

INPUT

MARKET FORECAST

German Market for Software
and Services

1994-1999

Market Analysis Programme - Europe

D E C E M B E R 1 9 9 4

German Market for Software and Services 1994-1999

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Abstract

This report provides a detailed analysis of the Computer Software and Services market in Germany.

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

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

The report provides analyses and forecasts of the German market by vertical industry and cross-industry sectors.

The vertical industry sectors identified comprise, discrete manufacturing, process manufacturing, transportation, utilities, telecommunications, retail distribution, wholesale distribution, banking and finance, insurance, healthcare, education, local government, central government, and business services.

The cross-industry sectors identified comprise, accounting, education and training, engineering and scientific, human resources, office systems and planning & analysis.

Estimates of sector market growth are given for the years 1993 and 1994 together with annual size estimates for each year up to 1999.

Companion reports provide an identical analysis for France, the United Kingdom and Italy. Additionally a complete analysis of the European market by individual country market is also available.

INPUT also publishes detailed reports on the US market for information services and a complete review of the world-wide market.

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**Market Analysis Programme –
Europe**

***German Market for Software and
Services, 1994-1999***

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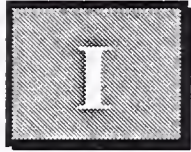
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Introduction

This report is produced as part of INPUT's European *IT Intelligence Service* for the computer software and services industry.

Software and services markets continue to attract widespread attention. This report is designed to assist in achieving a consolidated view of the German market.

This report can be read in conjunction with other INPUT reports in order to identify key market and product trends, vendor strategies and opportunities.

The report provides market sizes for 1993 and 1994 with forecasts for each year through 1999.

A

Scope of the Report

This forecast represents an on-going analysis of the software and services market in Germany.

The report contains an analysis and forecast of the total IT budget, including both internal and external IT-related spending. This is split into:

- Equipment sales — expenditure on hardware products
- Equipment services — expenditure on equipment maintenance and environmental services
- Software products — all expenditure on systems software products and applications software product licences
- Other information services — all expenditure on other services such as professional services, systems integration, systems operations, processing services, network services, turnkey systems, and systems software products and applications software product support services

- Communications — all expenditure on IT-related telecommunications equipment or services
- Facilities — IT budget expenditure on overheads such as space, heating, lighting, furniture, vehicles, etc.
- Staff — direct in-house staff costs including any temporary contract labour.

1. Information Services Delivery Modes

INPUT defines eight delivery modes that are referred to in this report as the *software and services market* and an additional delivery mode, *equipment services* which when included with the other eight, are collectively referred to as the *information services market*. The complete list is as follows:

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

Spending on software and services is assessed and forecasted in relation to anticipated changes in the level of overall IT budgets.

The market is additionally analysed by industry sectors, cross-industry sectors and by generic product sectors. Exhibit I-1 indicates the relationship between the delivery mode forecasts and the market sector forecasts.

Exhibit I-1

Delivery Mode versus Market Sector Forecast Content

Delivery Mode	Submode	Market Sectors		
		Industry Sectors	Cross-Industry Sectors	General
Processing Services	Transaction Utility Other	X	X	X X
Turnkey Systems		X	X	
Applications Software Products		X	X	
Systems Operations	Platform Applications	X X		
Systems Integration		X		
Professional Services		X		
Network Services	Network Applications Electronic Information Services	X X		X
Systems Software Products				X
Equipment Services				X

Source: INPUT

2. Industry sectors

The industry sectors:

- Discrete Manufacturing
- Process Manufacturing
- Transportation
- Utilities
- Telecommunications
- Retail Distribution
- Wholesale Distribution
- Banking and Finance

- Insurance
- Healthcare
- Education
- Local Government
- National Government
- Business Services
- Other Industries.

3. Cross-Industry Sectors

INPUT has identified seven cross-industry market sectors. These sectors or markets involve multi-industry applications:

- Accounting
- Education & Training
- Engineering & Scientific
- Human Resources
- Office Systems
- Planning & Analysis
- Other Cross-Industry.

4. Generic Sectors

Certain sectors or sub-sectors are considered independent of any industry or cross-industry influence. These are:

- Equipment services
- System software products
- General utility processing services
- General electronic information services.

The full definition of each sector is given in INPUT's Definition of Terms which is included as Appendix C of this report.

B

Methodology

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

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

1. Sources

This report is based principally on research activities conducted by INPUT during 1994:

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

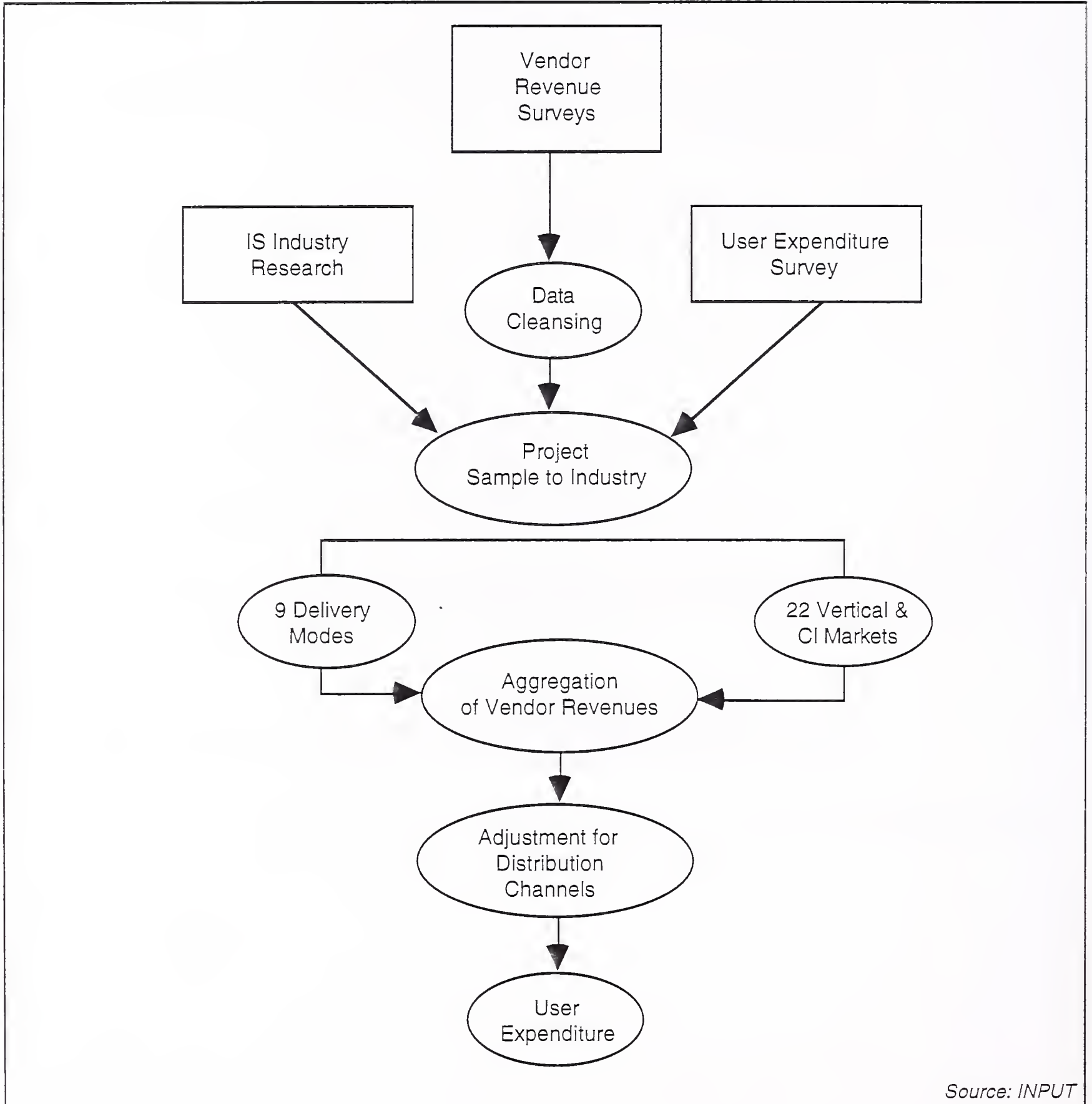
Additionally INPUT's extensive library and data-base of information relating to the software and services industry was used.

2. Market Sizing

The process used to establish the base year market size (total user spending within that year) is shown in Exhibit I-2.

Exhibit I-2

Base Year Market Sizing



INPUT determines 'previous-year' software and services revenues for 9 delivery modes and 22 vertical and cross-industry sectors for over a hundred vendors operating in Germany.

This research process is accomplished through interviews, use of public data such as press articles and annual company reports, and estimates by INPUT consultants.

The industry sector, delivery mode and sub-sector revenues of each vendor are recombined to ensure that there is no double counting or overlap. Only revenues derived from within Germany are included.

Many vendors publish accounts which do not coincide with the end of the calendar-year. INPUT adjusts business generated by these firms to the calendar year for consistency.

The initial local currency data from the vendors analysed is projected to represent the revenues of the entire country market based on INPUT's view of the contribution to be expected from the remaining minor vendors.

Adjustments are made to eliminate errors due to distribution channel overlap or mark-up and to ensure that captive market information is excluded. Captive markets are those revenues which a vendor receives from within the vendor's parent group of companies.

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

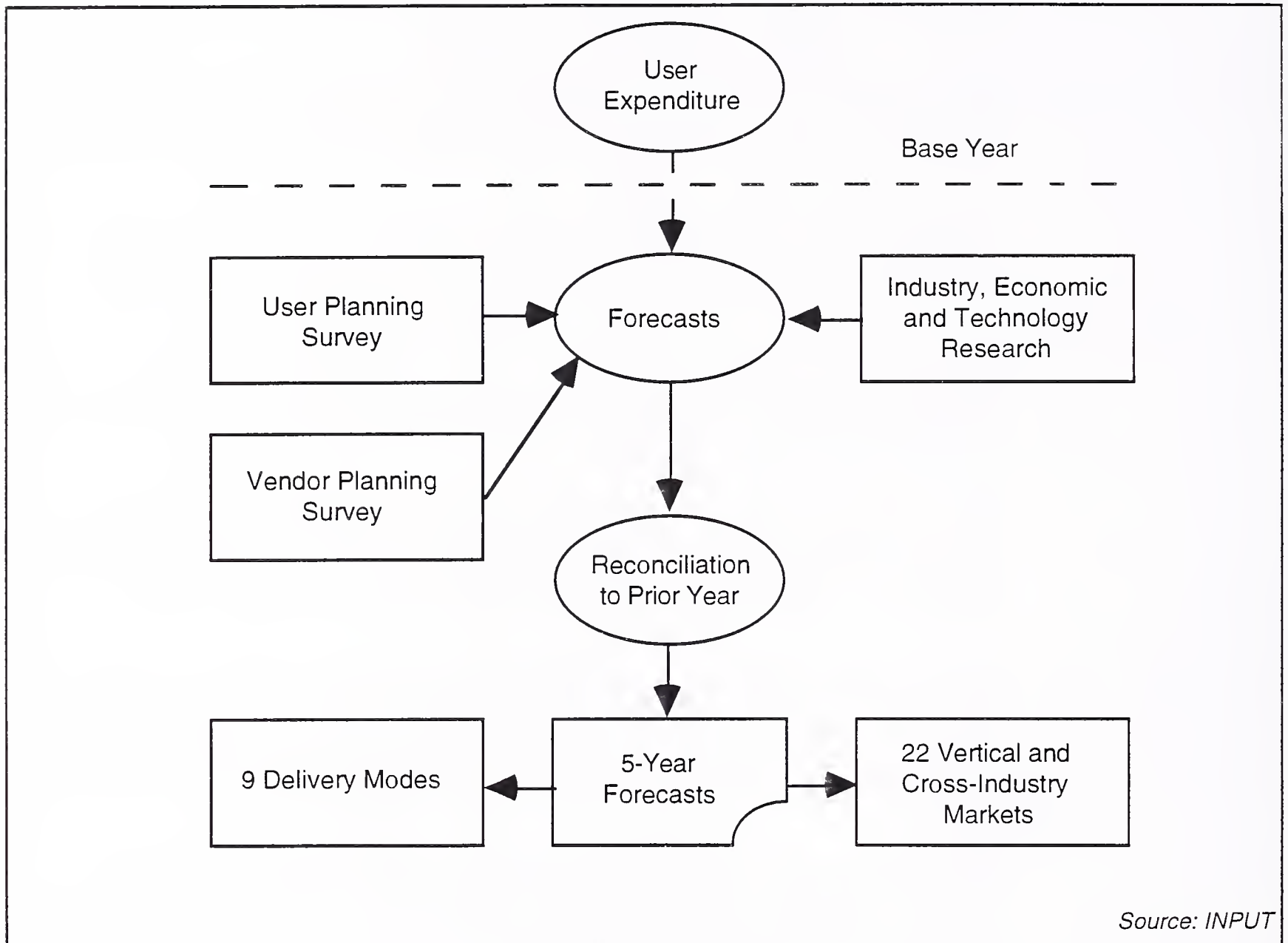
The end result is a base year (in this case 1993) software and services market figure representing user expenditure for each of the market sectors or delivery modes analysed.

3. Market Forecasts

In the forecasting step, shown in Exhibit I-3, INPUT surveys IS (Information Systems) executives and finance directors to determine their projected expenditure levels on IT in general and software and services in particular.

Exhibit I-3

German Market Forecasts



The market model which forms the basis for the forecasts includes a GDP deflator (adjustment for predicted inflation) for Germany.

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

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

INPUT consultants add their judgement to the resulting projections, testing the results to ensure they are reasonable.

In particular this phase produces consolidated forecasts for the whole of Germany by consolidating industry forecasts.

C

Report Structure

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

Chapter II is an executive perspective offering a summary of key statistics from the report.

Appendix A contains detailed tables of market data and forecasts for Germany provided in DM, US dollars and ECUs.

Appendix B lists the economic assumptions used in the compilation of this analysis and forecast including data used by INPUT in consolidating its total European market report.

Appendix C contains INPUT's definition of terms.

D

Related INPUT Research Programmes and Reports

The following reports contain detailed analysis of each market sector, offering commentary and recommendations for vendors. Further commentary and analysis of market sectors identified in this report may be found in the reports listed below:

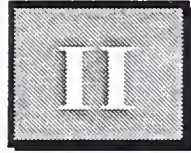
1. European Market Sector Reports

- European Market for Software and Services 1994-1999.
- French Market for Software and Services 1994-1999.
- UK Market for Software and Services 1994-1999.
- Italian Market for Software and Services 1994-1999.
- Systems Integration Market Analysis and Forecast, 1994-1999
- Outsourcing Market Analysis and Forecasts 1994-1999
- Software Product Support — European Market Futures, 1994-1999
- Customer Services Market Analysis and Forecasts, 1994-1999
- Industry Sector Forecast Database, 1994-1999

2. US Reports

- US Information Services Annual Report
- Forecast Compendium

- US Professional Services Market
 - US Systems Software Product Market
 - US Processing Services Market
 - US Information Systems Outsourcing Market
 - US Applications Solutions Market
 - US Network Services Market
 - US Equipment Services Market
 - US Industry Market Reports
 - US Cross Industry Market Reports
- 3. World-wide Report**
- World-wide Market Forecast, 1993-1998



Executive Overview

A

German Market Overview

Germany, substantially the largest individual country economy, has the second largest software and services market in Europe. However, the German market is forecast to grow at a faster rate overall than that of France and is therefore expected to become the largest single country market in Europe by the end of the century.

The software and services industry experienced high growth (20% plus per annum) almost from its inception in the early 1970s right through to the end of the 1980s. Subsequently growth has slowed as a result of general economic recession but more especially through strong deflationary forces in IT markets.

Consequently, although the German economy has recovered from its recent recessionary phase more quickly than most economists had forecasted, slower growth during the remaining part of the 1990s has now become a continuing feature for software and services markets.

The German software and services market is forecast to grow overall at about 8% during the remaining half of the decade, as is shown in Exhibit II-1.

Exhibit II-1

German Software and Services 1993-1999

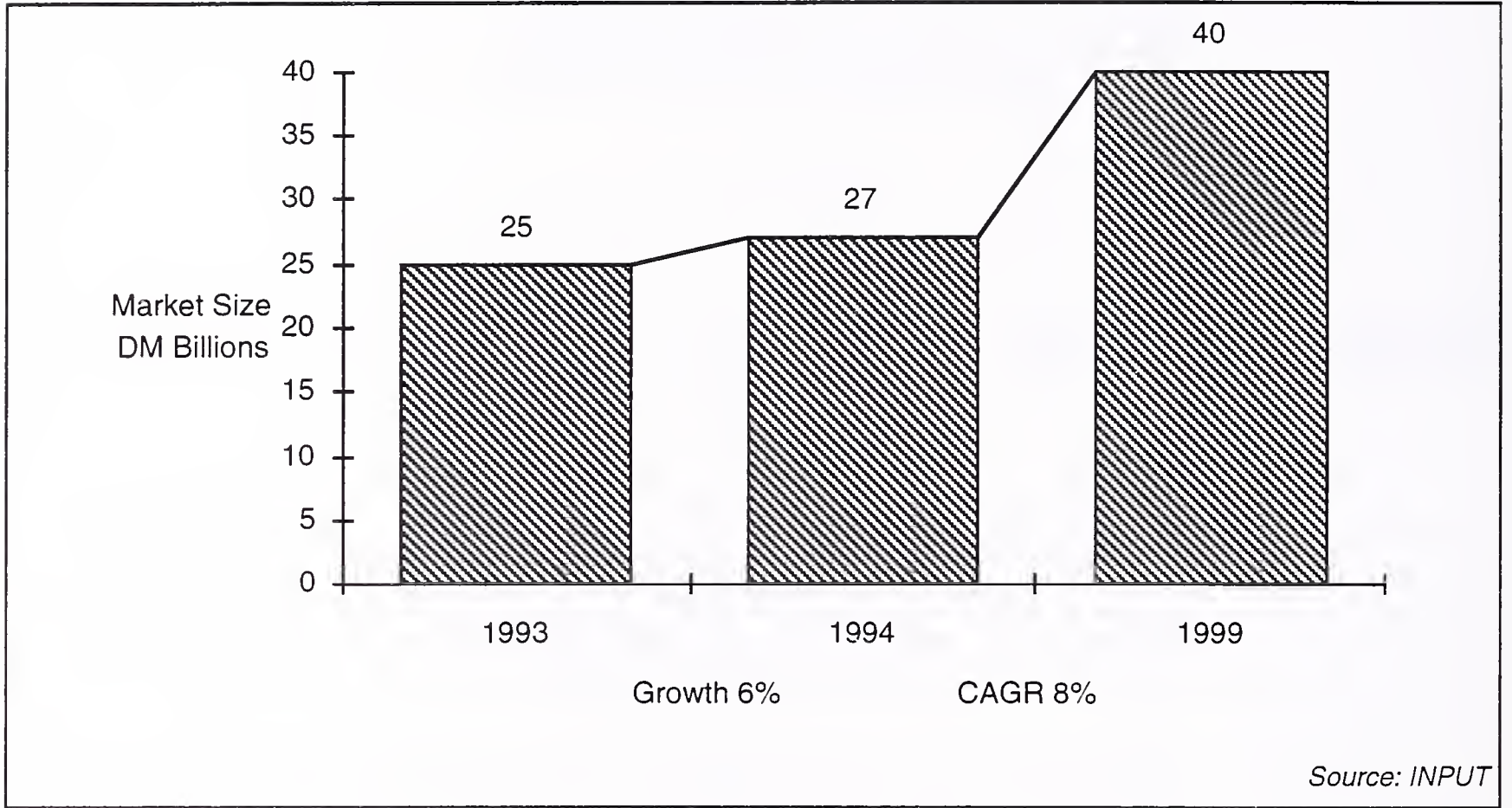
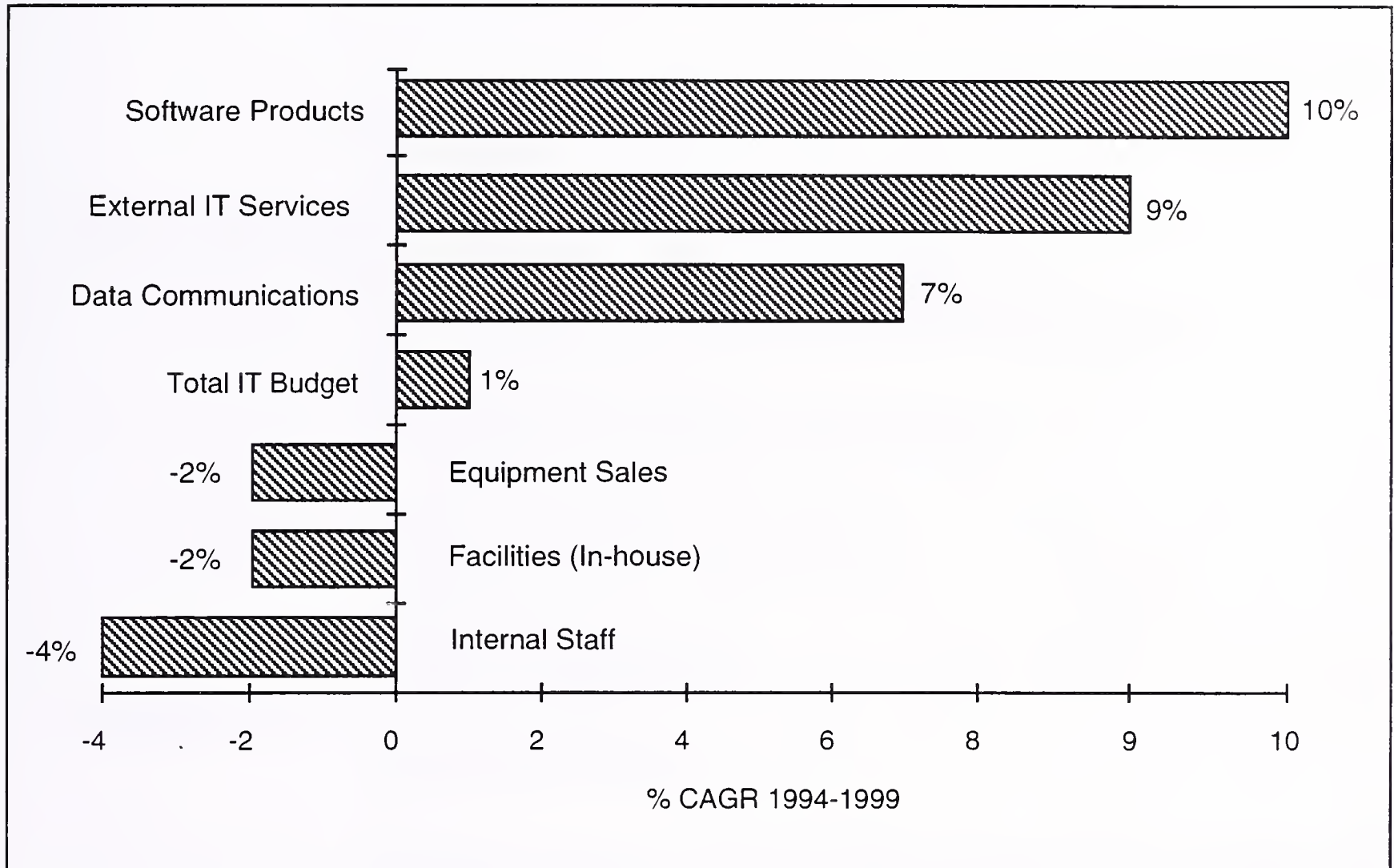


Exhibit II-2 shows a comparison of the expected growth rates of the major elements of estimated total IT budgets in Germany.

Exhibit II-2

**Total IT Spending — Germany 1994-1999
Forecast Growth Rates by Budget Category**



The general trend to outsource information systems functions remains of increasing importance as the main driver for software and services markets.

It implies that the market opportunity for information services vendors broadens to the entire information systems budget. This includes budgets directly controlled by the internal information systems function as well as budgets under the control of operational departments or business units.

Despite the challenging competitive IT market conditions prevailing in the 1990s, software and services markets still represent significant commercial growth opportunities, particularly when viewed within the context of the lower overall growth expectations for user's total IT expenditure (estimated at 1% per annum through to 1999).

A comparison of the leading individual country markets in the world is shown in Exhibit II-3. This exhibit demonstrates the sheer size of the United States software and services market in comparison to the German and other individual country markets.

Exhibit II-3

Largest Software and Services Country Markets

Country	1994 Market Size (\$B)	1994-1999 CAGR (%)
United States	150	12
Japan	39	9
France	19	6
Germany	16	8
UK	13	9
Italy	7	7

Source: INPUT

B

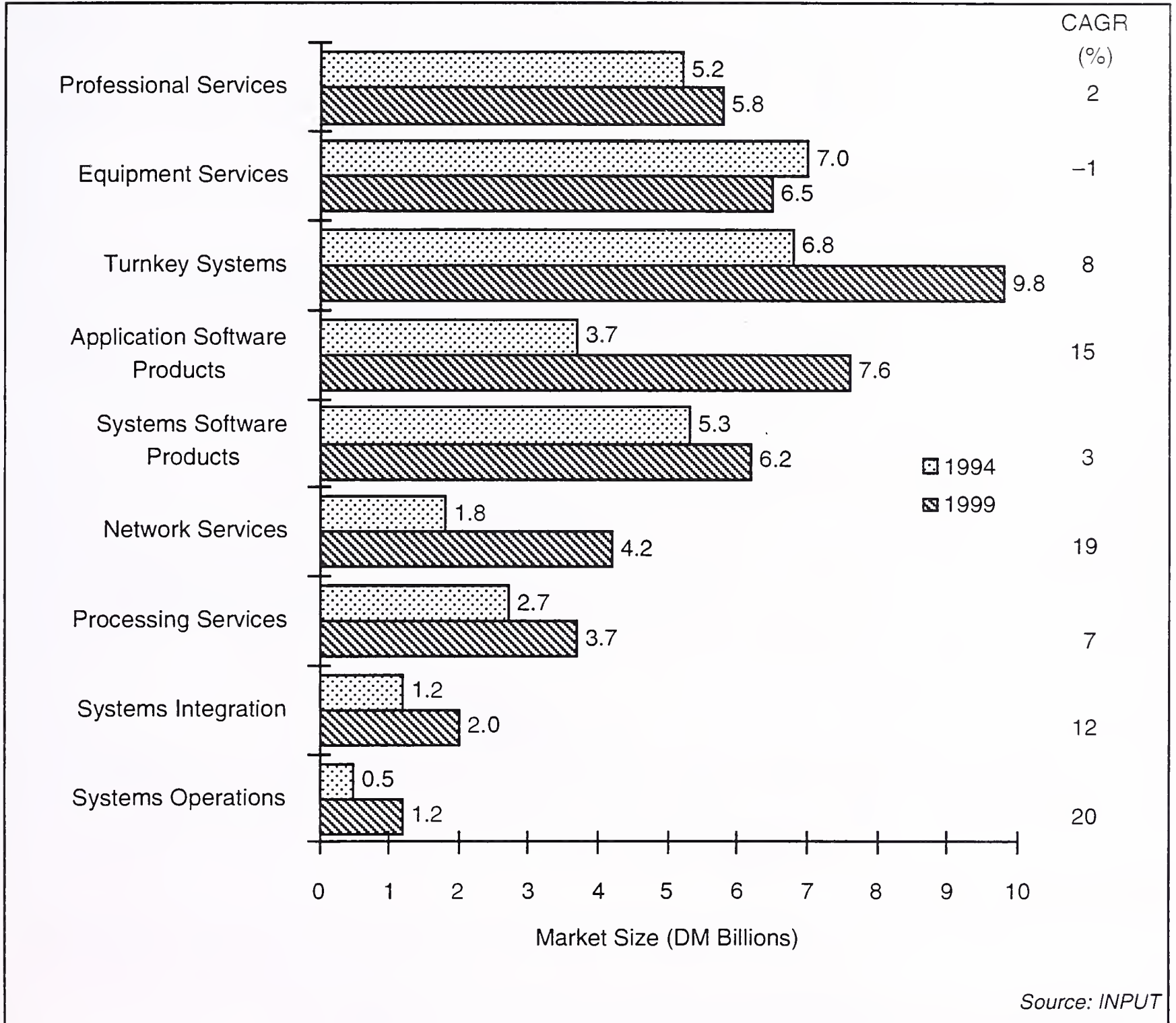
German Forecast — DM 40 Billion Market 1999

The German market for software and services grew to DM 27 billion in 1994 and is expected to reach DM 40 billion by 1999.

The overall annual growth rate of 8% predicted for the entire market clearly disguises both the high and the low growth sectors, as can be seen from Exhibit II-4.

Exhibit II-4

**Delivery Mode Analysis Information Services Market —
Germany, 1994-1999**



The highest growth opportunities lie in the areas of Systems Operations, Network Services and Applications Software Products.

The growing trend to outsource major portions of the information systems function drives an opportunity for information services vendors to broaden to the entire information systems budget.

That budget includes both expenditure directly controlled by the internal information systems function as well as budgets under the control of operational departments or business units.

Applications software will benefit from the shift away from the increasingly un-economic custom software development approach, but will have its money value growth held back by highly competitive market conditions. The success of SAP's R2/3 range of applications products is testimony to user's increasing appetite for standardised, widely available solutions.

The lowest growth sectors are those of:

- Equipment services, where ultra reliable components and open competition have driven down the market, only countered by increasing demand for network communications and desktop support where increasing complexity and critical applications demand higher levels of support
- Systems software, where increases in volume sales are eroded by intense competition
- Professional services, strong growth in IS consulting and the outsourcing of applications management are being countered by dampened demand for custom software development as users shift inexorably to greater reliance on application products

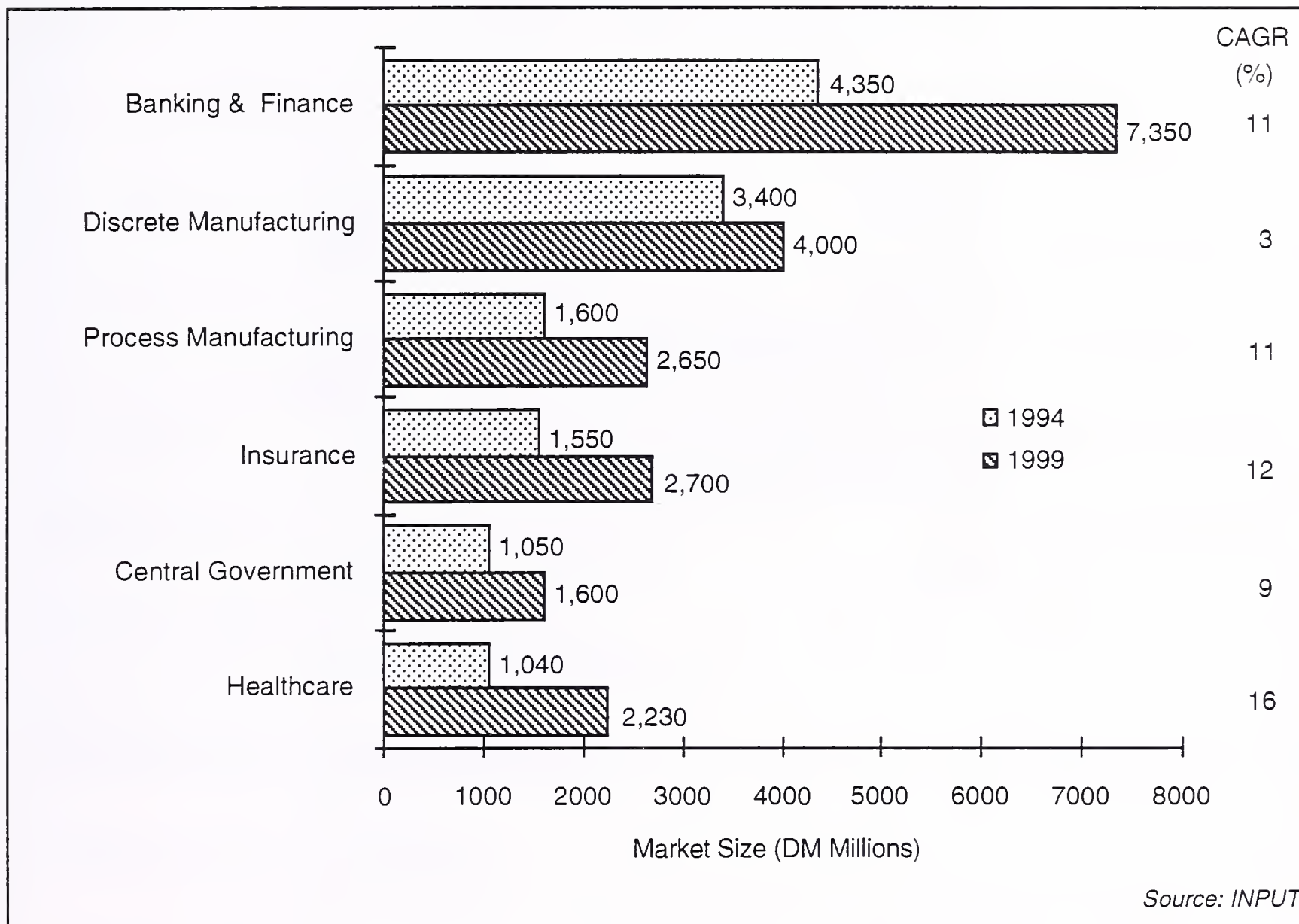
Other important market sectors are:

- Systems integration will grow at significantly above the overall market rate as users pay for the resolution of the complexity of solution building at the implementation phase and not within the product price
- Turnkey systems will also benefit from the user's need for resolution of system complexity within a total standardised package of hardware and software. This will remain attractive for many standardised environments such as hotels and retail outlets.

Exhibit II-5 provides an analysis of the largest vertical industry markets in Germany.

Exhibit II-5

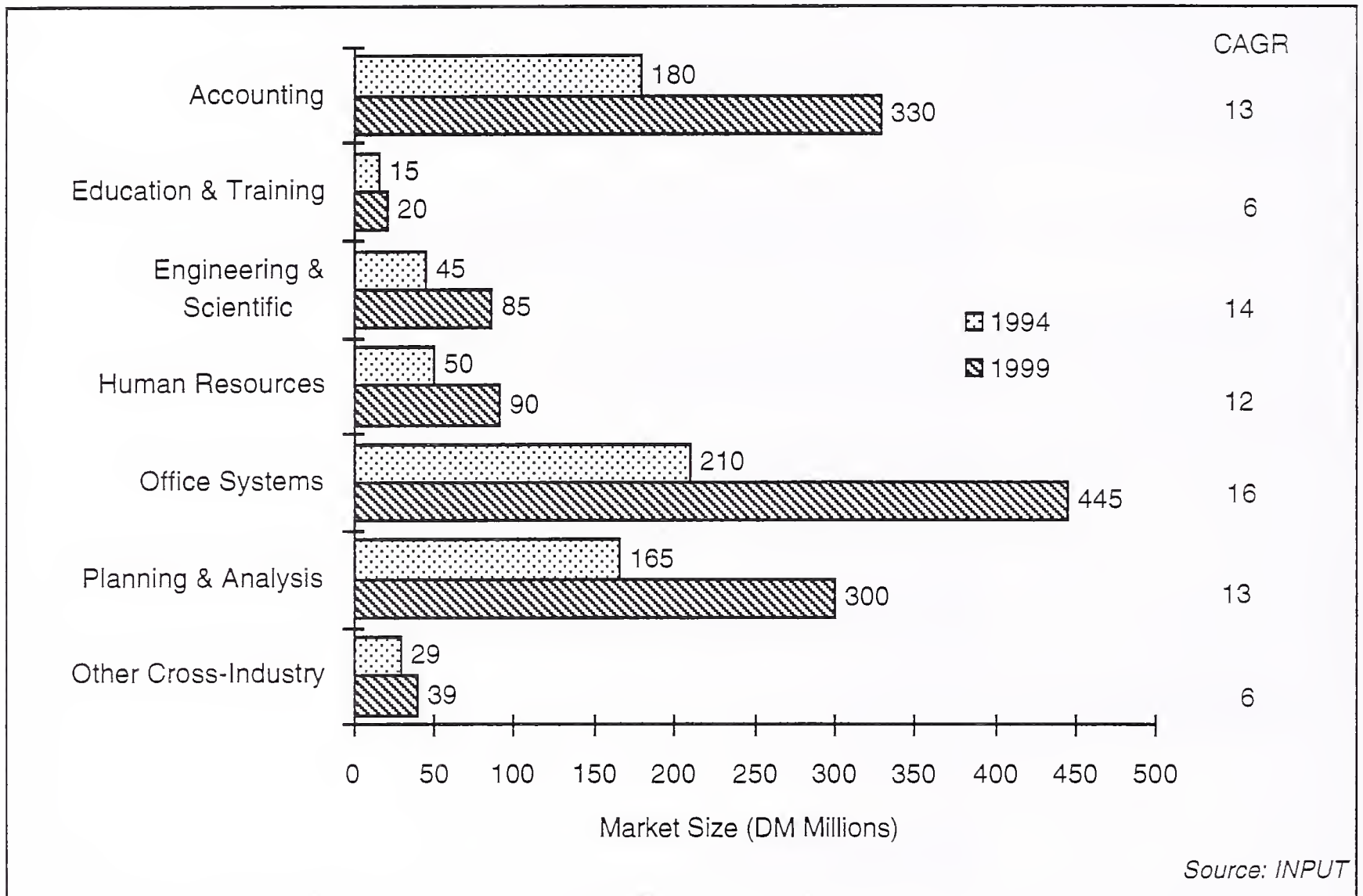
Vertical Industry Analysis Software and Services Market — Germany, 1994-1999



The analysis of the German cross industry sector market is provided in Exhibit II-6.

Exhibit II-6

**Cross Industry Sector,
Software and Services Market — Germany, 1994-1999**



C

Vertical Industry Markets

The forecast growth of each vertical industry sector market in Germany is provided in the following series of exhibits, Exhibits II-7 through II-21.

Exhibit II-7

**Discrete Manufacturing Sector,
Software and Services Market — Germany, 1994-1999**

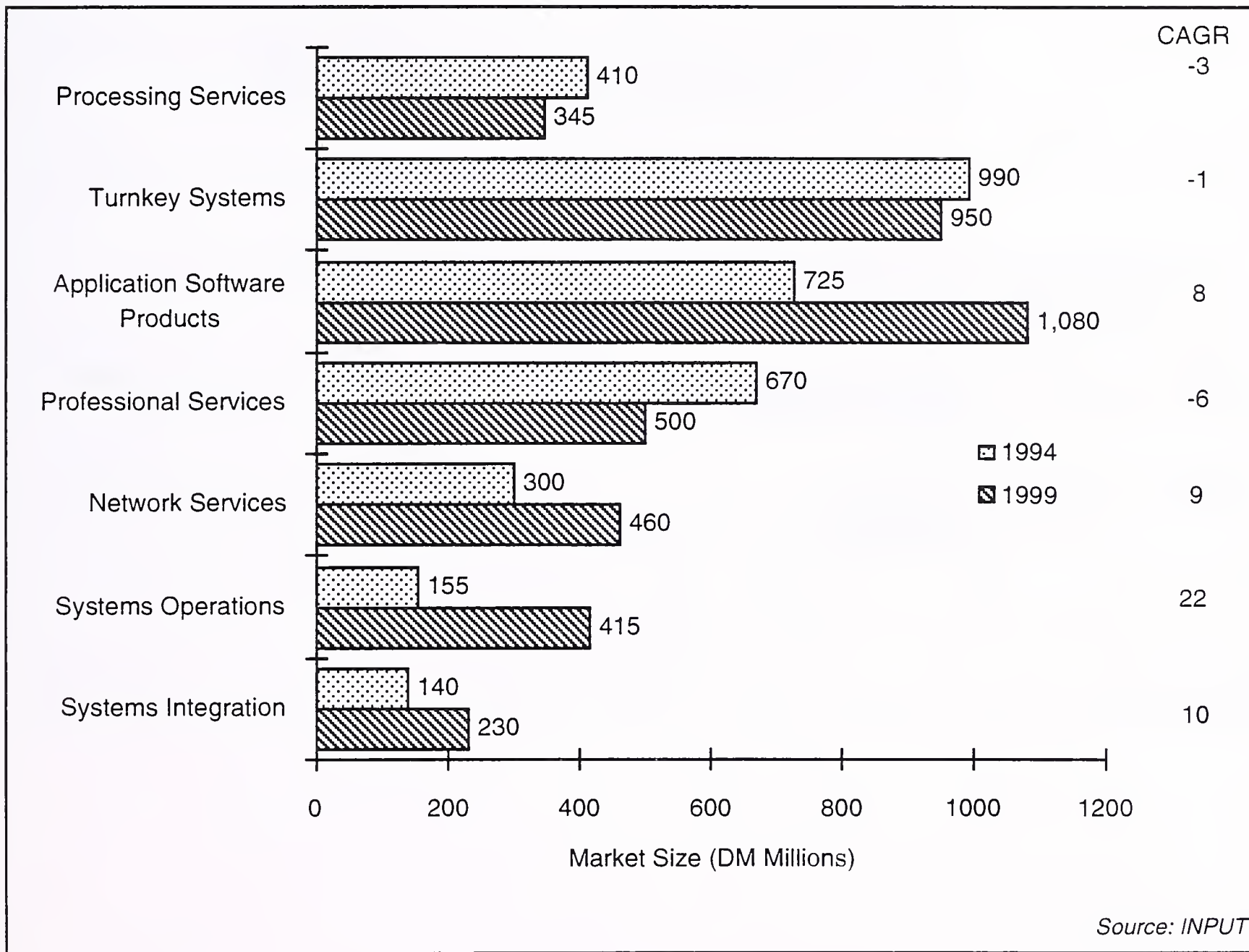


Exhibit II-8

**Process Manufacturing Sector,
Software and Services Market — Germany, 1994-1999**

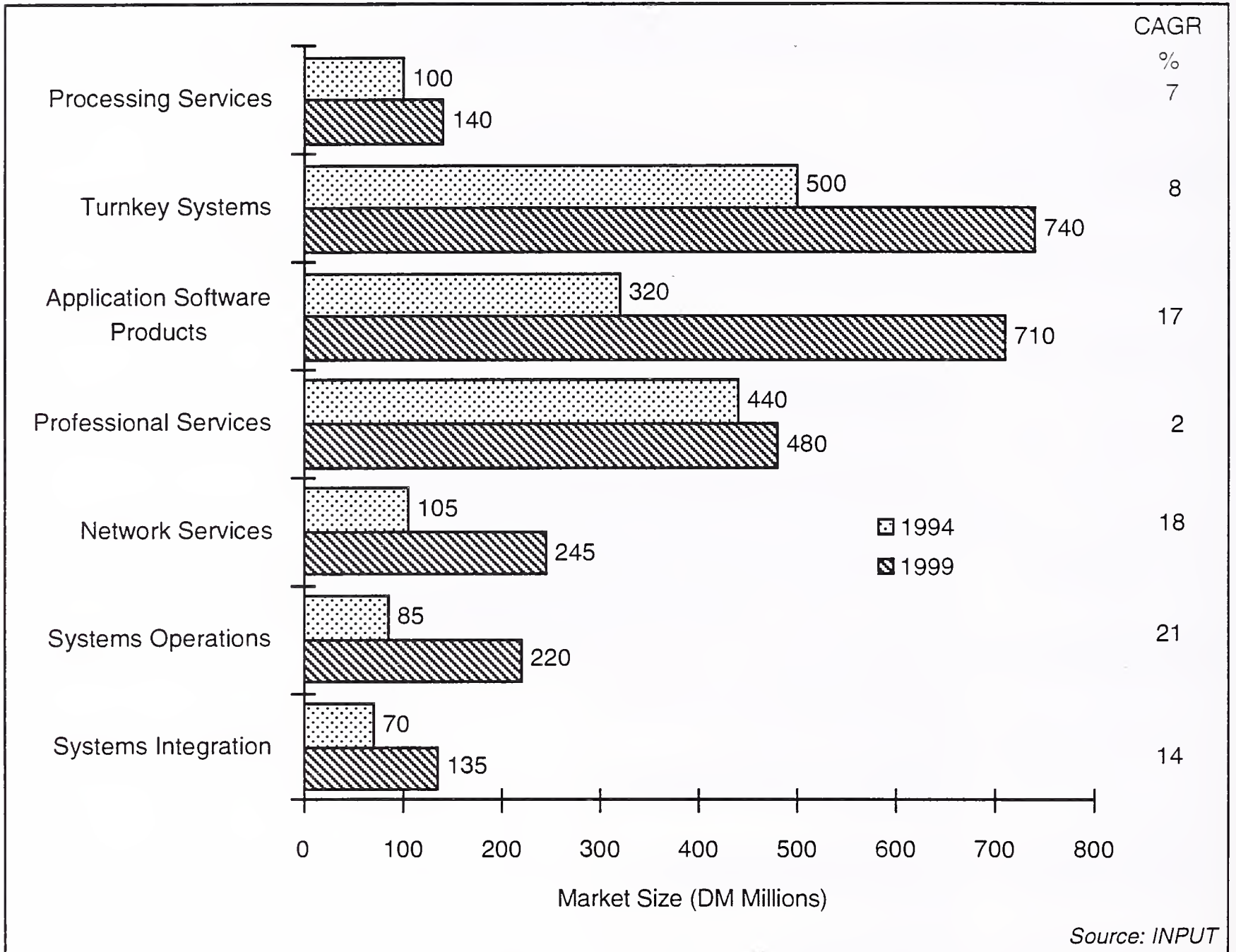


Exhibit II-9

**Transportation Sector,
Software and Services Market — Germany, 1994-1999**

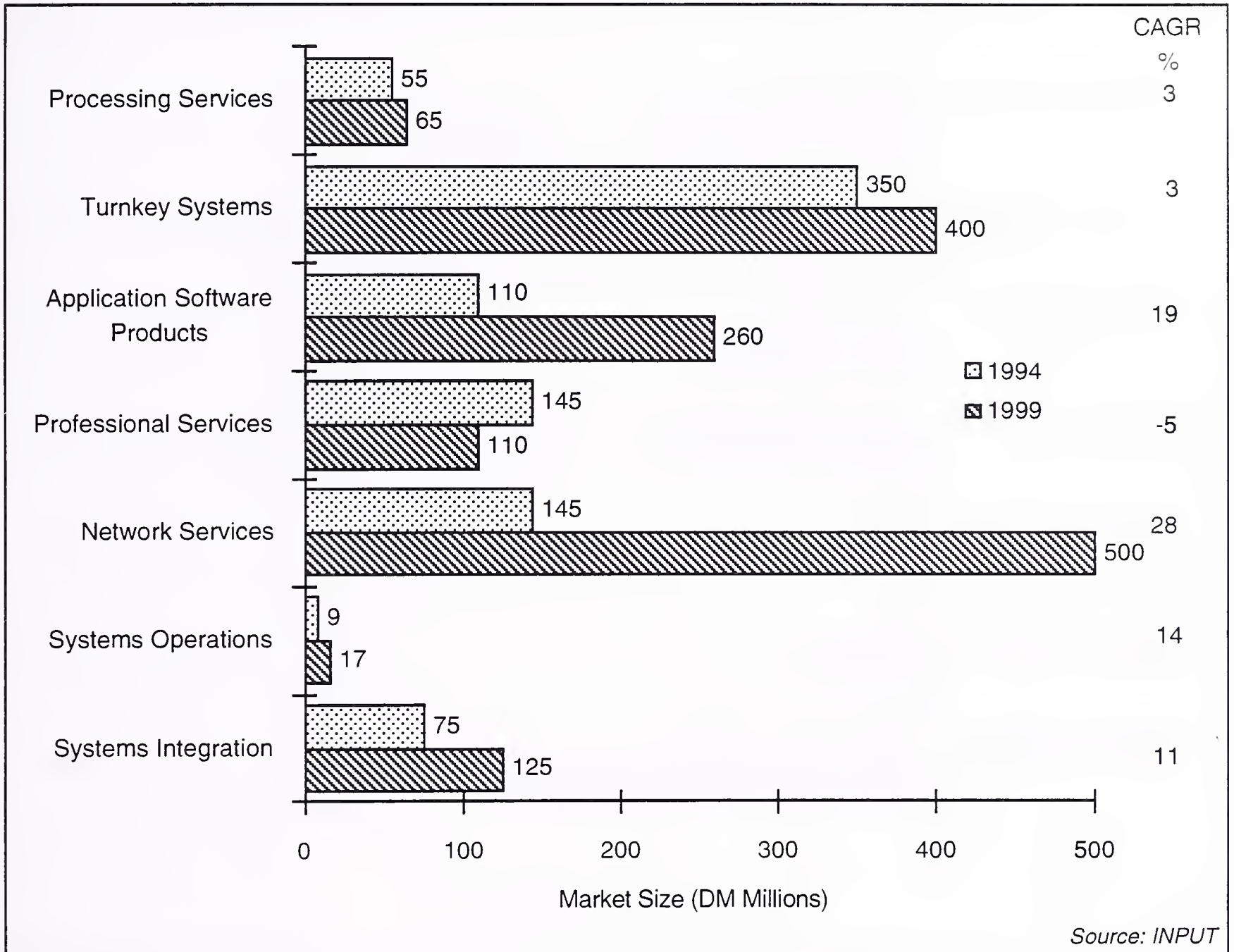


Exhibit II-10

**Utilities Sector,
Software and Services Market — Germany, 1994-1999**

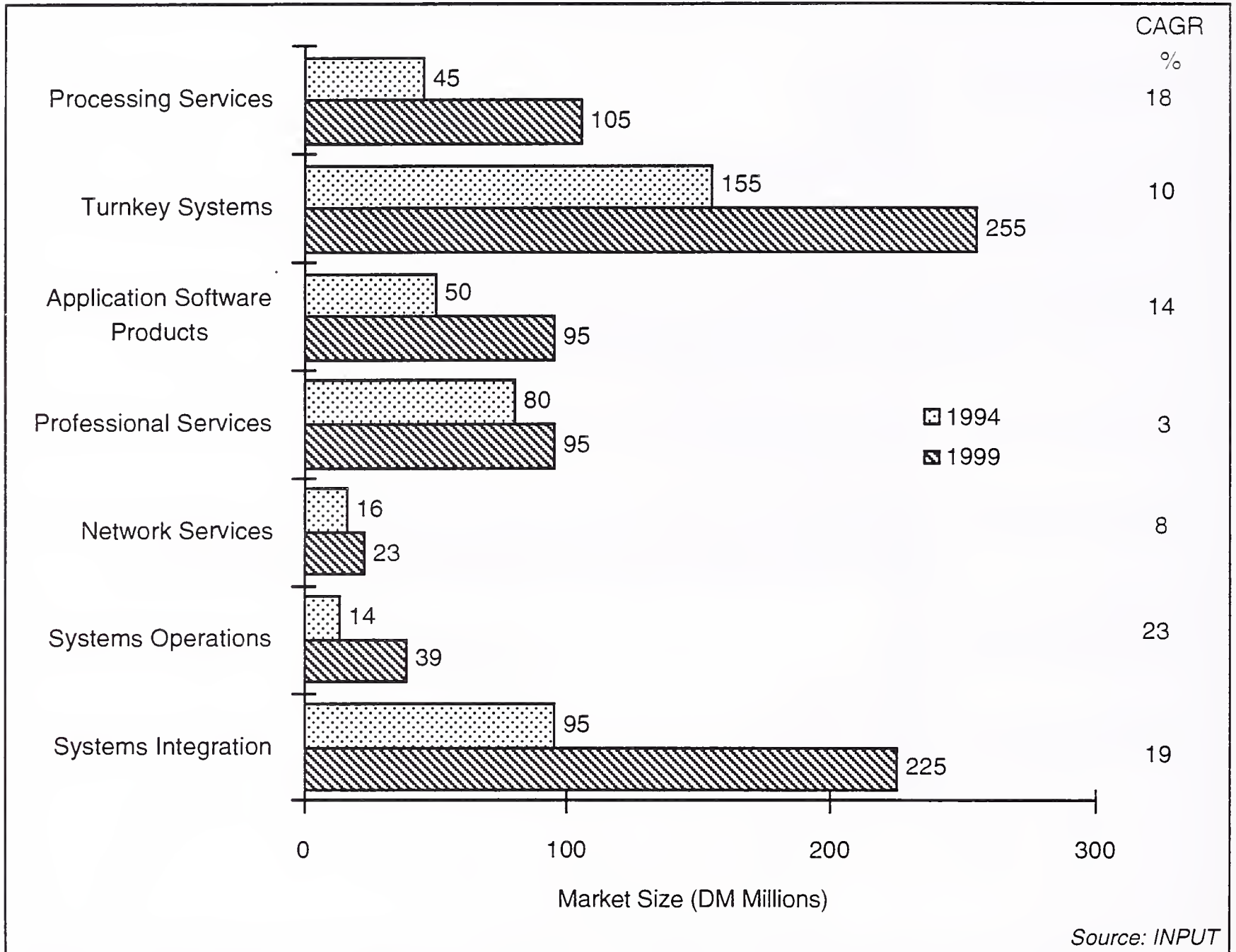


Exhibit II-11

**Telecommunications Sector,
Software and Services Market — Germany, 1994-1999**

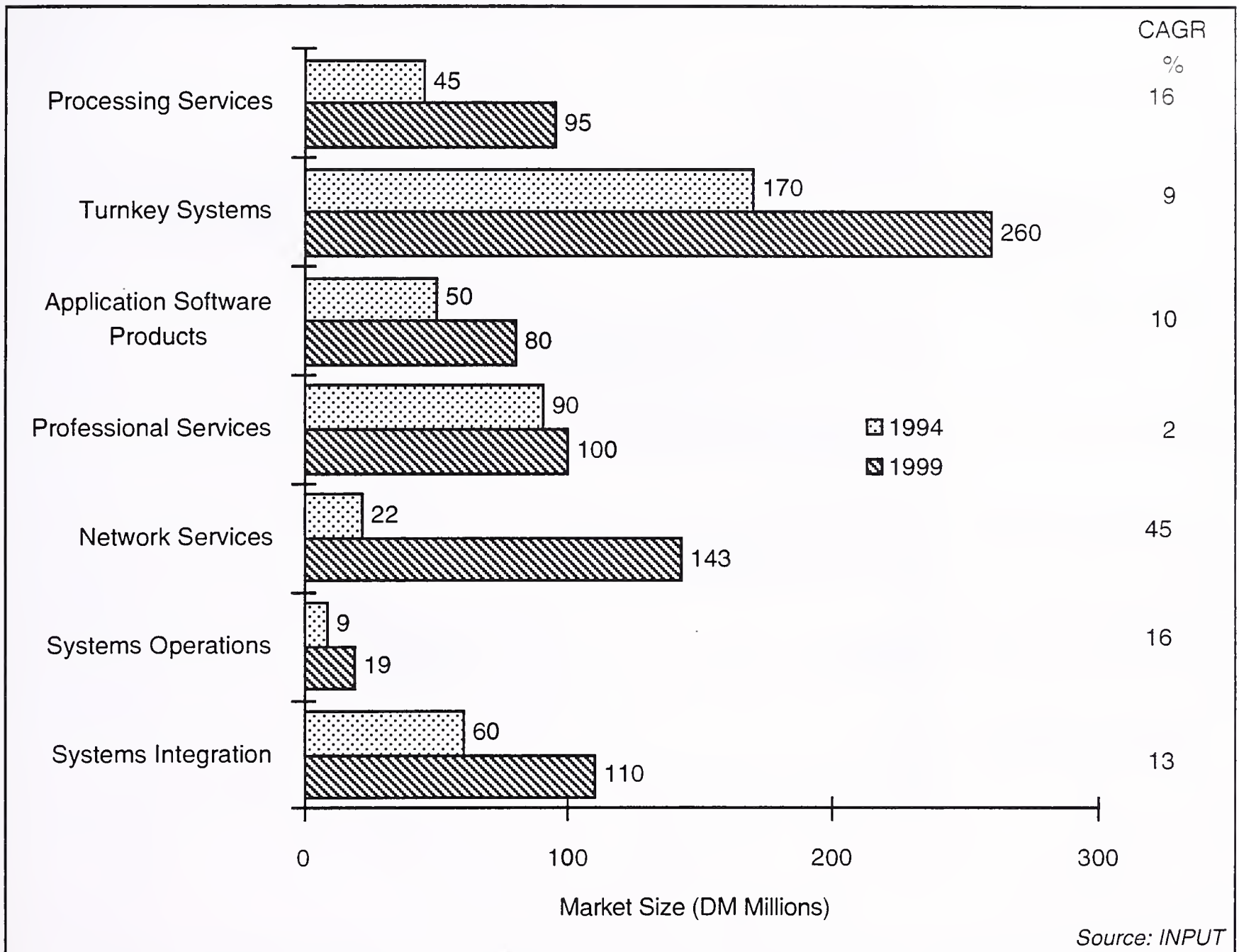


Exhibit II-12

**Retail Distribution Sector,
Software and Services Market — Germany, 1994-1999**

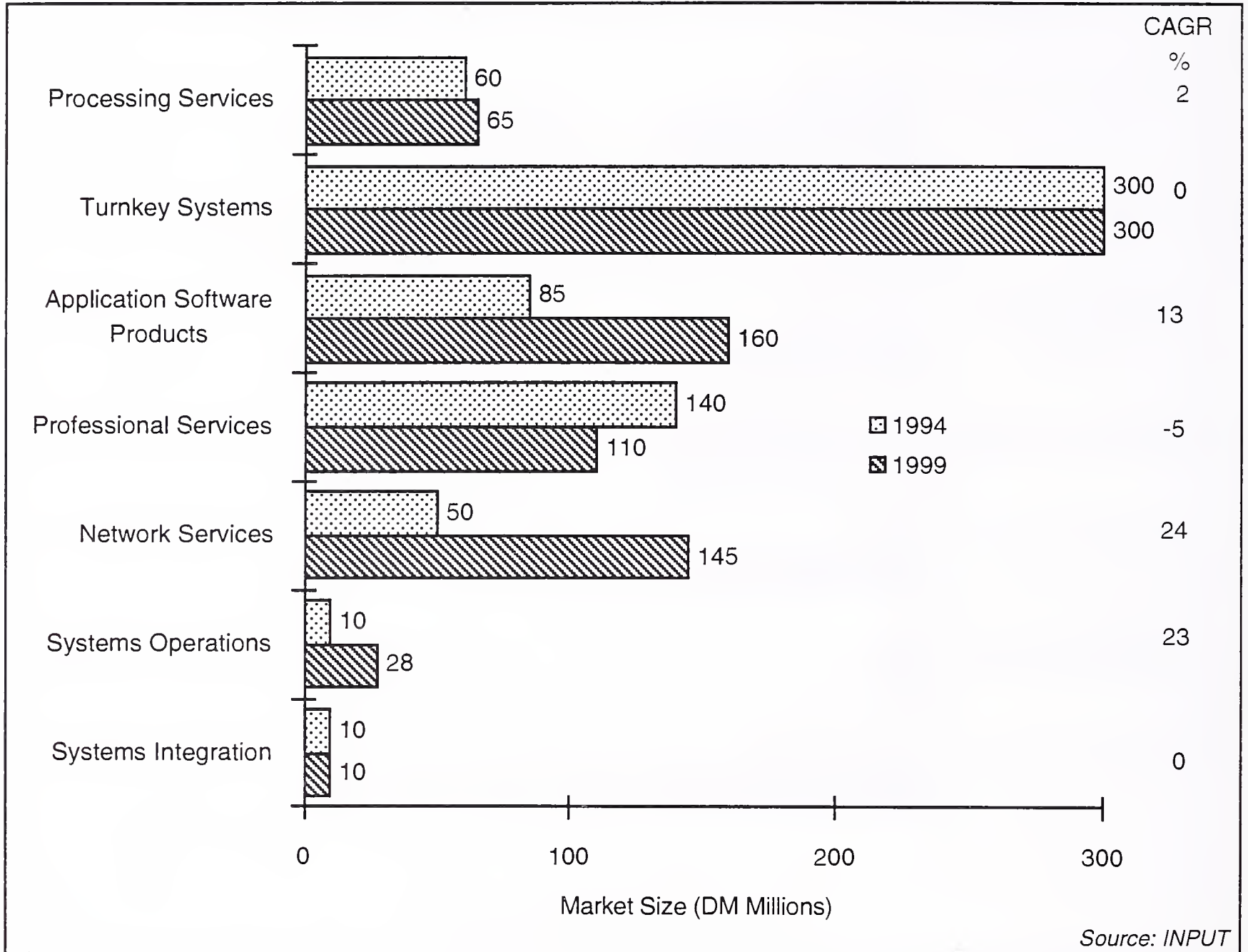


Exhibit II-13

**Wholesale Distribution Sector,
Software and Services Market — Germany, 1994-1999**

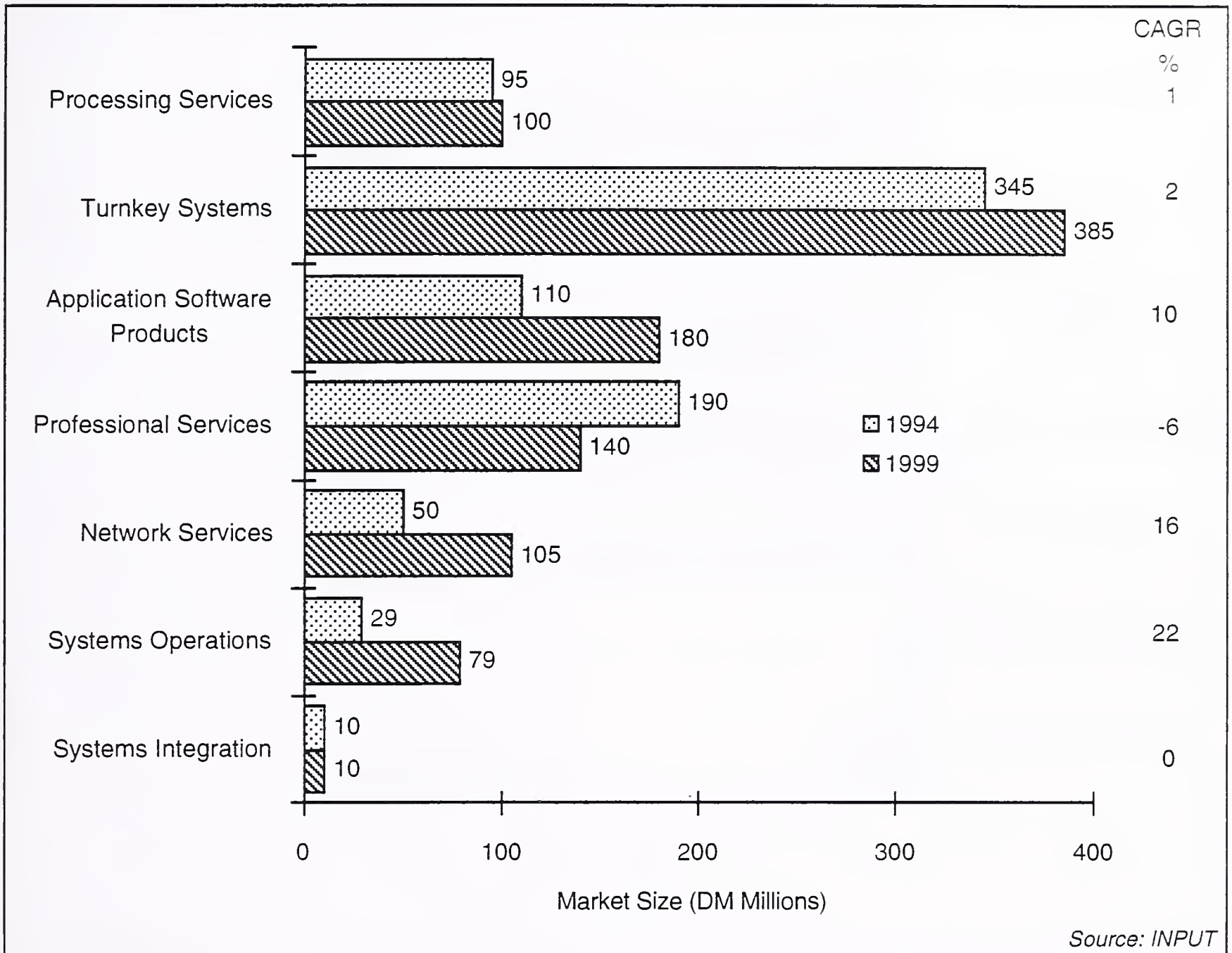


Exhibit II-14

**Banking & Finance Sector,
Software and Services Market — Germany, 1994-1999**

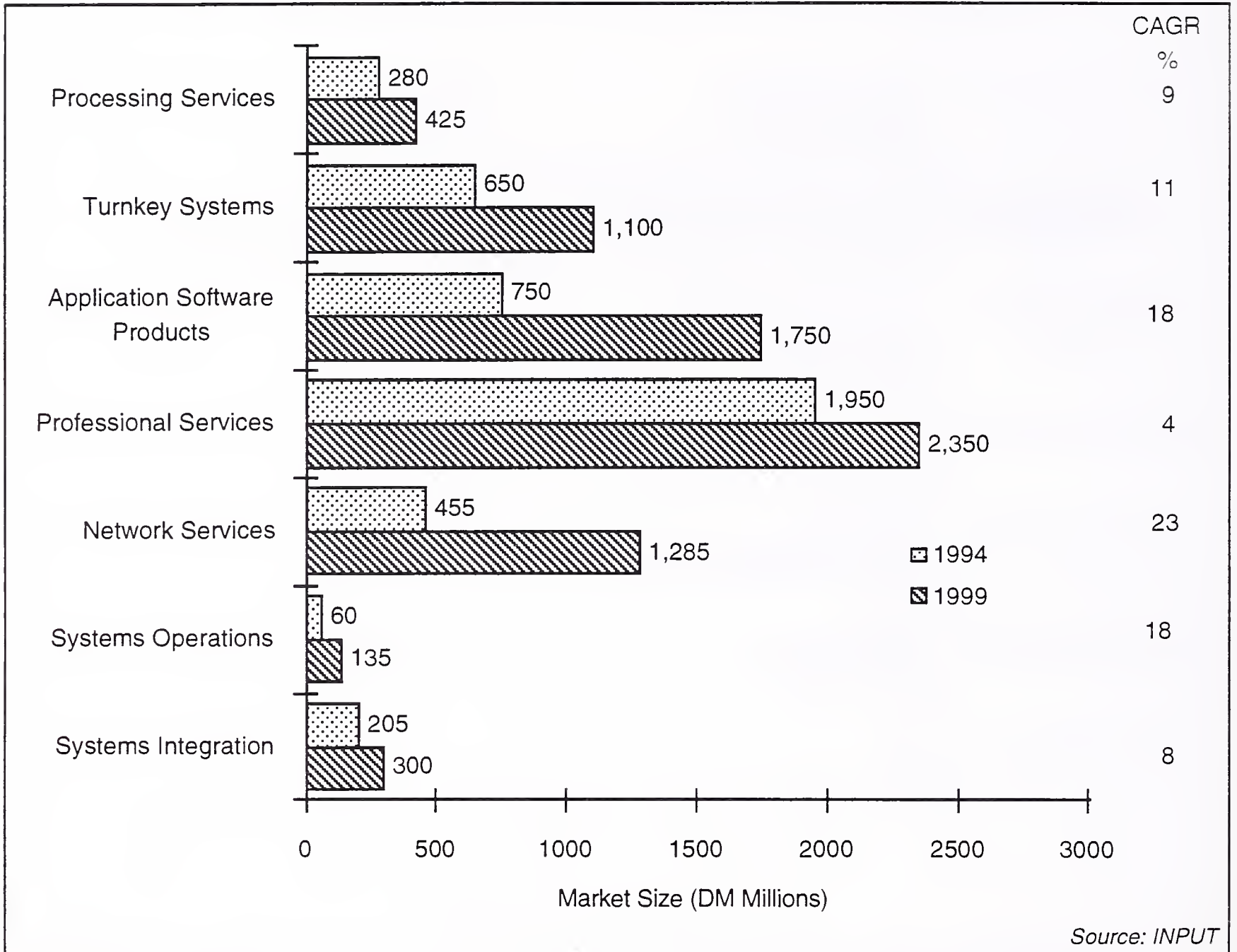


Exhibit II-15

**Insurance Sector,
Software and Services Market — Germany, 1994-1999**

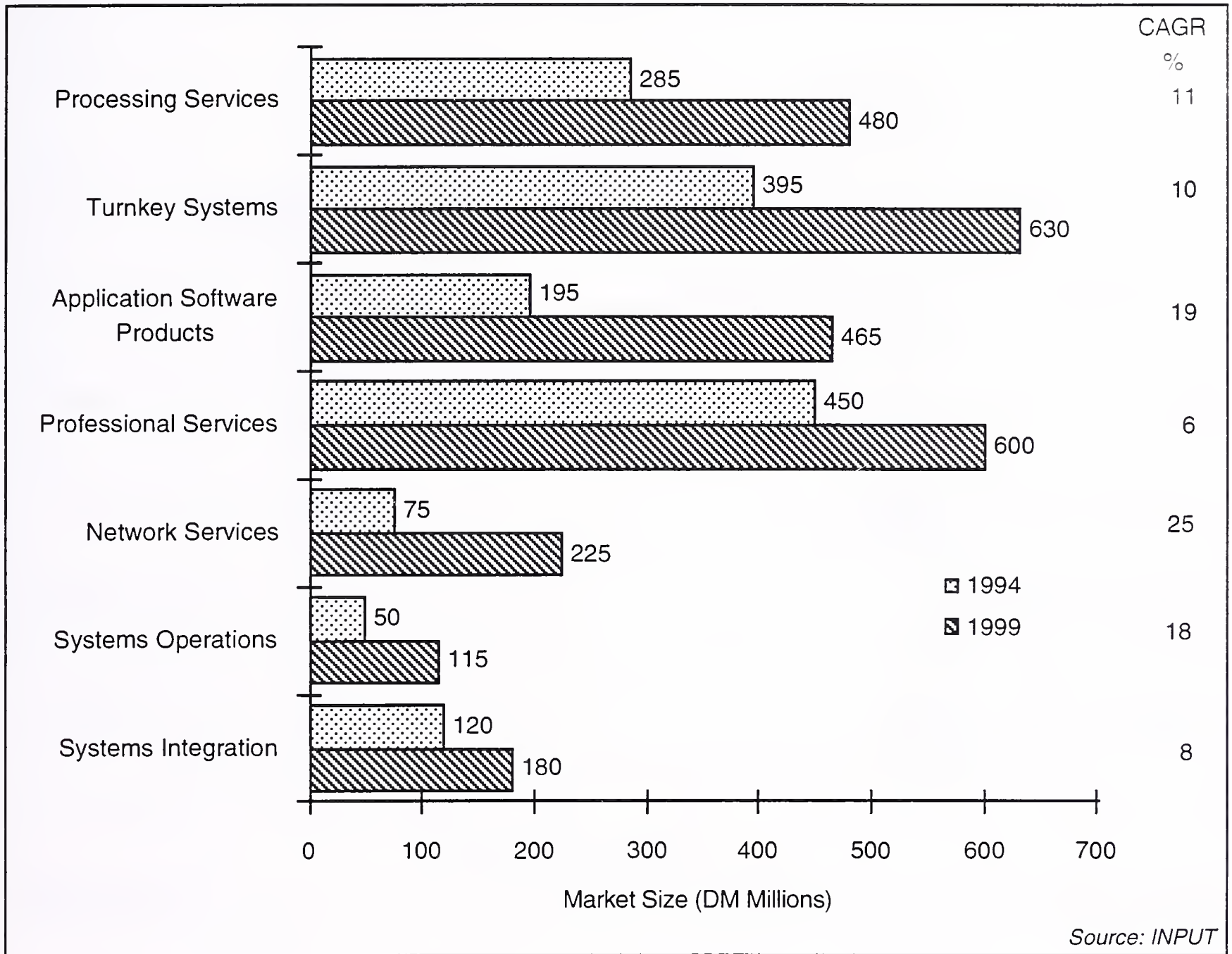


Exhibit II-16

Healthcare Sector, Software and Services Market — Germany 1994-1999

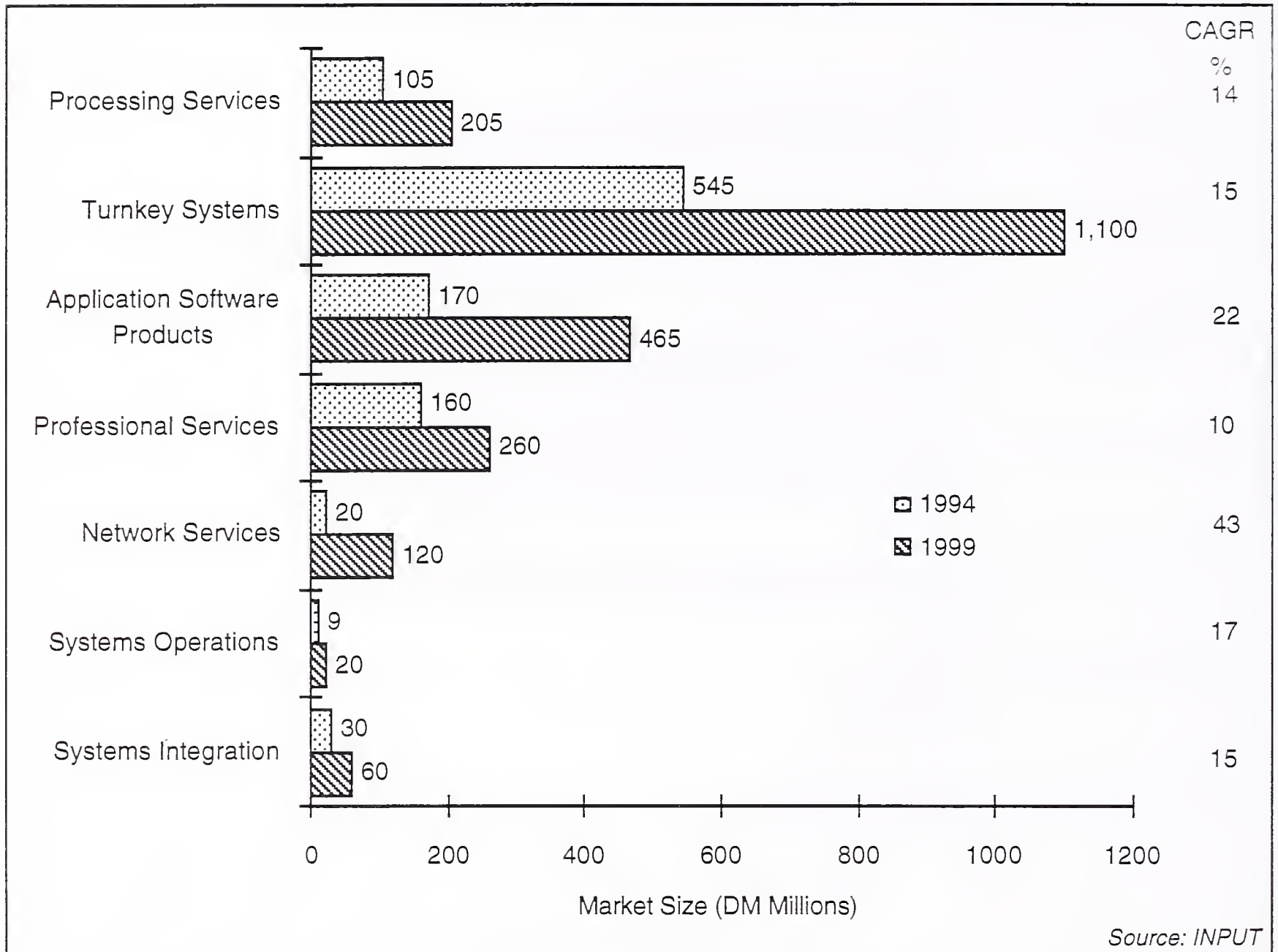


Exhibit II-17

Education Sector, Software and Services Market — Germany, 1994-1999

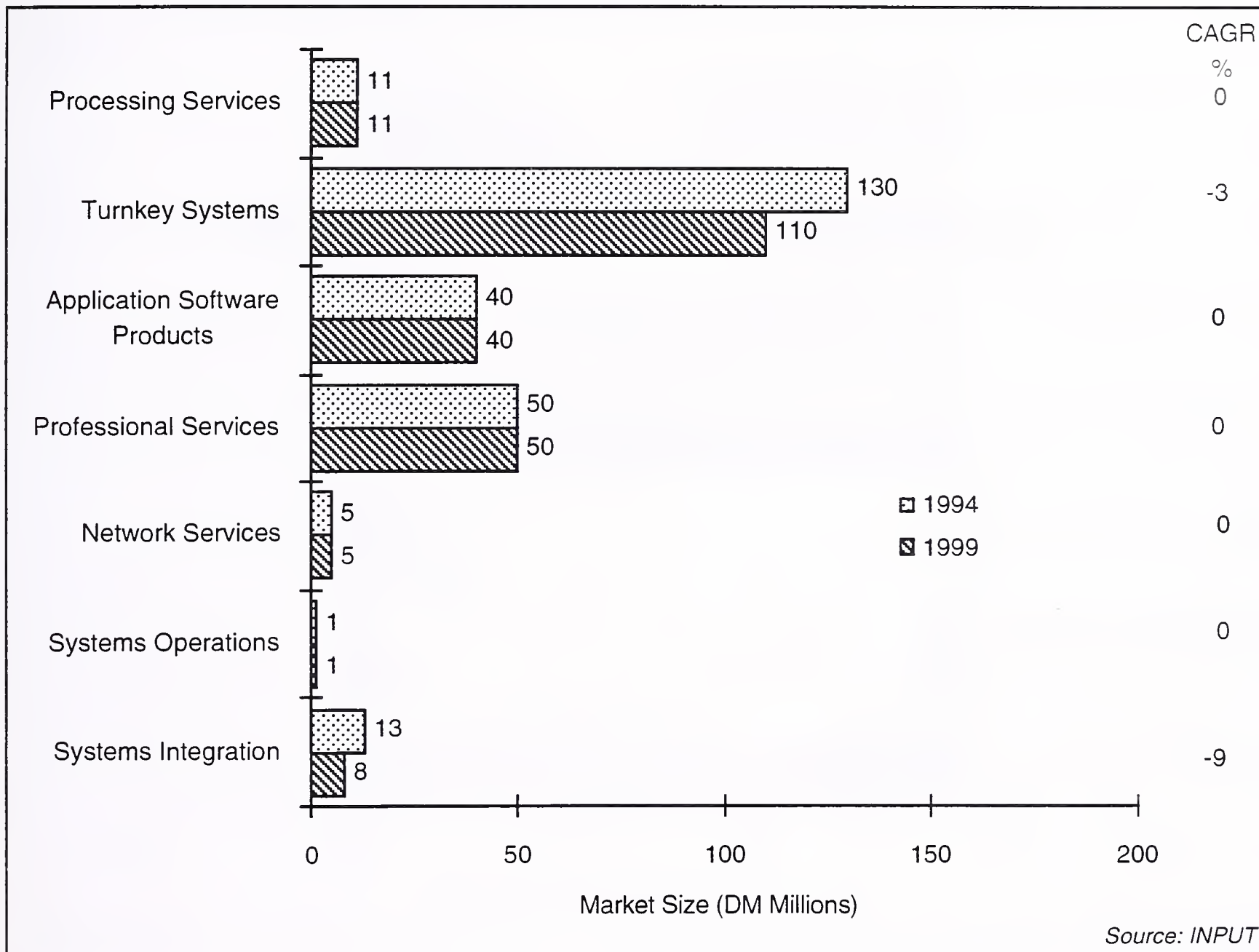


Exhibit II-18

**Local Government Sector,
Software and Services Market — Germany, 1994-1999**

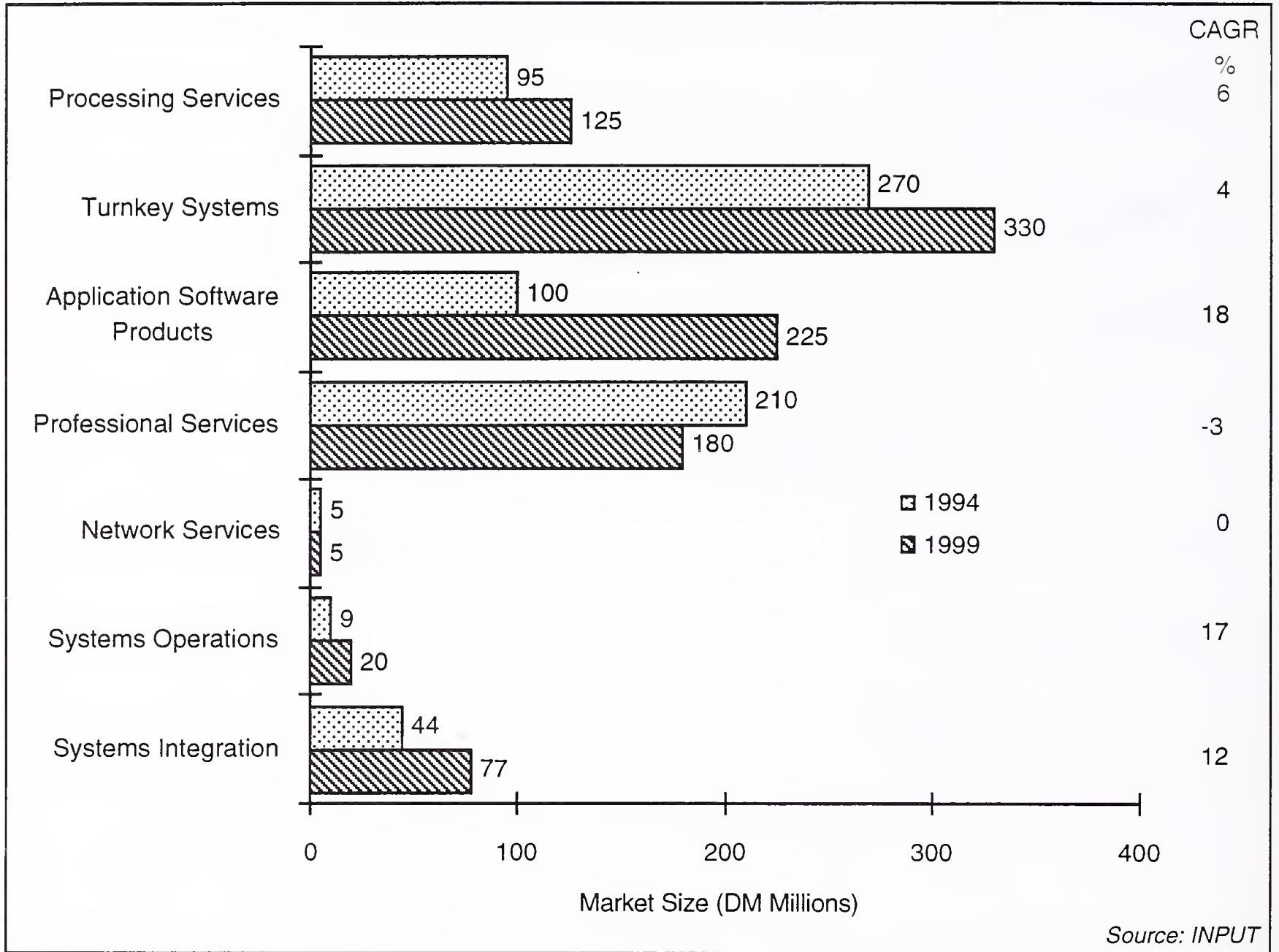


Exhibit II-19

**Central Government Sector,
Software and Services Market — Germany, 1994-1999**

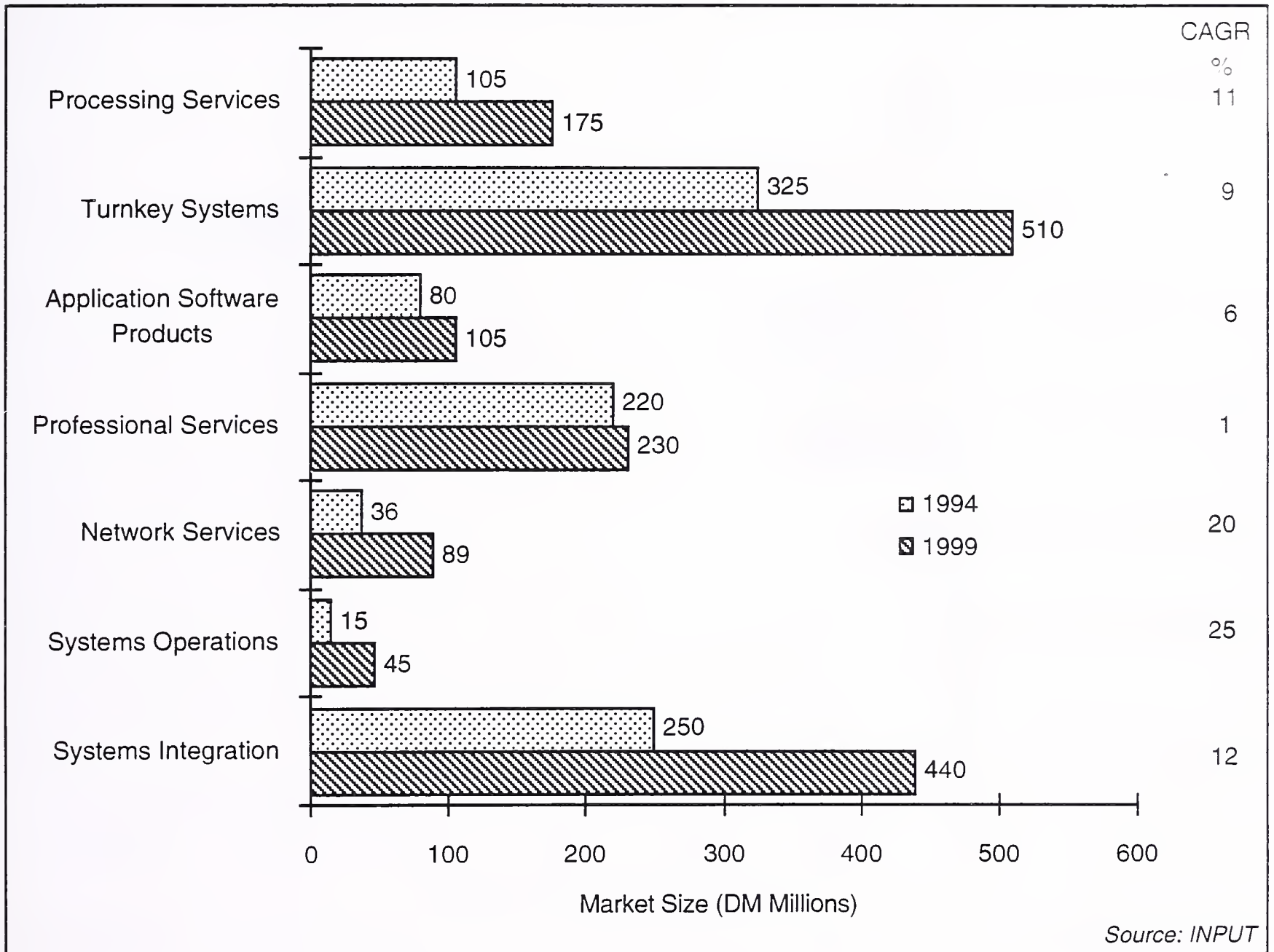


Exhibit II-20

**Business Services Sector,
Software and Services Market — Germany, 1994-1999**

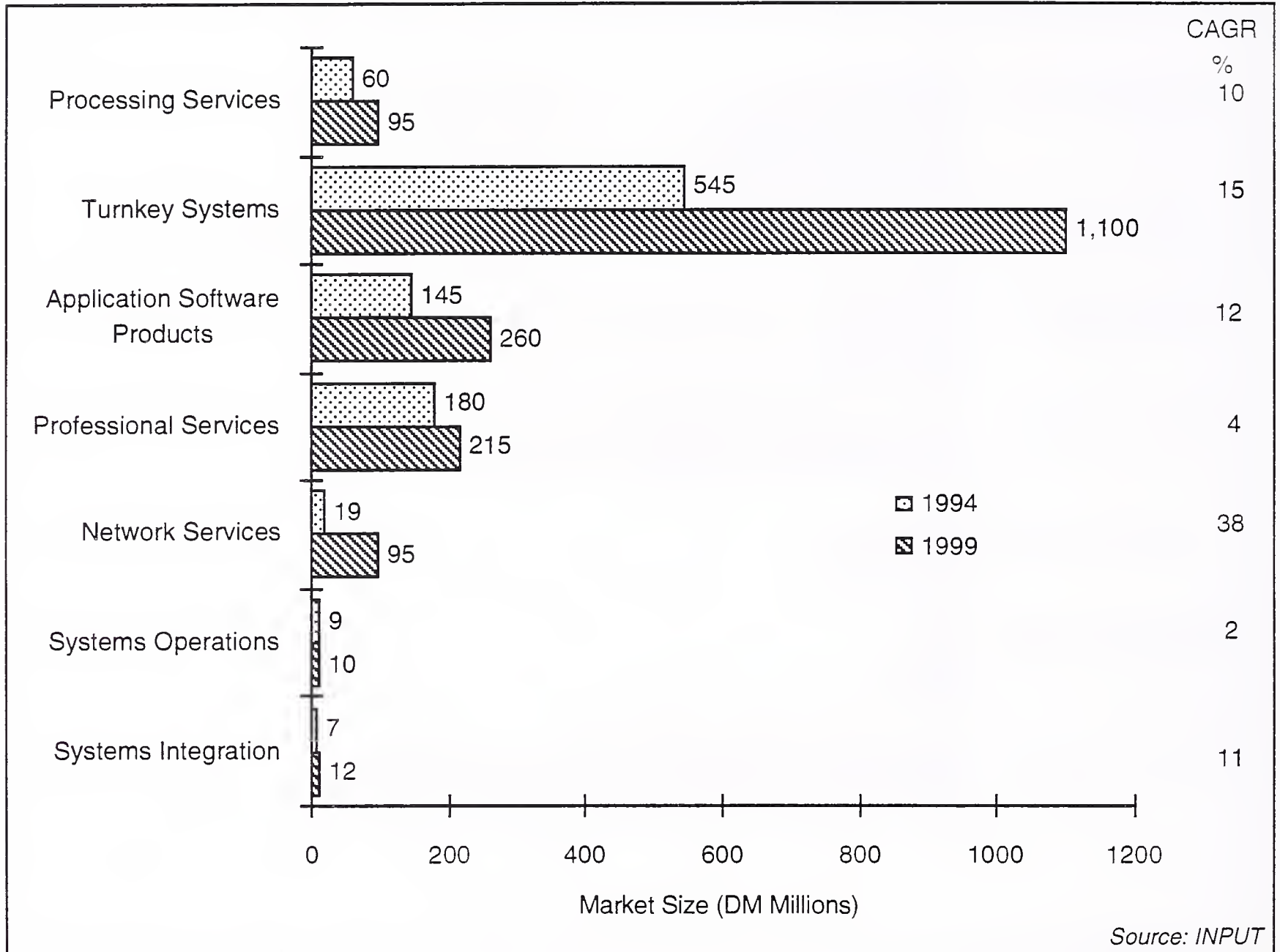
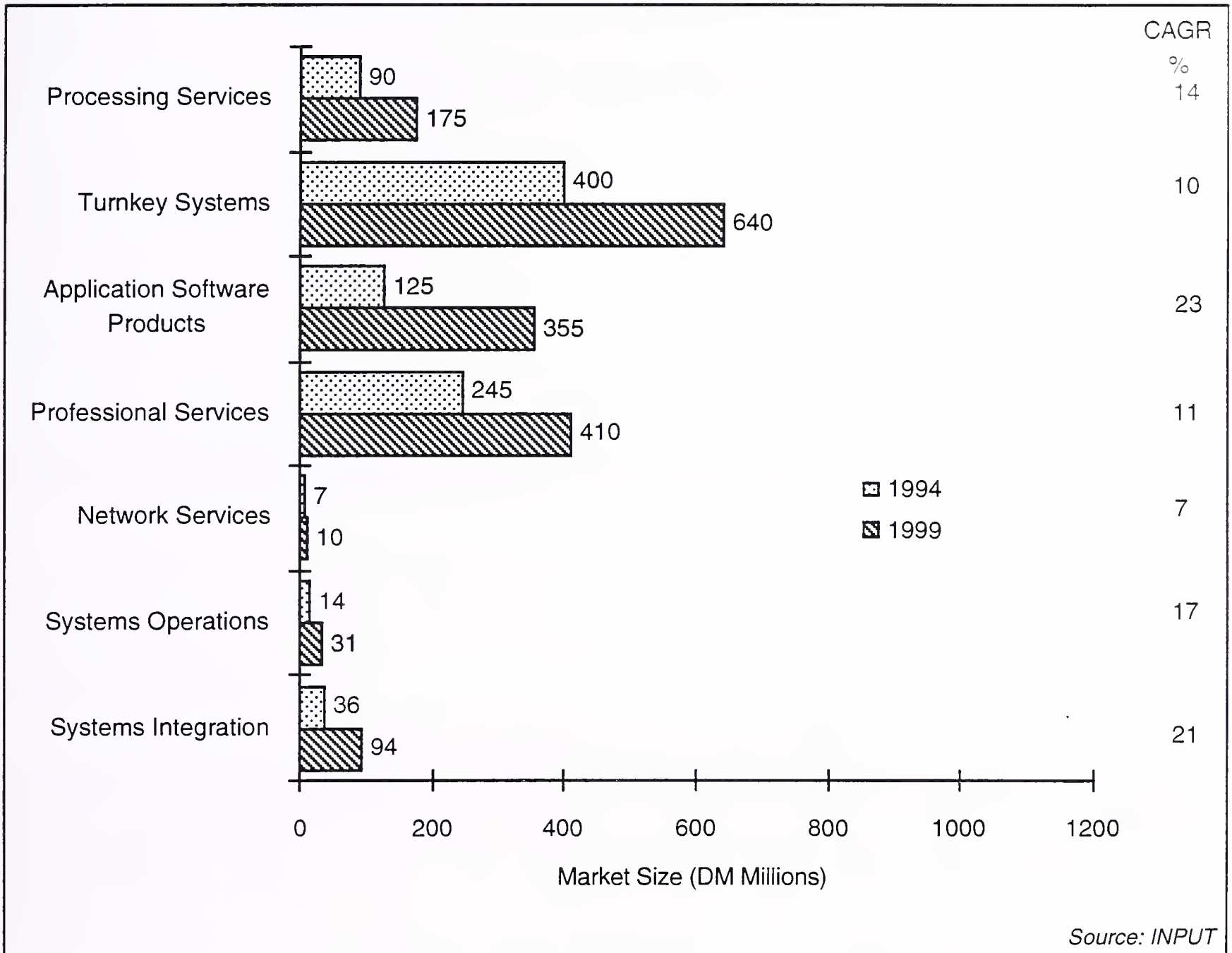
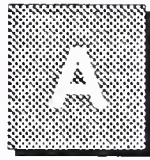


Exhibit II-21

**Other Industry Sector,
Software and Services Market — Germany, 1994-1999**



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Information Services Industry Forecast Database, 1994-1999 Germany

A

Forecast Database in Local Currency (DM Millions)

Exhibit A-1

Top Level IT Expenditure, Germany

Sector	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
<i>Equipment Sales</i>	18,900	-3	18,300	17,700	17,400	17,200	17,000	16,800	-2
<i>Equipment Services</i>	7,200	-3	6,950	6,750	6,650	6,600	6,550	6,500	-1
<i>Software Products</i>	9,300	8	10,000	10,700	11,700	12,800	14,200	15,800	10
<i>Other Information Services</i>	12,600	7	13,500	14,600	16,000	17,400	18,800	20,400	9
<i>Data Communications</i>	7,800	8	8,400	8,900	9,500	10,200	10,800	11,600	7
<i>Facilities/ Administration</i>	9,600	-6	9,000	8,600	8,400	8,400	8,300	8,300	-2
<i>In-house Staff</i>	40,200	-5	38,200	36,100	34,700	33,600	32,400	31,300	-4
IT Budget Total	106,000	-2	104,000	103,000	104,000	106,000	108,000	111,000	1

Exhibit A-2

Information Services Market
Forecast by Delivery Mode and Submode
Germany, 1994-1999

Delivery Modes	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR(%)
Software and Services Total (ex. Equipment Services)	25,500	6	27,100	29,000	31,600	34,200	37,200	40,500	8
<i>Professional Services</i>	5,100	2	5,200	5,400	5,600	5,700	5,800	5,800	2
- IS Consulting	830	12	930	1,040	1,190	1,320	1,460	1,590	11
- Education & Training	1,060	4	1,100	1,150	1,200	1,250	1,300	1,300	3
- Custom Software	3,200	-2	3,150	3,150	3,150	3,050	2,950	2,800	-2
- Application Management	25	32	33	43	57	74	96	123	30
<i>Systems Integration</i>	1,050	10	1,150	1,300	1,450	1,650	1,800	2,000	12
- Equipment	290	7	310	330	350	370	400	430	7
- Application Software	200	25	250	310	390	490	610	770	25
- System Software	90	6	95	105	115	125	135	145	9
- Professional Services	450	4	470	530	560	630	610	600	5
- Other	20	25	25	30	35	40	45	60	19
<i>Systems Operations</i>	380	26	480	590	720	850	1,000	1,190	20
- Platform Operations	80	25	100	110	125	135	145	160	10
- Application Operations	220	25	275	345	425	505	600	715	21
- Desktop Services	80	31	105	135	170	210	255	315	25
<i>Processing Services</i>	2,400	10	2,650	2,800	3,050	3,300	3,500	3,700	7
- Transaction Processing	2,000	8	2,150	2,300	2,500	2,650	2,800	2,900	6
- Utility Processing	120	0	120	120	120	120	120	120	0
- Other Processing	310	13	350	400	450	510	570	640	13
<i>Network Services</i>	1,540	16	1,780	2,080	2,490	2,930	3,470	4,160	19
- Electronic Info Svcs	1,090	10	1,200	1,330	1,480	1,580	1,680	1,780	8
- Network Applications	295	34	395	535	760	1,060	1,460	2,005	38
- Network Management	155	19	185	215	250	290	330	375	15
<i>System Software Product</i>	5,100	4	5,300	5,500	5,700	5,800	6,000	6,200	3
- Mainframe	2,400	0	2,400	2,300	2,150	1,900	1,650	1,350	-11
- Minicomputer	1,500	3	1,550	1,650	1,750	1,850	1,950	2,050	6
- Workstation /PC	1,200	13	1,350	1,550	1,800	2,050	2,400	2,800	16
<i>Application Software Product</i>	3,400	9	3,700	4,100	4,800	5,600	6,500	7,600	15
- Mainframe	410	-5	390	370	360	350	340	330	-3
- Minicomputer	1,050	0	1,050	1,150	1,450	1,750	2,050	2,450	18
- Workstation /PC	1,950	15	2,250	2,600	3,000	3,500	4,100	4,800	16
<i>Turnkey Systems</i>	6,500	5	6,800	7,200	7,800	8,400	9,100	9,800	8
- Equipment	3,300	0	3,300	3,400	3,500	3,600	3,700	3,800	3
- Application Software	1,150	13	1,300	1,400	1,650	1,850	2,150	2,450	14
- System Software	450	2	460	480	500	530	550	570	4
- Professional Services	1,600	9	1,750	1,900	2,150	2,400	2,700	3,000	11
<i>Equipment Services</i>	7,200	-3	6,950	6,750	6,650	6,600	6,550	6,500	-1
- Equipment Maintenance	4,730	-8	4,360	4,030	3,820	3,660	3,490	3,320	-5
- Environmental Services	2,470	5	2,590	2,720	2,830	2,940	3,060	3,180	4
Grand Total	32,500	5	34,000	35,500	38,500	41,000	43,500	47,000	7
Information Service Market									

B

Sector Summary in Local Currency

Exhibit A-3

Information Services Market by Sector Summary, Germany

Sector	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
<i>Processing Services</i>	1,650	12	1,850	2,000	2,200	2,350	2,500	2,600	7
<i>Turnkey Systems</i>	5,800	5	6,100	6,500	7,000	7,600	8,200	8,800	8
<i>Application Software Products</i>	2,700	13	3,050	3,350	3,900	4,550	5,300	6,250	15
<i>Professional Services</i>	5,100	2	5,200	5,400	5,600	5,700	5,800	5,800	2
<i>Network Services</i>	1,100	18	1,300	1,550	1,900	2,300	2,800	3,450	22
<i>Systems Operations</i>	380	26	480	590	720	850	1,000	1,190	20
<i>Systems Integration</i>	1,050	10	1,150	1,300	1,450	1,650	1,800	2,000	12
Industry Sectors Total	17,800	7	19,100	20,700	22,800	25,000	27,400	30,100	10
<i>Transaction Processing</i>	340	-6	320	300	300	310	315	320	0
<i>Turnkey Systems</i>	730	-1	720	720	750	810	870	950	6
<i>Application Software Products</i>	650	6	690	760	850	1,000	1,150	1,310	14
Cross-Industry Sectors Total	1,700	3	1,750	1,800	1,900	2,100	2,350	2,600	8
<i>Equipment Services</i>	7,200	-3	6,950	6,750	6,650	6,600	6,550	6,500	-1
<i>System Software Products</i>	5,100	4	5,300	5,500	5,700	5,800	6,000	6,200	3
<i>Utility and Other Processing</i>	430	9	470	520	570	630	690	760	10
<i>Other Electronic Info Services</i>	435	10	480	530	590	630	670	710	8
Generic Sectors Total	13,200	0	13,200	13,300	13,500	13,700	13,900	14,200	1
Total Information Services	32,700	4	34,100	35,800	38,200	40,800	43,700	46,900	7

C

Industry Sectors in Local Currency

Exhibit A-4

Information Services Market by Industry Sectors, Germany

Sector	DM Millions								94-99 CAGR (%)
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	
Discrete Manufacturing	3,550	-4	3,400	3,250	3,300	3,500	3,750	4,000	3
Process Manufacturing	1,600	0	1,600	1,700	1,850	2,100	2,350	2,650	11
Transportation	760	17	890	1,020	1,110	1,210	1,330	1,480	11
Utilities	410	12	460	520	610	690	770	840	13
Telecommunications	390	15	450	510	580	640	720	810	12
Retail Distribution	630	5	660	680	700	720	770	820	4
Wholesale Distribution	830	0	830	830	880	910	950	1,000	4
Banking & Finance	3,850	13	4,350	4,750	5,300	5,950	6,600	7,350	11
Insurance	1,450	7	1,550	1,800	2,050	2,300	2,500	2,700	12
Healthcare	900	16	1,040	1,220	1,420	1,650	1,920	2,230	16
Education	255	-2	250	245	245	235	230	225	-2
Local Government	690	6	730	780	820	870	910	960	6
Central Government	950	11	1,050	1,150	1,250	1,350	1,450	1,600	9
Business Services	850	12	950	1,100	1,250	1,400	1,600	1,800	14
Other Industries	750	20	900	1,100	1,300	1,450	1,600	1,700	14
Industry Sectors Total	17,800	7	19,100	20,700	22,800	25,000	27,400	30,100	10

Exhibit A-5

Industry Sectors, Discrete Manufacturing, Germany

Sector	DM Millions								94-99 CAGR (%)
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	
Equipment Sales	2,800	-18	2,300	1,900	1,650	1,500	1,400	1,300	-11
Equipment Services	1,480	-15	1,260	1,070	960	910	860	820	-8
Software Products	1,850	-3	1,800	1,700	1,700	1,800	1,900	2,000	2
Other Information Services	2,350	-6	2,200	2,100	2,150	2,250	2,400	2,550	3
Data Communications	750	0	750	700	700	750	800	850	3
Facilities/ Administration	1,150	-22	900	750	650	600	550	500	-11
In-house Staff	7,100	-18	5,800	4,700	4,050	3,700	3,350	3,050	-12
IT Budget Total	17,500	-14	15,000	12,900	11,900	11,500	11,300	11,100	-6
Processing Services	425	-4	410	385	370	365	355	345	-3
Turnkey Systems	1,090	-9	990	920	900	920	940	950	-1
Application Software Products	720	1	725	720	770	860	965	1,080	8
Professional Services	750	-11	670	600	560	540	520	500	-6
Network Services	295	2	300	305	325	365	410	460	9
Systems Operations	125	24	155	190	230	280	340	415	22
Systems Integration	135	4	140	145	160	180	205	230	10
Industry Sectors Total	3,550	-4	3,400	3,250	3,300	3,500	3,750	4,000	3

Exhibit A-6

Industry Sectors, Process Manufacturing, Germany

Sector	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	1,450	-10	1,300	1,200	1,150	1,150	1,150	1,150	-2
Equipment Services	530	-8	490	470	460	470	480	490	0
Software Products	730	4	760	810	900	1,010	1,160	1,330	12
Other Information Services	1,030	-1	1,020	1,080	1,150	1,300	1,430	1,580	9
Data Communications	690	-3	670	660	670	700	740	780	3
Facilities/ Administration	720	-13	630	570	540	550	560	570	-2
In-house Staff	3,300	-11	2,950	2,700	2,550	2,500	2,450	2,400	-4
IT Budget Total	8,450	-8	7,800	7,500	7,400	7,700	7,950	8,300	1
Processing Services	95	5	100	105	110	120	130	140	7
Turnkey Systems	510	-2	500	520	560	620	680	740	8
Application Software Products	290	10	320	350	410	490	590	710	17
Professional Services	460	-4	440	440	440	460	470	480	2
Network Services	95	11	105	120	140	170	205	245	18
Systems Operations	70	21	85	105	125	150	180	220	21
Systems Integration	65	8	70	75	85	100	115	135	14
Industry Sectors Total	1,600	0	1,600	1,700	1,850	2,100	2,350	2,650	11

Exhibit A-7

Industry Sectors, Transportation, Germany

Sector	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	450	0	450	400	350	300	250	200	-15
Equipment Services	170	0	170	170	160	150	140	130	-5
Software Products	300	17	350	350	400	450	500	550	9
Other Information Services	450	11	500	600	650	750	800	900	12
Data Communications	210	33	280	360	460	570	710	880	26
Facilities/ Administration	300	0	300	300	300	300	300	300	0
In-house Staff	1,000	-5	950	850	750	650	550	450	-14
IT Budget Total	2,900	3	3,000	3,050	3,050	3,150	3,250	3,400	3
Processing Services	45	22	55	60	65	65	65	65	3
Turnkey Systems	300	17	350	400	400	400	400	400	3
Application Software Products	90	22	110	130	155	185	220	260	19
Professional Services	140	4	145	145	140	130	120	110	-5
Network Services	110	32	145	190	245	310	395	500	28
Systems Operations	7	29	9	11	13	14	15	17	14
Systems Integration	65	15	75	85	95	105	115	125	11
Industry Sectors Total	760	17	890	1,020	1,110	1,210	1,330	1,480	11

Exhibit A-8

Industry Sectors, Utilities, Germany

Sector	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	300	0	300	350	400	450	500	550	13
Equipment Services	115	9	125	140	160	180	200	220	12
Software Products	165	18	195	225	275	320	370	425	17
Other Information Services	245	12	275	320	375	430	485	525	14
Data Communications	115	13	130	150	175	200	220	245	14
Facilities/ Administration	200	5	210	230	260	290	315	345	10
In-house Staff	800	6	850	900	1,000	1,050	1,100	1,150	6
IT Budget Total	1,950	8	2,100	2,300	2,650	2,900	3,200	3,450	10
Processing Services	35	29	45	55	70	85	95	105	18
Turnkey Systems	145	7	155	175	200	220	240	255	10
Application Software Products	45	11	50	55	65	75	85	95	14
Professional Services	80	0	80	85	90	95	95	95	3
Network Services	15	7	16	17	19	21	22	23	8
Systems Operations	11	27	14	18	23	28	33	39	23
Systems Integration	80	19	95	115	140	170	195	225	19
Industry Sectors Total	410	12	460	520	610	690	770	840	13

Exhibit A-9

Industry Sectors, Telecommunications, Germany

Sector	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	410	17	480	560	640	720	810	920	14
Equipment Services	120	13	135	155	175	195	215	235	12
Software Products	165	18	195	225	260	290	325	365	13
Other Information Services	230	22	280	330	385	440	515	600	16
Data Communications	180	14	205	235	260	285	310	340	11
Facilities/ Administration	205	5	215	225	235	245	255	265	4
In-house Staff	880	8	950	1,020	1,070	1,100	1,130	1,160	4
IT Budget Total	2,200	11	2,450	2,750	3,050	3,300	3,550	3,900	10
Processing Services	35	29	45	55	65	75	85	95	16
Turnkey Systems	155	10	170	190	210	225	245	260	9
Application Software Products	45	11	50	55	60	65	70	80	10
Professional Services	85	6	90	95	100	100	100	100	2
Network Services	15	47	22	33	48	69	99	143	45
Systems Operations	7	29	9	11	13	15	17	19	16
Systems Integration	50	20	60	70	80	90	100	110	13
Industry Sectors Total	390	15	450	510	580	640	720	810	12

Exhibit A-10

Industry Sectors, Retail Distribution, Germany

Sector	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	1,100	-5	1,050	1,000	950	900	850	800	-5
Equipment Services	410	-6	385	360	340	320	310	300	-5
Software Products	380	4	395	405	415	415	440	455	3
Other Information Services	435	7	465	480	500	515	555	600	5
Data Communications	210	2	215	215	215	215	220	225	1
Facilities/ Administration	680	-10	610	560	520	490	480	470	-5
In-house Staff	1,600	-13	1,400	1,250	1,100	950	850	750	-12
IT Budget Total	4,800	-6	4,500	4,250	4,050	3,800	3,700	3,600	-4
Processing Services	55	9	60	65	65	65	65	65	2
Turnkey Systems	300	0	300	300	300	300	300	300	0
Application Software Products	75	13	85	95	105	120	140	160	13
Professional Services	145	-3	140	135	130	120	115	110	-5
Network Services	40	25	50	60	75	90	115	145	24
Systems Operations	8	25	10	13	16	19	23	28	23
Systems Integration	10	0	10	10	10	10	10	10	0
Industry Sectors Total	630	5	660	680	700	720	770	820	4

Exhibit A-11

Industry Sectors, Wholesale Distribution, Germany

Sector	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	1,320	-11	1,170	1,040	970	900	850	800	-7
Equipment Services	465	-10	420	380	360	340	325	310	-6
Software Products	455	0	455	450	465	475	490	510	2
Other Information Services	575	2	585	585	625	640	670	705	4
Data Communications	250	-4	240	230	230	230	230	230	-1
Facilities/ Administration	850	-18	700	600	550	500	450	400	-11
In-house Staff	1,950	-13	1,700	1,450	1,300	1,200	1,100	1,000	-10
IT Budget Total	5,850	-10	5,250	4,750	4,500	4,300	4,100	3,950	-6
Processing Services	90	6	95	95	100	100	100	100	1
Turnkey Systems	355	-3	345	340	355	365	375	385	2
Application Software Products	105	5	110	115	130	145	160	180	10
Professional Services	205	-7	190	175	170	160	150	140	-6
Network Services	45	11	50	55	65	75	90	105	16
Systems Operations	23	26	29	36	45	54	65	79	22
Systems Integration	10	0	10	10	10	10	10	10	0
Industry Sectors Total	830	0	830	830	880	910	950	1,000	4

Exhibit A-12

Industry Sectors, Banking & Finance, Germany

Sector	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	5,100	3	5,250	5,250	5,200	5,150	5,150	5,150	0
Equipment Services	1,750	3	1,800	1,800	1,800	1,800	1,800	1,800	0
Software Products	1,800	14	2,050	2,250	2,500	2,700	3,050	3,400	11
Other Information Services	3,100	13	3,500	3,900	4,200	4,700	5,100	5,600	10
Data Communications	2,650	11	2,950	3,150	3,350	3,550	3,750	4,000	6
Facilities/ Administration	2,450	0	2,450	2,400	2,400	2,400	2,400	2,400	0
In-house Staff	10,150	2	10,350	10,150	9,950	9,750	9,550	9,350	-2
IT Budget Total	27,000	5	28,400	28,900	29,400	30,100	30,800	31,700	2
Processing Services	235	19	280	315	345	375	400	425	9
Turnkey Systems	600	8	650	700	800	900	1,000	1,100	11
Application Software Products	600	25	750	850	1,000	1,200	1,450	1,750	18
Professional Services	1,800	8	1,950	2,050	2,150	2,250	2,300	2,350	4
Network Services	365	25	455	560	690	850	1,045	1,285	23
Systems Operations	45	33	60	75	90	105	120	135	18
Systems Integration	185	11	205	220	240	260	280	300	8
Industry Sectors Total	3,850	13	4,350	4,750	5,300	5,950	6,600	7,350	11

Exhibit A-13

Industry Sectors, Insurance, Germany

Sector	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	2,150	0	2,150	2,200	2,300	2,350	2,350	2,350	2
Equipment Services	700	0	700	700	750	750	750	750	1
Software Products	700	7	750	850	950	1,050	1,150	1,250	11
Other Information Services	1,100	9	1,200	1,400	1,600	1,800	1,900	2,050	11
Data Communications	1,000	10	1,100	1,200	1,350	1,450	1,550	1,650	8
Facilities/ Administration	950	-5	900	900	950	1,000	1,000	1,000	2
In-house Staff	4,000	-1	3,950	3,950	4,050	4,050	3,950	3,850	-1
IT Budget Total	10,600	1	10,750	11,200	11,950	12,450	12,650	12,900	4
Processing Services	245	16	285	330	380	420	450	480	11
Turnkey Systems	370	7	395	440	495	545	590	630	10
Application Software Products	165	18	195	230	280	335	395	465	19
Professional Services	450	0	450	500	550	600	600	600	6
Network Services	60	25	75	95	120	150	185	225	25
Systems Operations	40	25	50	63	77	89	101	115	18
Systems Integration	115	4	120	130	145	160	170	180	8
Industry Sectors Total	1,450	7	1,550	1,800	2,050	2,300	2,500	2,700	12

Exhibit A-14

Industry Sectors, Healthcare, Germany

Sector	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	710	3	730	750	770	790	810	830	3
Equipment Services	280	4	290	300	310	320	330	340	3
Software Products	420	17	490	570	670	770	900	1,060	17
Other Information Services	460	17	540	630	730	850	990	1,130	16
Data Communications	340	9	370	400	430	460	500	540	8
Facilities/ Administration	350	3	360	370	380	400	420	450	5
In-house Staff	1,600	3	1,650	1,700	1,750	1,800	1,850	1,900	3
IT Budget Total	4,150	7	4,450	4,700	5,050	5,400	5,800	6,250	7
Processing Services	85	24	105	125	145	165	185	205	14
Turnkey Systems	480	14	545	630	730	840	965	1,100	15
Application Software Products	140	21	170	205	250	310	380	465	22
Professional Services	145	10	160	180	200	220	240	260	10
Network Services	14	43	20	29	41	59	84	120	43
Systems Operations	7	29	9	11	13	15	17	20	17
Systems Integration	25	20	30	35	40	45	50	60	15
Industry Sectors Total	900	16	1,040	1,220	1,420	1,650	1,920	2,230	16

Exhibit A-15

Industry Sectors, Education, Germany

Sector	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	300	0	300	300	300	300	300	300	0
Equipment Services	155	-6	145	140	135	130	125	120	-4
Software Products	165	0	165	165	165	160	160	155	-1
Other Information Services	145	3	150	155	160	160	160	165	2
Data Communications	200	0	200	200	200	200	200	200	0
Facilities/ Administration	200	0	200	200	200	200	200	200	0
In-house Staff	1,200	-8	1,100	1,000	900	800	750	700	-9
IT Budget Total	2,350	-4	2,250	2,150	2,050	1,950	1,900	1,850	-4
Processing Services	10	10	11	11	11	11	11	11	0
Turnkey Systems	135	-4	130	125	125	120	115	110	-3
Application Software Products	40	0	40	40	40	40	40	40	0
Professional Services	50	0	50	50	50	50	50	50	0
Network Services	5	0	5	5	5	5	5	5	0
Systems Operations	1	0	1	1	1	1	1	1	0
Systems Integration	14	-7	13	12	11	10	9	8	-9
Industry Sectors Total	255	-2	250	245	245	235	230	225	-2

Exhibit A-16

Industry Sectors, Local Government, Germany

Sector	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	710	-10	640	580	520	460	410	370	-10
Equipment Services	270	0	270	270	270	270	270	270	0
Software Products	310	13	350	380	410	450	490	540	9
Other Information Services	460	4	480	510	540	560	580	590	4
Data Communications	330	6	350	370	390	410	430	450	5
Facilities/ Administration	380	-5	360	350	340	340	340	340	-1
In-house Staff	1,800	-6	1,700	1,600	1,500	1,400	1,300	1,200	-7
IT Budget Total	4,250	-2	4,150	4,050	3,950	3,900	3,800	3,750	-2
Processing Services	85	12	95	105	110	115	120	125	6
Turnkey Systems	260	4	270	285	300	310	320	330	4
Application Software Products	85	18	100	115	135	160	190	225	18
Professional Services	210	0	210	210	205	200	190	180	-3
Network Services	5	0	5	5	5	5	5	5	0
Systems Operations	7	29	9	11	13	15	17	20	17
Systems Integration	40	10	44	49	55	62	69	77	12
Industry Sectors Total	690	6	730	780	820	870	910	960	6

Exhibit A-17

Industry Sectors, Central Government, Germany

Sector	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	1,100	-9	1,000	950	850	800	750	700	-7
Equipment Services	410	-7	380	360	340	320	300	280	-6
Software Products	440	7	470	500	530	560	600	650	7
Other Information Services	640	9	700	760	820	870	910	990	7
Data Communications	530	0	530	530	520	510	500	500	-1
Facilities/ Administration	570	-11	510	460	420	390	360	330	-8
In-house Staff	2,700	-7	2,500	2,300	2,100	1,900	1,750	1,600	-9
IT Budget Total	6,400	-5	6,100	5,850	5,600	5,350	5,150	5,050	-4
Processing Services	90	17	105	120	135	150	160	175	11
Turnkey Systems	300	8	325	360	395	430	470	510	9
Application Software Products	75	7	80	85	90	95	100	105	6
Professional Services	215	2	220	225	230	230	230	230	1
Network Services	30	20	36	43	52	62	74	89	20
Systems Operations	10	50	15	20	25	30	35	45	25
Systems Integration	225	11	250	280	315	355	395	440	12
Industry Sectors Total	950	11	1,050	1,150	1,250	1,350	1,450	1,600	9

Exhibit A-18

Industry Sectors, Business Services, Germany

Sector	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	245	-2	240	235	230	225	220	215	-2
Equipment Services	105	0	105	105	105	105	105	105	0
Software Products	310	13	350	395	455	515	590	675	14
Other Information Services	380	13	430	505	575	635	735	820	14
Data Communications	110	9	120	125	130	135	140	145	4
Facilities/ Administration	185	-5	175	165	160	155	150	145	-4
In-house Staff	650	-2	640	620	600	580	560	540	-3
IT Budget Total	2,000	2	2,050	2,150	2,250	2,350	2,500	2,650	5
Processing Services	50	20	60	70	80	85	90	95	10
Turnkey Systems	480	14	545	630	730	840	965	1,100	15
Application Software Products	130	12	145	160	180	205	230	260	12
Professional Services	170	6	180	190	200	205	210	215	4
Network Services	14	36	19	26	36	50	69	95	38
Systems Operations	8	13	9	10	10	10	10	10	2
Systems Integration	6	17	7	8	9	10	11	12	11
Industry Sectors Total	850	12	950	1,100	1,250	1,400	1,600	1,800	14

Exhibit A-19

Industry Sectors, Other Industries, Germany

Sector	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	770	16	890	1,010	1,100	1,160	1,180	1,200	6
Equipment Services	250	12	280	310	330	340	340	340	4
Software Products	330	24	410	490	590	660	740	820	15
Other Information Services	450	20	540	680	800	890	970	1,010	13
Data Communications	260	23	320	380	440	490	530	570	12
Facilities/ Administration	400	10	440	480	510	540	550	560	5
In-house Staff	1,500	13	1,700	1,900	2,050	2,150	2,150	2,150	5
IT Budget Total	3,950	16	4,600	5,250	5,800	6,250	6,450	6,650	8
Processing Services	70	29	90	115	135	155	165	175	14
Turnkey Systems	340	18	400	470	535	585	615	640	10
Application Software Products	95	32	125	160	205	250	300	355	23
Professional Services	200	23	245	290	335	370	390	410	11
Network Services	6	17	7	8	9	10	10	10	7
Systems Operations	10	40	14	18	22	25	28	31	17
Systems Integration	28	29	36	46	58	70	81	94	21
Industry Sectors Total	750	20	900	1,100	1,300	1,450	1,600	1,700	14

D

Cross-Industry Sectors in Local Currency

Exhibit A-20

Information Services Market by Cross-Industry Sectors, Germany

Sector	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Accounting	165	9	180	195	220	255	290	330	13
Education & Training	16	-6	15	14	14	16	18	20	6
Engineering & Scientific	40	13	45	50	55	65	75	85	14
Human Resources	50	0	50	55	60	70	80	90	12
Office Systems	190	11	210	235	275	330	385	445	16
Planning & Analysis	155	6	165	180	200	230	265	300	13
Other Cross-Industry	29	0	29	29	30	33	36	39	6
Cross-Industry Sectors Total	1,700	3	1,750	1,800	1,900	2,100	2,350	2,600	8

Exhibit A-21

Cross-Industry Sectors, Accounting, Germany

Sector	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Transaction Processing	18	-6	17	16	16	17	17	17	0
Turnkey Systems	205	0	205	205	215	235	255	275	6
Application Software Products	165	9	180	195	220	255	290	330	13
Cross-Industry Sectors Total	390	3	400	415	450	505	560	620	9

Exhibit A-22

Cross-Industry Sectors, Education & Training, Germany

Sector	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Transaction Processing	4	0	4	4	4	4	4	4	0
Turnkey Systems	85	0	85	85	90	100	110	120	7
Application Software Products	16	-6	15	14	14	16	18	20	6
Cross-Industry Sectors Total	105	0	105	105	110	120	130	145	7

Exhibit A-23

Cross-Industry Sectors, Engineering & Scientific, Germany

Sector	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Transaction Processing	14	-7	13	12	12	12	12	12	-2
Turnkey Systems	55	0	55	55	55	60	65	70	5
Application Software Products	40	13	45	50	55	65	75	85	14
Cross-Industry Sectors Total	110	5	115	115	120	135	150	165	7

Exhibit A-24

Cross-Industry Sectors, Human Resources, Germany

Sector	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Transaction Processing	200	-5	190	180	180	185	190	195	1
Turnkey Systems	50	0	50	50	55	60	65	70	7
Application Software Products	50	0	50	55	60	70	80	90	12
Cross-Industry Sectors Total	300	-3	290	285	295	315	335	355	4

Exhibit A-25

Cross-Industry Sectors, Office Systems, Germany

Sector	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Transaction Processing	4	0	4	4	4	4	4	4	0
Turnkey Systems	75	0	75	75	80	90	95	105	7
Application Software Products	190	11	210	235	275	330	385	445	16
Cross-Industry Sectors Total	270	7	290	315	360	425	485	555	14

Exhibit A-26

Cross-Industry Sectors, Planning & Analysis, Germany

Sector	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Transaction Processing	23	-4	22	21	21	22	23	24	2
Turnkey Systems	27	-4	26	25	25	27	29	31	4
Application Software Products	155	6	165	180	200	230	265	300	13
Cross-Industry Sectors Total	205	5	215	225	245	280	315	355	11

Exhibit A-27

Other Cross-Industry, Germany

Sector	DM Millions								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Transaction Processing	75	-7	70	65	65	65	65	65	-1
Turnkey Systems	230	-2	225	220	225	240	255	275	4
Application Software Products	29	0	29	29	30	33	36	39	6
Cross-Industry Sectors Total	335	-3	325	315	320	340	355	380	3

Information Services Industry

Forecast Database, 1994-1999

Germany

(US\$ Million)

E

Forecast Database in US Dollars

Exhibit A-28

Top Level IT Expenditure, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	10,900	-3	10,500	10,200	10,000	9,900	9,800	9,700	-2
Equipment Services	4,100	-3	4,000	3,900	3,800	3,800	3,800	3,700	-1
Software Products	5,300	8	5,700	6,100	6,700	7,400	8,200	9,100	10
Other Information Services	7,200	7	7,800	8,400	9,200	10,000	10,800	11,700	9
Data Communications	4,500	8	4,800	5,100	5,500	5,900	6,200	6,700	7
Facilities/ Administration	5,500	-6	5,200	4,900	4,800	4,800	4,800	4,800	-2
In-house Staff	23,100	-5	22,000	20,700	19,900	19,300	18,600	18,000	-4
IT Budget Total	61,000	-2	60,000	59,000	60,000	61,000	62,000	64,000	1

Exhibit A-29

Information Services Market
Forecast by Delivery Mode and Submode
Germany, 1994-1999

Delivery Modes	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR(%)
Software and Services Total (ex. Equipment Services)	14,700	6	15,600	16,700	18,200	19,700	21,400	23,300	8
Professional Services	2,930	2	2,990	3,100	3,200	3,300	3,300	3,300	2
- IS Consulting	480	12	530	600	680	760	840	910	11
- Education & Training	610	4	630	660	690	720	750	750	3
- Custom Software	1,840	-2	1,810	1,810	1,810	1,750	1,700	1,610	-2
- Application Management	14	32	19	25	33	43	55	71	30
Systems Integration	600	10	660	750	830	950	1,030	1,150	12
- Equipment	167	7	178	190	201	213	230	247	7
- Application Software	115	25	144	178	224	282	350	440	25
- System Software	52	6	55	60	66	72	78	83	9
- Professional Services	259	4	270	310	320	360	350	350	5
- Other	11	25	14	17	20	23	26	34	19
Systems Operations	218	26	276	340	410	490	580	680	20
- Platform Operations	46	25	57	63	72	78	83	92	10
- Application Operations	126	25	158	198	244	290	350	410	21
- Desktop Services	46	31	60	78	98	121	147	181	25
Processing Services	1,380	10	1,520	1,610	1,750	1,900	2,010	2,130	7
- Transaction Processing	1,150	8	1,240	1,320	1,440	1,520	1,610	1,670	6
- Utility Processing	69	0	69	69	69	69	69	69	0
- Other Processing	178	13	201	230	259	293	330	370	13
Network Services	890	16	1,020	1,200	1,430	1,680	1,990	2,390	19
- Electronic Info Svcs	630	10	690	760	850	910	970	1,020	8
- Network Applications	170	34	227	310	440	610	840	1,150	38
- Network Management	89	19	106	124	144	167	190	216	15
System Software Product	2,930	4	3,000	3,200	3,300	3,300	3,400	3,600	3
- Mainframe	1,380	0	1,380	1,320	1,240	1,090	950	780	-11
- Minicomputer	860	3	890	950	1,010	1,060	1,120	1,180	6
- Workstation /PC	690	13	780	890	1,030	1,180	1,380	1,610	16
Application Software Product	1,950	9	2,130	2,360	2,760	3,200	3,700	4,400	15
- Mainframe	236	-5	224	213	207	201	195	190	-3
- Minicomputer	600	0	600	660	830	1,010	1,180	1,410	18
- Workstation /PC	1,120	15	1,290	1,490	1,720	2,010	2,360	2,760	16
Turnkey Systems	3,700	5	3,900	4,100	4,500	4,800	5,200	5,600	8
- Equipment	1,900	0	1,900	1,950	2,010	2,070	2,130	2,180	3
- Application Software	660	13	750	810	950	1,060	1,240	1,410	14
- System Software	259	2	264	276	287	310	320	330	4
- Professional Services	920	9	1,010	1,090	1,240	1,380	1,550	1,720	11
Equipment Services	4,100	-3	4,000	3,900	3,800	3,800	3,800	3,700	-1
- Equipment Maintenance	2,720	-8	2,510	2,320	2,200	2,100	2,010	1,910	-5
- Environmental Services	1,420	5	1,490	1,560	1,630	1,690	1,760	1,830	4
Grand Total Information Service Market	18,700	5	19,500	20,400	22,100	23,600	25,000	27,000	7

F

Sector Summary in US Dollars

Exhibit A-30

Information Services Market by Sector Summary, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Processing Services	948	12	1,063	1,149	1,264	1,351	1,437	1,494	7
Turnkey Systems	3,333	5	3,506	3,736	4,023	4,368	4,713	5,057	8
Application Software Products	1,552	13	1,753	1,925	2,241	2,615	3,046	3,592	15
Professional Services	2,931	2	2,989	3,103	3,218	3,276	3,333	3,333	2
Network Services	632	18	747	891	1,092	1,322	1,609	1,983	22
Systems Operations	218	26	276	339	414	489	575	684	20
Systems Integration	603	10	661	747	833	948	1,034	1,149	12
Industry Sectors Total	10,230	7	10,977	11,897	13,103	14,368	15,747	17,299	10
Transaction Processing	195	-6	184	172	172	178	181	184	0
Turnkey Systems	420	-1	414	414	431	466	500	546	6
Application Software Products	374	6	397	437	489	575	661	753	14
Cross-Industry Sectors Total	977	3	1,006	1,034	1,092	1,207	1,351	1,494	8
Equipment Services	4,138	-3	3,994	3,879	3,822	3,793	3,764	3,736	-1
System Software Products	2,931	4	3,046	3,161	3,276	3,333	3,448	3,563	3
Utility and Other Processing	247	9	270	299	328	362	397	437	10
Other Electronic Info Services	250	10	276	305	339	362	385	408	8
Generic Sectors Total	7,586	0	7,586	7,644	7,759	7,874	7,989	8,161	1
Total Information Services	18,793	4	19,598	20,575	21,954	23,448	25,115	26,954	7

G

Industry Sectors in US Dollars

Exhibit A-31

Information Services Market by Industry Sectors, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Discrete Manufacturing	2,040	-4	1,954	1,868	1,897	2,011	2,155	2,299	3
Process Manufacturing	920	0	920	977	1,063	1,207	1,351	1,523	11
Transportation	437	17	511	586	638	695	764	851	11
Utilities	236	12	264	299	351	397	443	483	13
Telecommunications	224	15	259	293	333	368	414	466	12
Retail Distribution	362	5	379	391	402	414	443	471	4
Wholesale Distribution	477	0	477	477	506	523	546	575	4
Banking & Finance	2,213	13	2,500	2,730	3,046	3,420	3,793	4,224	11
Insurance	833	7	891	1,034	1,178	1,322	1,437	1,552	12
Healthcare	517	16	598	701	816	948	1,103	1,282	16
Education	147	-2	144	141	141	135	132	129	-2
Local Government	397	6	420	448	471	500	523	552	6
Central Government	546	11	603	661	718	776	833	920	9
Business Services	489	12	546	632	718	805	920	1,034	14
Other Industries	431	20	517	632	747	833	920	977	14
Industry Sectors Total	10,230	7	10,977	11,897	13,103	14,368	15,747	17,299	10

Exhibit A-32

Industry Sectors, Discrete Manufacturing, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	1,609	-18	1,322	1,092	948	862	805	747	-11
Equipment Services	851	-15	724	615	552	523	494	471	-8
Software Products	1,063	-3	1,034	977	977	1,034	1,092	1,149	2
Other Information Services	1,351	-6	1,264	1,207	1,236	1,293	1,379	1,466	3
Data Communications	431	0	431	402	402	431	460	489	3
Facilities/ Administration	661	-22	517	431	374	345	316	287	-11
In-house Staff	4,080	-18	3,333	2,701	2,328	2,126	1,925	1,753	-12
IT Budget Total	10,057	-14	8,621	7,414	6,839	6,609	6,494	6,379	-6
Processing Services	244	-4	236	221	213	210	204	198	-3
Turnkey Systems	626	-9	569	529	517	529	540	546	-1
Application Software Products	414	1	417	414	443	494	555	621	8
Professional Services	431	-11	385	345	322	310	299	287	-6
Network Services	170	2	172	175	187	210	236	264	9
Systems Operations	72	24	89	109	132	161	195	239	22
Systems Integration	78	4	80	83	92	103	118	132	10
Industry Sectors Total	2,040	-4	1,954	1,868	1,897	2,011	2,155	2,299	3

Exhibit A-33

Industry Sectors, Process Manufacturing, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	833	-10	747	690	661	661	661	661	-2
Equipment Services	305	-8	282	270	264	270	276	282	0
Software Products	420	4	437	466	517	580	667	764	12
Other Information Services	592	-1	586	621	661	747	822	908	9
Data Communications	397	-3	385	379	385	402	425	448	3
Facilities/ Administration	414	-13	362	328	310	316	322	328	-2
In-house Staff	1,897	-11	1,695	1,552	1,466	1,437	1,408	1,379	-4
IT Budget Total	4,856	-8	4,483	4,310	4,253	4,425	4,569	4,770	1
Processing Services	55	5	57	60	63	69	75	80	7
Turnkey Systems	293	-2	287	299	322	356	391	425	8
Application Software Products	167	10	184	201	236	282	339	408	17
Professional Services	264	-4	253	253	253	264	270	276	2
Network Services	55	11	60	69	80	98	118	141	18
Systems Operations	40	21	49	60	72	86	103	126	21
Systems Integration	37	8	40	43	49	57	66	78	14
Industry Sectors Total	920	0	920	977	1,063	1,207	1,351	1,523	11

Exhibit A-34

Industry Sectors, Transportation, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	259	0	259	230	201	172	144	115	-15
Equipment Services	98	0	98	98	92	86	80	75	-5
Software Products	172	17	201	201	230	259	287	316	9
Other Information Services	259	11	287	345	374	431	460	517	12
Data Communications	121	33	161	207	264	328	408	506	26
Facilities/ Administration	172	0	172	172	172	172	172	172	0
In-house Staff	575	-5	546	489	431	374	316	259	-14
IT Budget Total	1,667	3	1,724	1,753	1,753	1,810	1,868	1,954	3
Processing Services	26	22	32	34	37	37	37	37	3
Turnkey Systems	172	17	201	230	230	230	230	230	3
Application Software Products	52	22	63	75	89	106	126	149	19
Professional Services	80	4	83	83	80	75	69	63	-5
Network Services	63	32	83	109	141	178	227	287	28
Systems Operations	4	29	5	6	7	8	9	10	14
Systems Integration	37	15	43	49	55	60	66	72	11
Industry Sectors Total	437	17	511	586	638	695	764	851	11

Exhibit A-35

Industry Sectors, Utilities, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	172	0	172	201	230	259	287	316	13
Equipment Services	66	9	72	80	92	103	115	126	12
Software Products	95	18	112	129	158	184	213	244	17
Other Information Services	141	12	158	184	216	247	279	302	14
Data Communications	66	13	75	86	101	115	126	141	14
Facilities/ Administration	115	5	121	132	149	167	181	198	10
In-house Staff	460	6	489	517	575	603	632	661	6
IT Budget Total	1,121	8	1,207	1,322	1,523	1,667	1,839	1,983	10
Processing Services	20	29	26	32	40	49	55	60	18
Turnkey Systems	83	7	89	101	115	126	138	147	10
Application Software Products	26	11	29	32	37	43	49	55	14
Professional Services	46	0	46	49	52	55	55	55	3
Network Services	9	7	9	10	11	12	13	13	8
Systems Operations	6	27	8	10	13	16	19	22	23
Systems Integration	46	19	55	66	80	98	112	129	19
Industry Sectors Total	236	12	264	299	351	397	443	483	13

Exhibit A-36

Industry Sectors, Telecommunications, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	236	17	276	322	368	414	466	529	14
Equipment Services	69	13	78	89	101	112	124	135	12
Software Products	95	18	112	129	149	167	187	210	13
Other Information Services	132	22	161	190	221	253	296	345	16
Data Communications	103	14	118	135	149	164	178	195	11
Facilities/ Administration	118	5	124	129	135	141	147	152	4
In-house Staff	506	8	546	586	615	632	649	667	4
IT Budget Total	1,264	11	1,408	1,580	1,753	1,897	2,040	2,241	10
Processing Services	20	29	26	32	37	43	49	55	16
Turnkey Systems	89	10	98	109	121	129	141	149	9
Application Software Products	26	11	29	32	34	37	40	46	10
Professional Services	49	6	52	55	57	57	57	57	2
Network Services	9	47	13	19	28	40	57	82	45
Systems Operations	4	29	5	6	7	9	10	11	16
Systems Integration	29	20	34	40	46	52	57	63	13
Industry Sectors Total	224	15	259	293	333	368	414	466	12

Exhibit A-37

Industry Sectors, Retail Distribution, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	632	-5	603	575	546	517	489	460	-5
Equipment Services	236	-6	221	207	195	184	178	172	-5
Software Products	218	4	227	233	239	239	253	261	3
Other Information Services	250	7	267	276	287	296	319	345	5
Data Communications	121	2	124	124	124	124	126	129	1
Facilities/ Administration	391	-10	351	322	299	282	276	270	-5
In-house Staff	920	-13	805	718	632	546	489	431	-12
IT Budget Total	2,759	-6	2,586	2,443	2,328	2,184	2,126	2,069	-4
Processing Services	32	9	34	37	37	37	37	37	2
Turnkey Systems	172	0	172	172	172	172	172	172	0
Application Software Products	43	13	49	55	60	69	80	92	13
Professional Services	83	-3	80	78	75	69	66	63	-5
Network Services	23	25	29	34	43	52	66	83	24
Systems Operations	5	25	6	7	9	11	13	16	23
Systems Integration	6	0	6	6	6	6	6	6	0
Industry Sectors Total	362	5	379	391	402	414	443	471	4

Exhibit A-38

Industry Sectors, Wholesale Distribution, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	759	-11	672	598	557	517	489	460	-7
Equipment Services	267	-10	241	218	207	195	187	178	-6
Software Products	261	0	261	259	267	273	282	293	2
Other Information Services	330	2	336	336	359	368	385	405	4
Data Communications	144	-4	138	132	132	132	132	132	-1
Facilities/ Administration	489	-18	402	345	316	287	259	230	-11
In-house Staff	1,121	-13	977	833	747	690	632	575	-10
IT Budget Total	3,362	-10	3,017	2,730	2,586	2,471	2,356	2,270	-6
Processing Services	52	6	55	55	57	57	57	57	1
Turnkey Systems	204	-3	198	195	204	210	216	221	2
Application Software Products	60	5	63	66	75	83	92	103	10
Professional Services	118	-7	109	101	98	92	86	80	-6
Network Services	26	11	29	32	37	43	52	60	16
Systems Operations	13	26	17	21	26	31	37	45	22
Systems Integration	6	0	6	6	6	6	6	6	0
Industry Sectors Total	477	0	477	477	506	523	546	575	4

Exhibit A-39

Industry Sectors, Banking & Finance, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	2,931	3	3,017	3,017	2,989	2,960	2,960	2,960	0
Equipment Services	1,006	3	1,034	1,034	1,034	1,034	1,034	1,034	0
Software Products	1,034	14	1,178	1,293	1,437	1,552	1,753	1,954	11
Other Information Services	1,782	13	2,011	2,241	2,414	2,701	2,931	3,218	10
Data Communications	1,523	11	1,695	1,810	1,925	2,040	2,155	2,299	6
Facilities/ Administration	1,408	0	1,408	1,379	1,379	1,379	1,379	1,379	0
In-house Staff	5,833	2	5,948	5,833	5,718	5,603	5,489	5,374	-2
IT Budget Total	15,517	5	16,322	16,609	16,897	17,299	17,701	18,218	2
Processing Services	135	19	161	181	198	216	230	244	9
Turnkey Systems	345	8	374	402	460	517	575	632	11
Application Software Products	345	25	431	489	575	690	833	1,006	18
Professional Services	1,034	8	1,121	1,178	1,236	1,293	1,322	1,351	4
Network Services	210	25	261	322	397	489	601	739	23
Systems Operations	26	33	34	43	52	60	69	78	18
Systems Integration	106	11	118	126	138	149	161	172	8
Industry Sectors Total	2,213	13	2,500	2,730	3,046	3,420	3,793	4,224	11

Exhibit A-40

Industry Sectors, Insurance, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	1,236	0	1,236	1,264	1,322	1,351	1,351	1,351	2
Equipment Services	402	0	402	402	431	431	431	431	1
Software Products	402	7	431	489	546	603	661	718	11
Other Information Services	632	9	690	805	920	1,034	1,092	1,178	11
Data Communications	575	10	632	690	776	833	891	948	8
Facilities/ Administration	546	-5	517	517	546	575	575	575	2
In-house Staff	2,299	-1	2,270	2,270	2,328	2,328	2,270	2,213	-1
IT Budget Total	6,092	1	6,178	6,437	6,868	7,155	7,270	7,414	4
Processing Services	141	16	164	190	218	241	259	276	11
Turnkey Systems	213	7	227	253	284	313	339	362	10
Application Software Products	95	18	112	132	161	193	227	267	19
Professional Services	259	0	259	287	316	345	345	345	6
Network Services	34	25	43	55	69	86	106	129	25
Systems Operations	23	25	29	36	44	51	58	66	18
Systems Integration	66	4	69	75	83	92	98	103	8
Industry Sectors Total	833	7	891	1,034	1,178	1,322	1,437	1,552	12

Exhibit A-41

Industry Sectors, Healthcare, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	408	3	420	431	443	454	466	477	3
Equipment Services	161	4	167	172	178	184	190	195	3
Software Products	241	17	282	328	385	443	517	609	17
Other Information Services	264	17	310	362	420	489	569	649	16
Data Communications	195	9	213	230	247	264	287	310	8
Facilities/ Administration	201	3	207	213	218	230	241	259	5
In-house Staff	920	3	948	977	1,006	1,034	1,063	1,092	3
IT Budget Total	2,385	7	2,557	2,701	2,902	3,103	3,333	3,592	7
Processing Services	49	24	60	72	83	95	106	118	14
Turnkey Systems	276	14	313	362	420	483	555	632	15
Application Software Products	80	21	98	118	144	178	218	267	22
Professional Services	83	10	92	103	115	126	138	149	10
Network Services	8	43	11	17	24	34	48	69	43
Systems Operations	4	29	5	6	7	9	10	11	17
Systems Integration	14	20	17	20	23	26	29	34	15
Industry Sectors Total	517	16	598	701	816	948	1,103	1,282	16

Exhibit A-42

Industry Sectors, Education, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	172	0	172	172	172	172	172	172	0
Equipment Services	89	-6	83	80	78	75	72	69	-4
Software Products	95	0	95	95	95	92	92	89	-1
Other Information Services	83	3	86	89	92	92	92	95	2
Data Communications	115	0	115	115	115	115	115	115	0
Facilities/ Administration	115	0	115	115	115	115	115	115	0
In-house Staff	690	-8	632	575	517	460	431	402	-9
IT Budget Total	1,351	-4	1,293	1,236	1,178	1,121	1,092	1,063	-4
Processing Services	6	10	6	6	6	6	6	6	0
Turnkey Systems	78	-4	75	72	72	69	66	63	-3
Application Software Products	23	0	23	23	23	23	23	23	0
Professional Services	29	0	29	29	29	29	29	29	0
Network Services	3	0	3	3	3	3	3	3	0
Systems Operations	1	0	1	1	1	1	1	1	0
Systems Integration	8	-7	7	7	6	6	5	5	-9
Industry Sectors Total	147	-2	144	141	141	135	132	129	-2

Exhibit A-43

Industry Sectors, Local Government, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	408	-10	368	333	299	264	236	213	-10
Equipment Services	155	0	155	155	155	155	155	155	0
Software Products	178	13	201	218	236	259	282	310	9
Other Information Services	264	4	276	293	310	322	333	339	4
Data Communications	190	6	201	213	224	236	247	259	5
Facilities/ Administration	218	-5	207	201	195	195	195	195	-1
In-house Staff	1,034	-6	977	920	862	805	747	690	-7
IT Budget Total	2,443	-2	2,385	2,328	2,270	2,241	2,184	2,155	-2
Processing Services	49	12	55	60	63	66	69	72	6
Turnkey Systems	149	4	155	164	172	178	184	190	4
Application Software Products	49	18	57	66	78	92	109	129	18
Professional Services	121	0	121	121	118	115	109	103	-3
Network Services	3	0	3	3	3	3	3	3	0
Systems Operations	4	29	5	6	7	9	10	11	17
Systems Integration	23	10	25	28	32	36	40	44	12
Industry Sectors Total	397	6	420	448	471	500	523	552	6

Exhibit A-44

Industry Sectors, Central Government, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	632	-9	575	546	489	460	431	402	-7
Equipment Services	236	-7	218	207	195	184	172	161	-6
Software Products	253	7	270	287	305	322	345	374	7
Other Information Services	368	9	402	437	471	500	523	569	7
Data Communications	305	0	305	305	299	293	287	287	-1
Facilities/ Administration	328	-11	293	264	241	224	207	190	-8
In-house Staff	1,552	-7	1,437	1,322	1,207	1,092	1,006	920	-9
IT Budget Total	3,678	-5	3,506	3,362	3,218	3,075	2,960	2,902	-4
Processing Services	52	17	60	69	78	86	92	101	11
Turnkey Systems	172	8	187	207	227	247	270	293	9
Application Software Products	43	7	46	49	52	55	57	60	6
Professional Services	124	2	126	129	132	132	132	132	1
Network Services	17	20	21	25	30	36	43	51	20
Systems Operations	6	50	9	11	14	17	20	26	25
Systems Integration	129	11	144	161	181	204	227	253	12
Industry Sectors Total	546	11	603	661	718	776	833	920	9

Exhibit A-45

Industry Sectors, Business Services, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	141	-2	138	135	132	129	126	124	-2
Equipment Services	60	0	60	60	60	60	60	60	0
Software Products	178	13	201	227	261	296	339	388	14
Other Information Services	218	13	247	290	330	365	422	471	14
Data Communications	63	9	69	72	75	78	80	83	4
Facilities/ Administration	106	-5	101	95	92	89	86	83	-4
In-house Staff	374	-2	368	356	345	333	322	310	-3
IT Budget Total	1,149	2	1,178	1,236	1,293	1,351	1,437	1,523	5
Processing Services	29	20	34	40	46	49	52	55	10
Turnkey Systems	276	14	313	362	420	483	555	632	15
Application Software Products	75	12	83	92	103	118	132	149	12
Professional Services	98	6	103	109	115	118	121	124	4
Network Services	8	36	11	15	21	29	40	55	38
Systems Operations	5	13	5	6	6	6	6	6	2
Systems Integration	3	17	4	5	5	6	6	7	11
Industry Sectors Total	489	12	546	632	718	805	920	1,034	14

Exhibit A-46

Industry Sectors, Other Industries, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	443	16	511	580	632	667	678	690	6
Equipment Services	144	12	161	178	190	195	195	195	4
Software Products	190	24	236	282	339	379	425	471	15
Other Information Services	259	20	310	391	460	511	557	580	13
Data Communications	149	23	184	218	253	282	305	328	12
Facilities/ Administration	230	10	253	276	293	310	316	322	5
In-house Staff	862	13	977	1,092	1,178	1,236	1,236	1,236	5
IT Budget Total	2,270	16	2,644	3,017	3,333	3,592	3,707	3,822	8
Processing Services	40	29	52	66	78	89	95	101	14
Turnkey Systems	195	18	230	270	307	336	353	368	10
Application Software Products	55	32	72	92	118	144	172	204	23
Professional Services	115	23	141	167	193	213	224	236	11
Network Services	3	17	4	5	5	6	6	6	7
Systems Operations	6	40	8	10	13	14	16	18	17
Systems Integration	16	29	21	26	33	40	47	54	21
Industry Sectors Total	431	20	517	632	747	833	920	977	14

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Cross-Industry Sectors in US Dollars

Exhibit A-47

Information Services Market by Cross-Industry Sectors, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Accounting	95	9	103	112	126	147	167	190	13
Education & Training	9	-6	9	8	8	9	10	11	6
Engineering & Scientific	23	13	26	29	32	37	43	49	14
Human Resources	29	0	29	32	34	40	46	52	12
Office Systems	109	11	121	135	158	190	221	256	16
Planning & Analysis	89	6	95	103	115	132	152	172	13
Other Cross-Industry	17	0	17	17	17	19	21	22	6
Cross-Industry Sectors Total	977	3	1,006	1,034	1,092	1,207	1,351	1,494	8

Exhibit A-27

Cross-Industry Sectors, Accounting, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Transaction Processing	10	-6	10	9	9	10	10	10	0
Turnkey Systems	118	0	118	118	124	135	147	158	6
Application Software Products	95	9	103	112	126	147	167	190	13
Cross-Industry Sectors Total	224	3	230	239	259	290	322	356	9

Exhibit A-49

Cross-Industry Sectors, Education & Training, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Transaction Processing	2	0	2	2	2	2	2	2	0
Turnkey Systems	49	0	49	49	52	57	63	69	7
Application Software Products	9	-6	9	8	8	9	10	11	6
Cross-Industry Sectors Total	60	0	60	60	63	69	75	83	7

Exhibit A-50

Cross-Industry Sectors, Engineering & Scientific, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Transaction Processing	8	-7	7	7	7	7	7	7	-2
Turnkey Systems	32	0	32	32	32	34	37	40	5
Application Software Products	23	13	26	29	32	37	43	49	14
Cross-Industry Sectors Total	63	5	66	66	69	78	86	95	7

Exhibit A-51

Cross-Industry Sectors, Human Resources, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Transaction Processing	115	-5	109	103	103	106	109	112	1
Turnkey Systems	29	0	29	29	32	34	37	40	7
Application Software Products	29	0	29	32	34	40	46	52	12
Cross-Industry Sectors Total	172	-3	167	164	170	181	193	204	4

Exhibit A-52

Cross-Industry Sectors, Office Systems, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Transaction Processing	2	0	2	2	2	2	2	2	0
Turnkey Systems	43	0	43	43	46	52	55	60	7
Application Software Products	109	11	121	135	158	190	221	256	16
Cross-Industry Sectors Total	155	7	167	181	207	244	279	319	14

Exhibit A-53

Cross-Industry Sectors, Planning & Analysis, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Transaction Processing	13	-4	13	12	12	13	13	14	2
Turnkey Systems	16	-4	15	14	14	16	17	18	4
Application Software Products	89	6	95	103	115	132	152	172	13
Cross-Industry Sectors Total	118	5	124	129	141	161	181	204	11

Exhibit A-54

Other Cross-Industry, Germany

Sector	US\$ Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Transaction Processing	43	-7	40	37	37	37	37	37	-1
Turnkey Systems	132	-2	129	126	129	138	147	158	4
Application Software Products	17	0	17	17	17	19	21	22	6
Cross-Industry Sectors Total	193	-3	187	181	184	195	204	218	3

Information Services Industry

Forecast Database, 1994-1999

Germany

(ECU Million)

Forecast Database in ECUs

Exhibit A-55

Top Level IT Expenditure, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	9,700	-3	9,400	9,100	9,000	8,900	8,800	8,700	-2
Equipment Services	3,700	-3	3,600	3,500	3,400	3,400	3,400	3,400	-1
Software Products	4,800	8	5,200	5,500	6,000	6,600	7,300	8,100	10
Other Information Services	6,500	7	7,000	7,500	8,200	9,000	9,700	10,500	9
Data Communications	4,000	8	4,300	4,600	4,900	5,300	5,600	6,000	7
Facilities/ Administration	4,900	-6	4,600	4,400	4,300	4,300	4,300	4,300	-2
In-house Staff	20,700	-5	19,700	18,600	17,900	17,300	16,700	16,100	-4
IT Budget Total	55,000	-2	54,000	53,000	54,000	55,000	56,000	57,000	1

Exhibit A-56

Information Services Market
Forecast by Delivery Mode and Submode
Germany, 1994-1999

	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR(%)
Software and Services Total (ex. Equipment Services)	13,100	6	14,000	14,900	16,300	17,600	19,200	20,900	8
Professional Services	2,630	2	2,680	2,780	2,890	2,940	2,990	2,990	2
- IS Consulting	430	12	480	540	610	680	750	820	11
- Education & Training	550	4	570	590	620	640	670	670	3
- Custom Software	1,650	-2	1,620	1,620	1,620	1,570	1,520	1,440	-2
- Application Management	13	32	17	22	29	38	49	63	30
Systems Integration	540	10	590	670	750	850	930	1,030	12
- Equipment	149	7	160	170	180	191	206	222	7
- Application Software	103	25	129	160	201	253	310	400	25
- System Software	46	6	49	54	59	64	70	75	9
- Professional Services	232	4	242	273	289	330	310	310	5
- Other	10	25	13	15	18	21	23	31	19
Systems Operations	196	26	247	300	370	440	520	610	20
- Platform Operations	41	25	52	57	64	70	75	82	10
- Application Operations	113	25	142	178	219	260	310	370	21
- Desktop Services	41	31	54	70	88	108	131	162	25
Processing Services	1,240	10	1,370	1,440	1,570	1,700	1,800	1,910	7
- Transaction Processing	1,030	8	1,110	1,190	1,290	1,370	1,440	1,500	6
- Utility Processing	62	0	62	62	62	62	62	62	0
- Other Processing	160	13	180	206	232	263	294	330	13
Network Services	790	16	920	1,070	1,280	1,510	1,790	2,140	19
- Electronic Info Svcs	560	10	620	690	760	810	870	920	8
- Network Applications	152	34	204	276	390	550	750	1,030	38
- Network Management	80	19	95	111	129	149	170	193	15
System Software Product	2,630	4	2,730	2,840	2,940	2,990	3,100	3,200	3
- Mainframe	1,240	0	1,240	1,190	1,110	980	850	700	-11
- Minicomputer	770	3	800	850	900	950	1,010	1,060	6
- Workstation /PC	620	13	700	800	930	1,060	1,240	1,440	16
Application Software Product	1,750	9	1,910	2,110	2,470	2,890	3,400	3,900	15
- Mainframe	211	-5	201	191	186	180	175	170	-3
- Minicomputer	540	0	540	590	750	900	1,060	1,260	18
- Workstation /PC	1,010	15	1,160	1,340	1,550	1,800	2,110	2,470	16
Turnkey Systems	3,400	5	3,500	3,700	4,000	4,300	4,700	5,100	8
- Equipment	1,700	0	1,700	1,750	1,800	1,860	1,910	1,960	3
- Application Software	590	13	670	720	850	950	1,110	1,260	14
- System Software	232	2	237	247	258	273	284	294	4
- Professional Services	830	9	900	980	1,110	1,240	1,390	1,550	11
Equipment Services	3,700	-3	3,600	3,500	3,400	3,400	3,400	3,400	-1
- Equipment Maintenance	2,440	-8	2,250	2,080	1,970	1,890	1,800	1,710	-5
- Environmental Services	1,270	5	1,340	1,400	1,460	1,520	1,580	1,640	4
Grand Total Information Service Market	16,800	5	17,500	18,300	19,800	21,100	22,400	24,200	7

J

Sector Summary in ECUs

Exhibit A-57

Information Services Market by Sector Summary, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Processing Services	851	12	954	1,031	1,134	1,211	1,289	1,340	7
Turnkey Systems	2,990	5	3,144	3,351	3,608	3,918	4,227	4,536	8
Application Software Products	1,392	13	1,572	1,727	2,010	2,345	2,732	3,222	15
Professional Services	2,629	2	2,680	2,784	2,887	2,938	2,990	2,990	2
Network Services	567	18	670	799	979	1,186	1,443	1,778	22
Systems Operations	196	26	247	304	371	438	515	613	20
Systems Integration	541	10	593	670	747	851	928	1,031	12
Industry Sectors Total	9,175	7	9,845	10,670	11,753	12,887	14,124	15,515	10
Transaction Processing	175	-6	165	155	155	160	162	165	0
Turnkey Systems	376	-1	371	371	387	418	448	490	6
Application Software Products	335	6	356	392	438	515	593	675	14
Cross-Industry Sectors Total	876	3	902	928	979	1,082	1,211	1,340	8
Equipment Services	3,711	-3	3,582	3,479	3,428	3,402	3,376	3,351	-1
System Software Products	2,629	4	2,732	2,835	2,938	2,990	3,093	3,196	3
Utility and Other Processing	222	9	242	268	294	325	356	392	10
Other Electronic Info Services	224	10	247	273	304	325	345	366	8
Generic Sectors Total	6,804	0	6,804	6,856	6,959	7,062	7,165	7,320	1
Total Information Services	16,856	4	17,577	18,454	19,691	21,031	22,526	24,175	7

K

Industry Sectors in ECUs

Exhibit A-58

Information Services Market by Industry Sectors, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Discrete Manufacturing	1,830	-4	1,753	1,675	1,701	1,804	1,933	2,062	3
Process Manufacturing	825	0	825	876	954	1,082	1,211	1,366	11
Transportation	392	17	459	526	572	624	686	763	11
Utilities	211	12	237	268	314	356	397	433	13
Telecommunications	201	15	232	263	299	330	371	418	12
Retail Distribution	325	5	340	351	361	371	397	423	4
Wholesale Distribution	428	0	428	428	454	469	490	515	4
Banking & Finance	1,985	13	2,242	2,448	2,732	3,067	3,402	3,789	11
Insurance	747	7	799	928	1,057	1,186	1,289	1,392	12
Healthcare	464	16	536	629	732	851	990	1,149	16
Education	131	-2	129	126	126	121	119	116	-2
Local Government	356	6	376	402	423	448	469	495	6
Central Government	490	11	541	593	644	696	747	825	9
Business Services	438	12	490	567	644	722	825	928	14
Other Industries	387	20	464	567	670	747	825	876	14
Industry Sectors Total	9,175	7	9,845	10,670	11,753	12,887	14,124	15,515	10

Exhibit A-59

Industry Sectors, Discrete Manufacturing, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	1,443	-18	1,186	979	851	773	722	670	-11
Equipment Services	763	-15	649	552	495	469	443	423	-8
Software Products	954	-3	928	876	876	928	979	1,031	2
Other Information Services	1,211	-6	1,134	1,082	1,108	1,160	1,237	1,314	3
Data Communications	387	0	387	361	361	387	412	438	3
Facilities/ Administration	593	-22	464	387	335	309	284	258	-11
In-house Staff	3,660	-18	2,990	2,423	2,088	1,907	1,727	1,572	-12
IT Budget Total	9,021	-14	7,732	6,649	6,134	5,928	5,825	5,722	-6
Processing Services	219	-4	211	198	191	188	183	178	-3
Turnkey Systems	562	-9	510	474	464	474	485	490	-1
Application Software Products	371	1	374	371	397	443	497	557	8
Professional Services	387	-11	345	309	289	278	268	258	-6
Network Services	152	2	155	157	168	188	211	237	9
Systems Operations	64	24	80	98	119	144	175	214	22
Systems Integration	70	4	72	75	82	93	106	119	10
Industry Sectors Total	1,830	-4	1,753	1,675	1,701	1,804	1,933	2,062	3

Exhibit A-60

Industry Sectors, Process Manufacturing, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	747	-10	670	619	593	593	593	593	-2
Equipment Services	273	-8	253	242	237	242	247	253	0
Software Products	376	4	392	418	464	521	598	686	12
Other Information Services	531	-1	526	557	593	670	737	814	9
Data Communications	356	-3	345	340	345	361	381	402	3
Facilities/ Administration	371	-13	325	294	278	284	289	294	-2
In-house Staff	1,701	-11	1,521	1,392	1,314	1,289	1,263	1,237	-4
IT Budget Total	4,356	-8	4,021	3,866	3,814	3,969	4,098	4,278	1
Processing Services	49	5	52	54	57	62	67	72	7
Turnkey Systems	263	-2	258	268	289	320	351	381	8
Application Software Products	149	10	165	180	211	253	304	366	17
Professional Services	237	-4	227	227	227	237	242	247	2
Network Services	49	11	54	62	72	88	106	126	18
Systems Operations	36	21	44	54	64	77	93	113	21
Systems Integration	34	8	36	39	44	52	59	70	14
Industry Sectors Total	825	0	825	876	954	1,082	1,211	1,366	11

Exhibit A-61

Industry Sectors, Transportation, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	232	0	232	206	180	155	129	103	-15
Equipment Services	88	0	88	88	82	77	72	67	-5
Software Products	155	17	180	180	206	232	258	284	9
Other Information Services	232	11	258	309	335	387	412	464	12
Data Communications	108	33	144	186	237	294	366	454	26
Facilities/ Administration	155	0	155	155	155	155	155	155	0
In-house Staff	515	-5	490	438	387	335	284	232	-14
IT Budget Total	1,495	3	1,546	1,572	1,572	1,624	1,675	1,753	3
Processing Services	23	22	28	31	34	34	34	34	3
Turnkey Systems	155	17	180	206	206	206	206	206	3
Application Software Products	46	22	57	67	80	95	113	134	19
Professional Services	72	4	75	75	72	67	62	57	-5
Network Services	57	32	75	98	126	160	204	258	28
Systems Operations	4	29	5	6	7	7	8	9	14
Systems Integration	34	15	39	44	49	54	59	64	11
Industry Sectors Total	392	17	459	526	572	624	686	763	11

Exhibit A-62

Industry Sectors, Utilities, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	155	0	155	180	206	232	258	284	13
Equipment Services	59	9	64	72	82	93	103	113	12
Software Products	85	18	101	116	142	165	191	219	17
Other Information Services	126	12	142	165	193	222	250	271	14
Data Communications	59	13	67	77	90	103	113	126	14
Facilities/ Administration	103	5	108	119	134	149	162	178	10
In-house Staff	412	6	438	464	515	541	567	593	6
IT Budget Total	1,005	8	1,082	1,186	1,366	1,495	1,649	1,778	10
Processing Services	18	29	23	28	36	44	49	54	18
Turnkey Systems	75	7	80	90	103	113	124	131	10
Application Software Products	23	11	26	28	34	39	44	49	14
Professional Services	41	0	41	44	46	49	49	49	3
Network Services	8	7	8	9	10	11	11	12	8
Systems Operations	6	27	7	9	12	14	17	20	23
Systems Integration	41	19	49	59	72	88	101	116	19
Industry Sectors Total	211	12	237	268	314	356	397	433	13

Exhibit A-63

Industry Sectors, Telecommunications, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	211	17	247	289	330	371	418	474	14
Equipment Services	62	13	70	80	90	101	111	121	12
Software Products	85	18	101	116	134	149	168	188	13
Other Information Services	119	22	144	170	198	227	265	309	16
Data Communications	93	14	106	121	134	147	160	175	11
Facilities/ Administration	106	5	111	116	121	126	131	137	4
In-house Staff	454	8	490	526	552	567	582	598	4
IT Budget Total	1,134	11	1,263	1,418	1,572	1,701	1,830	2,010	10
Processing Services	18	29	23	28	34	39	44	49	16
Turnkey Systems	80	10	88	98	108	116	126	134	9
Application Software Products	23	11	26	28	31	34	36	41	10
Professional Services	44	6	46	49	52	52	52	52	2
Network Services	8	47	11	17	25	36	51	74	45
Systems Operations	4	29	5	6	7	8	9	10	16
Systems Integration	26	20	31	36	41	46	52	57	13
Industry Sectors Total	201	15	232	263	299	330	371	418	12

Exhibit A-64

Industry Sectors, Retail Distribution, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	567	-5	541	515	490	464	438	412	-5
Equipment Services	211	-6	198	186	175	165	160	155	-5
Software Products	196	4	204	209	214	214	227	235	3
Other Information Services	224	7	240	247	258	265	286	309	5
Data Communications	108	2	111	111	111	111	113	116	1
Facilities/ Administration	351	-10	314	289	268	253	247	242	-5
In-house Staff	825	-13	722	644	567	490	438	387	-12
IT Budget Total	2,474	-6	2,320	2,191	2,088	1,959	1,907	1,856	-4
Processing Services	28	9	31	34	34	34	34	34	2
Turnkey Systems	155	0	155	155	155	155	155	155	0
Application Software Products	39	13	44	49	54	62	72	82	13
Professional Services	75	-3	72	70	67	62	59	57	-5
Network Services	21	25	26	31	39	46	59	75	24
Systems Operations	4	25	5	7	8	10	12	14	23
Systems Integration	5	0	5	5	5	5	5	5	0
Industry Sectors Total	325	5	340	351	361	371	397	423	4

Exhibit A-65

Industry Sectors, Wholesale Distribution, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	680	-11	603	536	500	464	438	412	-7
Equipment Services	240	-10	216	196	186	175	168	160	-6
Software Products	235	0	235	232	240	245	253	263	2
Other Information Services	296	2	302	302	322	330	345	363	4
Data Communications	129	-4	124	119	119	119	119	119	-1
Facilities/ Administration	438	-18	361	309	284	258	232	206	-11
In-house Staff	1,005	-13	876	747	670	619	567	515	-10
IT Budget Total	3,015	-10	2,706	2,448	2,320	2,216	2,113	2,036	-6
Processing Services	46	6	49	49	52	52	52	52	1
Turnkey Systems	183	-3	178	175	183	188	193	198	2
Application Software Products	54	5	57	59	67	75	82	93	10
Professional Services	106	-7	98	90	88	82	77	72	-6
Network Services	23	11	26	28	34	39	46	54	16
Systems Operations	12	26	15	19	23	28	34	41	22
Systems Integration	5	0	5	5	5	5	5	5	0
Industry Sectors Total	428	0	428	428	454	469	490	515	4

Exhibit A-66

Industry Sectors, Banking & Finance, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	2,629	3	2,706	2,706	2,680	2,655	2,655	2,655	0
Equipment Services	902	3	928	928	928	928	928	928	0
Software Products	928	14	1,057	1,160	1,289	1,392	1,572	1,753	11
Other Information Services	1,598	13	1,804	2,010	2,165	2,423	2,629	2,887	10
Data Communications	1,366	11	1,521	1,624	1,727	1,830	1,933	2,062	6
Facilities/ Administration	1,263	0	1,263	1,237	1,237	1,237	1,237	1,237	0
In-house Staff	5,232	2	5,335	5,232	5,129	5,026	4,923	4,820	-2
IT Budget Total	13,918	5	14,639	14,897	15,155	15,515	15,876	16,340	2
Processing Services	121	19	144	162	178	193	206	219	9
Turnkey Systems	309	8	335	361	412	464	515	567	11
Application Software Products	309	25	387	438	515	619	747	902	18
Professional Services	928	8	1,005	1,057	1,108	1,160	1,186	1,211	4
Network Services	188	25	235	289	356	438	539	662	23
Systems Operations	23	33	31	39	46	54	62	70	18
Systems Integration	95	11	106	113	124	134	144	155	8
Industry Sectors Total	1,985	13	2,242	2,448	2,732	3,067	3,402	3,789	11

Exhibit A-67

Industry Sectors, Insurance, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	1,108	0	1,108	1,134	1,186	1,211	1,211	1,211	2
Equipment Services	361	0	361	361	387	387	387	387	1
Software Products	361	7	387	438	490	541	593	644	11
Other Information Services	567	9	619	722	825	928	979	1,057	11
Data Communications	515	10	567	619	696	747	799	851	8
Facilities/ Administration	490	-5	464	464	490	515	515	515	2
In-house Staff	2,062	-1	2,036	2,036	2,088	2,088	2,036	1,985	-1
IT Budget Total	5,464	1	5,541	5,773	6,160	6,418	6,521	6,649	4
Processing Services	126	16	147	170	196	216	232	247	11
Turnkey Systems	191	7	204	227	255	281	304	325	10
Application Software Products	85	18	101	119	144	173	204	240	19
Professional Services	232	0	232	258	284	309	309	309	6
Network Services	31	25	39	49	62	77	95	116	25
Systems Operations	21	25	26	32	40	46	52	59	18
Systems Integration	59	4	62	67	75	82	88	93	8
Industry Sectors Total	747	7	799	928	1,057	1,186	1,289	1,392	12

Exhibit A-68

Industry Sectors, Healthcare, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	366	3	376	387	397	407	418	428	3
Equipment Services	144	4	149	155	160	165	170	175	3
Software Products	216	17	253	294	345	397	464	546	17
Other Information Services	237	17	278	325	376	438	510	582	16
Data Communications	175	9	191	206	222	237	258	278	8
Facilities/ Administration	180	3	186	191	196	206	216	232	5
In-house Staff	825	3	851	876	902	928	954	979	3
IT Budget Total	2,139	7	2,294	2,423	2,603	2,784	2,990	3,222	7
Processing Services	44	24	54	64	75	85	95	106	14
Turnkey Systems	247	14	281	325	376	433	497	567	15
Application Software Products	72	21	88	106	129	160	196	240	22
Professional Services	75	10	82	93	103	113	124	134	10
Network Services	7	43	10	15	21	30	43	62	43
Systems Operations	4	29	5	6	7	8	9	10	17
Systems Integration	13	20	15	18	21	23	26	31	15
Industry Sectors Total	464	16	536	629	732	851	990	1,149	16

Exhibit A-69

Industry Sectors, Education, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	155	0	155	155	155	155	155	155	0
Equipment Services	80	-6	75	72	70	67	64	62	-4
Software Products	85	0	85	85	85	82	82	80	-1
Other Information Services	75	3	77	80	82	82	82	85	2
Data Communications	103	0	103	103	103	103	103	103	0
Facilities/ Administration	103	0	103	103	103	103	103	103	0
In-house Staff	619	-8	567	515	464	412	387	361	-9
IT Budget Total	1,211	-4	1,160	1,108	1,057	1,005	979	954	-4
Processing Services	5	10	6	6	6	6	6	6	0
Turnkey Systems	70	-4	67	64	64	62	59	57	-3
Application Software Products	21	0	21	21	21	21	21	21	0
Professional Services	26	0	26	26	26	26	26	26	0
Network Services	3	0	3	3	3	3	3	3	0
Systems Operations	1	0	1	1	1	1	1	1	0
Systems Integration	7	-7	7	6	6	5	5	4	-9
Industry Sectors Total	131	-2	129	126	126	121	119	116	-2

Exhibit A-70

Industry Sectors, Local Government, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	366	-10	330	299	268	237	211	191	-10
Equipment Services	139	0	139	139	139	139	139	139	0
Software Products	160	13	180	196	211	232	253	278	9
Other Information Services	237	4	247	263	278	289	299	304	4
Data Communications	170	6	180	191	201	211	222	232	5
Facilities/ Administration	196	-5	186	180	175	175	175	175	-1
In-house Staff	928	-6	876	825	773	722	670	619	-7
IT Budget Total	2,191	-2	2,139	2,088	2,036	2,010	1,959	1,933	-2
Processing Services	44	12	49	54	57	59	62	64	6
Turnkey Systems	134	4	139	147	155	160	165	170	4
Application Software Products	44	18	52	59	70	82	98	116	18
Professional Services	108	0	108	108	106	103	98	93	-3
Network Services	3	0	3	3	3	3	3	3	0
Systems Operations	4	29	5	6	7	8	9	10	17
Systems Integration	21	10	23	25	28	32	36	40	12
Industry Sectors Total	356	6	376	402	423	448	469	495	6

Exhibit A-71

Industry Sectors, Central Government, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	567	-9	515	490	438	412	387	361	-7
Equipment Services	211	-7	196	186	175	165	155	144	-6
Software Products	227	7	242	258	273	289	309	335	7
Other Information Services	330	9	361	392	423	448	469	510	7
Data Communications	273	0	273	273	268	263	258	258	-1
Facilities/ Administration	294	-11	263	237	216	201	186	170	-8
In-house Staff	1,392	-7	1,289	1,186	1,082	979	902	825	-9
IT Budget Total	3,299	-5	3,144	3,015	2,887	2,758	2,655	2,603	-4
Processing Services	46	17	54	62	70	77	82	90	11
Turnkey Systems	155	8	168	186	204	222	242	263	9
Application Software Products	39	7	41	44	46	49	52	54	6
Professional Services	111	2	113	116	119	119	119	119	1
Network Services	15	20	19	22	27	32	38	46	20
Systems Operations	5	50	8	10	13	15	18	23	25
Systems Integration	116	11	129	144	162	183	204	227	12
Industry Sectors Total	490	11	541	593	644	696	747	825	9

Exhibit A-72

Industry Sectors, Business Services, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	126	-2	124	121	119	116	113	111	-2
Equipment Services	54	0	54	54	54	54	54	54	0
Software Products	160	13	180	204	235	265	304	348	14
Other Information Services	196	13	222	260	296	327	379	423	14
Data Communications	57	9	62	64	67	70	72	75	4
Facilities/ Administration	95	-5	90	85	82	80	77	75	-4
In-house Staff	335	-2	330	320	309	299	289	278	-3
IT Budget Total	1,031	2	1,057	1,108	1,160	1,211	1,289	1,366	5
Processing Services	26	20	31	36	41	44	46	49	10
Turnkey Systems	247	14	281	325	376	433	497	567	15
Application Software Products	67	12	75	82	93	106	119	134	12
Professional Services	88	6	93	98	103	106	108	111	4
Network Services	7	36	10	13	19	26	36	49	38
Systems Operations	4	13	5	5	5	5	5	5	2
Systems Integration	3	17	4	4	5	5	6	6	11
Industry Sectors Total	438	12	490	567	644	722	825	928	14

Exhibit A-73

Industry Sectors, Other Industries, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Equipment Sales	397	16	459	521	567	598	608	619	6
Equipment Services	129	12	144	160	170	175	175	175	4
Software Products	170	24	211	253	304	340	381	423	15
Other Information Services	232	20	278	351	412	459	500	521	13
Data Communications	134	23	165	196	227	253	273	294	12
Facilities/ Administration	206	10	227	247	263	278	284	289	5
In-house Staff	773	13	876	979	1,057	1,108	1,108	1,108	5
IT Budget Total	2,036	16	2,371	2,706	2,990	3,222	3,325	3,428	8
Processing Services	36	29	46	59	70	80	85	90	14
Turnkey Systems	175	18	206	242	276	302	317	330	10
Application Software Products	49	32	64	82	106	129	155	183	23
Professional Services	103	23	126	149	173	191	201	211	11
Network Services	3	17	4	4	5	5	5	5	7
Systems Operations	5	40	7	9	11	13	14	16	17
Systems Integration	14	29	19	24	30	36	42	48	21
Industry Sectors Total	387	20	464	567	670	747	825	876	14

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Cross-Industry Sectors in ECUs

Exhibit A-74

Information Services Market by Cross-Industry Sectors, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Accounting	85	9	93	101	113	131	149	170	13
Education & Training	8	-6	8	7	7	8	9	10	6
Engineering & Scientific	21	13	23	26	28	34	39	44	14
Human Resources	26	0	26	28	31	36	41	46	12
Office Systems	98	11	108	121	142	170	198	229	16
Planning & Analysis	80	6	85	93	103	119	137	155	13
Other Cross-Industry	15	0	15	15	15	17	19	20	6
Cross-Industry Sectors Total	876	3	902	928	979	1,082	1,211	1,340	8

Exhibit A-54

Cross-Industry Sectors, Accounting, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Transaction Processing	9	-6	9	8	8	9	9	9	0
Turnkey Systems	106	0	106	106	111	121	131	142	6
Application Software Products	85	9	93	101	113	131	149	170	13
Cross-Industry Sectors Total	201	3	206	214	232	260	289	320	9

Exhibit A-76

Cross-Industry Sectors, Education & Training, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Transaction Processing	2	0	2	2	2	2	2	2	0
Turnkey Systems	44	0	44	44	46	52	57	62	7
Application Software Products	8	-6	8	7	7	8	9	10	6
Cross-Industry Sectors Total	54	0	54	54	57	62	67	75	7

Exhibit A-77

Cross-Industry Sectors, Engineering & Scientific, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Transaction Processing	7	-7	7	6	6	6	6	6	-2
Turnkey Systems	28	0	28	28	28	31	34	36	5
Application Software Products	21	13	23	26	28	34	39	44	14
Cross-Industry Sectors Total	57	5	59	59	62	70	77	85	7

Exhibit A-78

Cross-Industry Sectors, Human Resources, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Transaction Processing	103	-5	98	93	93	95	98	101	1
Turnkey Systems	26	0	26	26	28	31	34	36	7
Application Software Products	26	0	26	28	31	36	41	46	12
Cross-Industry Sectors Total	155	-3	149	147	152	162	173	183	4

Exhibit A-79

Cross-Industry Sectors, Office Systems, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Transaction Processing	2	0	2	2	2	2	2	2	0
Turnkey Systems	39	0	39	39	41	46	49	54	7
Application Software Products	98	11	108	121	142	170	198	229	16
Cross-Industry Sectors Total	139	7	149	162	186	219	250	286	14

Exhibit A-80

Cross-Industry Sectors, Planning & Analysis, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Transaction Processing	12	-4	11	11	11	11	12	12	2
Turnkey Systems	14	-4	13	13	13	14	15	16	4
Application Software Products	80	6	85	93	103	119	137	155	13
Cross-Industry Sectors Total	106	5	111	116	126	144	162	183	11

Exhibit A-81

Other Cross-Industry, Germany

Sector	ECU Million								
	1993	93-94 (%)	1994	1995	1996	1997	1998	1999	94-99 CAGR (%)
Transaction Processing	39	-7	36	34	34	34	34	34	-1
Turnkey Systems	119	-2	116	113	116	124	131	142	4
Application Software Products	15	0	15	15	15	17	19	20	6
Cross-Industry Sectors Total	173	-3	168	162	165	175	183	196	3

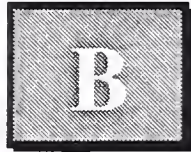
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Information Services Forecast Reconciliation in Local Currency

Exhibit A-82

Forecast Reconciliation, Germany, 1993-1998

Currency: DM Millions Delivery Mode	1993 Market				1998 Market				1993	1994
	1993 Report (Fcst)	1994 Report (Act)	1993-1994 Variance		1993 Report (Fcst)	1994 Report (Fcst)	1993-1994 Variance		1993 Report %CAGR (Fcst)	1994 Report %CAGR (Fcst)
			(Amount)	(%)			(Amount)	(%)		
Software and Services Total (ex Equipment Services)	25,500	25,500	0	0	41,200	37,200	-4,000	-10	10	8
<i>Professional Services</i>	5,100	5,100	0	0	6,000	5,800	-200	-3	3	3
- IS Consulting	825	830	5	1	1,310	1,460	150	11	10	12
- Education & Training	1,050	1,060	10	1	1,320	1,300	-20	-2	5	4
- Custom Software	3,200	3,200	0	0	3,310	2,950	-360	-11	1	-2
- Application Management	23	25	2	9	65	96	31	48	23	31
<i>Systems Integration</i>	1,100	1,050	-50	-5	2,025	1,800	-225	-11	13	11
- Equipment	300	290	-10	-3	425	400	-25	-6	7	7
- Application Software	200	200	0	0	730	610	-120	-16	30	25
- System Software	90	90	0	0	140	135	-5	-4	9	8
- Professional Services	490	450	-40	-8	670	610	-60	-9	6	6
- Other	20	20	0	0	60	45	-15	-25	25	18
<i>Systems Operations</i>	385	380	-5	-1	1,030	1,000	-30	-3	22	21
- Platform Operations	180	80	-100	-56	485	145	-340	-70	22	13
- Application Operations	125	220	95	76	335	600	265	79	22	22
- Desktop Services	80	80	0	0	210	255	45	21	21	26
<i>Processing Services</i>	2,420	2,400	-20	-1	3,820	3,500	-320	-8	10	8
- Transaction Processing	1,990	2,000	10	1	3,070	2,800	-270	-9	9	7
- Utility Processing	110	120	10	9	110	120	10	9	0	0
- Other Processing	320	310	-10	-3	640	570	-70	-11	15	13
<i>Network Services</i>	1,550	1,540	-10	-1	3,440	3,470	30	1	17	18
- Electronic Info Svcs	1,090	1,090	0	0	1,260	1,680	420	33	3	9
- Network Applications	305	295	-10	-3	1,780	1,460	-320	-18	42	38
- Network Management	155	155	0	0	400	330	-70	-18	21	16
<i>System Software</i>	5,100	5,100	0	0	6,460	6,000	-460	-7	5	3
- Mainframe	2,440	2,400	-40	-2	1,690	1,650	-40	-2	-7	-7
- Minicomputer	1,490	1,500	10	1	1,940	1,950	10	1	5	5
- Workstation/PC	1,170	1,200	30	3	2,830	2,400	-430	-15	19	15
<i>Application Software</i>	3,350	3,400	50	1	7,260	6,500	-760	-10	17	14
- Mainframe	410	410	0	0	355	340	-15	-4	-3	-4
- Minicomputer	1,030	1,050	20	2	2,145	2,050	-95	-4	16	14
- Workstation/PC	1,910	1,950	40	2	4,760	4,100	-660	-14	20	16
<i>Turnkey Systems</i>	6,530	6,500	-30	0	11,130	9,100	-2,030	-18	11	7
- Equipment	3,220	3,300	80	2	3,810	3,700	-110	-3	3	2
- Application Software	1,565	1,150	-415	-27	3,545	2,150	-1,395	-39	18	13
- System Software	90	450	360	400	115	550	435	378	5	4
- Professional Services	1,655	1,600	-55	-3	3,660	2,700	-960	-26	17	11
<i>Equipment Services</i>	7,250	7,200	-50	-1	6,790	6,550	-240	-4	-1	-2
- Equipment Maintenance	4,800	4,730	-70	-1	3,800	3,490	-310	-8	-5	-6
- Environmental Services	2,450	2,470	20	1	2,990	3,060	70	2	4	4
Grand Total	33,000	32,500	-500	-2	48,000	43,500	-4,500	-9	8	6
Information Services										



Economic Assumptions

A

European Exchange Rates

The following table, Exhibit B-1, shows the standard exchange rates used throughout the 1994 programme to consolidate country market data for overall European forecasts and vendor market shares.

Exhibit B-1

US Dollar and ECU Exchange Rates 1994

Country	Currency	US Dollar	ECU
Europe	S	1	1.266
France	FF	5.90	6.59
Germany	DM	1.74	1.94
United Kingdom	PS	0.676	0.753
Italy	Lira (K)	1.71	1.90
Sweden	Sek	8.34	9.32
Denmark	DK	6.79	7.56
Norway	NK	7.52	8.39
Finland	FM	5.79	6.35
Netherlands	Dfl	1.94	2.17
Belgium	BF	36.15	40.41
Switzerland	SF	1.39	1.65
Austria	Sch	12.19	13.82
Spain	Ptas	142.92	159.30
Ireland	IP	0.71	0.791
Portugal	Esc	176.7	197.10
Greece	Dra	249.35	280.00

Source: Financial Times January 1994

B**European Inflation Rates**

Exhibit B-2 shows the average five-year inflation assumptions for each reported country and the changes from those used in reports produced in the previous year. All INPUT forecasts include the effects of inflation as well as natural market growth rates. For consistency, the same inflation rates are used throughout all the different market sector research and analysis during a calendar year, unless specified otherwise.

Exhibit B-2

Inflation Assumptions 1993 and 1994

Country	Assumption 1993-1998	Assumption 1994-1999	Change
France	2.3	1.9	-0.4
Germany	4.0	2.9	-1.1
United Kingdom	2.0	3.0	1.0
Italy	3.8	3.2	-0.6
Sweden	2.3	2.0	-0.3
Denmark	1.6	2.6	1.0
Norway	2.2	1.5	-0.7
Finland	0.2	2.0	1.8
Netherlands	1.9	2.0	0.1
Belgium	3.0	2.2	-0.8
Switzerland	2.3	1.7	-0.6
Austria	3.8	2.8	-1.0
Spain	4.5	3.4	-1.1
Portugal	5.8	4.8	-1.0
Greece	13.2	11.2	-2.0
Ireland	2.7	3.3	0.6
Eastern Europe	-	-	-
European Average	3.1	2.8	-0.3

Source: OECD December 1993

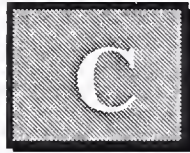
The economic growth measurements and predictions from the OECD, referred to in the text for each country, are listed in Exhibit B-3.

Exhibit B-3

GDP Growth Rate Assumptions;

Country	1992 (%)	1993 (%)	1994 (%) Forecast	1995 (%) Forecast
Austria	1.6	-0.3	1.8	2.7
Belgium	1.4	-1.3	1.5	2.6
Denmark	1.2	1.2	4.0	3.5
Finland	-3.8	-2.6	1.9	4.7
France	1.2	-0.9	1.8	2.9
Germany	2.1	-1.3	1.8	2.6
Greece	0.9	-0.1	1.0	1.6
Ireland	4.9	2.3	4.1	4.5
Italy	0.7	-0.7	1.5	2.6
Netherlands	1.4	0.2	1.4	2.8
Norway	3.4	2.2	4.3	2.9
Portugal	1.1	-0.5	1.2	2.3
Spain	0.8	-1.0	1.2	2.7
Sweden	-1.9	-2.1	2.7	2.9
Switzerland	-0.1	-0.6	1.5	2.5
United Kingdom	-0.6	1.9	2.8	3.2
EC	1.0	-0.4	1.9	2.8

Source: OECD 1994



Definition of Terms

A Introduction

INPUT's *Definition of Terms* provides the framework for all of INPUT's market analyses and forecasts of the information services industry. The structure is defined in Exhibit C-1.

One of the strengths of INPUT's market analysis services is the consistency of the underlying market sizing and forecast data. Each year INPUT reviews its industry structure and makes changes if they are required. When changes are made they are carefully documented and the new definitions and forecasts reconciled to the prior definitions and forecasts. INPUT clients have the benefit of being able to track market forecast data from year to year against a proven and consistent foundation of definitions.

B Overall Definitions and Analytical Framework

1. Information Services

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

- Use of vendor-provided computer processing services to develop or run applications or provide services such as disaster recovery or data entry (called *Processing Services*)
- A combination of computer equipment, packaged software and associated support services which will meet an application systems need (called *Turnkey Systems*)
- Packaged software products, including systems software or applications software products (called *Software Products*)

- People services that support users in developing and operating their own information systems (called *Professional Services*)
- The combination of products (software and equipment) and services where the vendor assumes total responsibility for the development of a custom integrated solution to an information systems need (called *Systems Integration*).
- Services that provide operation and management of all or a significant part of a user's information systems functions under a long-term contract (called *Systems Operations*)
- Services that support the delivery of information in electronic form — typically network-oriented services such as value-added networks, electronic mail and document interchange (called *Network Applications*)
- Services that support the access and use of public and proprietary information such as on-line databases and news services (called *Electronic Information Services*)
- Services that support the operation of computer and digital communication equipment (called *Equipment Services*).

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

2. Market Forecasts/User Expenditures

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

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

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

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

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

3. Delivery Modes

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

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

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

- Systems Software Products
- Equipment Services.

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

- Turnkey Systems
- Systems Operations
- Systems Integration.

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

4. Market Sectors

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

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

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

5. Trading Communities

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

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

6. Outsourcing

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

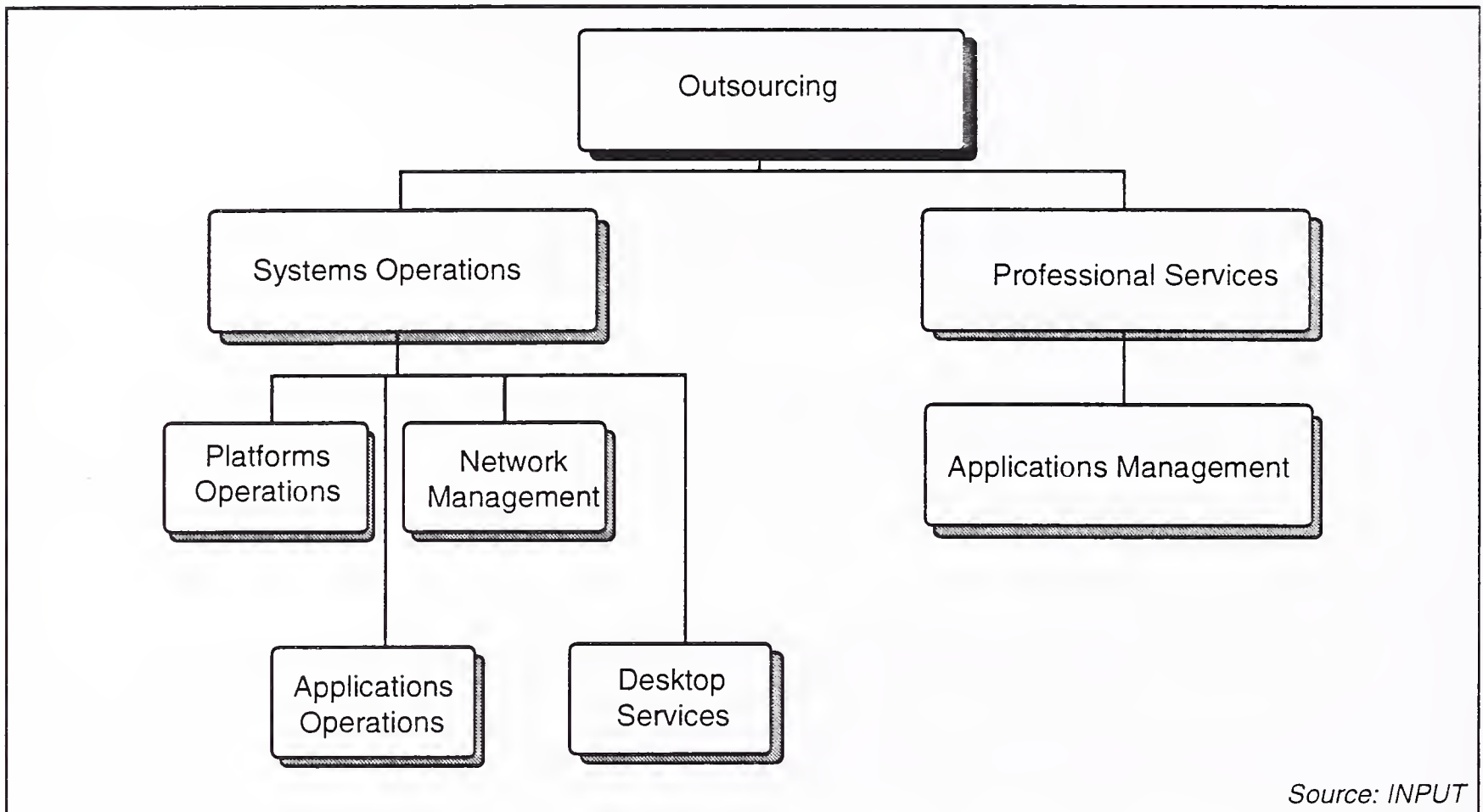
INPUT views outsourcing as a change in the form of the client/vendor relationship. Under an outsourcing relationship, all or a major portion of the information systems function is contracted to a vendor in a long-term relationship. The vendor is responsible for the performance of the function.

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

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

Exhibit C-1

Outsourcing Components INPUT's View



- *Applications Management/Maintenance* — The professional services vendor has full responsibility for developing and/or maintaining some or all of the applications systems that a client uses to support business operations. The services are provided on a long-term contractual basis.
- *Desktop Services* — The vendor assumes responsibility for the deployment, maintenance and connectivity between the personal computers and/or intelligent workstations in the client organisation. The services may also include performing the help-desk function. The services are provided on a long-term contractual basis.

C**Delivery Modes and Submodes**

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

1. Software Products

INPUT divides the software products market into two delivery modes: systems software and applications software.

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

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

a. Systems Software Products

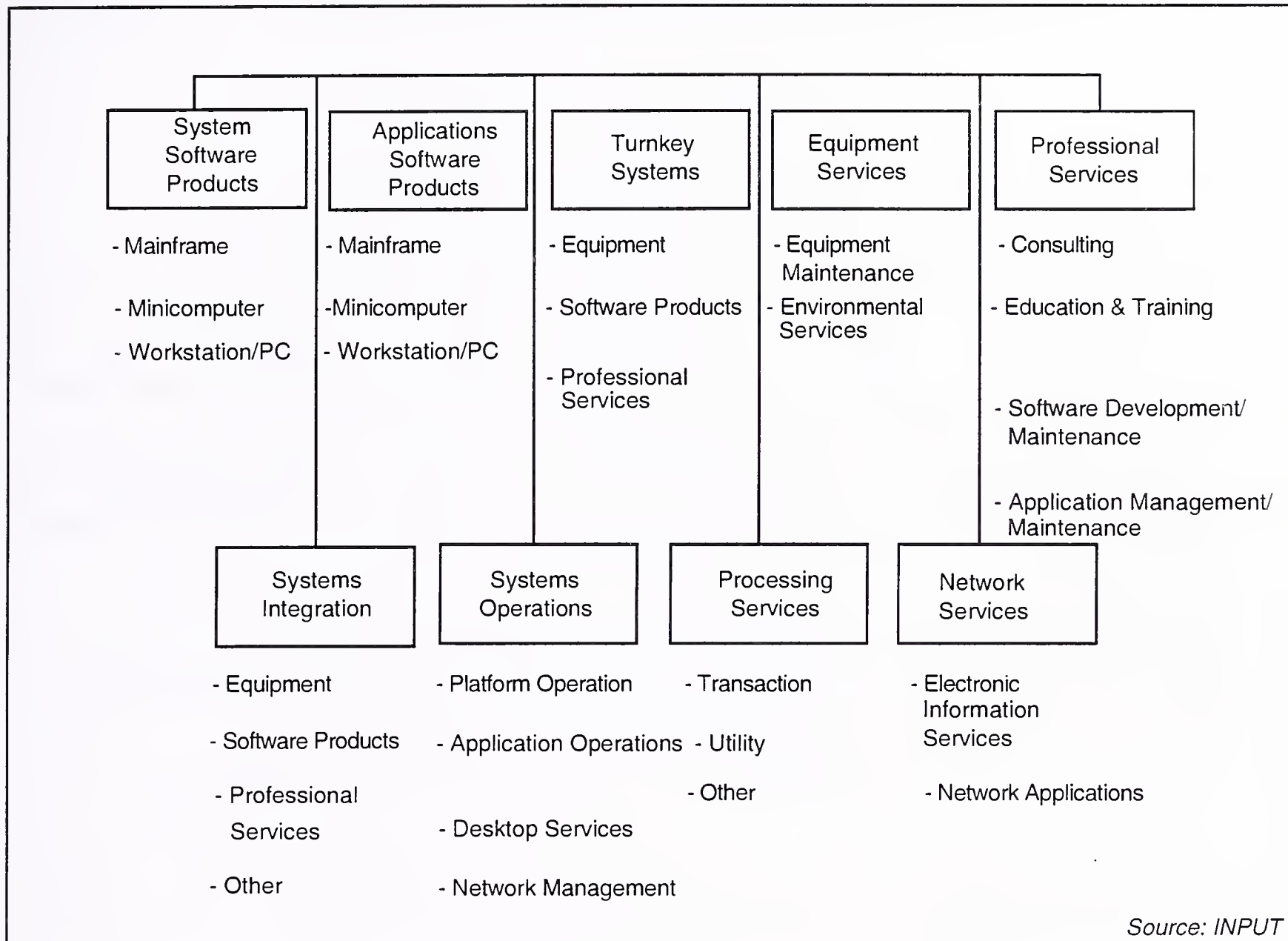
Systems software products enable the computer/communications system to perform basic machine-oriented or user interface functions. INPUT divides systems software products into three submodes. See Exhibit C-3.

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

- *Operations Management Tools* — Software programs used by operations personnel to manage the computer system and/or network resources and personnel more effectively. Included are performance measurement, job accounting, computer operation scheduling, disk management utilities and capacity management.
- *Applications Development Tools* — Software programs used to prepare applications for execution by assisting in designing, programming, testing, and related functions. Included are traditional programming languages, 4GLs, data dictionaries, database management systems, report writers, project control systems, CASE systems and other development productivity aids.

Exhibit C-2

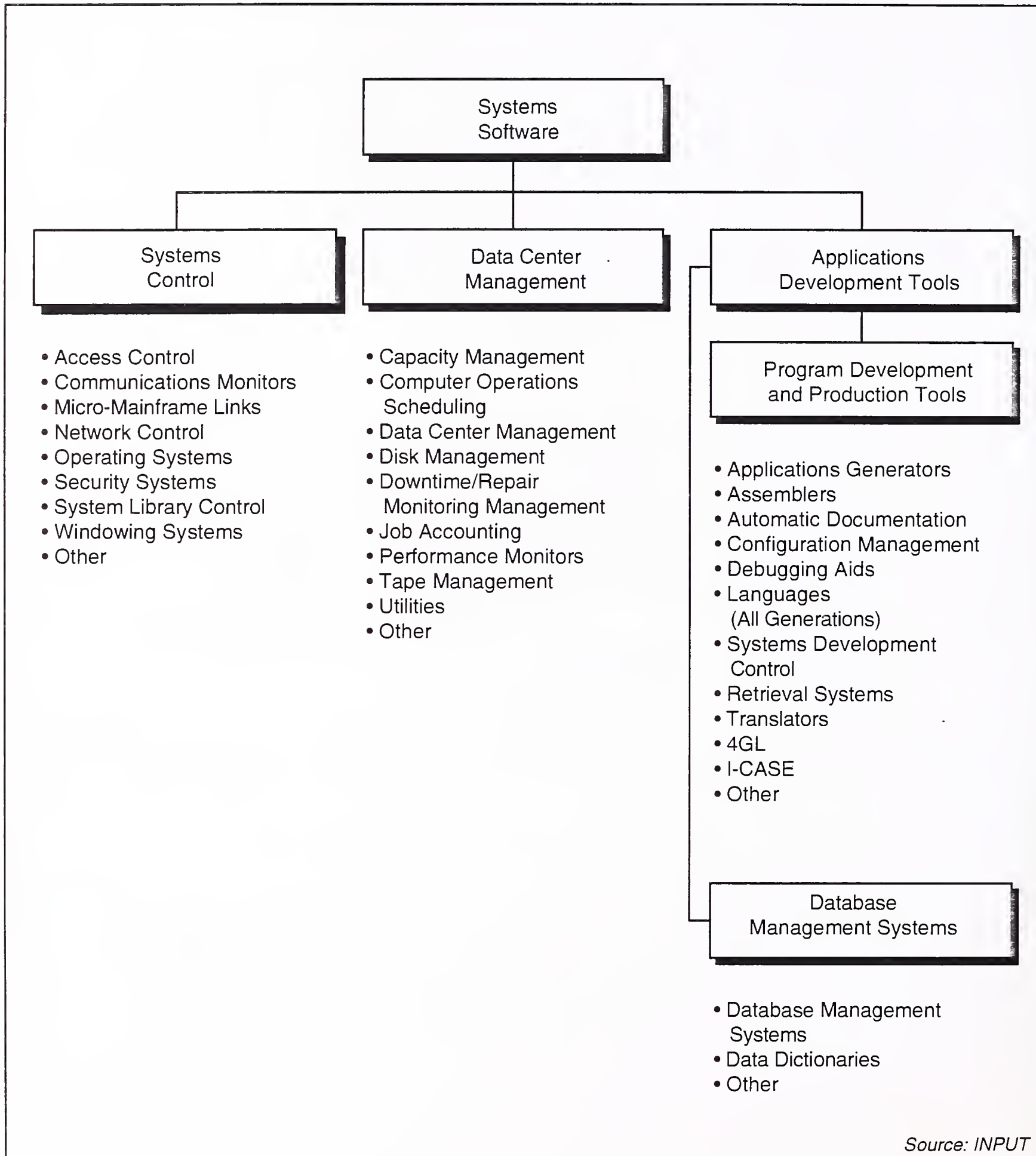
Information Services Industry Structure



Source: INPUT

Exhibit C-3

Systems Software Products Market Structure



INPUT also forecasts the systems software products delivery mode by platform level: mainframe, minicomputer and workstation/PC.

b. Applications Software Products

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

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

- *Industry Applications Software Products* — Software products that perform functions related to fulfilling business or organisational needs unique to a specific industry (vertical) market and sold to that market only. Examples include demand deposit accounting, MRPII, medical record keeping, automobile dealer parts inventory, etc.
- *Cross-Industry Applications Software Products* — Software products that perform a specific function that is applicable to a wide range of industry sectors. Examples include payroll and human resource systems, accounting systems, word processing and graphics systems, spreadsheets, etc.

INPUT also forecasts the applications software products delivery mode by platform level: mainframe, minicomputer and workstation/PC.

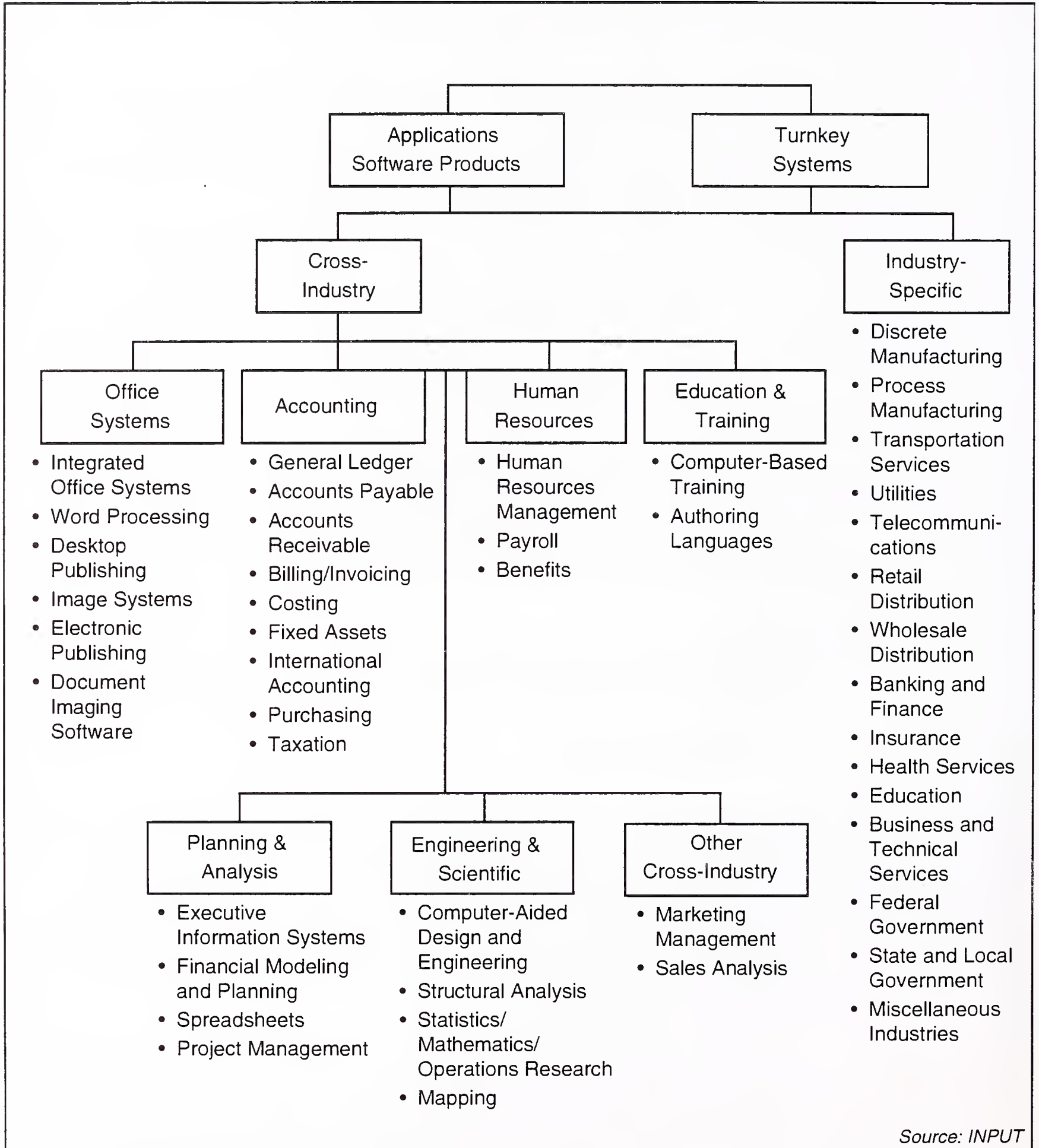
2. Turnkey Systems

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

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

Exhibit C-4

Application Products and Turnkey Systems



Source: INPUT

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

Most turnkey systems are sold through channels known as value-added resellers.

- *Value-Added Reseller (VAR)*: A VAR adds value to computer hardware and/or software and then resells it to an end user. The major value added is usually applications software for a vertical or cross-industry market, but also includes many of the other components of a turnkey systems solution, such as professional services, software support, and applications upgrades.

Turnkey systems have three components:

- Equipment — computer hardware supplied as part of the turnkey system
- Software products — pre-packaged systems and applications software products
- Professional services — services to install or customise the system or train the user, provided as part of the turnkey system sale.

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

Exhibit C-5

The Customisation Spectrum

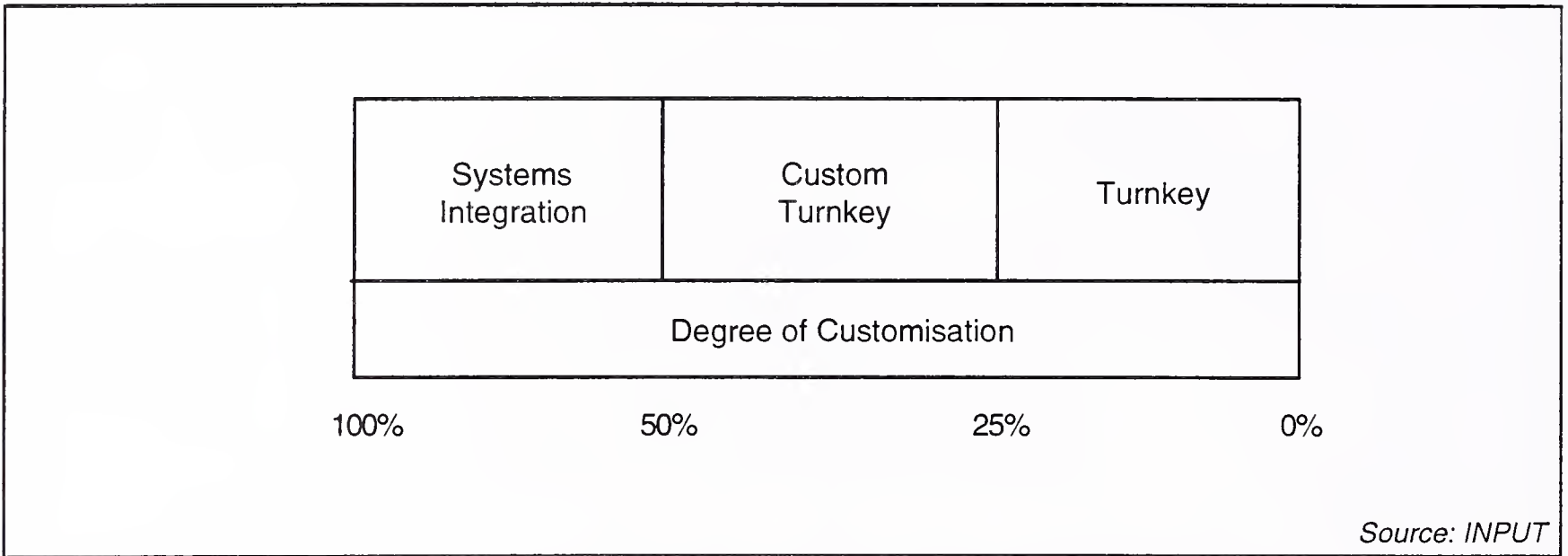
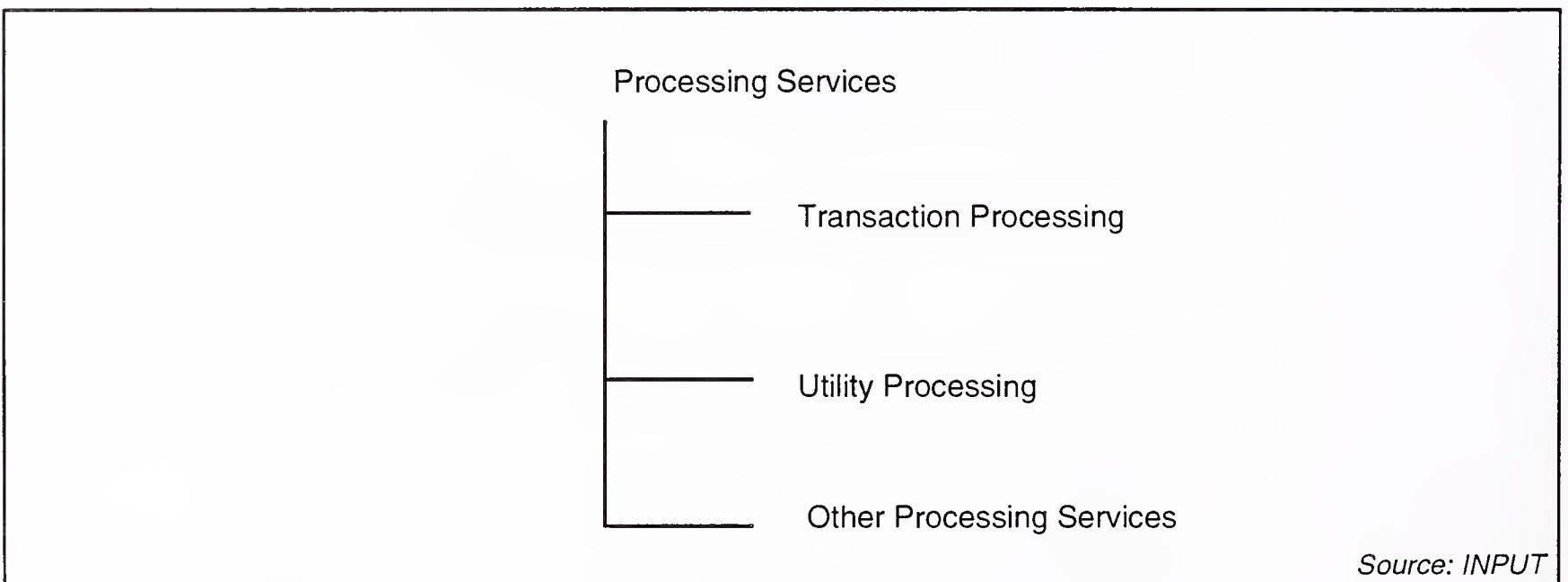


Exhibit C-6

Processing Services Market Structure



3. Processing Services

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

- *Transaction Processing* — Client uses vendor-provided information systems — including hardware, software and/or data networks — at the vendor site or customer site to process specific applications and update client databases. The application software is typically provided by the vendor.
- *Utility Processing* — Vendor provides basic software tools (language compilers, assemblers, DBMSs, graphics packages, mathematical models, scientific library routines, etc.), enabling clients to develop and/or operate their own programs or process data on the vendor's system.
- *Other Processing Services* — Vendor provides service — usually at the vendor site — such as scanning and other data entry services, laser printing, computer output microfilm (COM), CD preparation and other data output services, backup and disaster recovery, etc.

4. Systems Operations

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

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

- *Platform systems operations* — The vendor manages and operates the computer systems, to perform the client's business functions, without taking responsibility for the client's application systems.
- *Applications systems operations* — The vendor manages and operates the computer systems to perform the client's business functions, and is also responsible for maintaining, or developing and maintaining, the client's application systems.

- *Network Management* — The vendor assumes responsibility for operating and managing the client's data communications systems. This may also include the voice communications of the client. A network management outsourcing contract may include only the management services or the full costs of the communications services and equipment plus the management services.
- *Desktop Services* — The vendor assumes responsibility for the deployment, maintenance and connectivity among the personal computers and/or workstations in the client organisation. The services may also include performing the help-desk function. Equipment as well as services can be part of a desktop services outsourcing contract.

Note: This type of client service can also be provided through traditional professional services where the contractual criteria of outsourcing are not present.

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 client's information systems environment (equipment, networks, applications systems), either at the client's site or the vendor's site.

Note: In the federal government market, systems operation services are also defined by equipment ownership with the terms "COCO" (Contractor-Owned, Contractor-Operated), and "GOCO" (Government-Owned, Contractor-Operated).

5. Systems Integration (SI)

Systems integration is a vendor service that provides a complete solution to an information system, networking or automation development requirement through the custom selection and implementation of a variety of information system products and services. A systems integrator is responsible for the overall management of a systems integration contract and is the single point of contact and responsibility to the buyer for the delivery of the specified system function, on schedule and at the contracted price. (Refer to Exhibit C-7)

The components of a systems integration project are the following:

- *Equipment* — information processing and communications equipment required to build the systems solution. This component may include custom as well as off-the-shelf equipment to meet the unique needs of the project. The systems integration equipment category excludes turnkey systems by definition
- *Software products* — pre-packaged applications and systems software products
- *Professional services* — the value-added component that adapts the equipment and develops, assembles, or modifies the software and hardware to meet the system's requirements. It includes all of the professional services activities required to develop, implement, and if included in the contract, operate an information system, including consulting, program/project management, design and integration, software development, education and training, documentation, and systems operations and maintenance
- *Other services* — most systems integration contracts include other services and product expenditures that are not classified elsewhere. This category includes miscellaneous items such as engineering services, automation equipment, computer supplies, business support services and supplies, and other items required for a smooth development effort.

Exhibit C-7

Products/Services in Systems Integration Projects

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

Source: INPUT

6. Professional Services

This category includes four submodes: consulting, education and training, software development and applications management. Exhibit C-8 provides additional detail.

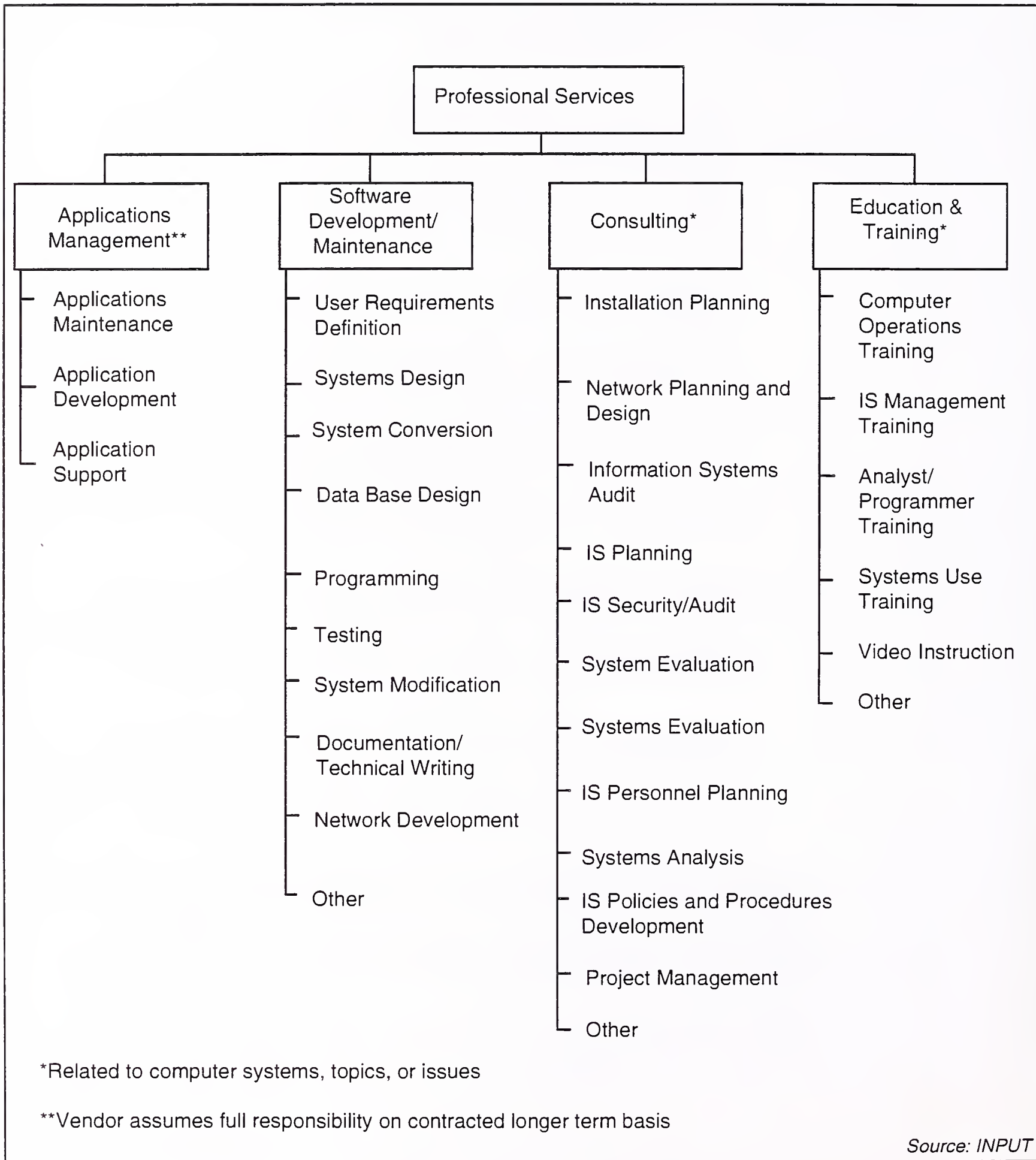
- *Consulting:* Services include management consulting (related to information systems), information systems reengineering, information systems consulting, feasibility analysis and cost-effectiveness studies and project management assistance. Services may be related to any aspect of the information system, including equipment, software, networks and systems operations.
- *Education and Training:* Services that provide training and education or the development of training materials related to information systems and services for the information systems professional and the user, including computer-aided instruction, computer-based education and vendor instruction of user personnel in operations, design, programming, and documentation. Education and training provided by school systems is not included. General education and training products are included as a cross-industry market sector.
- *Software Development:* Services include user requirements definition, systems design, contract programming, documentation, and implementation of software performed on a custom basis. Conversion and maintenance services are also included.
- *Applications Management:* The vendor has full responsibility for maintaining and upgrading some or all of the application systems that a client uses to support business operations and may develop and implement new application systems for the client.

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

These services may be provided in combination or separately from platform systems operations.

Exhibit C-8

Professional Services Market Structure

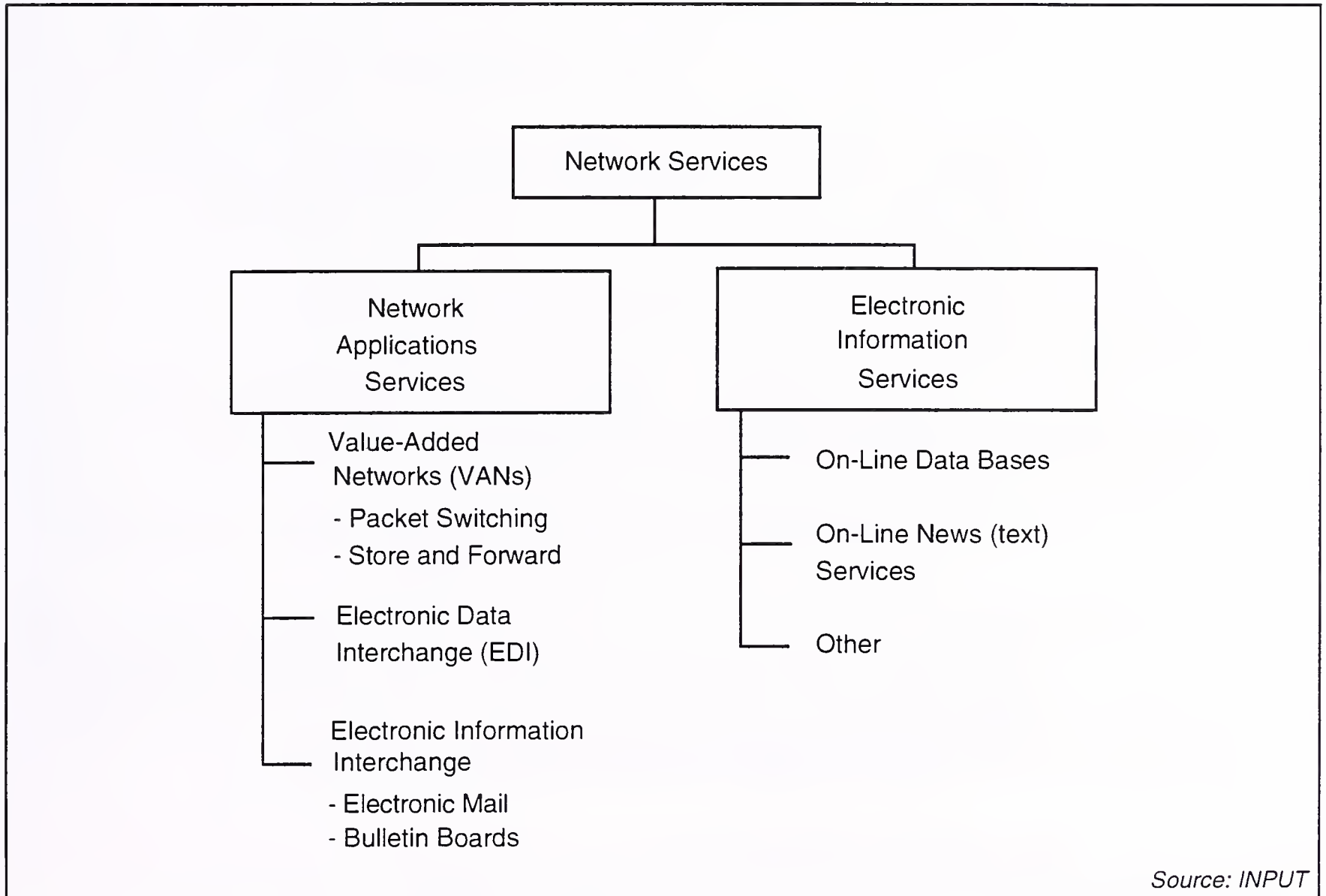


7. Network Services

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

Exhibit C-9

Network Services Market Structure



a. Electronic Information Services

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

Users inquire into and extract information from the databases. They may load extracted data into their own computer systems; the vendor does not provide data processing or manipulation capability as part of the electronic information service and users cannot update the vendor's databases. However, the vendor may offer other services (network applications or processing services) that do offer processing or manipulation capability.

The two kinds of electronic information services are:

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

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

b. Network Applications

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

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

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

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

8. Equipment Services

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

Equipment Maintenance — Services provided to repair, diagnose problems and provide preventive maintenance both on-site and off-site for computer equipment. The costs of parts, media and other supplies are excluded. These services are typically provided on a contract basis

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

D

Computer Equipment

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

- *Computer Equipment* — Includes all computer and telecommunications equipment that can be separately acquired with or without installation by the vendor and not acquired as part of an integrated system. Unless otherwise noted in an INPUT forecast, computer equipment is only included where it is part of the purchase of services or software products (e.g., turnkey systems and systems integration).
- *Peripherals* — Includes all input, output, communications, and storage devices (other than main memory) that can be channel connected to a processor, and generally cannot be included in other categories such as terminals.

- *Input Devices* — Includes keyboards, numeric pads, card readers, light pens and track balls, tape readers, position and motion sensors, and analogue-to-digital converters.
- *Output Devices* — Includes printers, CRTs, projection television screens, micro graphics processors, digital graphics, and plotters.
- *Communication Devices* — Includes modem, encryption equipment, special interfaces, and error control.
- *Storage Devices* — Includes magnetic tape (reel, cartridge, and cassette), floppy and hard disks, solid state (integrated circuits), and bubble and optical memories.
- *Computer Systems* — Includes all processors from personal computers to supercomputers. Computer systems may require type- or model-unique operating software to be functional, but this category excludes applications software and peripheral devices and processors or CPUs not provided as part of an integrated (turnkey) system.
- *Personal computers* — Smaller computers using 8-, 16-, or 32-bit computer technology. Generally designed to sit on a desktop and are portable for individual use. Price generally less than \$5,000.
- *Workstations* — High-performance, desktop, single-user computers often employing Reduced Instruction Set Computing (RISC). Workstations provide integrated, high-speed, local network-based services such as database access, file storage and back-up, remote communications, and peripheral support. These products usually cost from \$5,000 to \$15,000.
- *Minicomputer or midsize computers* — Minicomputers are generally priced from \$15,000 to \$350,000. Many of the emerging client/server computers are in this category.
- *Mainframe or large computers* — Traditional mainframe and supercomputers costing more than \$350,000.
- *Client/server computing* — Client/server is an architecture that assembles applications software and databases, systems software, and computer and networking equipment into a usable form for the purpose of leveraging information technology investments.

Broadly defined, it can include any kind of server, such as file servers and network servers, that are accessed by any kind of client, including a non intelligent terminal. INPUT has elected to use the narrower and newer definition, by which application and data processing is shared between a client and a server. It is through the act of sharing that the greatest benefit is derived in terms of leveraging information technology investments. It is also the cause of the greatest change for vendors and users.

E

Sector Definitions

1. Industry Sector Definitions

INPUT structures the information services market into 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 industry sectors are detailed in Exhibit C-10.

INPUT includes all delivery modes except systems software products and equipment services in industry market sectors. See Exhibit C-9 and section E-3 (Delivery Mode Reporting by Sector).

Note: SIC code 88 is Personal Households. INPUT does not currently analyse or forecast information services in this market sector.

2. Cross-Industry Sector Definitions

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

Exhibit C-10

Industry Sector Definitions

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

Exhibit C-10 (Cont'd)

Industry Sector Definitions (Cont'd)

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

Exhibit C-10 (Cont'd)

Industry Sector Definitions (Cont'd)

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

Source: INPUT

The seven cross-industry markets are:

Accounting — consists of applications software products and information services that serve such functions as:

- General ledger
- Financial management
- Accounts payable
- Accounts receivable
- Billing/invoicing
- Fixed assets
- International accounting
- Purchasing
- Taxation
- Financial consolidation

Excluded are accounting products and services directed to a specific industry, such as tax processing services for CPAs and accountants within the business services industry sector.

Human Resources — consists of application solutions purchased by multiple industry sectors to serve the functions of human resources management and payroll. Examples of specific applications within these two major functions are:

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

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

Office Systems consists of the following six categories:

Integrated Office Systems (IOSs) — IOSs integrate the applications that perform common office tasks. Typically these tasks include the following core applications, all of which are accessed from the same terminal, microcomputer or workstation:

- Electronic mail
- Decision support systems
- Time management
- Filing systems.

IOSs enable office workers to utilise applications that are resident on a number of hosts or servers, thus creating a corporate communication environment through integrating line-of-business software with personal software productivity tools. IOSs capitalise on the cross-platform architectures of major vendors. Major hardware vendors such as IBM, Data General, Digital, Hewlett-Packard and NCR all offer IOSs.

Work flow and groupware products are also included within the IOS definition.

Word Processing — Word processing is the most common microcomputer application and is a basic application within the office systems sector. Word processing addresses several levels of functionality, from the production of simple correspondence to large document generation where many people within different departments have input.

Desktop Publishing (DTP) — Desktop publishing refers to the page-design software programs that allow small and mid-sized organisations to publish printed documents (brochures, catalogues, newsletters, reports, etc.) from the desktop. The primary functions of DTP software include the manipulation of the following functions:

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

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

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

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

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

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

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

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

Engineering and Scientific encompasses the following applications:

- Computer-aided design and engineering (CAD and CAE)
 - Structural analysis
 - Statistics/mathematics/operations research
 - Mapping/GIS.
- Computer-aided manufacturing (CAM) or CAD that is integrated with CAM is excluded from the cross-industry sector as it is specific to the manufacturing industries. CAD or CAE that is dedicated to integrated circuit design is also excluded because it is specific to the semiconductor industry.

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

- Executive Information Systems (EIS)
- Financial modelling or planning systems
- Spreadsheets
- Project management.

Other encompasses marketing/sales and electronic publishing application solutions.

- Sales and marketing includes:
 - Sales analysis
 - Marketing management
 - Demographic market planning models.

3. Delivery Mode Reporting by Sector

This section describes how the delivery mode forecasts relate to the market sector forecasts. Exhibit C-11 summarises the relationships.

- *Processing services* — The transaction processing services submode is forecasted for each industry and cross-industry market sector. The utility and other processing services submodes are forecasted in total for the general market sector.
- *Turnkey systems* — Turnkey systems is forecasted for the 15 industry and 7 cross-industry sectors. Each component of turnkey systems is forecasted in each sector.
- *Applications software products* — The applications software products delivery mode is forecasted for the 15 industry and 7 cross-industry sectors. In addition, each forecast is broken down by platform level: mainframe, minicomputer and workstation/PC.
- *Systems operations* — Each of the systems operations submodes is forecasted for each of the 15 industry sectors.
- *Systems integration* — Systems integration and each of the components of systems integration are forecasted for each of the 15 industry sectors.
- *Professional services* — Professional services and each of the submodes is forecasted for each of the 15 industry sectors.
- *Network services* — The network applications submode of network services forecasted for each of the 15 industry sectors.

Industry and cross-industry electronic information services are forecast in relevant market sectors. The remainder of electronic information services is forecasted in total for the general market sector.

- *Systems software products* — Systems software products and its submodes are forecasted in total for the general market sector. Each submode forecast is broken down by platform level: mainframe, minicomputer and workstation/PC.
- *Equipment services* — Equipment services and its submodes are forecasted in total in the general market sectors.

Exhibit C-11

Delivery Mode versus Market Sector Forecast Content

Delivery Mode	Submode	Market Sectors		
		Industry Sectors	Cross-Industry Sectors	General
Processing Services	Transaction	X	X	
	Utility			X
	Other			X
Turnkey Systems		X	X	
Applications Software Products		X	X	
Systems Operations	Platform	X		
	Applications	X		
Systems Integration		X		
Professional Services		X		
Network Services	Network Applications	X		
	Electronic Information	X		X
	Services			
Systems Software Products				X
Equipment Services				X

Source: INPUT

F

Vendor Revenue and User Expenditure Conversion

The size of the information services market may be viewed from two perspectives: vendor (producer) revenues and user expenditures. INPUT defines and forecasts the information services market in terms of user expenditures. User expenditures reflect the 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 user expenditure also eliminates the double counting of revenues that would occur if sales were tabulated for both producer (e.g., Lotus) and distributor (e.g., ComputerLand).

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

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

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

Exhibit C-12 summarises the net effect of the various ratios used by INPUT to convert vendor revenues to user expenditure (market size) figures for each delivery mode.

Exhibit C-12

Vendor Revenue to User Expenditure Conversion

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

Source: INPUT

