THE WESTERN EUROPEAN MARKET FORECAST

FOR SOFTWARE AND SERVICES

1990 - 1995

INPUT

About INPUT

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

Continuous-information advisory services, proprietary research/consulting, merger/acquisition assistance, and multiclient studies are provided to users and vendors of information systems and services (software, processing services, turnkey systems, systems integration, professional services, communications, systems/software maintenance and support).

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

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

INPUT OFFICES

North America

San Francisco
1280 Villa Street
Mountain View, CA 94041-1194
Tel. (415) 961-3300
Fax (415) 961-3966

New York
Atrium at Glenpointe
400 Frank W. Burr Boulevard
Teaneck, NJ 07666
Tel. (201) 801-0050
Fax (201) 801-0441

Washington, D.C.
1953 Gallows Road, Suite 560
Vienna, VA 22182
Tel. (703) 847-6870
Fax (703) 847-6872

International

London
Piccadilly House
33/37 Regent Street
London SW1Y 4NF, England
Tel. (071) 493-9335 Fax (071) 629-0179

Paris
52, boulevard de Sébastopol
75003 Paris, France
Tel. (33-1) 42 77 42 77 Fax (33-1) 42 77 85 82

Frankfurt
Sudetenstrasse 9
D-6306 Langgöns-Niederkleen, Germany
Tel. (0) 6447-7229 Fax (0) 6447-7327

Tokyo
Saida Building
4-6, Kanda Sakuma-cho
Chiyoda-ku, Tokyo 101, Japan
Tel. (03) 3864-0531 Fax (03) 3864-4114

APRIL 1991

THE WESTERN EUROPEAN MARKET FORECAST FOR SOFTWARE AND SERVICES

1990-1995

INPUT®

Piccadilly House, 33/37 Regent Street, London SW1Y 4NF

071-493-9335

Researched by
INPUT
Piccadilly House
33/37 Regent Street,
London SW1Y 4NF
England

Published by
INPUT
1280 Villa Street
Mountain View, CA 94041-1194
U.S.A.

Market Analysis Programme—Europe

The Western European Market Forecast for Software and Services, 1990-1995

MEFOE • 567 • 1990

Abstract

This report is produced as the summary of the forecasts in the series of reports comprising INPUT's Market Analysis Programme for the Computer Software and Services Industry in Western Europe.

The report examines the performance, status and growth potential of the computer software and services industry in Western Europe. The report provides market forecasts for the Western European country markets of France, Germany, the United Kingdom, Italy, Sweden, Norway, Denmark, Finland, the Netherlands, Belgium, Switzerland, Austria and Spain.

The computer software and services industry is defined by INPUT as comprising eight major sectors—processing services, turnkey systems, application software products, system software products, professional services, network services, systems operations and systems integration. The first five of these sectors are further subdivided into fifteen subsectors for forecasting and analysis in this document.

Each sector is examined with respect to major trends, market dynamics and issues. Estimates of sector and country market growth are given together with annual size estimates up to 1995. In addition, leading vendors are identified for each country and for Western Europe overall.

All these sectors are examined more fully with detailed commentary in separately published INPUT research programmes and reports.

This report contains 230 pages, including 288 exhibits.

Table of Contents

Table of Contents (Continued)

Exhibits

Exhibits (Continued)

Exhibits (Continued)

Exhibits (Continued)

Appendixes

C

Exhibits (Continued)

Exhibits (Continued)

Exhibits (Continued)

Exhibits (Continued)

Exhibits (Continued)

Exhibits (Continued)

Exhibits (Continued)

Exhibits (Continued)

I

Introduction

I

Introduction

This report is produced as the summary of the forecasts in the series of reports composing INPUT's Market Analysis Programme for the computer software and services industry in Western Europe.

A
Scope of the Report

This report summarises the numerical forecast data produced for each of the eight major sectors that constitute the computer software and services market, as defined by INPUT.

- Processing services
- Turnkey systems
- Applications software
- Systems software
- Professional services
- Network services
- Systems operations
- Systems integration

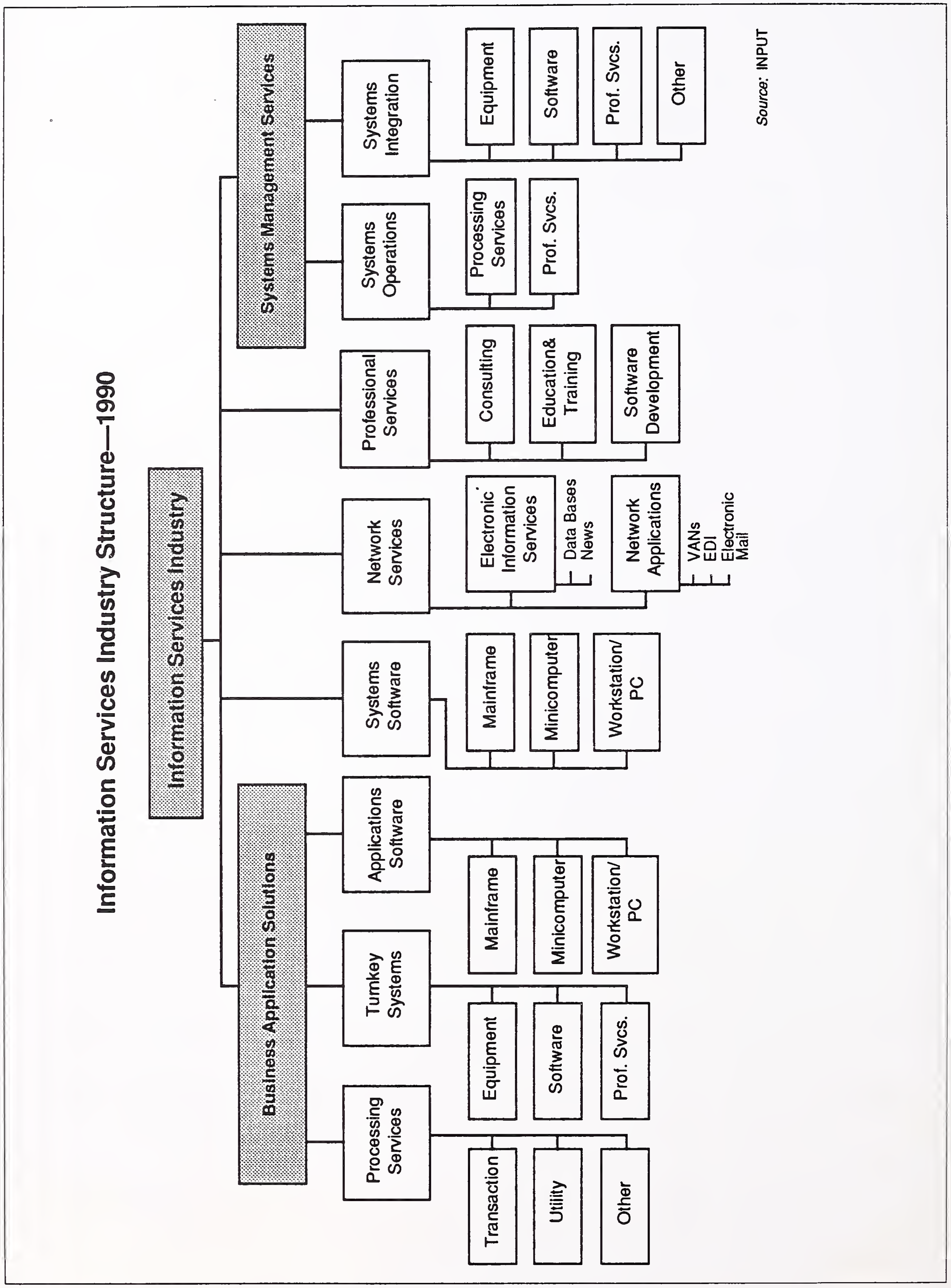
The first five sectors are further broken down in this report into their sub-sectors, as shown in Exhibit I-1. The detailed forecasts for network services, systems operations and systems integration are published by INPUT in its network and systems management programmes. Forecasts are given for Western Europe as a whole and for thirteen countries.

Some changes have occurred in the definition of these delivery modes since last year's research programme. In summary these changes are:

- The elements of systems operations have been extracted from processing services and professional services and are now reported as a separate major sector.

- Applications software products and systems software products have been split into separate categories. They are both forecast for mainframe, minicomputer, and PC or workstation platforms.

EXHIBIT I-1


Information Services Industry Structure—1990
Information Services Industry
Business Application Solutions
Systems Management Services
Processing Services
Transaction
Utility
Other
Turnkey Systems
Equipment
Software
Prof. Svcs.
Applications Software
Mainframe
Minicomputer
Workstation/ PC
Systems Software
Mainframe
Minicomputer
Workstation/ PC
Network Services
Electronic Information Services
Data Bases
News
Network Applications
VANs
EDI
Electronic Mail
Professional Services
Consulting
Education& Training
Software Development
Systems Operations
Processing Services
Prof. Svcs.
Systems Integration
Equipment
Software
Prof. Svcs.
Other
Source: INPUT

Full details of the definitions used by INPUT are given in Appendix A.

Software and services continue to attract widespread vendor attention. This report is designed to assist vendors in achieving a consolidated view of each market in Europe. Being primarily numerical, the report should 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 1989 and forecasts for each year from 1990 through 1995. INPUT has analysed the Western European country markets of France, Germany, the United Kingdom, Italy, Sweden, Norway, Denmark, Finland, the Netherlands, Belgium, Switzerland, Austria and Spain—as well as the Rest of Europe (Ireland, Portugal and Greece).

B

Methodology

This report is based principally on research activities conducted by INPUT during 1990:

- A vendor research programme with more than 300 interviews with software and services vendors across Europe
- A further 200 vendor and user interviews across all European market sectors to determine trends and opinions
- INPUT's continuous analysis of all the delivery modes composing the computer software and services market

Additionally INPUT referred to its own extensive library and database of information relating to the software and services industry.

C

Report Structure

The remaining chapters of this report are structured in the following way:

- Chapter II is an executive overview offering a concise summary of the data in the report.
- Chapter III lists the forecasts for Western Europe as a whole, by delivery mode, by subsector, and by country. It describes the economic and exchange rate assumptions used in formulating the market forecasts. It also lists leading vendors and their market shares.
- Chapter IV contains the market forecasts and leading vendor assessments for the individual country markets.
- Appendix A provides detailed definitions used by INPUT to categorise and analyse the activities in each market sector.

- Appendix B lists all the related INPUT reports in the series.
- Appendix C is the database for each country in local currency.
- Appendix D is the database for each country in ECUs.
- Appendix E lists the inflation and exchange rate assumptions used to compile the report.
- Appendix F shows the reconciliation between last year's forecast and this one.

D

Related INPUT Reports

The following reports contain detailed analysis of each market sector, offering commentary and recommendations for vendors active in each sector. The numerical data in this report should be read in conjunction with the full reports listed below:

- *Professional Services Opportunities, Western Europe 1990-1995*
- *Processing Services Opportunities, Western Europe 1990-1995*
- *Applications Solutions Opportunities, Western Europe 1990-1995*
- *Systems Software Opportunities, Western Europe 1990-1995*
- *Systems Integration Market Forecast, Western Europe 1990-1995*
- *Systems Operations Market Forecast, Western Europe 1990-1995*
- *Network Services Market Forecast, Western Europe 1990-1995*

II

Executive Overview

II
Executive Overview

A
Industry Outlook—Growing Emphasis on Partnerships

For the past decade or more, the European software and services industry has experienced extraordinary growth averaging over 20% per year. Today, in spite of the threat of financial recession, there is little sign of saturation in demand for IS solutions in all forms; growth is expected to remain near 20% over the next five years. Key trends are shown in Exhibit II-1. As competitors jockey for position, those seeking long-term advantage are picking their partners carefully. The complexity of market conditions and of IS solutions is bringing nearly all the vendors, and even some of their major clients, together in a whole range of alliances. Joint-venture start-ups, minority stakes, marketing or relationship agreements, distribution rights, lobbying groups, standards consortia, and conventional OEM, VAR and agency agreements are all creating new opportunities for winning and retaining clients.

EXHIBIT II-1

Key Industry Trends
Software and Services
Western Europe

- Partnerships proliferate
- Outsourcing prospers
- Recession pro's and con's
- Few pan-Europeans yet

Alongside the growing realisation at board level of the critical role of IS in business is awareness that in many cases it is feasible to buy in or outsource functions traditionally managed in-house. The value for money of new platforms is also boosting demand for downsizing and more ready-made software and service solutions. Driving these market changes is the widespread adoption in Europe of open systems standards that provide greater and cheaper choices for commercial and technical applications.

Economic recession is now being felt in many European countries, though many consider it to be short term. Tighter client budgets result in cutbacks at the strategic end of the market—consultancy, education and training, and new systems development. But for systems management and operations vendors, the recession can be good news that encourages clients to reconsider outsourcing to fix and control costs.

By virtue of their sheer size and geographic spread, the major equipment vendors have a dominant role in the software and services market. Their pan-European coverage has been matched by very few independent European software and services vendors, CAP Gemini Sogeti having had the most notable success.

B

Overall Market Forecasts—Good Growth Beyond Recession

INPUT estimates that the overall computer software and services market in Western Europe was $61 billion in 1990. As Exhibit II-2 illustrates, the overall market is expected to grow to $143 billion in 1995, despite the current short-term recession fears in the industry.

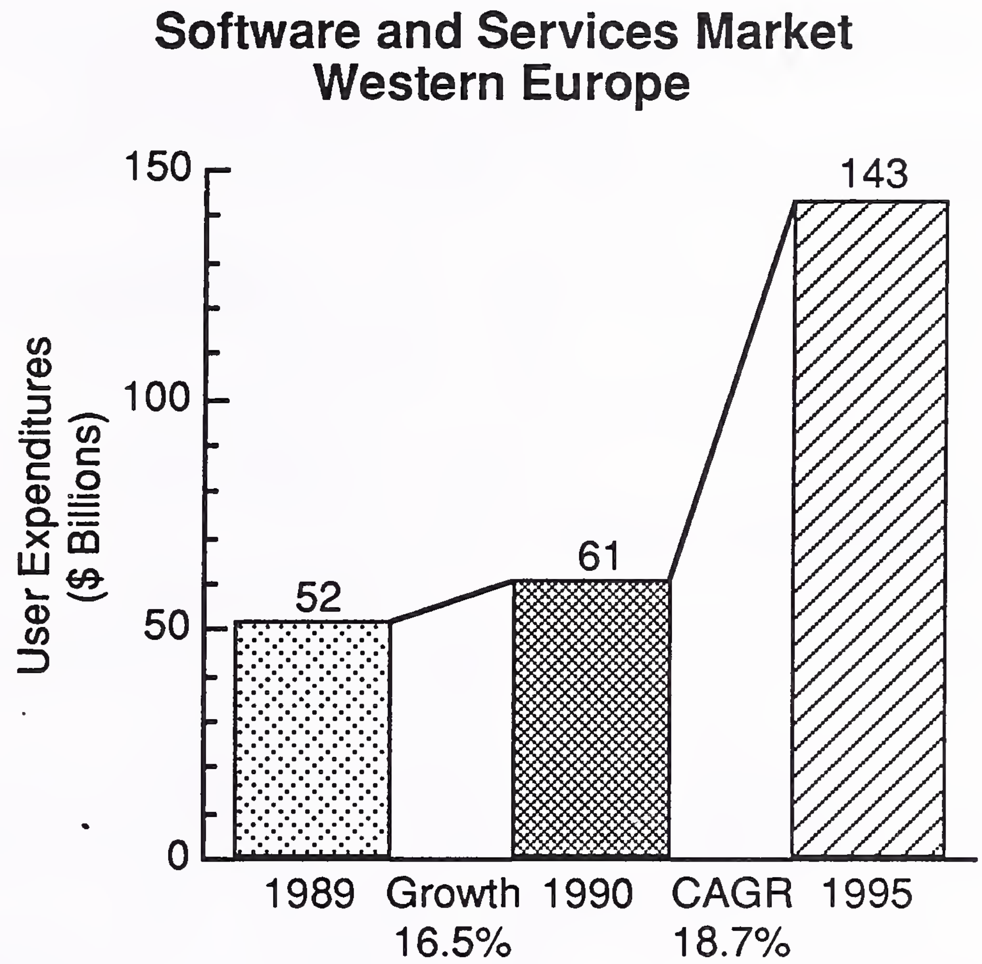
This compound annual growth rate (CAGR) includes the predicted effects of inflation country by country around Europe—see Appendix E for assumptions.

Exhbit II-3 shows that the fastest-growing sectors will be network services and systems integration, each of which will have a CAGR of 25% over the period. INPUT forecasts the applications software products sector will grow at an average of 23% per annum.

The largest sector by far is professional services, which is forecast to grow at 20%, as will the systems operations market—the latest beneficiary of the continuing strong user trend towards outsourcing more and more IS-related activities.

After a stagnant period in the 1980s, processing services are forecast to increase growth to an average of 9% per annum. Growth in systems software spending is limited by equipment downsizing; turnkey systems continue to grow at the industry average of 19%.

EXHIBIT II-2



Delivery modes are summarised later in this chapter. A full market analysis for each sector is available in related INPUT reports. Network services, systems operations, and systems integration are reported on in detail in other INPUT research programmes.

C

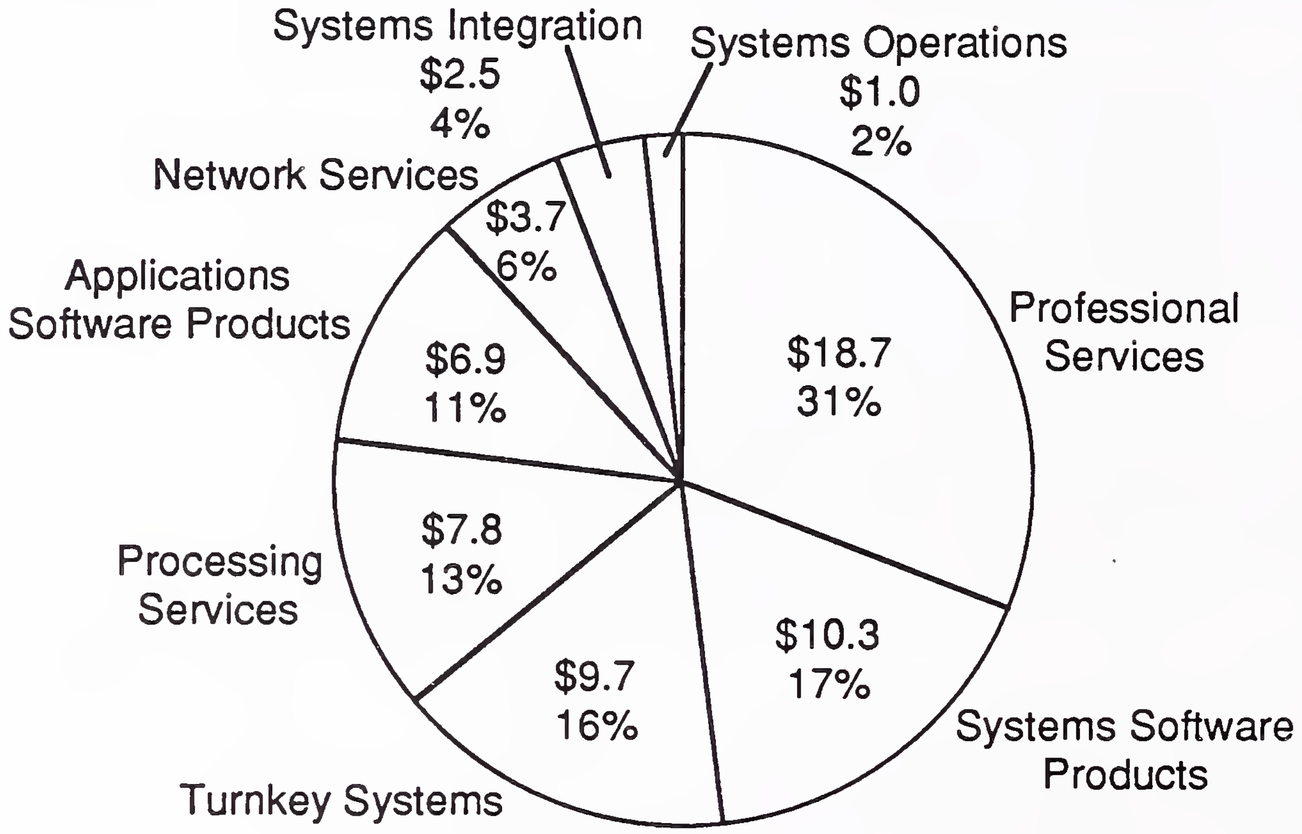
Major Country Markets—France Consolidates Lead

France continues to dominate the European market. In 1990 France accounted for one quarter of all software and services user expenditure in Western Europe. Exhibit II-4 illustrates the size and growth of the four leading country markets—France, Germany, the United Kingdom and Italy—which in total account for 73% of the overall market in 1990.

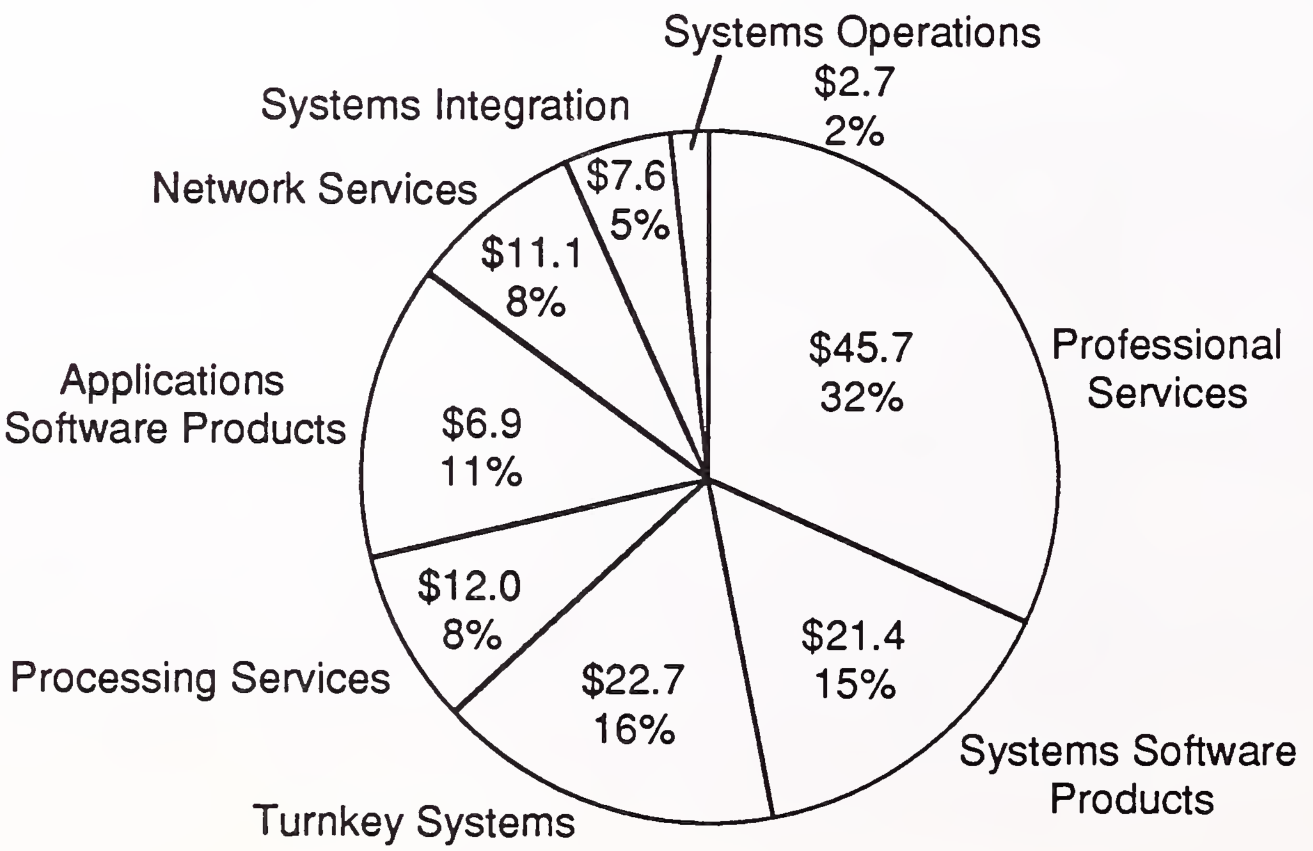
Little difference is apparent in the overall growth rates for each country, but this similarity hides very significant differences in the business mix traditional to each country. For example, the professional services sector in France represents nearly 40% of the French market for all software and services, whereas packaged application solutions—turnkey systems plus applications software products—are only 23% of the market. In Germany this pattern is reversed—professional services holds only 22% of the total, compared to packaged solutions with 35% of the total German market. German organisations prefer to buy complete solutions or to develop them using in-house staff.

EXHIBIT II-3

Delivery Mode Analysis
Software and Services Market—Western Europe, 1990-1995



1990 Total Market = $61 Billion



1995 Total Market = $143 Billion

EXHIBIT II-4

Major Western European Countries Software and Services Market, 1990-1995

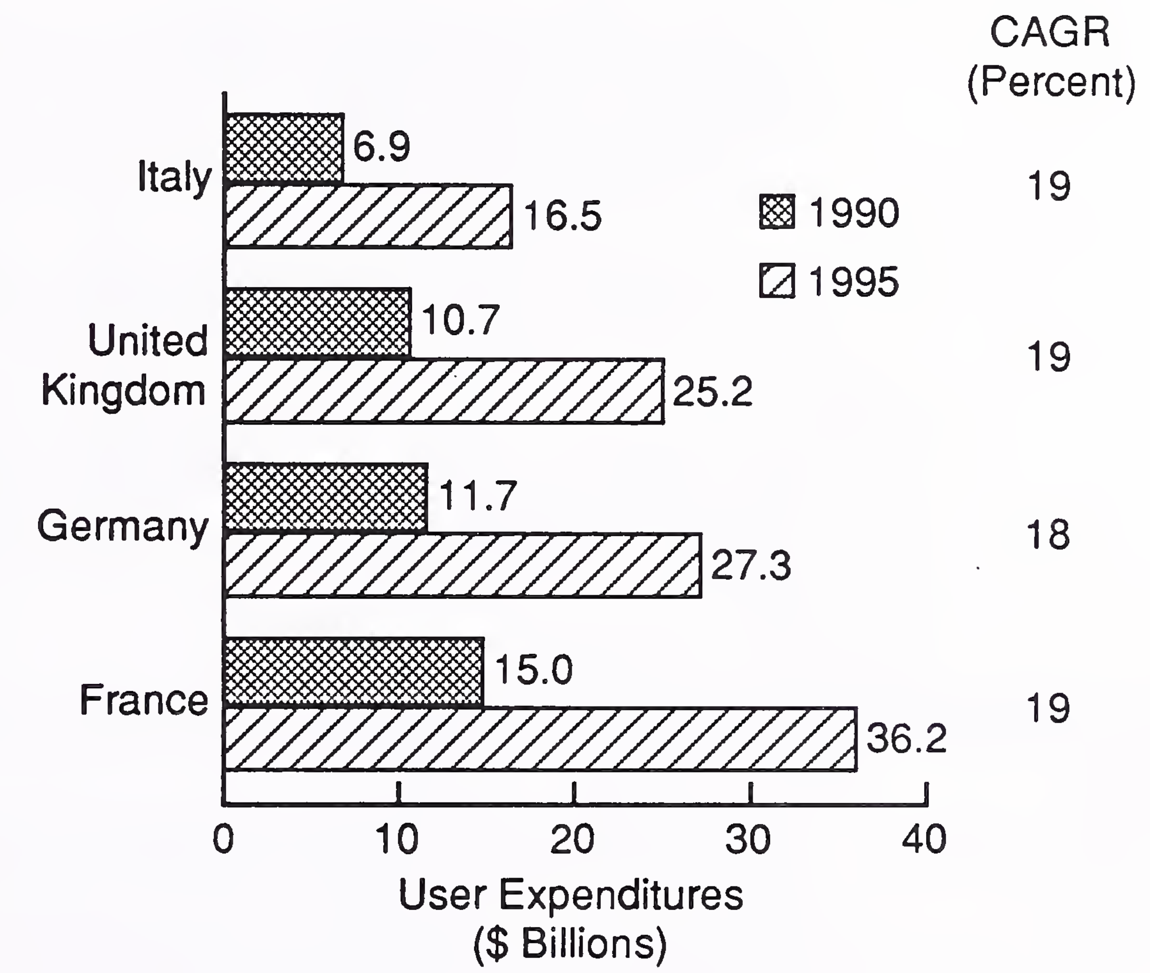
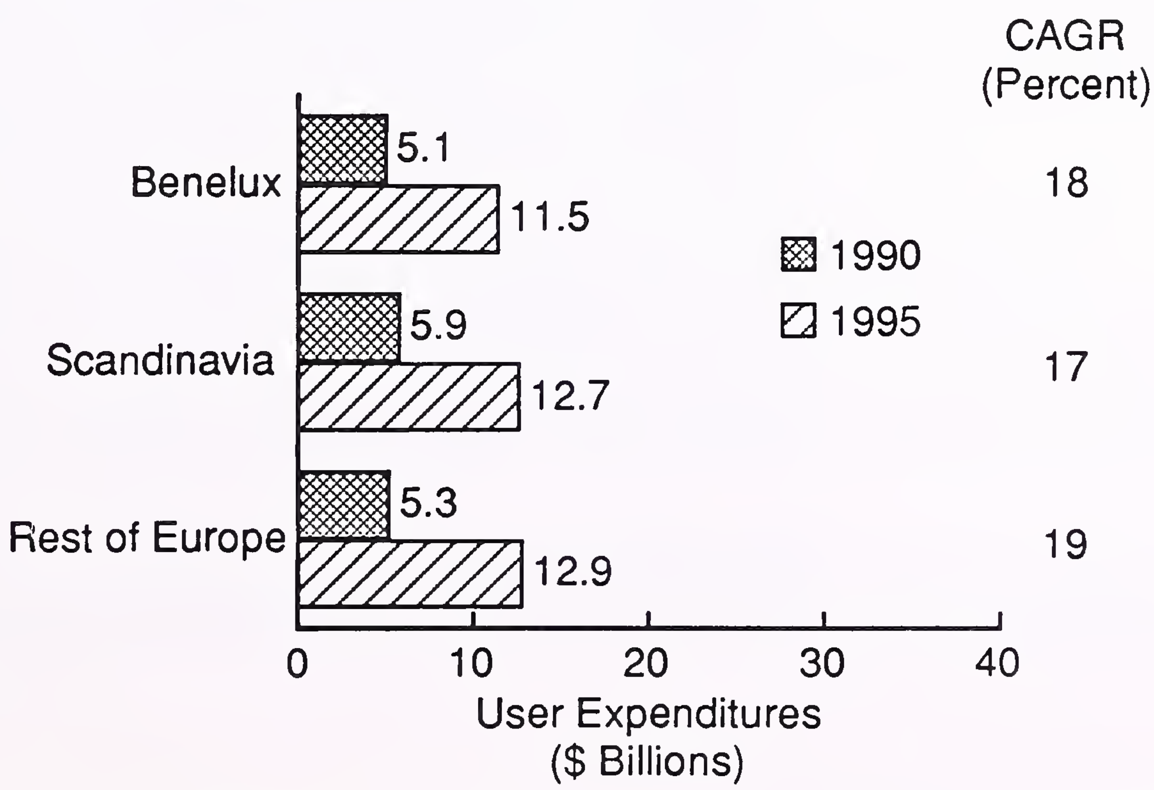


EXHIBIT II-5

Other Western European Regions Software and Services Market, 1990-1995



The large size of the French market has led to the French being the most dominant European vendors as they vie with U.S. vendors for market share. Six of the Top 30 vendors are French and eleven are U.S. in origin.

Of the other Western European software and services markets shown in Exhibit II-5, the four Scandinavian countries accounted for some 10% of the total in 1990. They exhibit the slowest rate of growth, principally due to the high proportion of processing services in these countries.

The Netherlands, Belgium and Luxemburg—Benelux—account for 8% of the Western European total because of a good forecast growth rate of 18% per annum from 1990 to 1995.

Spain, at 21%, has the fastest growing market among the remaining six countries, identified as Rest of Europe in the Exhibit. On average these countries will grow at the pace of the total Western European market—19%.

D

Processing Services—Specialised Applications Drive Development

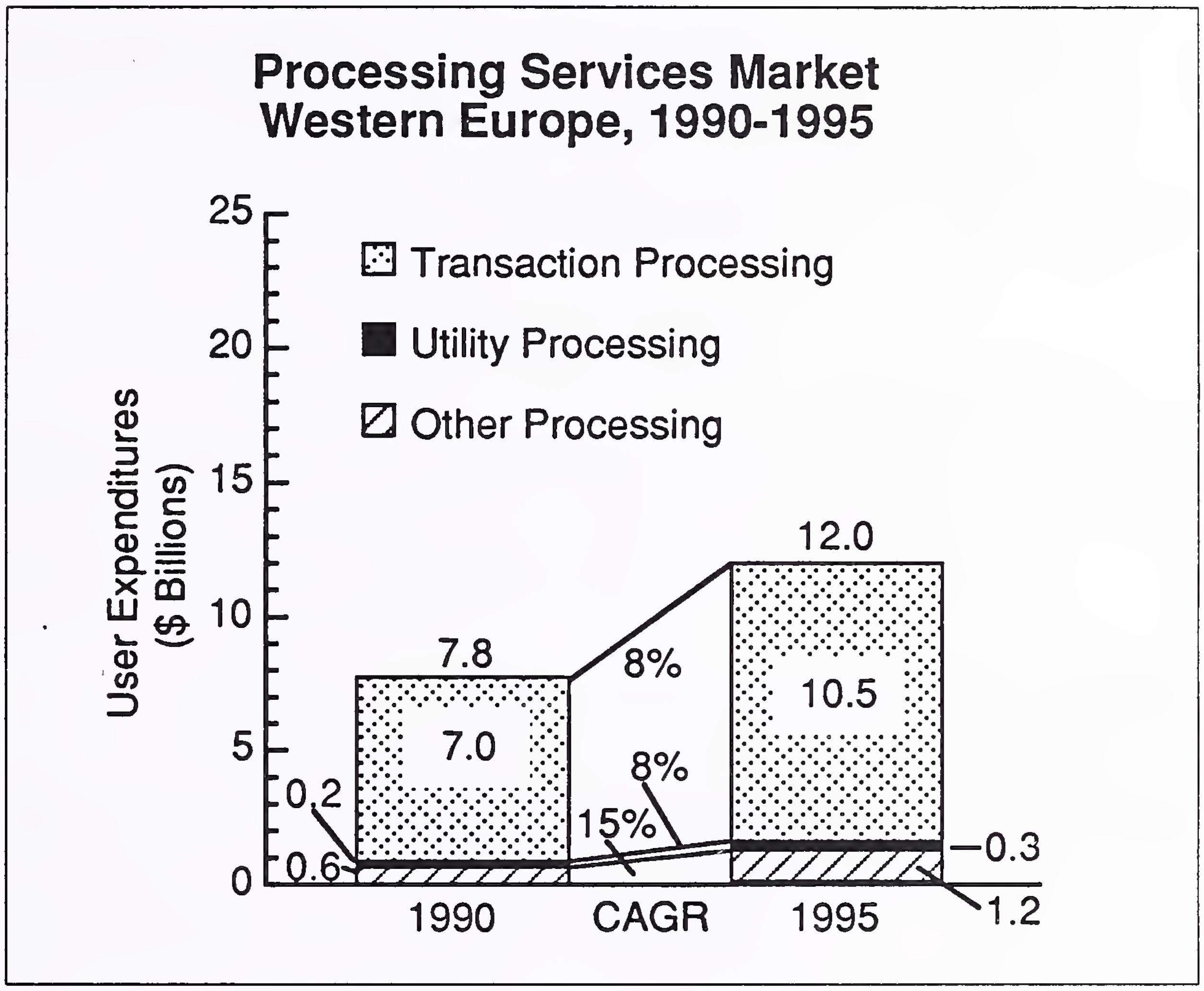
Exhibit II-6 projects the processing services market.

The processing services sector has had the lowest rate of growth throughout the 1980s within an otherwise dynamic and fast-expanding market for software and associated services. However, specialised applications continue to evolve to offer vendors important opportunities that are likely to see growth achieve an annual average rate of nine percent to take the market to $12 billion by 1995 in Western Europe. Key opportunities for processing services vendors lie in developing critical applications skills in areas such as payroll and credit card processing and offering specialised services such as disaster recovery support.

The general business and technological environments have changed considerably since the early 1980s, when processing services suffered in competition with low-cost minicomputers and personal computers. Now the emphasis has changed from the ability to offer purely technical computer expertise to emphasis on applications skills. In consequence, vendors that have built knowledge and experience of specialist areas such as payroll processing have prospered as the demand for specific applications transaction processing services has continued. In contrast, utility processing, the provision of basic processing facilities, has declined. However, other specialist opportunities—for example, disaster recovery services—have represented an area of significant opportunity.

Processing services vendors can continue to develop their applications skills to develop and further support applications-based services. Alternatively they can seek to leverage their experience and knowledge into

EXHIBIT II-6



associated markets. For example, management skills can be translated into the systems operations area.

E

Applications Solutions—Pan-European Integration Challenge

Users increasingly demand that application software products be capable of being integrated and supported by a pan-European organisation. Vendors are responding to this challenge by strengthening their competitive positions by means of acquisitions and partnering activities. Faced with the increasing costs and risks of developing customised applications, users are buying more standard applications solutions and are expected to spend more than $40 billion annually by 1995.

INPUT defines the applications solutions market as comprising two major sectors, applications software products and turnkey systems. Turnkey systems are defined as complete systems that combine the equipment platform and the applications software products with any necessary professional services for customisation and installation support. The forecast for these two delivery modes in Western Europe is shown in Exhibits II-7 and II-8.

Users are being driven away from customised applications development and towards the use of standard packaged solutions for the following key reasons:

- Risk reduction. Developing a customised application incurs risks in respect of the overall cost and timescale required. Using an existing, preferably tried and tested, product reduces the risk of overruns.

- The cost of standard applications solutions will be lower than developing completely new systems.

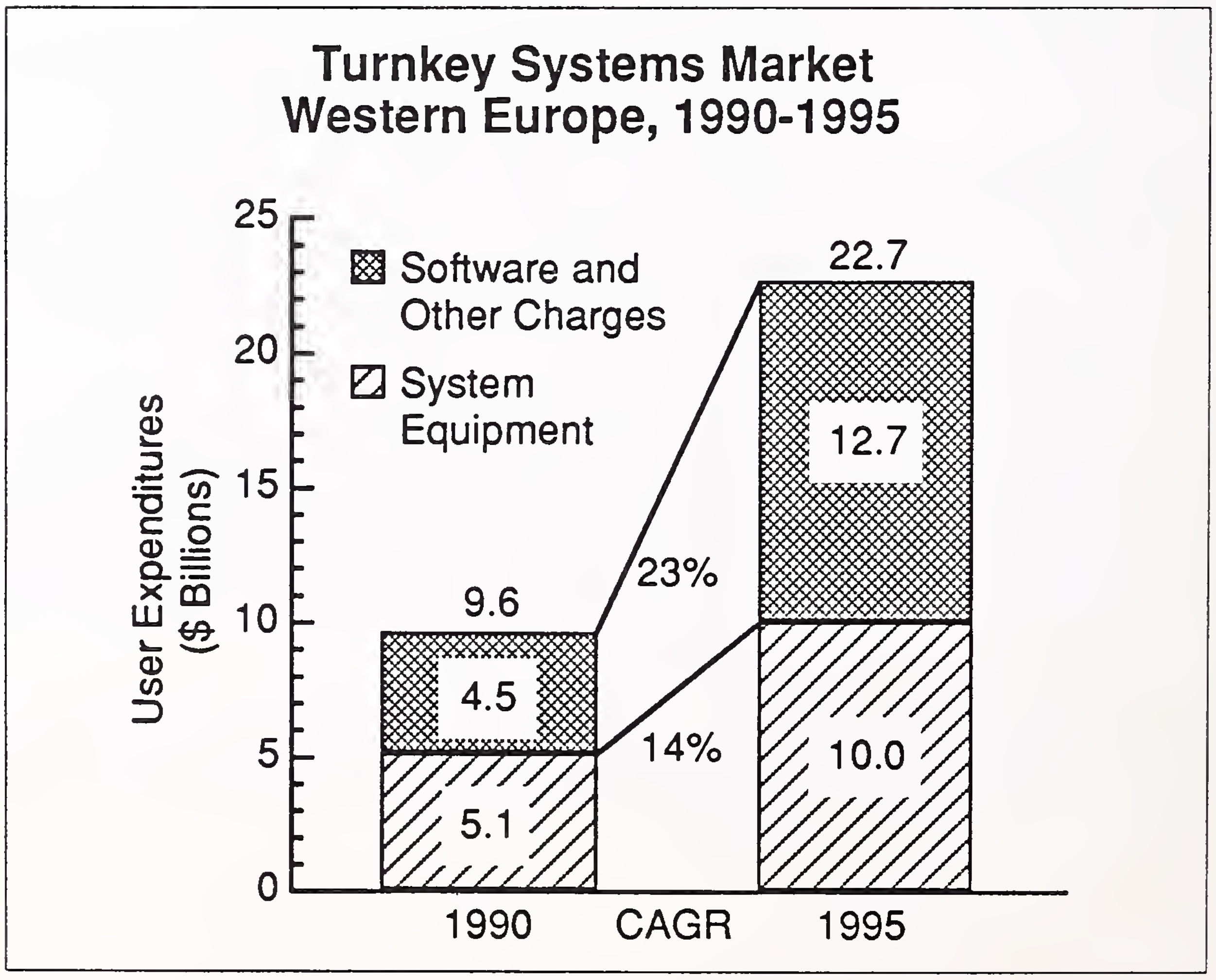
- Implementation of a standard application can considerably reduce the elapsed time scale required to achieve an operational system.

- The increased availability of standard package solutions appropriate to a client's needs encourages use. Historically many users had no choice but to develop their own systems; increasingly that choice is available. The packaged-solution option is further enhanced by the greater levels of integration available between application packages.

1. Turnkey Systems

Exhibit II-7 shows the market analysis and forecast for the Western European turnkey systems sector. The improving cost/performance of new equipment platforms will depress the equipment proportion of turnkey systems overall. The increasing power of workstations/PCs in particular will have the effect overall of driving this sector of the market at the highest rate, twenty-seven percent per annum. In contrast, the mainframe market is not of great importance in the turnkey sector and will grow at the slowest rate of all equipment sectors as a result of the downsizing of equipment platforms.

EXHIBIT II-7



An important influence on the turnkey systems market is the impact of UNIX. Polarisation of the minicomputer market around the de-facto standards of IBM AS/400, Digital VMS and UNIX has made the latter a must for virtually all equipment vendors. The user appeal of UNIX is increased by the introduction of more advanced facilities and acceptance of open systems concepts. The increasing availability of UNIX-based applications supports this trend.

As can be seen in Exhibit II-7, the customisation element of turnkey systems is forecast to grow. Growth is driven by the need for delivering specific client benefits, albeit based upon a standard applications product. Strong demand is also expected for additional professional services such as consultancy and education and training, which are vital to secure successful implementation of the system in the user environment.

The largest single-country market within Europe is Germany (30% of the total), followed by the United Kingdom (22% of the total). The appeal of the turnkey systems delivery mode varies between different European countries; Italian users prefer custom solutions. These attitudes are likely to change as the cost penalty for an entirely custom-built system increases. Customised adoption of standard applications products represents an attractive alternative.

2. Applications Software Products

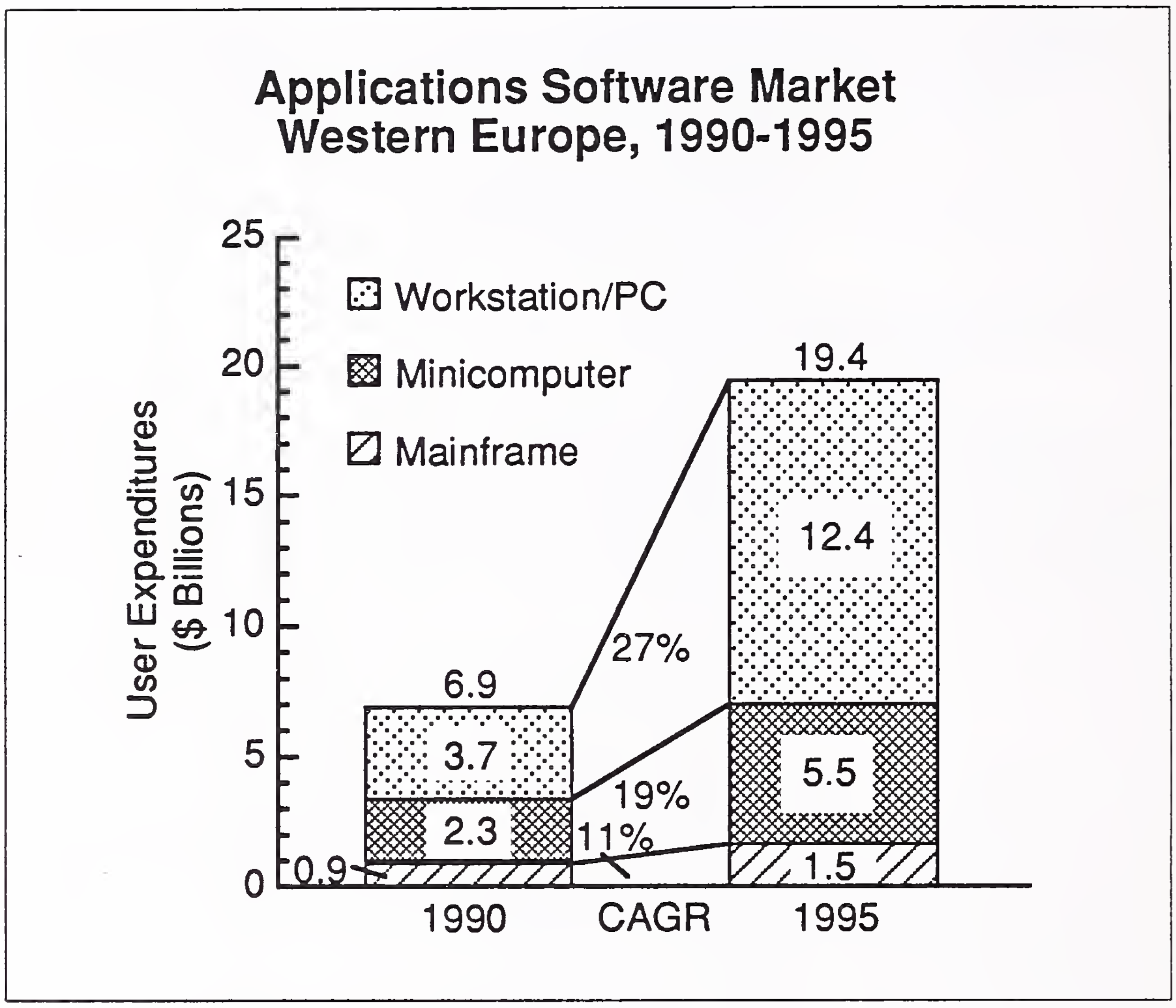
INPUT forecasts that the applications software product market will have a twenty-three percent CAGR from 1990 to 1995. Exhibit II-8 shows the analysis of the applications software products market by equipment platform type. It is clear from this analysis that a much greater opportunity exists for smaller systems, both in respect of relative size and relative growth rates. This forecast is clearly based on an expectation of continued downsizing by users, who are choosing smaller systems—AS/400s instead of 3090s, for example—and a continued trend towards distributed processing systems. The increasing costs and shortages of skilled programmers and the increasing need for speedier applications implementation reinforce the rationale for selecting applications software products in preference to adopting the luxury of custom-written systems. The lower cost profile of smaller systems accelerates this trend.

A number of other factors are of significance in supporting the different growth expectations for different types of equipment platform. These include:

- Strong growth in manufacturing applications software products is a significant contributor to the minicomputer sector.

- The continued drive towards open systems standards is creating a more stable environment for application software product development on minicomputer and workstation/PC platforms.

EXHIBIT II-8



- Increasing use of graphical end-user interfaces is widening the market potential for application software products on powerful low-cost systems.

Overall the emphasis on downsizing to smaller systems is a direct reflection of the large price/performance disparities between the three major classes of equipment platform. Ability to offer the same applications product on several types of platform has become an attractive and achievable goal for many vendors.

A factor of particular relevance in Europe is the increasing use of kernel software or reusable software modules that allow vendors to prepare different versions of applications. These modules can be produced for disparate country environments or different industry sectors. This type of approach significantly reduces the investment needed to offer applications software products within the diverse national environments of Europe.

Within Europe the largest individual country market is France, which accounts for approximately one quarter of the entire applications software products market. The U.K. is the second largest market, representing about one-fifth of the total. Germany has a relatively low market share (17%) in comparison to the size of its economy. This can largely be attributed to the German preference for the turnkey system delivery mode for an application solution. Over the next five years, high growth is expected for applications software products in the Italian and Spanish markets.

Applications software product sector growth is driven, amongst other factors, by substitution for in-house or custom-developed applications and is thus not limited by the overall growth of the computer industry or the economy as a whole. In contrast the systems software product sector is limited to a significant extent by these factors.

F

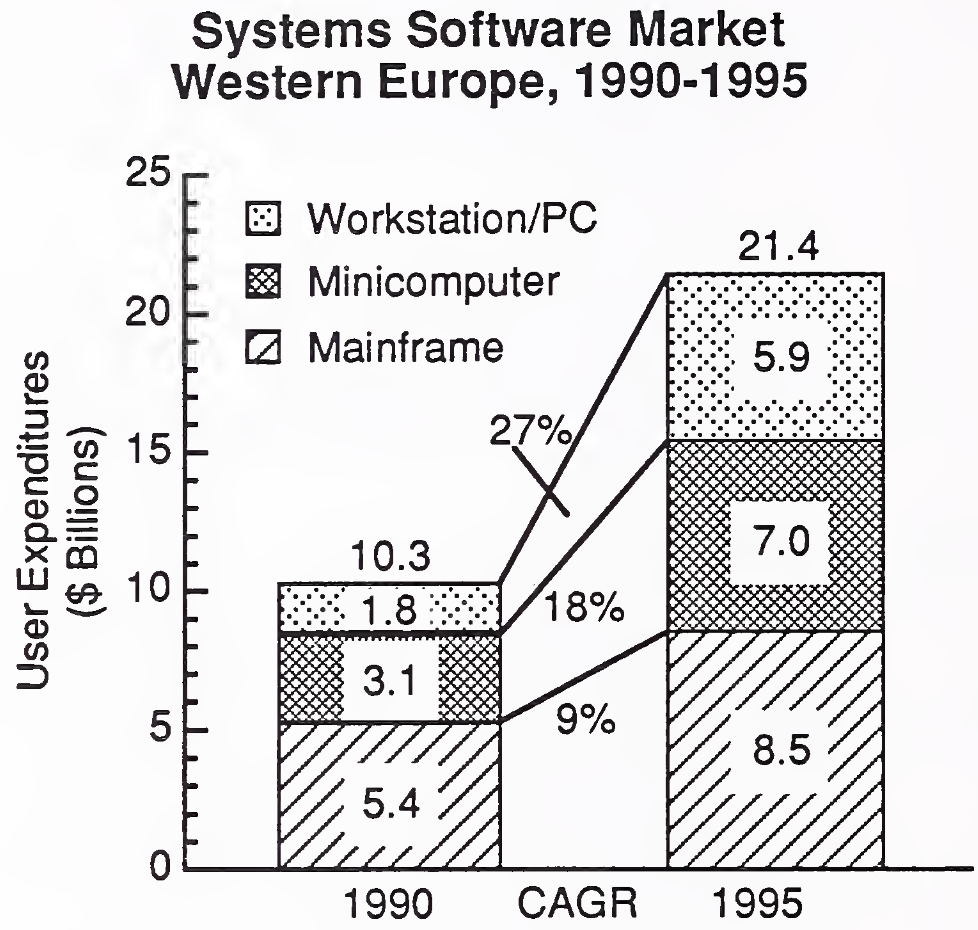
System Software Products—Downsizing Drives Down Growth

After a decade of high growth, the systems software products sector is now slowing as a result of the decline of the computer equipment market. This slowing is largely caused by downsizing—the selection of lower-cost minicomputers and workstation platforms to replace larger equipment configurations. An expected increase in the practice of software product bundling by equipment vendors, as a response to increasingly competitive market conditions, will depress future growth in this market. INPUT forecasts that growth will achieve only a 15% compound average rate over the next five years. Nevertheless, this growth will generate a systems software products market worth $21 billion in 1995.

Both the systems software products sector—the general operating and application development environment for the computer hardware—and the applications software products sector have achieved remarkable growth over the last ten years. From under one billion U.S. dollars in sales in 1979, the industry achieved over $18 billion by 1989 and averaged a growth rate in excess of 30% per annum throughout the decade. As shown in Exhibit II-9, INPUT forecasts much lower growth over the next five years.

A potential inhibiting factor in the systems software product market is the reality of multiple de-facto standards. Products are introduced faster than standards bodies can function; the result is user confusion. Confusion in turn has led to delayed product acceptance by vendors and users. However, open systems standards, notably UNIX, are having a profound impact on the market and are achieving significant growth, albeit at the expense of other system software products.

EXHIBIT II-9



G

Professional Services—Competitive Pressures Increase

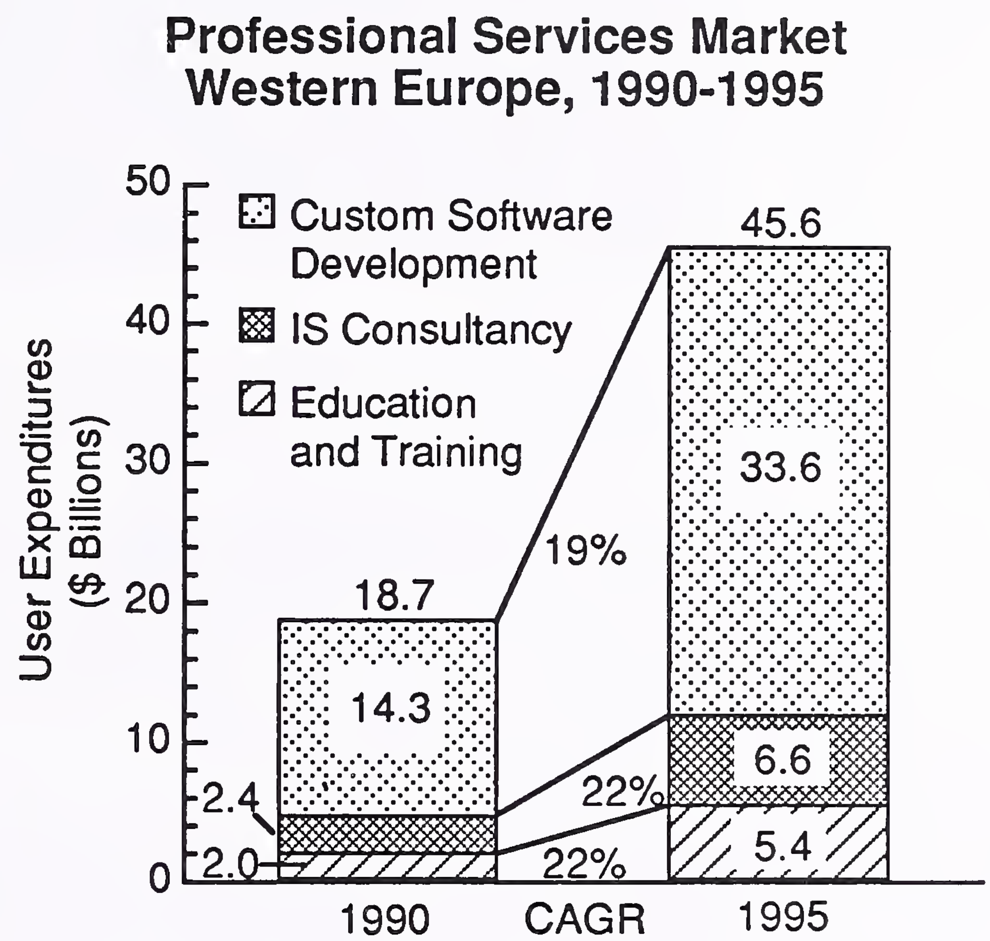
Exhibit II-10 shows projected growth in the professional services market.

The professional services market is the largest sector of the computer software and services business in Europe. It accounted for over 30% of the total Western European market in 1990, valued at $19 billion, and is expected to have an average CAGR of twenty percent to $46 billion by 1995.

The European professional services market is highly fragmented. The market leader, IBM, holds only a 5% market share. Acquisitions and partnerships abound, but only a few companies can yet boast a Pan-European presence, and most of those are either French or American. The continued rapid growth of the market is stimulating fiercer competition, resulting in new business strategies among traditional suppliers and the newer entries. Three different strategies are visible:

- Early exploitation of new software technologies, standards and procedures to increase productivity
- The broadening of existing client services to increase revenues
- New services aimed at gaining better access to board rooms and business decision-makers in order to win new clients

EXHIBIT II-10



The market includes information systems consultancy, custom software development and maintenance, and education and training. It excludes services provided specifically to other software and services market segments—such as processing and network services, software products, turnkey systems, and systems integration or operations.

The professional services market supports service companies from many origins. The greatest threats to traditional vendors, which usually specialise in developing software solutions for niche industry markets, come from:

- Management consultants or auditors who are responding to ever-stronger client demands for information systems advice, often linked directly to related business issues

- International equipment vendors that seek lost hardware profit margins and retain account control, but are heavily dependent on partnership with the traditional vendors

The bulk of the professional services market has always been the development of software solutions to individual client requirements. However, the fastest growing subsegments involve activities that precede and follow the actual specification, writing, testing and installation of software. High-growth areas involve the initial consulting services helping the client assess and choose options and relate to the education and training of managers, users and IS staff essential to the success of any project. INPUT projects that both areas will grow at an average of 22% per year over the five-year period. This projection implies a gradual reassignment of many professional services programming staff as the software development workload decreases relative to the increase in other services.

France is by far the largest European market for professional services. Equal to the combined value of both Germany and the United Kingdom, the French market is home to many of Europe's leading vendors, most notably CAP Gemini Sogeti. French vendors have secured a commanding lead over their independent competitors with a very active strategy of acquiring major software and services companies. The French have also established themselves well in Italy and the U.K. In contrast, the German market has always shown a strong preference for packaged software solutions and turnkey systems.

Pressure for improvements in productivity and quality has led most vendors to rapidly adopt technical strategies encompassing the latest software tools and methodologies such as relational databases, 4GLs, CASE tools and project management procedures. With some clients cutting budgets and more competitors crowding into the market, vendors have become more cost conscious. They are looking to new software technology not only to help them win business but also to restore higher profit margins.

The link between business success and IS investment is still very tenuous. But there is no doubt of the steady improvement in awareness of the critical need to link IS strategy very closely to business strategy. Professional services vendors that can already demonstrate an ability to bridge the gap and offer independent advice on both topics have a clear competitive advantage in Europe's boardrooms. This advantage is causing many vendors to try to extend their traditionally strong IS consulting capability into the business management arena. This task seems more difficult than a management consultancy's extending its activities further into IS.

H

Leading Vendors—European versus U.S. Vendors

CAP Gemini Sogeti and Andersen Consulting have both enlarged their already large operations in Europe at a great pace, but using rather different business strategies.

CGS is still hard on the acquisition trail. One of CGS's most significant deals this year was taking a majority stake in the successful Hoskyns Group in the U.K., where CGS previously had little presence. This stake means CGS now has a stronghold in all the major European countries and a fast start in the systems operations market sector, complementing already strong systems integration capabilities. CGS has also been assembling a portfolio of management consulting companies to deepen its resources when offering a full range of services. These activities are not included in the 1989 figures listed in Exhibit II-11. But related income will contribute to CGS's becoming a $2 billion company in 1991.

EXHIBIT II-11

Leading Independent Vendors, 1989 Software and Services Western Europe

Rank	Vendor	Country of Origin	Revenues ($ Millions)	Market Share (Percent)
1	CAP Gemini Sogeti	France	980	1.9
2	Reuters	U.K.	900	1.7
3	Andersen Consulting	U.S.	520	1.0
4	Finsiel	Italy	470	0.9
5	Computer Associates	U.S.	440	0.8
6=	GEIS	U.S.	380	0.7
6=	Sema	France	380	0.7
8	SD-Scicon	U.K.	350	0.7
9	Sligos	France	340	0.7
10	Concept	France	330	0.6
	Others		46,965	90.2
	Total		52,055	100.0

Andersen Consulting has also grown rapidly and consistently, about 40% in 1989, but largely organically rather than by acquisition. Andersen's position as a management consultant that additionally offers a full range of IT services has given it a unique edge with many clients.

The 1990s will undoubtedly see still more consolidation and concentration in the European computer software and services industry. As the technology and the market demand ever-broader mixes of special skills, partnerships and mergers will continue to reshape and polarise the industry into vendors offering multinational capability and vendors that are leaders in their own specialist niches.

III

Market Overview

III

Market Overview

A

Forecast Assumptions

Exhibit F-1 shows the changes made in this year's forecast in comparison to that of the previous year. The principal reasons for these changes are:

- The general rise of European currencies against the U.S. dollar accounts for some 3.3% of the increase.

- A re-evaluation of the market size resulted from research carried out for this report. This re-evaluation has affected the processing subsector more than other sectors.

- The current indications are that the recession in Europe will be relatively short-term rather than throughout the five-year forecast.

- The growth in the popularity of outsourcing (contracting-out any or all of the range of IT activities) is assumed to continue as a reaction to recessionary pressures among user organisations and the growing complexity of system solutions.

- Leading computer manufacturers are expected to increasingly focus the market's attention on their software and services as they try to compensate for falling hardware margins with new revenue streams.

B

Western European Market

EXHIBIT III-1

Software and Services Market Forecast, 1990-1995 Western Europe

Subsector	$ Millions 1989	1990	1991	1990-1995 CAGR (Percent)	1995
Processing Services	7,400	7,840	8,520	9	12,040
Turnkey Systems	8,300	9,670	11,440	19	22,710
Applications Software Products	5,700	6,885	8,370	23	19,410
Systems Software Products	9,140	10,350	11,860	15	21,100
Professional Services	15,690	18,660	22,350	20	45,680
Network Services	2,970	3,690	4,600	25	11,050
Systems Operations	880	1,055	1,275	20	2,650
Systems Integration	1,975	2,485	3,125	25	7,640
Total	52,055	60,635	71,540	19	142,280

1. Processing Services

EXHIBIT III-2

Processing Services Market Forecast, 1990-1995 Western Europe

Subsector	$ Millions 1989	1990	1991	1990-1995 CAGR (Percent)	1995
Transaction Processing	6,630	7,010	7,570	8	10,540
Utility Processing	230	240	265	7	330
Other Processing:					
Disaster Recovery Services	135	175	235	27	570
All Others	405	415	450	8	600
Total	7,400	7,840	8,520	9	12,040

2. Turnkey Systems

EXHIBIT III-3

Turnkey Systems Market Forecast, 1990-1995 Western Europe

Subsector	$ Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
System Equipment	4,560	5,140	5,870	14	10,010
Software and Other Charges	3,740	4,530	5,570	23	12,700
Total	8,300	9,670	11,440	18	22,710

3. Applications Software Products

EXHIBIT III-4

Applications Software Products Market Forecast, 1990-1995 Western Europe

Subsector	$ Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	870	945	1,020	9	1,460
Minicomputer	1,920	2,270	2,710	19	5,550
Workstation/PC	2,910	3,670	4,640	27	12,400
Total	5,700	6,885	8,370	23	19,410

4. Systems Software Products

EXHIBIT III-5

Systems Software Products Market Forecast, 1990-1995 Western Europe

Subsector	$ Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	5,000	5,410	5,890	9	8,250
Minicomputer	2,680	3,120	3,670	17	6,990
Workstation/PC	1,460	1,820	2,300	26	5,860
Total	9,140	10,350	11,860	15	21,100

5. Professional Services

EXHIBIT III-6

Professional Services Market Forecast, 1990-1995
Western Europe

Subsector	1989	1990	1991	1990-1995 CAGR (Percent)	1995
	$ Millions				
IS Consultancy	1,990	2,420	2,970	22	6,640
Custom Software Development	12,060	14,250	16,930	19	33,640
Education and Training	1,640	1,990	2,450	22	5,400
Total	15,690	18,660	22,350	20	45,680

6. Leading Vendors

EXHIBIT III-7

Leading Vendors, 1989
Software and Services—Western Europe

Rank	Vendor	Country of Origin	Revenues ($ Millions)	Market Share (Percent)
1	IBM	U.S.	4,040	7.8
2	Nixdorf	Germany	1,080	2.1
3	CAP Gemini Sogeti	France	980	1.9
4	Reuters	U.K.	900	1.7
5	Siemens	Germany	880	1.7
6	Bull	France	740	1.4
7	Unisys	U.S.	690	1.3
8	Andersen	U.S.	520	1.0
9	Prime	U.S.	510	1.0
10	Olivetti	Italy	480	0.9
11	Finsiel	Italy	470	0.9
12	Computer Associates	U.S.	420	0.8
13	Mannesmann Kienzle	Germany	410	0.8
14	Digital	U.S.	400	0.8
15	ICL	U.K.	390	0.7
16=	McDonnell Douglas	U.S.	380	0.7
16=	GEIS	U.S.	380	0.7
16=	Sema	France	380	0.7
19	SD-Scicon	U.K.	350	0.7
20	Sligos	France	340	0.7
21	Concept	France	330	0.6
22	Datev	Germany	300	0.6
23=	Getronix	Netherlands	290	0.6
23=	Hoskyns	U.K.	290	0.6
25	Volmac	Netherlands	270	0.5
26	Oracle	U.S.	260	0.5
27=	Extel	U.K.	250	0.5
27=	GSI	France	250	0.5
29	Dun & Bradstreet	U.S.	240	0.5
30	EDS	U.S.	230	0.4
	Others		34,605	66.5
	Total		52,055	100.0

EXHIBIT III-8

Leading Independent Vendors, 1989
Software and Services—Western Europe

Rank	Vendor	Country of Origin	Revenues ($ Millions)	Market Share (Percent)
1	CAP Gemini Sogeti	France	980	1.9
2	Reuters	U.K.	900	1.7
3	Andersen	U.S.	520	1.0
4	Finsiel	Italy	470	0.9
5	Computer Associates	U.S.	440	0.8
6=	GEIS	U.S.	380	0.7
6=	Sema	France	380	0.7
8	SD-Scicon	U.K.	350	0.7
9	Sligos	France	340	0.7
10	Concept	France	330	0.6
11	Datev	Germany	300	0.6
12	Getronix	Netherlands	290	0.6
13	Hoskyns	U.K.	280	0.5
14	Volmac	Netherlands	270	0.5
15	Oracle	U.S.	260	0.5
16=	Extel	U.K.	250	0.5
16=	GSI	France	250	0.5
18	Dun & Bradstreet	U.S.	240	0.5
19	EDS	U.S.	230	0.4
20=	Telerate	U.S.	200	0.4
20=	CISI	France	200	0.4
20=	AB Programator	Sweden	200	0.4
20=	Thorn EMI	U.K.	200	0.4
24=	SAP	Germany	190	0.4
24=	Microsoft	U.S.	190	0.4
26=	Kommunedata	Denmark	170	0.3
26=	AT&T Istel	U.S.	170	0.3
26=	Telekurs	Switzerland	170	0.3
26=	Kommunedata	Sweden	170	0.3
30	Logica	U.K.	160	0.3
	Others		42,575	81.8
	Total		52,055	100.0

IV

Country Markets

IV

Country Markets

EXHIBIT IV-1

Software and Services Market Forecast, 1990-1995 France

Subsector	FF Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Processing Services	10,500	11,000	11,750	9	17,000
Turnkey Systems	8,200	9,600	11,300	18	22,000
Applications Software Products	9,200	11,500	14,150	25	34,650
Systems Software Products	12,150	14,150	16,050	14	27,500
Professional Services	29,790	35,750	42,880	20	89,400
Network Services	4,400	5,500	6,900	25	17,000
Systems Operations	1,550	1,830	2,180	19	4,400
Systems Integration	2,700	3,450	4,400	27	11,300
Total	78,490	92,780	109,610	19	223,250

EXHIBIT IV-2

Processing Services Market Forecast, 1990-1995
France

Subsector	FF Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Transaction Processing	9,660	10,075	10,720	9	15,420
Utility Processing	315	330	350	5	420
Other Processing:					
Disaster Recovery Services	180	235	300	24	700
All Others	345	360	380	5	460
Total	10,500	11,000	11,750	9	17,000

EXHIBIT IV-3

Turnkey Systems Market Forecast, 1990-1995
France

Subsector	FF Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
System Equipment	4,500	5,100	5,850	14	9,900
Software and Other Charges	3,700	4,500	5,450	22	12,100
Total	8,200	9,600	11,300	18	22,000

EXHIBIT IV-4

Applications Software Market Forecast, 1990-1995
France

Subsector	FF Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	1,050	1,200	1,250	5	1,550
Minicomputer	3,650	4,400	5,300	19	10,900
Workstation/PC	4,500	5,900	7,600	30	22,200
Total	9,200	11,500	14,150	24	34,650

EXHIBIT IV-5

Systems Software Market Forecast, 1990-1995
France

Subsector	FF Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	6,450	7,150	7,700	6	10,000
Minicomputer	3,700	4,450	5,200	15	9,300
Workstation/PC	2,000	2,550	3,150	26	8,200
Total	12,150	14,150	16,050	14	27,500

EXHIBIT IV-6

Professional Services Market Forecast, 1990-1995
France

Subsector	FF Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
IS Consultancy	3,295	3,950	4,780	20	9,850
Custom Software Development	24,020	28,800	34,400	20	71,400
Education and Training	2,475	3,000	3,700	22	8,150
Total	29,790	35,750	42,880	20	89,400

EXHIBIT IV-7

Leading Vendors, 1989
Software and Services
France

Rank	Vendor	Country of Origin	Revenues (FF Millions)	Market Share (Percent)
1	IBM	U.S.	4,550	5.8
2	CAP Gemini Sogeti	France	3,260	4.2
3	Bull	France	2,350	3.0
4	Sligos	France	2,100	2.7
5	Concept	France	1,600	2.0
6=	GSI	France	1,100	1.4
6=	Reuters	U.K.	1,100	1.4
8	CISI	France	930	1.2
9	Sema	France	860	1.1
10	CGI	France	750	1.0
11	SG2	France	740	0.9
12	Computer Associates	U.S.	710	0.9
13	Unisys	U.S.	700	0.9
14	Steria	France	650	0.8
15	Transpac	France	590	0.8
16=	Andersen	U.S.	580	0.7
16=	Nixdorf	Germany	580	0.7
18	Dataid	France	560	0.7
19=	Alcatel	France	540	0.7
19=	Sopra	France	540	0.7
19=	Syseca	France	540	0.7
22	Prime	U.S.	480	0.6
23	GFI	France	460	0.6
24	GEIS	U.S.	450	0.6
25=	SITB	France	440	0.6
25=	Telesystemes	France	440	0.6
27	Segin	France	390	0.5
28=	Digital	U.S.	370	0.5
28=	EDS	U.S.	370	0.5
30	Dun & Bradstreet	U.S.	350	0.4
	Others		49,410	62.0
	Total		78,490	100.0

EXHIBIT IV-8

Software and Services Market Forecast, 1990-1995 Germany

Subsector	DM Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Processing Services	2,700	2,860	3,080	8	4,170
Turnkey Systems	4,530	5,280	6,250	18	12,300
Applications Software Products	1,750	2,070	2,470	23	5,800
Systems Software Products	3,500	3,955	4,560	16	8,390
Professional Services	4,020	4,760	5,735	18	11,000
Network Services	850	1,090	1,410	30	4,000
Systems Operations	120	135	155	18	305
Systems Integration	880	1,100	1,400	26	3,495
Total	18,350	21,250	25,060	18	49,460

EXHIBIT IV-9

Processing Services Market Forecast, 1990-1995
Germany

Subsector	DM Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Transaction Processing	2,410	2,550	2,720	7	3,650
Utility Processing	95	100	120	10	160
Other Processing:					
Disaster Recovery Services	60	75	90	19	180
All Others	135	135	150	6	180
Total	2,700	2,860	3,080	8	4,170

EXHIBIT IV-10

Turnkey Systems Market Forecast, 1990-1995
Germany

Subsector	DM Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
System Equipment	2,490	2,800	3,200	14	5,450
Software and Other Charges	2,040	2,480	3,050	23	6,850
Total	4,530	5,280	6,250	18	12,300

EXHIBIT IV-11

Applications Software Market Forecast, 1990-1995
Germany

Subsector	DM Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	350	370	400	9	570
Minicomputer	550	650	770	19	1,600
Workstation/PC	850	1,050	1,300	28	3,630
Total	1,750	2,070	2,470	22	5,800

EXHIBIT IV-12

Systems Software Market Forecast, 1990-1995
Germany

Subsector	DM Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	2,000	2,170	2,400	10	3,600
Minicomputer	1,000	1,160	1,370	18	2,750
Workstation/PC	500	625	790	26	2,040
Total	3,500	3,955	4,560	16	8,390

EXHIBIT IV-13

Professional Services Market Forecast, 1990-1995
Germany

Subsector	DM Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
IS Consultancy	495	590	715	19	1,400
Custom Software Development	2,820	3,330	4,000	18	7,600
Education and Training	705	840	1,020	19	2,000
Total	4,020	4,760	5,735	18	11,000

EXHIBIT IV-14

Leading Vendors, 1989
Software and Services
Germany

Rank	Vendor	Country of Origin	Revenues (DM Millions)	Market Share (Percent)
1	IBM	U.S.	1,630	8.9
2	Siemens	Germany	1,220	6.6
3	Nixdorf	Germany	1,100	6.0
4	Datev	Germany	540	2.9
5	Mannesmann Kienzle	Germany	390	2.1
6	Prime	U.S.	310	1.7
7	Reuters	U.K.	270	1.5
8	Taylorix	Germany	260	1.4
9	SAP	Germany	250	1.4
10	Intergraph	Netherlands	210	1.1
11	Computer Associates	U.S.	190	1.0
12	Fiducia	Germany	180	1.0
13=	GEI	Germany	150	0.8
13=	Unisys	U.S.	150	0.8
15	CAP Gemini Sogeti	France	130	0.7
16	EDV Studio Ploenzke	Germany	130	0.7
17=	SD-Scicon	U.K.	120	0.7
17=	INFO	Germany	120	0.7
19=	Digital	U.S.	110	0.6
19=	Software AG	Germany	110	0.6
21	Softlab	Germany	100	0.5
22=	DAT AG	Germany	90	0.5
22=	GEIS	U.S.	90	0.5
22=	McDonnell Douglas	U.S.	90	0.5
22=	Bull	France	90	0.5
22=	Krupp Atlas	Germany	90	0.5
27=	EDS	U.S.	80	0.4
27=	Ikoss	Germany	80	0.4
27=	mbp	Germany	80	0.4
27=	Andersen	U.S.	80	0.4
	Others		9,910	54.0
	Total		18,350	100.0

EXHIBIT IV-15

Software and Services Market Forecast, 1990-1995 United Kingdom

Subsector	£ Millions 1989	1990	1991	1990-1995 CAGR (Percent)	1995
Processing Services	530	560	630	11	960
Turnkey Systems	1,075	1,220	1,425	18	2,800
Applications Software Products	520	605	735	22	1,650
Systems Software Products	960	1,050	1,205	16	2,200
Professional Services	1,735	2,030	2,390	19	4,910
Network Services	560	680	820	21	1,770
Systems Operations	150	190	235	23	525
Systems Integration	320	395	485	23	1,115
Total	5,850	6,730	7,925	19	15,930

EXHIBIT IV-16

Processing Services Market Forecast, 1990-1995
United Kingdom

Subsector	£ Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Transaction Processing	450	470	520	10	745
Utility Processing	15	16	17	7	22
Other Processing:					
Disaster Recovery Services	25	35	50	29	125
All Others	40	40	45	10	65
Total	530	560	630	11	960

EXHIBIT IV-17

Turnkey Systems Market Forecast, 1990-1995
United Kingdom

Subsector	£ Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
System Equipment	590	650	735	14	1,250
Software and Other Charges	485	570	690	22	1,550
Total	1,075	1,220	1,425	18	2,800

EXHIBIT IV-18

Applications Software Market Forecast, 1990-1995
United Kingdom

Subsector	£ Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	75	80	85	7	115
Minicomputer	170	190	225	19	465
Workstation/PC	275	335	425	26	1,070
Total	520	605	735	22	1,650

EXHIBIT IV-19

Systems Software Market Forecast, 1990-1995
United Kingdom

Subsector	£ Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	520	545	595	9	840
Minicomputer	280	315	370	17	720
Workstation/PC	160	190	240	27	640
Total	960	1,050	1,205	15	2,200

EXHIBIT IV-20

Professional Services Market Forecast, 1990-1995
United Kingdom

Subsector	£ Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
IS Consultancy	245	300	370	24	890
Custom Software Development	1,310	1,510	1,750	18	3,390
Education and Training	180	220	270	23	630
Total	1,735	2,030	2,390	19	4,910

EXHIBIT IV-21

Leading Vendors, 1989
Software and Services
United Kingdom

Rank	Vendor	Country of Origin	Revenues (£ Millions)	Market Share (Percent)
1	IBM	U.S.	420	7.2
2	ICL	U.K.	230	3.9
3	Reuters	U.K.	210	3.6
4	Hoskyns	U.K.	170	2.9
5	McDonnell Douglas	U.S.	160	2.7
6	Prime	U.S.	130	2.2
7	SD-Scicon	U.K.	120	2.1
8	AT&T Istel	U.S.	110	1.9
9=	Sema	France	100	1.7
9=	Thorn EMI	U.K.	100	1.7
11=	Andersen	U.S.	90	1.5
11=	Extel	U.K.	90	1.5
13	Unisys	U.S.	85	1.5
14	Computer Associates	U.S.	75	1.3
15=	Digital	U.S.	70	1.2
15=	Logica	U.K.	70	1.2
17	Centre File	UK	60	1.0
18	BIS	U.S.	55	0.9
19	CMG (Computer Mgt)	U.K.	50	0.9
20=	EDS	U.S.	45	0.8
20=	GEIS	U.S.	45	0.8
20=	Oracle	U.S.	45	0.8
20=	Siemens	Germany	45	0.8
20=	Telerate	U.S.	45	0.8
25=	Bull	France	40	0.7
25=	Computer People	U.K.	40	0.7
25=	Mannesmann Kienzle	Germany	40	0.7
28=	Data Logic	U.K.	35	0.6
28=	Dun & Bradstreet	U.S.	35	0.6
28	HP	U.S.	35	0.6
	Others		3,005	51.4
	Total		5,850	100.0

EXHIBIT IV-22

Software and Services Market Forecast, 1990-1995
Italy

Subsector	Lira Billions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Processing Services	1,000	1,080	1,210	11	1,810
Turnkey Systems	755	870	1,025	18	2,020
Applications Software Products	1,150	1,380	1,680	22	3,800
Systems Software Products	1,700	1,925	2,215	16	4,000
Professional Services	2,485	2,990	3,620	20	7,500
Network Services	360	475	615	23	1,330
Systems Operations	170	200	245	22	535
Systems Integration	240	310	400	27	1,020
Total	7,860	9,230	11,010	19	22,015

EXHIBIT IV-23

Processing Services Market Forecast, 1990-1995 Italy

Subsector	Lira Billions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Transaction Processing	905	980	1,100	10	1,600
Utility Processing	21	22	23	6	30
Other Processing:					
Disaster Recovery Services	15	20	27	30	75
All Others	60	60	63	12	105
Total	1,000	1,080	1,210	11	1,810

EXHIBIT IV-24

Turnkey Systems Market Forecast, 1990-1995 Italy

Subsector	Lira Billions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
System Equipment	415	460	520	13	855
Software and Other Charges	340	410	505	23	1,165
Total	755	870	1,025	18	2,020

EXHIBIT IV-25

Applications Software Market Forecast, 1990-1995
Italy

Subsector	Lira Billions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	160	170	180	7	240
Minicomputer	370	435	520	19	1,040
Workstation/PC	620	775	980	26	2,520
Total	1,150	1,380	1,680	22	3,800

EXHIBIT IV-26

Systems Software Market Forecast, 1990-1995
Italy

Subsector	Lira Billions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	850	910	980	8	1,350
Minicomputer	530	615	730	17	1,400
Workstation/PC	320	400	505	25	1,250
Total	1,700	1,925	2,215	15	4,000

EXHIBIT IV-27

Professional Services Market Forecast, 1990-1995
Italy

Subsector	Lira Billions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
IS Consultancy	345	430	535	25	1,310
Custom Software Development	1,955	2,330	2,795	19	5,490
Education and Training	185	230	290	25	700
Total	2,485	2,990	3,620	20	7,500

EXHIBIT IV-28

Leading Vendors, 1989
Software and Services
Italy

Rank	Vendor	Country of Origin	Revenues (Lira Billions)	Market Share (Percent)
1	IBM	U.S.	850	10.8
2	Finsiel	Italy	630	8.0
3	Olivetti	Italy	450	5.7
4	Bull	France	175	2.2
5	Reuters	U.K.	165	2.1
6	Enidata	Italy	145	1.8
7=	Cerved	Italy	100	1.3
7=	Database Informatica	Italy	100	1.3
9	Datamat	Italy	90	1.1
10	Andersen	U.S.	85	1.1
11=	CAP Gemini Sogeti	France	80	1.0
11=	Concept	France	80	1.0
11=	Syntax	Italy	80	1.0
14	Unisys	U.S.	75	1.0
15=	Computer Associates	U.S.	70	0.9
15=	Datamont	Italy	70	0.9
17=	Lombardia Informatica	Italy	65	0.8
17=	Sicit	Italy	65	0.8
19=	GEIS	U.S.	60	0.8
19=	Sarin	Italy	60	0.8
19=	Sopin	Italy	60	0.8
22=	Data Management	Italy	55	0.7
22=	Nixdorf	Germany	55	0.7
24	Sime	Italy	50	0.6
25=	Datitalia	Italy	45	0.6
25=	Siemens	Germany	45	0.6
27=	Digital	U.S.	40	0.5
27=	Engineering	Italy	40	0.5
27=	ITP	Italy	40	0.5
27	Sipe	Italy	40	0.5
	Others		3,895	49.6
	Total		7,860	100.0

EXHIBIT IV-29

Software and Services Market Forecast, 1990-1995
Sweden

Subsector	SK Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Processing Services	2,400	2,550	2,740	8	3,800
Turnkey Systems	1,655	1,965	2,340	20	4,800
Applications Software Products	1,125	1,365	1,695	23	3,900
Systems Software Products	1,700	1,930	2,215	15	3,900
Professional Services	3,025	3,560	4,255	19	8,520
Network Services	440	585	750	26	1,880
Systems Operations	200	230	260	16	485
Systems Integration	225	285	355	26	905
Total	10,770	12,470	14,610	18	28,190

EXHIBIT IV-30

Processing Services Market Forecast, 1990-1995
Sweden

Subsector	SK Millions 1989	1990	1991	1990-1995 CAGR (Percent)	1995
Transaction Processing	2,200	2,330	2,500	8	3,450
Utility Processing	50	52	54	5	65
Other Processing:					
Disaster Recovery Services	16	20	25	25	60
All Others	135	145	160	10	230
Total	2,400	2,550	2,740	8	3,800

EXHIBIT IV-31

Turnkey Systems Market Forecast, 1990-1995
Sweden

Subsector	SK Millions 1989	1990	1991	1990-1995 CAGR (Percent)	1995
System Equipment	910	1,050	1,200	15	2,100
Software and Other Charges	745	915	1,140	24	2,700
Total	1,655	1,965	2,340	19	4,800

EXHIBIT IV-32

Applications Software Market Forecast, 1990-1995
Sweden

Subsector	SK Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	165	175	185	6	245
Minicomputer	335	400	490	21	1,045
Workstation/PC	625	790	1,020	26	2,610
Total	1,125	1,365	1,695	23	3,900

EXHIBIT IV-33

Systems Software Market Forecast, 1990-1995
Sweden

Subsector	SK Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	1,020	1,110	1,220	10	1,790
Minicomputer	425	495	585	16	1,080
Workstation/PC	255	325	410	25	1,030
Total	1,700	1,930	2,215	15	3,900

EXHIBIT IV-34

Professional Services Market Forecast, 1990-1995
Sweden

Subsector	SK Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
IS Consultancy	390	470	575	22	1,280
Custom Software Development	2,200	2,570	3,050	18	5,890
Education and Training	435	520	630	21	1,350
Total	3,025	3,560	4,255	19	8,520

EXHIBIT IV-35

Leading Vendors, 1989
Software and Services
Sweden

Rank	Vendor	Country of Origin	Revenues (SK Millions)	Market Share (Percent)
1	AB Programator	Sweden	1,270	11.8
2	Kommunedata	Sweden	1,080	10.0
3	IBM	U.S.	1,000	9.3
4	Enator	Sweden	630	5.8
5	CAP Gemini Sogeti	France	430	4.0
6	Tietotehdas	Finland	330	3.1
7	Lantbruksdata	Sweden	280	2.6
8	Nokia	Sweden	260	2.4
9	Svenska Data	Sweden	220	2.0
10	Conor Information	Sweden	210	1.9
	Others		5,060	47.0
	Total		10,770	100.0

EXHIBIT IV-36

Software and Services Market Forecast, 1990-1995
Denmark

Subsector	DK Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Processing Services	2,800	2,940	3,100	6	3,940
Turnkey Systems	1,420	1,690	2,010	18	3,900
Applications Software Products	910	1,100	1,315	22	3,000
Systems Software Products	1,405	1,605	1,835	15	3,200
Professional Services	2,275	2,710	3,195	18	6,240
Network Services	370	465	585	27	1,520
Systems Operations	75	90	105	16	190
Systems Integration	170	210	260	21	555
Total	9,425	10,810	12,405	16	22,545

EXHIBIT IV-37

Processing Services Market Forecast, 1990-1995
Denmark

Subsector	DK Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Transaction Processing	2,570	2,700	2,850	6	3,600
Utility Processing	55	57	60	4	70
Other Processing:					
Disaster Recovery Services	15	19	24	26	60
All Others	155	160	170	6	210
Total	2,800	2,940	3,100	6	3,940

EXHIBIT IV-38

Turnkey Systems Market Forecast, 1990-1995
Denmark

Subsector	DK Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
System Equipment	780	900	1,050	14	1,750
Software and Other Charges	640	790	960	22	2,150
Total	1,420	1,690	2,010	18	3,900

EXHIBIT IV-39

Applications Software Market Forecast, 1990-1995
Denmark

Subsector	DK Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	95	100	105	33	430
Minicomputer	320	380	440	16	830
Workstation/PC	495	620	770	22	1,740
Total	910	1,100	1,315	22	3,000

EXHIBIT IV-40

Systems Software Market Forecast, 1990-1995
Denmark

Subsector	DK Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	650	700	750	7	990
Minicomputer	485	565	655	15	1,150
Workstation/PC	270	340	430	25	1,060
Total	1,405	1,605	1,835	14	3,200

EXHIBIT IV-41

Professional Services Market Forecast, 1990-1995
Denmark

Subsector	DK Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
IS Consultancy	325	405	495	23	1,140
Custom Software Development	1,855	2,190	2,560	17	4,800
Education and Training	95	115	140	21	300
Total	2,275	2,710	3,195	18	6,240

EXHIBIT IV-42

Leading Vendors, 1989
Software and Services
Denmark

Rank	Vendor	Country of Origin	Revenues (DK Millions)	Market Share (Percent)
1	Kommunedata	Denmark	1,200	12.7
2	Datacentralen	Denmark	1,010	10.7
3	IBM	U.S.	830	8.8
4	PBS	Denmark	680	7.2
5	Landbrugets	Denmark	330	3.5
6	JDC Data	Denmark	260	2.8
7	Nixdorf	Germany	230	2.4
8	Bording Data	Denmark	130	1.4
9	Reuters	U.K.	125	1.3
10	Oracle	U.S.	115	1.2
	Others	4,515	47.9	
	Total	9,425	100.0	

EXHIBIT IV-43

Software and Services Market Forecast, 1990-1995
Norway

Subsector	NK Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Processing Services	2,900	3,050	3,260	7	4,300
Turnkey Systems	1,010	1,205	1,455	20	3,000
Applications Software Products	730	880	1,085	22	2,400
Systems Software Products	1,105	1,245	1,420	15	2,500
Professional Services	1,740	2,020	2,375	17	4,510
Network Services	260	305	365	26	950
Systems Operations	70	85	100	16	175
Systems Integration	130	160	200	20	390
Total	7,945	8,950	10,260	15	18,225

EXHIBIT IV-44

Processing Services Market Forecast, 1990-1995
Norway

Subsector	NK Millions 1989	1990	1991	1990-1995 CAGR (Percent)	1995
Transaction Processing	2,670	2,800	3,000	7	3,950
Utility Processing	58	60	62	3	70
Other Processing:					
Disaster Recovery Services	10	12	15	25	37
All Others	165	173	185	8	253
Total	2,900	3,050	3,260	7	4,300

EXHIBIT IV-45

Turnkey Systems Market Forecast, 1990-1995
Norway

Subsector	NK Millions 1989	1990	1991	1990-1995 CAGR (Percent)	1995
System Equipment	555	640	750	15	1,260
Software and Other Charges	455	565	705	25	1,740
Total	1,010	1,205	1,455	20	3,000

EXHIBIT IV-46

Applications Software Market Forecast, 1990-1995
Norway

Subsector	NK Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	100	105	115	7	150
Minicomputer	235	280	345	21	730
Workstation/PC	395	495	625	25	1,520
Total	730	880	1,085	22	2,400

EXHIBIT IV-47

Systems Software Market Forecast, 1990-1995
Norway

Subsector	NK Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	595	635	690	8	940
Minicomputer	345	405	475	17	925
Workstation/PC	165	205	255	25	635
Total	1,105	1,245	1,420	14	2,500

EXHIBIT IV-48

Professional Services Market Forecast, 1990-1995
Norway

Subsector	NK Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
IS Consultancy	250	295	350	19	705
Custom Software Development	1,400	1,620	1,900	17	3,550
Education and Training	90	105	125	19	255
Total	1,740	2,020	2,375	17	4,510

EXHIBIT IV-49

Leading Vendors, 1989
Software and Services
Norway

Rank	Vendor	Country of Origin	Revenues (NK Millions)	Market Share (Percent)
1	IBM	U.S.	540	6.8
2	IDA	Norway	520	6.5
3	Fellesdata	Norway	510	6.4
4	Norsk Data	Norway	380	4.8
5	Nordata/Vestdata	Norway	350	4.4
6	EDB	Norway	270	3.4
7	Statens Datasentral	Norway	210	2.6
8	Rogalandsdata	Norway	200	2.5
9	Mannesmann Kienzle	Germany	85	1.1
10	Nixdorf	Germany	75	0.9
	Others		4,805	60.5
	Total		7,945	100.0

EXHIBIT IV-50

Software and Services Market Forecast, 1990-1995
Finland

Subsector	FM Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Processing Services	900	960	1,020	7	1,350
Turnkey Systems	595	705	835	19	1,700
Applications Software Products	475	570	685	20	1,440
Systems Software Products	665	755	860	15	1,500
Professional Services	1,095	1,310	1,560	20	3,200
Network Services	160	190	225	21	500
Systems Operations	95	115	130	19	270
Systems Integration	50	60	80	26	190
Total	4,035	4,665	5,395	17	10,150

EXHIBIT IV-51

Processing Services Market Forecast, 1990-1995
Finland

Subsector	FM Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Transaction Processing	810	860	920	7	1,200
Utility Processing	30	31	33	4	38
Other Processing:					
Disaster Recovery Services	2	3	5	53	25
All Others	58	62	65	7	85
Total	900	960	1,020	7	1,350

EXHIBIT IV-52

Turnkey Systems Market Forecast, 1990-1995
Finland

Subsector	FM Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
System Equipment	325	370	420	14	715
Software and Other Charges	270	335	415	24	985
Total	595	705	835	19	1,700

EXHIBIT IV-53

Applications Software Market Forecast, 1990-1995
Finland

Subsector	FM Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	65	70	75	5	90
Minicomputer	150	180	215	20	450
Workstation/PC	260	320	395	22	900
Total	475	570	685	20	1,440

EXHIBIT IV-54

Systems Software Market Forecast, 1990-1995
Finland

Subsector	FM Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	355	380	405	6	530
Minicomputer	195	230	265	16	500
Workstation/PC	115	145	190	26	470
Total	665	755	860	14	1,500

EXHIBIT IV-55

Professional Services Market Forecast, 1990-1995
Finland

Subsector	FM Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
IS Consultancy	160	200	240	22	530
Custom Software Development	875	1,040	1,240	19	2,490
Education and Training	60	70	80	21	180
Total	1,095	1,310	1,560	20	3,200

EXHIBIT IV-56

Leading Vendors, 1989
Software and Services
Finland

Rank	Vendor	Country of Origin	Revenues (FM Millions)	Market Share (Percent)
1	Tietotehdas	Finland	430	10.7
2	Valtion	Finland	360	8.9
3	Nokia	Sweden	280	6.9
4	IBM	U.S.	255	6.3
5	PG-Yhiot	Finland	190	4.7
6	Elorg-Data	Finland	150	3.7
7	Paakaupunkiseudom	Finland	140	3.5
8	Valmet Data	Finland	120	3.0
9	Kunnallistieto	Finland	110	2.7
10	VTKK	Finland	95	2.4
	Others		1,905	47.2
	Total		4,035	100.0

EXHIBIT IV-57

Software and Services Market Forecast, 1990-1995 Netherlands

Subsector	Dfl Millions 1989	1990	1991	1990-1995 CAGR (Percent)	1995
Processing Services	800	850	930	10	1,350
Turnkey Systems	700	825	990	19	2,000
Applications Software Products	730	875	1,070	22	2,400
Systems Software Products	1,000	1,125	1,285	14	2,200
Professional Services	2,160	2,530	2,990	19	5,980
Network Services	265	300	345	17	650
Systems Operations	95	115	135	19	280
Systems Integration	170	210	265	24	605
Total	5,920	6,830	8,010	18	15,465

EXHIBIT IV-58

Processing Services Market Forecast, 1990-1995 Netherlands

Subsector	Dfl Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Transaction Processing	710	755	820	9	1,180
Utility Processing	25	26	27	6	35
Other Processing:					
Disaster Recovery Services	12	15	20	30	55
All Others	53	55	60	8	80
Total	800	850	930	10	1,350

EXHIBIT IV-59

Turnkey Systems Market Forecast, 1990-1995 Netherlands

Subsector	Dfl Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
System Equipment	385	435	500	14	835
Software and Other Charges	315	390	490	24	1,165
Total	700	825	990	19	2,000

EXHIBIT IV-60

Applications Software Market Forecast, 1990-1995
Netherlands

Subsector	Dfl Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	105	110	120	7	155
Minicomputer	230	270	325	19	645
Workstation/PC	395	495	625	26	1,600
Total	730	875	1,070	22	2,400

EXHIBIT IV-61

Systems Software Market Forecast, 1990-1995
Netherlands

Subsector	Dfl Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	550	590	635	7	860
Minicomputer	290	335	395	17	735
Workstation/PC	160	200	255	24	605
Total	1,000	1,125	1,285	14	2,200

EXHIBIT IV-62

Professional Services Market Forecast, 1990-1995
Netherlands

Subsector	Dfl Millions 1989	1990	1991	1990-1995 CAGR (Percent)	1995
IS Consultancy	275	340	420	24	990
Custom Software Development	1,650	1,900	2,220	17	4,190
Education and Training	235	290	350	23	800
Total	2,160	2,530	2,990	19	5,980

EXHIBIT IV-63

Leading Vendors, 1989
Software and Services
Netherlands

Rank	Vendor	Country of Origin	Revenues (Dfl Millions)	Market Share (Percent)
1	Getronix	Netherlands	600	10.1
2	Volmac	Netherlands	500	8.4
3	IBM	U.S.	410	6.9
4	CAP Gemini Sogeti	France	280	4.7
5	Raet	Netherlands	260	4.4
6	Unisys	U.S.	120	2.0
7=	BSO	Netherlands	110	1.9
7=	SD-Scicon	U.K.	110	1.9
9	CMG (Computer Mgmt.)	U.K.	100	1.7
10	Computer Centrum NL	Netherlands	90	1.5
	Others		3,340	56.4
	Total		5,920	100.0

EXHIBIT IV-64

Software and Services Market Forecast, 1990-1995
Belgium

Subsector	BF Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Processing Services	7,200	7,490	7,880	6	10,050
Turnkey Systems	6,490	7,660	9,100	19	18,300
Applications Software Products	7,900	9,500	11,400	21	24,400
Systems Software Products	10,600	11,900	13,400	14	22,700
Professional Services	19,490	23,240	27,950	19	56,200
Network Services	2,770	3,350	4,100	22	8,950
Systems Operations	1,030	1,195	1,405	18	2,775
Systems Integration	2,550	3,170	3,960	23	8,800
Total	57,030	67,505	79,195	18	152,175

EXHIBIT IV-65

Processing Services Market Forecast, 1990-1995
Belgium

Subsector	BF Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Transaction Processing	6,400	6,650	7,000	6	8,850
Utility Processing	220	230	240	3	270
Other Processing:					
Disaster Recovery Services	115	140	175	23	400
All Others	465	465	465	2	520
Total	7,200	7,490	7,880	6	10,050

EXHIBIT IV-66

Turnkey Systems Market Forecast, 1990-1995
Belgium

Subsector	BF Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
System Equipment	3,570	4,070	4,650	14	8,000
Software and Other Charges	2,920	3,590	4,450	23	10,300
Total	6,490	7,660	9,100	19	18,300

EXHIBIT IV-67

Applications Software Market Forecast, 1990-1995
Belgium

Subsector	BF Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	1,100	1,160	1,250	6	1,600
Minicomputer	2,530	2,990	3,540	18	7,000
Workstation/PC	4,270	5,350	6,610	24	15,800
Total	7,900	9,500	11,400	20	24,400

EXHIBIT IV-68

Systems Software Market Forecast, 1990-1995
Belgium

Subsector	BF Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	5,900	6,310	6,750	7	9,050
Minicomputer	3,100	3,600	4,200	16	7,700
Workstation/PC	1,600	1,990	2,450	24	5,950
Total	10,600	11,900	13,400	13	22,700

EXHIBIT IV-69

Professional Services Market Forecast, 1990-1995
Belgium

Subsector	BF Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
IS Consultancy	2,690	3,340	4,150	25	10,000
Custom Software Development	15,260	18,000	21,500	18	41,000
Education and Training	1,540	1,900	2,300	22	5,200
Total	19,490	23,240	27,950	19	56,200

EXHIBIT IV-70

Leading Vendors, 1989
Software and Services
Belgium

Rank	Vendor	Country of Origin	Revenues (BF Millions)	Market Share (Percent)
1	IBM	U.S.	3,700	6.5
2	CSC	U.S.	3,200	5.6
3	CAP Gemini Sogeti	France	1,400	2.5
4	Informabel	Belgium	1,350	2.4
5	Unisys	U.S.	1,050	1.8
6=	Administra	Belgium	950	1.7
6=	GEIS	U.S.	950	1.7
6=	Sema	France	950	1.7
9=	Volmac	Netherlands	850	1.5
9	Bull	France	850	1.5
	Others		41,780	73.3
	Total		57,030	100.0

EXHIBIT IV-71

Software and Services Market Forecast, 1990-1995 Switzerland

Subsector	SF Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Processing Services	340	360	400	10	570
Turnkey Systems	585	705	855	21	1,800
Applications Software Products	265	320	380	21	840
Systems Software Products	540	610	700	14	1,190
Professional Services	640	745	910	20	1,860
Network Services	140	165	205	25	510
Systems Operations	20	25	35	21	65
Systems Integration	65	80	100	27	260
Total	2,595	3,010	3,585	19	7,095

EXHIBIT IV-72

Processing Services Market Forecast, 1990-1995
Switzerland

Subsector	SF Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Transaction Processing	300	315	345	9	490
Utility Processing	15	15	16	6	20
Other Processing:					
Disaster Recovery Services	3	5	7	40	27
All Others	27	27	28	4	33
Total	340	360	400	10	570

EXHIBIT IV-73

Turnkey Systems Market Forecast, 1990-1995
Switzerland

Subsector	SF Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
System Equipment	325	380	445	16	800
Software and Other Charges	260	325	410	25	1,000
Total	585	705	855	20	1,800

EXHIBIT IV-74

Applications Software Market Forecast, 1990-1995
Switzerland

Subsector	SF Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	55	60	60	7	85
Minicomputer	80	95	115	19	230
Workstation/PC	130	165	205	26	525
Total	265	320	380	21	840

EXHIBIT IV-75

Systems Software Market Forecast, 1990-1995
Switzerland

Subsector	SF Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	315	340	370	8	510
Minicomputer	150	175	205	17	390
Workstation/PC	75	95	125	25	290
Total	540	610	700	14	1,190

EXHIBIT IV-76

Professional Services Market Forecast, 1990-1995 Switzerland

Subsector	SF Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
IS Consultancy	80	95	120	22	260
Custom Software Development	440	510	610	19	1,200
Education and Training	120	140	180	23	400
Total	640	745	910	20	1,860

EXHIBIT IV-77

Leading Vendors, 1989
Software and Services
Switzerland

Rank	Vendor	Country of Origin	Revenues (SF Millions)	Market Share (Percent)
1	Telekurs	Switzerland	210	8.1
2	IBM	U.S.	125	4.8
3	Unisys	U.S.	105	4.0
4	Fides	Switzerland	65	2.5
5=	CAP Gemini Sogeti	France	50	1.9
5=	Nixdorf	Germany	50	1.9
7	Digital	U.S.	40	1.5
8	Mannesmann Kienzle	Germany	35	1.3
9	GEIS	U.S.	25	1.0
10	Bull	France	20	0.8
	Others		1,870	72.1
	Total		2,595	100.0

EXHIBIT IV-78

Software and Services Market Forecast, 1990-1995
Austria

Subsector	Sch Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Processing Services	1,700	1,800	1,930	7	2,510
Turnkey Systems	2,280	2,700	3,220	20	6,600
Applications Software Products	1,105	1,340	1,640	22	3,600
Systems Software Products	2,255	2,530	2,860	14	4,800
Professional Services	2,470	2,910	3,440	19	6,830
Network Services	510	565	630	16	1,170
Systems Operations	90	105	120	15	215
Systems Integration	255	320	405	25	960
Total	10,665	12,270	14,245	17	26,685

EXHIBIT IV-79

Processing Services Market Forecast, 1990-1995
Austria

Subsector	Sch Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Transaction Processing	1,500	1,590	1,700	7	2,200
Utility Processing	70	72	74	3	85
Other Processing:					
Disaster Recovery Services	10	15	25	34	65
All Others	120	125	130	5	160
Total	1,700	1,800	1,930	7	2,510

EXHIBIT IV-80

Turnkey Systems Market Forecast, 1990-1995
Austria

Subsector	Sch Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
System Equipment	1,255	1,450	1,650	15	2,900
Software and Other Charges	1,025	1,250	1,570	24	3,700
Total	2,280	2,700	3,220	19	6,600

EXHIBIT IV-81

Applications Software Market Forecast, 1990-1995
Austria

Subsector	Sch Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	155	165	185	6	230
Minicomputer	355	425	505	18	1,000
Workstation/PC	595	750	950	25	2,370
Total	1,105	1,340	1,640	21	3,600

EXHIBIT IV-82

Systems Software Market Forecast, 1990-1995
Austria

Subsector	Sch Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	1,220	1,300	1,390	6	1,800
Minicomputer	675	775	900	16	1,650
Workstation/PC	360	455	570	24	1,350
Total	2,255	2,530	2,860	13	4,800

EXHIBIT IV-83

Professional Services Market Forecast, 1990-1995
Austria

Subsector	Sch Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
IS Consultancy	320	390	470	22	1,050
Custom Software Development	1,800	2,090	2,440	17	4,580
Education and Training	350	430	530	23	1,200
Total	2,470	2,910	3,440	19	6,830

EXHIBIT IV-84

Leading Vendors, 1989
Software and Services
Austria

Rank	Vendor	Country of Origin	Revenues (Sch Millions)	Market Share (Percent)
1	IBM	U.S.	990	9.3
2	Nixdorf	Germany	410	3.8
3	Mannesmann Kienzle	Germany	270	2.5
4	Data-Service	Austria	240	2.3
5	GRZ Linz	Austria	230	2.2
6	Beko	Austria	220	2.1
7	Management Data	Austria	190	1.8
8	Unisys	U.S.	180	1.7
9	Voest-Alpine	Austria	150	1.4
10	GEIS	U.S.	140	1.3
	Others		7,645	71.7
	Total		10,665	100.0

EXHIBIT IV-85

Software and Services Market Forecast, 1990-1995
Spain

Subsector	Pta Millions 1989	1990	1991	1990-1995 CAGR (Percent)	1995
Processing Services	25,000	27,500	30,560	10	45,000
Turnkey Systems	33,900	40,300	48,200	20	100,500
Applications Software Products	19,900	24,400	30,200	25	73,200
Systems Software Products	34,000	38,900	45,300	17	85,800
Professional Services	51,650	63,360	78,420	24	184,000
Network Services	9,700	12,400	16,400	34	53,900
Systems Operations	2,900	3,400	3,980	16	7,240
Systems Integration	6,500	8,200	10,400	26	26,000
Total	183,550	218,460	263,460	21	575,640

EXHIBIT IV-86

Processing Services Market Forecast, 1990-1995
Spain

Subsector	Pta Millions 1989	1990	1991	1990-1995 CAGR (Percent)	1995
Transaction Processing	21,250	23,400	26,000	10	38,000
Utility Processing	1,750	1,850	1,960	6	2,500
Other Processing:					
Disaster Recovery Services	120	200	350	48	1,400
All Others	1,880	2,050	2,250	9	3,100
Total	25,000	27,500	30,560	10	45,000

EXHIBIT IV-87

Turnkey Systems Market Forecast, 1990-1995
Spain

Subsector	Pta Millions 1989	1990	1991	1990-1995 CAGR (Percent)	1995
System Equipment	18,650	21,300	24,500	15	42,800
Software and Other Charges	15,250	19,000	23,700	25	57,700
Total	33,900	40,300	48,200	20	100,500

EXHIBIT IV-88

Applications Software Market Forecast, 1990-1995
Spain

Subsector	Pta Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	2,800	3,000	3,250	7	4,400
Minicomputer	6,400	7,700	9,300	20	19,900
Workstation/PC	10,700	13,700	17,650	28	48,900
Total	19,900	24,400	30,200	24	73,200

EXHIBIT IV-89

Systems Software Market Forecast, 1990-1995
Spain

Subsector	Pta Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	18,500	20,000	22,100	10	32,500
Minicomputer	10,200	12,150	14,600	19	30,200
Workstation/PC	5,300	6,750	8,600	27	23,100
Total	34,000	38,900	45,300	17	85,800

EXHIBIT IV-90

Professional Services Market Forecast, 1990-1995
Spain

Subsector	Pta Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
IS Consultancy	7,250	9,060	11,400	26	28,800
Custom Software Development	38,800	47,300	58,200	23	133,000
Education and Training	5,600	7,000	8,820	26	22,200
Total	51,650	63,360	78,420	24	184,000

EXHIBIT IV-91

Leading Vendors, 1989
Software and Services
Spain

Rank	Vendor	Country of Origin	Revenues (Pta Millions)	Market Share (Percent)
1	IBM	U.S.	17,800	9.7
2	Andersen	U.S.	11,700	6.4
3	Nixdorf	Germany	11,000	6.0
4	Entel	Spain	10,600	5.8
5	Metelliana	Spain	9,000	4.9
6	CISI	France	5,800	3.2
7	Logic Control	Spain	5,000	2.7
8	Unisys	U.S.	4,700	2.6
9	Iberimatica	Spain	4,000	2.2
10	Sema	France	3,500	1.9
	Others		100,450	54.7
	Total		183,550	100.0

EXHIBIT IV-92

Software and Services Market Forecast, 1990-1995
Rest of Europe

Subsector	$ Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
Processing Services	70	80	90	13	150
Turnkey Systems	100	120	140	20	295
Applications Software Products	50	60	75	22	165
Systems Software Products	95	110	125	15	225
Professional Services	125	155	190	21	410
Network Services	20	26	33	28	90
Systems Operation	5	7	10	23	20
Systems Integration	10	15	20	27	50
Total	475	573	683	20	1,405

EXHIBIT IV-93

Processing Services Market Forecast, 1990-1995
Rest of Europe

Subsector	$ Millions 1989	1990	1991	1990-1995 CAGR (Percent)	1995
Transaction Processing	56	64	73	13	120
Utility Processing	8	9	10	11	15
Other Processing:					
Disaster Recovery Services	0.5	0.8	1.2	44	5
All Others	5.5	6.2	6.8	10	10
Total	70	80	90	13	150

EXHIBIT IV-94

Turnkey Systems Market Forecast, 1990-1995
Rest of Europe

Subsector	$ Millions 1989	1990	1991	1990-1995 CAGR (Percent)	1995
System Equipment	55	65	70	15	130
Software and Other Charges	45	55	70	25	165
Total	100	120	140	19	295

EXHIBIT IV-95

Applications Software Market Forecast, 1990-1995
Rest of Europe

Subsector	$ Millions 1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	5	6	7	10	10
Minicomputer	20	24	28	16	50
Workstation/PC	25	30	40	28	105
Total	50	60	75	22	165

EXHIBIT IV-96

Systems Software Market Forecast, 1990-1995
Rest of Europe

Subsector	$ Millions 1989	1990	1991	1990-1995 CAGR (Percent)	1995
Mainframe	60	65	70	7	90
Minicomputer	30	35	40	19	85
Workstation/PC	5	10	15	38	50
Total	95	110	125	15	225

EXHIBIT IV-97

Professional Services Market Forecast, 1990-1995
Rest of Europe

Subsector	$ Millions				
	1989	1990	1991	1990-1995 CAGR (Percent)	1995
IS Consultancy	15	18	22	23	50
Custom Software Development	95	119	145	21	305
Education and Training	15	18	23	25	55
Total	125	155	190	21	410

Appendixes

A

Appendix: Definition of Terms

A

Overall Definitions and Analytical Framework

Information Services - 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:

- Processing of specific applications using vendor-provided systems (called **Processing Services**)
- A combination of hardware, packaged software and associated support services which will meet a specific application processing need (called **Turnkey Systems**)
- Packaged software (called **Software Products**)
- People services that support users in developing and operating their own information systems (called **Professional Services**)
- Bundled combinations of products and services where the vendor assumes responsibility for the development of a custom solution to an information system problem (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 Operations**)
- Services associated with the delivery of information in electronic form-typically network-oriented services such as value-added networks, electronic mail and document interchange, on-line data bases, on-line news and data feeds, videotex, etc. (called **Network Services**)

In general, the market for information services does not involve providing equipment to users. The exception is where the equipment is bundled as part of an overall service offering such as a turnkey system, a systems operations 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., EDI or VAN services), or cannot be feasibly separated from other bundled services (e.g., some systems operations 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.

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 categorized 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

Market Sectors or markets, are groupings or categories of the users who purchase information services. There are three types of user markets:

- *Vertical Industry* markets, such as Banking, Transportation, Utilities, etc.

- *Functional Application* markets, such as Human Resources, Accounting, etc. These are also called "Cross-Industry" markets.

- *Generic* markets, which are neither industry- nor application-specific, such as the market for systems software.

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

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.

Non-captive Information Services User Expenditures are expenditures that go to vendors which have a different parent corporation than the user. It is these expenditures which constitute the information services market.

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 eight delivery modes defined by INPUT, five are considered primary products or services:

- *Processing Services*
- *Network Services*
- *Professional Services*
- *Applications Software Products*
- *Systems Software Products*

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

- *Turnkey Systems*
- *Systems Operations*
- *Systems Integration*

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

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

IS has always bought systems software, as it is infeasible for companies to develop it internally. However, all other delivery modes represent functions or products that IS management could choose to perform or develop in-house. Viewed this way, outsourcing is the result of a make-or-buy decision, and the outsourcing market covers any product or service where the vendor must compete against the client firm's own internal resources.

B

Industry Structure and Delivery Modes

1. Service Categories

The following exhibit presents the structure of the information services industry. Several of the delivery modes can be grouped into higher-level **Service Categories**, based on the kind of problem the user needs to solve. These categories are:

- **Business Application Solutions (BAS)** - prepackaged or standard solutions to common business applications. These applications can be either industry-specific (e.g., mortgage loan processing for a bank), cross-industry (e.g., payroll processing), or generic (e.g., utility time-sharing). In general, BAS services involve minimal customization by the vendor, and allow the user to handle a specific business application without having to develop or acquire a custom system or system resources. The following delivery modes are included under BAS:

  - *Processing Services*
  - *Applications Software Products*
  - *Turnkey Systems*

- **Systems Management Services** (SMS) - services which assist users in developing systems or operating/managing the information systems function. Two key elements of SMS are the customization of the service to each individual user and/or project, and the potential for the vendor to assume significant responsibility for management of at least a portion of the user's information systems function. The following delivery modes are included under SMS:

  - *Systems Operations*
  - *Systems Integration*

Each of the remaining three delivery modes represents a separate service category:

- *Professional Services*
- *Network Services*
- *System Software Products*

Note: These service categories are a new concept introduced in the 1990 MAP Program. They are purely an aggregation of lower level delivery mode data. They do not change the underlying delivery modes or industry structure.

2. Software Products

There are many similarities between the applications and systems software delivery modes. Both involve user 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 bundled in the software pricing, is also included here.

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

- **Systems Software Products**

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

  - *Systems Control Products* - Software programs that function during application program execution to manage computer system resources and control the execution of the application program. 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, data base management systems, report writers, project control systems, CASE systems and other development productivity aids. Also included are system utilities (e.g., sorts) which are directly invoked by an applications program.

- Application Software Products

  - Industry-Specific Application Software Products - Software products that perform functions related to solving business or organizational needs unique to a specific vertical market and sold to that market only. Examples include demand deposit accounting, MRPII, medical recordkeeping, automobile dealer parts inventory, etc.

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

3. Turnkey Systems

A turnkey system is an integration of equipment (CPU, peripherals, etc.), systems software, and packaged or custom application software into a single system developed to meet a specific set of user requirements. Value added by the turnkey system vendor is primarily in the software and support services provided. Most CAD/CAM systems and many small business systems are turnkey systems. Turnkey systems utilize standard computers and do not include specialized hardware such as word processors, cash registers, process control systems, or embedded computer systems for military applications.

Hardware vendors that combine software with their own general-purpose hardware are not classified by INPUT as turnkey vendors. Their software revenues are included 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 application 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.

Turnkey systems are divided into two categories.

- *Industry-Specific Systems* - systems that serve a specific function for a given industry sector, such as automobile dealer parts inventory, medical recordkeeping, or discrete manufacturing control systems.

- *Cross-Industry Systems* - systems that provide a specific function that is applicable to a wide range of industry sectors, such as financial planning systems, payroll systems, or personnel management systems.

4. Processing Services

This category includes transaction processing, utility processing, and other processing services.

- *Transaction Processing:* - Client uses vendor-provided information systems-including hardware, software and/or data networks at vendor site or customer site, to process transactions and update client data bases. Transactions may be entered in one of four modes:

  - *Interactive* - Characterized by the interaction of the user with the system for data entry, transaction processing, problem solving and report preparation: the user is on-line to the programs/files stored on the vendor's system.

  - *Remote Batch* - Where the user transmits batches of transaction data to the vendor's system, allowing the vendor to schedule job execution according to overall client priorities and resource requirements.

  - *Distributed Services* - Where users maintain portions of an application data base and enter or process some transaction data at their own site, while also being connected through communications networks to the vendor's central systems for processing other parts of the application.

  - *Carry-in Batch* - Where users physically deliver work to a processing services vendor.

- *Utility Processing*: Vendor provides basic software tools (language compilers, assemblers, DBMSs, graphics packages, mathematical models, scientific library routines, etc.), generic applications programs and or data bases, enabling clients to develop their own programs or process data on vendor's system.

- *Other Processing Services*: Vendor provides services-usually at 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.

5. Systems Operations

Systems operations involves the operation and management of all or a significant part of the user's information systems functions under a long-term contract. These services can be provided in either of two distinct submodes:

- *Professional Services:* The vendor provides personnel to operate client-supplied equipment. Prior to 1990, this was a submode of the Professional Services delivery mode.

- *Processing Services:* The vendor provides personnel, equipment and (optionally) facilities. Prior to 1990, this was a submode of the Processing Services delivery mode.

In the federal government market the processing services submode is called "COCO" (Contractor-Owned, Contractor-Operated), and the professional services mode is referred to as "GOCO" (Government-Owned, Contractor-Operated).

Systems operations 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 user's information systems (equipment, networks, systems and/or application software), either at the client's site or the vendor's site. Systems operations can also be referred to as "resource management" or "facilities management."

There are two general levels of systems operations:

- *Platform/network operations* - where the vendor operates the computer system and/or network without taking responsibility for the applications

- *Application operations* - where the vendor takes responsibility for the complete system, including equipment, associated telecommunications networks, and applications software

Note: Systems Operations is a new delivery mode introduced in the 1990 MAP Program. It was created by taking the Systems Operations submode out of both Processing Services and Professional Services. No other change has been made to the delivery mode definitions, and the total forecast expenditures for these three delivery modes are identical to the total forecast expenditures of the two original modes before the breakout of Systems Operations.

6. Systems Integration (SI)

Systems integration is a business offering that provides a complete solution to an information system, networking or automation requirement through the custom selection and implementation of a variety of information system products and services. 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.

To be included in the information services market, systems integration projects must involve some application processing component. In addition, the majority of cost must be associated with information systems products and/or services.

The systems integrator will perform, or manage others who perform, most or all of the following functions:

- Program management, including subcontractor management
- Needs analysis
- Specification development
- Conceptual and detailed systems design and architecture
- System component selection, modification, integration and customization
- Custom software design and development
- Custom hardware design and development
- Systems implementation, including testing, conversion and post-implementation evaluation and tuning
- Life cycle support, including
    - System documentation and user training
    - Systems operations during development
    - Systems maintenance
- Financing

7. Professional Services

This category includes consulting, education and training, and software development.

- *Consulting:* Services include management consulting (related to information systems), information systems consulting, feasibility analysis and cost-effectiveness studies, and project management assistance. Services may be related to any aspect of information systems, including equipment, software, networks and systems operations.
- *Education and Training:* Products and services related to information systems and services for the professional and end user, including computer-aided instruction, computer-based education, and vendor instruction of user personnel in operations, design, programming, and documentation.
- *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.

8. Network Services

Network services typically include a wide variety of network-based functions and operations. Their common thread is that most of these functions could not be performed without network involvement. Network services is divided into two major segments: *Electronic Information Services,* which involve selling information to the user, and *Network Applications,* which involve providing some form of enhanced transport service in support of a user's information processing needs.

- Electronic Information Services

  Electronic information services are data bases 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 typically inquire into and extract information from the data bases. Although users may load extracted data into their own computer systems, the electronic information vendor provides no data processing or manipulation capability and the users cannot update the vendor's data bases.

  The two kinds of electronic information services are:

  - *On-line Data Bases* - Structured, primarily numerical data on economic and demographic trends, financial instruments, companies, products, materials, etc.

  - *News Services* - Unstructured, primarily textual information on people, companies, events, etc.

While electronic information services have traditionally been delivered via networks, there is a growing trend toward the use of CD ROM optical disks to support or supplant on-line services, and these optical disk-based systems are included in the definition of this delivery mode.

- Network Applications

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

INPUT's market definition covers VAN services only, but includes the VAN revenues of all types of carriers.

- *Electronic Data Interchange (EDI)* - Application-to-application exchange of standardized business documents between trade partners or facilitators. This exchange is commonly performed using VAN services. Specialized translation software is typically employed to convert data from organizations' internal file formats to EDI interchange standards; this software may be provided as part of the VAN service, or may be resident on the organization's own computers.

- *Electronic Information Exchange (EIE)* - Also known as Electronic Mail (E-Mail), EIE involves the transmission of messages across an electronic network managed by a services vendor, including facsimile transmission (FAX), voice mail, voice messaging, and access to Telex, TWX, and other messaging services. This also includes bulletin board services.

- *Other Network Services* - This segment contains videotex and pure network management services. Videotex is actually more a delivery mode than an application. Its prime focus is on the individual as a consumer or in business. These services provide interactive access to data bases and offer the inquirer the capability to send as well as receive information for such purposes as home shopping, home banking, travel reservations, and more.

Network management services included here must involve the vendor's network and network management systems as well as people. People-only services, or services that involve the management of networks as part of the broader task of managing a user's information processing functions are included in Systems Operations.

C

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. While the primary data for INPUT's research is vendor interviews, INPUT defines and forecasts the information services market in terms of end-user expenditures. End-user expenditures reflect the markup 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 end-user expenditure also eliminates the double counting of revenues which would occur if sales were tabulated for both producer (e.g., Lotus) and distributor (e.g., BusinessLand).

For most delivery modes, vendor revenues and user expenditures are fairly close. However, there are some significant areas of difference. Many microcomputer software products, for example, are marketed through indirect distribution channels. To capture the valued added through these indirect distribution channels, adjustment factors which incorporate industry discount ratios are used to convert estimated information services vendor revenues to end-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. And turnkey vendors incorporate purchased software into the systems which they sell to end users.

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

The following table summarizes the net effect of the various ratios used by INPUT to convert vendor revenues to end-user expenditure (market size) figures for each delivery mode:

Delivery Mode	Vendor Revenue Multiplier
Application Software Products	1.18
Systems Software Products	1.10
Systems Operations	1.00
Systems Integration	0.99
Professional Services	0.99
Network Services	0.99
Processing Services	0.99
Turnkey Systems	0.95

D

Sector Definitions and Delivery Mode Reporting

1. Industry Sector Definitions (Vertical Markets)

INPUT has structured the information services market into 16 generic industry sectors, such as process manufacturing, insurance, transportation, etc. The definitions of these sectors are based on the 1987 revision of the Standard Industrial Classification (SIC) Code system. The specific industries (and their SIC Codes) included under these generic industry sectors are detailed in the attached table.

2. Cross-Industry Sector Definitions (Horizontal Markets)

In addition to these vertical industry sectors, INPUT has also identified seven cross-industry or horizontal market sectors. These sectors or markets involve multi-industry applications such as human resource systems, accounting systems, etc. In order to be included in an industry sector, the service or product delivered must be specific to that sector only. If a service or product is used in more than one industry sector, it is counted as cross-industry. The seven cross-industry markets are:

- *Human Resource Systems*
- *Education and Training*
- *Office Systems*
- *Accounting Systems*
- *Engineering and Scientific Applications*
- *Planning and Analysis Systems*
- *Other Applications (including telemarketing, sales management and electronic publishing)*

3. Delivery Mode Reporting by Sector

The tables below show how market forecasts for individual delivery modes are related to specific market sectors.

Vertical Market Sectors Only

The following delivery modes are reported by industry sector (vertical market) only:

Delivery Mode	Applicable Submodes
• Network Services:	Network Applications
• Systems Operations:	All
• Systems Integration:	All
• Professional Services:	All

This reporting structure is intended to provide expenditures by industry sector. However, it is recognized that many of the services provided are not necessarily specific or unique to any of the individual sectors.

Vertical and Cross-Industry Market Sectors

The following delivery modes are reported by industry sector and cross-industry sector (vertical and horizontal markets):

Delivery Mode	Applicable Submodes
• Processing Services:	Transaction Processing
• Software	Applications
• Turnkey Systems:	All

All of these delivery modes represent specific business application solutions.

Vertical and Generic Market Sectors

The following submode is reported both by industry sector (vertical market), and the generic market:

Delivery Mode	Applicable Submodes
• Network Services	Electronic Information Services

While some electronic information is industry-specific (e.g., farm crop reports), much of it is relevant to or may be used by any industry (e.g., data base services such as Dialog).

Generic Market Sector Only

The following delivery modes are so generic that they are not reported by industry or cross-industry sector (vertical or horizontal market):

Delivery Mode	Applicable Submodes
• Processing Services: Other Processing	Utility Processing
• Software	Systems (All)

B

Appendix: Related INPUT Reports

- *Professional Services Opportunities, Western Europe 1990-1995*
- *Processing Services Opportunities, Western Europe 1990-1995*
- *Application Solutions Opportunities, Western Europe 1990-1995*
- *Systems Software Opportunities, Western Europe 1990-1995*
- *Systems Integration Market Forecast, Western Europe 1990-1995*
- *Systems Operations Market Forecast, Western Europe 1990-1995*
- *Network Services Market Forecast, Western Europe 1990-1995*

C

Forecast Database by Country Local Currency, 1989-1990

EXHIBIT C-1

Software and Services Market Forecast in Local Currency by Market Segment, 1990-1995 France

Subsector	FF Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	10,500	5	11,000	11,750	13,000	14,000	15,500	17,000	9
Turnkey Systems	8,200	17	9,600	11,300	13,350	15,750	18,600	22,000	18
Applications Software Products	9,200	25	11,500	14,150	17,500	21,750	27,100	34,650	25
Systems Software Products	12,150	16	14,150	16,050	18,300	20,900	24,000	27,500	14
Professional Services	29,790	20	35,750	42,880	51,550	61,950	74,400	89,400	20
Network Services	4,400	25	5,500	6,900	8,770	11,000	13,680	17,000	25
Systems Operations	1,550	18	1,830	2,180	2,590	3,085	3,670	4,400	19
Systems Integration	2,700	28	3,450	4,400	5,600	7,100	8,695	11,300	27
Total	78,490	18	92,780	109,610	130,660	155,535	185,645	223,250	19

EXHIBIT C-2

Processing Services Market Forecast in Local Currency by Market Segment, 1990-1995 France

Subsector	FF Millions 1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	9,660	4	10,075	10,720	11,855	12,720	14,070	15,420	9
Utility Processing	315	5	330	350	370	390	410	420	5
Other Processing:									
Disaster Recovery	180	31	235	300	375	470	580	700	24
All Other	345	4	360	380	400	420	440	460	5
Total	10,500	5	11,000	11,750	13,000	14,000	15,500	17,000	9

EXHIBIT C-3

Turnkey Systems Market Forecast in Local Currency by Market Segment, 1990-1995 France

Subsector	FF Millions 1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	4,500	13	5,100	5,850	6,650	7,600	8,650	9,900	14
Software and Other Charges	3,700	22	4,500	5,450	6,700	8,150	9,950	12,100	22
Total	8,200	17	9,600	11,300	13,350	15,750	18,600	22,000	18

EXHIBIT C-4

Applications Software Products Market Forecast in Local Currency by Market Segment, 1990-1995 France

Subsector	FF Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	1,050	14	1,200	1,250	1,300	1,370	1,450	1,550	5
Minicomputer	3,650	21	4,400	5,300	6,400	7,680	9,250	10,900	20
Workstation and PC	4,500	31	5,900	7,600	9,800	12,700	16,400	22,200	30
Total	9,200	25	11,500	14,150	17,500	21,750	27,100	34,650	25

EXHIBIT C-5

Systems Software Market Forecast in Local Currency by Market Segment, 1990-1995 France

Subsector	FF Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	6,450	11	7,150	7,700	8,200	8,800	9,400	10,000	7
Minicomputer	3,700	20	4,450	5,200	6,100	7,000	8,100	9,300	16
Workstation and PC	2,000	28	2,550	3,150	4,000	5,100	6,500	8,200	26
Total	12,150	16	14,150	16,050	18,300	20,900	24,000	27,500	14

EXHIBIT C-6

Professional Service Market Forecast in Local Currency by Market Segment, 1990-1995 France

Subsector	FF Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	3,295	20	3,950	4,780	5,750	6,850	8,200	9,850	20
Education & Training	2,475	21	3,000	3,700	4,500	5,500	6,700	8,150	22
Software Development	24,020	20	28,800	34,400	41,300	49,600	59,500	71,400	20
Total	29,790	20	35,750	42,880	51,550	61,950	74,400	89,400	20

EXHIBIT C-7

Software and Services Market Forecast in Local Currency by Market Segment, 1990-1995 Germany

Subsector	DM Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	2,700	6	2,860	3,080	3,350	3,650	3,905	4,170	8
Turnkey Systems	4,530	17	5,280	6,250	7,350	8,750	10,350	12,300	18
Applications Software Products	1,750	18	2,070	2,470	3,035	3,755	4,720	5,800	23
Systems Software Products	3,500	13	3,955	4,560	5,200	6,090	7,150	8,390	16
Professional Services	4,020	18	4,760	5,735	6,825	8,010	9,310	11,000	18
Network Services	850	28	1,090	1,410	1,850	2,440	3,150	4,000	30
Systems Operations	120	13	135	155	185	215	255	305	18
Systems Integration	880	25	1,100	1,400	1,765	2,220	2,800	3,495	26
Total	18,350	16	21,250	25,060	29,560	35,130	41,640	49,460	18

EXHIBIT C-8

Processing Services Market Forecast in Local Currency by Market Segment, 1990-1995 Germany

Subsector	DM Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	2,410	6	2,550	2,720	2,950	3,210	3,420	3,650	7
Utility Processing	95	5	100	120	130	140	150	160	10
Other Processing:									
Disaster Recovery	60	25	75	90	110	130	155	180	19
All Other	135	0	135	150	160	170	180	180	6
Total	2,700	6	2,860	3,080	3,350	3,650	3,905	4,170	8

EXHIBIT C-9

Turnkey Systems Market Forecast in Local Currency by Market Segment, 1990-1995 Germany

Subsector	DM Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	2,490	12	2,800	3,200	3,650	4,200	4,750	5,450	14
Software and Other Charges	2,040	22	2,480	3,050	3,700	4,550	5,600	6,850	23
Total	4,530	17	5,280	6,250	7,350	8,750	10,350	12,300	18

EXHIBIT C-10

Applications Software Products Market Forecast in Local Currency by Market Segment, 1990-1995 Germany

Subsector	DM Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	350	6	370	400	435	475	520	570	9
Minicomputer	550	18	650	770	950	1,150	1,400	1,600	20
Workstation and PC	850	24	1,050	1,300	1,650	2,130	2,800	3,630	28
Total	1,750	18	2,070	2,470	3,035	3,755	4,720	5,800	23

EXHIBIT C-11

Systems Software Market Forecast in Local Currency by Market Segment, 1990-1995 Germany

Subsector	DM Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	2,000	9	2,170	2,400	2,600	2,900	3,250	3,600	11
Minicomputer	1,000	16	1,160	1,370	1,600	1,920	2,300	2,750	19
Workstation and PC	500	2,550	625	790	1,000	1,270	1,600	2,040	27
Total	3,500	13	3,955	4,560	5,200	6,090	7,150	8,390	16

EXHIBIT C-12

Professional Service Market Forecast in Local Currency by Market Segment, 1990-1995 Germany

Subsector	DM Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	495	19	590	715	855	1,010	1,180	1,400	19
Education & Training	705	19	840	1,020	1,220	1,440	1,680	2,000	19
Software Development	2,820	18	3,330	4,000	4,750	5,560	6,450	7,600	18
Total	4,020	18	4,760	5,735	6,825	8,010	9,310	11,000	18

EXHIBIT C-13

Software and Services Market Forecast in Local Currency by Market Segment, 1990-1995 United Kingdom

Subsector	£ Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	530	6	560	630	705	800	875	960	11
Turnkey Systems	1,075	13	1,220	1,425	1,680	1,995	2,370	2,800	18
Applications Software Products	520	16	605	735	895	1,090	1,340	1,650	22
Systems Software Products	960	9	1,050	1,205	1,400	1,625	1,900	2,200	16
Professional Services	1,735	17	2,030	2,390	2,840	3,420	4,085	4,910	19
Network Services	560	21	680	820	995	1,190	1,445	1,770	21
Systems Operations	150	27	190	235	290	355	435	525	23
Systems Integration	320	23	395	485	595	740	915	1,115	23
Total	5,850	15	6,730	7,925	9,400	11,215	13,365	15,930	19

EXHIBIT C-14

Processing Services Market Forecast in Local Currency by Market Segment, 1990-1995 United Kingdom

Subsector	£ Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	450	4	470	520	570	645	695	745	10
Utility Processing	15	7	16	17	18	19	20	22	7
Other Processing:									
Disaster Recovery	25	40	35	50	65	80	100	125	29
All Other	40	0	40	45	50	55	60	65	10
Total	530	6	560	630	705	800	875	960	11

EXHIBIT C-15

Turnkey Systems Market Forecast in Local Currency by Market Segment, 1990-1995 United Kingdom

Subsector	£ Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	590	10	650	735	835	965	1,100	1,250	14
Software and Other Charges	485	18	570	690	845	1,030	1,270	1,550	22
Total	1,075	13	1,220	1,425	1,680	1,995	2,370	2,800	18

EXHIBIT C-16

Applications Software Products Market Forecast in Local Currency by Market Segment, 1990-1995 United Kingdom

Subsector	£ Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	75	7	80	85	90	95	105	115	8
Minicomputer	170	12	190	225	270	325	390	465	20
Workstation and PC	275	22	335	425	535	670	845	1,070	26
Total	520	16	605	735	895	1,090	1,340	1,650	22

EXHIBIT C-17

Systems Software Market Forecast in Local Currency by Market Segment, 1990-1995 United Kingdom

Subsector	£ Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	520	5	545	595	650	710	775	840	9
Minicomputer	280	13	315	370	435	515	610	720	18
Workstation and PC	160	2,550	190	240	315	400	515	640	27
Total	960	9	1,050	1,205	1,400	1,625	1,900	2,200	16

EXHIBIT C-18

Professional Service Market Forecast in Local Currency by Market Segment, 1990-1995 United Kingdom

Subsector	£ Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	245	22	300	370	455	575	715	890	24
Education & Training	180	22	220	270	335	415	510	630	23
Software Development	1,310	15	1,510	1,750	2,050	2,430	2,860	3,390	18
Total	1,735	17	2,030	2,390	2,840	3,420	4,085	4,910	19

EXHIBIT C-19

Software and Services Market Forecast in Local Currency by Market Segment, 1990-1995 Italy

Subsector	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
	Lira Billions								
Processing Services	1,000	8	1,080	1,210	1,350	1,490	1,650	1,810	11
Turnkey Systems	755	15	870	1,025	1,225	1,440	1,710	2,020	18
Applications Software Products	1,150	20	1,380	1,680	2,055	2,515	3,085	3,800	22
Systems Software Products	1,700	13	1,925	2,215	2,560	2,970	3,440	4,000	16
Professional Services	2,485	20	2,990	3,620	4,355	5,220	6,245	7,500	20
Network Services	360	32	475	615	785	940	1,125	1,330	23
Systems Operations	170	18	200	245	295	355	435	535	22
Systems Integration	240	29	310	400	510	650	820	1,020	27
Total	7,860	17	9,230	11,010	13,135	15,580	18,510	22,015	19

EXHIBIT C-20

Processing Services Market Forecast in Local Currency by Market Segment, 1990-1995 Italy

Subsector	Lira Billions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	905	8	980	1,100	1,220	1,340	1,470	1,600	10
Utility Processing	21	5	22	23	24	26	28	30	6
Other Processing:									
Disaster Recovery	15	33	20	27	35	45	60	75	30
All Other	60	0	60	63	70	80	90	105	12
Total	1,000	8	1,080	1,210	1,350	1,490	1,650	1,810	11

EXHIBIT C-21

Turnkey Systems Market Forecast in Local Currency by Market Segment, 1990-1995 Italy

Subsector	Lira Billions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	415	11	460	520	595	670	760	855	13
Software and Other Charges	340	21	410	505	630	770	950	1,165	23
Total	755	15	870	1,025	1,225	1,440	1,710	2,020	18

EXHIBIT C-22

Applications Software Products Market Forecast in Local Currency by Market Segment, 1990-1995
Italy

Subsector	Lira Billions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	160	6	170	180	195	210	220	240	7
Minicomputer	370	18	435	520	620	735	875	1,040	19
Workstation and PC	620	25	775	980	1,240	1,570	1,990	2,520	27
Total	1,150	20	1,380	1,680	2,055	2,515	3,085	3,800	22

EXHIBIT C-23

Systems Software Market Forecast in Local Currency by Market Segment, 1990-1995
Italy

Subsector	Lira Billions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	850	7	910	980	1,060	1,150	1,240	1,350	8
Minicomputer	530	16	615	730	865	1,020	1,200	1,400	18
Workstation and PC	320	25	400	505	635	800	1,000	1,250	26
Total	1,700	13	1,925	2,215	2,560	2,970	3,440	4,000	16

EXHIBIT C-24

Professional Service Market Forecast in Local Currency by Market Segment, 1990-1995 Italy

Subsector	Lira Billions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	345	25	430	535	670	840	1,040	1,310	25
Education & Training	185	24	230	290	360	450	560	700	25
Software Development	1,955	19	2,330	2,795	3,325	3,930	4,645	5,490	19
Total	2,485	20	2,990	3,620	4,355	5,220	6,245	7,500	20

EXHIBIT C-25

Software and Services Market Forecast in Local Currency by Market Segment, 1990-1995 Sweden

Subsector	SK Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	2,400	6	2,550	2,740	2,870	3,250	3,530	3,800	8
Turnkey Systems	1,655	19	1,965	2,340	2,780	3,350	4,030	4,800	20
Applications Software Products	1,125	21	1,365	1,695	2,080	2,540	3,135	3,900	23
Systems Software Products	1,700	14	1,930	2,215	2,545	2,920	3,370	3,900	15
Professional Services	3,025	18	3,560	4,255	5,070	6,320	7,160	8,520	19
Network Services	440	33	585	750	940	1,165	1,485	1,880	26
Systems Operations	200	15	230	260	300	350	415	485	16
Systems Integration	225	27	285	355	445	570	720	905	26
Total	10,770	16	12,470	14,610	17,030	20,465	23,845	28,190	18

EXHIBIT C-26

Processing Services Market Forecast in Local Currency by Market Segment, 1990-1995 Sweden

Subsector	SK Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	2,200	6	2,330	2,500	2,700	2,950	3,200	3,450	8
Utility Processing	50	4	52	54	57	60	63	65	5
Other Processing:									
Disaster Recovery	16	25	20	25	30	38	48	60	25
All Other	135	7	145	160	180	195	215	230	10
Total	2,400	6	2,550	2,740	2,870	3,250	3,530	3,800	8

EXHIBIT C-27

Turnkey Systems Market Forecast in Local Currency by Market Segment, 1990-1995 Sweden

Subsector	SK Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	910	15	1,050	1,200	1,370	1,600	1,850	2,100	15
Software and Other Charges	745	23	915	1,140	1,410	1,750	2,180	2,700	24
Total	1,655	19	1,965	2,340	2,780	3,350	4,030	4,800	20

EXHIBIT C-28

Applications Software Products Market Forecast in Local Currency by Market Segment, 1990-1995 Sweden

Subsector	SK Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	165	6	175	185	200	210	225	245	7
Minicomputer	335	19	400	490	590	710	860	1,045	21
Workstation and PC	625	26	790	1,020	1,290	1,620	2,050	2,610	27
Total	1,125	21	1,365	1,695	2,080	2,540	3,135	3,900	23

EXHIBIT C-29

Systems Software Market Forecast in Local Currency by Market Segment, 1990-1995 Sweden

Subsector	SK Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	1,020	9	1,110	1,220	1,350	1,480	1,630	1,790	10
Minicomputer	425	16	495	585	685	795	925	1,080	17
Workstation and PC	255	27	325	410	510	645	815	1,030	26
Total	1,700	14	1,930	2,215	2,545	2,920	3,370	3,900	15

EXHIBIT C-30

Professional Service Market Forecast in Local Currency by Market Segment, 1990-1995 Sweden

Subsector	SK Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	390	21	470	575	700	860	1,050	1,280	22
Education & Training	435	20	520	630	770	930	1,120	1,350	21
Software Development	2,200	17	2,570	3,050	3,600	4,530	4,990	5,890	18
Total	3,025	18	3,560	4,255	5,070	6,320	7,160	8,520	19

EXHIBIT C-31

Software and Services Market Forecast in Local Currency by Market Segment, 1990-1995 Denmark

Subsector	DK Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	2,800	5	2,940	3,100	3,320	3,550	3,720	3,940	6
Turnkey Systems	1,420	19	1,690	2,010	2,340	2,760	3,280	3,900	18
Applications Software Products	910	21	1,100	1,315	1,590	1,855	2,225	3,000	22
Systems Software Products	1,405	14	1,605	1,835	2,100	2,410	2,770	3,200	15
Professional Services	2,275	19	2,710	3,195	3,780	4,455	5,270	6,240	18
Network Services	370	26	465	585	760	975	1,215	1,520	27
Systems Operations	75	20	90	105	120	140	165	190	16
Systems Integration	170	24	210	260	325	390	465	555	21
Total	9,425	15	10,810	12,405	14,335	16,535	19,110	22,545	16

EXHIBIT C-32

Processing Services Market Forecast in Local Currency by Market Segment, 1990-1995 Denmark

Subsector	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
	DK Millions								
Transaction Processing	2,570	5	2,700	2,850	3,050	3,250	3,400	3,600	6
Utility Processing	55	4	57	60	63	65	68	70	4
Other Processing:									
Disaster Recovery	15	27	19	24	30	38	48	60	26
All Other	155	3	160	170	180	198	202	210	6
Total	2,800	5	2,940	3,100	3,320	3,550	3,720	3,940	6

EXHIBIT C-33

Turnkey Systems Market Forecast in Local Currency by Market Segment, 1990-1995 Denmark

Subsector	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
	DK Millions								
Equipment	780	15	900	1,050	1,170	1,330	1,530	1,750	14
Software and Other Charges	640	23	790	960	1,170	1,430	1,750	2,150	22
Total	1,420	19	1,690	2,010	2,340	2,760	3,280	3,900	18

EXHIBIT C-34

Applications Software Products Market Forecast in Local Currency by Market Segment, 1990-1995 Denmark

Subsector	DK Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	95	5	100	105	110	115	120	430	34
Minicomputer	320	19	380	440	515	605	710	830	17
Workstation and PC	495	25	620	770	965	1,135	1,395	1,740	23
Total	910	21	1,100	1,315	1,590	1,855	2,225	3,000	22

EXHIBIT C-35

Systems Software Market Forecast in Local Currency by Market Segment, 1990-1995 Denmark

Subsector	DK Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	650	8	700	750	805	860	920	990	7
Minicomputer	485	16	565	655	755	870	1,000	1,150	15
Workstation and PC	270	26	340	430	540	680	850	1,060	26
Total	1,405	14	1,605	1,835	2,100	2,410	2,770	3,200	15

EXHIBIT C-36

Professional Service Market Forecast in Local Currency by Market Segment, 1990-1995 Denmark

Subsector	DK Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	325	25	405	495	610	750	920	1,140	23
Education & Training	95	21	115	140	170	205	250	300	21
Software Development	1,855	18	2,190	2,560	3,000	3,500	4,100	4,800	17
Total	2,275	19	2,710	3,195	3,780	4,455	5,270	6,240	18

EXHIBIT C-37

Software and Services Market Forecast in Local Currency by Market Segment, 1990-1995 Norway

Subsector	NK Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	2,900	5	3,050	3,260	3,530	3,800	4,080	4,300	7
Turnkey Systems	1,010	19	1,205	1,455	1,730	2,070	2,495	3,000	20
Applications Software Products	730	21	880	1,085	1,320	1,620	1,960	2,400	22
Systems Software Products	1,105	13	1,245	1,420	1,640	1,895	2,170	2,500	15
Professional Services	1,740	16	2,020	2,375	2,790	3,280	3,845	4,510	17
Network Services	260	17	305	365	450	585	740	950	26
Systems Operations	70	21	85	100	120	135	155	175	16
Systems Integration	130	23	160	200	240	290	340	390	20
Total	7,945	13	8,950	10,260	11,820	13,675	15,785	18,225	15

EXHIBIT C-38

Processing Services Market Forecast in Local Currency by Market Segment, 1990-1995 Norway

Subsector	NK Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	2,670	5	2,800	3,000	3,250	3,500	3,750	3,950	7
Utility Processing	58	3	60	62	64	66	68	70	3
Other Processing:									
Disaster Recovery	10	20	12	15	20	25	30	37	25
All Other	165	5	173	185	200	215	235	253	8
Total	2,900	5	3,050	3,260	3,530	3,800	4,080	4,300	7

EXHIBIT C-39

Turnkey Systems Market Forecast in Local Currency by Market Segment, 1990-1995 Norway

Subsector	NK Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	555	15	640	750	850	970	1,105	1,260	15
Software and Other Charges	455	24	565	705	880	1,100	1,390	1,740	25
Total	1,010	19	1,205	1,455	1,730	2,070	2,495	3,000	20

EXHIBIT C-40

Applications Software Products Market Forecast in Local Currency by Market Segment, 1990-1995 Norway

Subsector	NK Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	100	5	105	115	120	130	140	150	7
Minicomputer	235	19	280	345	420	515	610	730	21
Workstation and PC	395	25	495	625	780	975	1,210	1,520	25
Total	730	21	880	1,085	1,320	1,620	1,960	2,400	22

EXHIBIT C-41

Systems Software Market Forecast in Local Currency by Market Segment, 1990-1995 Norway

Subsector	NK Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	595	7	635	690	750	815	875	940	8
Minicomputer	345	17	405	475	565	670	785	925	18
Workstation and PC	165	24	205	255	325	410	510	635	25
Total	1,105	13	1,245	1,420	1,640	1,895	2,170	2,500	15

EXHIBIT C-42

Professional Service Market Forecast in Local Currency by Market Segment, 1990-1995 Norway

Subsector	NK Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	250	18	295	350	420	500	590	705	19
Education & Training	90	17	105	125	150	180	215	255	19
Software Development	1,400	16	1,620	1,900	2,220	2,600	3,040	3,550	17
Total	1,740	16	2,020	2,375	2,790	3,280	3,845	4,510	17

EXHIBIT C-43

Software and Services Market Forecast in Local Currency by Market Segment, 1990-1995 Finland

Subsector	FM Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	900	7	960	1,020	1,110	1,190	1,270	1,350	7
Turnkey Systems	595	18	705	835	995	1,190	1,420	1,700	19
Applications Software Products	475	20	570	685	820	985	1,190	1,440	20
Systems Software Products	665	14	755	860	995	1,150	1,315	1,500	15
Professional Services	1,095	20	1,310	1,560	1,870	2,230	2,670	3,200	20
Network Services	160	19	190	225	275	340	415	500	21
Systems Operations	95	21	115	130	155	190	225	270	19
Systems Integration	50	20	60	80	100	120	150	150	26
Total	4,035	16	4,665	5,395	6,320	7,395	8,655	10,150	17

EXHIBIT C-44

Processing Services Market Forecast in Local Currency by Market Segment, 1990-1995 Finland

Subsector	FM Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	810	6	860	920	990	1,060	1,130	1,200	7
Utility Processing	30	3	31	33	35	36	37	38	4
Other Processing:									
Disaster Recovery	2	50	3	5	10	15	20	25	53
All Other	58	7	62	65	70	75	80	85	7
Total	900	7	960	1,020	1,110	1,190	1,270	1,350	7

EXHIBIT C-45

Turnkey Systems Market Forecast in Local Currency by Market Segment, 1990-1995 Finland

Subsector	FM Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	325	14	370	420	480	550	625	715	14
Software and Other Charges	270	24	335	415	515	640	795	985	24
Total	595	18	705	835	995	1,190	1,420	1,700	19

EXHIBIT C-46

Applications Software Products Market Forecast in Local Currency by Market Segment, 1990-1995 Finland

Subsector	FM Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	65	8	70	75	75	80	85	90	5
Minicomputer	150	20	180	215	260	310	375	450	20
Workstation and PC	260	23	320	395	485	595	730	900	23
Total	475	20	570	685	820	985	1,190	1,440	20

EXHIBIT C-47

Systems Software Market Forecast in Local Currency by Market Segment, 1990-1995 Finland

Subsector	FM Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	355	7	380	405	440	475	500	530	7
Minicomputer	195	18	230	265	315	375	435	500	17
Workstation and PC	115	26	145	190	240	300	380	470	27
Total	665	14	755	860	995	1,150	1,315	1,500	15

EXHIBIT C-48

Professional Service Market Forecast in Local Currency by Market Segment, 1990-1995 Finland

Subsector	FM Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	160	25	200	240	290	350	430	530	22
Education & Training	60	17	70	80	100	120	150	180	21
Software Development	875	19	1,040	1,240	1,480	1,760	2,090	2,490	19
Total	1,095	20	1,310	1,560	1,870	2,230	2,670	3,200	20

EXHIBIT C-49

Software and Services Market Forecast in Local Currency by Market Segment, 1990-1995 Netherlands

Subsector	Dfl Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	800	6	850	930	1,030	1,140	1,240	1,350	10
Turnkey Systems	700	18	825	990	1,180	1,415	1,685	2,000	19
Applications Software Products	730	20	875	1,070	1,305	1,605	1,960	2,400	22
Systems Software Products	1,000	13	1,125	1,285	1,475	1,680	1,930	2,200	14
Professional Services	2,160	17	2,530	2,990	3,550	4,240	5,050	5,980	19
Network Services	265	13	300	345	395	455	540	650	17
Systems Operations	95	21	115	135	160	190	230	280	19
Systems Integration	170	24	210	265	330	405	495	605	24
Total	5,920	15	6,830	8,010	9,425	11,130	13,130	15,465	18

EXHIBIT C-50

Processing Services Market Forecast in Local Currency by Market Segment, 1990-1995 Netherlands

Subsector	Dfl Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	710	6	755	820	910	1,000	1,090	1,180	9
Utility Processing	25	4	26	27	29	31	33	35	6
Other Processing:									
Disaster Recovery	12	25	15	20	25	35	45	55	30
All Other	53	4	55	60	65	70	75	80	8
Total	800	6	850	930	1,030	1,140	1,240	1,350	10

EXHIBIT C-51

Turnkey Systems Market Forecast in Local Currency by Market Segment, 1990-1995 Netherlands

Subsector	Dfl Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	385	13	435	500	570	655	745	835	14
Software and Other Charges	315	24	390	490	610	760	940	1,165	24
Total	700	18	825	990	1,180	1,415	1,685	2,000	19

EXHIBIT C-52

Applications Software Products Market Forecast in Local Currency by Market Segment, 1990-1995 Netherlands

Subsector	Dfl Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	105	5	110	120	125	135	145	155	7
Minicomputer	230	17	270	325	390	465	545	645	19
Workstation and PC	395	25	495	625	790	1,005	1,270	1,600	26
Total	730	20	875	1,070	1,305	1,605	1,960	2,400	22

EXHIBIT C-53

Systems Software Market Forecast in Local Currency by Market Segment, 1990-1995 Netherlands

Subsector	Dfl Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	550	7	590	635	690	745	805	860	8
Minicomputer	290	16	335	395	465	540	635	735	17
Workstation and PC	160	25	200	255	320	395	490	605	25
Total	1,000	13	1,125	1,285	1,475	1,680	1,930	2,200	14

EXHIBIT C-54

Professional Service Market Forecast in Local Currency by Market Segment, 1990-1995 Netherlands

Subsector	Dfl Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	275	24	340	420	520	640	800	990	24
Education & Training	235	23	290	350	430	530	660	800	23
Software Development	1,650	15	1,900	2,220	2,600	3,070	3,590	4,190	17
Total	2,160	17	2,530	2,990	3,550	4,240	5,050	5,980	19

EXHIBIT C-55

Software and Services Market Forecast in Local Currency by Market Segment, 1990-1995 Belgium

Subsector	BF Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	7,200	4	7,490	7,880	8,400	8,980	9,500	10,050	6
Turnkey Systems	6,490	18	7,660	9,100	10,830	12,870	15,350	18,300	19
Applications Software Products	7,900	20	9,500	11,400	13,700	16,600	20,100	24,400	21
Systems Software Products	10,600	12	11,900	13,400	15,200	17,400	19,800	22,700	14
Professional Services	19,490	19	23,240	27,950	33,620	40,200	47,400	56,200	19
Network Services	2,770	21	3,350	4,100	5,000	6,090	7,400	8,950	22
Systems Operations	1,030	16	1,195	1,405	1,660	1,960	2,325	2,775	18
Systems Integration	2,550	24	3,170	3,960	4,910	6,020	7,300	8,800	23
Total	57,030	18	67,505	79,195	93,320	110,120	129,175	152,175	18

EXHIBIT C-56

Processing Services Market Forecast in Local Currency by Market Segment, 1990-1995 Belgium

Subsector	BF Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	6,400	4	6,650	7,000	7,450	7,950	8,400	8,850	6
Utility Processing	220	5	230	240	250	260	265	270	3
Other Processing:									
Disaster Recovery	115	22	140	175	220	270	330	400	23
All Other	465	0	465	465	490	500	510	520	2
Total	7,200	4	7,490	7,880	8,400	8,980	9,500	10,050	6

EXHIBIT C-57

Turnkey Systems Market Forecast in Local Currency by Market Segment, 1990-1995 Belgium

Subsector	BF Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	3,570	14	4,070	4,650	5,350	6,100	7,000	8,000	14
Software and Other Charges	2,920	23	3,590	4,450	5,480	6,770	8,350	10,300	23
Total	6,490	18	7,660	9,100	10,830	12,870	15,350	18,300	19

EXHIBIT C-58

Applications Software Products Market Forecast in Local Currency by Market Segment, 1990-1995 Belgium

Subsector	BF Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	1,100	5	1,160	1,250	1,310	1,400	1,500	1,600	7
Minicomputer	2,530	18	2,990	3,540	4,190	4,980	5,900	7,000	19
Workstation and PC	4,270	25	5,350	6,610	8,200	10,220	12,700	15,800	24
Total	7,900	20	9,500	11,400	13,700	16,600	20,100	24,400	21

EXHIBIT C-59

Systems Software Market Forecast in Local Currency by Market Segment, 1990-1995 Belgium

Subsector	BF Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	5,900	7	6,310	6,750	7,250	7,850	8,420	9,050	7
Minicomputer	3,100	16	3,600	4,200	4,900	5,700	6,620	7,700	16
Workstation and PC	1,600	24	1,990	2,450	3,050	3,850	4,760	5,950	24
Total	10,600	12	11,900	13,400	15,200	17,400	19,800	22,700	14

EXHIBIT C-60

Professional Service Market Forecast in Local Currency by Market Segment, 1990-1995 Belgium

Subsector	BF Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	2,690	24	3,340	4,150	5,200	6,450	8,000	10,000	25
Education & Training	1,540	23	1,900	2,300	2,820	3,450	4,200	5,200	22
Software Development	15,260	18	18,000	21,500	25,600	30,300	35,200	41,000	18
Total	19,490	19	23,240	27,950	33,620	40,200	47,400	56,200	19

EXHIBIT C-61

Software and Services Market Forecast in Local Currency by Market Segment, 1990-1995 Switzerland

Subsector	SF Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	340	6	360	400	440	480	520	570	10
Turnkey Systems	585	21	705	855	1,030	1,240	1,490	1,800	21
Applications Software Products	265	21	320	380	460	560	685	840	21
Systems Software Products	540	13	610	700	780	895	1,030	1,190	14
Professional Services	640	16	745	910	1,080	1,290	1,550	1,860	20
Network Services	140	18	165	205	255	325	405	510	25
Systems Operations	20	25	25	35	40	45	55	65	21
Systems Integration	65	23	80	100	125	160	205	260	27
Total	2,595	16	3,010	3,585	4,210	4,995	5,940	7,095	19

EXHIBIT C-62

Processing Services Market Forecast in Local Currency by Market Segment, 1990-1995 Switzerland

Subsector	SF Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	300	5	315	345	380	415	450	490	9
Utility Processing	15	0	15	16	17	18	19	20	6
Other Processing:									
Disaster Recovery	3	67	5	7	11	15	21	27	40
All Other	27	0	27	28	29	31	32	33	4
Total	340	6	360	400	440	480	520	570	10

EXHIBIT C-63

Turnkey Systems Market Forecast in Local Currency by Market Segment, 1990-1995 Switzerland

Subsector	SF Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	325	17	380	445	515	595	690	800	16
Software and Other Charges	260	25	325	410	515	645	800	1,000	25
Total	585	21	705	855	1,030	1,240	1,490	1,800	21

EXHIBIT C-64

Applications Software Products Market Forecast in Local Currency by Market Segment, 1990-1995 Switzerland

Subsector	SF Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	55	9	60	60	65	70	80	85	7
Minicomputer	80	19	95	115	135	160	190	230	19
Workstation and PC	130	27	165	205	260	330	415	525	26
Total	265	21	320	380	460	560	685	840	21

EXHIBIT C-65

Systems Software Market Forecast in Local Currency by Market Segment, 1990-1995 Switzerland

Subsector	SF Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	315	8	340	370	395	430	470	510	8
Minicomputer	150	17	175	205	240	280	330	390	17
Workstation and PC	75	27	95	125	145	185	230	290	25
Total	540	13	610	700	780	895	1,030	1,190	14

EXHIBIT C-66

Professional Service Market Forecast in Local Currency by Market Segment, 1990-1995 Switzerland

Subsector	SF Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	80	19	95	120	140	170	210	260	22
Education & Training	120	17	140	180	220	270	330	400	23
Software Development	440	16	510	610	720	850	1,010	1,200	19
Total	640	16	745	910	1,080	1,290	1,550	1,860	20

EXHIBIT C-67

Software and Services Market Forecast in Local Currency by Market Segment, 1990-1995 Austria

Subsector	Sch Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	1,700	6	1,800	1,930	2,070	2,210	2,360	2,510	7
Turnkey Systems	2,280	18	2,700	3,220	3,840	4,580	5,490	6,600	20
Applications Software Products	1,105	21	1,340	1,640	2,000	2,420	2,935	3,600	22
Systems Software Products	2,255	12	2,530	2,860	3,250	3,690	4,190	4,800	14
Professional Services	2,470	18	2,910	3,440	4,090	4,820	5,750	6,830	19
Network Services	510	11	565	630	730	850	1,000	1,170	16
Systems Operations	90	17	105	120	135	160	185	215	15
Systems Integration	255	25	320	405	505	630	780	960	25
Total	10,665	15	12,270	14,245	16,620	19,360	22,690	26,685	17

EXHIBIT C-68

Processing Services Market Forecast in Local Currency by Market Segment, 1990-1995 Austria

Subsector	Sch Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	1,500	6	1,590	1,700	1,820	1,950	2,070	2,200	7
Utility Processing	70	3	72	74	77	79	82	85	3
Other Processing:									
Disaster Recovery	10	50	15	25	30	40	50	65	34
All Other	120	4	125	130	140	145	155	160	5
Total	1,700	6	1,800	1,930	2,070	2,210	2,360	2,510	7

EXHIBIT C-69

Turnkey Systems Market Forecast in Local Currency by Market Segment, 1990-1995 Austria

Subsector	Sch Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	1,255	16	1,450	1,650	1,890	2,180	2,500	2,900	15
Software and Other Charges	1,025	22	1,250	1,570	1,950	2,400	2,990	3,700	24
Total	2,280	18	2,700	3,220	3,840	4,580	5,490	6,600	20

EXHIBIT C-70

Applications Software Products Market Forecast in Local Currency by Market Segment, 1990-1995 Austria

Subsector	Sch Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	155	6	165	185	195	210	215	230	7
Minicomputer	355	20	425	505	605	710	840	1,000	19
Workstation and PC	595	26	750	950	1,200	1,500	1,880	2,370	26
Total	1,105	21	1,340	1,640	2,000	2,420	2,935	3,600	22

EXHIBIT C-71

Systems Software Market Forecast in Local Currency by Market Segment, 1990-1995 Austria

Subsector	Sch Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	1,220	7	1,300	1,390	1,490	1,590	1,690	1,800	7
Minicomputer	675	15	775	900	1,050	1,220	1,420	1,650	16
Workstation and PC	360	26	455	570	710	880	1,080	1,350	24
Total	2,255	12	2,530	2,860	3,250	3,690	4,190	4,800	14

EXHIBIT C-72

Professional Service Market Forcast in Local Currency by Market Segment, 1990-1995 Austria

Subsector	Sch Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	320	22	390	470	580	700	860	1,050	22
Education & Training	350	23	430	530	650	780	980	1,200	23
Software Development	1,800	16	2,090	2,440	2,860	3,340	3,910	4,580	17
Total	2,470	18	2,910	3,440	4,090	4,820	5,750	6,830	19

EXHIBIT C-73

Software and Services Market Forecast in Local Currency by Market Segment, 1990-1995 Spain

Subsector	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
	Pta Millions								
Processing Services	25,000	10	27,500	30,560	33,930	37,500	41,150	45,000	10
Turnkey Systems	33,900	19	40,300	48,200	57,700	69,200	83,400	100,500	20
Applications Software Products	19,900	23	24,400	30,200	37,500	46,800	58,400	73,200	25
Systems Software Products	34,000	14	38,900	45,300	52,900	61,900	72,800	85,800	17
Professional Services	51,650	23	63,360	78,420	97,100	120,200	148,400	184,000	24
Network Services	9,700	28	12,400	16,400	21,900	29,300	39,500	53,900	34
Systems Operations	2,900	17	3,400	3,980	4,640	5,400	6,270	7,240	16
Systems Integration	6,500	26	8,200	10,400	13,200	16,800	21,100	26,000	26
Total	183,550	19	218,460	263,460	318,870	387,100	471,020	575,640	21

EXHIBIT C-74

Processing Services Market Forecast in Local Currency by Market Segment, 1990-1995 Spain

Subsector	Pta Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	21,250	10	23,400	26,000	28,800	31,800	34,800	38,000	10
Utility Processing	1,750	6	1,850	1,960	2,080	2,210	2,350	2,500	6
Other Processing:									
Disaster Recovery	120	67	200	350	550	800	1,100	1,400	48
All Other	1,880	9	2,050	2,250	2,500	2,700	2,900	3,100	9
Total	25,000	10	27,500	30,560	33,930	37,500	41,150	45,000	10

EXHIBIT C-75

Turnkey Systems Market Forecast in Local Currency by Market Segment, 1990-1995 Spain

Subsector	Pta Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	18,650	14	21,300	24,500	28,100	32,300	37,200	42,800	15
Software and Other Charges	15,250	25	19,000	23,700	29,600	36,900	46,200	57,700	25
Total	33,900	19	40,300	48,200	57,700	69,200	83,400	100,500	20

EXHIBIT C-76

Applications Software Products Market Forecast in Local Currency by Market Segment, 1990-1995 Spain

Subsector	Pta Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	2,800	7	3,000	3,250	3,500	3,800	4,050	4,400	8
Minicomputer	6,400	20	7,700	9,300	11,250	13,600	16,450	19,900	21
Workstation and PC	10,700	28	13,700	17,650	22,750	29,400	37,900	48,900	29
Total	19,900	23	24,400	30,200	37,500	46,800	58,400	73,200	25

EXHIBIT C-77

Systems Software Market Forecast in Local Currency by Market Segment, 1990-1995 Spain

Subsector	Pta Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	18,500	8	20,000	22,100	24,400	26,800	29,500	32,500	10
Minicomputer	10,200	19	12,150	14,600	17,500	21,000	25,200	30,200	20
Workstation and PC	5,300	27	6,750	8,600	11,000	14,100	18,100	23,100	28
Total	34,000	14	38,900	45,300	52,900	61,900	72,800	85,800	17

EXHIBIT C-78

Professional Service Market Forecast in Local Currency by Market Segment, 1990-1995 Spain

Subsector	Pta Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	7,250	25	9,060	11,400	14,400	18,100	22,800	28,800	26
Education & Training	5,600	25	7,000	8,820	11,100	14,000	17,600	22,200	26
Software Development	38,800	22	47,300	58,200	71,600	88,100	108,000	133,000	23
Total	51,650	23	63,360	78,420	97,100	120,200	148,400	184,000	24

EXHIBIT C-79

Software and Services Market Forecast in Local Currency by Market Segment, 1990-1995 Rest of Europe

Subsector	$ Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	70	14	80	90	105	120	135	150	13
Turnkey Systems	100	20	120	140	170	200	245	295	20
Applications Software Products	50	20	60	75	90	110	135	165	22
Systems Software Products	95	16	110	125	145	165	195	225	15
Professional Services	125	24	155	190	230	280	350	410	21
Network Services	20	30	26	33	42	54	71	90	28
Systems Operations	5	40	7	10	10	15	15	20	23
Systems Integration	10	50	15	20	25	30	40	50	27
Total	475	21	573	683	817	974	1,186	1,405	20

EXHIBIT C-80

Processing Services Market Forecast in Local Currency by Market Segment, 1990-1995 Rest of Europe

Subsector	$ Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	56	14	64	73	84	95	107	120	13
Utility Processing	8	13	9	10	12	13	14	15	11
Other Processing:									
Disaster Recovery	0.5	60	0.8	1.2	2.4	3.4	4	5	44
All Other	5.5	13	6.2	6.8	7.6	8.6	9	10	10
Total	70	14	80	90	105	120	135	150	13

EXHIBIT C-81

Turnkey Systems Market Forecast in Local Currency by Market Segment, 1990-1995 Rest of Europe

Subsector	$ Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	55	18	65	70	85	95	110	130	15
Software and Other Charges	45	22	55	70	85	105	135	165	25
Total	100	20	120	140	170	200	245	295	20

EXHIBIT C-82

Applications Software Products Market Forecast in Local Currency by Market Segment, 1990-1995 Rest of Europe

Subsector	$ Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	5	20	6	7	8	9	9	10	11
Minicomputer	20	20	24	28	32	37	43	50	16
Workstation and PC	25	20	30	40	50	65	85	105	28
Total	50	20	60	75	90	110	135	165	22

EXHIBIT C-83

Systems Software Market Forecast in Local Currency by Market Segment, 1990-1995 Rest of Europe

Subsector	$ Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	60	8	65	70	75	80	85	90	7
Minicomputer	30	17	35	40	50	60	70	85	19
Workstation and PC	5	100	10	15	20	30	40	50	38
Total	95	16	110	125	145	165	195	225	15

EXHIBIT C-84

Professional Service Market Forecast in Local Currency by Market Segment, 1990-1995 Rest of Europe

Subsector	$ Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	15	20	18	22	27	30	40	50	23
Education & Training	15	20	18	23	28	35	45	55	25
Software Development	95	25	119	145	175	215	265	305	21
Total	125	24	155	190	230	280	350	410	21

D

Forecast Database by Country ECUs, 1989-1990

EXHIBIT D-1

Software and Services Market Forecast in ECUs by Market Segment, 1990-1995 France

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	1,528	5	1,601	1,710	1,892	2,038	2,256	2,475	9
Turnkey Systems	1,194	17	1,397	1,645	1,943	2,293	2,707	3,202	18
Applications Software Products	1,339	25	1,674	2,060	2,547	3,166	3,945	5,044	25
Systems Software Products	1,769	16	2,060	2,336	2,664	3,042	3,493	4,003	14
Professional Services	4,336	20	5,204	6,242	7,504	9,017	10,830	13,013	20
Network Services	640	25	801	1,004	1,277	1,601	1,991	2,475	25
Systems Operations	226	18	266	317	377	449	534	640	19
Systems Integration	393	28	502	640	815	1,033	1,266	1,645	27
Total	11,425	18	13,505	15,955	19,019	22,640	27,023	32,496	19

EXHIBIT D-2

Processing Services Market Forecast in ECUs by Market Segment, 1990-1995 France

Subsector	ECU Millions 1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	1,406	4	1,467	1,560	1,726	1,852	2,048	2,245	9
Utility Processing	46	5	48	51	54	57	60	61	5
Other Processing:									
Disaster Recovery	26	31	34	44	55	68	84	102	24
All Others	50	4	52	55	58	61	64	67	5
Total	1,528	5	1,601	1,710	1,892	2,038	2,256	2,475	9

EXHIBIT D-3

Turnkey Systems Market Forecast in ECUs by Market Segment, 1990-1995 France

Subsector	ECU Millions 1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	655	13	742	852	968	1,106	1,259	1,441	14
Software and Other Charges	539	22	655	793	975	1,186	1,448	1,761	22
Total	1,194	17	1,397	1,645	1,943	2,293	2,707	3,202	18

EXHIBIT D-4

Applications Software Products Market Forecast in ECUs by Market Segment, 1990-1995 France

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	153	14	175	182	189	199	211	226	5
Minicomputer	531	21	640	771	932	1,118	1,346	1,587	20
Workstation and PC	655	31	859	1,106	1,426	1,849	2,387	3,231	30
Total	1,339	25	1,674	2,060	2,547	3,166	3,945	5,044	25

EXHIBIT D-5

Systems Software Market Forecast in ECUs by Market Segment, 1990-1995 France

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	939	11	1,041	1,121	1,194	1,281	1,368	1,456	7
Minicomputer	539	20	648	757	888	1,019	1,179	1,354	16
Workstation and PC	291	28	371	459	582	742	946	1,194	26
Total	1,769	16	2,060	2,336	2,664	3,042	3,493	4,003	14

EXHIBIT D-6

Professional Service Market Forecast in ECUs by Market Segment, 1990-1995 France

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	480	20	575	696	837	997	1,194	1,434	20
Education & Training	360	21	437	539	655	801	975	1,186	22
Software Development	3,496	20	4,192	5,007	6,012	7,220	8,661	10,393	20
Total	4,336	20	5,204	6,242	7,504	9,017	10,830	13,013	20

EXHIBIT D-7

Software and Services Market Forecast in ECUs by Market Segment, 1990-1995 Germany

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	1,317	6	1,395	1,502	1,634	1,780	1,905	2,034	8
Turnkey Systems	2,210	17	2,576	3,049	3,585	4,268	5,049	6,000	18
Applications Software Products	854	18	1,010	1,205	1,480	1,832	2,302	2,829	23
Systems Software Products	1,707	13	1,929	2,224	2,537	2,971	3,488	4,093	16
Professional Services	1,961	18	2,322	2,798	3,329	3,907	4,541	5,366	18
Network Services	415	28	532	688	902	1,190	1,537	1,951	30
Systems Operations	59	13	66	76	90	105	124	149	18
Systems Integration	429	25	537	683	861	1,083	1,366	1,705	26
Total	8,951	16	10,366	12,224	14,420	17,137	20,312	24,127	18

EXHIBIT D-8

Processing Services Market Forecast in ECUs by Market Segment, 1990-1995 Germany

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	1,176	6	1,244	1,327	1,439	1,566	1,668	1,780	7
Utility Processing	46	5	49	59	63	68	73	78	10
Other Processing:									
Disaster Recovery	29	25	37	44	54	63	76	88	19
All Others	66	0	66	73	78	83	88	88	6
Total	1,317	6	1,395	1,502	1,634	1,780	1,905	2,034	8

EXHIBIT D-9

Turnkey Systems Market Forecast in ECUs by Market Segment, 1990-1995 Germany

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	1,215	12	1,366	1,561	1,780	2,049	2,317	2,659	14
Software and Other Charges	995	22	1,210	1,488	1,805	2,220	2,732	3,341	23
Total	2,210	17	2,576	3,049	3,585	4,268	5,049	6,000	18

EXHIBIT D-10

Applications Software Products Market Forecast in ECUs by Market Segment, 1990-1995 Germany

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	171	6	180	195	212	232	254	278	9
Minicomputer	268	18	317	376	463	561	683	780	20
Workstation and PC	415	24	512	634	805	1,039	1,366	1,771	28
Total	854	18	1,010	1,205	1,480	1,832	2,302	2,829	23

EXHIBIT D-11

Systems Software Market Forecast in ECUs by Market Segment, 1990-1995 Germany

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	976	9	1,059	1,171	1,268	1,415	1,585	1,756	11
Minicomputer	488	16	566	668	780	937	1,122	1,341	19
Workstation and PC	244	2,550	305	385	488	620	780	995	27
Total	1,707	13	1,929	2,224	2,537	2,971	3,488	4,093	16

EXHIBIT D-12

Professional Service Market Forecast in ECUs by Market Segment, 1990-1995 Germany

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	241	19	288	349	417	493	576	683	19
Education & Training	344	19	410	498	595	702	820	976	19
Software Development	1,376	18	1,624	1,951	2,317	2,712	3,146	3,707	18
Total	1,961	18	2,322	2,798	3,329	3,907	4,541	5,366	18

EXHIBIT D-13

Software and Services Market Forecast in ECUs by Market Segment, 1990-1995 United Kingdom

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	716	6	757	851	953	1,081	1,182	1,297	11
Turnkey Systems	1,453	13	1,649	1,926	2,270	2,696	3,203	3,784	18
Applications Software Products	703	16	818	993	1,209	1,473	1,811	2,230	22
Systems Software Products	1,297	9	1,419	1,628	1,892	2,196	2,568	2,973	16
Professional Services	2,345	17	2,743	3,230	3,838	4,622	5,520	6,635	19
Network Services	757	21	919	1,108	1,345	1,608	1,953	2,392	21
Systems Operations	203	27	257	318	392	480	588	709	23
Systems Integration	432	23	534	655	804	1,000	1,236	1,507	23
Total	7,905	15	9,095	10,709	12,703	15,155	18,061	21,527	19

EXHIBIT D-14

Processing Services Market Forecast in ECUs by Market Segment, 1990-1995 United Kingdom

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	608	4	635	703	770	872	939	1,007	10
Utility Processing	20	7	22	23	24	26	27	30	7
Other Processing:									
Disaster Recovery	34	40	47	68	88	108	135	169	29
All Others	54	0	54	61	68	74	81	88	10
Total	716	6	757	851	953	1,081	1,182	1,297	11

EXHIBIT D-15

Turnkey Systems Market Forecast in ECUs by Market Segment, 1990-1995 United Kingdom

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	797	10	878	993	1,128	1,304	1,486	1,689	14
Software and Other Charges	655	18	770	932	1,142	1,392	1,716	2,095	22
Total	1,453	13	1,649	1,926	2,270	2,696	3,203	3,784	18

EXHIBIT D-16

Applications Software Products Market Forecast in ECUs by Market Segment, 1990-1995 United Kingdom

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	101	7	108	115	122	128	142	155	8
Minicomputer	230	12	257	304	365	439	527	628	20
Workstation and PC	372	22	453	574	723	905	1,142	1,446	26
Total	703	16	818	993	1,209	1,473	1,811	2,230	22

EXHIBIT D-17

Systems Software Market Forecast in ECUs by Market Segment, 1990-1995 United Kingdom

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	703	5	736	804	878	959	1,047	1,135	9
Minicomputer	378	13	426	500	588	696	824	973	18
Workstation and PC	216	2,550	257	324	426	541	696	865	27
Total	1,297	9	1,419	1,628	1,892	2,196	2,568	2,973	16

EXHIBIT D-18

Professional Service Market Forecast in ECUs by Market Segment, 1990-1995 United Kingdom

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	331	22	405	500	615	777	966	1,203	24
Education & Training	243	22	297	365	453	561	689	851	23
Software Development	1,770	15	2,041	2,365	2,770	3,284	3,865	4,581	18
Total	2,345	17	2,743	3,230	3,838	4,622	5,520	6,635	19

EXHIBIT D-19

Software and Services Market Forecast in ECUs by Market Segment, 1990-1995 Italy

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	666	8	719	806	899	992	1,099	1,205	11
Turnkey Systems	503	15	579	682	816	959	1,138	1,345	18
Applications Software Products	766	20	919	1,119	1,368	1,674	2,054	2,530	22
Systems Software Products	1,132	13	1,282	1,475	1,704	1,977	2,290	2,663	16
Professional Services	1,654	20	1,991	2,410	2,899	3,475	4,158	4,993	20
Network Services	240	32	316	409	523	626	749	885	23
Systems Operations	113	18	133	163	196	236	290	356	22
Systems Integration	160	29	206	266	340	433	546	679	27
Total	5,233	17	6,145	7,330	8,745	10,373	12,324	14,657	19

EXHIBIT D-20

Processing Services Market Forecast in ECUs by Market Segment, 1990-1995 Italy

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	603	8	652	732	812	892	979	1,065	10
Utility Processing	14	5	15	15	16	17	19	20	6
Other Processing:									
Disaster Recovery	10	33	13	18	23	30	40	50	30
All Other	40	0	40	42	47	53	60	70	12
Total	666	8	719	806	899	992	1,099	1,205	11

EXHIBIT D-21

Turnkey Systems Market Forecast in ECUs by Market Segment, 1990-1995 Italy

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	276	11	306	346	396	446	506	569	13
Software and Other Charges	226	21	273	336	419	513	632	776	23
Total	503	15	579	682	816	959	1,138	1,345	18

EXHIBIT D-22

Applications Software Products Market Forecast in ECUs by Market Segment, 1990-1995 Italy

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	107	6	113	120	130	140	146	160	7
Minicomputer	246	18	290	346	413	489	583	692	19
Workstation and PC	413	25	516	652	826	1,045	1,325	1,678	27
Total	766	20	919	1,119	1,368	1,674	2,054	2,530	22

EXHIBIT D-23

Systems Software Market Forecast in ECUs by Market Segment, 1990-1995 Italy

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	566	7	606	652	706	766	826	899	8
Minicomputer	353	16	409	486	576	679	799	932	18
Workstation and PC	213	25	266	336	423	533	666	832	26
Total	1,132	13	1,282	1,475	1,704	1,977	2,290	2,663	16

EXHIBIT D-24

Professional Service Market Forecast in ECUs by Market Segment, 1990-1995 Italy

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	230	25	286	356	446	559	692	872	25
Education & Training	123	24	153	193	240	300	373	466	25
Software Development	1,302	19	1,551	1,861	2,214	2,617	3,093	3,655	19
Total	1,654	20	1,991	2,410	2,899	3,475	4,158	4,993	20

EXHIBIT D-25

Software and Services Market Forecast in ECUs by Market Segment, 1990-1995 Sweden

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	324	6	344	370	387	439	476	513	8
Turnkey Systems	223	19	265	316	375	452	544	648	20
Applications Software Products	152	21	184	229	281	343	423	526	23
Systems Software Products	229	14	260	299	343	394	455	526	15
Professional Services	408	18	480	574	684	853	966	1,150	19
Network Services	59	33	79	101	127	157	200	254	26
Systems Operations	27	15	31	35	40	47	56	65	16
Systems Integration	30	27	38	48	60	77	97	122	26
Total	1,453	16	1,683	1,972	2,298	2,762	3,218	3,804	18

EXHIBIT D-26

Processing Services Market Forecast in ECUs by Market Segment, 1990-1995 Sweden

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	297	6	314	337	364	398	432	466	8
Utility Processing	7	4	7	7	8	8	9	9	5
Other Processing:									
Disaster Recovery	2	25	3	3	4	5	6	8	25
All Other	18	7	20	22	24	26	29	31	10
Total	324	6	344	370	387	439	476	513	8

EXHIBIT D-27

Turnkey Systems Market Forecast in ECUs by Market Segment, 1990-1995 Sweden

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	123	15	142	162	185	216	250	283	15
Software and Other Charges	101	23	123	154	190	236	294	364	24
Total	223	19	265	316	375	452	544	648	20

EXHIBIT D-28

Applications Software Products Market Forecast in ECUs by Market Segment, 1990-1995 Sweden

Subsector	ECU Millions 1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	22	6	24	25	27	28	30	33	7
Minicomputer	45	19	54	66	80	96	116	141	21
Workstation and PC	84	26	107	138	174	219	277	352	27
Total	152	21	184	229	281	343	423	526	23

EXHIBIT D-29

Systems Software Market Forecast in ECUs by Market Segment, 1990-1995 Sweden

Subsector	ECU Millions 1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	138	9	150	165	182	200	220	242	10
Minicomputer	57	16	67	79	92	107	125	146	17
Workstation and PC	34	27	44	55	69	87	110	139	26
Total	229	14	260	299	343	394	455	526	15

EXHIBIT D-30

Professional Service Market Forecast in ECUs by Market Segment, 1990-1995 Sweden

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	53	21	63	78	94	116	142	173	22
Education & Training	59	20	70	85	104	126	151	182	21
Software Development	297	17	347	412	486	611	673	795	18
Total	408	18	480	574	684	853	966	1,150	19

EXHIBIT D-31

Software and Services Market Forecast in ECUs by Market Segment, 1990-1995 Denmark

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	359	5	377	397	426	455	477	505	6
Turnkey Systems	182	19	217	258	300	354	421	500	18
Applications Software Products	117	21	141	169	204	238	285	385	22
Systems Software Products	180	14	206	235	269	309	355	410	15
Professional Services	292	19	347	410	485	571	676	800	18
Network Services	47	26	60	75	97	125	156	195	27
Systems Operations	10	20	12	13	15	18	21	24	16
Systems Integration	22	24	27	33	42	50	60	71	21
Total	1,208	15	1,386	1,590	1,838	2,120	2,450	2,890	16

EXHIBIT D-32

Processing Services Market Forecast in ECUs by Market Segment, 1990-1995 Denmark

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	329	5	346	365	391	417	436	462	6
Utility Processing	7	4	7	8	8	8	9	9	4
Other Processing:									
Disaster Recovery	2	27	2	3	4	5	6	8	26
All Other	20	3	21	22	23	25	26	27	6
Total	359	5	377	397	426	455	477	505	6

EXHIBIT D-33

Turnkey Systems Market Forecast in ECUs by Market Segment, 1990-1995 Denmark

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	100	15	115	135	150	171	196	224	14
Software and Other Charges	82	23	101	123	150	183	224	276	22
Total	182	19	217	258	300	354	421	500	18

EXHIBIT D-34

Applications Software Products Market Forecast in ECUs by Market Segment, 1990-1995 Denmark

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	12	5	13	13	14	15	15	55	34
Minicomputer	41	19	49	56	66	78	91	106	17
Workstation and PC	63	25	79	99	124	146	179	223	23
Total	117	21	141	169	204	238	285	385	22

EXHIBIT D-35

Systems Software Market Forecast in ECUs by Market Segment, 1990-1995 Denmark

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	83	8	90	96	103	110	118	127	7
Minicomputer	62	16	72	84	97	112	128	147	15
Workstation and PC	35	26	44	55	69	87	109	136	26
Total	180	14	206	235	269	309	355	410	15

EXHIBIT D-36

Professional Service Market Forecast in ECUs by Market Segment, 1990-1995 Denmark

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	42	25	52	63	78	96	118	146	23
Education & Training	12	21	15	18	22	26	32	38	21
Software Development	238	18	281	328	385	449	526	615	17
Total	292	19	347	410	485	571	676	800	18

EXHIBIT D-37

Software and Services Market Forecast in ECUs by Market Segment, 1990-1995 Norway

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	365	5	384	411	445	479	514	542	7
Turnkey Systems	127	19	152	183	218	261	314	378	20
Applications Software Products	92	21	111	137	166	204	247	302	22
Systems Software Products	139	13	157	179	207	239	273	315	15
Professional Services	219	16	254	299	351	413	484	568	17
Network Services	33	17	38	46	57	74	93	120	26
Systems Operations	9	21	11	13	15	17	20	22	16
Systems Integration	16	23	20	25	30	37	43	49	20
Total	1,001	13	1,127	1,292	1,489	1,722	1,988	2,295	15

EXHIBIT D-38

Processing Services Market Forecast in ECUs by Market Segment, 1990-1995 Norway

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	336	5	353	378	409	441	472	497	7
Utility Processing	7	3	8	8	8	8	9	9	3
Other Processing:									
Disaster Recovery	1	20	2	2	3	3	4	5	25
All Other	21	5	22	23	25	27	30	32	8
Total	365	5	384	411	445	479	514	542	7

EXHIBIT D-39

Turnkey Systems Market Forecast in ECUs by Market Segment, 1990-1995 Norway

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	70	15	81	94	107	122	139	159	15
Software and Other Charges	57	24	71	89	111	139	175	219	25
Total	127	19	152	183	218	261	314	378	20

EXHIBIT D-40

Applications Software Products Market Forecast in ECUs by Market Segment, 1990-1995 Norway

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	13	5	13	14	15	16	18	19	7
Minicomputer	30	19	35	43	53	65	77	92	21
Workstation and PC	50	25	62	79	98	123	152	191	25
Total	92	21	111	137	166	204	247	302	22

EXHIBIT D-41

Systems Software Market Forecast in ECUs by Market Segment, 1990-1995 Norway

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	75	7	80	87	94	103	110	118	8
Minicomputer	43	17	51	60	71	84	99	116	18
Workstation and PC	21	24	26	32	41	52	64	80	25
Total	139	13	157	179	207	239	273	315	15

EXHIBIT D-42

Professional Service Market Forecast in ECUs by Market Segment, 1990-1995 Norway

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	31	18	37	44	53	63	74	89	19
Education & Training	11	17	13	16	19	23	27	32	19
Software Development	176	16	204	239	280	327	383	447	17
Total	219	16	254	299	351	413	484	568	17

EXHIBIT D-43

Software and Services Market Forecast in ECUs by Market Segment, 1990-1995 Finland

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	186	7	198	211	229	246	262	279	7
Turnkey Systems	123	18	146	173	206	246	293	351	19
Applications Software Products	98	20	118	142	169	204	246	298	20
Systems Software Products	137	14	156	178	206	238	272	310	15
Professional Services	226	20	271	322	386	461	552	661	20
Network Services	33	19	39	46	57	70	86	103	21
Systems Operations	20	21	24	27	32	39	46	56	19
Systems Integration	10	20	12	17	21	25	31	39	26
Total	834	16	964	1,115	1,306	1,528	1,788	2,097	17

EXHIBIT D-44

Processing Services Market Forecast in ECUs by Market Segment, 1990-1995 Finland

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	167	6	178	190	205	219	233	248	7
Utility Processing	6	3	6	7	7	7	8	8	4
Other Processing:									
Disaster Recovery	0	50	1	1	2	3	4	5	5
All Other	12	7	13	13	14	15	17	18	7
Total	186	7	198	211	229	246	262	279	7

EXHIBIT D-45

Turnkey Systems Market Forecast in ECUs by Market Segment, 1990-1995 Finland

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	67	14	76	87	99	114	129	148	14
Software and Other Charges	56	24	69	86	106	132	164	204	24
Total	123	18	146	173	206	246	293	351	19

EXHIBIT D-46

Applications Software Products Market Forecast in ECUs by Market Segment, 1990-1995 Finland

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	13	8	14	15	15	17	18	19	5
Minicomputer	31	20	37	44	54	64	77	93	20
Workstation and PC	54	23	66	82	100	123	151	186	23
Total	98	20	118	142	169	204	246	298	20

EXHIBIT D-47

Systems Software Market Forecast in ECUs by Market Segment, 1990-1995 Finland

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	73	7	79	84	91	98	103	110	7
Minicomputer	40	18	48	55	65	77	90	103	17
Workstation and PC	24	26	30	39	50	62	79	97	27
Total	137	14	156	178	206	238	272	310	15

EXHIBIT D-48

Professional Service Market Forecast in ECUs by Market Segment, 1990-1995 Finland

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	33	25	41	50	60	72	89	110	22
Education & Training	12	17	14	17	21	25	31	37	21
Software Development	181	19	215	256	306	364	432	514	19
Total	226	20	271	322	386	461	552	661	20

EXHIBIT D-49

Software and Services Market Forecast in ECUs by Market Segment, 1990-1995 Netherlands

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	348	6	370	404	448	496	539	587	10
Turnkey Systems	304	18	359	430	513	615	733	870	19
Applications Software Products	317	20	380	465	567	698	852	1,043	22
Systems Software Products	435	13	489	559	641	730	839	957	14
Professional Services	939	17	1,100	1,300	1,543	1,843	2,196	2,600	19
Network Services	115	13	130	150	172	198	235	283	17
Systems Operations	41	21	50	59	70	83	100	122	19
Systems Integration	74	24	91	115	143	176	215	263	24
Total	2,574	15	2,970	3,483	4,098	4,839	5,709	6,724	18

EXHIBIT D-50

Processing Services Market Forecast in ECUs by Market Segment, 1990-1995 Netherlands

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	309	6	328	357	396	435	474	513	9
Utility Processing	11	4	11	12	13	13	14	15	6
Other Processing:									
Disaster Recovery	5	25	7	9	11	15	20	24	30
All Other	23	4	24	26	28	30	33	35	8
Total	348	6	370	404	448	496	539	587	10

EXHIBIT D-51

Turnkey Systems Market Forecast in ECUs by Market Segment, 1990-1995 Netherlands

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	167	13	189	217	248	285	324	363	14
Software and Other Charges	137	24	170	213	265	330	409	507	24
Total	304	18	359	430	513	615	733	870	19

EXHIBIT D-52

Applications Software Products Market Forecast in ECUs by Market Segment, 1990-1995 Netherlands

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	46	5	48	52	54	59	63	67	7
Minicomputer	100	17	117	141	170	202	237	280	19
Workstation and PC	172	25	215	272	343	437	552	696	26
Total	317	20	380	465	567	698	852	1,043	22

EXHIBIT D-53

Systems Software Market Forecast in ECUs by Market Segment, 1990-1995 Netherlands

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	239	7	257	276	300	324	350	374	8
Minicomputer	126	16	146	172	202	235	276	320	17
Workstation and PC	70	25	87	111	139	172	213	263	25
Total	435	13	489	559	641	730	839	957	14

EXHIBIT D-54

Professional Service Market Forecast in ECUs by Market Segment, 1990-1995 Netherlands

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	120	24	148	183	226	278	348	430	24
Education & Training	102	23	126	152	187	230	287	348	23
Software Development	717	15	826	965	1,130	1,335	1,561	1,822	17
Total	939	17	1,100	1,300	1,543	1,843	2,196	2,600	19

EXHIBIT D-55

Software and Services Market Forecast in ECUs by Market Segment, 1990-1995 Belgium

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	170	4	177	186	199	212	225	238	6
Turnkey Systems	153	18	181	215	256	304	363	433	19
Applications Software Products	187	20	225	270	324	393	475	577	21
Systems Software Products	251	12	281	317	359	411	468	537	14
Professional Services	461	19	550	661	795	951	1,121	1,329	19
Network Services	66	21	79	97	118	144	175	212	22
Systems Operations	24	16	28	33	39	46	55	66	18
Systems Integration	60	24	75	94	116	142	173	208	23
Total	1,349	18	1,596	1,873	2,207	2,604	3,055	3,598	18

EXHIBIT D-56

Processing Services Market Forecast in ECUs by Market Segment, 1990-1995 Belgium

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	151	4	157	166	176	188	199	209	6
Utility Processing	5	5	5	6	6	6	6	6	3
Other Processing:									
Disaster Recovery	3	22	3	4	5	6	8	9	23
All Other	11	0	11	11	12	12	12	12	2
Total	170	4	177	186	199	212	225	238	6

EXHIBIT D-57

Turnkey Systems Market Forecast in ECUs by Market Segment, 1990-1995 Belgium

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	84	14	96	110	127	144	166	189	14
Software and Other Charges	69	23	85	105	130	160	197	244	23
Total	153	18	181	215	256	304	363	433	19

EXHIBIT D-58

Applications Software Products Market Forecast in ECUs by Market Segment, 1990-1995 Belgium

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	26	5	27	30	31	33	35	38	7
Minicomputer	60	18	71	84	99	118	140	166	19
Workstation and PC	101	25	127	156	194	242	300	374	24
Total	187	20	225	270	324	393	475	577	21

EXHIBIT D-59

Systems Software Market Forecast in ECUs by Market Segment, 1990-1995 Belgium

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	140	7	149	160	171	186	199	214	7
Minicomputer	73	16	85	99	116	135	157	182	16
Workstation and PC	38	24	47	58	72	91	113	141	24
Total	251	12	281	317	359	411	468	537	14

EXHIBIT D-60

Professional Service Market Forecast in ECUs by Market Segment, 1990-1995 Belgium

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	64	24	79	98	123	153	189	236	25
Education & Training	36	23	45	54	67	82	99	123	22
Software Development	361	18	426	508	605	716	832	969	18
Total	461	19	550	661	795	951	1,121	1,329	19

EXHIBIT D-61

Software and Services Market Forecast in ECUs by Market Segment, 1990-1995 Switzerland

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	189	6	200	222	244	267	289	317	10
Turnkey Systems	325	21	392	475	572	689	828	1,000	21
Applications Software Products	147	21	178	211	256	311	381	467	21
Systems Software Products	300	13	339	389	433	497	572	661	14
Professional Services	356	16	414	506	600	717	861	1,033	20
Network Services	78	18	92	114	142	181	225	283	25
Systems Operations	11	25	14	19	22	25	31	36	21
Systems Integration	36	23	44	56	69	89	114	144	27
Total	1,442	16	1,672	1,992	2,339	2,775	3,300	3,942	19

EXHIBIT D-62

Processing Services Market Forecast in ECUs by Market Segment, 1990-1995 Switzerland

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	167	5	175	192	211	231	250	272	9
Utility Processing	8	0	8	9	9	10	11	11	6
Other Processing:									
Disaster Recovery	2	67	3	4	6	8	12	15	40
All Other	15	0	15	16	16	17	18	18	4
Total	189	6	200	222	244	267	289	317	10

EXHIBIT D-63

Turnkey Systems Market Forecast in ECUs by Market Segment, 1990-1995 Switzerland

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	181	17	211	247	286	331	383	444	16
Software and Other Charges	144	25	181	228	286	358	444	556	25
Total	325	21	392	475	572	689	828	1,000	21

EXHIBIT D-64

Applications Software Products Market Forecast in ECUs by Market Segment, 1990-1995 Switzerland

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	31	9	33	33	36	39	44	47	7
Minicomputer	44	19	53	64	75	89	106	128	19
Workstation and PC	72	27	92	114	144	183	231	292	26
Total	147	21	178	211	256	311	381	467	21

EXHIBIT D-65

Systems Software Market Forecast in ECUs by Market Segment, 1990-1995 Switzerland

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	175	8	189	206	219	239	261	283	8
Minicomputer	83	17	97	114	133	156	183	217	17
Workstation and PC	42	27	53	69	81	103	128	161	25
Total	300	13	339	389	433	497	572	661	14

EXHIBIT D-66

Professional Service Market Forecast in ECUs by Market Segment, 1990-1995 Switzerland

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	44	19	53	67	78	94	117	144	22
Education & Training	67	17	78	100	122	150	183	222	23
Software Development	244	16	283	339	400	472	561	667	19
Total	356	16	414	506	600	717	861	1,033	20

EXHIBIT D-67

Software and Services Market Forecast in ECUs by Market Segment, 1990-1995 Austria

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	118	6	125	134	144	154	164	174	7
Turnkey Systems	158	18	188	224	267	318	382	459	20
Applications Software Products	77	21	93	114	139	168	204	250	22
Systems Software Products	157	12	176	199	226	256	291	334	14
Professional Services	172	18	202	239	284	335	400	475	19
Network Services	35	11	39	44	51	59	69	81	16
Systems Operations	6	17	7	8	9	11	13	15	15
Systems Integration	18	25	22	28	35	44	54	67	25
Total	741	15	853	990	1,155	1,345	1,577	1,854	17

EXHIBIT D-68

Processing Services Market Forecast in ECUs by Market Segment, 1990-1995 Austria

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	104	6	110	118	126	136	144	153	7
Utility Processing	5	3	5	5	5	5	6	6	3
Other Processing:									
Disaster Recovery	1	50	1	2	2	3	3	5	34
All Other	8	4	9	9	10	10	11	11	5
Total	118	6	125	134	144	154	164	174	7

EXHIBIT D-69

Turnkey Systems Market Forecast in ECUs by Market Segment, 1990-1995 Austria

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	87	16	101	115	131	151	174	202	15
Software and Other Charges	71	22	87	109	136	167	208	257	24
Total	158	18	188	224	267	318	382	459	20

EXHIBIT D-70

Applications Software Products Market Forecast in ECUs by Market Segment, 1990-1995 Austria

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	11	6	11	13	14	15	15	16	7
Minicomputer	25	20	30	35	42	49	58	69	19
Workstation and PC	41	26	52	66	83	104	131	165	26
Total	77	21	93	114	139	168	204	250	22

EXHIBIT D-71

Systems Software Market Forecast in ECUs by Market Segment, 1990-1995 Austria

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	85	7	90	97	104	110	117	125	7
Minicomputer	47	15	54	63	73	85	99	115	16
Workstation and PC	25	26	32	40	49	61	75	94	24
Total	157	12	176	199	226	256	291	334	14

EXHIBIT D-72

Professional Service Market Forecast in ECUs by Market Segment, 1990-1995 Austria

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	22	22	27	33	40	49	60	73	22
Education & Training	24	23	30	37	45	54	68	83	23
Software Development	125	16	145	170	199	232	272	318	17
Total	172	18	202	239	284	335	400	475	19

EXHIBIT D-73

Software and Services Market Forecast in ECUs by Market Segment, 1990-1995 Spain

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	193	10	212	236	262	289	317	347	10
Turnkey Systems	261	19	311	372	445	534	643	775	20
Applications Software Products	153	23	188	233	289	361	450	564	25
Systems Software Products	262	14	300	349	408	477	561	662	17
Professional Services	398	23	489	605	749	927	1,144	1,419	24
Network Services	75	28	96	126	169	226	305	416	34
Systems Operations	22	17	26	31	36	42	48	56	16
Systems Integration	50	26	63	80	102	130	163	200	26
Total	1,415	19	1,684	2,031	2,459	2,985	3,632	4,438	21

EXHIBIT D-74

Processing Services Market Forecast in ECUs by Market Segment, 1990-1995 Spain

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	164	10	180	200	222	245	268	293	10
Utility Processing	13	6	14	15	16	17	18	19	6
Other Processing:									
Disaster Recovery	1	67	2	3	4	6	8	11	48
All Other	14	9	16	17	19	21	22	24	9
Total	193	10	212	236	262	289	317	347	10

EXHIBIT D-75

Turnkey Systems Market Forecast in ECUs by Market Segment, 1990-1995 Spain

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	144	14	164	189	217	249	287	330	15
Software and Other Charges	118	25	146	183	228	285	356	445	25
Total	261	19	311	372	445	534	643	775	20

EXHIBIT D-76

Applications Software Products Market Forecast in ECUs by Market Segment, 1990-1995 Spain

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	22	7	23	25	27	29	31	34	8
Minicomputer	49	20	59	72	87	105	127	153	21
Workstation and PC	82	28	106	136	175	227	292	377	29
Total	153	23	188	233	289	361	450	564	25

EXHIBIT D-77

Systems Software Market Forecast in ECUs by Market Segment, 1990-1995 Spain

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	143	8	154	170	188	207	227	251	10
Minicomputer	79	19	94	113	135	162	194	233	20
Workstation and PC	41	27	52	66	85	109	140	178	28
Total	262	14	300	349	408	477	561	662	17

EXHIBIT D-78

Professional Service Market Forecast in ECUs by Market Segment, 1990-1995 Spain

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	56	25	70	88	111	140	176	222	26
Education & Training	43	25	54	68	86	108	136	171	26
Software Development	299	22	365	449	552	679	833	1,025	23
Total	398	23	489	605	749	927	1,144	1,419	24

EXHIBIT D-79

Software and Services Market Forecast in ECUs by Market Segment, 1990-1995 Rest of Europe

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Processing Services	84	14	96	108	127	145	163	181	13
Turnkey Systems	120	20	145	169	205	241	295	355	20
Applications Software Products	60	20	72	90	108	133	163	199	22
Systems Software Products	114	16	133	151	175	199	235	271	15
Professional Services	151	24	187	229	277	337	422	494	21
Network Services	24	30	31	40	51	65	86	108	28
Systems Operations	6	40	8	12	12	18	18	24	23
Systems Integration	12	50	18	24	30	36	48	60	27
Total	572	21	690	823	984	1,173	1,429	1,693	20

EXHIBIT D-80

Processing Services Market Forecast in ECUs by Market Segment, 1990-1995 Rest of Europe

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Transaction Processing	67	14	77	88	101	114	129	145	13
Utility Processing	10	13	11	12	14	16	17	18	11
Other Processing:									
Disaster Recovery	1	60	1	1	3	4	5	6	44
All Other	7	13	7	8	9	10	11	12	10
Total	84	14	96	108	127	145	163	181	13

EXHIBIT D-81

Turnkey Systems Market Forecast in ECUs by Market Segment, 1990-1995 Rest of Europe

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Equipment	66	18	78	84	102	114	133	157	15
Software and Other Charges	54	22	66	84	102	127	163	199	25
Total	120	20	145	169	205	241	295	355	20

EXHIBIT D-82

Applications Software Products Market Forecast in ECUs by Market Segment, 1990-1995 Rest of Europe

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	6	20	7	8	10	11	11	12	11
Minicomputer	24	20	29	34	39	45	52	60	16
Workstation and PC	30	20	36	48	60	78	102	127	28
Total	60	20	72	90	108	133	163	199	22

EXHIBIT D-83

Systems Software Market Forecast in ECUs by Market Segment, 1990-1995 Rest of Europe

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Mainframe	72	8	78	84	90	96	102	108	7
Minicomputer	36	17	42	48	60	72	84	102	19
Workstation and PC	6	100	12	18	24	36	48	60	38
Total	114	16	133	151	175	199	235	271	15

EXHIBIT D-84

Professional Service Market Forecast in ECUs by Market Segment, 1990-1995 Rest of Europe

Subsector	ECU Millions								
	1989	1989-1990 Growth (Percent)	1990	1991	1992	1993	1994	1995	1990-1995 CAGR (Percent)
Consulting	18	20	22	27	33	36	48	60	23
Education & Training	18	20	22	28	34	42	54	66	25
Software Development	114	25	143	175	211	259	319	367	21
Total	151	24	187	229	277	337	422	494	21

E

Inflation and Exchange Rate Assumptions

EXHIBIT E-1

U.S. Dollar and ECU Exchange Rates, 1990

Country	Currency	U.S. Dollar Exchange Rate	ECU Exchange Rate
France	FF	6.17	6.87
Germany	DM	1.81	2.05
United Kingdom	£	0.631	0.74
Italy	Lira	1,336	1,502
Sweden	Sek	6.39	7.41
Denmark	DK	7.05	7.8
Norway	NK	6.85	7.94
Finland	FM	4.21	4.84
Netherlands	Dfl	2.05	2.3
Belgium	BF	38.06	42.29
Switzerland	SF	1.61	1.8
Austria	Sch	12.77	14.39
Spain	Ptas	115.8	129.7
Rest of Europe	$	1	1.20

EXHIBIT E-2

Inflation Assumptions

Country	Assumption 1989-1994	Assumption 1990-1995	Change
France	4	4.5	+0.5
Germany	2.5	4	+1.5
United Kingdom	5.5	7	+1.5
Italy	6	7	+1.0
Sweden	6	7	+1.0
Denmark	6	5	-1.0
Norway	4	5	+1.0
Finland	6	6	0.0
Netherlands	2	3	+1.0
Belgium	3.5	4	+0.5
Switzerland	2.5	5	+2.5
Austria	3	4	+1.0
Spain	5.5	6.5	+1.0
Rest of Europe	8	10	+2.0
European Average	4.5	5.5	+1.0

F

Forecast Reconciliation, 1989-1990

EXHIBIT F-1

Software and Services Reconciliation of Market Forecast Western Europe

Subsector	1989 Market			1994 Market			1989-1994 CAGR Forecast in 1989 (Percent)	1990-1995 CAGR Forecast in 1990 (Percent)
	1989 Report ($ Millions)	1990 Report ($ Millions)	Variance (Percent)	1989 Report ($ Millions)	1990 Report ($ Millions)	Variance (Percent)		
Processing Services	7,050	7,400	+5.0	8,820	11,120	+26.1	6	9
Turnkey Systems	8,030	8,300	+3.4	19,500	19,110	-2.0	19	19
Applications Software Products	5,380	5,700	+5.9	15,120	15,590	+3.1	23	23
Systems Software Products	8,880	9,140	+2.9	19,680	18,230	-7.4	17	16
Professional Services	15,085	15,690	+4.0	37,8200	38,170	+0.9	20	20
Network Services	2,960	2,970	+0.3	8,720	8,900	+2.1	24	25
*Systems Operations	785	880	+12.1	2,000	2,205	+10.3	20	20
Systems Integration	1,920	1,975	+2.9	6,110	6,120	+0.2	26	25
Total	50,090	52,050	+3.9	117,770	119,445	1.4	19	19

* Note that Systems Operations was reported within Processing and Professional Services in 1989.

Report Quality Evaluation

To our clients:
To ensure that the highest standards of report quality are maintained, INPUT would appreciate your assessment of this report. Please take a moment to provide your evaluation of the usefulness and quality of this study. When complete, simply fold, staple, and drop in the post.

Thank You.

1. Report title: ***The Western European Market Forecast for Software and Services, 1990-1995*** (MEFOE)

2. Please indicate your reason for reading this report:
   - ☐ Required reading
   - ☐ Area of high interest
   - ☐ Area of general interest
   - ☐ New product development
   - ☐ Business/market planning
   - ☐ Product planning
   - ☐ Future purchase decision
   - ☐ Systems planning
   - ☐ Other ______________

3. Please indicate extent report used and overall usefulness:

	Extent		Usefulness (1=Low, 5=High)				
	Read	Skimmed	1	2	3	4	5
Executive Overview	☐	☐	☐	☐	☐	☐	☐
Complete Report	☐	☐	☐	☐	☐	☐	☐
Part of Report (_____ %)	☐	☐	☐	☐	☐	☐	☐

4. How Useful was:

	1	2	3	4	5
Data presented	☐	☐	☐	☐	☐
Analyses	☐	☐	☐	☐	☐
Recommendations	☐	☐	☐	☐	☐

5. How useful was the report in these areas:

	1	2	3	4	5
Alert you to new opportunities or approaches	☐	☐	☐	☐	☐
Cover new areas not covered elsewhere	☐	☐	☐	☐	☐
Confirm existing ideas	☐	☐	☐	☐	☐
Meet Expectations	☐	☐	☐	☐	☐
Other ______________	☐	☐	☐	☐	☐

6. Which topics in the report were the most useful? Why? ______________

7. In what ways could the report have been improved? ______________

8. Other comments or suggestions: ______________

Name ______________ Title ______________

Department ______________

Company ______________

Address ______________

Country ______________

Telephone ______________ Date Completed ______________

Thank you for your time and cooperation.

UK/M&S 633/01 12/89

INPUT

FOLD HERE

Please Post to:

Attention: Marketing Department

INPUT

Piccadilly House

33/37 Regent Street

London SW1Y 4NF

FOLD HERE