325	160	-165	-51	28	26
- Application Management	55	55	0	0	180	230	50	28	27	32
- Network Management	33	45	12	36	65	220	155	238	15	37
<b>Processing Services</b>	1,090	900	-190	-17	1,440	1,310	-130	-9	6	8
- Transaction Processing	960	800	-160	-17	1,260	1,160	-100	-8	6	8
- Utility Processing	27	25	-2	-7	30	30	0	0	2	4
- Other Processing	102	75	-27	-26	154	119	-35	-23	9	10
<b>Network Services</b>	535	470	-65	-25	1,235	1,180	-55	-4	18	20
- Electronic Info Svcs	290	270	-20	-7	475	485	10	2	10	12
- Network Applications	245	200	-45	-18	760	695	-65	-9	25	28
<b>System Software</b>	1,200	1050	-150	-13	1,400	1,360	-40	-3	3	5
- Mainframe	510	400	-110	-22	395	410	15	4	-5	0
- Minicomputer	350	330	-20	-6	405	435	30	7	3	6
- Workstation/PC	355	320	-35	-10	575	515	-60	-10	10	10
<b>Application Software</b>	1,300	1100	-200	-15	1,740	1,780	40	2	6	10
- Mainframe	90	70	-20	-22	75	70	-5	-7	-4	0
- Minicomputer	400	330	-70	-18	610	495	-115	-19	9	8
- Workstation/PC	810	700	-110	-14	1,050	1,210	160	15	5	12
<b>Turnkey Systems</b>	1,070	990	-80	-7	1,510	1,960	450	30	7	15
- Equipment	470	436	-34	-7	525	710	185	35	2	10
- Application Software	265	248	-17	-6	470	595	125	27	12	19
- System Software	64	60	-4	-6	75	122	47	63	3	15
- Professional Services	275	248	-27	-10	435	535	100	23	10	17
<b>Equipment Services</b>	2,460	2460	0	0	2,650	2,670	20	1	1	2
- Equipment Maintenance	1,430	1430	0	0	1,118	1,130	12	1	-5	-5
- Environmental Services	1,026	1026	0	0	1,536	1,535	-1	0	8	8
Grand Total	11,600	10300	-1,300	-11	16,300	16,200	-100	-1	7	9



# Information Services Industry Forecast Database, 1996-2001 Norway

A

Forecast Database in Local Currency (NK Millions)

Exhibit M-1

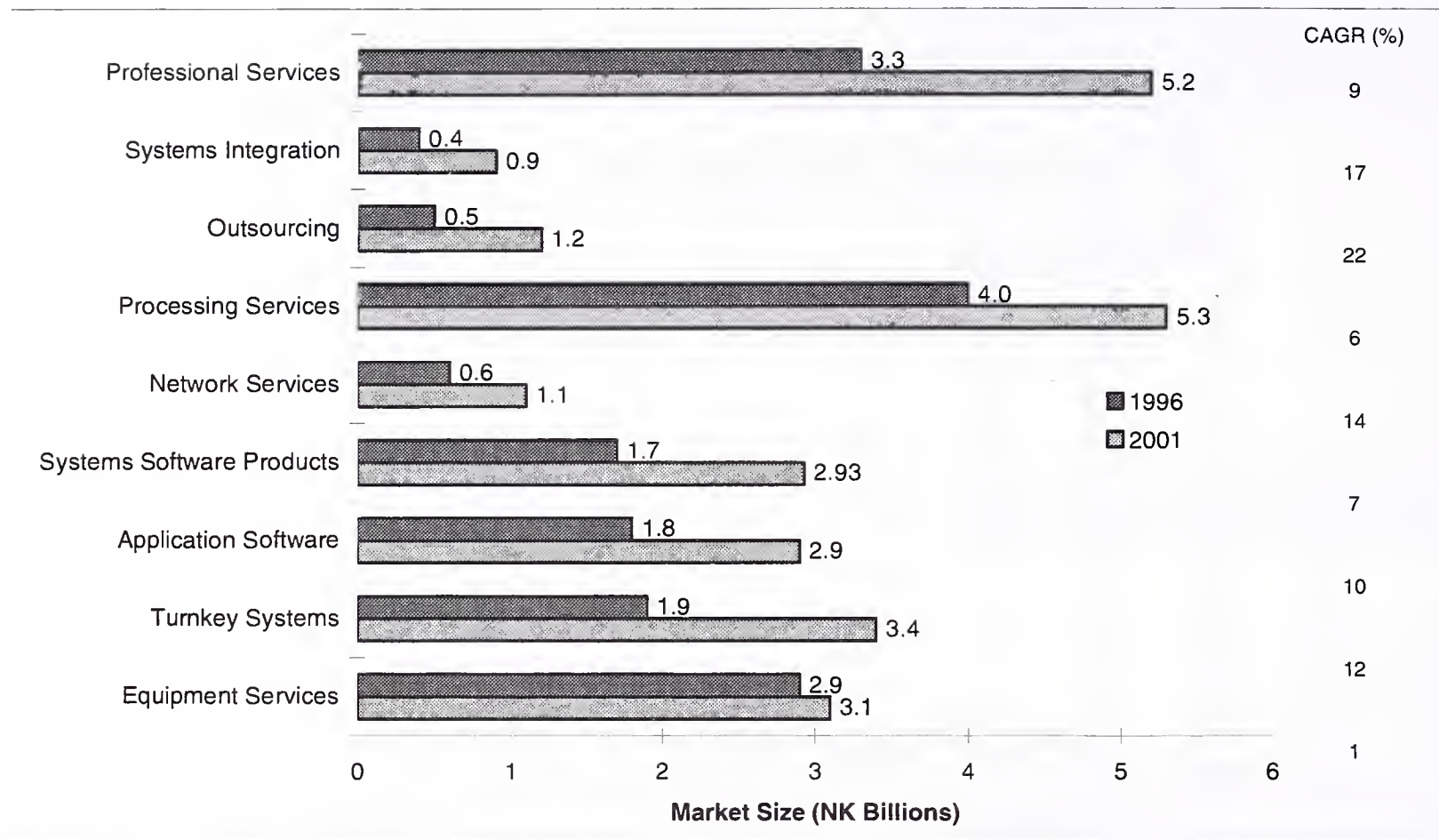
## Top Level IT Expenditure, Norway

Sector	NK Millions								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	CAGR (%)
Total IT Spending	37,000	5	39,000	41,000	43,000	46,000	49,000	52,000	6
<b>Equipment Sales</b>	7,500	7	8,000	8,600	9,200	10,000	10,700	11,700	8
Mainframe	1,400	-4	1,350	1,350	1,300	1,300	1,250	1,250	-2
Minicomputer	1,650	3	1,700	1,750	1,800	1,850	1,900	2,000	3
PC/Workstation	4,400	11	4,900	5,450	6,100	6,800	7,500	8,400	11
<b>Equipment Services</b>	2,890	1	2,910	2,940	2,960	2,980	3,010	3,050	1
<b>Software Products</b>	3,250	9	3,540	3,970	4,260	4,580	4,910	5,250	8
<b>Other Information Services</b>	8,800	9	9,600	10,500	11,500	12,700	14,000	15,400	10
<b>Data Communications</b>	2,900	7	3,100	3,300	3,500	3,700	3,950	4,200	6
<b>Facilities/Administration</b>	3,100	0	3,100	3,100	3,050	3,050	3,000	2,950	-1
<b>In-house Staff</b>	8,800	1	8,900	9,000	9,000	9,000	9,000	9,000	0



Exhibit M-2

## Software and Services Market — Norway, 1995-2000



## Exhibit M-3

**Information Services Market**  
**Forecast by Delivery Mode and Submode Norway, 1996-2001**

Delivery Modes	NK Millions								96-1 CAGR(%)
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	
<b>Software and Services Total</b> (ex. Equipment Services)	12,900	9	14,100	15,500	16,900	18,600	20,300	22,300	10
<b>Professional Services</b>	3,050	8	3,300	3,500	3,850	4,250	4,650	5,150	9
- IS Consulting	490	10	540	595	665	750	850	965	12
- Education & Training	400	9	435	475	525	590	660	745	11
- Custom Software	2,175	6	2,300	2,450	2,650	2,900	3,150	3,450	8
<b>Systems Integration</b>	255	61	410	480	565	675	790	910	17
- Equipment	60	50	90	91	96	108	118	137	9
- Application Software	41	71	70	96	125	162	197	228	27
- System Software	21	57	33	38	45	47	55	64	14
- Professional Services	113	67	189	226	267	324	379	437	18
- Other	18	61	29	29	34	34	39	46	10
<b>Outsourcing</b>	375	21	455	575	735	885	1,040	1,225	22
- Platform Operations	90	17	105	130	155	180	200	215	15
- Application Operations	185	16	215	270	340	400	460	540	20
- Desktop Services	40	38	55	70	95	120	145	175	26
- Application Management	27	30	35	47	65	85	105	125	29
- Network Management	35	29	45	60	80	100	130	170	30
<b>Processing Services</b>	3,800	5	3,990	4,190	4,400	4,660	4,960	5,260	6
- Transaction Processing	3,450	5	3,620	3,800	3,990	4,230	4,490	4,760	6
- Utility Processing	75	1	76	77	77	79	80	82	2
- Other Processing	270	7	290	310	330	355	385	415	7
<b>Network Services</b>	520	12	580	655	750	860	970	1,110	14
- Electronic Info Svcs	320	6	340	365	395	425	450	480	7
- Network Applications	200	20	240	290	355	435	520	630	21
<b>System Software</b>	1,600	8	1,720	1,930	2,010	2,120	2,250	2,360	7
- Mainframe	555	0	555	555	550	545	540	535	-1
- Minicomputer	475	6	505	535	560	590	615	645	5
- Workstation/PC	570	16	660	835	900	980	1,090	1,175	12
<b>Application Software</b>	1,650	10	1,820	2,040	2,250	2,460	2,660	2,890	10
- Mainframe	120	0	120	120	120	120	115	115	-1
- Minicomputer	460	7	490	525	560	595	630	670	6
- Workstation/PC	1,070	13	1,210	1,390	1,570	1,745	1,915	2,105	12
<b>Turnkey Systems</b>	1,640	13	1,860	2,090	2,340	2,640	2,990	3,350	12
- Equipment	805	11	895	981	1,076	1,189	1,314	1,474	10
- Application Software	345	19	410	480	561	661	776	871	16
- System Software	99	13	112	125	140	159	179	201	12
- Professional Services	394	13	447	501	561	634	717	804	12
<b>Equipment Services</b>	2,890	1	2,910	2,940	2,960	2,980	3,010	3,050	1
- Equipment Maintenance	1,750	-1	1,735	1,700	1,665	1,615	1,565	1,520	-3
- Environmental Services	1,130	4	1,175	1,235	1,295	1,360	1,440	1,530	5
<b>Grand Total</b>	15,800	8	17,000	18,400	19,900	21,500	23,300	25,300	8

## B

## Forecast Database in U.S. Dollars

Exhibit M-4

## Software and Services Market Forecast in Dollars Norway, 1996-2001

Delivery Modes	U.S. \$ Million (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b> (ex. Equipment Services)	2,040	9	2,230	2,455	2,675	2,945	3,210	3,530	10
<b>Professional Services</b>	485	8	520	555	610	670	735	815	9
- IS Consulting	78	10	86	94	105	119	135	153	12
- Education & Training	64	9	69	75	83	94	105	118	11
- Custom Software	345	6	365	390	420	460	500	545	8
<b>Systems Integration</b>	41	61	65	76	90	107	125	144	17
- Equipment	10	50	14	15	15	17	19	22	9
- Application Software	7	71	11	15	20	26	31	36	27
- System Software	3	57	5	6	7	7	9	10	14
- Professional Services	18	67	30	36	42	52	60	69	18
- Other	3	61	5	5	5	5	6	7	10
<b>Outsourcing</b>	60	21	72	91	117	140	165	194	22
- Platform Operations	14	17	17	21	25	29	32	34	15
- Application Operations	30	16	34	43	54	64	73	86	20
- Desktop Services	6	38	9	11	15	19	23	28	26
- Application Management	4	30	6	7	10	13	17	20	29
- Network Management	6	29	7	10	13	16	21	27	30
<b>Processing Services</b>	602	5	632	663	696	738	785	833	6
- Transaction Processing	546	5	573	602	632	670	711	753	6
- Utility Processing	12	1	12	12	12	13	13	13	2
- Other Processing	43	7	46	49	52	56	61	66	7
<b>Network Services</b>	83	12	92	104	119	136	154	176	14
- Electronic Info Svcs	51	6	54	58	63	67	71	76	7
- Network Applications	32	20	38	46	56	69	83	100	21
<b>System Software</b>	255	8	270	305	320	335	355	375	7
- Mainframe	88	0	88	88	87	86	86	85	-1
- Minicomputer	75	6	80	85	89	94	98	102	5
- Workstation/PC	90	16	105	132	143	155	173	186	12
<b>Application Software</b>	260	10	290	325	355	390	420	455	10
- Mainframe	19	0	19	19	19	19	18	18	-1
- Minicomputer	73	7	78	83	89	94	100	106	6
- Workstation/PC	170	13	190	220	250	275	305	335	12
<b>Turnkey Systems</b>	260	13	295	331	371	418	473	530	12
- Equipment	128	11	142	155	171	188	208	233	10
- Application Software	55	19	65	76	89	105	123	138	16
- System Software	16	13	18	20	22	25	28	32	12
- Professional Services	63	13	71	80	89	101	114	127	12
<b>Equipment Services</b>	455	1	460	465	470	470	475	485	1
- Equipment Maintenance	275	-1	275	270	265	255	250	240	-3
- Environmental Services	180	4	185	195	205	215	230	240	5
<b>Grand Total</b>	2,500	8	2,700	2,900	3,150	3,400	3,700	4,000	8



C

## Forecast Database in ECUs

Exhibit M-5

## Software and Services Market Forecast in ECUs Norway, 1996-2001

Delivery Modes	ECU Millions (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b>									
(ex. Equipment Services)	1,595	9	1,745	1,915	2,090	2,300	2,510	2,755	10
<b>Professional Services</b>	375	8	410	435	475	525	575	635	9
- IS Consulting	61	10	67	74	82	93	105	120	12
- Education & Training	50	9	54	59	65	73	82	92	11
- Custom Software	270	6	285	305	330	360	390	425	8
<b>Systems Integration</b>	32	61	51	60	70	84	98	113	17
- Equipment	8	50	11	11	12	14	15	17	9
- Application Software	5	71	9	12	15	20	24	28	27
- System Software	3	57	4	5	6	6	7	8	14
- Professional Services	14	67	24	28	33	40	47	54	18
- Other	2	61	4	4	4	4	5	6	10
<b>Outsourcing</b>	47	21	56	71	91	110	129	152	22
- Platform Operations	11	17	13	16	19	22	25	27	15
- Application Operations	23	16	27	34	42	50	57	67	20
- Desktop Services	5	38	7	9	12	15	18	22	26
- Application Management	4	30	5	6	8	11	13	16	29
- Network Management	5	29	6	8	10	13	16	21	30
<b>Processing Services</b>	469	5	493	518	544	577	613	650	6
- Transaction Processing	427	5	448	470	493	523	555	589	6
- Utility Processing	10	1	10	10	10	10	10	10	2
- Other Processing	34	7	36	39	41	44	48	52	7
<b>Network Services</b>	65	12	72	81	93	107	120	137	14
- Electronic Info Svcs	40	6	42	45	49	53	56	60	7
- Network Applications	25	20	30	36	44	54	65	78	21
<b>System Software</b>	200	8	215	240	250	260	280	290	7
- Mainframe	69	0	69	69	68	68	67	66	-1
- Minicomputer	59	6	63	66	69	73	76	80	5
- Workstation/PC	71	16	82	103	111	121	135	145	12
<b>Application Software</b>	205	10	225	250	280	305	330	355	10
- Mainframe	15	0	15	15	15	15	14	14	-1
- Minicomputer	57	7	61	65	69	74	78	83	6
- Workstation/PC	133	13	150	172	194	216	237	260	12
<b>Turnkey Systems</b>	203	13	230	259	289	327	370	414	12
- Equipment	100	11	111	122	133	147	163	182	10
- Application Software	43	19	51	60	70	82	96	108	16
- System Software	12	13	14	15	17	20	22	25	12
- Professional Services	49	13	56	62	70	79	89	100	12
<b>Equipment Services</b>	355	1	360	365	365	370	370	375	1
- Equipment Maintenance	215	-1	215	210	205	200	195	190	-3
- Environmental Services	140	4	145	155	160	170	180	190	5
<b>Grand Total</b>	1,950	8	2,100	2,250	2,450	2,650	2,900	3,150	8

## D

## Information Services Forecast Reconciliation in Local Currency

Exhibit M-6

## Forecast Reconciliation, Norway, 1995-2000

Currency: NK Millions	1995 Market				2000 Market				1995	1996
Delivery Mode	1995 Report (Fcst)	1996 Report (Act)	1995-1996 Variance		1995 Report (Fcst)	1996 Report (Fcst)	1995-1996 Variance		Report %CAGR (Fcst)	Report %CAGR (Fcst)
			(Amount)	(%)			(Amount)	(%)		
Software and Services Total										
(ex Equipment Services)	12,100	12900	800	7	15,900	20,300	4,400	28	6	9
Professional Services	2,881	3065	184	21	3,322	4,660	1,338	40	3	9
- IS Consulting	465	490	25	5	660	850	190	29	7	12
- Education & Training	366	400	34	9	462	660	198	43	5	11
- Custom Software	2,050	2175	125	6	2,200	3,150	950	43	1	8
Systems Integration	275	255	-20	-7	485	790	305	63	12	
- Equipment	63	60	-3	-5	73	118	45	62	3	25
- Application Software	44	41	-3	-7	121	197	76	63	22	14
- System Software	22	21	-1	-5	34	55	21	62	9	37
- Professional Services	127	113	-14	-11	233	379	146	63	13	21
- Other	19	18	-1	-5	24	39	15	63	5	27
Outsourcing	376	377	1	-23	825	1,040	215	26	17	
- Platform Operations	105	90	-15	-14	185	200	15	8	12	23
- Application Operations	145	185	40	28	305	460	155	51	16	17
- Desktop Services	65	40	-25	-38	200	145	-55	-28	25	20
- Application Management	28	27	-1	-4	70	105	35	50	20	29
- Network Management	33	35	2	6	65	130	65	100	15	30
Processing Services	3,340	3800	460	14	3,340	4,960	1,620	49	0	5
- Transaction Processing	3,050	3450	400	13	3,020	4,490	1,470	49	0	5
- Utility Processing	59	75	16	27	50	80	30	60	-3	1
- Other Processing	230	270	40	17	265	385	120	45	3	7
Network Services	455	520	65	29	795	970	175	22	12	13
- Electronic Info Svcs	280	320	40	14	385	450	65	17	7	7
- Network Applications	175	200	25	14	410	520	110	27	19	21
System Software	1,460	1600	140	10	1,940	2,250	310	16	6	7
- Mainframe	560	555	-5	-1	530	540	10	2	-1	-1
- Minicomputer	485	475	-10	-2	675	615	-60	-9	7	5
- Workstation/PC	410	570	160	39	735	1,090	355	48	12	14
Application Software	1,610	1650	40	2	3,020	2,660	-360	-12	13	10
- Mainframe	100	120	20	20	95	115	20	21	-1	-1
- Minicomputer	435	460	25	6	645	630	-15	-2	8	6
- Workstation/PC	1,075	1070	-5	0	2,275	1,915	-360	-16	16	12
Turnkey Systems	1,700	1640	-60	-4	2,140	2,990	850	40	5	13
- Equipment	830	805	-25	-3	945	1,314	369	39	3	10
- Application Software	355	345	-10	-3	560	776	216	39	10	18
- System Software	100	99	-1	-1	115	179	64	56	3	13
- Professional Services	410	394	-16	-4	515	717	202	39	5	13
Equipment Services	2,880	2890	10	0	2,960	3,010	50	2	1	1
- Equipment Maintenance	1,744	1750	6	0	1,545	1,565	20	1	-2	-2
- Environmental Services	1,132	1130	-2	0	1,417	1,440	23	2	5	5
Grand Total	15,000	15800	800	5	18,800	23,300	4,500	24	5	8



# Information Services Industry Forecast Database, 1996-2001 Portugal

A

Forecast Database in Local Currency (Esc Millions)

Exhibit N-1

## Top Level IT Expenditure, Portugal

Sector	Esc Millions								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	CAGR (%)
Total IT Spending	236,000	13	267,000	300,000	339,000	385,000	426,000	473,000	12
Equipment Sales	66,400	17	77,400	90,300	106,500	126,000	144,900	166,800	17
Mainframe	12,400	6	13,100	13,800	14,700	15,700	16,200	16,700	5
Minicomputer	16,500	16	19,100	22,000	25,600	29,900	33,800	38,200	15
PC/Workstation	37,500	21	45,200	54,450	66,150	80,400	94,850	111,900	20
Equipment Services	18,400	4	19,200	20,000	20,900	21,900	23,100	24,600	5
Software Products	9,070	13	10,285	11,635	13,070	14,470	15,730	17,115	11
Other Information Services	51,400	22	62,500	72,900	84,800	99,200	113,400	129,600	16
Data Communications	16,000	16	18,500	21,000	24,000	27,500	30,500	34,000	13
Facilities/Administration	16,500	6	17,500	18,500	19,500	21,000	21,500	22,000	5
In-house Staff	58,000	7	62,000	66,000	70,000	75,000	77,000	79,000	5



Exhibit N-2

## Software and Services Market, Portugal, 1996-2001

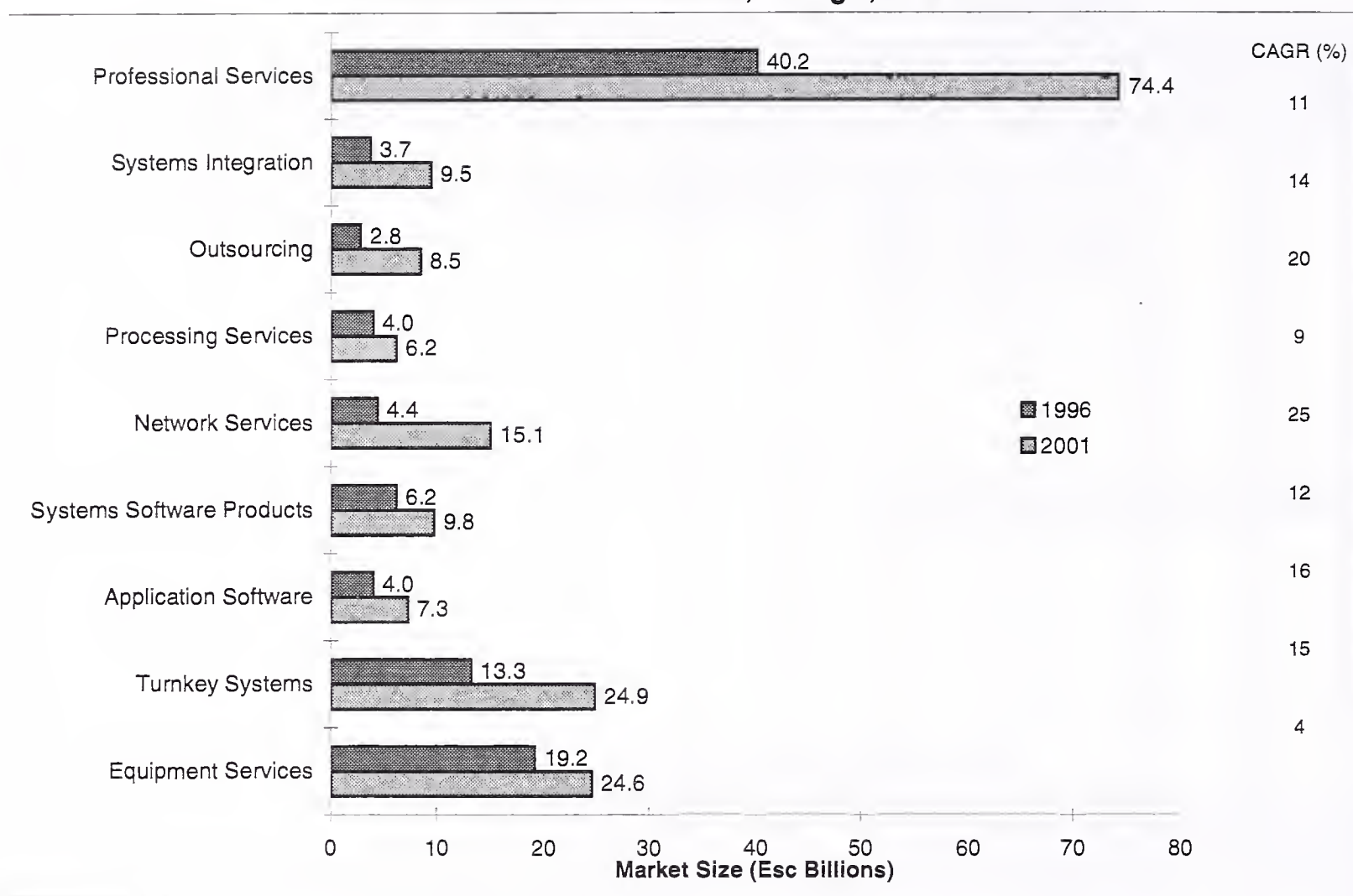


Exhibit N-3

**Information Services Market**  
**Forecast by Delivery Mode and Submode Portugal, 1996-2001**

Delivery Modes	Esc Millions								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b>									
(ex. Equipment Services)	65,000	22	79,300	91,600	105,700	122,000	138,400	157,100	15
<b>Professional Services</b>	35,000	15	40,200	45,900	52,300	59,700	66,600	74,400	13
- IS Consulting	5,952	20	7,170	8,570	10,240	12,240	14,320	16,750	18
- Education & Training	3,502	15	4,040	4,630	5,300	6,070	6,800	7,620	14
- Custom Software	25,561	13	29,000	32,650	36,750	41,350	45,500	50,050	12
<b>Systems Integration</b>	2,980	26	3,750	4,530	5,500	6,680	7,920	9,500	20
- Equipment	715	17	840	950	1,070	1,200	1,310	1,440	11
- Application Software	477	38	660	870	1,150	1,520	1,960	2,550	31
- System Software	209	20	250	290	335	385	430	485	14
- Professional Services	1,370	26	1,730	2,100	2,550	3,100	3,660	4,360	20
- Other	209	27	265	320	390	475	560	665	20
<b>Outsourcing</b>	2,250	24	2,795	3,645	4,730	5,880	7,040	8,500	25
- Platform Operations	500	20	600	750	940	1,100	1,200	1,400	18
- Application Operations	900	22	1,100	1,400	1,800	2,100	2,400	2,800	21
- Desktop Services	200	23	245	330	460	600	750	900	30
- Application Management	500	30	650	910	1,200	1,600	2,000	2,500	31
- Network Management	150	33	200	255	330	480	690	900	35
<b>Processing Services</b>	4,060	13	4,580	5,165	5,780	6,460	7,010	7,595	11
- Transaction Processing	3,260	13	3,670	4,125	4,600	5,130	5,540	5,985	10
- Utility Processing	260	8	280	310	330	350	370	380	6
- Other Processing	540	17	630	730	850	980	1,100	1,230	14
<b>Network Services</b>	3,400	29	4,400	5,750	7,400	9,550	12,050	15,150	28
- Electronic Info Svcs	1,950	25	2,430	3,020	3,700	4,530	5,390	6,410	21
- Network Applications	1,450	37	1,990	2,740	3,710	5,030	6,640	8,760	35
<b>System Software</b>	5,570	12	6,240	6,980	7,725	8,520	9,125	9,780	9
- Mainframe	2,250	10	2,465	2,700	2,930	3,150	3,275	3,405	7
- Minicomputer	1,850	11	2,055	2,280	2,555	2,860	3,090	3,335	10
- Workstation/PC	1,470	14	1,720	2,000	2,240	2,510	2,760	3,040	12
<b>Application Software</b>	3,500	16	4,045	4,655	5,345	5,950	6,605	7,335	13
- Mainframe	200	10	220	240	260	280	300	320	8
- Minicomputer	900	13	1,015	1,160	1,310	1,440	1,570	1,710	11
- Workstation/PC	2,400	17	2,810	3,255	3,775	4,230	4,735	5,305	14
<b>Turnkey Systems</b>	8,200	62	13,250	15,000	16,950	19,300	22,000	24,850	13
- Equipment	3,770	51	5,702	6,144	6,773	7,142	7,922	8,950	9
- Application Software	1,803	77	3,183	3,746	4,403	5,212	6,162	6,970	17
- System Software	410	62	663	749	847	965	1,100	1,240	13
- Professional Services	2,213	68	3,713	4,346	4,911	5,984	6,822	7,700	16
<b>Equipment Services</b>	18,400	4	19,200	20,000	20,900	21,900	23,100	24,600	5
- Equipment Maintenance	12,900	2	13,160	13,420	13,690	13,825	13,965	14,105	1
- Environmental Services	5,500	9	5,995	6,535	7,190	8,120	9,180	10,465	12
<b>Grand Total</b>	83,400	18	98,500	111,600	126,600	143,900	161,500	181,700	13

## B

## Forecast Database in U.S. Dollars

Exhibit N-4

## Software and Services Market Forecast in Dollars

Delivery Modes	U.S. \$ Million (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b>									
(ex. Equipment Services)	436	22	532	615	709	819	929	1,054	15
<b>Professional Services</b>	235	15	270	308	351	401	447	499	13
- IS Consulting	40	20	48	58	69	82	96	112	18
- Education & Training	24	15	27	31	36	41	46	51	14
- Custom Software	172	13	195	219	247	278	305	336	12
<b>Systems Integration</b>	20	26	25	30	37	45	53	64	20
- Equipment	5	17	6	6	7	8	9	10	11
- Application Software	3	38	4	6	8	10	13	17	31
- System Software	1	20	2	2	2	3	3	3	14
- Professional Services	9	26	12	14	17	21	25	29	20
- Other	1	27	2	2	3	3	4	4	20
<b>Outsourcing</b>	15	24	19	25	32	40	47	57	25
- Platform Operations	3	20	4	5	6	7	8	9	18
- Application Operations	6	22	7	9	12	14	16	19	21
- Desktop Services	1	23	2	2	3	4	5	6	30
- Application Management	3	30	4	6	8	11	13	17	31
- Network Management	1	33	1	2	2	3	5	6	35
<b>Processing Services</b>	27	13	31	35	39	43	47	51	11
- Transaction Processing	22	13	25	28	31	34	37	40	10
- Utility Processing	2	8	2	2	2	2	3	3	6
- Other Processing	4	17	4	5	6	7	7	8	14
<b>Network Services</b>	23	29	30	39	50	64	81	102	28
- Electronic Info Svcs	13	25	16	20	25	30	36	43	21
- Network Applications	10	37	13	18	25	34	45	59	35
<b>System Software</b>	37	12	42	47	52	57	61	66	9
- Mainframe	15	10	17	18	20	21	22	23	7
- Minicomputer	12	11	14	15	17	19	21	22	10
- Workstation/PC	10	14	12	13	15	17	19	20	12
<b>Application Software</b>	23	16	27	31	36	40	44	49	13
- Mainframe	1	10	2	2	2	2	2	2	8
- Minicomputer	6	13	7	8	9	10	11	12	11
- Workstation/PC	16	17	19	22	25	28	32	36	14
<b>Turnkey Systems</b>	55	62	89	101	114	130	148	167	13
- Equipment	25	51	38	41	46	48	53	60	9
- Application Software	12	77	21	25	30	35	41	47	17
- System Software	3	62	4	5	6	6	7	8	13
- Professional Services	15	68	25	29	33	40	46	52	16
<b>Equipment Services</b>	123	4	129	134	140	147	155	165	5
- Equipment Maintenance	87	2	88	90	92	93	94	95	1
- Environmental Services	37	9	40	44	48	54	62	70	12
<b>Grand Total</b>	560	18	660	750	850	970	1,080	1,220	13



# C

## Forecast Database in ECUs

Exhibit N-5

### Software and Services Market Forecast in ECUs

Delivery Modes	ECU Millions (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b>									
(ex. Equipment Services)	340	22	415	480	553	639	725	823	15
<b>Professional Services</b>	183	15	210	240	274	313	349	390	13
- IS Consulting	31	20	38	45	54	64	75	88	18
- Education & Training	18	15	21	24	28	32	36	40	14
- Custom Software	134	13	152	171	192	216	238	262	12
<b>Systems Integration</b>	16	26	20	24	29	35	42	50	20
- Equipment	4	17	4	5	6	6	7	8	11
- Application Software	3	38	3	5	6	8	10	13	31
- System Software	1	20	1	2	2	2	2	3	14
- Professional Services	7	26	9	11	13	16	19	23	20
- Other	1	27	1	2	2	2	3	3	20
<b>Outsourcing</b>	12	24	15	19	25	31	37	45	25
- Platform Operations	3	20	3	4	5	6	6	7	18
- Application Operations	5	22	6	7	9	11	13	15	21
- Desktop Services	1	23	1	2	2	3	4	5	30
- Application Management	3	30	3	5	6	8	11	13	31
- Network Management	1	33	1	1	2	3	4	5	35
<b>Processing Services</b>	21	13	24	27	30	34	37	40	11
- Transaction Processing	17	13	19	22	24	27	29	31	10
- Utility Processing	1	8	2	2	2	2	2	2	6
- Other Processing	3	17	3	4	5	5	6	6	14
<b>Network Services</b>	18	29	23	30	39	50	63	79	28
- Electronic Info Svcs	10	25	13	16	19	24	28	34	21
- Network Applications	8	37	10	14	19	26	35	46	35
<b>System Software</b>	29	12	33	37	40	45	48	51	9
- Mainframe	12	10	13	14	15	17	17	18	7
- Minicomputer	10	11	11	12	13	15	16	18	10
- Workstation/PC	8	14	9	11	12	13	15	16	12
<b>Application Software</b>	18	16	21	24	28	31	35	38	13
- Mainframe	1	10	1	1	1	2	2	2	8
- Minicomputer	5	13	5	6	7	8	8	9	11
- Workstation/PC	13	17	15	17	20	22	25	28	14
<b>Turnkey Systems</b>	43	62	69	79	89	101	115	130	13
- Equipment	20	51	30	32	36	37	42	47	9
- Application Software	9	77	17	20	23	27	32	37	17
- System Software	2	62	3	4	4	5	6	6	13
- Professional Services	12	68	19	23	26	31	36	40	16
<b>Equipment Services</b>	96	4	101	105	109	115	121	129	5
- Equipment Maintenance	68	2	69	70	72	72	73	74	1
- Environmental Services	29	9	31	34	38	43	48	55	12
<b>Grand Total</b>	440	18	520	580	660	750	850	950	13

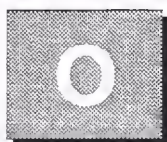
## D

## Information Services Forecast Reconciliation in Local Currency

Exhibit N-6

## Forecast Reconciliation, Portugal, 1995-2000

Delivery Mode	1995 Report (Fcst)	1996 Report (Act)	1995-1996 Variance		1995 Report (Fcst)	1996 Report (Fcst)	1995-1996 Variance		Report %CAGR (Fcst)	Report %CAGR (Fcst)
			(Amount)	(%)			(Amount)	(%)		
<b>Software and Services Total</b>										
(ex Equipment Services)	36,000	65000	29,000	81	68,900	138,400	69,500	101	14	16
<b>Professional Services</b>	8,678	35015	26,337	888	13,908	66,620	52,712	379	11	14
- IS Consulting	1,370	5952	4,582	334	2,820	14,320	11,500	408	16	19
- Education & Training	1,008	3502	2,494	247	1,638	6,800	5,162	315	10	14
- Custom Software	6,300	25561	19,261	306	9,450	45,500	36,050	381	8	12
<b>Systems Integration</b>	2,230	2980	750	34	4,290	7,920	3,630	85	14	0
- Equipment	535	715	180	34	644	1,310	666	103	4	22
- Application Software	357	477	120	34	1,116	1,960	844	76	26	13
- System Software	156	209	53	34	301	430	129	43	14	33
- Professional Services	1,026	1370	344	34	1,975	3,660	1,685	85	14	16
- Other	156	209	53	34	258	560	302	117	11	22
<b>Outsourcing</b>	2,250	2250	0	-26	5,470	7,040	1,570	29	20	0
- Platform Operations	480	500	20	4	960	1,200	240	25	15	26
- Application Operations	725	900	175	24	1,700	2,400	700	41	19	19
- Desktop Services	385	200	-185	-48	1,250	750	-500	-40	27	22
- Application Management	500	500	0	0	1,250	2,000	750	60	20	30
- Network Management	160	150	-10	-6	310	690	380	123	14	36
<b>Processing Services</b>	4,000	4060	60	2	6,150	7,010	860	14	9	12
- Transaction Processing	3,450	3260	-190	-6	5,250	5,540	290	6	9	11
- Utility Processing	150	260	110	73	180	370	190	106	4	7
- Other Processing	380	540	160	42	730	1,100	370	51	14	15
<b>Network Services</b>	1,980	3400	1,420	175	6,200	12,030	5,830	94	25	29
- Electronic Info Svcs	1,350	1950	600	44	3,500	5,390	1,890	54	21	23
- Network Applications	630	1450	820	130	2,700	6,640	3,940	146	34	36
<b>System Software</b>	5,850	5570	-280	-5	10,150	9,125	-1,025	-10	12	10
- Mainframe	2,100	2250	150	7	2,250	3,275	1,025	46	1	8
- Minicomputer	2,100	1850	-250	-12	3,900	3,090	-810	-21	13	11
- Workstation/PC	1,640	1470	-170	-10	4,000	2,760	-1,240	-31	20	13
<b>Application Software</b>	3,800	3500	-300	-8	7,900	6,605	-1,295	-16	16	14
- Mainframe	230	200	-30	-13	280	300	20	7	4	8
- Minicomputer	1,000	900	-100	-10	1,750	1,570	-180	-10	12	12
- Workstation/PC	2,560	2400	-160	-6	5,850	4,735	-1,115	-19	18	15
<b>Turnkey Systems</b>	7,200	8200	1,000	14	14,750	22,000	7,250	49	15	22
- Equipment	3,250	3770	520	16	5,350	7,922	2,572	48	10	16
- Application Software	1,590	1803	213	13	4,070	6,162	2,092	51	21	28
- System Software	370	410	40	11	700	1,100	400	57	14	22
- Professional Services	2,000	2213	213	11	4,650	6,822	2,172	47	18	25
<b>Equipment Services</b>	18,400	18400	0	0	22,400	23,100	700	3	4	5
- Equipment Maintenance	12,954	12900	-54	0	13,886	13,965	79	1	1	2
- Environmental Services	5,400	5500	100	2	8,539	9,180	641	8	10	11
<b>Grand Total</b>	54,400	83400	29,000	53	91,300	161,500	70,200	77	11	14



# Information Services Industry Forecast Database, 1996-2001 Spain

A

### Forecast Database in Local Currency (Ptas Millions)

Exhibit O-1

## Top Level IT Expenditure, Spain

Sector	Ptas Millions								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	CAGR (%)
Total IT Spending	1,380,000	5	1,450,000	1,540,000	1,660,000	1,780,000	1,930,000	2,100,000	8
Equipment Sales	295,000	7	315,000	350,000	390,000	435,000	485,000	550,000	12
Mainframe	35,000	-3	34,000	34,000	34,000	34,000	33,000	33,000	-1
Minicomputer	98,000	-1	97,000	99,000	101,000	102,000	102,000	104,000	1
PC/Workstation	160,000	15	184,000	217,000	256,000	301,000	350,000	414,000	18
Equipment Services	117,500	2	119,500	122,000	124,000	128,000	131,500	135,500	3
Software Products	97,700	5	102,800	107,900	114,400	122,000	131,800	141,100	7
Other Information Services	257,000	13	290,000	324,000	368,000	415,000	473,000	539,000	13
Data Communications	122,000	8	131,800	144,900	159,700	176,000	193,900	213,700	10
Facilities/Administration	123,500	-1	122,000	123,000	124,000	126,000	127,000	129,000	1
In-house Staff	370,000	-1	365,000	370,000	375,000	380,000	385,000	390,000	1



## Exhibit O-2

## Software and Services Market, Spain, 1996-2001

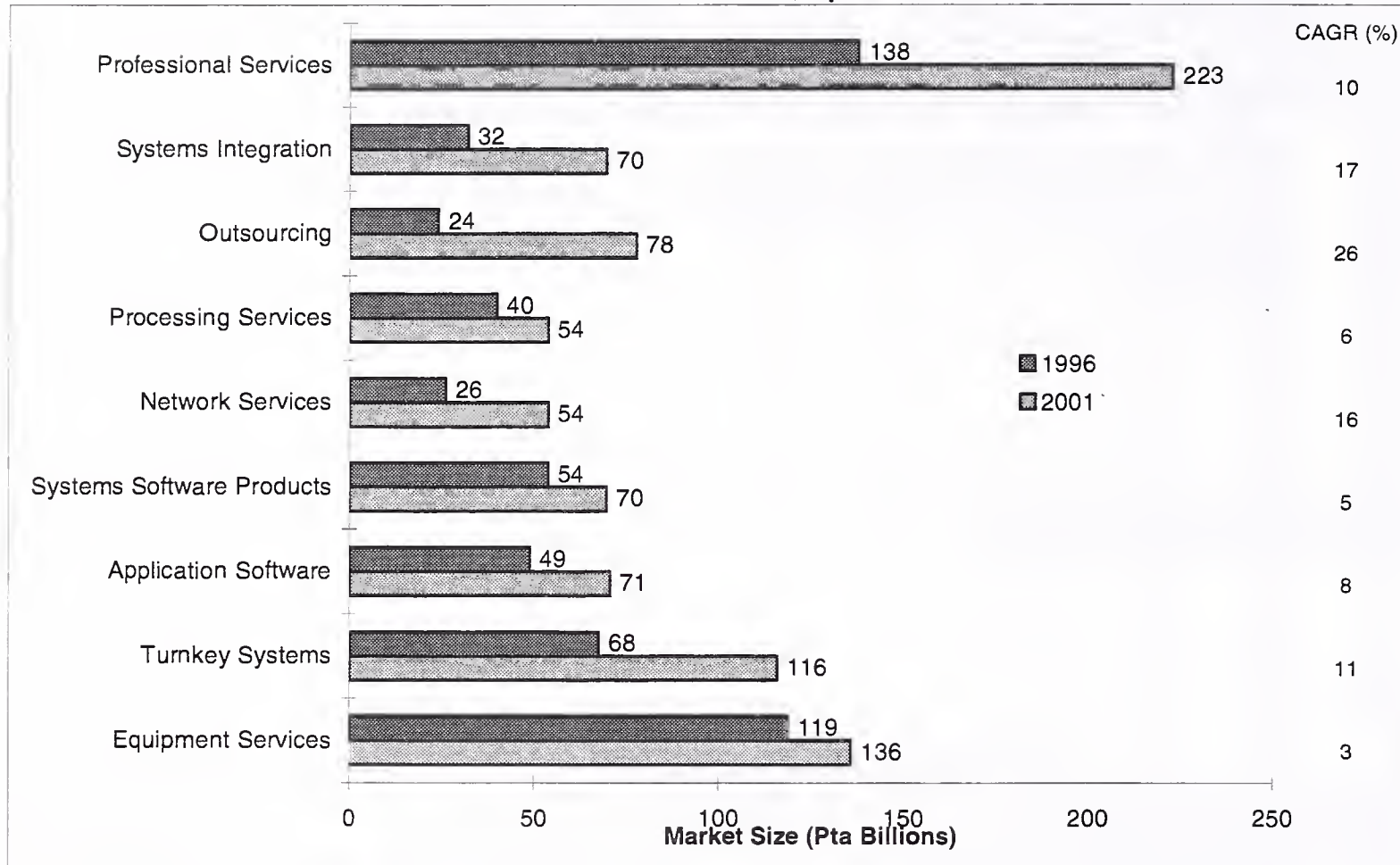


Exhibit O-3

**Information Services Market**  
**Forecast by Delivery Mode and Submode Spain, 1996-2001**

Delivery Modes	Ptas Millions								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b> (ex. Equipment Services)	388,000	11	430,000	472,000	525,000	584,000	656,000	736,000	11
<b>Professional Services</b>	125,000	10	138,000	149,000	164,000	180,000	200,000	223,000	10
- IS Consulting	20,037	17	23,500	27,500	32,000	37,500	44,500	52,500	17
- Education & Training	11,272	6	12,000	12,500	13,500	14,500	15,500	17,000	7
- Custom Software	93,926	9	102,000	109,000	118,000	128,000	140,000	153,000	8
<b>Systems Integration</b>	27,800	15	31,900	36,600	42,200	49,200	58,100	69,800	17
- Equipment	6,400	8	6,900	7,400	7,900	8,500	9,300	10,300	8
- Application Software	4,453	28	5,700	7,200	9,100	11,600	14,900	19,400	28
- System Software	2,226	12	2,500	2,800	3,150	3,550	4,050	4,700	13
- Professional Services	12,801	16	14,800	17,000	19,600	22,800	26,700	31,800	17
- Other	1,948	2	1,995	2,200	2,400	2,700	3,100	3,600	13
<b>Outsourcing</b>	20,000	22	24,400	32,300	42,600	52,500	64,800	78,300	26
- Platform Operations	4,300	19	5,100	6,300	7,600	8,750	9,900	11,000	17
- Application Operations	8,700	21	10,500	13,500	17,600	21,000	25,500	30,500	24
- Desktop Services	1,500	20	1,800	2,500	3,200	4,200	5,400	6,800	30
- Application Management	3,000	30	3,900	5,500	7,600	9,600	12,000	14,500	30
- Network Management	2,500	24	3,100	4,500	6,600	8,900	12,000	15,500	38
<b>Processing Services</b>	37,200	7	39,700	42,000	44,500	47,100	50,400	53,900	6
- Transaction Processing	31,700	7	33,900	36,000	38,200	40,600	43,500	46,600	7
- Utility Processing	2,200	5	2,300	2,350	2,450	2,500	2,600	2,750	4
- Other Processing	3,250	6	3,450	3,600	3,800	4,000	4,250	4,500	5
<b>Network Services</b>	22,400	14	25,600	29,700	34,700	40,800	47,600	53,700	16
- Electronic Info Svcs	15,000	13	17,000	19,500	22,500	26,100	30,100	33,500	15
- Network Applications	7,350	17	8,600	10,200	12,200	14,700	17,500	20,200	19
<b>System Software</b>	52,200	3	53,800	55,400	57,900	61,000	65,800	70,100	5
- Mainframe	20,000	-2	19,600	19,200	19,200	19,600	20,100	20,500	1
- Minicomputer	18,100	2	18,500	18,800	19,600	20,800	22,100	23,500	5
- Workstation/PC	14,100	11	15,650	17,370	19,110	20,640	23,580	26,060	11
<b>Application Software</b>	45,500	8	49,000	52,500	56,500	61,000	66,000	71,000	8
- Mainframe	3,050	-2	3,000	3,000	3,000	3,000	2,950	2,950	0
- Minicomputer	12,200	5	12,800	13,500	14,200	14,900	15,700	16,500	5
- Workstation/PC	30,450	9	33,190	36,180	39,510	43,140	47,110	51,440	9
<b>Turnkey Systems</b>	58,100	17	67,900	74,900	82,900	92,600	103,400	116,200	11
- Equipment	26,717	14	30,500	32,700	35,200	38,300	41,600	45,400	8
- Application Software	12,777	20	15,300	17,400	19,800	22,700	26,000	30,000	14
- System Software	2,904	17	3,400	3,750	4,150	4,650	5,200	5,850	11
- Professional Services	15,681	19	18,700	21,000	23,700	26,900	30,600	34,900	13
<b>Equipment Services</b>	117,500	2	119,500	122,000	124,000	128,000	131,500	135,500	3
- Equipment Maintenance	73,800	-2	72,320	70,880	68,750	66,690	64,020	61,460	-3
- Environmental Services	43,500	9	47,415	51,210	55,305	61,390	67,530	74,280	9
<b>Grand Total</b>	<b>506,000</b>	<b>9</b>	<b>550,000</b>	<b>594,000</b>	<b>649,000</b>	<b>712,000</b>	<b>788,000</b>	<b>872,000</b>	<b>10</b>

## B

## Forecast Database in U.S. Dollars

Exhibit O-4

## Software and Services Market Forecast in Dollars

Delivery Modes	U.S. \$ Million (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b> (ex. Equipment Services)	3,205	11	3,555	3,900	4,340	4,825	5,420	6,085	11
<b>Professional Services</b>	1,035	10	1,140	1,230	1,355	1,490	1,655	1,845	10
- IS Consulting	166	17	194	228	265	310	368	434	17
- Education & Training	93	6	99	104	112	120	128	141	7
- Custom Software	775	9	845	900	975	1,060	1,155	1,265	8
<b>Systems Integration</b>	230	15	264	303	349	407	480	577	17
- Equipment	53	8	57	61	66	70	77	85	8
- Application Software	37	28	47	60	75	96	123	160	28
- System Software	18	12	21	23	26	29	33	39	13
- Professional Services	106	16	123	141	162	189	221	263	17
- Other	16	2	17	18	20	22	26	30	13
<b>Outsourcing</b>	166	22	202	267	352	434	536	647	26
- Platform Operations	36	19	42	52	63	73	82	91	17
- Application Operations	72	21	87	112	146	174	211	252	24
- Desktop Services	12	20	15	21	26	35	45	56	30
- Application Management	25	30	32	45	63	79	99	120	30
- Network Management	21	24	26	37	55	74	99	128	38
<b>Processing Services</b>	308	7	328	347	368	390	417	446	6
- Transaction Processing	262	7	280	298	316	336	360	385	7
- Utility Processing	18	5	19	20	20	21	22	23	4
- Other Processing	27	6	29	30	32	33	35	37	5
<b>Network Services</b>	185	14	212	246	287	337	394	444	16
- Electronic Info Svcs	124	13	141	161	186	216	249	277	15
- Network Applications	61	17	71	85	101	122	145	167	19
<b>System Software</b>	430	3	445	460	480	505	545	580	5
- Mainframe	166	-2	162	159	159	162	166	170	1
- Minicomputer	150	2	153	156	162	172	183	194	5
- Workstation/PC	117	11	130	144	158	171	195	216	11
<b>Application Software</b>	375	8	405	435	465	505	545	585	8
- Mainframe	25	-2	25	25	25	25	25	25	0
- Minicomputer	101	5	106	112	118	123	130	137	5
- Workstation/PC	250	9	275	300	325	355	390	425	9
<b>Turnkey Systems</b>	480	17	561	619	685	766	855	961	11
- Equipment	221	14	252	270	291	317	344	375	8
- Application Software	106	20	127	144	164	188	215	248	14
- System Software	24	17	28	31	34	38	43	48	11
- Professional Services	130	19	155	174	196	223	253	289	13
<b>Equipment Services</b>	970	2	990	1,010	1,025	1,060	1,085	1,120	3
- Equipment Maintenance	610	-2	600	585	570	550	530	510	-3
- Environmental Services	360	9	390	425	455	505	560	615	9
<b>Grand Total</b>	4,200	9	4,550	4,900	5,350	5,900	6,500	7,200	10



**C**  
**Forecast Database in ECUs**  
 Exhibit O-5

**Software and Services Market Forecast in ECUs**

Delivery Modes	ECU Millions (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b> (ex. Equipment Services)	2,405	11	2,665	2,925	3,255	3,620	4,065	4,560	11
<b>Professional Services</b>	775	10	855	925	1,015	1,115	1,240	1,380	10
- IS Consulting	124	17	146	171	199	233	276	326	17
- Education & Training	70	6	75	78	84	90	96	106	7
- Custom Software	580	9	630	675	730	795	865	950	8
<b>Systems Integration</b>	172	15	198	227	262	305	360	433	17
- Equipment	40	8	43	46	49	53	58	64	8
- Application Software	28	28	35	45	56	72	92	120	28
- System Software	14	12	16	17	20	22	25	29	13
- Professional Services	80	16	92	106	122	142	166	197	17
- Other	12	2	12	14	15	17	19	22	13
<b>Outsourcing</b>	124	22	151	200	264	326	402	485	26
- Platform Operations	27	19	32	39	47	54	62	68	17
- Application Operations	54	21	65	84	109	130	158	189	24
- Desktop Services	9	20	11	16	20	26	33	42	30
- Application Management	19	30	24	34	47	60	75	90	30
- Network Management	16	24	19	28	41	55	75	96	38
<b>Processing Services</b>	230	7	246	260	276	292	312	334	6
- Transaction Processing	197	7	210	223	237	252	270	289	7
- Utility Processing	14	5	15	15	15	16	16	17	4
- Other Processing	20	6	22	23	24	25	27	28	5
<b>Network Services</b>	139	14	159	184	215	253	295	333	16
- Electronic Info Svcs	93	13	106	121	140	162	187	208	15
- Network Applications	46	17	54	63	76	91	109	125	19
<b>System Software</b>	325	3	335	345	360	380	410	435	5
- Mainframe	124	-2	122	119	119	122	125	127	1
- Minicomputer	112	2	115	117	122	129	137	146	5
- Workstation/PC	88	11	97	108	119	128	146	162	11
<b>Application Software</b>	280	8	305	325	350	380	410	440	8
- Mainframe	19	-2	19	19	19	19	19	19	0
- Minicomputer	76	5	80	84	88	93	98	102	5
- Workstation/PC	189	9	206	224	245	268	292	319	9
<b>Turnkey Systems</b>	360	17	421	464	514	574	641	720	11
- Equipment	166	14	189	203	218	238	258	282	8
- Application Software	79	20	95	108	123	141	161	186	14
- System Software	18	17	21	23	26	29	32	36	11
- Professional Services	97	19	116	130	147	167	190	216	13
<b>Equipment Services</b>	730	2	740	755	770	795	815	840	3
- Equipment Maintenance	455	-2	450	440	425	415	395	380	-3
- Environmental Services	270	9	295	315	345	380	420	460	9
<b>Grand Total</b>	<b>3,150</b>	<b>9</b>	<b>3,400</b>	<b>3,700</b>	<b>4,000</b>	<b>4,400</b>	<b>4,900</b>	<b>5,400</b>	<b>10</b>

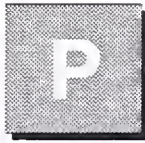
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## Information Services Forecast Reconciliation in Local Currency

Exhibit O-6

## Forecast Reconciliation, Spain, 1995-2000

Delivery Mode	1995 Report (Fcst)	1996 Report (Act)	1995-1996 Variance		1995 Report (Fcst)	1996 Report (Fcst)	1995-1996 Variance		Report %CAGR (Fcst)
			(Amount)	(%)			(Amount)	(%)	
Software and Services Total (ex Equipment Services)	345,000	388000	43,000	12	545,000	656,000	111,000	20	10
<b>Professional Services</b>	94,085	125235	31,150	95	133,747	200,000	66,253	50	7
- IS Consulting	15,500	20037	4,537	29	30,000	44,500	14,500	48	14
- Education & Training	8,585	11272	2,687	31	10,747	15,500	4,753	44	5
- Custom Software	70,000	93926	23,926	34	93,000	140,000	47,000	51	6
<b>Systems Integration</b>	21,100	27800	6,700	32	38,900	58,100	19,200	49	13
- Equipment	4,851	6400	1,549	32	5,829	9,300	3,471	60	4
- Application Software	3,374	4453	1,079	32	10,103	14,900	4,797	47	25
- System Software	1,687	2226	539	32	2,720	4,050	1,330	49	10
- Professional Services	9,701	12801	3,100	32	18,263	26,700	8,437	46	13
- Other	1,476	1948	472	32	1,943	3,100	1,157	60	6
<b>Outsourcing</b>	13,930	20000	6,070	414	33,200	64,800	31,600	95	19
- Platform Operations	4,550	4300	-250	-5	8,900	9,900	1,000	11	14
- Application Operations	4,450	8700	4,250	96	12,000	25,500	13,500	113	22
- Desktop Services	960	1500	540	56	3,300	5,400	2,100	64	28
- Application Management	770	3000	2,230	290	2,000	12,000	10,000	500	21
- Network Management	3,200	2500	-700	-22	7,000	12,000	5,000	71	17
<b>Processing Services</b>	35,900	37200	1,300	4	43,600	50,400	6,800	16	4
- Transaction Processing	30,600	31700	1,100	4	37,300	43,500	6,200	17	4
- Utility Processing	2,200	2200	0	0	2,300	2,600	300	13	1
- Other Processing	3,100	3250	150	5	3,950	4,250	300	8	5
<b>Network Services</b>	22,100	22350	250	4	43,600	47,600	4,000	9	15
- Electronic Info Svcs	15,100	15000	-100	-1	25,000	30,100	5,100	20	11
- Network Applications	7,000	7350	350	5	18,600	17,500	-1,100	-6	22
<b>System Software</b>	51,500	52200	700	1	66,900	65,800	-1,100	-2	5
- Mainframe	17,100	20000	2,900	17	12,800	20,100	7,300	57	-6
- Minicomputer	18,700	18100	-600	-3	24,200	22,100	-2,100	-9	5
- Workstation/PC	15,650	14100	-1,550	-10	29,940	23,580	-6,360	-21	14
<b>Application Software</b>	47,500	45500	-2,000	-4	100,500	66,000	-34,500	-34	16
- Mainframe	2,800	3050	250	9	2,450	2,950	500	20	-3
- Minicomputer	12,100	12200	100	1	18,800	15,700	-3,100	-16	9
- Workstation/PC	32,800	30450	-2,350	-7	79,260	47,110	-32,150	-41	19
<b>Turnkey Systems</b>	58,900	58100	-800	-1	84,500	103,400	18,900	22	7
- Equipment	26,800	26717	-83	0	32,900	41,600	8,700	26	4
- Application Software	13,000	12777	-223	-2	22,000	26,000	4,000	18	11
- System Software	3,350	2904	-446	-13	4,300	5,200	900	21	5
- Professional Services	15,700	15681	-19	0	25,300	30,600	5,300	21	10
<b>Equipment Services</b>	117,000	117500	500	0	125,000	131,500	6,500	5	1
- Equipment Maintenance	73,696	73800	104	0	62,626	64,020	1,394	2	-3
- Environmental Services	43,524	43500	-24	0	62,191	67,530	5,339	9	7
<b>Grand Total</b>	<b>462,000</b>	<b>506000</b>	<b>44,000</b>	<b>10</b>	<b>670,000</b>	<b>788,000</b>	<b>118,000</b>	<b>18</b>	<b>8</b>



# Information Services Industry Forecast Database, 1996-2001 Sweden

A

## Forecast Database in Local Currency (SK Millions)

Exhibit P-1

### Top Level IT Expenditure, Sweden

Sector	SK Millions								CAGR (%)
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	
Total IT Spending	66,000	8	71,000	76,000	82,000	88,000	95,000	103,000	8
<b>Equipment Sales</b>	11,700	7	12,500	13,400	14,400	15,400	16,300	17,700	7
Mainframe	1,600	0	1,600	1,600	1,600	1,600	1,600	1,600	0
Minicomputer	2,650	4	2,750	2,850	2,950	3,050	3,100	3,250	3
PC/Workstation	7,400	9	8,100	8,900	9,800	10,700	11,600	12,800	10
<b>Equipment Services</b>	6,250	5	6,550	6,850	7,150	7,450	7,800	8,100	4
<b>Software Products</b>	4,700	6	4,960	5,260	5,560	5,880	6,230	6,570	6
<b>Other Information Services</b>	15,700	13	17,800	20,600	24,000	27,300	31,700	35,900	15
<b>Data Communications</b>	5,900	7	6,300	6,800	7,300	7,800	8,400	9,000	7
<b>Facilities/Administration</b>	6,000	2	6,100	6,100	6,200	6,200	6,300	6,400	1
<b>In-house Staff</b>	16,200	2	16,500	17,000	17,500	18,000	18,500	19,000	3



## Exhibit P-2

## Software and Services Market — Sweden, 1996-2001

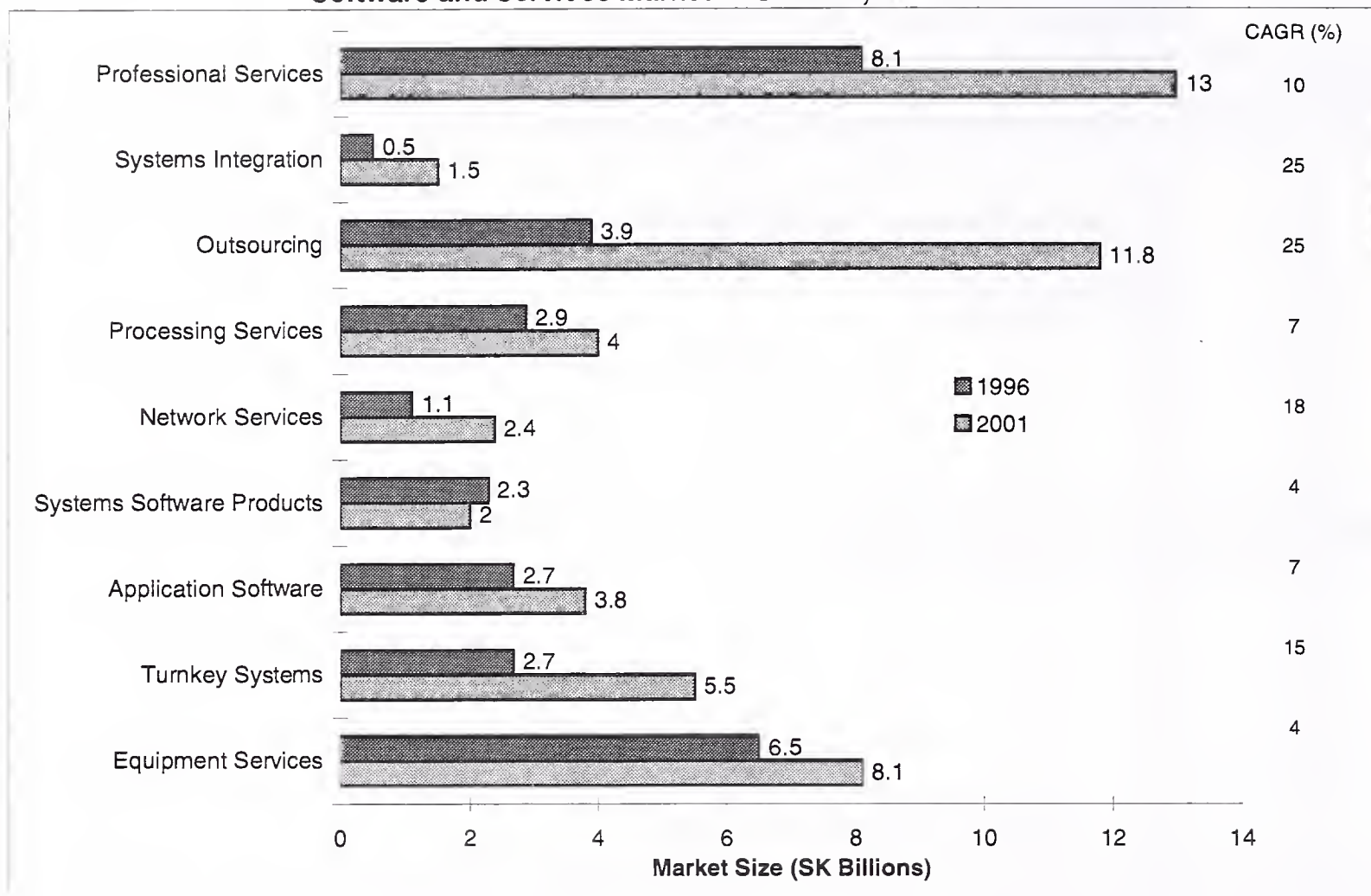


Exhibit P-3

**Information Services Market**  
**Forecast by Delivery Mode and Submode Sweden, 1996-2001**

Delivery Modes	SK Millions								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b> (ex. Equipment Services)	21,600	11	24,000	27,200	31,100	34,900	39,900	44,700	13
<b>Professional Services</b>	7,290	11	8,070	8,890	9,830	10,660	11,990	13,020	10
- IS Consulting	802	15	920	1,050	1,200	1,350	1,570	1,760	14
- Education & Training	511	8	550	590	630	660	720	760	7
- Custom Software	5,980	10	6,600	7,250	8,000	8,650	9,700	10,500	10
<b>Systems Integration</b>	400	20	480	600	730	910	1,140	1,440	25
- Equipment	96	15	110	130	150	175	205	240	17
- Application Software	64	33	85	115	155	210	285	390	36
- System Software	30	17	35	42	51	62	76	94	22
- Professional Services	180	22	220	275	340	420	525	660	25
- Other	28	4	29	33	38	43	49	57	14
<b>Outsourcing</b>	3,100	24	3,855	5,160	6,720	8,260	10,050	11,800	25
- Platform Operations	650	20	780	1,000	1,200	1,400	1,600	1,800	18
- Application Operations	1,500	20	1,800	2,400	3,100	3,700	4,300	5,000	23
- Desktop Services	400	38	550	760	1,000	1,300	1,700	2,000	29
- Application Management	250	30	325	470	660	860	1,100	1,300	32
- Network Management	300	33	400	530	760	1,000	1,350	1,700	34
<b>Processing Services</b>	2,700	7	2,880	3,045	3,250	3,480	3,725	3,980	7
- Transaction Processing	2,430	7	2,600	2,750	2,940	3,150	3,380	3,620	7
- Utility Processing	54	2	55	56	57	58	59	61	2
- Other Processing	215	5	225	240	255	270	285	300	6
<b>Network Services</b>	920	14	1,050	1,240	1,470	1,750	2,050	2,400	18
- Electronic Info Svcs	550	8	595	665	745	835	920	1,005	11
- Network Applications	370	22	450	570	720	910	1,130	1,390	25
<b>System Software</b>	2,200	3	2,270	2,360	2,440	2,530	2,670	2,790	4
- Mainframe	1,020	-3	990	980	970	960	950	940	-1
- Minicomputer	630	4	655	695	735	780	825	875	6
- Workstation/PC	550	13	620	680	730	790	890	970	9
<b>Application Software</b>	2,500	8	2,690	2,900	3,120	3,350	3,560	3,780	7
- Mainframe	175	0	175	175	175	175	175	175	0
- Minicomputer	640	7	685	725	770	815	855	900	6
- Workstation/PC	1,680	9	1,830	1,995	2,175	2,360	2,525	2,700	8
<b>Turnkey Systems</b>	2,450	10	2,700	3,050	3,500	4,000	4,700	5,450	15
- Equipment	1,055	6	1,120	1,230	1,370	1,540	1,740	1,970	12
- Application Software	539	12	605	700	820	970	1,155	1,375	18
- System Software	147	5	155	170	185	205	230	260	11
- Professional Services	711	13	800	950	1,100	1,300	1,550	1,850	18
<b>Equipment Services</b>	6,250	5	6,550	6,850	7,150	7,450	7,800	8,100	4
- Equipment Maintenance	3,650	1	3,690	3,725	3,760	3,800	3,835	3,875	1
- Environmental Services	2,610	9	2,845	3,130	3,380	3,650	3,940	4,220	8
<b>Grand Total</b>	27,800	10	30,500	34,100	38,200	42,400	47,700	52,800	12

## B

## Forecast Database in U.S. Dollars

Exhibit P-4

## Software and Services Market Forecast in Dollars

Delivery Modes	U.S. \$ Million (rounded)								96-1 CAGR(%)
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	
Software and Services Total									
(ex. Equipment Services)	3,260	11	3,620	4,105	4,690	5,265	6,020	6,740	13
<b>Professional Services</b>	1,100	11	1,215	1,340	1,485	1,610	1,810	1,965	10
- IS Consulting	121	15	139	159	181	204	237	266	14
- Education & Training	77	8	83	89	95	100	109	115	7
- Custom Software	900	10	995	1,095	1,205	1,305	1,465	1,585	10
<b>Systems Integration</b>	61	20	73	91	110	138	172	217	25
- Equipment	15	15	17	20	23	27	31	36	17
- Application Software	10	33	13	17	23	32	43	59	36
- System Software	5	17	5	6	8	9	11	14	22
- Professional Services	27	22	33	42	52	64	79	100	25
- Other	4	4	4	5	6	7	7	9	14
<b>Outsourcing</b>	468	24	582	779	1,014	1,246	1,516	1,780	25
- Platform Operations	98	20	118	151	181	211	242	272	18
- Application Operations	226	20	272	362	468	558	649	754	23
- Desktop Services	60	38	83	115	151	196	256	302	29
- Application Management	38	30	49	71	100	130	166	196	32
- Network Management	45	33	61	80	115	151	204	257	34
<b>Processing Services</b>	407	7	435	460	490	525	562	601	7
- Transaction Processing	367	7	392	415	444	475	510	546	7
- Utility Processing	8	2	9	9	9	9	9	9	2
- Other Processing	33	5	34	36	39	41	43	45	6
<b>Network Services</b>	139	14	159	187	222	264	309	362	18
- Electronic Info Svcs	83	8	90	101	113	126	139	152	11
- Network Applications	56	22	68	86	109	138	171	210	25
<b>System Software</b>	330	3	340	355	370	380	405	420	4
- Mainframe	154	-3	150	148	147	145	144	142	-1
- Minicomputer	95	4	99	105	111	118	125	132	6
- Workstation/PC	83	13	94	103	110	119	134	147	9
<b>Application Software</b>	375	8	405	435	470	505	535	570	7
- Mainframe	27	0	27	27	27	27	27	27	0
- Minicomputer	97	7	104	110	116	123	129	136	6
- Workstation/PC	255	9	275	300	330	355	380	405	8
<b>Turnkey Systems</b>	370	10	407	460	528	604	709	822	15
- Equipment	159	6	169	186	207	233	263	297	12
- Application Software	82	12	92	106	124	147	174	208	18
- System Software	22	5	23	26	28	31	35	39	11
- Professional Services	107	13	121	144	166	196	234	279	18
<b>Equipment Services</b>	945	5	990	1,035	1,080	1,125	1,175	1,220	4
- Equipment Maintenance	550	1	555	560	565	575	580	585	1
- Environmental Services	395	9	430	470	510	550	595	635	8
Grand Total	4,200	10	4,600	5,150	5,750	6,400	7,200	7,950	12



C

## Forecast Database in ECUs

Exhibit P-5

## Software and Services Market Forecast in ECUs

Delivery Modes	ECU Millions (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b> (ex. Equipment Services)	2,545	11	2,825	3,205	3,665	4,110	4,700	5,265	13
<b>Professional Services</b>	860	11	950	1,045	1,160	1,255	1,410	1,535	10
- IS Consulting	95	15	109	124	142	159	185	208	14
- Education & Training	60	8	65	70	74	78	85	90	7
- Custom Software	705	10	775	855	940	1,020	1,145	1,235	10
<b>Systems Integration</b>	47	20	57	71	86	107	135	170	25
- Equipment	12	15	13	16	18	21	24	29	17
- Application Software	8	33	10	14	18	25	34	46	36
- System Software	4	17	4	5	6	7	9	11	22
- Professional Services	21	22	26	33	40	50	62	78	25
- Other	3	4	3	4	5	5	6	7	14
<b>Outsourcing</b>	365	24	454	608	792	973	1,184	1,390	25
- Platform Operations	77	20	92	118	142	165	189	212	18
- Application Operations	177	20	212	283	365	436	507	589	23
- Desktop Services	47	38	65	90	118	153	200	236	29
- Application Management	30	30	39	56	78	102	130	153	32
- Network Management	36	33	47	63	90	118	159	200	34
<b>Processing Services</b>	318	7	339	359	383	410	439	469	7
- Transaction Processing	286	7	306	324	347	371	398	427	7
- Utility Processing	7	2	7	7	7	7	7	7	2
- Other Processing	26	5	27	29	30	32	34	36	6
<b>Network Services</b>	109	14	124	146	173	206	242	283	18
- Electronic Info Svcs	65	8	70	79	88	99	109	119	11
- Network Applications	44	22	53	67	85	107	133	164	25
<b>System Software</b>	260	3	265	280	285	300	315	330	4
- Mainframe	120	-3	117	116	115	113	112	111	-1
- Minicomputer	74	4	77	82	87	92	97	103	6
- Workstation/PC	65	13	73	80	86	93	105	115	9
<b>Application Software</b>	295	8	315	340	365	395	420	445	7
- Mainframe	21	0	21	21	21	21	21	21	0
- Minicomputer	76	7	81	86	91	96	101	106	6
- Workstation/PC	198	9	216	235	256	278	298	318	8
<b>Turnkey Systems</b>	289	10	318	359	412	471	554	642	15
- Equipment	125	6	132	145	162	182	205	232	12
- Application Software	64	12	72	83	97	115	136	162	18
- System Software	17	5	18	20	22	24	27	31	11
- Professional Services	84	13	94	112	130	153	183	218	18
<b>Equipment Services</b>	735	5	770	805	840	880	920	955	4
- Equipment Maintenance	430	1	435	440	445	450	450	455	1
- Environmental Services	305	9	335	370	400	430	465	495	8
<b>Grand Total</b>	3,250	10	3,600	4,000	4,500	5,000	5,600	6,200	12

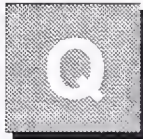
## D

## Information Services Forecast Reconciliation in Local Currency

Exhibit P-6

## Forecast Reconciliation, Sweden, 1995-2000

Delivery Mode	1995 Report (Fcst)	1996 Report (Act)	1995-1996 Variance		1995 Report (Fcst)	1996 Report (Fcst)	1995-1996 Variance		Report %CAGR (Fcst)	Report %CAGR (Fcst)
			(Amount)	(%)			(Amount)	(%)		
Software and Services Total (ex Equipment Services)	25,600	21600	-4,000	-16	40,700	39,900	-800	-2	10	13
<b>Professional Services</b>	10,344	7293	-3,051	-90	15,041	11,990	-3,051	-20	8	10
- IS Consulting	1,180	802	-378	-32	1,940	1,570	-370	-19	10	14
- Education & Training	714	511	-203	-28	1,001	720	-281	-28	7	7
- Custom Software	8,450	5980	-2,470	-29	12,100	9,700	-2,400	-20	7	10
<b>Systems Integration</b>	400	400	0	0	670	1,140	470	70	11	0
- Equipment	96	96	0	0	108	205	97	90	2	23
- Application Software	64	64	0	0	175	285	110	63	22	16
- System Software	32	30	-2	-6	47	76	29	62	8	35
- Professional Services	180	180	0	0	310	525	215	69	11	20
- Other	28	28	0	0	34	49	15	44	4	24
<b>Outsourcing</b>	2,945	3100	155	124	6,970	10,050	3,080	44	19	0
- Platform Operations	590	650	60	10	1,200	1,600	400	33	15	27
- Application Operations	1,500	1500	0	0	3,400	4,300	900	26	18	20
- Desktop Services	530	400	-130	-25	1,600	1,700	100	6	25	23
- Application Management	160	250	90	56	410	1,100	690	168	21	34
- Network Management	165	300	135	82	360	1,350	990	275	17	35
<b>Processing Services</b>	2,850	2700	-150	-5	2,900	3,725	825	28	0	7
- Transaction Processing	2,560	2430	-130	-5	2,550	3,380	830	33	0	7
- Utility Processing	54	54	1	1	51	59	9	17	-1	2
- Other Processing	235	215	-20	-9	300	285	-15	-5	5	6
<b>Network Services</b>	1,035	920	-115	-23	2,255	2,050	-205	-9	17	17
- Electronic Info Svcs	595	550	-45	-8	1,005	920	-85	-8	11	11
- Network Applications	440	370	-70	-16	1,250	1,130	-120	-10	23	25
<b>System Software</b>	2,360	2200	-160	-7	2,990	2,670	-320	-11	5	4
- Mainframe	1,040	1020	-20	-2	890	950	60	7	-3	-1
- Minicomputer	670	630	-40	-6	900	825	-75	-8	6	6
- Workstation/PC	650	550	-100	-15	1,200	890	-310	-26	13	10
<b>Application Software</b>	2,870	2500	-370	-13	5,620	3,560	-2,060	-37	14	7
- Mainframe	170	175	5	3	145	175	30	21	-3	0
- Minicomputer	700	640	-60	-9	1,080	855	-225	-21	9	6
- Workstation/PC	2,000	1680	-320	-16	4,395	2,525	-1,870	-43	17	8
<b>Turnkey Systems</b>	2,750	2450	-300	-11	4,200	4,700	500	12	9	14
- Equipment	1,190	1055	-135	-11	1,500	1,740	240	16	5	11
- Application Software	605	539	-66	-11	1,105	1,155	50	5	13	16
- System Software	165	147	-18	-11	205	230	25	12	4	9
- Professional Services	800	711	-89	-11	1,400	1,550	150	11	12	17
<b>Equipment Services</b>	6,050	6250	200	3	7,400	7,800	400	5	4	5
- Equipment Maintenance	3,650	3650	0	0	3,836	3,835	-1	0	1	1
- Environmental Services	2,398	2610	212	9	3,555	3,940	385	11	8	9
Grand Total	31,600	27800	-3,800	-12	48,100	47,700	-400	-1	9	11



# Information Services Industry Forecast Database, 1996-2001 Switzerland

A

Forecast Database in Local Currency (SF Millions)

Exhibit Q-1

## Top Level IT Expenditure, Switzerland

Sector	SF Millions								CAGR (%)
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	
Total IT Spending	15,000	3	15,400	15,900	16,500	17,100	17,800	18,500	4
<b>Equipment Sales</b>	3,450	3	3,550	3,650	3,850	3,950	4,100	4,300	4
Mainframe	960	-11	850	750	670	590	510	450	-12
Minicomputer	610	7	650	710	770	820	870	940	8
PC/Workstation	1,900	8	2,050	2,200	2,400	2,550	2,700	2,900	7
<b>Equipment Services</b>	1,360	1	1,380	1,410	1,450	1,480	1,510	1,550	2
<b>Software Products</b>	1,290	8	1,390	1,595	1,725	1,820	2,005	2,145	9
<b>Other Information Services</b>	2,250	9	2,450	2,650	2,900	3,300	3,650	4,050	11
<b>Data Communications</b>	1,250	4	1,300	1,350	1,400	1,450	1,500	1,550	4
<b>Facilities/Administration</b>	1,000	0	1,000	1,050	1,050	1,100	1,100	1,100	2
<b>In-house Staff</b>	4,400	-2	4,300	4,200	4,100	4,000	3,900	3,800	-2



## Exhibit Q-2

## Software and Services Market, Switzerland, 1996-2001

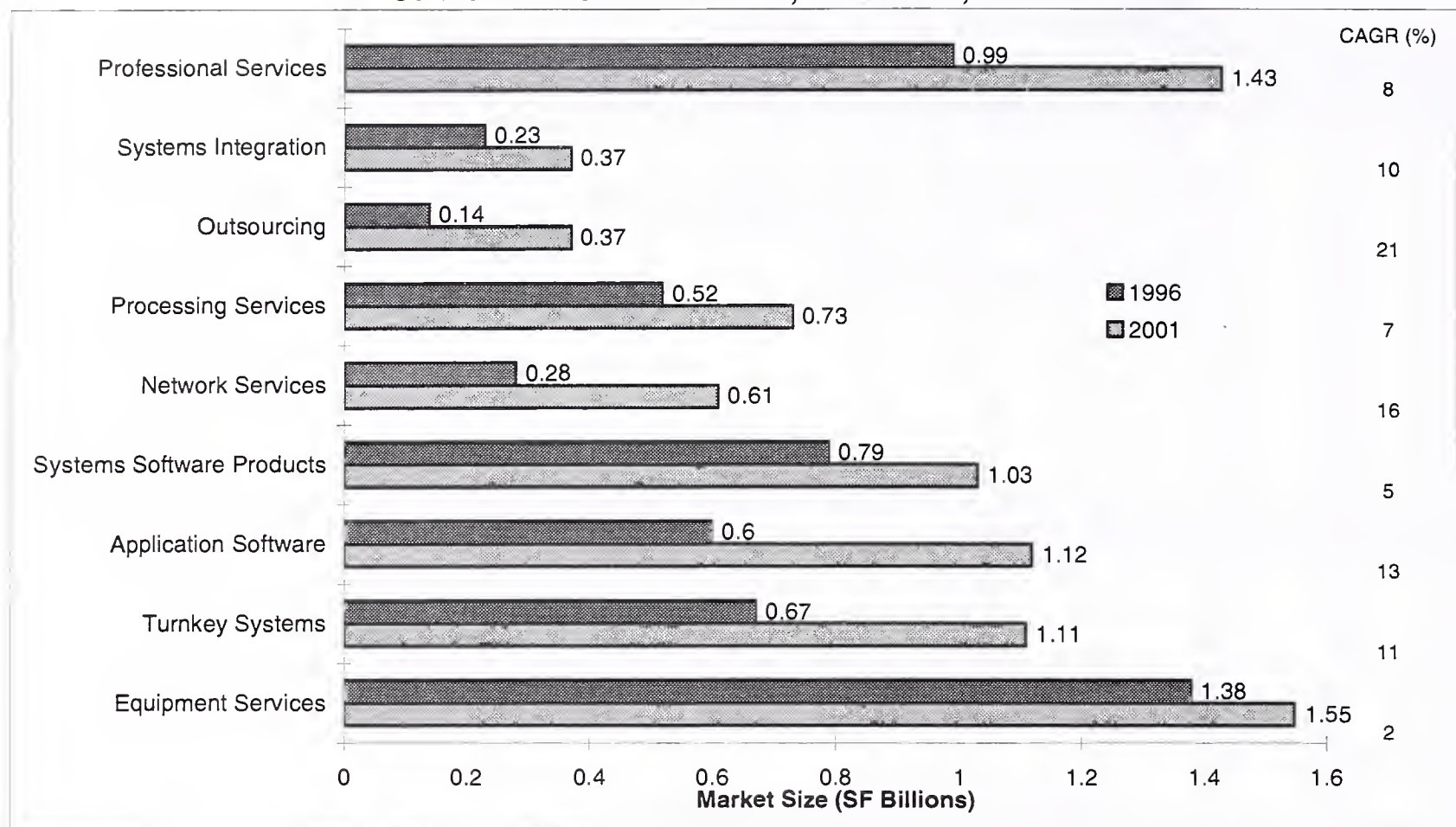


Exhibit Q-3

**Information Services Market**  
**Forecast by Delivery Mode and Submode Switzerland, 1996-2001**

Delivery Modes	SF Millions								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b> (ex. Equipment Services)	3,950	8	4,250	4,700	5,100	5,600	6,200	6,750	10
<b>Professional Services</b>	970	2	990	1,040	1,110	1,200	1,310	1,430	8
- IS Consulting	120	8	130	145	165	190	220	255	14
- Education & Training	160	2	163	168	175	184	193	204	5
- Custom Software	685	2	700	730	770	830	895	975	7
<b>Systems Integration</b>	210	10	230	250	285	315	345	370	10
- Equipment	53	0	53	56	54	54	56	59	2
- Application Software	29	21	35	43	54	73	83	96	22
- System Software	17	6	18	18	20	22	24	26	8
- Professional Services	95	12	106	117	137	149	167	174	10
- Other	17	6	18	18	20	19	17	15	-4
<b>Outsourcing</b>	120	18	142	170	207	253	308	365	21
- Platform Operations	23	17	27	32	37	43	50	55	15
- Application Operations	65	20	78	95	117	145	175	210	22
- Desktop Services	15	20	18	23	30	38	50	62	28
- Application Management	6	17	7	7	8	10	13	15	16
- Network Management	11	9	12	13	15	17	20	23	14
<b>Processing Services</b>	485	7	520	550	590	630	680	730	7
- Transaction Processing	420	7	450	475	510	545	585	630	7
- Utility Processing	17	0	17	18	18	18	19	19	2
- Other Processing	48	8	52	57	62	67	74	80	9
<b>Network Services</b>	255	12	285	330	385	450	525	605	16
- Electronic Info Svcs	190	8	205	230	260	290	325	355	12
- Network Applications	65	23	80	100	125	160	200	250	26
<b>System Software</b>	760	4	790	845	875	910	975	1,025	5
- Mainframe	335	-4	320	305	295	285	280	270	-3
- Minicomputer	240	4	250	260	275	290	310	330	6
- Workstation/PC	185	19	220	280	305	335	385	425	14
<b>Application Software</b>	530	13	600	750	850	910	1,030	1,120	13
- Mainframe	60	-3	58	57	55	53	52	50	-3
- Minicomputer	150	10	165	180	200	220	240	265	10
- Workstation/PC	320	19	380	515	590	635	735	805	16
<b>Turnkey Systems</b>	630	6	670	740	810	910	1,010	1,110	11
- Equipment	335	4	350	375	400	435	475	510	8
- Application Software	90	11	100	115	130	150	175	200	15
- System Software	35	0	35	40	45	50	55	60	11
- Professional Services	170	9	185	210	235	270	305	340	13
<b>Equipment Services</b>	1,360	1	1,380	1,410	1,450	1,480	1,510	1,550	2
- Equipment Maintenance	775	0	775	775	775	767	760	752	-1
- Environmental Services	580	5	609	639	671	712	754	800	6
<b>Grand Total</b>	5,300	6	5,600	6,100	6,550	7,050	7,700	8,300	8

## B

## Forecast Database in U.S. Dollars

Exhibit Q-4

## Software and Services Market Forecast in Dollars, Switzerland, 1996-2001

Delivery Modes	U.S. \$ Million (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b>									
(ex. Equipment Services)	3,015	8	3,245	3,590	3,895	4,275	4,735	5,155	10
<b>Professional Services</b>	740	2	755	795	845	915	1,000	1,090	8
- IS Consulting	92	8	99	111	126	145	168	195	14
- Education & Training	122	2	125	128	134	141	148	156	5
- Custom Software	525	2	535	555	590	635	685	745	7
<b>Systems Integration</b>	161	10	176	191	218	241	264	283	10
- Equipment	41	0	41	43	41	41	43	45	2
- Application Software	22	21	27	33	41	56	63	73	22
- System Software	13	6	14	14	15	17	18	20	8
- Professional Services	73	12	81	90	105	114	128	133	10
- Other	13	6	14	14	15	15	13	11	-4
<b>Outsourcing</b>	92	18	109	130	158	193	235	279	21
- Platform Operations	18	17	21	25	28	33	38	42	15
- Application Operations	50	20	60	73	90	111	134	161	22
- Desktop Services	11	20	14	18	23	29	38	47	28
- Application Management	5	17	5	5	6	8	10	11	16
- Network Management	9	9	9	10	12	13	16	18	14
<b>Processing Services</b>	370	7	397	420	451	481	519	558	7
- Transaction Processing	321	7	344	363	390	416	447	481	7
- Utility Processing	13	0	13	14	14	14	15	15	2
- Other Processing	37	8	40	44	48	51	57	61	9
<b>Network Services</b>	195	12	218	252	294	344	401	462	16
- Electronic Info Svcs	145	8	157	176	199	222	248	271	12
- Network Applications	50	23	61	77	96	122	153	191	26
<b>System Software</b>	580	4	605	645	670	695	745	780	5
- Mainframe	256	-4	245	233	225	218	214	206	-3
- Minicomputer	183	4	191	199	210	222	237	252	6
- Workstation/PC	141	19	168	214	233	256	294	325	14
<b>Application Software</b>	405	13	460	575	650	695	785	855	13
- Mainframe	46	-3	45	44	42	41	40	38	-3
- Minicomputer	115	10	126	138	153	168	183	203	10
- Workstation/PC	245	19	290	395	450	485	560	615	16
<b>Turnkey Systems</b>	481	6	512	565	619	695	771	848	11
- Equipment	256	4	267	287	306	332	363	390	8
- Application Software	69	11	77	88	99	115	134	153	15
- System Software	27	0	27	31	34	38	42	46	11
- Professional Services	130	9	141	161	180	206	233	260	13
<b>Equipment Services</b>	1,040	1	1,055	1,075	1,105	1,130	1,155	1,185	2
- Equipment Maintenance	590	0	590	590	590	585	580	575	-1
- Environmental Services	445	5	465	490	510	545	575	610	6
<b>Grand Total</b>	4,050	6	4,250	4,650	5,000	5,400	5,900	6,350	8



C

## Forecast Database in ECUs

Exhibit Q-5

## Software and Services Market Forecast in ECUs, Switzerland, 1996-2001

Delivery Modes	ECU Millions (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b>									
(ex. Equipment Services)	2,470	8	2,655	2,940	3,190	3,500	3,875	4,220	10
<b>Professional Services</b>	605	2	620	650	695	750	820	895	8
- IS Consulting	75	8	82	91	103	119	138	160	14
- Education & Training	100	2	102	105	110	115	121	128	5
- Custom Software	430	2	440	455	480	520	560	610	7
<b>Systems Integration</b>	132	10	144	157	178	197	216	232	10
- Equipment	33	0	33	35	34	34	35	37	2
- Application Software	18	21	22	27	34	46	52	60	22
- System Software	11	6	11	11	13	14	15	16	8
- Professional Services	60	12	67	73	86	93	105	109	10
- Other	11	6	11	11	13	12	11	9	-4
<b>Outsourcing</b>	75	18	89	107	130	158	193	228	21
- Platform Operations	15	17	17	20	23	27	32	35	15
- Application Operations	41	20	49	60	73	91	110	132	22
- Desktop Services	9	20	11	14	19	24	31	39	28
- Application Management	4	17	5	5	5	7	8	10	16
- Network Management	7	9	8	8	10	11	13	15	14
<b>Processing Services</b>	303	7	325	344	369	394	424	456	7
- Transaction Processing	263	7	282	297	319	341	366	394	7
- Utility Processing	11	0	11	12	12	12	12	12	2
- Other Processing	30	8	33	36	39	42	47	50	9
<b>Network Services</b>	160	12	178	207	241	282	328	378	16
- Electronic Info Svcs	119	8	128	144	163	182	203	222	12
- Network Applications	41	23	50	63	78	100	125	157	26
<b>System Software</b>	475	4	495	530	545	570	610	640	5
- Mainframe	210	-4	200	191	185	178	175	169	-3
- Minicomputer	150	4	157	163	172	182	194	207	6
- Workstation/PC	116	19	138	175	191	210	241	266	14
<b>Application Software</b>	330	13	375	470	530	570	645	700	13
- Mainframe	38	-3	37	36	35	33	33	32	-3
- Minicomputer	94	10	103	113	125	138	150	166	10
- Workstation/PC	200	19	238	322	369	397	460	503	16
<b>Turnkey Systems</b>	394	6	419	463	507	569	632	694	11
- Equipment	210	4	219	235	250	272	297	319	8
- Application Software	57	11	63	72	82	94	110	125	15
- System Software	22	0	22	25	28	31	34	38	11
- Professional Services	107	9	116	132	147	169	191	213	13
<b>Equipment Services</b>	850	1	865	880	905	925	945	970	2
- Equipment Maintenance	485	0	485	485	485	480	475	470	-1
- Environmental Services	365	5	380	400	420	445	470	500	6
<b>Grand Total</b>	3,300	6	3,500	3,800	4,100	4,400	4,800	5,200	8

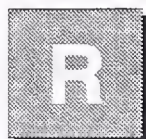
## D

## Information Services Forecast Reconciliation in Local Currency

Exhibit Q-6

## Forecast Reconciliation, Switzerland, 1995-2000

Currency: SF Millions	1995 Market				2000 Market				1995	1996
Delivery Mode	1995 Report (Fcst)	1996 Report (Act)	1995-1996 Variance		1995 Report (Fcst)	1996 Report (Fcst)	1995-1996 Variance		1995 Report %CAGR (Fcst)	1996 Report %CAGR (Fcst)
			(Amount)	(%)			(Amount)	(%)		
Software and Services Total										
(ex Equipment Services)	4,250	3450	-800	-19	6,750	5,550	-1,200	-18	10	10
<b>Professional Services</b>	993	840	-153	-48	1,434	1,010	-424	-30	8	4
- IS Consulting	130	110	-20	-15	255	175	-80	-31	14	10
- Education & Training	163	134	-29	-18	204	145	-59	-29	5	2
- Custom Software	700	596	-104	-15	975	690	-285	-29	7	3
<b>Systems Integration</b>	230	200	-30	-13	370	365	-5	-1	10	0
- Equipment	53	46	-7	-13	59	58	-1	-2	2	13
- Application Software	35	30	-5	-14	96	95	-1	-1	22	5
- System Software	18	16	-2	-11	26	25	-1	-4	8	26
- Professional Services	106	94	-12	-11	174	168	-6	-3	10	9
- Other	18	16	-2	-11	15	18	3	20	-4	12
<b>Outsourcing</b>	142	144	2	37	365	475	110	30	22	0
- Platform Operations	27	27	0	0	55	65	10	18	15	27
- Application Operations	78	80	2	3	210	260	50	24	22	19
- Desktop Services	18	12	-6	-33	62	45	-17	-27	28	27
- Application Management	7	10	3	43	15	38	23	153	16	30
- Network Management	12	15	3	25	23	67	44	191	14	35
<b>Processing Services</b>	520	400	-120	-23	730	600	-130	-18	7	8
- Transaction Processing	450	350	-100	-22	630	525	-105	-17	7	8
- Utility Processing	17	15	-2	-12	19	19	0	0	2	5
- Other Processing	52	35	-17	-33	80	55	-25	-31	9	9
<b>Network Services</b>	285	215	-70	-53	605	455	-150	-25	16	16
- Electronic Info Svcs	205	160	-45	-22	355	275	-80	-23	12	11
- Network Applications	80	55	-25	-31	250	180	-70	-28	26	27
<b>System Software</b>	790	620	-170	-22	1,025	770	-255	-25	5	4
- Mainframe	320	280	-40	-13	270	285	15	6	-3	0
- Minicomputer	250	200	-50	-20	330	260	-70	-21	6	5
- Workstation/PC	220	140	-80	-36	425	225	-200	-47	14	10
<b>Application Software</b>	600	440	-160	-27	1,120	760	-360	-32	13	12
- Mainframe	58	35	-23	-40	50	40	-10	-20	-3	3
- Minicomputer	165	125	-40	-24	265	195	-70	-26	10	9
- Workstation/PC	380	280	-100	-26	805	520	-285	-35	16	13
<b>Turnkey Systems</b>	670	600	-70	-10	1,110	1,130	20	2	11	13
- Equipment	350	310	-40	-11	510	518	8	2	8	11
- Application Software	100	90	-10	-10	200	203	3	2	15	18
- System Software	35	30	-5	-14	60	56	-4	-7	11	13
- Professional Services	185	168	-17	-9	340	349	9	3	13	16
<b>Equipment Services</b>	1,380	1380	0	0	1,550	1,530	-20	-1	2	2
- Equipment Maintenance	775	760	-15	-2	752	710	-42	-6	-1	-1
- Environmental Services	609	620	11	2	800	815	15	2	6	6
Grand Total	5,600	4850	-750	-13	8,300	7,100	-1,200	-14	8	8



# Information Services Industry Forecast Database, 1996-2001 UK

A

Forecast Database in Local Currency (Ps Millions)

Exhibit R-1

## Top Level IT Expenditure, UK

Sector	Ps Millions								CAGR (%)
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	
Total IT Spending	27,000	4	28,000	31,000	33,000	36,000	39,000	42,000	8
<b>Equipment Sales</b>	5,000	6	5,300	5,700	6,100	6,500	7,000	7,500	7
Mainframe	850	-2	830	830	840	860	880	900	2
Minicomputer	1,150	3	1,190	1,235	1,270	1,310	1,350	1,390	3
PC/Workstation	2,950	12	3,305	3,665	3,995	4,355	4,745	5,170	9
<b>Equipment Services</b>	2,380	0	2,375	2,365	2,370	2,405	2,445	2,495	1
<b>Software Products</b>	2,060	11	2,280	2,540	2,775	2,965	3,220	3,420	8
<b>Other Information Services</b>	6,700	15	7,700	9,100	10,800	12,700	14,600	16,800	17
<b>Data Communications</b>	1,790	9	1,960	2,155	2,380	2,630	2,895	3,185	10
<b>Facilities/Administration</b>	2,570	0	2,570	2,545	2,505	2,470	2,405	2,350	-2
<b>In-house Staff</b>	6,170	0	6,150	6,250	6,400	6,500	6,550	6,600	1

R-1



Exhibit R-2

## Software and Services Market — United Kingdom, 1996-2001

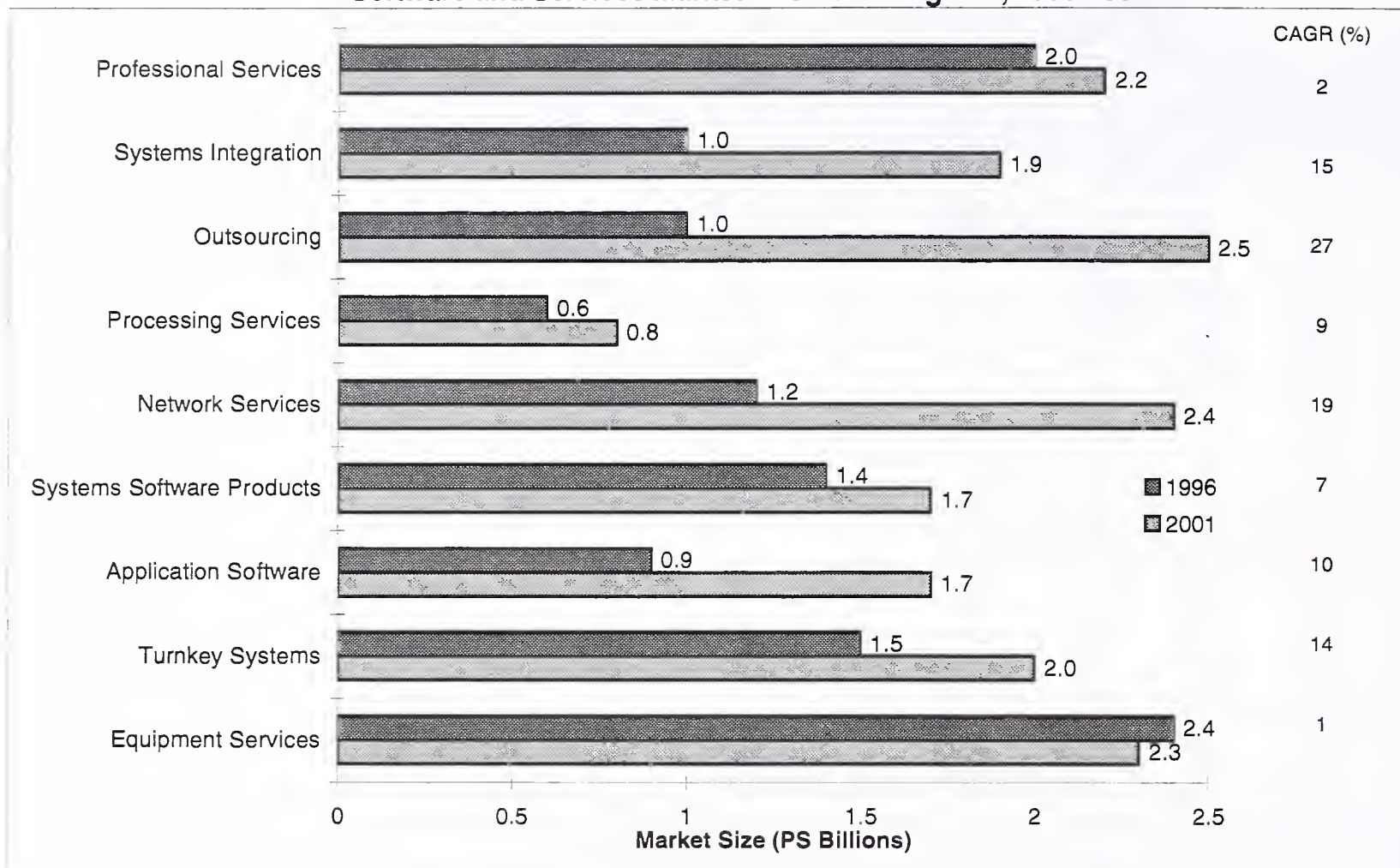


Exhibit R-3

**Information Services Market**  
**Forecast by Delivery Mode and Submode, UK, 1996-2001**

Delivery Modes	Ps Millions								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b> (ex. Equipment Services)	9,700	14	11,100	12,900	15,000	17,200	19,500	22,100	15
<b>Professional Services</b>	1,950	2	1,995	2,055	2,105	2,140	2,160	2,185	2
- IS Consulting	475	12	530	605	680	760	830	905	11
- Education & Training	205	5	215	225	235	240	245	250	3
- Custom Software	1,270	-2	1,250	1,225	1,190	1,140	1,085	1,030	-4
<b>Systems Integration</b>	1,030	15	1,185	1,380	1,610	1,851	2,122	2,375	15
- Equipment	238	9	260	285	315	340	365	385	8
- Application Software	197	24	245	305	380	470	585	715	24
- System Software	72	11	80	95	110	130	150	170	16
- Professional Services	492	15	565	655	760	860	965	1,040	13
- Other	31	13	35	40	45	51	57	65	13
<b>Outsourcing</b>	1,650	32	2,180	2,890	3,920	4,950	6,000	7,180	27
- Platform Operations	300	17	350	400	460	510	570	640	13
- Application Operations	700	30	910	1,200	1,700	2,000	2,300	2,600	23
- Desktop Services	85	35	115	150	190	250	300	360	26
- Application Management	165	36	225	330	470	590	730	880	31
- Network Management	400	45	580	810	1,100	1,600	2,100	2,700	36
<b>Professional Services</b>	600	8	645	710	780	845	915	1,000	9
- Transaction Processing	440	6	465	500	535	565	600	635	6
- Utility Processing	20	0	20	20	20	20	20	25	5
- Other Processing	140	14	160	190	225	260	295	340	16
<b>Network Services</b>	960	18	1,135	1,345	1,595	1,905	2,260	2,690	19
- Electronic Info Svcs	670	15	770	885	1,025	1,200	1,405	1,645	16
- Network Applications	290	26	365	460	570	705	855	1,045	23
<b>System Software</b>	1,110	7	1,190	1,280	1,365	1,455	1,540	1,635	7
- Mainframe	450	1	455	460	465	470	475	480	1
- Minicomputer	360	10	395	435	475	515	555	600	9
- Workstation/PC	300	13	340	385	425	470	510	555	10
<b>Application Software</b>	950	15	1,090	1,260	1,410	1,510	1,680	1,785	10
- Mainframe	70	-5	67	63	59	56	54	53	-5
- Minicomputer	260	8	280	300	320	340	370	400	7
- Workstation/PC	620	20	745	895	1,030	1,115	1,255	1,330	12
<b>Turnkey Systems</b>	1,450	15	1,670	1,950	2,250	2,560	2,865	3,205	14
- Equipment	710	15	815	945	1,075	1,205	1,350	1,510	13
- Application Software	261	17	305	365	435	505	565	625	15
- System Software	116	12	130	150	170	190	210	230	12
- Professional Services	363	16	420	490	570	660	740	840	15
<b>Equipment Services</b>	2,380	0	2,375	2,365	2,370	2,405	2,445	2,495	1
- Equipment Maintenance	1,400	-6	1,316	1,224	1,126	1,036	953	867	-8
- Environmental Services	980	8	1,058	1,143	1,246	1,371	1,494	1,628	9
<b>Grand Total</b>	12,100	12	13,500	15,200	17,400	19,600	22,000	24,500	13

## B

## Forecast Database in U.S. Dollars

Exhibit R-4

## Software and Services Market Forecast in Dollars, UK, 1996-2001

Delivery Modes	U.S. \$ Million (rounded)								
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	96-1 CAGR(%)
<b>Software and Services Total</b>									
(ex. Equipment Services)	15,100	14	17,200	20,000	23,300	26,700	30,300	34,300	15
<b>Professional Services</b>	3,030	2	3,100	3,190	3,270	3,320	3,350	3,390	2
- IS Consulting	740	12	820	940	1,060	1,180	1,290	1,410	11
- Education & Training	320	5	330	350	360	370	380	390	3
- Custom Software	2,000	-2	1,900	1,900	1,800	1,800	1,700	1,600	-4
<b>Systems Integration</b>	1,600	15	1,840	2,140	2,500	2,870	3,300	3,690	15
- Equipment	370	9	400	440	490	530	570	600	8
- Application Software	306	24	380	474	590	730	908	1,110	24
- System Software	112	11	124	148	171	202	233	264	16
- Professional Services	760	15	880	1,020	1,180	1,340	1,500	1,610	13
- Other	48	13	54	61	69	78	89	100	13
<b>Outsourcing</b>	2,560	32	3,390	4,490	6,090	7,690	9,320	11,150	27
- Platform Operations	470	17	540	620	710	790	890	990	13
- Application Operations	1,090	30	1,410	1,860	2,640	3,110	3,570	4,040	23
- Desktop Services	132	35	179	233	295	388	466	559	26
- Application Management	256	36	349	512	730	916	1,134	1,366	31
- Network Management	620	45	900	1,260	1,710	2,480	3,260	4,190	36
<b>Processing Services</b>	930	8	1,000	1,100	1,210	1,310	1,420	1,550	9
- Transaction Processing	680	6	720	780	830	880	930	990	6
- Utility Processing	30	0	30	30	30	30	30	40	5
- Other Processing	220	14	250	300	350	400	460	530	16
<b>Network Services</b>	1,490	18	1,760	2,090	2,480	2,960	3,510	4,180	19
- Electronic Info Svcs	1,040	15	1,200	1,370	1,590	1,860	2,180	2,550	16
- Network Applications	450	26	570	710	890	1,090	1,330	1,620	23
<b>System Software</b>	1,700	7	1,800	2,000	2,100	2,300	2,400	2,500	7
- Mainframe	700	1	710	710	720	730	740	750	1
- Minicomputer	560	10	610	680	740	800	860	930	9
- Workstation/PC	470	13	530	600	660	730	790	860	10
<b>Application Software</b>	1,500	15	1,700	2,000	2,200	2,300	2,600	2,800	10
- Mainframe	110	-5	100	100	90	90	80	80	-5
- Minicomputer	400	8	430	470	500	530	570	620	7
- Workstation/PC	1,000	20	1,200	1,400	1,600	1,700	1,900	2,100	12
<b>Turnkey Systems</b>	2,250	15	2,590	3,030	3,490	3,980	4,450	4,980	14
- Equipment	1,100	15	1,270	1,470	1,670	1,870	2,100	2,340	13
- Application Software	410	17	470	570	680	780	880	970	15
- System Software	180	12	202	233	264	295	326	357	12
- Professional Services	560	16	650	760	890	1,020	1,150	1,300	15
<b>Equipment Services</b>	3,700	0	3,700	3,700	3,700	3,700	3,800	3,900	1
- Equipment Maintenance	2,200	-6	2,000	1,900	1,700	1,600	1,500	1,300	-8
- Environmental Services	1,500	8	1,600	1,800	1,900	2,100	2,300	2,500	9
<b>Grand Total</b>	19,000	12	21,000	24,000	27,000	30,000	34,000	38,000	13



C

## Forecast Database in ECUs

Exhibit R-5

## Software and Services Market Forecast in ECUs, UK, 1996-2001

Delivery Modes	ECU Millions (rounded)								96-1 CAGR(%)
	1995	95-96 (%)	1996	1997	1998	1999	2000	2001	
<b>Software and Services Total</b> (ex. Equipment Services)	11,800	14	13,500	15,600	18,200	20,800	23,600	26,800	15
<b>Professional Services</b>	2,400	2	2,400	2,500	2,600	2,600	2,600	2,600	2
- IS Consulting	580	12	640	730	820	920	1,010	1,100	11
- Education & Training	250	5	260	270	280	290	300	300	3
- Custom Software	1,500	-2	1,500	1,500	1,400	1,400	1,300	1,200	-4
<b>Systems Integration</b>	1,250	15	1,440	1,670	1,950	2,240	2,570	2,880	15
- Equipment	290	9	320	350	380	410	440	470	8
- Application Software	239	24	297	370	461	570	709	867	24
- System Software	87	11	97	115	133	158	182	206	16
- Professional Services	600	15	680	790	920	1,040	1,170	1,260	13
- Other	38	13	42	48	54	61	69	78	13
<b>Outsourcing</b>	2,000	32	2,640	3,500	4,750	6,000	7,270	8,700	27
- Platform Operations	360	17	420	480	560	620	690	780	13
- Application Operations	850	30	1,100	1,450	2,060	2,420	2,790	3,150	23
- Desktop Services	103	35	139	182	230	303	364	436	26
- Application Management	200	36	270	400	570	720	880	1,070	31
- Network Management	480	45	700	980	1,330	1,940	2,550	3,270	36
<b>Processing Services</b>	730	8	780	860	950	1,020	1,110	1,210	9
- Transaction Processing	530	6	560	610	650	680	730	770	6
- Utility Processing	20	0	20	20	20	20	20	30	5
- Other Processing	170	14	190	230	270	320	360	410	16
<b>Network Services</b>	1,160	18	1,380	1,630	1,930	2,310	2,740	3,260	19
- Electronic Info Svcs	810	15	930	1,070	1,240	1,450	1,700	1,990	16
- Network Applications	350	26	440	560	690	850	1,040	1,270	23
<b>System Software</b>	1,300	7	1,400	1,600	1,700	1,800	1,900	2,000	7
- Mainframe	550	1	550	560	560	570	580	580	1
- Minicomputer	440	10	480	530	580	620	670	730	9
- Workstation/PC	360	13	410	470	520	570	620	670	10
<b>Application Software</b>	1,200	15	1,300	1,500	1,700	1,800	2,000	2,200	10
- Mainframe	80	-5	80	80	70	70	70	60	-5
- Minicomputer	320	8	340	360	390	410	450	480	7
- Workstation/PC	750	20	900	1,080	1,250	1,350	1,520	1,610	12
<b>Turnkey Systems</b>	1,760	15	2,020	2,360	2,730	3,100	3,470	3,880	14
- Equipment	860	15	990	1,150	1,300	1,460	1,640	1,830	13
- Application Software	320	17	370	440	530	610	680	760	15
- System Software	141	12	158	182	206	230	255	279	12
- Professional Services	440	16	510	590	690	800	900	1,020	15
<b>Equipment Services</b>	2,900	0	2,900	2,900	2,900	2,900	3,000	3,000	1
- Equipment Maintenance	1,700	-6	1,600	1,500	1,400	1,300	1,200	1,100	-8
- Environmental Services	1,200	8	1,300	1,400	1,500	1,700	1,800	2,000	9
<b>Grand Total</b>	15,000	12	16,000	18,000	21,000	24,000	27,000	30,000	13

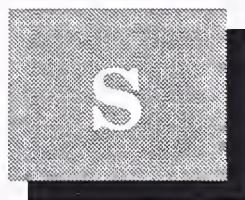
D

**Information Services Forecast Reconciliation in Local Currency**

Exhibit R-6

**Forecast Reconciliation, UK, 1995-2000**

Currency: Ps Millions	1995 Market				2000 Market				1995	1996
Delivery Mode	1995 Report (Fcst)	1996 Report (Act)	1995-1996 Variance		1995 Report (Fcst)	1996 Report (Fcst)	1995-1996 Variance		Report %CAGR (Fcst)	Report %CAGR (Fcst)
			(Amount)	(%)			(Amount)	(%)		
Software and Services Total										
(ex Equipment Services)	9,600	9700	100	1	15,200	19,500	4,300	28	10	15
Professional Services	1,955	1950	-5	-5	2,059	2,160	101	5	2	2
- IS Consulting	495	475	-20	-4	790	830	40	5	10	12
- Education & Training	210	205	-5	-2	284	245	-39	-14	6	4
- Custom Software	1,250	1270	20	2	985	1,085	100	10	-5	-3
Systems Integration	997	1030	33	3	1,933	2,122	189	10	14	16
- Equipment	229	238	9	4	309	365	56	18	6	9
- Application Software	189	197	8	4	541	585	44	8	23	24
- System Software	70	72	2	3	135	150	15	11	14	16
- Professional Services	479	492	13	3	851	965	114	13	12	14
- Other	30	31	1	3	97	57	-40	-41	26	13
Outsourcing	1,175	1650	475	481	2,870	6,000	3,130	109	20	29
- Platform Operations	245	300	55	22	380	570	190	50	9	14
- Application Operations	660	700	40	6	1,780	2,300	520	29	22	27
- Desktop Services	110	85	-25	-23	325	300	-25	-8	24	29
- Application Management	60	165	105	175	170	730	560	329	23	35
- Network Management	100	400	300	300	215	2,100	1,885	877	17	39
Processing Services	610	600	-10	-2	765	915	150	20	5	9
- Transaction Processing	450	440	-10	-2	490	600	110	22	2	6
- Utility Processing	15	20	5	33	15	20	5	33	0	0
- Other Processing	145	140	-5	-3	260	295	35	13	12	16
Network Services	1,070	960	-110	-23	2,150	2,260	110	5	15	19
- Electronic Info Svcs	730	670	-60	-8	1,170	1,405	235	20	10	16
- Network Applications	340	290	-50	-15	980	855	-125	-13	24	24
System Software	1,350	1110	-240	-18	1,705	1,540	-165	-10	5	7
- Mainframe	475	450	-25	-5	355	475	120	34	-6	1
- Minicomputer	440	360	-80	-18	580	555	-25	-4	6	9
- Workstation/PC	435	300	-135	-31	770	510	-260	-34	12	11
Application Software	945	950	5	1	1,685	1,680	-5	0	12	12
- Mainframe	59	70	11	19	46	54	8	17	-5	-5
- Minicomputer	240	260	20	8	340	370	30	9	7	7
- Workstation/PC	645	620	-25	-4	1,300	1,255	-45	-3	15	15
Turnkey Systems	1,450	1450	0	0	2,005	2,865	860	43	7	15
- Equipment	715	710	-5	-1	925	1,350	425	46	5	14
- Application Software	255	261	6	2	375	565	190	51	8	17
- System Software	120	116	-4	-3	175	210	35	20	8	13
- Professional Services	360	363	3	1	530	740	210	40	8	15
Equipment Services	2,360	2380	20	1	2,280	2,445	165	7	-1	1
- Equipment Maintenance	1,387	1400	13	1	954	953	-1	0	-7	-7
- Environmental Services	974	980	6	1	1,328	1,494	166	13	6	9
Grand Total	11,900	12100	200	2	17,500	22,000	4,500	26	8	13



# Definition of Terms

## A

### Introduction

---

INPUT's *Definition of Terms* provides the framework for all of INPUT's market analyses and forecasts of the information services industry. The structure is defined in Exhibit S-2.

One of the strengths of INPUT's market analysis services is the consistency of the underlying market sizing and forecast data. Each year INPUT reviews its industry structure 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. INPUT clients have the benefit of being able to track market forecast data from year to year against a proven and consistent foundation of definitions.

## B

### Overall Definitions and Analytical Framework

---

#### 1. Information Services

*Information Services* are computer/telecommunications-related products and services that are oriented toward the development or use of information systems. Information services typically involve one or more of the following:



- Use of vendor-provided computer processing services to develop or run applications or provide services such as disaster recovery or data entry (called Processing Services)
- A combination of computer equipment, packaged software and associated support services which will meet an application systems need (called Turnkey Systems)
- Packaged software products, including systems software or applications software products (called Software Products)
- People services that support users in developing and operating their own information systems (called Professional Services)
- The combination of products (software and equipment) and services where the vendor assumes total responsibility for the development of a custom integrated solution to an information systems need (called Systems Integration)
- Services that provide operation and management of all or a significant part of a user's information systems functions under a long-term contract (called Systems Outsourcing)
- Services that support the delivery of information in electronic form — typically network-oriented services such as value-added networks, electronic mail and document interchange (called Network Applications)
- Services that support the access and use of public and proprietary information such as on-line databases and news services (called Electronic Information Services)
- Services that support the operation of computer and digital communication equipment (called *Equipment Services*).

In general, the market for information services does not involve providing equipment to users. The exception is where the equipment is part of an overall service offering such as a turnkey system, a systems outsourcing contract or a systems integration project.

The information services market also excludes pure data transport 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 be feasibly separated from other bundled services (e.g., some systems outsourcing contracts), the transport costs are included as part of the services market.

The analytical framework of the information services industry consists of the following interacting factors: overall and industry-specific business environment (trends, events and issues); technology environment; user information system requirements; size and structure of information services markets; vendors and their products, services and revenues; distribution channels; and competitive issues.

## **2. Market Forecasts/User Expenditures**

All information services market forecasts are estimates of *User Expenditures* for information services. When questions arise about the proper place to count these expenditures, INPUT addresses them from the user's viewpoint: expenditures are categorised according to what users perceive they are buying.

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

- Double-counting, which can occur by estimating total vendor revenues when there is significant reselling within the industry (e.g., software sales to turnkey vendors for repackaging and resale to end users)
- Missed counting, which can occur when sales to end users go through indirect channels such as mail order retailers.

*Captive Information Services User Expenditures* are expenditures for products and services provided by a vendor that is part of the same parent corporation as the user. These expenditures are not included in INPUT forecasts.

*Noncaptive Information Services User Expenditures* are expenditures that go to vendors that have a different parent corporation than the user. It is these expenditures which constitute the information services market analysed by INPUT and that are included in INPUT forecasts.

### 3. Delivery Modes

*Delivery Modes* are defined as specific products and services that satisfy a given user need. While *Market Sectors* specify *who* the buyer is, *Delivery Modes* specify *what* the user is buying.

Of the nine delivery modes defined by INPUT, six are considered primary products or services:

- Processing Services
- Network Services
- Professional Services
- Applications Software Products
- Systems Software Products
- Equipment Services.

The remaining three delivery modes represent combinations of these products and services, combined with equipment, management and/or other services:

- Turnkey Systems
- Outsourcing
- Systems Integration.

Section C describes the delivery modes and their structure in more detail.

### 4. Market Sectors

*Market Sectors* are groupings or categories of the buyers of information services. There are three types of user markets:

- *Vertical Industry* markets, such as Banking, Transportation, Utilities, etc. These are called “industry-specific” markets.



- *Functional Application* markets, such as Human Resources, Accounting, etc. These are called “cross-industry” markets.
- *Other* markets, which are neither industry- nor application-specific, such as the market for systems software products and much of the on-line database market.

Specific market sectors used by INPUT are defined in Section E below.

## 5. Trading Communities

Information technology is playing a major role in business reengineering, not just companies but the value chain or *Trading Communities* in which these companies operate. This reengineering is resulting in electronic commerce emerging where interorganisational electronic systems facilitate the business processes of the trading community.

- A trading community is the group or organisations — commercial and non-commercial — involved in producing goods or services
- Electronic commerce and trading communities are addressed in INPUT’s EDI and Electronic Commerce Program.

## 6. Outsourcing

Over the past few years a major change has occurred in the way clients are buying some information services. The shift has been labelled *outsourcing*.

INPUT views outsourcing as a change in the form of the client/vendor relationship. Under an outsourcing relationship, all or a major portion of the information systems function is contracted to a vendor in a long-term relationship. The vendor is responsible for the performance of the function.

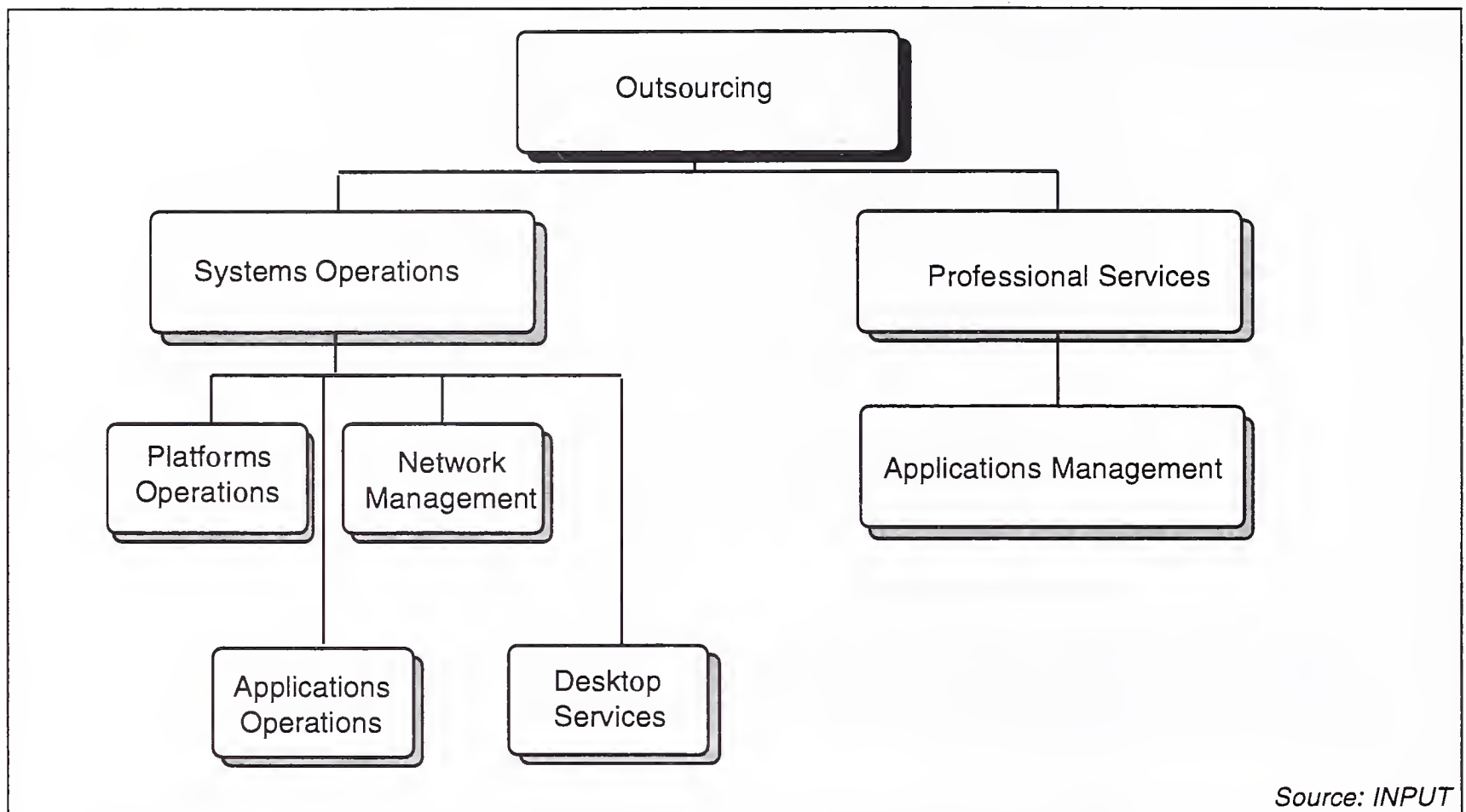
INPUT considers the following submodes to be outsourcing-type relationships and in aggregate to represent the outsourcing market. See Exhibit S-1. Complete definitions are provided in Section C of this document. INPUT provides these forecasts as part of the corresponding delivery modes.

- *Platform Operations* — The vendor is responsible for managing and operating the client’s computer systems.

- *Applications Operations* — The vendor is responsible for developing and/or maintaining a client's applications as well as operating the computer systems.
- *Network Management* — The vendor assumes full responsibility for operating and managing the client's data communications systems. This may also include the voice communications of the client.

Exhibit S-1

### Outsourcing Components — INPUT's View



- *Applications Management/Maintenance* — The professional services vendor has full responsibility for developing and/or maintaining some or all of the applications systems that a client uses to support business operations. The services are provided on a long-term contractual basis.

- *Desktop Services* — The vendor assumes responsibility for the deployment, maintenance and connectivity between the personal computers and/or intelligent workstations in the client organisation. The services may also include performing the help-desk function. The services are provided on a long-term contractual basis.

## C

### Delivery Modes and Submodes

Exhibit S-2 provides the overall structure of the information services industry as defined and used by INPUT. This section of *Definition of Terms* provides definitions for each of the delivery modes and their submodes or components.

#### 1. Software Products

INPUT divides the software products market into two delivery modes: systems software and applications software. The two delivery modes have many similarities. Both involve purchases of software packages for in-house computer systems. Included are both lease and purchase expenditures, as well as expenditures for work performed by the vendor to implement or maintain the package at the user's sites. Vendor-provided training or support in operation and use of the package, if part of the software pricing, is also included here.

Expenditures for work performed by organisations 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 from the price of the software product itself.

##### 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 three submodes. See Exhibit S-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.
- INPUT forecasts the systems software products delivery mode by platform level: mainframe, minicomputer and workstation/PC.

Exhibit S-2

### Information Services Structure

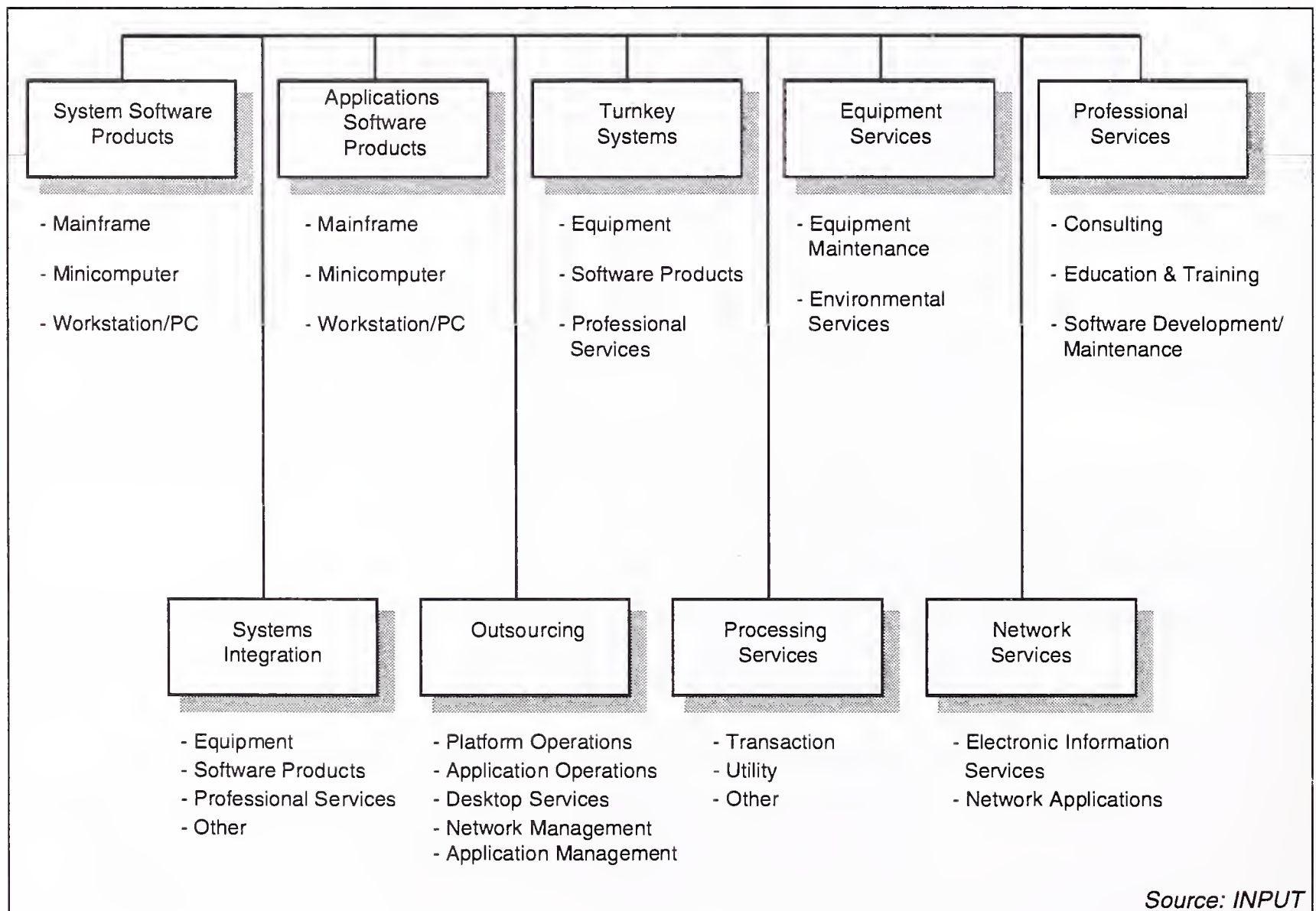
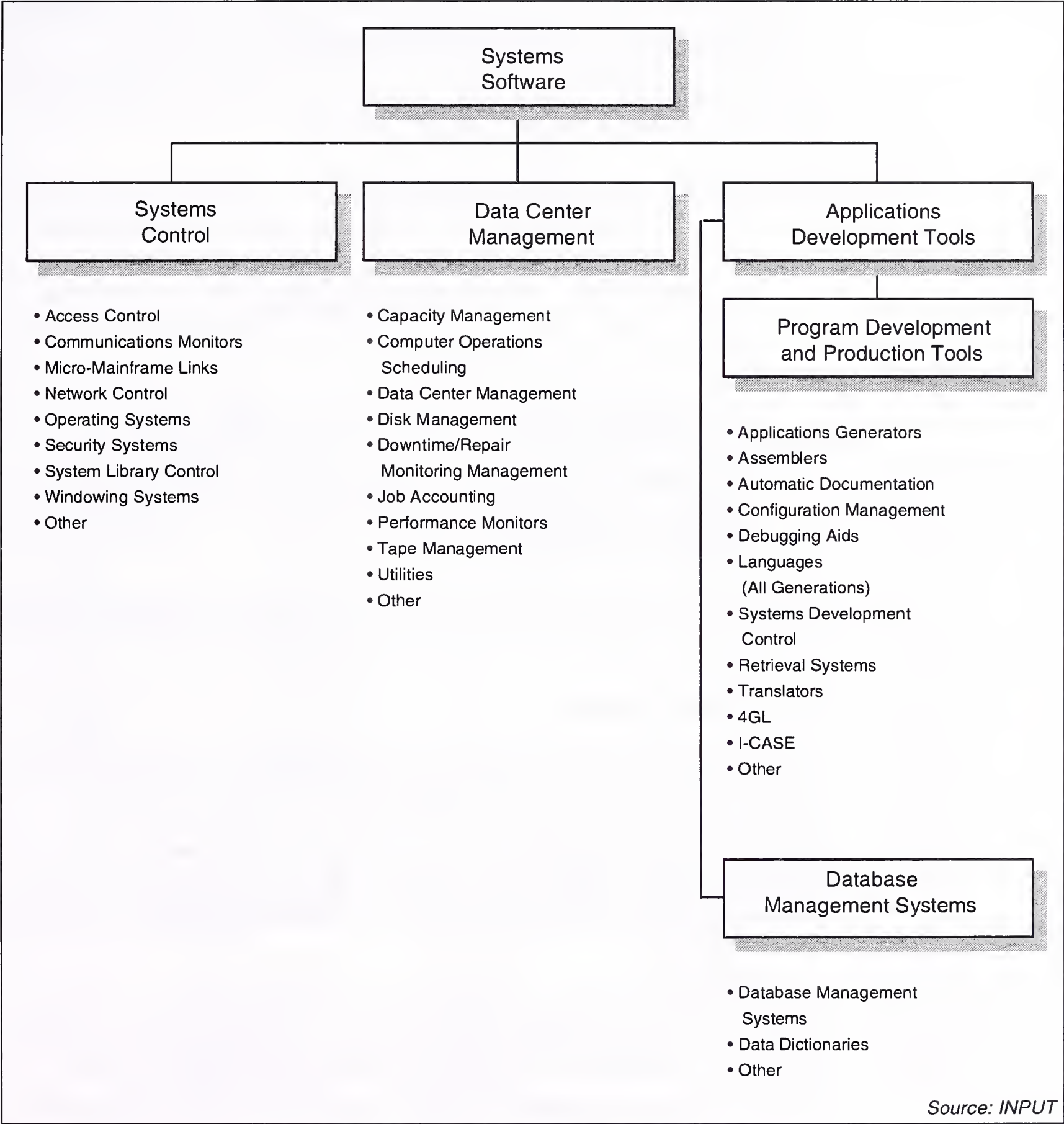


Exhibit S-3

Systems Software Products Market Structure



### *b. Applications Software Products*

Applications software products enable a user or group of users to support an operational or administrative process within an organisation.

Examples include accounts payable, order entry, project management and office systems. INPUT categorises applications software products into two groups of market sectors. (See Exhibit S-4)

- *Industry Applications Software Products* — Software products that perform functions related to fulfilling business or organisational needs unique to a specific industry (vertical) market and sold to that market only. Examples include 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 products delivery mode by platform level: mainframe, minicomputer and workstation/PC.

## **2. Turnkey Systems**

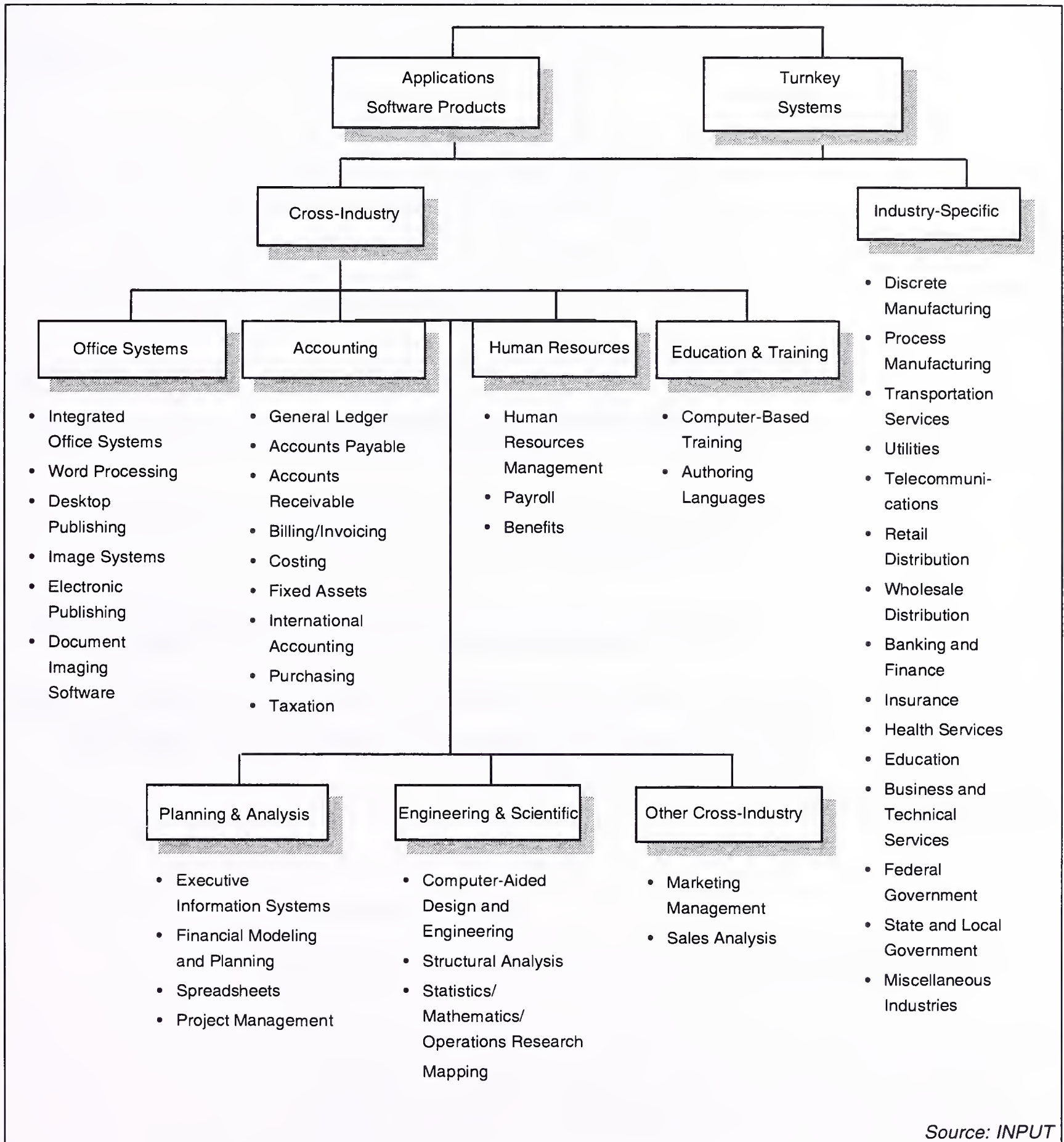
A turnkey system is an integration of equipment (CPU, peripherals, etc.), systems software, and packaged applications software into a single product developed to meet a specific set of user requirements. Value added by the turnkey system vendor is primarily in the software and professional services provided. INPUT categorises turnkey systems into two groups of market sectors as it does for applications software products. (See Exhibit S-4)

Most CAD/CAM systems and many small business systems are turnkey systems. Turnkey systems utilise standard computers and do not include specialised hardware such as word processors, cash registers, process control systems or embedded computer systems for military applications.



Exhibit S-4

## Application Products and Turnkey Systems



Source: INPUT

Computer manufacturers (e.g., IBM or DEC) 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.

- *Value-Added Reseller (VAR)*: A VAR adds value to computer hardware and/or software and then resells it to an end user. The major value added is usually applications software for a vertical or cross-industry market, but also includes 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 — pre-packaged systems and applications software products
- Professional services — services to install or customise the system or train the user, provided as part of the turnkey system sale.

Exhibit S-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 S-5

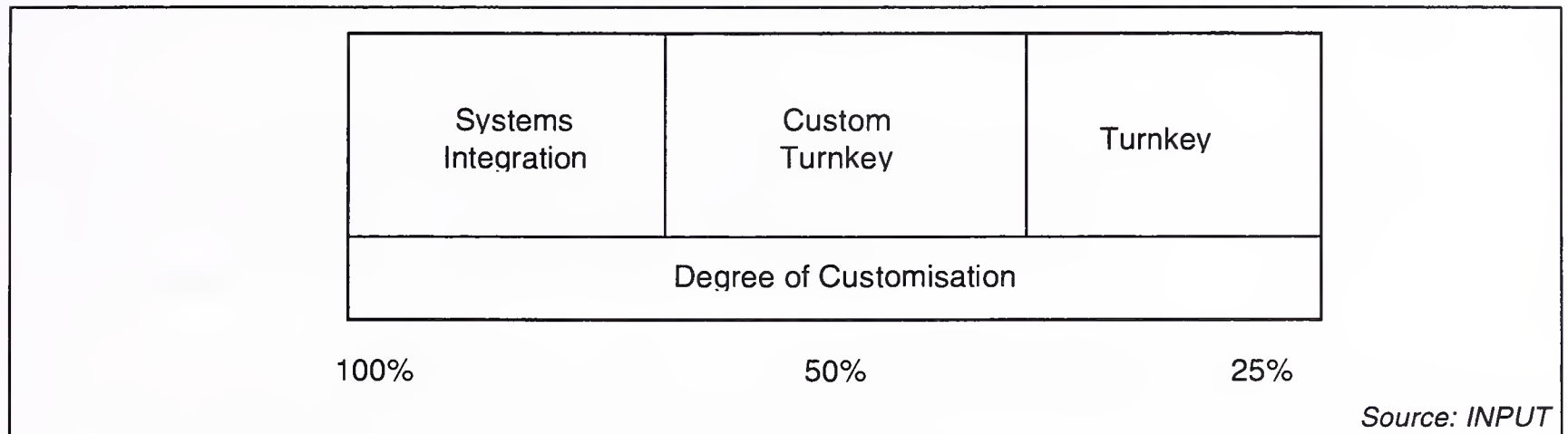
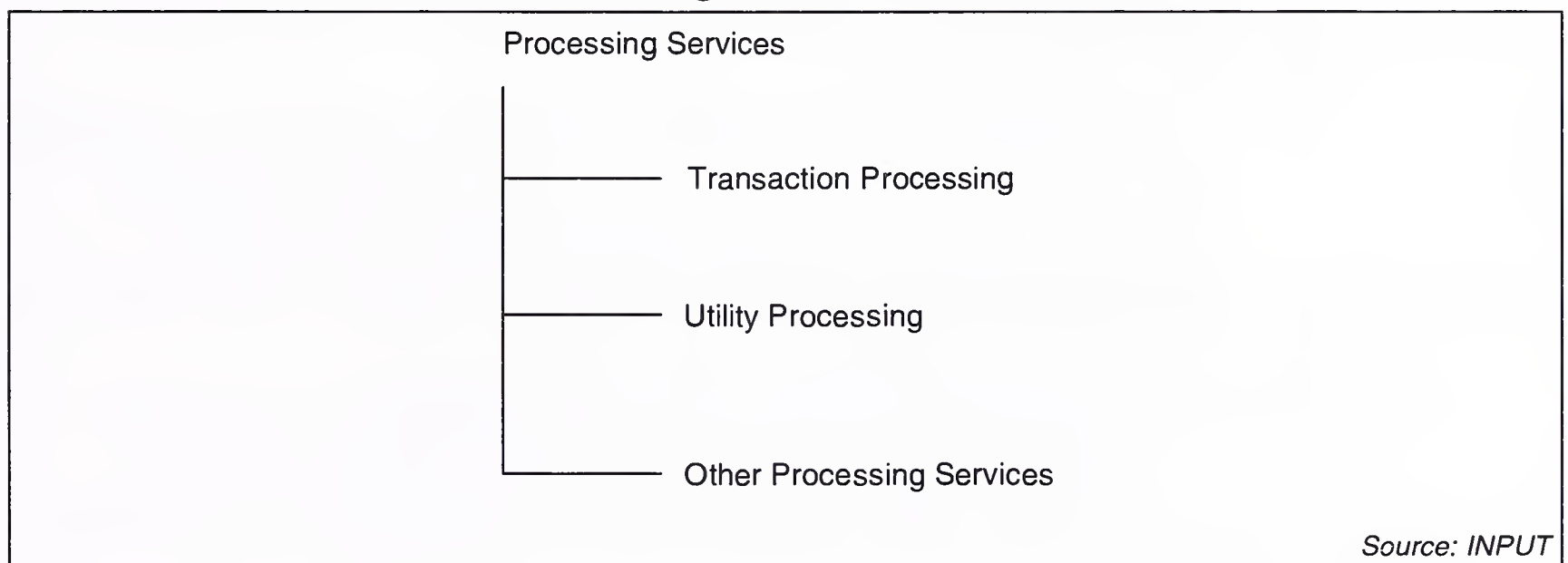
**The Customisation Spectrum**

Exhibit S-6

**Processing Services Structure****3. Processing Services**

This delivery mode includes three submodes: transaction processing, utility processing, and “other” processing services. (See Exhibit S-6).

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



- *Utility Processing* — 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* — Vendor provides 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, backup and disaster recovery, etc.

#### 4. Outsourcing

Outsourcing as a delivery mode was introduced in the 1990 Market Analysis and Systems Operations programmes. Previously called Facilities Management, this delivery mode was created by taking the Systems Operations submode out of both Processing Services and Professional Services. Since 1992 the submodes have been defined as follows.

Outsourcing involves the operation and management of all or a significant part of the client's information systems functions under a long-term contract. These services can be provided in either of four distinct submodes where the difference is whether the support of applications, as well as data centre operations, is included.

- *Platform outsourcing* — 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 outsourcing* — 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 voice communications of the client. A network management outsourcing contract may include only the management services or 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 organisation. 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.

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 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. (Refer to Exhibit S-7)

The components of a systems integration project are the following:

- *Equipment* — 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* — pre-packaged applications and systems software products
- *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 systems operations and maintenance
- *Other 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 S-7

**Products/Services in Systems Integration Projects**

<p><i>Equipment</i></p> <ul style="list-style-type: none"> <li>• Information systems</li> <li>• Communications</li> </ul>
<p><i>Software Products</i></p> <ul style="list-style-type: none"> <li>• Systems software</li> <li>• Applications software</li> </ul>
<p><i>Professional Services</i></p> <ul style="list-style-type: none"> <li>• Consulting <ul style="list-style-type: none"> <li>- Feasibility and trade-off studies</li> <li>- Selection of equipment, network and software</li> </ul> </li> <li>• Program/project management</li> <li>• Design/integration <ul style="list-style-type: none"> <li>- Systems design</li> <li>- Installation of equipment, network, and software</li> <li>- Demonstration and testing</li> </ul> </li> <li>• Software development <ul style="list-style-type: none"> <li>- Modification of software packages</li> <li>- Modification of existing software</li> <li>- Custom development of software</li> </ul> </li> <li>• Education/training and documentation</li> <li>• Systems operations/maintenance</li> </ul>
<p><i>Other Miscellaneous Products/Services</i></p> <ul style="list-style-type: none"> <li>• Site preparation</li> <li>• Data processing supplies</li> <li>• Processing/network services</li> <li>• Data/voice communication services</li> </ul>

Source: INPUT

## 6. Professional Services

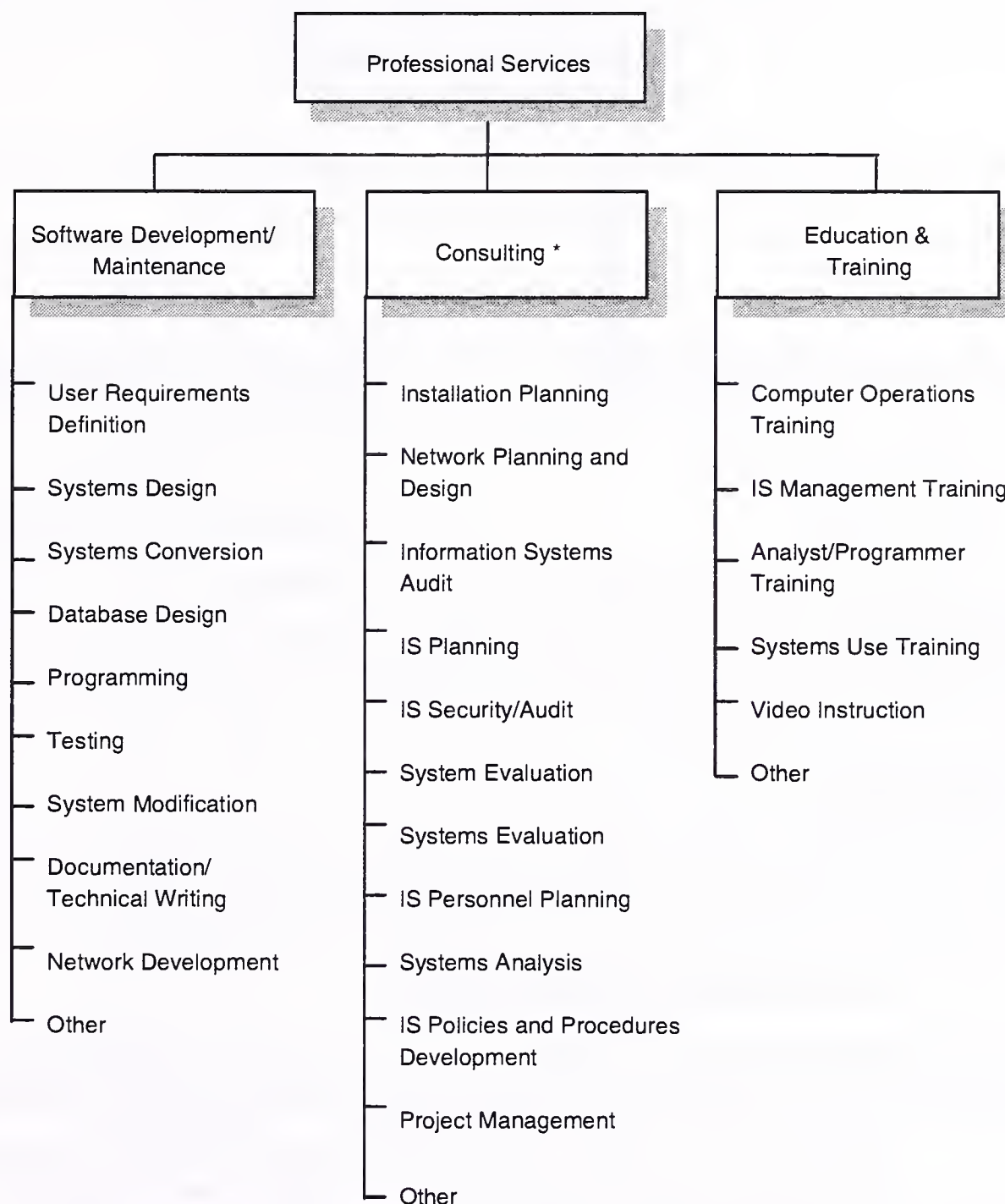
This category includes four submodes: consulting, education and training, software development and applications management.

Exhibit S-8 provides additional detail.

- *Consulting:* Services include management consulting (related to information systems), information systems reengineering, information systems consulting, 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 systems operations.
- *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.

Exhibit S-8

### Professional Services Market Structure



\* Related to computer systems, topics or issues

Source: INPUT

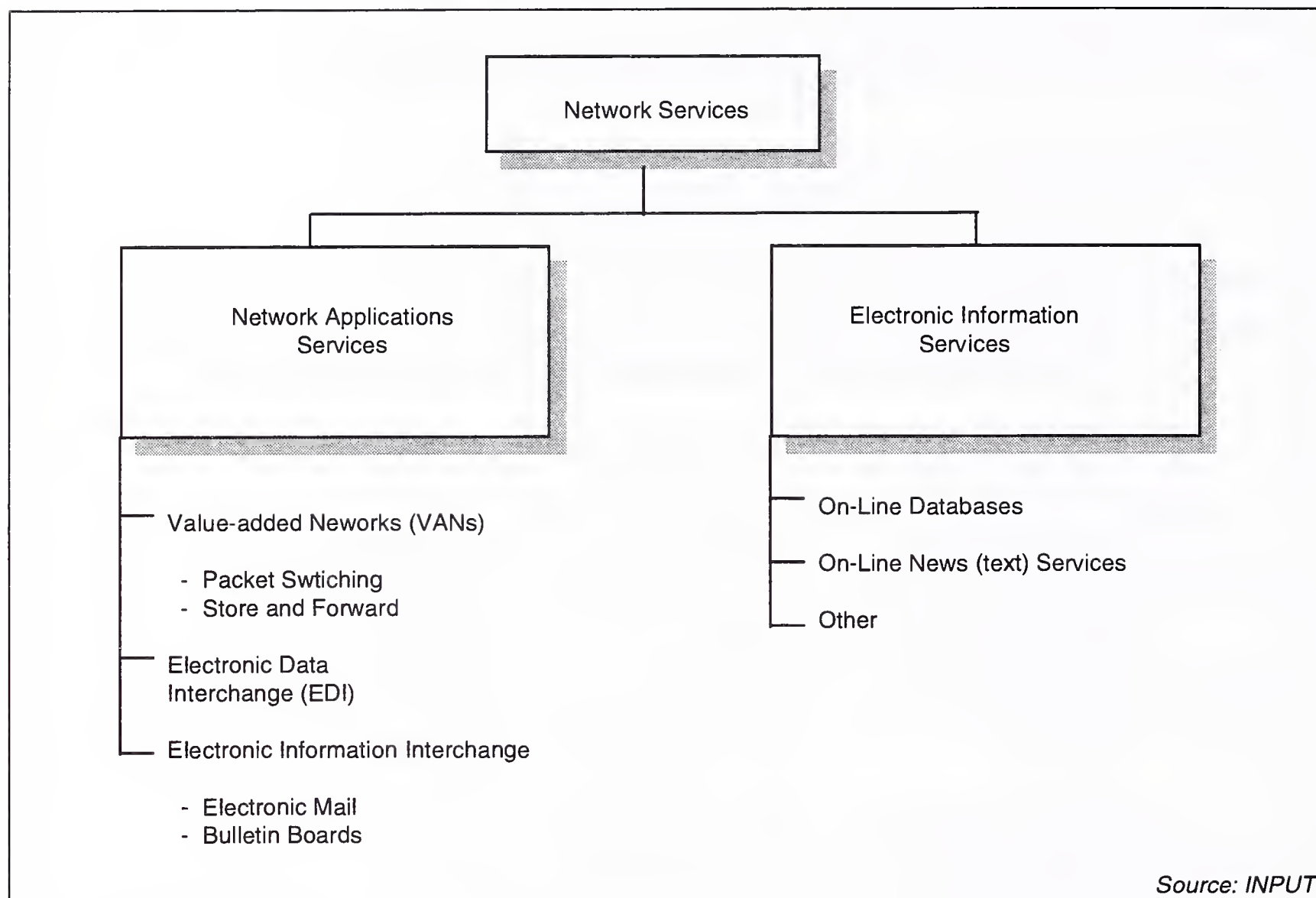
## 7. Network Services

Network services are a variety of telecommunications-based functions and operations. Network service includes two submodes, as shown in Exhibit S-9.



Exhibit S-9

### Network Services Market Structure



#### a. *Electronic Information Services*

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

Users inquire into and extract information from the databases. 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.

The two kinds of electronic information services are:

- *On-line Databases* — Structured, primarily numerical data on economic and demographic trends, financial instruments, companies, products, materials, etc.
- Unstructured, primarily textual information on people, companies, events, etc. These are 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.

#### *b. Network Applications*

*Value-Added Network Services (VAN Services)* — VAN services are enhanced transport services which 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.

While VAN services were originally provided only by specialised VAN carriers (Tymnet, Telenet, etc.), today these services are also offered by traditional common carriers (AT&T, BT, Sprint, etc.). 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)* — 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. Equipment Services**

The equipment services delivery mode includes two submodes. Both deal with the support and maintenance of computer equipment:

*Equipment Maintenance* — Services provided to repair, diagnose problems and provide preventive maintenance both on-site and off-site for

computer equipment. The costs of parts, media and other supplies are excluded. These services are typically provided on a contract basis

*Environmental Services* — Composed of equipment and data centre related special services such as cabling, air conditioning and power supply, equipment relocation and similar services.

## D

### Computer Equipment

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These definitions have been included to provide the basis for market segmentation in the software products markets.

- *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 analogue-to-digital converters.
- *Output Devices* — Includes printers, CRTs, projection television screens, micro graphics processors, digital graphics, and plotters.
- *Communication Devices* — Includes modem, encryption equipment, special interfaces, and error control.
- *Storage Devices* — Includes magnetic tape (reel, cartridge, and cassette), floppy and hard disks, solid state (integrated circuits), and bubble and optical memories.



- *Computer Systems* — Includes all processors from personal computers to supercomputers. Computer systems may require type- or model-unique operating software to be functional, but this category excludes applications software and peripheral devices and processors or CPUs not provided as part of an integrated (turnkey) system.
- *Personal computers* — Smaller computers using 8-, 16-, or 32-bit computer technology. Generally designed to sit on a desktop and are portable for individual use. Price generally less than \$5,000.
- *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 back-up, remote communications, and peripheral support. These products usually cost from \$5,000 to \$15,000.
- *Minicomputer or midsize computers* — Minicomputers are generally priced from \$15,000 to \$350,000. Many of the emerging client/server computers are in this category.
- *Mainframe or large computers* — 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 non-intelligent 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.

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**E**

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**Vendor Revenue and User Expenditure Conversion**

The size of the information services market may be viewed from two perspectives: vendor (producer) revenues and user expenditures. INPUT defines and forecasts the information services market in terms of user expenditures. User expenditures reflect the mark-up in producer sales when a product such as software is delivered through indirect distribution channels (such as original equipment manufacturers (OEMs), retailers and distributors). The focus on user expenditure also eliminates the double counting of revenues that would occur if sales were tabulated for both producer (e.g., Lotus) and distributor (e.g., ComputerLand).

For most delivery modes, vendor revenues and user expenditures are fairly close. However, there are some areas of significant difference. Many microcomputer software products, for example, are marketed through distribution channels. To capture the valued added through these distribution channels, adjustment factors are used to convert estimated information services vendor revenues to user expenditures.

For some delivery modes, including software products, systems integration and turnkey systems, there is a significant volume of intra-industry sales. For example, systems integrators purchase software and subcontract the services of other professional services vendors. Turnkey vendors incorporate purchased software into the systems they sell to users.

To account for such intra-industry transactions, INPUT uses conversion ratios to derive the estimate of end-user expenditures.

Exhibit S-10 summarises the net effect of the various ratios used by INPUT to convert vendor revenues to user expenditure (market size) figures for each delivery mode.

Exhibit S-10

**Vendor Revenue to User Expenditure Conversion**

<b>Delivery Mode</b>	<b>Vendor Revenue Multiplier</b>
Applications Software Products	1.18
Systems Software Products	1.10
Outsourcing	0.95
Systems Integration	0.95
Professional Services	0.99
Network Services	0.99
Processing Services	0.99
Turnkey Systems	0.95
Equipment Services	0.99

*Source: INPUT*



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