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U.S. Information Services Industry Forecast Book

1991-1996

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MARCH 1992

U.S. INFORMATION SERVICES INDUSTRY FORECAST BOOK

1991-1996

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I

Introduction

I

Introduction

A
Objective

This report, the *U.S. Information Services Industry Forecast Book, 1991-1996*, is a compilation of all 1991 forecasts by market sector. **The user should consider this report the most current, accurate and complete version of INPUT's forecasts.** Formerly this publication was referred to as *Industry/Cross-Industry Markets, Appendix B: Forecast Data Base.*

The ever-increasing size and complexity of the U.S. information services industry necessitates providing INPUT clients with easy and complete access to INPUT's market projections. For 1991-1996 INPUT has provided forecasts for eight delivery modes, 15 vertical industry sectors and seven cross-industry sectors.

- The eight delivery mode forecasts each include submodes—for example, the systems software products delivery mode includes three submodes (systems control, application development tools and operations management tools), and each of these is projected for three platform levels (mainframe, minicomputer and workstation/PC).
- The 15 vertical industry sectors are each projected for the following delivery modes: processing services, turnkey systems, applications software products, systems operations, systems integration and portions of network services.
- The seven cross-industry sectors are each projected for the processing services, turnkey systems and applications software products delivery modes.

There are two changes in the structure of the information services industry reflected in the 1991 forecasts. For a complete discussion of these changes, see INPUT's *Definition of Terms*.

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- The submodes of the systems operations delivery mode were changed from professional and processing services to platform and applications systems operations.

- The consumer services industry sector, first identified in 1990, was dropped.

B

Report Structure

This report represents a compilation of all of INPUT's 1991-1996 forecasts of user expenditures for the various segments of the U.S. Information Services Industry. Also included is the reconciliation of each forecast to INPUT's 1990-1995 forecasts published approximately a year ago.

- The reconciliation table provides a comparison of the market sector size and growth rates for 1990 and 1995.

- The text in each segment of the report provides an explanation of the differences between the 1990 and 1991 INPUT forecasts of user expenditures.

For analysis of the forecasted growth rates, the reader is directed to the specific report addressing the delivery mode or industry sector of interest. These reports are listed in Section E of this chapter.

The remainder of this report is structured as follows:

- Chapter II contains summary forecasts for the industry as a whole.

- Chapter III contains the forecasts and reconciliations for each of the eight delivery modes.

- Chapter IV contains the forecasts and reconciliations for each of the 15 vertical industry sectors.

- Chapter V contains the forecasts and reconciliations for each of the seven cross-industry sectors.

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C

Definitions

The user of this forecast compilation is referred to INPUT's *Definition of Terms*. This document provides definitions and explanations of all industry-specific terms used by INPUT in preparing its market analyses and forecasts. A copy of the *Definition of Terms* should be found in the same Market Analysis Program binder as this forecast book.

D

Forecast Data Base Diskette

Included with the *U.S Information Services Industry Forecast Book, 1991-1996* is a diskette containing each of the 1991-1996 forecast tables.

- The files are stored in Lotus 1-2-3 format (filename.WK1).
- The diskette is IBM PC and compatible and is in the low density format.
- Note that some forecast values may vary from one file to another due to rounding. Also, totals may not add due to rounding.

Exhibit I-1 provides a list of the file names.

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EXHIBIT I-1

1991 MAP Forecast Data Base Diskette Description

Market Sector	Filename
Delivery Mode Summary	DM.WK1
Industry Summary	IND.WK1
Delivery Modes	
Applications Software Products	APP.WK1
Mainframe	APP_MF.WK1
Minicomputer	APP_MI.WK1
PC/Workstation	APP_PC.WK1
Network Services	NET.WK1
Electronic Info. Services	NET_EIS.WK1
Network Applications	NET_NA.WK1
Processing Services	PROC.WK1
Professional Services	PROF.WK1
Systems Integration	SI.WK1
Systems Operations	SO.WK1
Systems Software Products	SSP.Wk1
Turnkey Systems	TKY.WK1
Industries	
Banking & Finance	BANK.WK1
Business Services	BSVS.WK1
Discrete Manufacturing	DMAN.WK1
Education	EDUC.WK1
Federal Government	FEDE.WK1
Health Services (Medical)	MEDI.WK1
Insurance	INSU.WK1
Miscellaneous Industries	MISC.WK1
Process Manufacturing	PMAN.WK1
Retail Distribution	RDIS.WK1
State & Local Government	STE.WK1
Telecommunications	TELE.WK1
Transportation	TRAN.WK1
Utilities	UTIL.WK1
Wholesale Distribution	WDIS.WK1
Cross-Industry	
Accounting	ACC.WK1
Education & Training	ED_TR.WK1
Engineering & Scientific	ENG.WK1
Human Resources	HR.WK1
Office Systems	OFF.WK1
Other	OTHER.WK1
Planning & Analysis	PLAN.WK1

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E
Related Reports

The following reports provide the complete analysis of the market trends and user expenditures for the sector of the information services industry identified by the title of the report.

- Delivery Mode Reports
  - *U.S. Processing Services Market, 1991-1996*
  - *U.S. Application Solutions Market, 1991-1996 (Applications Software Products and Turnkey Systems)*
  - *U.S. Systems Operations Market, 1991-1996*
  - *U.S. Systems Integration Market, 1991-1996*
  - *U.S. Professional Services Market, 1991-1996*
  - *U.S. Network Services Market, 1991-1996*
  - *U.S. Systems Software Products Market, 1991-1996*
- Industry Sector Reports
  - *Industry Sector Markets, 1991-1996—Discrete Manufacturing Sector*
  - *Industry Sector Markets, 1991-1996—Process Manufacturing Sector*
  - *Industry Sector Markets, 1991-1996—Transportation Sector*
  - *Industry Sector Markets, 1991-1996—Utilities Sector*
  - *Industry Sector Markets, 1991-1996—Telecommunications Sector*
  - *Industry Sector Markets, 1991-1996—Retail Distribution Sector*
  - *Industry Sector Markets, 1991-1996—Wholesale Distribution Sector*
  - *Industry Sector Markets, 1991-1996—Banking and Finance Sector*
  - *Industry Sector Markets, 1991-1996—Insurance Sector*
  - *Industry Sector Markets, 1991-1996—Health Services (Medical) Sector*
  - *Industry Sector Markets, 1991-1996—Education Sector*
  - *Industry Sector Markets, 1991-1996—Business Services Sector*
  - *Industry Sector Markets, 1991-1996—Federal Government Sector*
  - *Industry Sector Markets, 1991-1996—State and Local Government Sector*
  - *Industry Sector Markets, 1991-1996—Miscellaneous Industries Sector*
- Cross-Industry Reports
  - *Cross-Industry Markets, 1991-1996—Accounting Sector*
  - *Cross-Industry Markets, 1991-1996—Education and Training Sector*
  - *Cross-Industry Markets, 1991-1996—Engineering and Scientific Sector*
  - *Cross-Industry Markets, 1991-1996—Human Resources Sector*
  - *Cross-Industry Markets, 1991-1996—Office Systems Sector*
  - *Cross-Industry Markets, 1991-1996—Planning and Analysis Sector*
  - *Cross-Industry Markets, 1991-1996—Other Cross-Industry Sector*

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II

U.S. Information Services Industry Forecast

II

U.S. Information Services Industry Forecast

This chapter contains the summary forecasts and reconciliations for the U.S. information services industry for 1990 through 1996. Each is presented in more detail in the delivery mode, industry and cross-industry sector chapters.

Included here are the following:

- Exhibit II -1 Information Services Industry—User Expenditure Forecast by Delivery Mode, 1990-1996
- Exhibit II -2 Information Services Industry—1991 MAP Data Base Reconciliation by Delivery Mode
- Exhibit II -3 Information Services Industry—User Expenditure Forecast by Market Sector, 1990-1996
- Exhibit II -4 Information Services Industry—1991 MAP Data Base Reconciliation by Market Sector

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EXHIBIT II -1

Information Services Industry
User Expenditure Forecast by Delivery Mode, 1990-1996

Delivery Modes	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Sector Total	100,495	10	110,781	123,415	138,036	154,829	173,940	196,936	12
Processing Services	17,024	7	18,274	19,661	21,210	22,857	24,650	26,639	8
- Transaction Processing	14,096	7	15,020	16,014	17,115	18,256	19,469	20,795	7
- Utility Processing Services	898	5	943	990	1,040	1,091	1,146	1,204	5
- Other Procesing Services	2,030	14	2,311	2,657	3,055	3,510	4,035	4,640	15
Turnkey Systems	10,434	10	11,474	12,530	13,571	14,686	15,888	17,411	9
- Equipment	5,008	10	5,508	6,014	6,514	7,049	7,626	8,357	9
- Software Products	3,756	10	4,131	4,511	4,886	5,287	5,720	6,268	9
- Applications	3,235	10	3,557	3,884	4,207	4,553	4,925	5,397	9
- Systems	522	10	574	627	679	734	794	871	9
- Professional Services	1,669	10	1,836	2,005	2,171	2,350	2,542	2,786	9
Applications Software Products	17,676	12	19,842	22,352	25,314	28,839	32,993	38,030	14
- Mainframe	5,017	6	5,315	5,630	5,989	6,382	6,800	7,260	6
- Minicomputer	5,221	10	5,749	6,288	6,889	7,576	8,340	9,155	10
- Workstation/PC	7,438	18	8,778	10,434	12,436	14,881	17,853	21,615	20
Systems Operations	7,237	15	8,300	9,658	11,311	13,169	15,309	17,818	17
- Platform Sys Oprns	3,114	14	3,550	4,098	4,680	5,261	5,847	6,497	13
- Applications Sys Oprns	4,123	15	4,750	5,560	6,631	7,908	9,462	11,321	19
Systems Integration	6,884	12	7,684	9,060	10,682	12,666	14,735	17,394	18
- Equipment	2,822	12	3,150	3,715	4,380	5,193	6,041	7,132	18
- Software Products	482	12	538	634	748	887	1,031	1,218	18
- Applications	310	12	346	408	481	570	663	783	18
- Systems	172	12	192	227	267	317	368	435	18
- Professional Services	3,304	12	3,688	4,349	5,127	6,080	7,073	8,349	18
- Other Services	275	12	307	362	427	507	589	696	18
Professional Services	16,76	16	17,757	19,412	21,236	23,244	25,454	27,892	9
- Consulting	3,900	9	4,234	4,790	5,419	6,132	6,934	7,848	13
- Software Development	10,401	5	10,872	11,675	12,536	13,642	14,457	15,525	7
- Education & Training	2,460	8	2,651	2,947	3,281	3,650	4,063	4,519	11
Network Services	8,089	16	9,350	10,782	12,552	14,648	17,141	20,052	16
- Electronic Info Svcs	6,420	16	7,419	8,527	9,908	11,519	13,408	15,615	16
- Network Applications	1,669	16	1,931	2,255	2,644	3,129	3,733	4,437	18
Systems Software Products	16,390	10	18,100	19,960	22,160	24,720	27,770	31,700	12
- Mainframe	7,800	8	8,400	9,140	10,000	10,970	12,050	13,350	10
- Minicomputer	5,460	10	6,000	6,520	7,110	7,780	8,540	9,500	10
- Workstation/PC	3,130	18	3,700	4,300	5,050	5,970	7,180	8,850	19

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EXHIBIT II -2

Information Services Industry
1991 MAP Data Base Reconciliation by Delivery Mode

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Sector Total	100,410	100,495	85	<1	186,394	173,940	-12,454	-7	13	12
Processing Services	17,028	17,024	-4	<1	26,574	24,650	-1,924	-7	9	8
- Transaction Processing	14,103	14,096	-7	<1	21,236	19,469	-1,767	-8	9	7
- Utility Processing Svcs.	898	898	-	-	1,190	1,146	-44	-4	6	5
- Other Procesing Svcs.	2027	2030	3	<1	4,148	4,035	-113	-3	15	15
Turnkey Systems	10,338	10,434	96	1	15,553	15,888	335	2	9	9
- Equipment	4,830	5,008	178	4	6,563	7,626	1,063	16	6	9
- Software Products	3,846	3,756	-90	-2	6,230	5,720	-510	-8	10	9
- Applications	3,294	3,235	-59	-2	5,486	4,925	-561	-10	11	9
- Systems	552	522	-30	-5	736	794	58	8	6	9
- Professional Services	1,662	1,669	7	<1	2,760	2,542	-218	-8	11	9
Applications Software Products	18,142	17,676	-466	-3	34,701	32,993	-1,708	-5	14	13
- Mainframe	5,054	5,017	-37	-1	7,305	6,800	-505	-7	8	6
- Minicomputer	5,575	5,221	-354	-6	8,845	8,340	-505	-6	10	10
- Workstation/PC	7,513	7,438	-75	-1	18,551	17,853	-698	-4	20	19
Systems Operations	7,262	7,237	-25	<1	15,248	15,309	61	<1	16	16
- Platform Sys Oprns	3,283	3,114	-169	-5	5,980	5,847	-133	-2	13	13
- Applications Sys Oprns	3,979	4,123	144	4	9,268	9,462	194	2	18	18
Systems Integration	6,411	6,884	473	7	15,377	14,735	-642	-4	19	16
- Equipment	2,498	2,822	324	13	5,846	6,041	195	3	19	16
- Software Products	418	482	64	15	1,335	1,031	-304	-23	26	16
- Applications	255	310	55	21	889	663	-226	-25	28	16
- Systems	163	172	9	6	445	368	-77	-17	22	16
- Professional Services	3,252	3,304	52	2	7,644	7,073	-571	-7	19	16
- Other Services	244	275	31	13	553	589	36	7	18	16
Professional Services	16,764	16,761	-3	<1	29,527	25,454	-4,073	-14	12	9
- Consulting	3,902	3,900	-2	<1	7,663	6,934	-729	-10	14	12
- Software Development	10,402	10,401	-1	<1	17,763	14,457	-3,306	-19	11	7
- Education & Training	2,460	2,460	-	<1	4,101	4,063	-38	-1	11	11
Network Services	8,075	8,089	14	<1	17,927	17,141	-786	-4	17	16
- Electronic Info. Svcs.	6,408	6,420	12	<1	14,036	13,408	-628	-4	17	16
- Network Applications	1,667	1,669	2	<1	3,891	3,733	-158	-4	18	17
Systems Software Products	16,390	16,390	-	-	31,487	27,770	-3,717	-12	14	11
- Mainframe	7,800	7,800	-	-	12,967	12,050	-917	-7	11	9
- Minicomputer	5,460	5,460	-	-	9,190	8,540	-650	-7	11	9
- Workstation/PC	3,130	3,130	-	-	9,330	7,180	-2,150	-23	24	18

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EXHIBIT II -3

Information Services Market
User Expenditure Forecast by Market Sector, 1990-1996

Delivery Modes	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Total Information Services Market	100,495	10	110,781	123,415	138,036	154,829	173,940	196,936	12
Vertical Industry Markets	66,084	10	72,514	80,840	90,360	101,242	113,409	128,041	12
Discrete Manufacturing	10,690	11	11,858	13,241	14,813	16,550	18,498	20,967	12
Process Manufacturing	4,930	11	5,460	6,111	6,871	7,741	8,733	9,886	13
Transportation	3,382	6	3,580	3,892	4,311	4,802	5,302	5,892	10
Utilities	1,219	9	1,329	1,483	1,674	1,872	2,082	2,330	12
Telecommunications	2,960	15	3,400	3,915	4,531	5,252	6,086	7,057	16
Retail Distribution	1,806	12	2,015	2,253	2,537	2,886	3,301	3,796	14
Wholesale Distribution	1,967	11	2,185	2,426	2,713	3,041	3,417	3,847	12
Banking and Finance	11,050	10	12,194	13,442	14,785	16,330	18,149	20,199	11
Insurance	4,015	10	4,410	4,878	5,462	6,104	6,879	7,750	12
Health Services	3,974	11	4,394	4,910	5,504	6,185	6,994	7,960	13
Education	1,400	10	1,545	1,703	1,885	2,087	2,323	2,587	11
Business Services	4,180	8	4,527	4,935	5,398	5,943	6,529	7,167	10
Federal Government	9,000	5	9,461	10,633	11,828	13,240	14,564	16,489	12
State and Local Gov't	4,445	13	5,020	5,805	6,747	7,812	9,044	10,501	16
Miscellaneous Industries	1,066	7	1,136	1,213	1,301	1,397	1,508	1,613	7
Cross-Industry Markets	11,959	10	13,190	14,655	16,330	18,250	20,465	22,934	12
Accounting	2,595	9	2,835	3,104	3,413	3,771	4,187	4,671	11
Education and Training	473	10	519	569	631	715	823	919	12
Engineering and Scientific	799	13	902	1,012	1,136	1,281	1,449	1,648	13
Human Resources	2,248	9	2,454	2,693	2,973	3,228	3,492	3,794	9
Office Systems	2,116	11	2,352	2,705	3,075	3,532	4,062	4,652	15
Planning and Analysis	2,329	12	2,615	2,937	3,317	3,763	4,289	4,906	13
Other Cross-Industry	1,399	8	1,513	1,635	1,785	1,960	2,163	2,344	9
Other Markets	22,452	12	25,077	27,920	31,346	35,337	40,066	45,961	13
Cross-Industry Data Bases	3,134	19	3,723	4,313	5,091	6,016	7,115	8,417	18
Processing Services-Utility	898	5	943	990	1,040	1,091	1,146	1,204	5
Processing Services-Other	2,030	14	2,311	2,657	3,055	3,510	4,035	4,640	15
Systems Software	16,390	10	18,100	19,960	22,160	24,720	27,770	31,700	12

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EXHIBIT II -4

Information Services Market
1991 MAP Data Base Reconciliation by Market Sector

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total Information Services Market	100,414	100,495	81	<1	182,249	173,940	-8,309	-5	13	12
Vertical Industry Markets	65,346	66,084	738	1	116,378	113,409	-2,969	-3	12	11
Discrete Manufacturing	10,776	10,690	-86	-1	20,594	18,498	-2,096	-10	14	12
Process Manufacturing	5,074	4,930	-144	-3	9,702	8,733	-969	-10	14	12
Transportation	3,512	3,382	-130	-4	3,326	5,302	1,976	59	-1	9
Utilities	1,245	1,219	-26	-2	2,248	2,082	-166	-7	13	11
Telecommunications	2,757	2,960	203	7	5,846	6,086	240	4	16	16
Retail Distribution	1,755	1,806	51	3	3,393	3,301	-92	-3	14	13
Wholesale Distribution	2,009	1,967	-42	-2	3,570	3,417	-153	-4	12	12
Banking and Finance	11,453	11,050	-403	-4	21,722	18,149	-3,573	-16	14	10
Insurance	4,064	4,015	-49	-1	7,579	6,879	-700	-9	13	11
Health Services	4,083	3,974	-109	-3	7,339	6,994	-345	-5	12	12
Education	1,436	1,400	-36	-3	2,417	2,323	-94	-4	11	11
Business Services	3,409	4,180	771	23	4,280	6,529	2,249	53	5	9
Federal Government	8,207	9,000	793	10	12,883	14,564	1,681	13	9	10
State and Local Gov't	4,511	4,445	-66	-1	9,947	9,044	-903	-9	17	15
Miscellaneous Industries	1,055	1,066	11	1	1,532	1,508	-24	-2	8	7
Cross-Industry Markets	12,635	11,959	-676	-5	21,924	20,465	-1,459	-7	12	11
Accounting	3,171	2,595	-576	-18	5,040	4,187	-853	-17	10	10
Education and Training	475	473	-2	0	830	823	-7	-1	12	12
Engineering and Sci.	817	799	-18	-2	1,489	1,449	-40	-3	13	13
Human Resources	2,248	2,248	0	0	3,640	3,492	-148	-4	10	9
Office Systems	2,162	2,116	-46	-2	4,189	4,062	-127	-3	14	14
Planning and Analysis	2,355	2,329	-26	-1	4,376	4,289	-87	-2	13	13
Other Cross-Industry	1,407	1,399	-8	-1	2,360	2,163	-197	-8	11	9
Other Markets	22,433	22,452	19	0	43,947	40,066	-3,881	-9	14	12
Cross-Industry Data bases	3,118	3,134	16	1	7,122	7,115	-7	0	18	18
Processing Services - Utility	898	898	0	0	1,190	1,146	-44	-4	6	5
Processing Services - Other	2,027	2,030	3	0	4,148	4,035	-113	-3	15	15
Systems Software	16,390	16,390	0	0	31,487	27,770	-3,717	-12	14	11

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III

Delivery Mode Forecasts

III

Delivery Mode Forecasts

This chapter presents the market forecasts and reconciliations for each of the eight delivery modes used by INPUT to define the U.S. information services industry. Please refer to the appropriate delivery mode report for INPUT's complete analysis of the market sector of interest.

A
Processing Services

1. Forecast Data Base

Exhibit III-1 presents the detailed 1991-1996 forecast for the processing services market.

2. Forecast Reconciliation

Exhibit III-2 presents the forecast reconciliation for the processing services sector.

- Processing services continues to be a relatively stable market on an aggregate basis that has shown a drop of only 1% from the previously forecast CAGR.
- There are weaknesses in certain areas of the transaction processing market, but continuing strength in "other" processing services driven by the growth of disaster recovery services.

Several of the largest changes in the processing services market have been brought about by the shift of work from one marketplace to another.

- $575 million of user expenditures were moved from the cross-industry accounting market to business services in 1990 to take account of the sizable amount of customization that has altered cross-industry accounting applications so that they can be used by business services firms to meet the needs of their customers.

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EXHIBIT III-1

Processing Services
User Expenditure Forecast by Market Sector, 1990-1996

Market Sector	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Delivery Mode Total	17,023	7	18,274	19,661	21,210	22,857	24,650	26,639	8
Vertical Industry Markets	11,441	7	12,189	13,021	13,933	14,919	15,993	17,159	7
Discrete Manufacturing	795	5	838	875	915	956	994	1,038	5
Process Manufacturing	681	5	717	743	778	815	853	895	5
Transportation	2,030	2	2,070	2,183	2,360	2,552	2,758	2,980	8
Utilities	201	8	217	248	283	322	367	421	14
Telecommunications	895	14	1,020	1,173	1,349	1,552	1,785	2,052	15
Retail Distribution	165	5	174	183	197	211	226	243	7
Wholesale Distribution	289	7	310	334	360	388	419	452	8
Banking and Finance	3,100	11	3,440	3,757	4,033	4,328	4,646	4,988	8
Insurance	351	7	375	402	431	462	495	530	7
Medical	500	5	526	551	577	604	632	660	5
Education	185	3	191	196	201	207	213	218	3
Business Services	1,644	3	1,692	1,722	1,751	1,778	1,807	1,824	2
Federal Government	200	-6	187	193	200	206	213	220	3
State and Local Govt.	257	12	288	322	361	404	453	507	12
Miscellaneous Industries	148	-3	144	139	137	134	132	131	-2
Cross-Industry Markets	2,654	7	2,831	2,993	3,182	3,337	3,476	3,636	5
Accounting	146	3	150	155	160	165	170	175	3
Education and Training	95	0	95	89	83	78	73	68	-6
Engineering and Scientific	123	4	128	129	129	130	131	131	1
Human Resources	1,523	10	1,676	1,844	2,030	2,180	2,310	2,460	8
Office Systems	38	-3	36	34	32	30	28	26	-6
Planning and Analysis	205	-7	190	167	147	129	114	108	-12
Other Cross-Industry	525	6	556	575	601	625	650	676	4
Generic Markets	2,928	11	3,254	3,647	4,095	4,601	5,181	5,844	12
Processing Services									
- Utility	898	5	943	990	1,040	1,091	1,146	1,204	5
- Other	2,030	14	2,311	2,657	3,055	3,510	4,035	4,640	15

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EXHIBIT III-2

Processing Services
1991 MAP Data Base Reconciliation

Market Sector	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total Processing Market	17,028	17,023	-5	<1	26,575	24,650	-1,925	-7	9	8
Vert. Indus. Mkts.	10,874	11,441	567	5	16,873	15,993	-880	-5	9	7
Discrete Mfg.	795	795	-	-	1,064	994	-70	-7	6	5
Process Mfg.	678	681	-3	<1	882	853	-29	-3	5	5
Transportation	2,030	2,030	-	-	3,561	2,758	-803	-22	11	8
Utilities	201	201	-	-	333	367	34	10	11	14
Telecom.	733	895	162	22	1,473	1,785	312	21	15	15
Retail Distr.	165	165	-	-	254	226	-28	-11	9	7
Wholesale Distr.	289	289	-	-	445	419	-26	-6	9	8
Banking & Finance	3,275	3,100	-175	-5	5,718	4,646	-1,072	-19	12	8
Insurance	351	351	-	-	566	495	-71	-13	10	7
Medical	500	500	-	-	644	632	-12	-2	5	5
Education	185	185	-	-	215	213	-2	-1	3	3
Business Services	787	1,362	575	73	895	1,807	912	102	3	2
Federal Govt.	200	200	-	-	240	213	-27	-11	4	3
State & Local Govt.	255	257	2	1	450	453	3	1	12	12
Misc. Industries	148	148	-	-	134	132	-2	-1	-2	-2
Cross-Indus. Mkts.	3,229	2,654	-575	-18	4,363	3,476	-887	-20	6	5
Accounting	721	146	-575	-80	789	170	-619	-78	2	3
Edu. & Training	95	95	-	-	74	73	-1	-1	-5	-6
Eng. & Scientific	123	123	-	-	150	131	-19	-13	4	1
Human Resources	1,523	1,523	-	-	2,453	2,310	-143	-6	10	8
Office Systems	38	38	-	-	29	28	-1	-3	-5	-6
Planning & Analysis	205	205	-	-	118	114	-4	-3	-10	-12
Other Cross-Indus.	525	525	-	-	749	650	-99	-13	7	4
Generic Markets	2,925	2,928	3	<1	5,338	5,181	-157	-3	13	12
Processing Svcs.										
- Utility	898	898	-	-	1,190	1,146	-44	-4	6	5
- Other	2,027	2,030	3	<1	4,148	4,035	-113	-3	15	15

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- In 1990, INPUT created a new industry sector—consumer services. It included the reservation services activities that had been part of the transportation industry. After further review it was decided with INPUT clients that this caused confusion. Accordingly, for 1991 the consumer services sector has been discontinued and the expenditures tracked in this sector moved back to the transportation industry. Some expenditures were moved to business services also.

There were two sizable differences between forecasts and actual results for 1990 in vertical industry markets.

- Banking and finance expenditures were 5% below estimates, due to the economic downturn and consolidations in the industry.

- Telecommunications results were up by 22% over forecast, due to the effects of increased network use and restructuring of work.

The transaction processing market for industry applications is forecast to grow between 1990 and 1995 at a rate 1% per year below last year's forecast on an overall basis.

- Not counting the elimination of the consumer services industry sector, 15 industry and cross-industry markets show decreases in forecasts from 1990 to 1995 in comparison to the previous forecast, due to two factors: the movement of some transaction processing work in-house to downsized processing capabilities on LANs and smaller computing capabilities, and the shrinkage of work due to continuing economic problems.

- Most industry markets are down by 1% or 2% in forecasts for 1991 relative to previous forecasts, but several are down by more. Transportation and insurance markets are growing at rates 3% below the last forecast, and banking and finance is growing at a rate 4% below the last forecast. These industries have been hit very hard by the economic downturn and there has been consolidation of firms.

- The cross-industry engineering and scientific and other markets also have forecasts that are 3% below previous forecasts, due principally to the movement of work in-house. Continuing economic problems have enhanced interest in moving work in-house when it can lead to near-term savings.

Telecommunications and state and local government industry sectors are forecast to maintain high growth rates due to the expansion of work in these markets. The utilities market is forecast to grow at a rate 3% higher than the previous forecast due to the growth of certain applications, particularly GIS (geographical information system)-related applications.

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The "other" processing services market will retain its high growth rate of 15% due to increasing interest in disaster recovery services. Utility processing services will shrink by only 1% from the previous forecast due to:

- The continuing interest in running special jobs such as scientific jobs at vendor sites rather than having the necessary equipment and software products in-house.
- The growing interest in testing applications software products on vendor processing capabilities before installing them in-house.

In 1990 INPUT made a considerable change to the processing services market in the previous forecast by introducing the new delivery mode of systems operations. This mode was created by taking the systems operations submode out of both processing and professional services to account for the different and expanding type of service that was being delivered through systems operations. This service involves handling all the processing for a company or department on a contractual basis for a period longer than a year. Please consult the report, *U.S. Systems Operations Market, 1991-1996.*

The effects of this change were handled in the analysis in last year's report and are not reflected in the exhibits in this appendix.

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B

Turnkey Systems

1. Forecast Data Base

Exhibits III-3 provides the forecast for the U.S. turnkey systems market for 1991-1996.

2. Forecast Reconciliation

Exhibit III-4 presents the forecast reconciliation for the U.S. turnkey systems market.

With regard to turnkey systems, 1990 actuals were slightly higher than forecasted due to larger than expected expenditures by the telecommunications and federal government sectors.

For turnkey systems, INPUT's 1991 forecasted growth rate for the period 1991-1996 remains the same as INPUT's 1990 forecast for the period 1990-1995.

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EXHIBIT III-3

Turnkey Systems
User Expenditure Forecast by Market Sector, 1990-1996

Market Sector	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Market Sector Total	10,434	10	11,474	12,530	13,571	14,686	15,888	17,410	9
Vertical Industry Markets	9,096	11	10,063	11,037	11,985	12,991	14,065	15,500	9
Discrete Manufacturing	2,460	14	27,98	3,097	3,404	3,727	4,084	4,715	11
Process Manufacturing	509	12	568	634	709	793	889	1,000	12
Transportation	250	10	275	302	332	366	402	443	10
Utilities	85	9	93	105	119	134	152	172	13
Telecommunications	462	12	519	581	654	735	828	931	12
Retail Distribution	664	6	707	754	804	858	915	992	7
Wholesale Distribution	456	7	487	522	559	604	653	683	7
Banking & Finance	925	8	1,000	1,075	1,160	1,250	1,355	1,460	8
Insurance	292	7	311	331	349	366	380	397	5
Medical	928	7	994	1,060	1,116	1,161	1,192	1,269	5
Education	216	7	231	247	265	283	303	324	7
Business Services	743	9	810	885	962	1,045	1,129	1,235	9
Federal Government	494	24	612	736	790	846	896	938	9
State & Local Govt.	150	11	167	186	206	230	255	284	11
Misc. Industries	462	6	491	522	556	593	632	657	6
Cross-Industry Markets	1,338	5	1,411	1,493	1,586	1,695	1,823	1,910	6
Accounting	422	3	435	448	461	475	490	504	3
Education & Training	170	7	182	196	213	239	275	293	10
Engineering & Scientific	112	10	123	134	144	153	159	173	7
Human Resources	82	2	84	86	88	89	90	92	2
Office Systems	65	2	66	67	69	70	72	73	2
Planning & Analysis	50	0	50	50	50	50	50	50	0
Other	437	8	471	512	561	619	687	725	9

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EXHIBIT III-4

Turnkey Systems
1991 MAP Data Base Reconciliation

Market Sector	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total Turnkey Systems Market	10,338	10,434	96	1	15,553	15,888	335	2	9	9
Vert. Indus. Mkts.	9,000	9,096	96	1	13,731	14,065	334	2	9	9
Discr. Mfg.	2,460	2,460	-	-	4,084	4,084	-	-	11	11
Process Mfg.	509	509	-	-	889	889	-	-	12	12
Transportation	250	250	-	-	402	402	-	-	10	10
Utilities	85	85	-	-	145	152	7	5	11	12
Telecom.	420	462	42	10	770	828	58	8	13	12
Retail Distribution	664	664	-	-	915	915	-	-	7	7
Wholesale Distr.	456	456	-	-	653	653	-	-	7	7
Banking & Finance	939	925	-14	-1	1,408	1,355	-53	-4	8	8
Insurance	292	292	-	-	380	380	-	-	5	5
Medical	928	928	-	-	1,192	1,192	-	-	5	5
Education	216	216	-	-	303	303	-	-	7	7
Business Services	743	743	-	-	1,159	1,129	-30	-3	9	9
Federal Govt.	427	494	67	16	545	896	351	64	5	13
State & Local Govt.	151	150	-1	-1	255	255	-	-	11	11
Misc. Industries	462	462	-	-	632	632	-	-	6	6
Cross-Ind. Mkts.	1,338	1,338	-	-	1,822	1,823	1	<1	6	6
Accounting	422	422	-	-	489	490	1	<1	3	3
Ed. & Training	170	170	-	-	275	275	-	-	10	10
Eng. & Scientific	112	112	-	-	159	159	-	-	7	7
Human Resources	82	82	-	-	90	90	-	-	2	2
Office Systems	65	65	-	-	72	72	-	-	2	2
Planning & Analy.	50	50	-	-	50	50	-	-	-	-
Other	437	437	-	-	687	687	-	-	9	9

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C

Applications Software Products

1. Forecast Data Base

Exhibit III-5 provides the forecasts by year for the applications software products market.

More detailed forecasts are presented in the following exhibits.

- Exhibit III-7 - Mainframe Applications Software Products—User Expenditure Forecast by Market Sector, 1990-1996
- Exhibit III-9 - Minicomputer Applications Software Products—User Expenditure Forecast by Market Sector, 1990-1996
- Exhibit III-11 - Workstation/PC Applications Software Products—User Expenditure Forecast by Market Sector, 1990-1996

2. Forecast Reconciliation

Exhibit III-6 presents the forecast reconciliation for the U.S. applications software products market.

More detailed reconciliations are presented in the following exhibits.

- Exhibit III-8 - Mainframe Applications Software Products—1991 MAP Data Base Reconciliation
- Exhibit III-10 - Minicomputer Applications Software Products—1991 MAP Data Base Reconciliation
- Exhibit III-12 - Workstation/PC Applications Software Products—1991 MAP Data Base Reconciliation

Changes in expenditures on applications software products reflected in the data base are due to the following:

- Expenditures on minicomputer-based applications software products have been adjusted downwards for 1990 compared to INPUT's previous year forecast for 1990, as we feel this number had been overstated in the past. With this adjustment, actual 1990 expenditures for minicomputer-based applications software products were $5.2 billion rather than the forecasted $5.6 billion.

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EXHIBIT III-5

Applications Software Products
User Expenditure Forecast by Market Sector, 1990-1996

Market Sector	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Market Sector Total	17,676	12	19,842	22,352	25,314	28,839	32,992	38,030	14
Vertical Industry Markets	9,707	12	10,894	12,183	13,752	15,620	17,827	20,643	14
Discrete Manufacturing	1,755	12	1,967	2,224	2,530	2,881	3,295	3,799	14
Process Manufacturing	520	14	595	683	783	899	1,036	1,198	15
Transportation	351	11	390	431	478	538	596	661	11
Utilities	180	12	202	227	255	287	325	366	13
Telecommunications	317	19	378	452	539	646	774	930	20
Retail Distribution	241	13	272	306	345	392	446	506	13
Wholesale Distribution	475	11	527	587	662	743	845	958	13
Banking & Finance	2,130	7	2,270	2,430	2,615	2,860	3,160	3,480	9
Insurance	768	11	852	955	1,093	1,266	1,496	1,750	15
Medical	869	13	985	1,125	1,296	1,505	1,768	2,089	16
Education	606	12	676	746	829	921	1026	1143	11
Business Services	759	16	880	1,017	1,177	1,367	1,590	1,791	15
Federal Government	390	33	520	580	683	794	886	1,316	20
State & Local Govt.	127	13	143	163	187	216	252	293	15
Misc. Industries	219	8	237	257	280	305	332	363	9
Cross-Industry Markets	7,969	12	8,948	10,169	11,562	13,219	15,165	17,387	14
Accounting	2,028	11	2,250	2,501	2,792	3,131	3,527	3,992	12
Education & Training	208	16	242	284	335	398	475	558	18
Engineering & Scientific	564	15	651	749	863	998	1,159	1,344	16
Human Resources	644	8	694	763	855	960	1,092	1,242	12
Office Systems	2,014	12	2,250	2,604	2,974	3,432	3,961	4,552	15
Planning & Analysis	2,074	15	2,375	2,720	3,120	3,584	4,125	4,756	15
Other	437	11	486	548	623	716	826	943	14

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EXHIBIT III-6

Applications Software Products
1991 MAP Data Base Reconciliation

Market Sector	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total Applications Software Products Market	18,143	17,676	-467	-3	34,700	32,992	-1,708	-5	14	13
Vert. Indus. Mkts.	10,075	9,707	-368	-4	18,961	17,827	-1,134	-6	13	13
Discr. Mfg.	1,828	1,755	-73	-4	3,412	3,295	-117	-3	13	13
Process Mfg.	535	520	-15	-3	1,069	1,036	-33	-3	15	15
Transportation	359	351	-8	-2	603	596	-7	-1	11	11
Utilities	185	180	-5	-3	333	325	-8	-2	12	13
Telecom.	317	317	-	-	774	774	-	-	20	20
Retail Distr.	249	241	-8	-3	459	446	-13	-3	13	13
Wholesale Distr.	484	475	-9	-2	872	845	-27	-3	13	12
Banking & Finance	2,150	2,130	-20	-1	3,860	3,160	-700	-18	12	8
Insurance	779	768	-11	-1	1,538	1,496	-42	-3	15	14
Medical	891	869	-22	-2	1,843	1,768	-75	-4	16	15
Education	619	606	-13	-2	1,043	1,026	-17	-2	11	11
Bus. Services	775	759	-16	-2	1,603	1,590	-13	-1	16	16
Federal Govt.	546	390	-156	-29	945	887	-58	-6	12	18
State & Local Govt.	132	127	-5	-4	268	252	-16	-6	15	15
Misc. Industries	226	219	-7	-3	340	332	-8	-2	9	9
Cross-Ind. Mkts.	8,068	7,969	-99	-1	15,739	15,165	-574	-4	14	14
Accounting	2,028	2,028	-	-	3,763	3,527	-236	-6	13	12
Ed. & Training	210	208	-2	-1	480	475	-5	-1	18	18
Eng. & Scientific	582	564	-18	-3	1,180	1,159	-21	-2	15	15
Human Resources	643	644	1	<1	1,097	1,092	-5	<1	11	11
Office Systems	2,059	2,014	-45	-2	4,088	3,961	-127	-3	15	14
Planning & Analy.	2,100	2,074	-26	-1	4,208	4,125	-83	-2	15	15
Other	446	437	-9	-2	923	826	-97	-11	16	14

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- The federal government sector's expenditures on applications software products in 1990 have been adjusted downwards by 29%; the previous year's forecasts for this sector included a certain percentage of cross-industry applications software products that had already been counted in the appropriate cross-industry sector forecasts.

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EXHIBIT III-7

Mainframe Applications Software Products User Expenditure Forecast by Market Sector, 1990-1996

Market Sector	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Market Sectors Total	5,017	7	5,315	5,630	5,989	6,382	6,799	7,260	6
Vertical Industry Markets	3,101	7	3,301	3,521	3760	4,044	4,340	4,670	7
Discrete Manufacturing	372	3	383	410	442	467	492	524	6
Process Manufacturing	157	8	169	182	193	203	212	225	6
Transportation	135	6	143	149	155	169	175	182	5
Utilities	42	10	46	50	53	56	60	64	7
Telecommunications	160	15	184	212	243	280	322	370	15
Retail Distribution	44	9	48	51	54	57	60	63	6
Wholesale Distribution	233	5	245	255	268	275	287	298	4
Banking & Finance	950	7	1,010	1,080	1,160	1,270	1,400	1,540	9
Insurance	311	5	327	344	367	388	413	438	6
Medical	344	7	369	395	422	446	470	500	6
Education	80	3	82	84	86	87	89	91	2
Business Services	115	3	119	122	124	128	131	134	2
Federal Government	90	22	110	114	126	137	144	151	5
State & Local Govt.	51	8	55	58	62	67	72	77	7
Misc. Industries	17	-6	16	15	15	14	13	13	-4
Cross-Industry Markets	1,916	5	2,009	2,109	2,219	2,338	2,459	2,590	5
Accounting	728	4	757	787	819	852	885	920	4
Education & Training	38	5	40	41	42	43	44	46	3
Engineering & Scientific	135	8	146	157	170	184	199	215	8
Human Resources	258	3	265	278	292	307	322	338	5
Office Systems	160	2	163	164	165	170	173	176	2
Planning & Analysis	415	8	447	478	512	548	586	627	7
Other	182	5	191	204	219	234	250	268	7

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EXHIBIT III-8

Mainframe Applications Software Products 1991 MAP Data Base Reconciliation

Market Sector	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total Mainframe Applications Software Products Market	5,054	5,017	-37	-1	7,305	6,799	-506	-7	8	6
Vert. Indus. Mkts.	3,139	3,101	-38	-1	4,712	4,340	-372	-8	8	7
Discr. Mfg.	372	372	-	-	535	492	-43	-8	8	6
Process Mfg.	157	157	-	-	230	212	-18	-8	8	6
Transportation	135	135	-	-	176	175	-1	-1	5	5
Utilities	42	42	-	-	65	60	-5	-8	9	7
Telecom.	160	160	-	-	322	322	-	-	15	15
Retail Distribution	44	44	-	-	65	60	-5	-8	8	6
Wholesale Distr.	233	233	-	-	306	287	-19	-6	6	4
Banking & Finance	950	950	-	-	1,584	1,400	-184	-12	11	8
Insurance	311	311	-	-	449	413	-36	-8	8	6
Medical	322	344	22	7	511	470	-41	-8	8	6
Education	80	80	-	-	93	89	-4	-4	3	2
Business Services	115	115	-	-	136	131	-5	-4	3	3
Federal Govt.	126	90	-36	-29	153	144	-9	-6	4	10
State & Local Govt.	53	51	-2	-4	74	72	-2	-3	7	7
Misc. Industries	17	17	-	-	13	13	-	-	-5	-5
Cross-Ind. Mkts.	1,916	1,916	-	-	2,593	2,459	-134	-5	6	5
Accounting	728	728	-	-	885	885	-	-	4	4
Ed. & Training	38	38	-	-	49	44	-5	-10	5	3
Eng. & Scientific	135	135	-	-	210	199	-11	-5	9	8
Human Resources	258	258	-	-	300	322	22	7	3	5
Office Systems	160	160	-	-	173	173	-	-	2	2
Planning & Analy.	415	415	-	-	644	586	-58	-9	9	7
Other	182	182	-	-	331	250	-81	-24	13	7

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EXHIBIT III-9

Minicomputer Applications Software Products User Expenditure Forecast by Market Sector, 1991-1996

Market Sector	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Market Sector Total	5,221	10	5,749	6,288	6,889	7,576	8,340	9,155	10
Vertical Industry Markets	3,217	10	3,550	3,873	4,238	4,661	5,137	5,654	10
Discrete Manufacturing	935	12	1,046	1,158	1,268	1,389	1,522	1,685	10
Process Manufacturing	185	12	207	231	258	288	322	356	11
Transportation	97	8	105	114	124	135	147	156	8
Utilities	59	10	65	71	78	86	95	102	9
Telecommunications	76	22	93	113	138	168	205	251	22
Retail Distribution	112	11	124	137	152	168	186	205	11
Wholesale Distribution	111	10	122	137	152	168	186	200	10
Banking & Finance	680	6	720	765	825	900	990	1,085	9
Insurance	116	6	123	128	132	136	140	145	3
Medical	266	9	290	316	344	375	409	449	9
Education	154	11	171	182	197	214	232	252	8
Business Services	196	10	216	236	256	278	303	325	9
Federal Government	120	25	150	158	177	208	240	270	12
State & Local Govt.	28	11	31	35	39	44	50	57	13
Misc. Industries	82	6	87	92	98	104	110	116	6
Cross-Industry Markets	2,004	10	2,199	2,415	2,651	2,915	3,203	3,501	10
Accounting	529	6	560	594	629	667	707	750	6
Education & Training	24	8	26	28	30	32	34	36	7
Engineering & Scientific	211	14	241	272	303	338	375	415	11
Human Resources	242	6	256	275	298	323	348	376	8
Office Systems	557	14	634	720	820	935	1,065	1,190	13
Planning & Analysis	324	9	353	384	415	449	486	526	8
Other	117	10	129	142	156	171	188	208	10

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EXHIBIT III-10

Minicomputer Applications Software Products
1991 MAP Data Base Reconciliation

Market Sector Total	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total Minicomputer Applications Software Products Market	5,575	5,221	-354	-6	8,845	8340	-505	-6	10	10
Vert. Indus. Mkts.	3,472	3,217	-255	-7	5,549	5,137	-412	-7	10	10
Discr. Mfg.	1,009	935	-74	-7	1,595	1,522	-73	-5	10	10
Process Mfg.	200	185	-15	-7	337	322	-15	-4	11	12
Transportation	105	97	-8	-8	153	147	-6	-4	8	9
Utilities	64	59	-5	-8	99	95	-4	-4	9	10
Telecom.	76	76	-	-	204	205	1	<1	22	22
Retail Distribution	121	112	-9	-7	194	186	-8	-4	10	11
Wholesale Distr.	120	111	-9	-7	195	186	-9	-5	10	11
Banking & Finance	700	680	-20	-3	1,200	990	-210	-17	11	8
Insurance	126	116	-10	-8	146	140	-6	-4	3	4
Medical	288	266	-22	-8	444	409	-35	-8	9	9
Education	167	154	-13	-8	245	232	-13	-5	8	9
Business Services	212	196	-16	-8	311	303	-8	-3	8	9
Federal Govt.	167	120	-47	-28	257	240	-17	-7	9	15
State & Local Govt.	28	28	-	-	52	50	-2	-4	13	12
Misc. Industries	89	82	-7	-8	118	110	-8	-7	6	6
Cross-Ind. Mkts.	2,104	2,004	-100	-5	3,296	3,203	-93	-3	9	10
Accounting	529	529	-	-	708	707	-1	<1	6	6
Ed. & Training	26	24	-2	-8	34	34	-	-	6	7
Eng. & Scientific	228	211	-17	-7	384	375	-9	-2	11	12
Human Resources	242	242	-	-	355	348	-7	-2	8	8
Office Systems	602	557	-45	-7	1,100	1,065	-35	-3	13	14
Planning & Analy.	351	324	-27	-8	511	486	-25	-5	8	8
Other	127	117	-10	-8	204	188	-16	-8	10	10

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EXHIBIT III-11

Workstation/PC Applications Software Products User Expenditure Forecast by Market Sector, 1990-1996

Market Sector	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Market Sector Total	7,438	18	8,778	10,434	12,436	14,881	17,853	21,615	20
Vertical Industry Markets	3,389	19	4,038	4,789	5,744	6,915	8,350	10,319	21
Discrete Manufacturing	448	20	538	656	820	1,025	1,281	1,590	24
Process Manufacturing	178	23	219	270	332	408	502	617	23
Transportation	119	19	142	168	199	234	274	323	18
Utilities	79	15	91	106	124	145	170	200	17
Telecommunications	81	25	101	127	158	198	247	309	25
Retail Distribution	85	18	100	118	139	167	200	238	19
Wholesale Distribution	131	22	160	195	242	300	372	460	24
Banking & Finance	500	8	540	585	630	690	770	855	10
Insurance	341	18	402	483	594	742	943	1,167	24
Medical	259	26	326	414	530	684	889	1,140	28
Education	372	14	423	480	546	620	705	800	14
Business Services	448	22	545	659	797	961	1,156	1,332	20
Federal Government	180	44	260	308	380	449	502	895	28
State & Local Govt.	48	19	57	70	86	105	130	159	23
Misc. Industries	120	12	134	150	167	187	209	234	12
Cross-Industry Markets	4,049	17	4,740	5,645	6,692	7,966	9,503	11,296	19
Accounting	771	21	933	1,120	1,344	1,612	1,935	2,322	20
Education & Training	146	21	176	215	263	323	397	476	22
Engineering & Scientific	218	21	264	320	390	476	585	714	22
Human Resources	144	20	173	210	265	330	422	528	25
Office Systems	1,297	12	1,453	1,720	1,989	2,327	2,723	3,186	17
Planning & Analysis	1,335	18	1,575	1,858	2,193	2,587	3,053	3,603	18
Other	138	20	166	202	248	311	388	467	23

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EXHIBIT III-12

Workstation Applications Software Products
1991 MAP Data Base Reconciliation

Market Sector	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total Workstation Applications Software Products Market	7,513	7,438	-75	-1	18,551	17,853	-698	-4	20	19
Vert. Indus. Mkts.	3,465	3,389	-76	-2	8,700	8,350	-350	-4	20	20
Discr. Mfg.	448	448	-	-	1,281	1,281	-	-	23	23
Process Mfg.	178	178	-	-	502	502	-	-	23	23
Transportation	119	119	-	-	274	274	-	-	18	18
Utilities	79	79	-	-	170	170	-	-	17	17
Telecom.	81	81	-	-	248	247	-1	<1	25	25
Retail Distribution	85	85	-	-	200	200	-	-	19	19
Wholesale Distr.	131	131	-	-	372	372	-	-	23	23
Banking & Finance	500	500	-	-	1,076	770	-306	-28	17	9
Insurance	341	341	-	-	943	943	-	-	23	23
Medical	259	259	-	-	889	889	-	-	28	28
Education	372	372	-	-	705	705	-	-	14	14
Business Services	448	448	-	-	1,156	1,156	-	-	21	21
Federal Govt.	253	180	-73	-29	535	502	-33	-6	16	23
State & Local Govt.	50	48	-2	-4	141	130	-11	-8	23	22
Misc. Industries	120	120	-	-	209	209	-	-	12	12
Cross-Ind. Mkts.	4,049	4,049	-	-	9,850	9,503	-347	-4	19	19
Accounting	771	771	-	-	2,169	1,935	-234	-11	23	20
Ed. & Training	146	146	-	-	397	397	-	-	22	22
Eng. & Scientific	218	218	-	-	585	585	-	-	22	22
Human Resources	144	144	-	-	442	422	-20	-5	25	24
Office Systems	1,297	1,297	-	-	2,815	2,723	-92	-3	17	16
Planning & Analy.	1,335	1,335	-	-	3,053	3,053	-	-	18	18
Other	138	138	-	-	388	388	-	-	23	23

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D
Systems Operations

1. Forecast Data Base

INPUT introduced systems operations as a new delivery mode in the 1991 Market Analysis Program. It was created by taking the systems operations submode out of both processing services and professional services. For 1991 the submodes of systems operations were redefined from processing services and professional services to "platform" systems operations and "applications" systems operations. This change reflects the increasing tendency for the systems operations relationship to include vendor responsibility for the core applications as well as data center operations.

Exhibit III-13 presents the detailed 1991-1996 forecast for the systems operations market.

2. Forecast Reconciliation

Exhibit III-14 presents the forecast reconciliation for the systems operations market. The variances from the 1990 report are the result of more precise analysis of this more active delivery mode on an industry sector basis.

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EXHIBIT III-13

Systems Operations
User Expenditure Forecast by Market Sector, 1990-1996

Industry Sector	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Discrete Manufacturing	486	18	574	688	828	989	1,175	1,400	20
Process Manufacturing	395	18	466	559	674	807	960	1,146	0
Transportation	124	20	148	181	226	269	318	377	20
Utilities	25	14	28	32	38	43	47	55	17
Telecommunications	64	15	74	84	102	126	147	175	19
Wholesale Distribution	66	19	79	94	111	131	154	181	18
Retail Distribution	150	22	182	227	285	360	446	552	25
Banking/Finance	1,761	16	2,046	2,419	2,861	3,367	3,970	4,659	18
Insurance	778	16	902	1,038	1,227	1,416	1,632	1,885	16
Health Services	753	15	866	1,024	1,212	1,429	1,682	1,986	18
Business Services	80	22	97	119	144	177	216	261	22
Federal Government	1,546	9	1,686	1,837	2,002	2,182	2,379	2,593	9
State/Local Government	921	14	1,052	1,242	1,471	1,727	2,017	2,358	18
Education	73	14	83	95	107	120	136	155	13
Miscellaneous	15	15	17	20	23	26	30	35	15
Total	7,237	15	8,300	9,659	11,311	13,169	15,309	17,818	17

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EXHIBIT III-14

Systems Operations
1991 MAP Data Base Reconciliation

Delivery Mode	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Discrete Manufacturing	482	486	4	1	1,330	1,175	-155	-12	22	20
Process Manufacturing	521	395	-126	-24	1,113	960	-153	-14	16	20
Transportation	51	124	73	143	106	318	212	200	16	20
Utilities	45	25	-20	-44	90	47	-43	-47	15	14
Telecommunications	65	64	-1	<1	134	147	13	11	16	19
Wholesale Distribution	92	66	-26	-28	216	154	-62	-29	19	18
Retail Distribution	76	150	74	97	222	446	224	100	24	25
Banking/Finance	1,931	1,761	-170	-9	4,057	3,970	-87	-2	16	18
Insurance	801	778	-23	-3	1,301	1,632	331	25	10	16
Health Services	833	753	-80	-10	1,825	1,682	-143	-8	17	18
Business Services	42	80	38	90	108	216	108	100	18	22
Federal Government	1,271	1,546	275	22	2,090	2,379	289	14	10	9
State/Local Government	956	921	-35	-4	2,495	2,017	-478	-19	21	18
Education	94	73	-21	-22	165	136	-29	-17	14	13
Miscellaneous	0	15	15	N/A	0	30	30	N/A	N/A	15
Total	7,260	7,237	-23	-.3	15,252	15,309	57	.3	16	17

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E

Systems Integration

1. Forecast Data Base

Exhibit III-15 presents the detailed 1991-1996 forecast for the systems integration market.

2. Forecast Reconciliation

Exhibit III-16 presents the forecast reconciliation for the systems integration market.

EXHIBIT III-15

Systems Integration User Expenditure Forecast by Market Sector 1990-1996

Market Sectors	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Delivery Mode Total	6,884	12	7,685	9,060	10,682	12,658	14,735	17,397	18
Vertical-Industry Markets	6,884	12	7,685	9,060	10,682	12,658	14,735	17,397	18
Discrete Manufacturing	943	20	1,136	1,406	1,744	2,126	2,552	3,042	22
Process Manufacturing	152	12	170	192	225	270	324	391	18
Transportation	146	12	164	191	220	277	336	412	20
Utilities	467	10	512	572	658	741	819	914	12
Telecommunications	180	12	201	231	279	336	406	488	19
Retail Distribution	224	22	273	322	380	465	576	704	21
Wholesale Distribution	138	13	156	180	213	247	286	331	16
Banking and Finance	354	14	404	470	548	651	799	1,022	20
Insurance	186	13	210	239	277	320	392	481	18
Medical/Health Services	224	10	247	277	309	339	375	419	11
Education	81	12	91	106	121	140	166	200	17
Business Services	127	21	152	188	235	307	356	438	24
Federal Government	3,103	7	3,322	3,916	4,522	5,308	5,987	6,897	16
State and Local Government	554	21	640	764	936	1,123	1,350	1,644	21
Miscellaneous Industries	6	-	6	6	7	8	11	14	18

Numbers may not add due to rounding.

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EXHIBIT III-16

Systems Integration
1991 MAP Data Base Reconciliation

Industry Sector	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Discrete Manufacturing	976	943	-33	-3	2,933	2,552	-381	-13	25	22
Process Manufacturing	158	152	-6	-4	412	324	-88	-21	21	18
Transportation	157	146	-11	-7	371	336	-35	-9	19	20
Utilities	469	467	-2	-	924	819	-105	-11	15	12
Telecommunications	183	180	-3	-2	481	406	-75	-16	21	19
Retail Distribution	241	224	-17	-7	830	576	254	-30	28	21
Wholesale Distribution	140	138	-2	-1	277	286	9	-3	15	16
Banking and Finance	369	354	-15	-15	1,280	799	-481	-38	28	20
Insurance	198	186	-12	-6	615	392	-223	-36	25	18
Health Services	231	224	-7	-3	427	375	-52	-12	13	11
Education	82	81	-1	-1	188	166	-22	-12	18	17
State and Local Gov't.	576	554	-22	-4	1,642	1,350	-292	-18	23	21
Federal Government	2,493	3,103	610	24	4,573	5,987	1,414	31	13	16
Business Services/ Miscellaneous Industries	135	132	-3	-2	427	367	-60	-14	26	24
Total	6,408	6,884	476	7	15,380	14,735	-645	-4	19	18

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F

Professional Services

1. Forecast Data Base

Exhibit III-17 presents the detailed 1991-1996 forecast for the professional services market.

2. Forecast Reconciliation

Exhibit III-18 presents the forecast reconciliation for the professional services market.

The differences between INPUT's 1990 forecast of the size of each industry sector in professional services and actual figures for 1990 are negligible except for a change by INPUT that involved dropping the consumer services industry sector as a separate entity. Expenditures in professional services for consumer services are being moved back to business services and transportation. All professional services revenues for consumer services came from business services and were moved back to that industry in 1991. (See Exhibit B-4.)

3. Industry Sector Forecasts

Excluding consumer services, forecast growth rates for 12 of the 15 industry sectors decreased.

- The forecasts for the telecommunications and state and local government industries did not change due to the expanding need for new and modified application systems in these industries.

- The forecast for business services increased due to the movement of expenditures from consumer services.

Common factors that caused a decrease in growth rates in other industries include:

- Slower economic growth than previously forecast

- A movement of some professional services business to the systems integration mode. This will have a greater relative effect in manufacturing and banking.

- The use of vendor applications software products in conjunction with the use of systems operations and processing services rather than using professional services vendors to develop or modify in-house systems. This will be the case particularly in the banking and finance industry.

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EXHIBIT III-17

Professional Services
User Expenditure Forecast by Market Sector, 1990-1996

Market Sector	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Vertical Industry Markets	16,761	6	17,757	19,413	21,236	23,243	25,454	27,892	9
Discrete Manufacturing	4,163	7	4,459	4,842	5,255	5,702	6,184	6,705	9
Process Manufacturing	1,977	7	2,119	2,324	2,546	2,788	3,050	3,336	10
Transportation	213	9	233	250	269	289	310	333	7
Utilities	233	7	249	268	288	309	333	359	8
Telecommunications	950	16	1,098	1,265	1,457	1,678	1,932	2,226	15
Retail Distribution	207	6	220	233	246	261	276	292	6
Wholesale Distribution	327	7	351	371	393	416	440	465	6
Banking & Finance	2,040	7	2,184	2,311	2,443	2,585	2,729	2,880	6
Insurance	1,434	7	1,532	1,662	1,804	1,957	2,123	2,305	9
Medical	254	7	272	295	320	347	381	411	9
Education	76	8	82	89	98	108	117	128	10
Business Services	281	8	304	323	345	367	391	417	7
Federal Government	2,136	-11	1,900	2,038	2,187	2,345	2,517	2,700	7
State & Local Govt.	2,362	12	2,638	3,017	3,451	3,948	4,516	5,167	14
Miscellaneous Industries	108	7	116	125	134	144	155	168	8

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EXHIBIT III-18

Professional Services
1991 MAP Data Base Reconciliation

Market Sector	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Vert. Indus. Mkts.	16,761	16,761	-	-	29,527	25,454	-4,073	-14	12	9
Discrete Mfg.	4,163	4,163	-	-	7,572	6,184	-1,388	-22	13	8
Process Mfg.	1,977	1,977	-	-	3,729	3,050	-679	-18	14	9
Transportation	213	213	-	-	395	310	-85	-22	13	8
Utilities	233	233	-	-	386	333	-53	-16	11	8
Telecom.	950	950	-	-	1,927	1,932	-5	<1	15	15
Retail Distr.	207	207	-	-	328	276	-52	-19	10	6
Wholesale Distr.	327	327	-	-	509	446	-69	-14	9	6
Banking & Finance	2,040	2,040	-	-	3,381	2,729	-652	-19	11	6
Insurance	1,434	1,434	-	-	2,820	2,123	-697	-25	14	9
Medical	254	254	-	-	443	381	-62	-16	12	9
Education	76	76	-	-	139	117	-22	-19	13	10
Business Services	281	284	3	<1	459	391	-68	-15	12	21
Federal Govt.	2,136	2,136	-	-	2,629	2,517	-102	-4	4	3
State & Local Govt.	2,362	2,362	-	-	4,625	4,516	-109	-2	14	14
Misc. Industries	104	104	-	-	185	155	-30	-19	12	8

Additional factors that will have an impact on industry sectors are discussed for a group of industries.

a. Discrete Manufacturing

The forecast CAGR was reduced from 13% to 8% for the following reasons in addition to the general reasons discussed above.

- Sales presentations and demonstrations of major vendors to companies in this industry emphasize the use of systems integration services and existing software products versus development of new system approaches by professional services vendors.

- There has been a considerable fall-off in the replacement of batch-oriented systems and a slowdown in MAP implementations because the industry is heavily penetrated at present.

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b. Process Manufacturing

The CAGR forecast for the process manufacturing industry was reduced from 14% to 9% in view of the following factors in addition to those affecting discrete manufacturing:

- Mergers and acquisitions have had an impact on overall expenditures for information services.

- Businesses have had low margins and economic problems in several subsectors of this industry.

c. Transportation

The CAGR forecast for this industry was changed from 13% to 8% due to the following factors:

- The transportation industry will continue to be impacted by mergers, acquisitions and combined operations that will reduce professional services work.

- Transportation will continue to experience a worse economic outlook than forecast during early 1991.

d. Retail Distribution

The growth rate for retail distribution was reduced from 10% to 6%, reflecting the general inhibiting factors mentioned at the beginning of this section as well as the following situations:

- The economic forecast for retail distribution is below previous forecasts, and resumption of consumer expenditures to levels of a few years ago does not appear to be imminent.

- Further consolidation is anticipated in the retail industry that will reduce the number of prospects.

- Systems integration vendors have initiated campaigns to obtain business in this sector, which will reduce the opportunities for professional services.

e. Wholesale Distribution

The CAGR for this industry was lowered from 9% to 6% due to the following factors:

- Business will be below previous forecasts and profit margins will continue to be low.

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- Consolidation will reduce the number of entities seeking aid from professional services vendors.
- Slowness in retail sales will have an effect on wholesale distribution.

f. Banking and Finance

The CAGR for banking and finance has been lowered from 11% to 6% for the following reasons:

- Consolidation—and a tendency to minimize changes to application systems that will be used by banks when they consolidate—will have an inhibiting effect on the growth of professional services.
- An increasing interest in using systems operations or processing services vendors will reduce opportunities for professional services vendors.
- Limited budgets in many institutions will inhibit professional services work.

g. Insurance

The insurance industry CAGR has been reduced from 14% to 9%, based on the following factors:

- Weakness in the insurance industry leading to failures and mergers will decrease the number of prospects for professional services.
- The continued use of large vendors that can provide systems integration and systems operation services and that have networks or network expertise available will reduce opportunities for professional services vendors during the planning period.

h. Health Services (Medical)

The CAGR for the health services (medical) industry has been reduced from 12% to 9% for the following reasons:

- Funding for many hospitals and health facilities has been reduced.
- Reimbursements and payments from insurance companies, medical plans and government offices have been subject to more rigid controls and have not met hospital expectations.
- Some hospitals have become interested in systems integration and systems operations as means of addressing staff and budget limitations.

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i. Education

The CAGR for education has been reduced from 13% to 10% in view of the following factors:

- Budgets have been under pressure throughout the country.
- Grants and other government contributions have been eliminated or reduced.
- The use of systems operations and integration has been more actively promoted in this industry, reducing professional services opportunities.

j. Miscellaneous Industries

The CAGR for miscellaneous industries has been reduced from 12% to 8% for the following reasons:

- The slow economy will continue to have an impact on the construction and agricultural sectors during the forecast period.
- Margins are low in this sector because revenues have been unable to keep pace with costs. Investment in professional services will not be able to maintain the previous forecast level as a result.

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G

Network Services

1. Forecast Data Base

Exhibit III-19 presents the overall 1991-1996 forecast for the network services market. Forecasts for the network applications and electronic information services submodes are presented in Exhibits III-21 and III-23.

2. Forecast Reconciliation

Exhibits III-20, III-22 and III-24 present reconciliations for the three network services market forecasts. Overall, the network services market growth rate has been reduced to 16% from the previously forecast 17% CAGR.

User expenditures were close to previously forecast results for network services and its two submodes in 1990, since the impact of the recession had been anticipated for that year.

The forecast results for 1995 reflect a variance in transportation that resulted from discontinuing the consumer services sector after 1990 and moving most of the expenditures in that sector to transportation.

Expenditures for the use of network services and particularly electronic information services in banking and finance were significantly reduced in the entire forecast period due to the continuation of the recession beyond original forecasts and greater use of CD ROM in place of on-line data. Expenditures for the use of EIS in telecommunications were also reduced due to the greater use of CD ROM.

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EXHIBITS III-19

Network Services
User Expenditure Forecast by Market Sector, 1990-1996

Market Sectors	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Delivery Mode Total	8,087	16	9,350	10,782	12,551	14,648	17,141	20,052	16
Vertical Industry Markets	4,953	12	5,627	6,469	7,460	8,632	10,026	11,635	16
Discrete Manufacturing	69	25	86	109	136	171	214	268	25
Process Manufacturing	696	18	825	977	1,157	1,369	1,621	1,920	18
Transportation	270	4	300	354	418	493	582	686	18
Utilities	26	8	28	31	33	36	39	43	9
Telecommunications	93	18	110	129	151	179	214	258	19
Retail Distribution	155	22	187	229	279	341	416	507	22
Wholesale Distribution	221	24	275	338	415	512	620	777	23
Banking & Finance	740	15	850	980	1,125	1,290	1,490	1,710	15
Insurance	208	10	228	252	281	317	361	402	12
Medical	446	13	504	578	675	800	964	1,126	17
Education	163	17	191	224	263	309	362	419	17
Business Services	548	8	592	681	784	902	1,040	1,201	15
Federal Government	1,134	9	1,234	1,333	1,444	1,561	1,686	1,825	8
State & Local Gov't.	76	21	92	111	135	164	201	248	22
Misc. Industries	110	14	125	143	164	188	216	245	14
Generic Markets	3,134	19	3,723	4,313	5,091	6,016	7,115	8,417	18
On-Line Data Bases	2,152	18	2,530	2,888	3,353	3,896	4,528	5,260	16
- Securities	870	17	1,014	1,166	1,352	1,569	1,820	2,110	16
- Credit	1,063	18	1,257	1,420	1,648	1,911	2,217	2,570	16
- Economic/Other	219	18	259	302	353	416	491	580	18
On-Line News Services	982	21	1,193	1,425	1,738	2,120	2,587	3,157	22
- Bibliography/Text	300	22	365	439	536	654	799	976	22
- News	682	21	828	986	1,202	1,466	1,788	2,181	22

Numbers may not add due to rounding.

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EXHIBITS III-20

Network Services
1991 MAP Data Base Reconciliation

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total Network Services Market	8,075	8,087	12	<1	17,929	17,141	-788	-7	17	16
Vert. Indus. Mkts.	4,957	4,953	-4	<1	10,817	10,026	-791	-7	16	16
Discr. Mfg.	69	69	-	-	201	214	13	6	24	25
Process Mfg.	696	696	-	-	1,608	1,621	13	1	18	18
Transportation	170	170	-	-	394	582	188	48	18	28
Utilities	26	26	-	-	39	39	-	-	8	9
Telecom.	91	93	2	2	289	214	-75	-26	26	19
Retail Distr.	152	155	3	2	384	416	32	8	20	22
Wholesale Distr.	221	221	-	-	598	620	22	4	22	24
Banking & Finance	746	740	-6	-1	2,019	1,490	-529	-26	22	15
Insurance	208	208	-	-	361	361	-	-	12	12
Medical	446	446	-	-	964	964	-	-	17	17
Education	163	163	-	-	362	362	-	-	17	17
Bus. Services	515	515	-	-	1,040	1,040	-	-	15	15
Federal Govt.	1,134	1,134	-	-	1,862	1,686	-176	-9	10	8
State & Local Gov't.	178	76	-2	-3	212	201	-11	-5	22	22
Misc. Industries	110	110	-	-	216	216	-	-	14	14
Generic Mkts.	3,118	3,134	16	1	7,112	7,115	3	<1	18	18
On-Line Data Bases	2,146	2,152	6	1	4,528	4,528	-	-	16	16
- Securities	874	870	-4	<1	1,820	1,820	-	-	16	16
- Credit	1,056	1,063	7	1	2,217	2,217	-	-	16	16
- Economic/Other	216	219	3	1	491	491	-	-	18	18
On-Line News Services	972	982	10	1	2,584	2,587	3	<1	22	22
- Bibliography/Text	300	300	-	-	798	799	1	<1	22	22
- News	672	682	10	1	1,786	1,788	2	<1	22	22

Numbers may not add due to rounding.

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EXHIBITS III-21

Network Applications
User Expenditure Forecast by Market Sector, 1990-1996

Market Sectors	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Delivery Mode Total	1,669	16	1,931	2,255	2,643	3,129	3,733	4,437	18
Vertical Industry Markets	1,669	16	1,931	2,255	2,643	3,129	3,733	4,437	18
Discrete Manufacturing	34	26	43	57	73	95	121	154	29
Process Manufacturing	86	36	117	158	216	297	406	520	35
Transportation	60	23	74	89	110	135	164	200	22
Utilities	3	-	3	4	4	5	5	6	14
Telecommunications	17	18	20	25	29	35	43	54	22
Retail Distribution	48	29	62	81	104	135	173	221	29
Wholesale Distribution	166	28	212	267	334	420	516	659	25
Banking & Finance	90	11	100	120	135	150	180	210	16
Insurance	53	8	57	61	66	72	80	85	8
Medical	172	16	200	240	294	369	471	570	23
Education	61	16	71	82	95	109	127	150	16
Business Services	15	13	17	21	26	32	39	47	22
Federal Government	819	10	900	980	1,070	1,168	1,270	1,385	9
State & Local Gov't.	39	23	48	61	77	97	123	158	27
Misc. Industries	6	17	7	9	10	13	15	18	21

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EXHIBITS III-22

Network Applications
1991 MAP Data Base Reconciliation

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total Network Applications Market	1,667	1,669	2	<1	3,891	3,733	-158	-4	18	17
Vert. Indus. Mkts.	3,290	3,286	-4	<1	6,929	6,293	-636	-9	16	12
Discr. Mfg.	34	34	-	-	114	121	7	6	28	29
Process Mfg.	86	86	-	-	403	406	3	1	36	36
Transportation	42	42	-	-	111	164	53	48	22	32
Utilities	3	3	-	-	5	5	-	-	10	12
Telecom.	14	17	3	21	36	43	7	19	20	20
Retail Distr.	46	48	2	4	140	173	33	23	25	29
Wholesale Distr.	166	166	-	-	501	516	15	3	25	26
Banking & Finance	94	90	-4	-4	236	180	-56	-24	20	15
Insurance	53	53	-	-	80	80	-	-	8	8
Medical	172	172	-	-	471	471	-	-	22	22
Education	61	61	-	-	127	127	-	-	16	16
Bus. Services	14	14	-	-	39	39	-	-	22	22
Federal Gov't.	819	819	-	-	1,443	1,270	-173	-12	12	9
State & Local Gov't.	39	39	-	-	131	123	-8	-6	27	25
Misc. Industries	6	6	-	-	15	15	-	-	21	20

Numbers may not add due to rounding.

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EXHIBITS III-23

Electronic Information Services User Expenditure Forecast by Market Sector, 1990-1996

Market Sectors	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Delivery Mode Total	6,420	16	7,419	852	9,908	11,519	13,408	15,615	16
Vertical Industry Markets	3,286	12	3,696	4,214	4,817	5,503	6,293	7,198	14
Discrete Manufacturing	35	23	43	52	63	76	93	114	21
Process Manufacturing	610	16	708	818	941	1,072	1,215	1,400	15
Transportation	210	8	226	265	308	358	418	486	17
Utilities	23	9	25	37	29	31	34	37	8
Telecommunications	76	18	90	104	122	144	171	204	18
Retail Distribution	107	17	125	148	175	206	243	286	18
Wholesale Distribution	55	15	63	71	81	92	104	118	13
Banking & Finance	650	15	750	860	990	1,140	1,310	1,500	15
Insurance	155	11	171	191	215	245	281	317	13
Medical	274	11	304	338	380	431	493	556	13
Education	102	18	120	142	169	200	235	269	18
Business Services	533	8	575	660	758	870	1,001	1,154	15
Federal Government	315	6	334	353	374	396	416	440	6
State & Local Gov't.	37	19	44	50	58	67	78	90	15
Misc. Industries	104	13	118	135	154	175	201	227	14
Generic Markets	3,134	19	3,723	4,313	5,091	6,016	7,115	8,417	18
On-Line Data Bases	2,168	17	2,530	2,888	3,353	3,896	4,528	5,260	16
- Securities	870	17	1,014	1,166	1,352	1,569	1,820	2,710	16
- Credit	1,063	18	1,257	1,420	1,648	1,911	2,217	2,570	16
- Economic/Other	219	18	259	302	353	416	491	580	18
On-Line News Services	982	21	1,193	1,425	1,738	2,120	2,587	3,157	22
- Bibliography/Text	300	22	365	439	536	654	799	976	22
- News	682	21	828	986	1,202	1,466	1,788	2,181	22

Numbers may not add due to rounding.

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EXHIBITS III-24

Electronic Information Services 1991 MAP Data Base Reconciliation

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total Electronic Information Services Market	6,408	6,420	12	<1	14,041	13,408	-633	-5	17	16
Vert. Indus. Mkts.	3,290	3,286	-4	<1	6,929	6,293	-636	-9	16	12
Discr. Mfg.	36	35	-1	-3	86	93	7	8	19	22
Process Mfg.	610	610	-	-	1,205	1,215	10	1	15	15
Transportation	128	128	-	-	283	418	135	48	17	27
Utilities	23	23	-	-	34	34	-	-	8	8
Telecom.	77	76	-1	-1	253	171	-82	-32	27	18
Retail Distr.	106	107	1	1	243	243	-	-	18	18
Wholesale Distr.	55	55	-	-	97	104	7	7	12	14
Banking & Finance	652	650	-2	<1	1,783	1,310	-473	-27	22	15
Insurance	154	155	1	1	281	281	-	-	13	13
Medical	274	274	-	-	493	493	-	-	12	12
Education	102	102	-	-	230	235	5	2	15	18
Bus. Services	501	501	-	-	1,001	1,001	-	-	15	15
Federal Govt.	315	315	-	-	419	416	-3	-1	6	6
State & Local Gov't.	39	37	-2	-5	81	78	-3	-4	16	16
Misc. Industries	104	104	-	-	200	201	1	1	14	14
Generic Mkts.	3,118	3,134	16	1	7,112	7,115	3	<1	18	18
On-Line Data Bases	2,146	2,152	6	1	4,528	4,528	-	-	16	16
- Securities	874	870	-4	<1	1,820	1,820	-	-	16	16
- Credit	1,056	1,063	7	1	2,217	2,217	-	-	16	16
- Economic/Other	216	219	3	1	491	491	-	-	18	18
On-Line News Services	972	982	10	1	2,584	2,587	3	<1	22	22
- Bibliography/Text	300	300	-	-	798	799	1	<1	22	22
- News	672	682	10	2	1,786	1,788	2	<1	22	22

Numbers may not add due to rounding.

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H
Systems Software Products

1. Forecast Data Base

Exhibit III-25 presents the overall 1991-1996 forecast for the systems software products market.

2. Forecast Reconciliation

Exhibit III-26 presents the forecast reconciliation for the systems software products market.

The systems software products forecast has been adjusted downward for all products and platform sizes. These 1991 adjustments result in an overall variance of -11% or $3,517 million in user expenditures for 1995.

Products whose forecasts have changed the most are workstation- and PC-based products for all three submodes, resulting in 1995 market variances of -20% to -26%.

In essence, the technology shift under way will be a short-term deterrent to purchases of systems software products and is the primary reason for the forecast adjustments.

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EXHIBIT III-25

Systems Software Products
User Expenditure Forecast by Market Sector, 1990-1996

Delivery Mode	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Delivery Mode Total	16,390	10	18,100	19,910	22,100	24,750	27,970	31,700	12
Systems Control Products	6,200	10	6,800	7,500	8,280	9,140	10,100	11,100	10
- Mainframe	2,900	3	3,000	3,240	3,500	3,780	4,080	4,400	8
- Minicomputer	2,000	10	2,200	2,420	2,660	2,930	3,220	3,500	10
- Workstation/PC	1,300	23	1,600	1,840	2,120	2,430	2,800	3,200	15
Operations Management Tools	3,700	11	4,100	4,570	5,180	5,880	6,780	7,900	14
- Mainframe	2,000	10	2,200	2,440	2,750	3,100	3,500	4,000	13
- Minicomputer	1,300	8	1,400	1,510	1,650	1,800	2,000	2,250	10
- Workstation/PC	400	25	500	620	780	980	1,280	1,650	27
Applications Development Tools	6,490	11	7,200	7,890	8,700	9,700	10,890	12,700	12
- Mainframe	2,900	10	3,200	3,460	3,750	4,090	4,470	4,950	9
- Minicomputer	2,160	11	2,400	2,590	2,800	3,050	3,320	3,750	9
- Workstation/PC	1,430	12	1,600	1,840	2,150	2,560	3,100	4,000	20

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EXHIBIT III-26

Systems Software Products
1991 MAP Data Base Reconciliation by Submode

Delivery Mode	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total Systems Software Products Market	16,390	16,390	-	-	31,487	27,970	-3,517	-11	14	11
Systems Control Products	6,200	6,200	-	-	11,557	10,100	-1,457	-13	13	10
- Mainframe	2,900	2,900	-	-	4,320	4,080	-240	-6	8	7
- Minicomputer	2,000	2,000	-	-	3,431	3,220	-211	-6	11	10
- Workstation/PC	1,300	1,300	-	-	3,807	2,800	-1,007	-26	24	17
Operations Management Tools	3,700	3,700	-	-	7,700	6,780	-920	-12	16	13
- Mainframe	2,000	2,000	-	-	3,917	3,500	-417	-11	14	12
- Minicomputer	1,300	1,300	-	-	2,190	2,000	-190	-9	11	9
- Workstation/PC	400	400	-	-	1,593	1,280	-313	-20	32	26
Applications Development Tools	6,490	6,490	-	-	12,230	10,890	-1,340	-11	14	11
- Mainframe	2,900	2,900	-	-	4,730	4,470	-260	-5	10	9
- Minicomputer	2,160	2,160	-	-	3,570	3,320	-250	-7	11	9
- Workstation/PC	1,430	1,430	-	-	3,930	3,100	-830	-21	22	17

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IV

Industry Sector Forecasts

IV

Industry Sector Forecasts

This chapter presents the market forecasts and reconciliations for each of the 15 industry sectors used by INPUT to define the U.S. information services industry. Please refer to the appropriate industry sector report for INPUT's complete analysis of the market sector of interest.

A
Discrete Manufacturing

1. Forecast Data Base

Exhibit IV-1 presents the detailed 1991-1996 forecast for the discrete manufacturing sector.

2. Forecast Reconciliation

Exhibit IV-2 presents the forecast reconciliation for the discrete manufacturing sector.

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EXHIBIT IV-1

Discrete Manufacturing Sector
User Expenditure Forecast by Delivery Mode, 1990-1996

Delivery Modes	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Sector Total	10,691	11	11,858	13,241	14,812	16,552	18,498	20,967	12
Processing Services	795	5	838	875	915	956	994	1,038	4
- Transaction Processing	795	5	838	875	915	956	994	1,038	4
Turnkey Systems	2,460	14	2,798	3,097	3,404	3,727	4,084	4,715	11
Applications Software Products	1,755	12	1,967	2,224	2,530	2,881	3,295	3,799	14
- Mainframe	372	3	383	410	442	467	492	524	6
- Minicomputer	935	12	1,046	1,158	1,268	1,389	1,522	1,685	10
- Workstation/PC	448	20	538	656	820	1,025	1,281	1,590	24
Systems Operations	486	18	574	688	828	989	1,175	1,400	20
Systems Integration	943	20	1,136	1,406	1,744	2,126	2,552	3,042	22
Professional Services	4,163	7	4,459	4,842	5,255	5,702	6,184	6,705	9
Network Services	69	25	86	109	136	171	214	268	26
- Electronic Info. Svcs.	35	23	43	52	63	76	93	114	22
- Network Applications	34	26	43	57	73	95	121	154	29

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EXHIBIT IV-2

Discrete Manufacturing Sector
1991 MAP Data Base Reconciliation

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 Rpt (%)	90-95 CAGR per data 91 Rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total Discrete Manufacturing Sector	10,766	10,691	75	-1	20,594	18,498	-2,096	-10	14	12
Processing Services	795	795	-	-	1,064	994	-70	-7	6	4
- Transaction Processing	795	795	-	-	1,064	994	-70	-7	6	4
Turnkey Systems	2,460	2,460	-	-	4,084	4,084	-	-	11	11
Applications Software Prod.	1,828	1,755	-73	-4	3,412	3,295	-117	-3	13	14
Systems Operations	482	486	4	1	1,329	1,175	-154	-12	22	20
Systems Integration	977	943	-34	-3	2,933	2,552	-381	-13	25	22
Professional Services	4,163	4,163	-	-	7,572	6,184	-1,388	-18	13	9
Network Services	69	69	-	-	201	214	13	6	24	26

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The actual expenditures for 1990 were only 1% below forecast, due to a shortfall of 4% in expenditures for applications software products and 3% for systems integration. Both decreases were due to the impact of the recession in 1990.

The intensity and continuation of the recession was not fully anticipated in 1990, however. Forecasts developed in this year show reductions of 10% to 20% in the total sector and for expenditures in all service modes except turnkey systems and network services, as opposed to the previous 1995 forecast.

- Delays or cancellations of projects led to drops in forecasted expenditures for systems integration, systems operations, applications software products and professional services.

- The forecasted CAGRs for systems integration, systems operations, and applications software products show that these delivery modes remain strong.

The drop in the professional services forecast for 1995 to a CAGR of 9% from 13% indicates more than the impact of the recession. Discrete manufacturing is turning from software development to systems integration and systems operations and software products for solutions.

The drop from 6% to 4% in the processing services forecast also reflects a decline in this mode. Midsized and small manufacturers are turning to PC/workstation-based solutions.

Forecasted network services expenditures are slightly increased, reflecting continued expansion of EDI and related services. Discrete manufacturing remains, however, a relatively modest user of network services, with 1991 expenditures estimated at only $86 million.

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B

Process Manufacturing

1. Forecast Data Base

Exhibit IV-3 presents the detailed 1991-1996 forecast for the process manufacturing sector.

2. Forecast Reconciliation

Exhibit IV-4 presents the forecast reconciliation for the process manufacturing sector.

The user expenditures for 1990 are close to the previous forecast—except for the systems operations mode, which is 24% below the forecast. The recession, and possibly the Gulf War, had a severe impact on the initiation of projects, particularly in energy and petrochemical industries.

The delay mentioned above had an impact on the forecast of systems operations through 1995, although systems operations are forecast to grow at a very healthy CAGR of 20% between 1991 and 1996. In 1995, the forecast of the market was reduced by 14% to account for the effect of the delay, as well as to account for reductions in the rate of growth for systems integration and professional services expenditures.

Systems integration suffered a severe reduction from its forecast growth rate of 21% in 1991—to an estimated rate of 12% because of the impact of the recession.

- INPUT lowered the forecast growth rate through 1995 from 21% to 16% to account for slower growth of systems integration.
- This slower growth resulted in a reduction of $88 million—or 21%—in the forecast growth for 1995.

One of the reasons for the reduced rate of growth in SI is the tendency of some SI vendors to share jobs with software product and turnkey service vendors in process manufacturing.

The growth rate of 18% in systems integration still makes it one of the faster growing modes of process manufacturing.

Because of the continuing impact of the recession and the maturity of these modes of service, processing services and applications software products show small reductions in user expenditures in 1995 versus previous forecasts.

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EXHIBIT IV-3

Process Manufacturing Sector
User Expenditure Forecast by Delivery Mode, 1990-1996

Delivery Modes	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Sector Total	4,930	11	5,460	6,111	6,872	7,741	8,733	9,886	13
Processing Services	681	5	717	743	778	815	853	895	5
- Transaction Processing	681	5	717	743	778	815	853	895	5
Turnkey Systems	509	12	568	634	709	793	889	1,000	12
- Equipment	244	12	273	304	340	381	427	480	12
- Software Products	183	12	204	228	255	285	320	360	12
- Applications	158	12	176	197	220	246	276	310	12
- Systems	25	12	28	32	35	40	44	50	12
- Professional Services	81	12	91	101	113	127	142	160	12
Applications Software Products	520	14	595	683	783	899	1,036	1,198	15
- Mainframe	157	8	169	182	193	203	212	225	6
- Minicomputer	185	12	207	231	258	288	322	356	11
- Workstation/PC	178	23	219	270	332	408	502	617	23
Systems Operations	395	18	466	559	674	807	960	1,146	20
- Platform Sys Oprns	176	18	208	249	289	330	369	413	15
- Applications Sys Oprns	219	18	258	310	385	477	591	733	23
Systems Integration	152	12	170	192	225	270	324	391	18
- Equipment	67	12	75	84	99	119	143	172	18
- Software Products	9	12	10	12	14	16	19	23	18
- Applications	5	12	5	6	7	8	10	12	18
- Systems	5	12	5	6	7	8	10	12	18
- Professional Services	71	12	80	90	106	127	152	184	18
- Other	5	12	5	6	7	8	10	12	18
Professional Services	1,977	7	2,119	2,324	2,546	2,788	3,050	3,336	10
- Consulting	461	11	510	591	678	773	882	1008	15
- Software Development	1250	5	1310	1386	1474	1568	1589	1760	6
- Education & Training	266	12	299	347	394	447	579	568	14
Network Services	696	19	825	976	1,157	1,369	1,621	1,920	18
- Electronic Info Svcs	610	16	708	818	941	1,072	1,215	1,400	15
- Network Applications	86	36	117	158	216	297	406	520	35

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EXHIBIT IV-4

Process Manufacturing Sector
1991 MAP Data Base Reconciliation

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($)M	Variance from 1990 Report (%)		
Total Process Manufacturing Sector	5,074	4,930	-144	-3	9,702	8,733	-969	-10	14	12
Processing Services	678	681	3	<1	882	853	-29	-3	5	5
- Transaction Processing	678	681	3	<1	882	853	-29	-3	5	5
Turnkey Systems	509	509	-	-	889	889	-	-	12	12
Applications Software Prod.	535	520	-15	-3	1,069	1,036	-33	-3	14	14
Systems Operations	522	395	-127	-24	1,113	960	-153	-14	17	18
Systems Integration	157	152	-5	-3	412	324	-88	-21	21	16
Professional Services	1,977	1,977	-	-	3,729	3,050	-679	-18	14	9
Network Services	696	696	-	-	1,608	1,621	13	1	18	18

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Professional services show a much larger reduction of 18%—or $679 million—in 1995. The explanation is the economic downturn, the maturity of the mode, the movement of work to other modes—including SO, turnkey systems, and SI—and the use of downsized solutions and workstation/PC software products.

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C
Transportation

1. Forecast Data Base

Exhibit IV-5 presents the detailed 1991-1996 forecast for the transportation sector.

2. Forecast Reconciliation

Exhibit IV-6 presents the forecast reconciliation for the transportation sector.

The notable difference in estimated user expenditures for 1990 versus the previous forecast is due to the fact that the consumer services sector was eliminated in 1990 and expenditures projected for it were absorbed into the transportation and business services industries.

- The chief effect of this was to raise the estimated expenditures for processing services, systems operations and network services.
- The movement of expenditures to transportation masked the impact that the recession and the Persian Gulf conflict had on this industry in 1990.

The 7% drop in SI expenditures versus the previous forecast, and the small drop in expenditures for applications software products in 1990 show some effect of the recession, however.

By 1995, the impact of the recession and fall-off in the airline and travel businesses were more evident in the reduction of forecast professional services expenditures by 22%.

- Forecast systems integration expenditures also showed a drop of 9% but were continuing to grow at a CAGR of 18% between 1990 and 1995, indicating much more inclination to use this mode than professional services.
- Companies in the transportation sector will divert many projects that would have been accomplished with the aid of professional services vendors to solutions that involve the use of SI, SO, or applications software products.

The use of SO is forecast to be up 94% by 1995.

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EXHIBIT IV-5

Transportation Sector
User Expenditure Forecast by Delivery Mode, 1990-1996

Delivery Modes	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Sector Total	3,384	6	3,580	3,892	4,311	4,804	5,302	5,892	10
Processing Services	2,030	2	2,070	2,183	2,360	2,552	2,758	2,980	8
- Transaction Processing	2,030	2	2,070	2,183	2,360	2,552	2,758	2,980	8
Turnkey Systems	250	10	275	302	332	366	402	443	10
- Equipment	120	10	132	145	159	176	193	213	10
- Software Products	90	10	99	109	120	132	145	159	10
- Applications	78	10	85	94	103	113	125	137	10
- Systems	13	10	14	15	17	18	20	22	10
- Professional Services	40	10	44	48	53	59	64	71	10
Applications Software Products	351	11	390	431	478	538	596	661	11
- Mainframe	135	6	143	149	155	169	175	182	5
- Minicomputer	97	8	105	114	124	135	147	156	8
- Workstation/PC	119	19	142	168	199	234	274	323	18
Systems Operations	124	19	148	181	226	269	318	377	21
- Platform Sys. Ops.	91	19	108	132	164	193	224	260	19
- Applications Sys. Ops.	33	21	40	49	62	76	94	117	24
Systems Integration	146	12	164	191	228	277	336	412	20
- Equipment	54	12	61	71	84	102	124	152	20
- Software Products	9	12	10	11	14	17	20	25	20
- Applications	6	12	7	8	9	11	13	16	20
- Systems	3	12	3	4	5	6	7	8	20
- Professional Services	79	12	89	103	123	150	181	222	20
- Other	4	12	5	6	7	8	10	12	20
Professional Services	213	9	233	250	269	309	310	333	7
- Consulting	49	12	55	61	67	74	81	88	10
- Software Development	135	8	146	154	163	193	184	196	6
- Education & Training	29	10	32	35	39	42	45	49	9
Network Services	270	11	300	354	418	493	582	686	18
- Electronic Info. Svcs.	210	8	226	265	308	358	418	486	17
- Network Applications	60	23	74	89	110	135	164	200	22

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EXHIBIT IV-6

Transportation Sector
1991 MAP Data Base Reconciliation

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 Rpt (%)	90-95 CAGR per data 91 Rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total Transportation Sector	1,822	3,384	1,562	86	3,328	5,302	1,974	59	13	9
Processing Services	621	2,030	1,409	127	1,054	2,758	1,704	62	11	6
- Transaction Processing	621	2,030	1,409	127	1,054	2,758	1,704	62	11	6
Turnkey Systems	250	250	-	-	402	402	-	-	10	10
Applications Software Prod.	359	351	-8	-3	603	596	-7	-1	11	11
Systems Operations	52	124	72	138	108	318	210	94	16	21
Systems Integration	157	146	-11	-7	371	336	-35	-9	19	18
Professional Services	213	213	-	-	395	310	-85	-22	13	8
Network Services	170	270	100	59	395	582	187	47	18	17

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- Part of that increase is due to the transfer of expenditures to the transportation industry, but the growth rate of 21% forecast for 1990-1995 illustrates that this is the healthiest mode in the industry.

- SO is a desirable choice for companies in the industry because ongoing investment in technology is needed to meet needs and competition in transportation, and companies in the industry suffer from strains on their resources.

Although the forecast for the use of applications software products in total is down by 1%, its growth rate will be above that of professional services.

- In fact, the growth rate for the use of workstation/PC software products will be about the same as the use of SI (18%), because of the increasing use of workstation solutions.

- Workstation/PC software products will be used to implement client/server solutions, downsize many existing applications and move some work from processing services in-house.

The forecast reduction in growth rate for processing services from 11% to 6% for the period from 1990 to 1995 indicates that work is moving to other modes of service including SO, workstation software products, and turnkey systems.

Expenditures for turnkey systems will continue to grow at a CAGR of 10% between 1990 and 1995 despite the fact that more of these systems will be based on workstations and will cost less. This is due to the facts that some processing services work will be moved to turnkey systems and that turnkey systems will be used to meet some needs rather than in-house resources and/or professional services.

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D
Utilities

1. Forecast Data Base

Exhibit IV-7 presents the detailed 1991-1996 forecast for the utilities sector.

2. Forecast Reconciliation

Exhibit IV-8 presents the forecast reconciliation for the utilities sector.

There is very little difference in the market size as forecasted for the utilities sector for 1991 and INPUT's final assessment for 1990.

The only significant difference is in the systems operations segment, where the market size has been reduced from $45 million in 1990 to $25 million in 1991.

Overall, the five-year growth rate for utilities is only slightly lower, at a 12% CAGR. This is the result of forecasted growth in systems operations, processing services and applications software products, and slower growth in systems integration and professional services.

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EXHIBIT IV-7

Utilities Sector
User Expenditure Forecast by Delivery Mode, 1990-1996

Delivery Modes	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Sector Total	1,218	9	1,330	1,486	1,662	1,857	2,079	2,330	12
Processing Services	201	8	217	248	283	322	367	421	14
- Transaction Processing	201	8	217	248	283	322	367	421	14
Turnkey Systems	85	9	93	105	119	134	152	172	13
Applications Software Prod.	180	12	202	227	255	287	325	366	13
- Mainframe	42	10	46	50	53	56	60	64	7
- Minicomputer	59	10	65	71	78	86	95	102	9
- Workstation/PC	79	15	91	106	124	145	170	200	17
Systems Operations	25	14	29	32	38	43	48	55	14
Systems Integration	469	9	512	575	646	725	814	914	12
Professional Services	233	7	249	268	288	310	334	359	8
Network Services	25	11	28	31	33	36	39	43	9

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EXHIBIT IV-8

Utilities Sector
1991 MAP Data Base Reconciliation

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total	1,243	1,218	-24	-2	2,248	2,079	-169	-8	13	12
Processing Services	201	201	-	-	333	367	34	10	11	14
Turnkey Systems	85	85	-	-	145	152	7	5	11	12
Applications Software Prod.	185	180	-5	-3	333	325	-8	-2	12	13
Systems Operations	45	25	-20	-44	90	48	-42	-47	16	19
Systems Integration	469	469	-	-	922	814	-108	-12	14	12
Professional Services	233	233	-	-	386	334	-52	-13	11	8
Network Services	25	25	-	-	39	39	-	-	8	9

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E
Telecommunications

1. Forecast Data Base

Exhibit IV-9 presents the detailed 1991-1996 forecast for the telecommunications sector.

2. Forecast Reconciliation

Exhibit IV-10 presents the forecast reconciliation for the telecommunications sector.

There are several differences between the 1990 and 1991 forecasts that are of particular note.

- While there have been no major changes in the overall growth rate for the industry, the overall market size has been increased by approximately 7%. The more than $200 million increase results from more in-depth analysis of the broadcast segment of the telecommunications industry.
- While there is little spending for information services among the majority of the broadcast segment (radio and television stations), spending by the 9,000 cable companies is greater than noted in INPUT's previous reports.
- In total, spending by the cable industry represents an estimated 20% of the telecommunications industry's spending.
- The majority of the spending increase is for processing services. The increase represents a 22% increase in the base size of the processing services delivery mode. The increase results from greater analysis of revenues from major processing services companies to the cable industry.
- The size of the turnkey systems market has been increased by approximately 10% due to a greater level of turnkey systems activity within the cable industry. The industry is becoming increasingly complex and is growing, though the growth rate has slowed.
- The systems operations market remains strong.
- Growth in systems integration has slowed slightly.

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EXHIBIT IV-9

Telecommunications Sector
User Expenditure Forecast by Delivery Mode, 1990-1996

Delivery Modes	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Sector Total	2,961	15	3,413	3,915	4,531	5,252	6,086	7,057	16
Processing Services	895	14	1,020	1,173	1,349	1,552	1,785	2,052	15
- Transaction Processing	895	14	1,020	1,173	1,349	1,552	1,785	2,052	15
Turnkey Systems	462	12	519	581	654	735	828	931	12
Applications Software Prod.	317	19	378	452	539	646	774	930	20
- Mainframe	160	15	184	212	243	280	322	370	15
- Minicomputer	76	22	93	113	138	168	205	251	22
- Workstation/PC	81	25	101	127	158	198	247	309	25
Systems Operations	64	13	74	84	102	126	147	175	19
Systems Integration	180	19	201	238	279	336	406	485	19
Professional Services	950	16	1,098	1,256	1,431	1,650	1,912	2,226	15
Network Services	93	17	110	129	151	179	214	258	19
- Electronic Info. Svcs.	76	17	89	104	122	148	171	204	18
- Network Applications	17	18	20	25	29	35	43	54	22

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EXHIBIT IV-10

Telecommunications Sector
1991 MAP Data Base Reconciliation

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total Telecommunications Sector	2,759	2,961	202	7	5,845	6,086	241	4	16	16
Processing Services	733	895	162	22	1,473	1,785	312	21	15	15
Turnkey Systems	420	462	42	10	769	828	59	8	13	12
Applications Software Prod.	317	317	-	-	774	774	-	-	20	20
Systems Operations	71	64	-7	-11	134	147	13	10	16	19
Systems Integration	183	180	3	-	480	406	-74	-15	21	19
Professional Services	950	950	-	-	1,926	1,912	-14	-1	15	15
Network Services	91	93	2	2	258	214	-44	-17	26	19

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- The overall growth rate of the network services delivery mode has been reduced. The overall reduction results from reducing the growth rate for electronic information services from its previous 27% to 18% this year. The broadcast segment of the industry is the primary driver in growth of electronic information services. Companies indicate continued increases, but not at the higher level.

- Network applications are a smaller portion of the network services delivery mode, but are expected to show the greatest rate of growth over the next five years. Network applications are expected to show growth rates of 25%-28% near the end of the period. This will be due primarily to growth in the use of VAN and E-mail services.

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F
Retail Distribution

1. Forecast Data Base

Exhibit IV-11 presents the detailed 1991-1996 forecast for the retail distribution sector.

2. Forecast Reconciliation

Exhibit IV-12 presents the forecast reconciliation for the retail distribution sector.

There was one large and two small but noticeable changes to the 1990 forecast. Expenditures for the other four modes were close to original estimates.

- Expenditures for systems operations grew to $150 million—significantly beyond the original estimate of $77 million. Retail companies turned to this delivery mode as a less costly means of benefiting from the use of information systems technology.

- Expenditures for applications software products shrank slightly below original estimates to $241 million, and expenditures for systems integration shrank 7% below estimates to $224 million, due to the impact of the recession on project plans.

Overall forecast expenditures for 1995 of $3.3 billion were 3% below the previous forecast of $3.4 billion. Lowered forecasts for processing services, applications software products and systems integration were almost offset by increased forecasts for systems operations and network services.

- The forecast for processing services was lowered from $254 million to $226 million, and the forecast for applications software products was lowered from $459 million to $446 million. A larger reduction was made in the forecast for expenditures for systems integration, from $830 million to $576 million.

- Forecasts for systems operations were raised from $223 million to $446 million and for network services from $384 million to $416 million.

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EXHIBIT IV-11

Retail Distribution Sector
User Expenditure Forecast by Delivery Mode, 1990-1996

Delivery Modes	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Sector Total	1,806	12	2,015	2,262	2,556	2,907	3,301	3,795	13
Processing Services	165	5	174	183	197	211	226	243	7
- Transaction Processing	165	5	174	183	197	211	226	243	7
Turnkey Systems	664	9	707	754	804	858	915	992	7
Applications Software Prod.	241	13	272	306	345	392	446	506	13
- Mainframe	44	9	48	51	54	57	60	63	6
- Minicomputer	112	11	124	137	152	168	186	205	10
- Workstation/PC	85	18	100	118	139	167	200	238	19
Systems Operations	150	22	183	227	285	360	446	551	25
Systems Integration	224	22	273	330	400	484	576	704	21
Professional Services	207	6	220	233	246	261	276	292	6
Network Services	155	21	187	229	279	341	416	507	22
- Electronic Info. Svcs.	107	18	125	148	175	206	243	286	18
- Network Applications	48	29	62	81	104	135	173	221	29

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EXHIBIT IV-12

Retail Distribution Sector
1991 MAP Data Base Reconciliation

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total Retail Distribution Sector	1,755	1,806	51	3	3,393	3,301	-92	-3	14	13
Processing Services	165	165	-	-	254	226	-28	-11	9	7
- Transaction Processing	165	165	-	-	254	226	-28	-11	9	7
Turnkey Systems	664	664	-	-	915	915	-	-	7	7
Applications Software Prod.	249	241	-8	-3	459	446	-13	3	13	13
Systems Operations	77	150	73	95	223	446	223	100	24	24
Systems Integration	241	224	-17	-7	830	576	-254	-31	28	21
Professional Services	207	207	-	-	328	276	-52	-16	10	6
Network Services	152	155	3	2	384	416	32	8	20	22

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G
Wholesale Distribution

1. Forecast Data Base

Exhibit IV-13 presents the detailed 1991-1996 forecast for the wholesale distribution sector.

2. Forecast Reconciliation

Exhibit IV-14 presents the forecast reconciliation for the wholesale distribution sector.

Expenditures for 1990 were 2% below the forecast. Although the impact of the recession was anticipated, its intensity was more severe than was estimated.

- There was only one noticeable change to the 1990 forecast. Expenditures for the other six modes were close to original estimates.
- Expenditures for systems operations were 28% below original forecasts since the growth of systems operations in wholesale was hampered by the intensity of the recession.

Forecast expenditures in 1995 of $3.4 billion are 4% below the previous forecast of $3.6 billion.

- Lowered forecasts for professional services, systems operations and systems integration, due to the impact of the recession, were chiefly responsible.
- The forecast for professional services was lowered from $508 million to $440 million, and the forecast for systems operations was lowered from $215 million to $154 million. Although the growth rate for the former is low at 6%, systems operations is forecast to grow at 18%, making it a healthy delivery mode in this industry.
- The use of processing services is forecast to be 8%, reflecting the failure of small wholesalers as well as movement of work in-house to workstations/PCs.

Forecasts for systems integration were raised from $278 million to $285 million and for network services from $598 million to $630 million, indicating the interest of wholesalers in these services.

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EXHIBIT IV-13

Wholesale Distribution Sector
User Expenditure Forecast by Delivery Mode, 1990-1996

Delivery Modes	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Sector Total	1,972	11	2,185	2,426	2,710	3,038	3,426	3,847	12
Processing Services	289	7	310	334	360	388	419	452	8
- Transaction Processing	289	7	310	334	360	388	419	452	8
Turnkey Systems	456	7	487	522	559	604	653	683	7
Applications Software Prod.	475	11	527	587	662	743	845	958	13
- Mainframe	233	5	245	255	268	275	287	298	4
- Minicomputer	111	10	122	137	152	168	186	200	10
- Workstation/PC	131	22	160	195	242	300	372	460	24
Systems Operations	66	20	79	93	111	131	154	181	18
Systems Integration	138	13	156	181	210	244	285	331	16
Professional Services	237	7	351	371	393	416	440	465	6
Network Services	221	24	275	338	415	512	630	777	23
- Electronic Info. Svcs.	55	15	63	71	81	92	104	118	13
- Network Applications	166	28	212	267	334	420	526	659	25

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EXHIBIT IV-14

Wholesale Distribution Sector
1991 MAP Data Base Reconciliation

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 Rpt (%)	90-95 CAGR per data 91 Rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total Wholesale Distribution Sector	2,009	1,972	-37	-2	3,570	3,426	-154	-4	12	12
Processing Services	289	289	-	-	445	419	-26	-6	9	8
- Transaction Processing	289	289	-	-	445	419	-26	-6	9	8
Turnkey Systems	456	456	-	-	653	653	-	-	7	7
Applications Software Prod.	484	475	-9	-2	872	845	-27	-3	13	12
Systems Operations	92	66	-26	-28	215	154	-61	-28	19	18
Systems Integration	140	138	-2	-1	278	285	7	3	15	16
Professional Services	327	327	-	-	508	440	-68	-13	9	6
Network Services	221	221	-	-	598	630	32	5	22	23

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H

Banking and Finance

1. Forecast Data Base

Exhibit IV-15 presents the detailed 1991-1996 forecast for the banking and finance sector.

2. Forecast Reconciliation

Exhibit IV-16 presents the forecast reconciliation for the banking and finance sector.

The significant differences between the 1990 and 1991 forecasts are as follows:

Overall growth of the information services market within banking and finance was only a modest 7% in 1990 compared with the expected 11%. This results in a reduction in the market size of $404 million at the end of 1990 compared to the previous projection. 1990 user expenditures were just over $11 billion as compared to the forecasted $11.45 billion.

Processing services grew at 5% compared to a projected 11%, resulting in a $175 million reduction in 1990 expenditure level at $3.1 billion. The reduced growth is directly tied to the business challenges throughout the banking and finance sector and the recession. Stronger growth is projected for 1991 at 11%.

Systems operations is the other sector that grew slower than forecasted. The 1990 user expenditure level reached $1.76 billion, or $170 million less than forecast. Though there is much more modest growth in actual expenditures, the activity level remains very high and the growth for the five-year period 1991-1996 for banking and finance remains one of the strongest within the systems operations delivery mode with an 18% CAGR. Numerous systems operations agreements were negotiated during 1990 within banking and finance, but their revenue impacts in 1990 were modest.

The differences in the other delivery modes are modest.

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EXHIBIT IV-15

Banking and Finance Sector
User Expenditure Forecast by Delivery Mode, 1990-1996

Market Sector	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Sector Total	11,050	10	12,194	13,442	14,785	16,331	18,149	20,199	11
Processing Services	3,100	11	3,440	3,757	4,033	4,328	4,646	4,988	8
- Transaction Processing	3,100	11	3,440	3,757	4,033	4,328	4,646	4,988	8
Turnkey Systems	925	8	1,000	1,075	1,160	1,250	1,355	1,460	8
- Equipment	444	8	480	516	557	600	650	701	8
- Software Products	333	8	360	387	418	450	488	526	8
- Applications	287	8	310	333	360	388	420	453	8
- Systems	46	8	50	54	58	63	68	73	8
- Professional Services	148	8	160	172	186	200	217	234	8
Applications Software Products	2,130	7	2,270	2,430	2,615	2,860	3,160	3,480	9
- Mainframe	950	6	1,010	1,080	1,160	1,270	1,400	1,540	9
- Minicomputer	680	6	720	765	825	900	990	1,085	9
- Workstation/PC	500	8	540	585	630	690	770	855	10
Systems Operations	1,761	16	2,046	2,419	2,861	3,367	3,970	4,659	18
- Platform Sys Oprns	640	13	723	832	940	1,043	1,158	1,285	12
- Applications Sys Oprns	1,121	18	1,323	1,587	1,921	2,324	2,812	3,374	21
Systems Integration	354	14	404	470	548	651	799	1,022	20
- Equipment	131	14	149	174	203	241	296	378	20
- Software Products	25	14	28	33	38	46	56	72	20
- Applications	18	14	20	24	27	33	40	51	20
- Systems	7	14	8	9	11	13	16	20	20
- Professional Services	181	14	206	240	279	332	407	521	20
- Other	18	14	20	24	27	33	40	51	20
Professional Services	2,040	7	2,184	2,311	2,443	2,585	2,729	2,880	6
- Consulting	472	11	525	579	631	686	744	806	9
- Software Development	1,296	5	1,360	1,406	1,459	1,514	1,565	1,619	4
- Education & Training	272	10	299	326	353	385	420	455	9
Network Services	740	15	850	980	1,125	1,290	1,490	1,710	15
- Electronic Info. Svcs.	650	15	750	860	990	1,140	1,310	1,500	15
- Network Applications	90	11	100	120	135	150	180	210	16

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EXHIBIT IV-16

Banking and Finance Sector
1991 MAP Data Base Reconciliation

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($)M	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total	11,454	11,050	-404	-3	21,722	18,149	-3,573	-16	14	10
Processing Services	3,275	3,100	-175	-5	5,718	4,646	1,072	-19	12	12
Turnkey Systems	939	925	-14	-1	1,408	1,355	-53	-4	8	8
Applications Software Prod.	2,150	2,130	-20	-1	3,860	3,160	-700	-18	12	8
Systems Operations	1,931	1,761	-170	-9	4,056	3,970	-86	-2	16	18
Systems Integration	369	354	-15	-4	1,280	799	-481	-38	28	20
Professional Services	2,044	2,040	-4	<1	3,381	2,729	-662	-20	11	6
Network Services	746	740	-6	-1	2,019	1,490	-529	-26	22	15

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I

Insurance

1. Forecast Data Base

Exhibit IV-17 presents the detailed 1991-1996 forecast for the insurance sector.

2. Forecast Reconciliation

Exhibit IV-18 presents the forecast reconciliation for the insurance sector.

User expenditures for 1990 are slightly below the previous forecast due to the impact that the recession had on earnings of insurance companies. Expenditures were reduced or delayed when sales fell and the value and earnings of portfolios dropped. As a result, expenditures for applications software products, systems integration, systems operations, and professional services were all $10 to $12 million below previous forecasts.

The forecast for network services shows no change from the previous forecast. The continuing recession should have no effect on the growing use of electronic information and network applications.

By 1995, the continuing recession will have more of an impact on forecast expenditures.

- Total expenditures will be 15% below the level of the previous forecast for 1995.

- The delivery modes that show the greatest drop from previous forecasts are systems integration and professional services.

Systems integration expenditures will be 36% below previous expenditures due to continuing delays in initiating projects and the increasing use of SO.

- SO provides a means for insurance companies to implement large new systems or use new technology while limiting up-front investment, which will be necessary for insurance companies in view of continuing financial difficulties.

- As a result, the use of SO will be 20% higher than the previous level forecast for 1995.

The forecast for the use of professional services is substantially (37%) below the previous forecast as well.

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EXHIBIT IV-17

Insurance Sector
User Expenditure Forecast by Delivery Mode, 1990-1996

Delivery Modes	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Sector Total	4,017	10	4,410	4,878	5,462	6,104	6,879	7,750	12
Processing Services	351	7	375	402	431	462	495	530	7
- Transaction Processing	351	7	375	402	431	462	495	530	7
Turnkey Systems	292	7	311	331	349	366	380	397	5
- Equipment	140	7	149	159	168	176	182	191	5
- Software Products	105	7	112	119	126	132	137	143	5
- Applications	91	7	96	103	108	113	118	123	5
- Systems	15	7	16	17	17	18	19	20	5
- Professional Services	47	7	50	53	56	59	61	64	5
Applications Software Products	768	11	852	955	1,093	1,266	1,496	1,750	15
- Mainframe	311	5	327	344	367	388	413	438	6
- Minicomputer	116	6	123	128	132	136	140	145	3
- Workstation/PC	341	18	402	483	594	742	943	1,167	24
Systems Operations	778	16	902	1,037	1,227	1,416	1,632	1,885	16
- Platform Sys. Ops.	359	16	416	479	551	611	666	726	12
- Applications Sys. Ops.	419	16	486	558	676	805	966	1,159	19
Systems Integration	186	13	210	239	277	320	392	481	18
- Equipment	33	13	38	43	50	58	71	87	18
- Software Products	17	13	19	22	25	29	35	43	18
- Applications	13	13	15	17	19	22	27	34	18
- Systems	4	13	4	5	6	6	8	10	18
- Professional Services	132	13	149	170	197	227	278	342	18
- Other	4	13	4	5	6	6	8	10	18
Professional Services	1,434	7	1,532	1,662	1,804	1,957	2,123	2,305	9
- Consulting	334	9	363	416	470	531	598	673	13
- Software Development	906	6	959	1,009	1,064	1,123	1,179	1,240	5
- Education & Training	194	8	210	237	270	303	346	392	13
Network Services	208	10	228	252	281	317	361	402	12
- Electronic Info. Svcs.	155	10	171	191	215	245	281	317	13
- Network Applications	53	8	57	61	66	72	80	85	8

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EXHIBIT IV-18

Insurance Sector
1991 MAP Data Base Reconciliation

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 Rpt (%)	90-95 CAGR per data 91 Rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total Insurance Sector	4,062	4,017	-45	-1	8,106	6,879	-1,227	-15	15	11
Processing Services	351	351	-	-	566	495	-71	-13	9	7
- Transaction Processing	351	351	-	-	566	495	-71	-13	9	7
Turnkey Systems	291	292	1	-	379	380	1	-	5	5
Applications Software Prod.	778	768	-10	-1	1,538	1,496	-42	-3	15	14
Systems Operations	790	778	-12	-2	1,300	1,632	332	20	10	16
Systems Integration	198	186	-12	-6	615	392	-223	-36	25	16
Professional Services	1,446	1,434	-12	-1	3,348	2,123	-1,225	-37	18	8
Network Services	208	208	-	-	360	361	1	-	12	12

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- Users are much more reluctant to initiate full development of new systems that require use of vendor professional services.

- Users are more inclined to consider the use of SO and SI alternatives to obtain a solution.

Although the forecast for the use of applications software products is down by 3% over the previous forecast, its growth rate will be above that of professional services, which suggests that applications software products will be a more desirable development alternative. This will particularly be true for applications software products that use workstation/PC equipment.

The use of processing services is forecast to be down about 13% from the previous forecast, due a decrease in the growth rate for this mode.

- Although some processing services work is being moved to in-house equipment with the aid of software products, there is not a significant trend to eliminate processing work.

- The decrease in the forecast rate of growth for processing services is principally related to the impact of the recession on insurance business.

Expenditures for turnkey systems are forecast to grow at the same CAGR of 5% between 1990 and 1995 as the rate originally forecast. This rate is the lowest growth rate for a delivery mode, but—in view of its unchanging forecast—turnkey systems does not seem to be under attack from another delivery mode.

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J
Health Services (Medical)

1. Forecast Data Base

Exhibit IV-19 presents the detailed 1991-1996 forecast for the health services (medical) sector.

2. Forecast Reconciliation

Exhibit IV-20 presents the forecast reconciliation for the health services (medical) sector.

The only changes for the 1991 forecast are:

- Applications software products—This delivery mode grew somewhat slower in 1990 than planned. The result is a 2% reduction in market size to $869 million.
- Systems operations—Careful review of this sector resulted in a 10% reduction in overall market size. At the same time, the CAGR for the next five years rose from 17% to 18%.

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EXHIBIT IV-19

Health Services (Medical) Sector User Expenditure Forecast by Delivery Mode, 1990-1996

Delivery Modes	1990 ($ M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Sector Total	3,974	10	4,394	4,910	5,505	6,185	6,994	7,957	13
Processing Services	500	5	526	551	577	604	632	660	5
- Transaction Processing	500	5	526	551	577	604	632	660	5
Turnkey Systems	928	7	994	1,060	1,116	1,161	1,192	1,269	5
Applications Software Prod.	869	13	985	1,125	1,296	1,505	1,768	2,089	16
- Mainframe	344	7	369	395	422	446	470	500	6
- Minicomputer	266	9	290	316	344	375	409	449	9
- Workstation/PC	259	26	326	414	530	684	889	1,140	28
Systems Operations	753	15	866	1,024	1,212	1,429	1,682	1,986	18
Systems Integration	224	10	247	277	309	339	375	419	11
Professional Services	254	7	272	295	320	347	381	411	9
Network Services	446	13	504	578	675	800	904	1,126	17
- Electronic Info Svcs	274	11	304	338	380	431	493	556	12
- Network Applications	172	16	200	240	294	369	471	570	23

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EXHIBIT IV-20

Health Services (Medical) Sector
1991 MAP Data Base Reconciliation

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total	4,083	3,974	-109	-3	7,338	6,994	-344	-5	12	12
Processing Services	500	500	-	-	644	632	-12	-2	5	5
Turnkey Systems	928	928	-	-	1,192	1,192	-	-	5	5
Applications Software Prod.	891	869	-22	-2	1,843	1,768	-75	-4	16	15
Systems Operations	833	753	-80	-10	1,825	1,682	-143	-8	17	18
Systems Integration	231	224	-7	-3	427	375	-52	-12	13	11
Professional Services	254	254	-	-	443	381	-62	-16	12	9
Network Services	446	446	-	-	964	964	-	-	17	17

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K
Education

1. Forecast Data Base

Exhibit IV-21 presents the detailed 1991-1996 forecast for the education sector.

2. Forecast Reconciliation

Exhibit IV-22 presents the forecast reconciliation for the education sector.

There were few differences between the 1990 projection for 1990 and the final review. The education sector grew just 3% less than had been projected, reaching just under $1.4 billion.

The most significant difference was in the systems operations market, where 1990 final results were 22% ($21 million) below forecast.

The five-year forecast reflects some adjustments, but in total remains at an 11% CAGR. Forecasted growth is slightly lower for systems operations, systems integration and professional services.

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EXHIBIT IV-21

Education Sector
User Expenditure Forecast by Delivery Mode, 1990-1996

Delivery Modes	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Sector Total	1,400	10	1,545	1,703	1,885	2,088	2,323	2,587	3
Processing Services	185	3	191	196	201	207	213	218	3
- Transaction Processing	185	3	191	196	201	207	213	218	3
Turnkey Systems	216	7	231	247	265	283	303	324	7
- Equipment	104	7	111	119	127	136	145	156	7
- Software Products	78	7	83	89	95	102	109	117	7
· Applications	67	7	72	77	82	88	94	100	7
· Systems	11	7	12	12	13	14	15	16	7
- Professional Services	35	7	37	40	42	45	48	52	7
Applications Software Products	606	12	676	746	829	921	1,026	1,143	11
- Mainframe	80	3	82	84	86	87	89	91	2
- Minicomputer	154	11	171	182	197	214	232	252	8
- Workstation/PC	372	14	423	480	546	620	705	800	14
Systems Operations	73	14	83	95	107	120	136	155	13
- Platform Sys Oprns	54	13	61	70	78	87	97	108	12
- Applications Sys Oprns	19	16	22	25	29	33	39	47	16
Systems Integration	81	12	91	106	121	140	166	200	17
- Equipment	28	12	31	36	41	48	56	68	17
- Software Products	6	12	7	8	10	11	13	16	17
· Applications	4	12	5	5	6	7	8	10	17
· Systems	2	12	3	3	4	4	5	6	17
- Professional Services	45	12	51	59	68	78	93	112	17
- Other	2	12	2	2	2	3	3	4	17
Professional Services	76	8	82	89	98	108	117	128	9
- Consulting	18	11	20	22	25	29	32	37	13
- Software Development	48	6	51	54	58	63	68	73	7
- Education & Training	10	10	11	13	15	16	17	18	10
Network Services	163	17	191	224	264	309	362	419	17
- Electronic Info Svcs	102	18	120	142	169	200	235	269	18
- Network Applications	61	16	71	82	95	109	127	150	16

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EXHIBIT IV-22

Education Sector
1991 MAP Data Base Reconciliation

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 Rpt (%)	90-95 CAGR per data 91 Rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total	1,435	1,400	-35	-3	2,415	2,323	-92	-4	11	11
Processing Services	185	185	-	-	215	213	-2	-1	3	3
Turnkey Systems	216	216	-	-	303	303	-	-	7	7
Applications Software Products	619	606	-13	-2	1,043	1,026	-17	-2	11	11
Systems Operations	94	73	-21	-22	165	136	-29	-17	14	13
Systems Integration	82	81	-1	-1	188	166	-22	-12	18	17
Professional Services	76	76	-	-	139	117	-22	-16	13	10
Network Services	163	163	-	-	362	362	-	-	17	17

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L

Business Services

1. Forecast Data Base

Exhibit IV-23 presents the detailed 1991-1996 forecast for the business services sector.

2. Forecast Reconciliation

Exhibit IV-24 presents the forecast reconciliation for the business services sector.

The significant differences between the 1990 and 1991 forecasts are as follows:

- Consumer services sector expenditures have been combined into business services. The 1990 and 1991 report forecast data in Exhibit IV-24 reflect this consolidation.

- Airline reservation systems processing services, which were treated as consumer services sector expenditures last year, have been transferred to the transportation sector ($1.5 billion in 1990; $2.64 billion in 1995).

- $575 million of 1990 processing services expenditures were transferred from the accounting cross-industry sector to the business services sector. These expenditures are for tax preparation processing services sold to accounting firms and professionals within the industry-specific business services.

- Systems operations expenditures will grow considerably faster this year, as a result of combining consumer services (25% CAGR) with business services (10% CAGR).

- The systems integration market continues to be influenced by changes in the economy and by businesses' ability to pay. The 1990 expenditures were somewhat more than forecasted in 1990, but the long-term market size has been dampened as a result of reduced near-term spending.

- The professional services forecast is lower than INPUT's 1990 forecast, as described in Chapter III.

- Network expenditures of $100 million, also treated as consumer services sector expenditures last year, are now in the transportation sector.

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EXHIBIT IV-23

Business Services Sector
User Expenditure Forecast by Delivery Mode, 1990-1996

Delivery Modes	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Sector Total	4,182	8	4,527	4,935	5,398	5,943	6,529	7,167	10
Processing Services	1,644	2	1,692	1,722	1,751	1,778	1,807	1,824	2
- Transaction Processing	1,644	2	1,692	1,722	1,751	1,778	1,807	1,824	2
Turnkey Systems	743	9	810	885	962	1,045	1,129	1,235	9
- Equipment	357	9	389	425	462	502	542	593	9
- Software Products	267	9	292	319	346	376	406	445	9
- Applications	230	9	251	274	298	324	350	383	9
- Systems	37	9	41	44	48	52	56	62	9
- Professional Services	119	9	130	142	154	167	181	198	9
Applications Software Products	759	16	880	1,017	1,177	1,367	1,590	1,791	15
- Mainframe	115	3	119	122	124	128	131	134	2
- Minicomputer	196	10	216	236	256	278	303	325	9
- Workstation/PC	448	22	545	659	797	961	1,156	1,332	20
Systems Operations	80	21	97	119	144	177	216	261	22
- Platform Sys Oprns	31	19	37	45	54	65	77	89	19
- Applications Sys Oprns	49	22	60	74	90	112	139	172	23
Systems Integration	127	20	152	188	235	307	356	438	24
- Equipment	30	20	36	45	56	74	85	105	24
- Software Products	17	20	20	24	31	40	46	57	24
- Applications	14	20	17	21	26	34	39	48	24
- Systems	3	20	3	4	5	6	7	9	24
- Professional Services	73	20	87	108	135	177	205	252	24
- Other	7	20	8	10	13	17	20	24	24
Professional Services	281	8	304	323	345	367	391	417	7
- Consulting	65	15	75	83	91	100	110	121	10
- Software Development	180	3	185	194	204	214	224	234	5
- Education & Training	36	22	44	46	50	53	57	62	7
Network Services	548	8	592	681	784	902	1,040	1,201	15
- Electronic Info Svcs	533	8	575	660	758	870	1,001	1,154	15
- Network Applications	15	13	17	21	26	32	39	47	23

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EXHIBIT IV-24

Business Services Sector
1991 MAP Data Base Reconciliation

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 Rpt (%)	90-95 CAGR per data 91 Rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total	2,565	4,182	1,614	63	4,281	6,529	2,254	53	11	10
Processing Services	787	1,644	857	109	895	1,807	912	102	3	2
Turnkey Systems	554	743	189	34	814	1,129	315	39	8	9
Applications Software Prod.	491	759	268	55	1,063	1,590	527	50	17	16
Systems Operations	17	80	63	371	28	216	188	671	10	22
Systems Integration	51	127	76	149	173	356	189	106	28	23
Professional Services	150	281	131	87	268	391	123	46	12	7
Network Services	515	548	30	6	1,040	1,040	-	-	15	15

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M

Federal Government

1. Forecast Data Base

The federal government is a standard market sector in the 1991 Market Analysis Program.

INPUT introduced systems operations as a new delivery mode in the 1990 Market Analysis Program. It was created by taking the systems operations submode out of both processing services and professional services. No other change has been made to the delivery mode definitions, and the total forecast expenditures for these three delivery modes are identical to the total forecast expenditures of the two original delivery modes before the breakout of systems operations.

Exhibit IV-25 presents the detailed 1991-1996 forecast for the federal government sector.

2. Forecast Reconciliation

The effects of the federal government information technology budget cuts resulting from the suspension of research and development spending in 1989, and the downstream impact of defense and civil agency reductions in the government's fiscal year 1991 Appropriations Act, are evident in this forecast reconciliation.

Processing services declined substantially, from $200 million in 1990 to $187 million in 1991, and will grow only slightly by 1995. The principal cause is the cancellation of GSA's Teleprocessing Services Program in 1991, and the subsequent conclusion of agreements with only two- to three-year life times. Additionally, government data centers are competing for this work under the revised OMB Circular A-76 terms.

The turnkey systems market has begun to improve—in response to delays of larger systems, in a variety of applications that have strong similarity to commercial applications, and in graphics, maintenance scheduling and document indexing systems. Although 1991 and 1992 show strong growth, overall this delivery mode is expected to stay at a CAGR of 9%, up from 5% in 1990.

Applications software is being driven by the very substantial expansion and upgrade of the government's inventory of workstations and PCs, and increasing use of minicomputers. Although short-term growth declined because of delays of the latest PC acquisitions (-29% from forecast), growth through 1996 will increase to 20%, resulting in only a 6% decline from the earlier forecast.

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EXHIBIT IV-25

Federal Government Sector
User Expenditure Forecast by Delivery Mode, 1990-1996

Delivery Modes	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($)M	1994 ($M)	1995 ($)M	1996 ($M)	CAGR 91-96 (%)
Sector Total	9,003	6	9,461	10,633	11,828	13,242	14,564	16,489	12
Processing Services	200	-6	187	193	200	206	213	220	3
- Transaction Processing	200	-6	187	193	200	206	213	220	3
Turnkey Systems	494	24	612	736	790	846	896	938	9
Applications Software Prod.	390	33	520	580	683	794	886	1,316	20
- Mainframe	90	22	110	114	126	137	144	151	7
- Minicomputer	120	25	150	158	177	208	240	270	12
- Workstation/PC	180	44	260	308	380	449	502	895	28
Systems Operations	1,546	9	1,686	1,837	2,002	2,182	2,379	2,593	9
Systems Integration	3,103	7	3,322	3,916	4,522	5,308	5,987	6,897	16
Professional Services	2,136	-9	1,900	2,038	2,187	2,345	2,517	2,700	7
Network Services	1,134	9	1,234	1,333	1,444	1,561	1,686	1,825	8
- Electronic Info. Svcs.	315	6	334	353	374	396	416	440	6
- Network Applications	819	10	900	980	1,070	1,165	1,270	1,385	9

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The sustained growth of the professional services component of systems operations forecasted in 1990 was affected by Defense Department spending cuts. By 1995, the annual reduction will amount to $112 million, unless further delays in acquisition of new information processing resources are caused by additional agency cuts under the Gramm-Rudman-Hollings Act.

While network services is performing at the forecasted growth rate in the 1990-1991 timeframe, delays in converting FTS 2000 to all-digital service by 1995 is expected to decrease the expected 10% CAGR seen in 1990 to 8% by 1996. If the changeover should occur sooner, two prospects are possible: (1) FTS 2000 with its new digital capability could absorb more of the data networks, or (2) the traffic demand of digital voice, secure digital voice, and video may force more data networks to other carriers outside FTS 2000.

Systems integration prospects remain strong, but the timetable keeps changing in response to a wide range of pressures: the budget deficit, the Defense Department's CIM initiative, economic dislocation, and reduction of the defense infrastructure. 1990 saw part of the increase in civil agency spending—a 24% improvement. By 1995, fueled by the new spending under CIM in 1992, the growth will improve from the 13% CAGR forecast of 1990 to 16%. In 1995, the expected expenditures should be 31% better than forecast a year ago.

The CAGR for systems operations remains nearly the same in 1991, but delays in replacing some systems have improved expenditure by 22% in 1990, and could still be 14% in 1995. The real growth is in the GOCO (government-owned/contractor-operated) segment, literally the opposite of the commercial sector, which is experiencing growth in the processing services segment.

Exhibit IV-26 presents the forecast reconciliation for the federal government sector.

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EXHIBIT IV-26

Federal Government Sector
1991 MAP Data Base Reconciliation

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total Federal Government Sector	8,205	9,003	798	10	12,885	14,564	1,679	13	9	12
Processing Services	200	187	-13	-6	240	213	-27	-11	4	3
Turnkey Systems	427	494	67	16	545	896	351	64	5	9
Applications Software Prod.	546	390	-156	-29	945	886	-59	-6	12	20
Systems Operations	1,271	1,546	275	22	2,090	2,379	289	14	10	9
Systems Integration	2,493	3,103	610	24	4,573	5,987	1,414	31	13	16
Professional Services	2,136	2,136	0	0	2,629	2,517	-112	-4	4	7
Network Services	1,133	1,134	1	0	1,863	1,686	-177	-10	10	8

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N

State and Local Government

1. Forecast Data Base

Exhibit IV-27 presents the detailed 1991-1996 forecast for the state and local government sector.

2. Forecast Reconciliation

Exhibit IV-28 presents the forecast reconciliation for the state and local government sector.

No significant differences exist between the 1990 and 1991 INPUT forecasts for the state and local government sector. Growth in 1990 was somewhat less than forecast and the overall forecast is for slightly slower growth in the next few years.

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EXHIBIT IV-27

State and Local Government Sector
User Expenditure Forecast by Delivery Mode, 1990-1996

Delivery Modes	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Sector Total	4,406	17	5,021	5,804	6,747	7,812	9,044	10,501	16
Processing Services	257	12	288	322	361	404	453	507	12
- Transaction Processing	257	12	288	322	361	404	453	507	12
Turnkey Systems	150	11	167	186	206	230	255	284	11
Applications Software Prod.	127	13	143	163	187	216	252	293	15
- Mainframe	51	7	55	58	62	67	72	77	7
- Minicomputer	28	12	31	35	39	44	50	57	13
- Workstation/PC	48	18	57	70	86	105	130	159	23
Systems Operations	916	15	1,052	1,241	1,471	1,727	2,017	2,358	18
Systems Integration	554	15	639	762	936	1,123	1,350	1,644	21
Professional Services	2,326	13	2,638	3,017	3,449	3,945	4,514	5,167	14
Network Services	76	21	92	111	135	164	201	248	22
- Electronic Info. Svcs.	37	19	44	50	58	67	78	90	15
- Network Applications	39	23	48	61	77	97	123	158	27

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EXHIBIT IV-28

State and Local Government Sector
1991 MAP Data Base Reconciliation

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total State and Local Government Sector	4,511	4,406	-105	-3	9,947	9,044	-923	-9	17	16
Processing Services	255	257	2	1	450	453	3	1	12	12
- Transaction Processing	255	257	2	1	450	453	3	1	12	12
Turnkey Systems	152	150	-2	-1	255	255	-	-	11	11
Applications Software Prod.	131	127	-4	-3	268	252	-16	-6	15	15
Systems Operations	956	916	-40	-4	2,495	2,017	-478	-19	21	18
Systems Integration	576	554	-22	-4	1,641	1,350	-291	-18	23	21
Professional Services	2,362	2,326	-36	-2	4,625	4,514	-111	-2	14	14
Network Services	77	76	-1	-1	212	201	-11	-5	22	22

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O
Miscellaneous Industries

1. Forecast Data Base

Miscellaneous industries is defined as including the following segments:

- Agricultural production
- Construction

As part of an INPUT market redefinition, the agricultural and construction segments were reanalyzed from the ground up in 1990 to develop new constituent forecasts for the miscellaneous industries sector.

Exhibit IV-29 presents the detailed 1991-1996 forecast for the miscellaneous industries sector.

2. Forecast Reconciliation

The differences from the 1990 report are:

- Identification of a modest systems operations market

- Somewhat slower growth in professional services and systems integration

Exhibit IV-30 presents the forecast reconciliation for the miscellaneous industries sector.

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EXHIBIT IV-29

Miscellaneous Industries Sector
User Expenditure Forecast by Delivery Mode, 1990-1996

Delivery Modes	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Sector Total	1,068	-	1,136	1,212	1,301	1,398	1,508	1,613	7
Processing Services	148	-3	144	139	137	134	132	131	-2
- Transaction Processing	148	-3	144	139	137	134	132	131	-2
Turnkey Systems	462	6	491	522	556	593	632	657	6
Applications Software Prod.	219	8	237	257	280	305	332	363	9
- Mainframe	17	-6	16	15	15	14	13	13	-4
- Minicomputer	82	6	87	92	98	104	110	116	6
- Workstation/PC	120	12	134	150	167	187	209	234	12
Systems Operations	15	15	17	20	23	26	30	35	15
Systems Integration	6	-	6	6	7	8	11	14	18
Professional Services	108	7	116	125	134	144	155	168	8
Network Services	110	14	125	143	164	188	216	245	14
- Electronic Info. Svcs.	104	13	118	135	154	175	201	227	14
- Network Applications	6	17	7	9	10	13	15	18	21

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EXHIBIT IV-30

Miscellaneous Industries Sector
1991 MAP Data Base Reconciliation

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total	1,054	1,068	14	1	1,563	1,508	-55	3.5	8	7
Processing Services	148	148	-	-	134	132	-2	-1	-2	-2
Turnkey Systems	461	462	1	-	663	632	-31	-5	7	6
Applications Software Prod.	226	219	-7	-3	340	332	-8	-2	9	9
Systems Operations	-	15	15	N/A	-	30	30	N/A	-	15
Systems Integration	5	6	1	20	26	11	-15	-58	39	18
Professional Services	104	108	4	4	185	155	-30	-19	12	8
Network Services	110	110	-	-	215	216	1	-	14	14

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V

Cross-Industry Forecast by Delivery Mode

V

Cross-Industry Forecast by Delivery Mode

This chapter presents the market forecasts and reconciliations for each of the seven cross-industry sectors used by INPUT to define the U.S. information services industry. Please refer to the appropriate cross-industry sector report for INPUT's complete analysis of the market sector of interest.

A Accounting

1. Forecast Data Base

Exhibit V-1 presents the detailed 1991-1996 forecast for the accounting cross-industry sector.

2. Forecast Reconciliation

Exhibit V-2 presents the forecast reconciliation for the accounting cross-industry sector.

INPUT has adjusted its processing services 1990 market size and forecast downward this year to reflect the fact that accounting processing services do not include tax processing services sold to accounting firms. These amounts—$574 million in 1990 growing to $852 million in 1995—have been added to processing services user expenditures in the business services industry-specific sector.

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EXHIBIT V-1

Accounting Cross-Industry Sector
User Expenditure Forecast by Delivery Mode, 1990-1996

Delivery Modes	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Sector Total	2,596	9	2,835	3,104	3,413	3,771	4,187	4,671	11
Processing Services	146	3	150	155	160	165	170	175	3
- Transaction Processing	146	3	150	155	160	165	170	175	3
- Utility Processing	-	-	-	-	-	-	-	-	-
- Other Processing	-	-	-	-	-	-	-	-	-
Turnkey Systems	422	3	435	448	461	475	490	504	3
Applications Software Products	2,028	11	2,250	2,501	2,792	3,131	3,527	3,992	12
- Mainframe	728	4	757	787	819	852	885	920	4
- Minicomputer	529	6	560	594	629	667	707	750	6
- Workstation/PC	771	20	933	1,120	1,344	1,612	1,935	2,322	20

EXHIBIT V-2

Accounting Cross-Industry Sector
1991 MAP Data Base Reconciliation

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total	3,171	2,596	-575	-18	5,039	4,187	-852	-17	10	10
Processing Services	721	146	-575	-394	789	170	-619	-78	2	3
Turnkey Systems	422	422	-	-	488	490	2	-	3	3
Applications Software Products	2,028	2,028	-	-	3,762	3,527	-235	-6	13	12
Systems Operations	-	-	-	-	-	-	-	-	-	-
Systems Integration	-	-	-	-	-	-	-	-	-	-
Professional Services	-	-	-	-	-	-	-	-	-	-
Network Services	-	-	-	-	-	-	-	-	-	-

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B

Education and Training

1. Forecast Data Base

Exhibit V-3 presents the detailed 1991-1996 forecast for the education and training cross-industry sector.

2. Forecast Reconciliation

Exhibit V-4 presents the forecast reconciliation for the education and training cross-industry sector.

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EXHIBIT V-3

Education and Training Cross-Industry Sector User Expenditure Forecast by Delivery Mode, 1990-1996

Delivery Modes	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Sector Total	473	10	519	569	631	715	823	919	12
Processing Services	95	-	95	89	83	78	73	68	-6
- Transaction Processing	95	-	95	89	83	78	73	68	-6
Turnkey Systems	170	7	182	196	213	239	275	293	10
- Equipment	82	7	87	94	102	115	132	141	10
- Software Products	61	7	66	71	77	86	99	105	10
- Applications	53	7	56	61	66	74	85	91	10
- Systems	9	7	9	10	11	12	14	15	10
- Professional Services	27	7	29	31	34	38	44	47	10
Applications Software Products	208	16	242	284	335	398	475	558	18
- Mainframe	38	5	40	41	42	43	44	46	3
- Minicomputer	24	8	26	28	30	32	34	36	7
- Workstation/PC	146	21	176	215	263	323	397	476	22

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EXHIBIT V-4

Education and Training Cross-Industry Sector
1991 MAP Data Base Reconciliation

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 Rpt (%)	90-95 CAGR per data 91 Rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total	476	473	-3	-1	829	823	-6	-1	12	12
Processing Services	95	95	-	-	74	73	-1	-1	-5	-6
Turnkey Systems	171	170	-1	-1	275	275	-	-	10	10
Applications Software Products	210	208	-2	-1	480	475	-5	-1	18	18

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C

Engineering and Scientific

1. Forecast Data Base

Exhibit V-5 presents the detailed 1991-1996 forecast for the engineering and scientific cross-industry sector.

2. Forecast Reconciliation

Exhibit V-6 presents the forecast reconciliation for the engineering and scientific cross-industry sector.

INPUT's estimated 1990 expenditures for applications software products have been reduced due to slower than anticipated growth in minicomputer-based applications software products.

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EXHIBIT V-5

Engineering and Scientific Cross-Industry Sector User Expenditure Forecast by Delivery Mode, 1990-1996

Delivery Mode	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Sector Total	799	13	902	1,012	1,136	1,281	1,449	1,648	13
Processing Services	123	4	128	129	129	130	131	131	1
-Transaction Processing	123	4	128	129	129	130	131	131	1
Turnkey Systems	112	10	123	134	144	153	159	173	7
Applications Software Products	564	15	651	749	863	998	1,159	1,344	16
-Mainframe	135	8	146	157	170	184	199	215	8
-Minicomputer	211	14	241	272	303	338	375	415	11
-Workstation/PC	218	21	264	320	390	476	585	714	22

EXHIBIT V-6

Engineering and Scientific Cross-Industry Sector 1991 MAP Data Base Reconciliation

Delivery Mode	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total	817	799	-18	-2	1,489	1,444	-45	-3	13	13
Processing Services	123	123	-	-	150	131	-19	-13	4	1
Turnkey Systems	112	112	-	-	159	159	-	-	7	7
Applications Software Products	582	564	-18	-3	1,180	1,159	-21	-2	15	15

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D

Human Resources

1. Forecast Data Base

Exhibit V-7 presents the detailed 1991-1996 forecast for the human resources cross-industry sector.

2. Forecast Reconciliation

Exhibit V-8 presents the forecast reconciliation for the human resources cross-industry sector.

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EXHIBIT V-7

Human Resources Cross-Industry Sector
User Expenditure Forecast by Delivery Mode, 1990-1996

Delivery Modes	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Sector Total	2,248	9	2,454	2,793	2,973	3,228	3,492	3,794	9
Processing Services	1,523	10	1,676	1,844	2,030	2,180	2,310	2,460	8
- Transaction Processing	1,523	10	1,676	1,844	2,030	2,180	2,310	2,460	8
- Utility Processing	-	-	-	-	-	-	-	-	-
- Other Processing	-	-	-	-	-	-	-	-	-
Turnkey Systems	82	2	84	86	88	89	90	92	2
Applications Software Products	643	8	694	763	855	959	1,092	1,242	12
- Mainframe	258	3	265	278	292	307	322	338	5
- Minicomputer	242	6	256	275	298	322	348	376	8
- Workstation/PC	144	20	173	210	265	330	422	528	25

EXHIBIT V-8

Human Resources Cross-Industry Sector
1991 MAP Data Base Reconciliation

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total	2,248	2,248	-	-	3,640	3,492	-148	-4	10	9
Processing Services	1,523	1,523	-	-	2,453	2,310	-143	-6	10	8
Turnkey Systems	82	82	-	-	90	90	-	-	2	2
Applications Software Products	643	643	-	-	1,097	1,092	-5	-	11	11
Systems Operations	-	-	-	-	-	-	-	-	-	-
Systems Integration	-	-	-	-	-	-	-	-	-	-
Professional Services	-	-	-	-	-	-	-	-	-	-
Network Services	-	-	-	-	-	-	-	-	-	-

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E

Office Systems

1. Forecast Data Base

Exhibit V-9 presents the detailed 1991-1996 forecast for the office systems cross-industry sector.

2. Forecast Reconciliation

Exhibit V-10 presents the forecast reconciliation for the office systems cross-industry sector.

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EXHIBIT V-9

Office Systems Cross-Industry Sector User Expenditure Forecast by Delivery Mode, 1990-1996

Delivery Modes	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Sector Total	2,117	11	2,352	2,705	3,075	3,532	4,061	4,652	15
Processing Services	38	-3	36	34	32	30	28	26	-6
- Transaction Processing	38	-3	36	34	32	30	28	26	-6
Turnkey Systems	65	2	66	67	69	70	72	74	2
Applications Software Products	2,014	12	2,250	2,604	2,974	3,432	3,961	4,552	15
- Mainframe	160	2	163	164	165	170	173	176	2
- Minicomputer	557	14	634	720	820	935	1,065	1,190	13
- Workstation/PC	1,297	12	1,453	1,720	1,989	2,327	2,723	3,186	17

EXHIBIT V-10

Office Systems Cross-Industry Sector 1991 MAP Data Base Reconciliation

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 Rpt (%)	90-95 CAGR per data 91 Rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total	2,162	2,117	-45	-2	4,189	4,061	-128	-3	14	14
Processing Services	38	38	-	-	29	28	-1	-3	-5	-6
Turnkey Systems	65	65	-	-	72	72	-	-	2	2
Applications Software Products	2,059	2,014	-45	-2	4,088	3,961	-127	-3	15	14

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F
Planning and Analysis

1. Forecast Data Base

Exhibit V-11 presents the detailed 1991-1996 forecast for the planning and analysis cross-industry sector.

2. Forecast Reconciliation

Exhibit V-12 presents the forecast reconciliation for the planning and analysis cross-industry sector.

Actual 1990 expenditures on turnkey systems and applications software products were slightly lower than anticipated. INPUT's processing services forecast indicates a more rapid decline in user expenditures than last year's processing services forecast for the period 1990-1995.

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EXHIBIT V-11

Planning and Analysis Cross-Industry Sector User Expenditure Forecast by Delivery Mode, 1990-1996

Delivery Mode	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Sector Total	2,329	12	2,615	2,937	3,317	3,763	4,289	4,906	13
Processing Services	205	-7	190	167	147	129	114	100	-12
-Transaction Processing	205	-7	190	167	147	129	114	100	-12
Turnkey Systems	50	-	50	50	50	50	50	50	-
Applications Software Products	2,074	15	2,375	2,720	3,120	3,584	4,125	4,756	15
-Mainframe	415	8	447	478	512	548	586	627	7
-Minicomputer	324	9	353	384	415	449	486	526	8
-Workstation/PC	1,335	18	1,575	1,858	2,193	2,587	3,053	3,603	18

EXHIBIT V-12

Planning and Analysis Cross-Industry Sector 1991 MAP Data Base Reconciliation

Delivery Mode	1990 Market				1995 Market				90-95 CAGR per data 90 rpt (%)	90-95 CAGR per data 91 rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total	2,357	2,329	-28	-1	4,377	4,289	-88	-2	13	13
Processing Services	205	205	-	-	118	114	-4	-3	-9	-12
Turnkey Systems	51	50	-1	-2	51	50	-1	-2	-	-
Applications Software Products	2,101	2,074	-27	-1	4,208	4,125	-83	-2	15	15

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G

Other Cross-Industry Sector

1. Forecast Data Base

Exhibit V-13 presents the detailed 1991-1996 forecast for the other cross-industry sector.

2. Forecast Reconciliation

Exhibit V-14 presents the forecast reconciliation for the other cross-industry sector.

INPUT has adjusted its processing services and applications software products forecasts downward this year to reflect more conservative assumptions about these delivery modes in general.

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EXHIBIT V-13

Other Cross-Industry Sector
User Expenditure Forecast by Delivery Mode, 1990-1996

Delivery Modes	1990 ($M)	Growth 90-91 (%)	1991 ($M)	1992 ($M)	1993 ($M)	1994 ($M)	1995 ($M)	1996 ($M)	CAGR 91-96 (%)
Sector Total	1,399	8	1,513	1,635	1,785	1,960	2,163	2,344	9
Processing Services	525	6	556	575	601	625	650	676	4
- Transaction Processing	525	6	556	575	601	625	650	676	4
Turnkey Systems	437	8	471	512	561	619	687	725	9
Applications Software Products	437	11	486	548	623	716	826	943	14
- Mainframe	182	5	191	204	219	234	250	268	7
- Minicomputer	117	10	129	142	156	171	188	208	10
- Workstation/PC	138	20	166	202	248	311	388	467	23

EXHIBIT V-14

Other Cross-Industry Sector
1991 MAP Data Base Reconciliation

Delivery Modes	1990 Market				1995 Market				90-95 CAGR per data 90 Rpt (%)	90-95 CAGR per data 91 Rpt (%)
	1990 Report (Fcst) ($M)	1991 Report (Actual) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)	1990 Report (Fcst) ($M)	1991 Report (Fcst) ($M)	Variance from 1990 Report ($M)	Variance from 1990 Report (%)		
Total	1,408	1,399	-9	1	2,359	2,163	-196	-8	11	9
Processing Services	525	525	-	-	749	650	-99	-13	7	4
Turnkey Systems	437	437	-	-	687	687	-	-	9	9
Applications Software Products	446	437	-9	2	923	826	-97	-11	16	14

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