WORLDWIDE MARKET FORECAST
1992 - 1997
RECONCILIATION

INPUT

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WORLDWIDE MARKET FORECAST

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Worldwide Market Forecast
1992-1997 Reconciliation

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I

Introduction

This report provides a complete reconciliation of market forecasts for INPUT's *Worldwide Information Services Forecast, 1992-1997.* Although the worldwide report is in its fourth edition, this volume is the first complete reconciliation.

A Objective

The objective of this volume is to provide explanations of the differences in estimates of market sizes and actual expenditures forecasted in last year's study, *Worldwide Information Services Forecast, 1991-1996*, and the comparable numbers in this year's edition of the report.

B Organization

The report is organized in a hierarchical manner.

- Chapter II, *Worldwide Reconciliation*, provides the explanation of worldwide forecast changes.

- Chapter III, *Area Reconciliations*, analyzes the changes in forecast and actual expenditures for each of the following major geographical regions:

  - Asia/Pacific
  - Europe
  - Latin America
  - Middle East/Africa
  - North America

- Chapter IV, *Country Reconciliations*, provides individual reconciliations for each of the countries profiled in the 1992-1997 report.

C

Methodology/Conventions

- All reconciliations are presented in U.S. dollars.
- Each reconciliation contains a table presenting variances between comparable figures from each of the two reports (1991 and 1992) and a written analysis of the significant variances.
- Variances of less than three percent are not addressed with specific written explanations.
- Minor variations may occur between the totals presented in this report and previously published numbers for the same period due to differences in rounding and currency exchange. Where there are any significant differences, they are noted in the reconciliation itself.

II

Worldwide Reconciliation

A
Worldwide Reconciliation Table

Exhibit II-1 provides the reconciliation between INPUT's 1991 and 1992 worldwide forecasts.

EXHIBIT II-1

Information Services Market, Worldwide 1992 Forecast Data Base Reconciliation $ Millions

	1991 Market				1996 Market					
Delivery Modes	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
Total Information Services Market	234,074	244,181	10,107	4	454,422	419,438	-34,984	-8	14	11
Processing Services	35,188	34,193	-995	-3	52,065	50,060	-2,005	-4	8	8
Turnkey Systems	29,021	28,506	-515	-2	51,354	45,126	-6,228	-12	12	10
Applications Software	33,737	34,056	319	1	71,035	65,042	-5,993	-8	16	14
Systems Operations	13,409	14,451	1,042	8	30,346	30,957	611	2	18	16
Systems Integration	15,030	15,603	573	4	35,535	32,360	-3,175	-9	19	16
Professional Services	56,957	63,983	7,026	12	115,186	98,240	-16,946	-15	15	9
Network Services	16,049	17,325	1,276	8	36,726	36,708	-18	0	18	16
Systems Software	34,683	36,064	1,381	4	62,175	60,945	-1,230	-2	12	11

B
Analysis

Based on the 1992 market forecast, worldwide expenditures in 1991 for information services were approximately 4% higher than forecast in the 1991 report. This 4% variation is largely explained by higher-than-anticipated growth in expenditures for professional services.

This year INPUT is forecasting a downturn in the overall growth rate for the next five years, from 14% forecasted in the 1991 report to 11% in this report. This reduction in the overall compound annual growth rate (CAGR) is based on several factors:

- A significant reduction in the European growth rate, from 15% to 10%. (See Chapter III for a more detailed explanation.)

- Adjustments to the Japanese forecast to reflect the impact of the economy and some differences in definitions which resulted in an overall reduction in growth rate for the two forecast periods from 18% to 11%. (See Chapter IV for a more detailed explanation.)

- A general worldwide recession still impacting the industrialized areas north of the equator.

This reduction in forecasted growth rate explains virtually all the negative variances for individual delivery modes for 1996 when comparing the forecasted expenditures for that year from the 1991 report with those forecasted this year.

III

Area Reconciliations

This chapter contains reconciliations for each of the following major areas:

- Asia/Pacific
- Europe
- Latin America
- Middle East/Africa
- North America

A
Asia/Pacific

EXHIBIT III-1

Information Services Market, Asia/Pacific 1992 Forecast Data Base Reconciliation $ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)		
Total Information Services Market	37,125	47,190	10,065	27	83,337	82,433	-904	-1	18	12
Processing Services	6,336	6,417	81	1	10,213	11,685	1,472	14	10	13
Turnkey Systems	4,385	3,671	-714	-16	8,065	5,723	-2,342	-29	13	9
Applications Software	2,923	3,717	794	27	6,995	7,385	390	6	19	15
Systems Operations	3,192	3,088	-104	-3	7,898	6,026	-1,872	-24	20	14
Systems Integration	3,244	3,490	246	8	8,525	7,515	-1,010	-12	21	17
Professional Services	12,655	20,090	7,435	59	30,965	30,264	-701	-2	20	9
Network Services	1,641	3,463	1,822	111	4,353	7,618	3,265	75	22	17
Systems Software	2,749	3,255	506	18	6,323	6,217	-106	-2	18	14

The dominant factor in the significant change in forecasts for the Asia/Pacific market, as shown in Exhibit III-1, is the sudden impact the changing financial situation in Japan is having on this region. With Japan accounting for over 80% of the market, any changes in the Japanese forecast have a significant impact on the region. (See Chapter IV, Section P for a more detailed explanation.)

The other areas of the Pacific Rim sustained the growth levels forecast in 1991 and, in fact, registered some increases in both actual expenditures and forecast growth rates.

B

Europe

EXHIBIT III-2

Information Services Market, Europe
1992 Forecast Data Base Reconciliation
$ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)		
Total Information Services Market	77,675	78,551	876	1	155,737	128,005	-27,732	-18	15	10
Processing Services	9,382	8,519	-863	-9	13,345	10,262	-3,083	-23	7	4
Turnkey Systems	12,314	12,596	282	2	24,345	20,892	-3,453	-14	15	11
Applications Software	9,060	9,593	533	6	20,925	18,191	-2,734	-13	18	14
Systems Operations	1,490	2,296	806	54	3,800	6,191	2,391	63	21	22
Systems Integration	3,355	3,494	139	4	8,150	7,776	-374	-5	19	17
Professional Services	24,724	24,490	-234	-1	51,957	37,269	-14,688	-28	16	9
Network Services	4,722	4,390	-332	-7	11,610	9,207	-2,403	-21	20	16
Systems Software	12,628	13,173	545	4	21,605	18,217	-3,388	-16	11	7

Exhibit III-2 shows that the overall 1992 European forecast was impacted by changes in the dollar and ECU exchange rates for individual European countries. This led to a false rise of about 6% in market totals when consolidated into a European total, across all years forecast.

In addition there were continuing cutbacks in IT spending due to the effects of economic recession and falling confidence in the benefits of high IT investment. These led to forecast annual growth rates being revised down for all countries.

At the delivery mode level there were changes to some of the European forecasts, resulting primarily from:

- Changes to INPUT's definitions at the delivery mode subsector.
- Revised growth rate predictions—particularly a lowering of expectations for the professional services subsectors of education and training and custom software development.

- Revised base year market size estimates for the processing services subsector—transaction processing.

The changes INPUT made in delivery mode definitions allowed the addition and integration of equipment services into the whole information services market picture. The old forecast profile is now referred to as the software and services market (excluding equipment services). The composite profile of software, services, and maintenance is referred to as the information services market in INPUT publications.

The 1992 forecasts also added extra detail in areas of unusual growth by separately identifying network management, desktop services, and application management as categories of outsourcing. In these cases the new subsectors were identified from within previous market estimates, so they did not add to the overall market size.

C
Latin America

EXHIBIT III-3

Information Services Market, North America
1992 Forecast Data Base Reconciliation
$ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)		
Total Information Services Market	114,596	113,826	-770	-1	203,938	197,900	-6,038	-3	12	12
Processing Services	18,852	18,660	-192	-1	27,393	27,033	-360	-1	8	8
Turnkey Systems	11,738	11,666	-72	-1	17,772	17,328	-444	-2	9	8
Applications Software	20,464	19,461	-1,003	-5	39,295	35,703	-3,592	-9	14	13
Systems Operations	8,519	8,865	346	4	18,276	18,374	98	1	16	16
Systems Integration	8,274	8,463	189	2	18,570	16,770	-1,800	-10	18	15
Professional Services	18,675	18,511	-164	-1	29,739	28,315	-1,424	-5	10	9
Network Services	9,533	9,321	-212	-2	20,470	19,590	-880	-4	17	16
Systems Software	18,541	18,878	337	2	32,423	34,786	2,363	7	12	13

As shown in Exhibit III-3, there are very few changes in the overall Latin American expenditure forecast between the two forecast periods (1991 and 1992). Growth remains healthy, and increased stabilization in most governments appears to have dampened the recessionary impacts which had a high impact on major industrial regions north of the equator.

D
Middle East/Africa

EXHIBIT III-4

Information Services Market, Middle East/Africa 1992 Forecast Data Base Reconciliation $ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)		
Total Information Services Market	1,114	1,100	-14	-1	3,118	2,880	-238	-8	23	21
Processing Services	310	300	-10	-3	610	580	-30	-5	14	14
Turnkey Systems	110	105	-5	-5	195	180	-15	-8	12	11
Applications Software	285	280	-5	-2	1,060	970	-90	-8	30	28
Systems Operations	N/A	-	-	-	-	-	-	-	-	-
Systems Integration	28	30	2	7	48	50	2	4	11	11
Professional Services	285	285	0	0	1,050	935	-115	-11	30	27
Network Services	23	25	2	9	40	45	5	13	12	12
Systems Software	73	75	2	3	115	120	5	4	10	10

The outlook for the Middle East/Africa area remains fundamentally unchanged between the 1991 and 1992 reports, as shown in Exhibit III-4. The major difference is the decrease in 1996 forecast expenditures, primarily a reflection of a reduction in the forecast CAGR from 23% to 21%.

Although not as impacted by the worldwide recession as other, more industrialized regions, INPUT anticipates that overall growth in this region will be slightly dampened by the current recession.

E

North America

EXHIBIT III-5

Information Services Market, North America
1992 Forecast Data Base Reconciliation
$ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)		
Total Information Services Market	114,596	113,826	-770	-1	203,938	197,900	-6,038	-3	12	12
Processing Services	18,852	18,660	-192	-1	27,393	27,033	-360	-1	8	8
Turnkey Systems	11,738	11,666	-72	-1	17,772	17,328	-444	-2	9	8
Applications Software	20,464	19,461	-1,003	-5	39,295	35,703	-3,592	-9	14	13
Systems Operations	8,519	8,865	346	4	18,276	18,374	98	1	16	16
Systems Integration	8,274	8,463	189	2	18,570	16,770	-1,800	-10	18	15
Professional Services	18,675	18,511	-164	-1	29,739	28,315	-1,424	-5	10	9
Network Services	9,533	9,321	-212	-2	20,470	19,590	-880	-4	17	16
Systems Software	18,541	18,878	337	2	32,423	34,786	2,363	7	12	13

The North American market, as shown in Exhibit III-5, is dominated by the United States, where the only major changes were in applications software and systems integration.

The change in forecast between 1991 and 1992 for applications software is largely attributable to a restructuring of channels and pricing for applications software products sold for PC and workstation platforms. The first change is an increase in bundling software with hardware, which has the overall impact of reducing the price per unit sold. The second factor is increasing price competition for software for these platforms. The combined effect is a 10% reduction in the 1996 forecast for expenditures in this category between the 1991 and 1992 reports.

The forecast 11% reduction in systems integration expenditures between the two reporting periods for 1996 is largely accounted for by reduced government expenditures in the U.S.

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IV

Country Reconciliations

A

Countries Included

Reconciliations are provided for each of the countries listed below. Please note that following the name of each country is a symbol indicating to which area of the world information services revenues have been assigned. The symbols are: AP - Asia/Pacific, EU - Europe, LA - Latin America, and NA - North America

- Argentina (LA)
- Australia (AP)
- Austria (EU)
- Belgium (EU)
- Brazil (LA)
- Canada (NA)
- Denmark (EU)
- Eastern Europe (EU)
- Finland (EU)
- France (EU)
- Germany (EU)
- Hong Kong (AP)
- India (AP)
- Italy (EU)
- Japan (AP)
- Mexico (LA)
- Netherlands (EU)
- New Zealand (AP)
- Norway (EU)
- Other Asia/Pacific (AP)
- Other Europe (EU)
- Other Latin America (LA)
- Singapore (AP)
- South Korea (AP)
- Spain (EU)
- Sweden (EU)
- Switzerland (EU)
- Taiwan (AP)
- United Kingdom (EU)
- United States (NA)
- Venezuela (LA)

B
Argentina

EXHIBIT IV-1

Information Services Market, Argentina
1992 Forecast Data Base Reconciliation
$ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)		
Total Information Services Market	485	464	-21	-4	1,070	1,090	20	2	17	19
Processing Services	35	34	-1	-3	64	60	-4	-6	13	12
Turnkey Systems	56	51	-5	-9	120	122	2	2	16	19
Applications Software	135	130	-5	-4	300	321	21	7	17	20
Systems Operations	40	38	-2	-5	80	77	-3	-4	15	15
Systems Integration	35	35	0	0	58	71	13	22	11	15
Professional Services	92	89	-3	-3	201	208	7	3	17	19
Network Services	17	17	0	0	33	33	0	0	14	14
Systems Software	75	70	-5	-7	214	197	-17	-8	23	23

The actual expenditures for 1991 as measured by the 1992 study were approximately 4% lower than anticipated in the 1991 report, as shown in Exhibit IV-1. The majority of this variation is accounted for by the fact that government restrictions on the import of hardware and software impacted turnkey systems and both applications and systems software expenditures.

As with most of the rest of the world, the lingering recession has impacted Argentina. However, in general, the country still shows a substantial growth rate in overall information services expenditures. In fact, INPUT has increased its estimate of the overall growth rate from 17% CAGR to 19% for the period through 1996 to reflect renewed confidence that the country's efforts to stabilize the political environment, control inflation, and continue in privatization efforts will further stimulate growth.

C
Australia

EXHIBIT IV-2

Information Services Market, Australia 1992 Forecast Data Base Reconciliation $ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)		
Total Information Services Market	2,480	2,466	-14	-1	4,705	4,742	37	1	14	14
Processing Services	283	275	-8	-3	495	487	-8	-2	12	12
Turnkey Systems	265	260	-5	-2	450	453	3	1	11	12
Applications Software	485	485	0	0	960	962	2	0	15	15
Systems Operations	111	110	-1	-1	177	179	2	1	10	10
Systems Integration	220	220	0	0	428	429	1	0	14	14
Professional Services	487	487	0	0	1,000	1,026	26	3	15	16
Network Services	237	237	0	0	465	469	4	1	14	15
Systems Software	392	392	0	0	730	737	7	1	13	13

As shown in Exhibit IV-2, overall variations between the 1991 forecast and this year's estimates of actual expenditures for last year showed less than 1% variation on the down side.

There have been few significant events impacting the country of Australia which cause INPUT to substantially modify its forecasts for the next five years. Growth will be steady, but also behind that of most of its South Pacific neighbors.

D
Austria

EXHIBIT IV-3

Information Services Market, Austria
1992 Forecast Data Base Reconciliation
$ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)		
Total Information Services Market	1,170	1,274	104	9	2,260	2,066	-194	-9	14	10
Processing Services	161	176	15	9	208	186	-22	-11	5	1
Turnkey Systems	262	290	28	11	554	552	-2	0	16	14
Application Software	134	148	14	10	325	302	-23	-7	19	15
Systems Operations	11	15	4	36	21	38	17	81	14	20
Systems Integration	34	38	4	12	85	82	-3	-4	20	17
Professional Services	282	298	16	6	601	474	-127	-21	16	10
Network Services	54	58	4	7	99	99	0	0	13	11
System Software	227	253	26	11	364	335	-29	-8	10	6

Exhibit IV-3 shows the reconciliation for Austria, where actual user spending in 1991 on software, services, and maintenance was 2% down on INPUT's previous forecast. This was due primarily to over-estimates of user spending in the equipment maintenance and professional services sectors in the 1991 report.

Equipment maintenance was adjusted down 9%, due primarily to a re-assessment of IBM's maintenance revenues in Austria. All three professional services sectors were down from INPUT's previous forecast, with education and training some 10% less than had been forecast. A focus on short-term spending at the expense of longer-term investment also reduced these professional services revenues in Switzerland.

Other changes were caused by moving network management out of the network services sector and into systems operations, and the addition of two further subsectors—desktop services and applications management. As a result systems operations appeared to grow while network services shrank, with little net change.

Total market forecast growth to 1996 was down from a CAGR of 14% in the 1991 report to 10% in the 1992 figures. This followed the trend of spending cutbacks experienced across Europe, even by Switzerland with its past economic independence. The professional services sector was the worst affected, with five-year growth forecasts down from 16% CAGR in 1991 to only 10% CAGR in 1992. This reflects the falling demand for custom software development. For systems operations, on the other hand, the forecast was raised from 14% CAGR to 20% showing the fast-growing popularity of outsourcing.

E
Belgium

EXHIBIT IV-4

Information Services Market, Belgium 1992 Forecast Data Base Reconciliation $ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)		
Total Information Services Market	2,230	2,346	116	5	4,700	4,072	-628	-13	16	12
Processing Services	228	247	19	8	301	291	-10	-3	6	3
Turnkey Systems	253	258	5	2	533	477	-56	-11	16	13
Application Software	316	339	23	7	715	694	-21	-3	18	15
Systems Operations	41	50	9	22	92	112	20	22	18	18
Systems Integration	111	117	6	5	254	269	15	6	18	18
Professional Services	788	827	39	5	1,876	1,439	-437	-23	19	12
Network Services	114	119	5	4	289	212	-77	-27	20	12
System Software	373	390	17	5	636	579	-57	-9	11	8

Exhibit IV-4 shows the forecast reconciliation for Belgium, where actual user spending in 1991 on software, services, and maintenance was 4% down from INPUT's previous forecast. This was due to reduced user spending across all delivery modes. INPUT's previous forecasts had been too optimistic in the light of economic downturns.

The largest impact came in the professional services sector, where growth was down 5% as users cut spending on IS consulting, training, and custom software development projects more than had been expected. The five-year forecast for this sector was also significantly down. INPUT does not expect to see a CAGR of 19% and is now forecasting a recovery and rise to 12% CAGR by 1996.

Systems integration project revenues did not grow as fast as expected, but in the long term INPUT is still forecasting an 18% CAGR.

Overall, the forecast market growth to 1996 was down from a CAGR of 16% in the 1991 report to 12% in the 1992 figures. This followed the trend of spending cutbacks, especially where related to midrange system purchases.

Other changes were caused by moving network management out of the network services sector and into systems operations, and the addition of two further subsectors—desktop services and applications management. As a result systems operations appeared to grow while network services shrank, with little net change.

F

Brazil

EXHIBIT IV-5

Information Services Market, Brazil
1992 Forecast Data Base Reconciliation
$ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)		
Total Information Services Market	1,478	1,469	-9	-1	3,722	3,618	-104	-3	20	20
Processing Services	76	74	-2	-3	132	125	-7	-5	12	11
Turnkey Systems	167	166	-1	-1	384	376	-8	-2	18	18
Applications Software	400	400	0	0	1,200	1,196	-4	0	25	24
Systems Operations	80	80	0	0	150	149	-1	-1	13	13
Systems Integration	62	60	-2	-3	123	121	-2	-2	15	15
Professional Services	280	279	-1	0	705	695	-10	-1	20	20
Network Services	73	70	-3	-4	156	151	-5	-3	16	17
Systems Software	340	340	0	0	872	806	-66	-8	21	19

Variations between last year's forecast and this year's were minimal for Brazil, as shown in Exhibit IV-5. Base expenditures were off slightly, however this variation is small enough to be well within the forecast's margin of error. As was the case with most of the rest of Latin America, another year of continued government stability, privatization of industry, and lowering of import barriers leads INPUT to believe that the overall CAGR for Brazil will remain high throughout the 1992-1997 period.

G
Canada

EXHIBIT IV-6

Information Services Market, Canada
1992 Forecast Data Base Reconciliation
$ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)		
Total Information Services Market	3,813	3,768	-45	-1	7,002	6,225	-777	-11	13	11
Processing Services	578	572	-6	-1	754	662	-92	-12	5	3
Turnkey Systems	264	262	-2	-1	361	331	-30	-8	6	5
Applications Software	622	538	-84	-14	1,265	1,014	-251	-20	15	14
Systems Operations	219	221	2	1	458	569	111	24	16	21
Systems Integration	591	576	-15	-3	1,176	891	-285	-24	15	9
Professional Services	918	910	-8	-1	1,847	1,571	-276	-15	15	12
Network Services	182	180	-2	-1	418	387	-31	-7	18	17
Systems Software	440	508	68	15	723	799	76	11	10	9

Although the overall difference between Canada's 1991 actual expenditures for information services and the forecast for 1991 from last year were only 1%, as shown in Exhibit IV-6, there were some significant variations.

- Applications software expenditures were off a significant 14%, reflecting a major deferral of new applications development due to heavy recessionary pressures.

- Systems software expenditures, on the other hand, were up 15% over the 1991 forecast. This is due to a retooling of infrastructure in both the network and client/server area.

In general, INPUT has lowered the growth rate forecasts for overall expenditures in Canada to reflect a lingering recession and strong economic dependence on the U.S.

The 1992 forecast shows increases in both applications software and systems integration growth rates over the forecast period, reflecting the buildup of the applications backlog that has occurred during this recessionary period.

H
Denmark

EXHIBIT IV-7

Information Services Market, Denmark 1992 Forecast Data Base Reconciliation $ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)		
Total Information Services Market	1,830	1,944	114	6	3,240	2,811	-429	-13	12	8
Processing Services	486	518	32	7	592	512	-80	-14	4	-0
Turnkey Systems	286	299	13	5	562	438	-124	-22	14	8
Application Software	191	203	12	6	405	394	-11	-3	16	14
Systems Operations	16	23	7	44	34	58	24	71	16	20
Systems Integration	39	42	3	8	86	81	-5	-6	17	14
Professional Services	471	492	21	4	932	725	-207	-22	15	8
Network Services	85	88	3	4	222	196	-26	-12	21	17
System Software	260	277	17	7	404	408	4	1	9	8

Exhibit IV-7 shows the forecast reconciliation for Denmark, where actual user spending in 1991 on software, services and maintenance was 7% below INPUT's 1991 forecast. Software and services spending in Denmark followed the unexpected hesitation in mainframe spending, resulting in a 2% fall from the previous forecast for 1991. There had also been some overstatement of market size in the equipment services sector.

Other changes were caused by moving network management out of the network services sector and into systems operations, and the addition of two further subsectors—desktop services and applications management. As a result, systems operations appeared to grow while network services shrank.

Forecast growth to 1996 was down from a CAGR of 12% in the 1991 report to 8% in the 1992 figures. This followed the lower growth prospects in Europe as a whole due to recession and spending cutbacks. The professional services sector was the worst affected, with five-year growth forecasts down from 15% CAGR in 1991 to only 8% CAGR in 1992. This reflects the falling demand for custom software development from an expected growth of 14% down to only 5%.

I

Eastern Europe

EXHIBIT IV-8

Information Services Market, Eastern Europe 1992 Forecast Data Base Reconciliation $ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)		
Total Information Services Market	145	148	3	2	575	477	-98	-17	32	26
Processing Services	12	12	0	0	23	23	0	0	14	14
Turnkey Systems	14	14	0	0	45	47	2	4	26	27
Application Software	60	60	0	0	125	126	1	0	16	16
Systems Operations	0	3	3	100	50	33	-17	-34	N/A	62
Systems Integration	5	5	0	0	150	88	-62	-41	97	77
Professional Services	24	24	0	0	57	52	-5	-9	19	17
Network Services	2	2	0	0	20	12	-8	-40	58	43
System Software	28	28	0	0	105	97	-8	-8	30	28

The information services market for Eastern Europe, shown in Exhibit IV-8, is still embryonic but is growing. Actual information services expenditures for 1992 were greater than INPUT's 1991 forecast by 2%, which reflected in the emergence of a systems operations market in this region.

However, INPUT has reduced its forecast for the 1996 information services market by 17%. This is based upon some uncertainty as to how the economic and political climate of the region will develop. With the prolonged conflict in Yugoslavia and the unstable environment in the Baltic States, INPUT believes a more conservative estimate of information serviced market growth is warranted.

J
Finland

EXHIBIT IV-9

Information Services Market, Finland
1992 Forecast Data Base Reconciliation
$ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)		
Total Information Services Market	1,340	1,252	-88	-7	2,630	1,768	-862	-33	14	7
Processing Services	258	241	-17	-7	354	233	-121	-34	7	-1
Turnkey Systems	201	192	-9	-4	409	283	-126	-31	15	8
Application Software	173	163	-10	-6	399	272	-127	-32	18	11
Systems Operations	37	41	4	11	85	92	7	8	18	18
Systems Integration	19	17	-2	-11	38	30	-8	-21	15	12
Professional Services	388	349	-39	-10	833	542	-291	-35	17	9
Network Services	57	50	-7	-12	141	78	-63	-45	20	9
System Software	212	200	-12	-6	371	240	-131	-35	12	4

Exhibits IV-9 shows the forecast reconciliation for Finland, where actual user spending in 1991 on software, services, and maintenance was 3% below INPUT's 1991 forecast. This was due primarily to over-optimistic estimates of user spending during a period of severe continuing economic recession.

Software and services such as processing services and applications software contributed a 2% reduction. Professional services were down 7% as users cut spending on IS consulting, training, and custom software development projects more than had been expected.

Other changes were caused by moving network management out of the network services sector and into systems operations, and the addition of two additional subsectors—desktop services and applications management. As a result, systems operations appeared to grow while network services shrank, with little net change.

Forecast growth to 1996 was down from a CAGR of 14% in the 1991 report to 7% in the 1992 figures. This followed the lower growth prospects in Europe as a whole due to recession and spending cutbacks. The professional services sector was the worst affected, with five-year growth forecasts down from 17% CAGR in 1991 to only 9% CAGR in 1992. This reflects the falling demand for custom software development from an expected growth of 16% to only 8%.

K
France

EXHIBIT IV-10

Information Services Market, France
1992 Forecast Data Base Reconciliation
$ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)		
Total Information Services Market	18,140	18,442	302	2	36,110	30,213	-5,897	-16	15	10
Processing Services	2,067	1,620	-447	-22	3,009	2,150	-859	-29	8	6
Turnkey Systems	1,880	2,003	123	7	3,678	3,220	-458	-12	14	10
Application Software	2,327	2,560	233	10	5,912	4,650	-1,262	-21	21	13
Systems Operations	398	546	148	37	1,053	1,317	264	25	21	19
Systems Integration	733	792	59	8	1,823	1,696	-127	-7	20	16
Professional Services	7,000	7,081	81	1	13,434	10,980	-2,454	-18	14	9
Network Services	1,062	1,060	-2	-0	2,558	2,440	-118	-5	19	18
System Software	2,673	2,780	107	4	4,655	3,760	-895	-19	12	6

Exhibit IV-10 shows the forecast reconciliation for France, where the total estimated market size for 1991 was 2% higher than originally forecast during 1991. The five-year compound annual growth rate prediction was reduced from 15% to 10%.

The revenues of leading processing services vendors in France, Germany, and the U.K. were analyzed in detail during 1992, and it was apparent that INPUT had overestimated the total user spending in these sectors. A revised estimate for France reduced the processing services market size by 22%.

Other base year adjustments resulted only from moving subsectors between delivery modes. For example, network management (the management of a data network is outsourced to a vendor) was moved out of network services (largely added-value) and into systems operations.

The most significant fall in forecast growth rates was in the subsector of PC/workstation application software products. This was revised down from a very optimistic 1991 forecast of 26% CAGR to a more critical 16%, reflecting the price competition between products in this sector.

L

Germany

EXHIBIT IV-11

Information Services Market, Germany 1992 Forecast Data Base Reconciliation $ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)		
Total Information Services Market	14,400	15,276	876	6	30,300	27,351	-2,949	-10	16	12
Processing Services	1,783	1,510	-273	-15	2,563	1,910	-653	-25	8	5
Turnkey Systems	3,533	3,876	343	10	7,176	7,179	3	0	15	13
Application Software	1,482	1,720	238	16	3,423	3,790	367	11	18	17
Systems Operations	98	199	101	103	241	566	325	135	20	23
Systems Integration	792	879	87	11	2,054	2,293	239	12	21	21
Professional Services	3,310	3,352	42	1	7,815	5,663	-2,152	-28	19	11
Network Services	789	750	-39	-5	2,381	1,670	-711	-30	25	17
System Software	2,589	2,990	401	15	4,643	4,280	-363	-8	12	7

As shown in Exhibit IV-11, the total market size estimate for Germany in 1991 was revised down 6%, while the forecast growth was down from 16% CAGR to 12%.

Processing services in the base year was re-assessed 15% below previous, over-stated forecasts. This despite Datev, the largest independent German services vendor, growing some 20%. The custom software development subsector of professional services had not grown nearly as fast as INPUT expected, so the 1991 figure was revised down 15% in the 1992 forecast.

Apart from a steep drop from a CAGR of 13% to 5% for environmental services, there were no other major revisions to the individual growth forecasts.

M
Hong Kong

EXHIBIT IV-12

Information Services Market, Hong Kong 1992 Forecast Data Base Reconciliation $ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)		
Total Information Services Market	506	490	-16	-3	1,089	1,030	-59	-5	17	16
Processing Services	63	58	-5	-10	101	96	-5	-5	10	11
Turnkey Systems	42	42	0	0	79	74	-5	-6	13	12
Applications Software	110	110	0	0	250	233	-17	-7	18	16
Systems Operations	26	26	0	0	45	44	-1	-2	12	11
Systems Integration	26	26	0	0	52	52	0	0	15	15
Professional Services	109	104	-5	-5	184	178	-6	-3	11	11
Network Services	31	31	0	0	78	81	3	4	20	21
Systems Software	99	93	-6	-6	300	273	-27	-9	25	24

Variations in the forecast for Hong Kong between the 1991 and 1992 reports were minimal, as shown in Exhibit IV-12. Overall, 1991 actual expenditures were off just 3% from the total forecasted in the 1991 report. The two categories making the biggest contributions were processing services and professional services.

- Processing services is largely explained by a small movement from local suppliers to global corporations, reflecting some discomfort with the upcoming transfer of Hong Kong's destiny to China.

- The explanation for professional services is not clear. However, some interview data indicates that firms are deferring investments in new systems due to recessionary pressures and uncertainty about the future.

N

India

EXHIBIT IV-13

Information Services Market, India
1992 Forecast Data Base Reconciliation
$ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)		
Total Information Services Market	247	247	0	0	919	834	-85	-10	30	28
Processing Services	14	14	0	0	23	23	0	0	10	10
Turnkey Systems	12	12	0	0	36	39	3	8	25	27
Applications Software	60	60	0	0	220	228	8	4	30	31
Systems Operations	N/A	-	-	-	-	-	-	-	-	-
Systems Integration	N/A	-	-	-	-	-	-	-	-	-
Professional Services	110	110	0	0	490	414	-76	-16	35	30
Network Services	6	6	0	0	15	15	0	-3	20	20
Systems Software	45	45	0	0	135	114	-21	-16	25	20

Although 1991's forecast for the 1991 period appeared to be on target, as shown in Exhibit IV-13, there are some problems which are inhibiting the growth of the Indian market.

A general devaluation of the currency against that of the U.S. and European countries has created a local increase in prices for information systems products and services which is dampening forecasted growth rates. This will have a strong effect on the purchase of professional services from outside the country over the next several years and is reflected in a reduction in CAGR from 30% to 28% from 1991-1996.

O

Italy

EXHIBIT IV-14

Information Services Market, Italy
1992 Forecast Data Base Reconciliation
$ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)		
Total Information Services Market	8,350	8,761	411	5	16,460	14,185	-2,275	-14	15	10
Processing Services	942	1,010	68	7	1,352	1,160	-192	-14	7	3
Turnkey Systems	771	830	59	8	1,318	1,324	6	0	11	10
Application Software	1,269	1,350	81	6	2,701	2,470	-231	-9	16	13
Systems Operations	199	245	46	23	483	598	115	24	19	20
Systems Integration	292	321	29	10	791	704	-87	-11	22	17
Professional Services	2,814	2,855	41	1	6,071	4,569	-1,502	-25	17	10
Network Services	410	400	-10	-2	994	870	-124	-12	19	17
System Software	1,646	1,750	104	6	2,758	2,490	-268	-10	11	7

As shown in Exhibit IV-14, the overall market size in Italy was 5% above the 1991 forecast, but the CAGR was down from 15% to 10% as optimism faded in the face of ecomonic and internal political difficulties.

The outsourcing trend was stronger than expected, resulting in an increase of 16% in estimates of user spending in 1991. Growth in this sector was forecast to continue at the same level despite all other sectors being revised down.

P

Japan

EXHIBIT IV-15

Information Services Market, Japan 1992 Forecast Data Base Reconciliation $ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)		
Total Information Services Market	31,071	40,992	9,921	32	69,620	68,043	-1,577	-2	18	11
Processing Services	5,545	5,648	103	2	8,765	10,278	1,513	17	10	13
Turnkey Systems	3,750	3,047	-703	-19	6,780	4,441	-2,339	-34	13	8
Applications Software	1,890	2,500	610	32	4,790	4,477	-313	-7	20	12
Systems Operations	2,830	2,727	-103	-4	7,030	5,135	-1,895	-27	20	13
Systems Integration	2,850	3,094	244	9	7,485	6,458	-1,027	-14	21	16
Professional Services	11,380	18,820	7,440	65	27,950	27,262	-688	-2	20	8
Network Services	1,116	2,938	1,822	163	3,000	6,231	3,231	108	22	16
Systems Software	1,710	2,219	509	30	3,820	3,760	-60	-2	17	11

The Japanese forecast has been adjusted significantly in this year's report, as shown in Exhibit IV-15. The two sources of the adjustments are:

- Adjustments to how certain services are categorized into delivery modes
- The sudden impact of the recessionary economy on overall expenditures for information services in the Japanese market

In 1991 the information services market in Japan was heavily influenced by the economic slowdown. Furthermore, based on our assessment that the change has structural implications, overall growth rates for the Japanese market have been significantly reduced in the 1992 forecast from a CAGR of 18% for the period 1991-1996 in the 1991 forecast to 11% in 1992.

In addition to the dramatic impact of the economic slowdown, a number of mis-estimates along with the failure to categorize some services into the appropriate market segments (delivery modes) had a significant impact on the changes in this year forecast.

- In 1991 we underestimated the total market by approximately $10 billion. Most of this amount, approximately $7 billion, was in the professional services category.

- Applications software was also severely underestimated, in the range of $600 million.

- The majority of the remainder of the difference is accounted for by incorrect estimates for network services.

- Confusion over the definition of "turnkey" systems in the 1991 survey caused revenues in that area to be overestimated, accounting for a negative adjustment to the 1991 estimates of approximately $700 million.

Now that these adjustments have been made in the 1992 forecast, INPUT believes that the market is accurately reflected.

Q
Mexico

EXHIBIT IV-16

Information Services Market, Mexico
1992 Forecast Data Base Reconciliation
$ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)		
Total Information Services Market	574	556	-18	-3	1,355	1,329	-26	-2	19	19
Processing Services	53	47	-6	-11	95	87	-8	-8	12	13
Turnkey Systems	92	92	0	0	183	183	0	0	15	15
Applications Software	140	145	5	4	430	466	36	8	25	26
Systems Operations	83	79	-4	-5	134	132	-2	-1	10	11
Systems Integration	11	9	-2	-18	28	24	-4	-14	21	22
Professional Services	96	89	-7	-7	254	224	-30	-12	21	20
Network Services	10	10	0	0	18	17	-1	-6	12	11
Systems Software	89	85	-4	-4	213	196	-17	-8	19	18

As shown in Exhibit IV-16, estimates of the Mexican market from the 1991 report were just 3% higher than the actuals reported in the 1992 report. The primary contributors to this decrease were systems integration, systems operations, and other areas related to new development, although applications software expenditures were slightly higher than anticipated. INPUT attributes this drop in SI expenditures to a general reluctance to initiate new major systems activities in a recessionary economy.

However, we believe that this slight downturn during 1991 is not indicative of a general trend. Overall, a number of positive factors including the new trade agreements in North America and a strengthening economy in Mexico will sustain the same growth rate that we forecast last year at 19% through at least 1996.

R
Netherlands

EXHIBIT IV-17

Information Services Market, Netherlands
1992 Forecast Data Base Reconciliation
$ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)		
Total Information Services Market	4,560	4,385	-175	-4	9,230	7,397	-1,833	-20	15	11
Processing Services	546	528	-18	-3	831	679	-152	-18	9	5
Turnkey Systems	553	526	-27	-5	1,183	926	-257	-22	16	12
Application Software	595	572	-23	-4	1,399	1,066	-333	-24	19	13
Systems Operations	80	102	22	28	172	258	86	50	17	20
Systems Integration	154	149	-5	-3	355	336	-19	-5	18	18
Professional Services	1,701	1,630	-71	-4	3,692	2,749	-943	-26	17	11
Network Services	207	187	-20	-10	426	451	25	6	16	19
System Software	710	690	-20	-3	1,172	933	-239	-20	11	6

Exhibit IV-17 shows the forecast reconciliation for the Netherlands, where actual user spending in 1991 on software, services, and maintenance was 3% down from INPUT's previous forecast. This was due primarily to a similar level of over-optimism for estimates of user spending across all delivery mode sectors.

IS consulting and education and training subsectors were written down most heavily—by 8%—as users focused their spending on short-term needs rather than long term.

Other changes were caused by moving network management out of the network services sector and into systems operations, and the addition of two further subsectors—desktop services and applications management. As a result systems operations appeared to grow while network services shrank, with little net change.

Forecast growth to 1996 was down from a CAGR of 15% in the 1991 report to 11% in the 1992 figures. This followed the trend of spending cutbacks especially where related to mainframe purchases. Network applications service growth predictions were raised from 16% CAGR to 19% CAGR, reflecting the increasing demand from the transportation and distribution industries in the European market.

S

New Zealand

EXHIBIT IV-18

Information Services Market, New Zealand 1992 Forecast Data Base Reconciliation $ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)		
Total Information Services Market	843	836	-7	-1	1,506	1,505	-1	0	12	12
Processing Services	126	122	-4	-3	190	185	-5	-3	9	9
Turnkey Systems	136	130	-6	-4	228	219	-9	-4	11	11
Applications Software	115	115	0	0	175	183	8	5	9	10
Systems Operations	37	37	0	0	60	59	-1	-2	10	10
Systems Integration	47	50	3	6	100	108	8	8	16	17
Professional Services	221	221	0	0	447	444	-3	-1	15	15
Network Services	43	43	0	0	86	88	2	2	15	15
Systems Software	118	118	0	0	220	220	0	0	13	13

Variations in the forecast for New Zealand, shown in Exhibit IV-18, are not significant. However, it should be noted that overall growth rates for this country are more consistent with European and North American growth rates than those of its neighbors in the northern end of the Pacific rim.

T

Norway

EXHIBIT IV-19

Information Services Market, Norway
1992 Forecast Data Base Reconciliation
$ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)		
Total Information Services Market	1,620	1,741	121	7	3,040	2,557	-483	-16	13	8
Processing Services	495	538	43	9	629	582	-47	-7	5	2
Turnkey Systems	211	229	18	9	445	353	-92	-21	16	9
Application Software	161	173	12	7	394	343	-51	-13	20	15
Systems Operations	20	27	7	35	49	72	23	47	20	22
Systems Integration	40	42	2	5	87	82	-5	-6	17	14
Professional Services	444	469	25	6	946	733	-213	-23	16	9
Network Services	55	56	1	2	139	107	-32	-23	20	14
System Software	193	209	16	8	350	284	-66	-19	13	6

Exhibit IV-19 shows the forecast reconciliation for Norway, where actual user spending in 1991 on software, services and maintenance was 3% down from INPUT's 1991 forecast. This was due primarily to over-optimistic estimates of the equipment services sector for Norway during previous years. Equipment maintenance was adjusted down 7% due primarily to a re-assessment of leading vendor maintenance revenues and market shares.

Other changes were caused by moving network management out of the network services sector and into systems operations, and the addition of two further subsectors—desktop services and applications management. As a result, systems operations appeared to grow while network services shrank.

Forecast growth to 1996 was down from a CAGR of 13% in the 1991 report to 8% in the 1992 figures. This followed the lower growth prospects in Europe as a whole due to recession and spending cutbacks. The professional services sector was the worst affected, with five-year growth forecasts down from 16% CAGR in 1991 to only 9% CAGR in 1992. This reflects the falling demand for custom software development from an expected growth of 16% to only 8%.

U

Other Asia/Pacific

EXHIBIT IV-20

Information Services Market, Other Asia/Pacific 1992 Forecast Data Base Reconciliation $ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)		
Total Information Services Market	240	240	0	0	519	613	94	18	17	21
Processing Services	16	16	0	0	21	26	5	24	6	10
Turnkey Systems	14	14	0	0	21	23	2	10	8	10
Applications Software	110	110	0	0	280	330	50	18	21	25
Systems Operations	N/A	-	-	-	-	-	-	-	-	-
Systems Integration	7	7	0	0	10	11	1	10	7	9
Professional Services	21	21	0	0	37	42	5	14	12	15
Network Services	12	12	0	0	30	36	6	20	20	25
Systems Software	60	60	0	0	120	145	25	21	15	19

This forecast remains essentially unchanged from the 1991 report, as shown in Exhibit IV-20. Neither economic conditions nor changes in the infrastructure warranted any significant adjustments.

V
Other Europe

EXHIBIT IV-21

Information Services Market, Other Europe 1992 Forecast Data Base Reconciliation $ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)		
Total Information Services Market	1,042	980	-62	-6	2,251	1,781	-470	-21	17	13
Processing Services	139	131	-8	-6	222	178	-44	-20	10	6
Turnkey Systems	223	211	-12	-5	482	375	-107	-22	17	12
Application Software	118	110	-8	-7	303	246	-57	-19	21	17
Systems Operations	12	13	1	8	26	32	6	23	17	20
Systems Integration	20	18	-2	-10	48	44	-4	-8	19	20
Professional Services	296	279	-17	-6	688	509	-179	-26	18	13
Network Services	38	35	-3	-8	115	98	-17	-15	25	23
System Software	194	183	-11	-6	367	298	-69	-19	14	10

The difference between the forecast 1991 expenses and this year's estimated actual for the total market, as shown in Exhibit IV-21, reflects the slow rebound in the recession. The reduced growth rate is in line with the overall dampening of anticipated growth in professional services and software.

W

Other Latin America

EXHIBIT IV-22

Information Services Market, Other Latin America 1992 Forecast Data Base Reconciliation $ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)		
Total Information Services Market	629	629	0	0	1,421	1,409	-12	-1	18	18
Processing Services	74	74	0	0	95	101	6	6	5	6
Turnkey Systems	115	115	0	0	220	227	7	3	14	15
Applications Software	220	220	0	0	620	589	-31	-5	23	22
Systems Operations	N/A	-	-	-	-	-	-	-	-	-
Systems Integration	10	10	0	0	13	12	-1	-8	5	4
Professional Services	65	65	0	0	150	155	5	3	18	19
Network Services	15	15	0	0	23	23	0	2	9	9
Systems Software	130	130	0	0	300	301	1	0	18	18

The 1991 forecast for 1991 appears to have been on target, as shown in Exhibit IV-22. Although individual countries varied, overall performance averaged out to be as forecast.

Despite the current recession, the growth rate for services in these countries will continue to hover around 18%, largely stimulated by Chile, which accounts for a significant portion of the market.

X
Singapore

EXHIBIT IV-23

Information Services Market, Singapore 1992 Forecast Data Base Reconciliation $ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)		
Total Information Services Market	602	597	-5	-1	1,005	1,040	35	3	11	12
Processing Services	145	140	-5	-3	230	225	-5	-2	10	10
Turnkey Systems	60	60	0	0	90	95	5	6	8	10
Applications Software	105	105	0	0	150	165	15	10	7	9
Systems Operations	N/A	-	-	-	-	-	-	-	-	-
Systems Integration	24	24	0	0	45	45	0	-1	13	13
Professional Services	130	130	0	0	210	220	10	5	10	11
Network Services	50	50	0	0	130	145	15	12	21	24
Systems Software	88	88	0	0	150	145	-5	-3	11	11

There were no significant variances to report between the 1991 and 1992 market forecast for Singapore, as shown in Exhibit IV-23.

Y
South Korea

EXHIBIT IV-24

Information Services Market, South Korea
1992 Forecast Data Base Reconciliation
$ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)		
Total Information Services Market	888	888	0	0	3,760	3,747	-13	0	33	33
Processing Services	85	85	0	0	264	247	-17	-6	25	24
Turnkey Systems	43	43	0	0	275	261	-14	-5	45	43
Applications Software	184	184	0	0	770	708	-62	-8	33	31
Systems Operations	142	142	0	0	510	532	22	4	29	30
Systems Integration	54	54	0	0	368	377	9	2	47	47
Professional Services	100	100	0	0	450	488	38	8	35	37
Network Services	110	110	0	0	450	467	17	4	33	34
Systems Software	170	170	0	0	673	667	-6	-1	32	31

There were no significant variances to report between the 1991 and 1992 market forecast for South Korea, as shown in Exhibit IV-24.

Z
Spain

EXHIBIT IV-25

Information Services Market, Spain
1992 Forecast Data Base Reconciliation
$ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)		
Total Information Services Market	2,670	2,656	-14	-1	6,250	4,582	-1,668	-27	19	12
Processing Services	314	305	-9	-3	473	408	-65	-14	9	6
Turnkey Systems	498	492	-6	-1	1145	860	-285	-25	18	12
Application Software	313	308	-5	-2	854	648	-206	-24	22	16
Systems Operations	41	54	13	32	85	132	47	55	16	20
Systems Integration	101	100	-1	-1	263	226	-37	-14	21	18
Professional Services	785	796	11	1	1973	1249	-724	-37	20	9
Network Services	159	143	-16	-10	537	289	-248	-46	28	15
System Software	464	459	-5	-1	916	770	-146	-16	15	11

Exhibit IV-25 shows the forecast reconciliation for Spain where actual user spending in 1991 on software, services, and maintenance was 2% down from INPUT's previous forecast. A 1% increase in the software and services sectors was countered by a 5% drop in the equipment services sector.

Overall the forecast market growth to 1996 was down from a CAGR of 19% in the 1991 report to 12% in the 1992 figures. This followed the weakening economic forecasts and strong spending cutbacks in Spain, previously the fastest-growing major country market in Europe.

Other changes were caused by moving network management out of the network services sector and into systems operations, and the addition of two further subsectors—desktop services and applications management. As a result systems operations appeared to grow while network services shrank, with little net change.

AA
Sweden

EXHIBIT IV-26

Information Services Market, Sweden
1992 Forecast Data Base Reconciliation
$ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)		
Total Information Services Market	3,370	3,402	32	1	6,650	5,389	-1,261	-19	15	10
Processing Services	478	484	6	1	603	487	-116	-19	5	0
Turnkey Systems	405	410	5	1	881	640	-241	-27	17	9
Application Software	296	299	3	1	774	652	-122	-16	21	17
Systems Operations	48	60	12	25	103	147	44	43	16	20
Systems Integration	62	63	1	2	137	126	-11	-8	17	15
Professional Services	1,564	1,578	14	1	3,100	2,561	-539	-17	15	10
Network Services	123	117	-6	-5	323	257	-66	-20	21	17
System Software	387	392	5	1	713	518	-195	-27	13	6

Exhibit IV-26 shows the forecast reconciliation for Sweden, where the actual user spending in 1991 on software, services, and maintenance was 3% down from INPUT's 1991 forecast. The impact of the deep recession in Sweden was forecast, but there was some overstatement of market size in the equipment services sector.

Other changes were caused by moving network management out of the network services sector and into systems operations, and the addition of two further subsectors—desktop services and applications management.

Forecast growth to 1996 was down from a CAGR of 15% in the 1991 report to 10% in the 1992 figures. This followed the lower growth prospects in Europe as a whole due to recession and spending cutbacks. Turnkey systems were the worst affected, with five-year growth forecasts down from 17% CAGR in 1991 to only 9% CAGR in 1992. This reflects the heavy price erosion being experienced in the equipment subsector.

BB
Switzerland

EXHIBIT IV-27

Information Services Market, Switzerland
1992 Forecast Data Base Reconciliation
$ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)		
Total Information Services Market	2,755	2,575	-180	-7	5,618	4,129	-1,489	-27	15	10
Processing Services	308	290	-18	-6	447	406	-41	-9	8	7
Turnkey Systems	638	600	-38	-6	1,323	981	-342	-26	16	10
Application Software	294	279	-15	-5	669	549	-120	-18	18	14
Systems Operations	48	37	-11	-23	103	81	-22	-21	16	17
Systems Integration	77	74	-3	-4	179	159	-20	-11	18	17
Professional Services	701	654	-47	-7	1,547	946	-601	-39	17	8
Network Services	154	137	-17	-11	413	311	-102	-25	22	18
System Software	535	504	-31	-6	937	697	-240	-26	12	7

Exhibit IV-27 shows the forecast reconciliation for Switerland, where software, services, and maintenance user spending in 1991 was 3% down from INPUT's 1991 forecast.

Other changes were caused by moving network management out of the network services sector and into systems operations, and the addition of two further subsectors—desktop services and applications management. As a result, systems operations appeared to grow while network services shrank, with little net change.

Forecast growth to 1996 was down from a CAGR of 15% in the 1991 report to 10% in the 1992 figures. This followed the lower economic growth prospects due to inflation growth. The professional services sector was the worst affected, with five-year growth forecasts down from 17%

CAGR in 1991 to only 8% CAGR in 1992. This reflects the falling demand for custom software development from an expected growth of 17% to only 7% as demand for packaged applications products rises.

CC

Taiwan

EXHIBIT IV-28

Information Services Market, Taiwan
1992 Forecast Data Base Reconciliation
$ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)		
Total Information Services Market	435	435	0	0	890	901	11	1	15	16
Processing Services	59	59	0	0	119	119	0	0	15	15
Turnkey Systems	63	63	0	0	104	117	13	13	11	13
Applications Software	48	48	0	0	120	118	-2	-2	20	20
Systems Operations	46	46	0	0	76	78	2	3	11	11
Systems Integration	16	16	0	0	36	36	0	1	18	18
Professional Services	97	97	0	0	192	189	-3	-2	15	14
Network Services	36	36	0	0	93	92	-1	-1	21	21
Systems Software	70	70	0	0	150	151	1	1	16	17

There were no significant variances to report between the 1991 and 1992 market forecast for Taiwan, as shown in Exhibit IV-28.

DD
United Kingdom

EXHIBIT IV-29

Information Services Market, United Kingdom 1992 Forecast Data Base Reconciliation $ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)		
Total Information Services Market	14,144	13,367	-777	-5	26,410	19,228	-7,182	-27	13	8
Processing Services	1,167	910	-257	-22	1,738	1,060	-678	-39	8	3
Turnkey Systems	2,594	2,368	-226	-9	4,569	3,234	-1,335	-29	12	6
Application Software	1,311	1,310	-1	-0	2,544	1,990	-554	-22	14	9
Systems Operations	460	880	420	91	1,243	2,656	1,413	114	22	25
Systems Integration	874	836	-38	-4	1,773	1,562	-211	-12	15	13
Professional Services	4,194	3,803	-391	-9	8,359	4,076	-4,283	-51	15	1
Network Services	1,408	1,190	-218	-15	2,951	2,120	-831	-28	16	12
System Software	2,136	2,070	-66	-3	3,204	2,530	-674	-21	8	4

Recession had already had the effect of limiting market growth in the U.K. by 1991, but even so there were a few sectors that saw major revisions, as shown in Exhibit IV-29. A reduction of 5% in the overall 1991 market size is largely accounted because INPUT overestimated the environmental services sector during 1991. The reduced five-year forecast from a CAGR of 13% to 8% resulted from the continued pessimism about economic recession both in Europe generally and in the U.K. in particular.

The processing services market size was revised down by 22% to match the new analysis of vendor market shares. Equipment services had been overstated significantly during 1991 due to some double counting as other service revenues got classified as equipment maintenance. The systems operation market was revised up, nearly doubling the 1991 market estimate as a result of a new analysis of the revenues of about 100 U.K. vendors. The forecast CAGR for systems operations was also increased from 22% to 25% as a result of optimism over government plans to outsource more services.

The professional services market was badly affected by recession, and market estimates were down 9% for the custom software development subsector. This was also the most severely impacted sector for growth, with CAGR down from 15% to 1% for the period to 1997.

EE
United States

EXHIBIT IV-30

Information Services Market, United States
1992 Forecast Data Base Reconciliation
$ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991Report ($M)	Variance from 1991Report (%)		
Total Information Services Market	110,781	110,058	-723	-1	196,936	191,675	-5,261	-3	12	1
Processing Services	18,274	18,088	-186	-1	26,639	26,371	-268	-1	8	8
Turnkey Systems	11,475	11,404	-71	-1	17,411	16,997	-414	-2	9	8
Applications Software	19,842	18,923	-919	-5	38,030	34,689	-3,341	-9	14	13
Systems Operations	8,300	8,644	344	4	17,818	17,805	-13	0	17	16
Systems Integration	7,683	7,887	204	3	17,394	15,879	-1,515	-9	18	15
Professional Services	17,757	17,601	-156	-1	27,892	26,744	-1,148	-4	9	9
Network Services	9,350	9,141	-209	-2	20,052	19,203	-849	-4	16	16
Systems Software	18,100	18,370	270	1	31,700	33,987	2,287	7	12	13

INPUT's forecast for 1991 showed a minor variance of -1% from actual expenditures for the total market, as shown in Exhibit IV-30. The -3% variation in the 1996 market forecast is attributable to a slight reduction in most 1996 market size estimates due to a slower than anticipated recovery for the U.S.

Variances for most delivery modes are within the 1% to 5% range, except for the 1996 forecasts for both applications software and systems integration. Both of these delivery modes reflect a 9% reduction in 1996 market size. The application software variance is attributable to the growing trend of bundling discounted applications software products on smaller platforms such as PCs and workstations, along with increasing competition in price pressures.

The systems integration delivery mode is affected at the federal level by growing budget constraints. These limits are most visible in the reductions in defense spending, but there are also overall concerns with federal budget reductions which are expected to occur as the result of the Clinton administration's attempts to reduce the federal deficit through a combination of spending cuts and tax increases. Uncertainties regarding changes in federal taxation for the private sector are also inhibiting expenditures in all delivery mode categories.

FF

Venezuela

EXHIBIT IV-31

Information Services Market, Venezuela 1992 Forecast Data Base Reconciliation $ Millions

Delivery Modes	1991 Market				1996 Market				91-96 CAGR per data 91 Rpt (%)	91-96 CAGR per data 92 Rpt (%)
	1991 Report (Fcst) ($M)	1992 Report (Actual) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)	1991 Report (Fcst) ($M)	1992 Report (Fcst) ($M)	Variance from 1991 Report ($M)	Variance from 1991 Report (%)		
Total Information Services Market	398	396	-2	-1	726	774	48	7	13	14
Processing Services	70	68	-2	-3	120	126	6	5	11	13
Turnkey Systems	44	44	0	0	70	95	25	36	10	17
Applications Software	110	110	0	0	210	219	9	4	14	15
Systems Operations	5	5	0	0	8	9	1	13	10	12
Systems Integration	11	11	0	0	20	21	1	5	13	14
Professional Services	85	85	0	0	165	175	10	6	14	16
Network Services	15	15	0	0	23	23	0	2	9	9
Systems Software	58	58	0	0	110	106	-4	-4	14	13

Variance between the two reporting periods for the 1991 estimate of expenditures was minor (less than 1%), as shown in Exhibit IV-31. The most significant change between the 1991 forecast and the 1992 forecast came in the area of turnkey systems, where INPUT's 1992 forecast projects a significant increase in expenditure due to the growing availability and affordability of turnkey offerings to support small to middle-sized firms.