8. WORLDWIDE MARKETS (WM)

Worldwide Markets

WM-1 INPUT

A Global Perspective

WM-2 INPUT

Large Enterprises Require Worldwide Information Systems

- Worldwide markets developing
- Responsiveness to customers
- Timely transfer of information
  - Tactical, competitive
  - Strategic

WM-3 INPUT

Globalized Information Systems Enterprise-wide Applications

- Material
  - Inventory control, JIT
  - Order entry (EDI)
  - MRP II, closed-loop systems

WM-4 INPUT

Globalized Information Systems Enterprise-wide Applications

- Financial
  - EFT, cash management
  - Financial consolidations
  - 24-hour financial markets
  - Pricing, cost analyses

WM-5 INPUT

Globalized Information Systems

- Electronic Commerce
  - EDI based
  - Trading community based
  - Changing how business is done

WM-38 INPUT

Globalized Information Systems Facilitators

- Telecommunications networks
- Support services
- Standards
- Worldwide vendor capabilities

WM-6 INPUT

Globalized Information Systems Facilitators

- Emerging communications standards
  - X.400, X.500, EDIFACT
  - OSI, ONA
- Industry-specific data bases
- Simultaneous language translation

WM-7 INPUT

Globalized Information Systems Facilitators

- Network capabilities
  - Graphics transmission
  - Facsimile (broadcast, store and forward)
  - EDI

WM-8 INPUT

Globalization Benefits from Emerging Standards

- Consortia-driven and de-facto:
- UNIX—gaining acceptance rapidly
- CASE (eventually)

WM-9 INPUT

Globalization Benefits from Emerging Standards

- RDBMS
  - Oracle, DB2, others
- SAA
- Graphical user interfaces
- Communications protocols

WM-10 INPUT

Counter-Trends to Globalization

- Time required to build relationships
- Longer lead time to profits
- Language barriers
  - Documentation

WM-11 INPUT

Countertrends to Globalization

- Cultural "non-fits"
- Preference for local products and services
- Focus on narrow, niche markets
- National restrictions

INPUT

WM-12

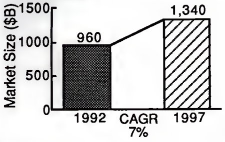
Information Services Market Penetration Worldwide

	Market ($B)	
	1991	1996
Information Systems	900	1,300
Information Services	230	450
Penetration	26%	35%

INPUT

WM-97

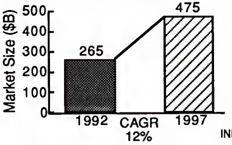
Worldwide Information Technology Expenditures



INPUT

WM-98a

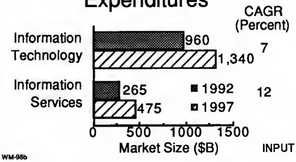
Worldwide Information Services Market, 1992-1997



INPUT

WM-15

Worldwide IT vs. IS Expenditures



INPUT

WM-98b

Worldwide Information Services Industry

Driving Forces

- Worldwide recessionary economy
- Information Society
- Shifting information technology foundation
- Expanding role of general management

INPUT

WM-99a

Worldwide Information Services Industry

Driving Forces

- Integrated solutions
- Industry-specific solutions
- International standards
- Information services vendor capabilities

INPUT

WM-99b

Worldwide Information Services Industry

Revolutions

- Downsizing
- Outsourcing
- Re-engineering
- Networking and Open Systems

INPUT

WM-100

Worldwide Information Services Industry

Market Considerations

- Total potential 3 to 4 times current size
- Worldwide vendor capabilities becoming critical

INPUT

WM-101a

Worldwide Information Services Industry

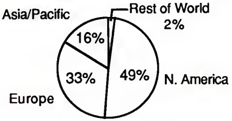
Market Considerations

- Larger vendors increasing market share
- Outsourcing favoring larger vendors
- Revolutions will cause the unexpected

INPUT

WM-101b

1991 Worldwide Information Services Market by Region

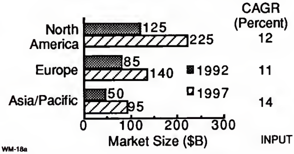


1991 = $234 billion

INPUT

WM-17

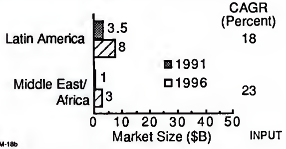
Information Services Worldwide Forecast by Regional Area



INPUT

WM-18a

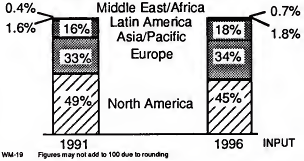
Worldwide Information Services Market by Region



INPUT

WM-18b

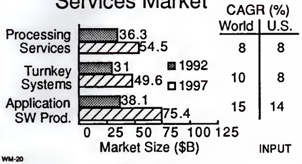
Worldwide Market Summary Market Distribution



INPUT

WM-19 Figures may not add to 100 due to rounding

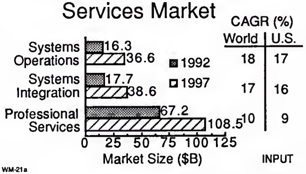
Worldwide Information Services Market



INPUT

WM-20

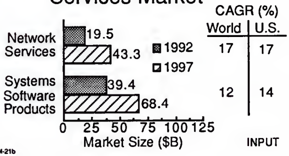
Worldwide Information Services Market



INPUT

WM-21a

Worldwide Information Services Market



INPUT

WM-21b

Worldwide Market

Processing Services

	'91 ($B)	'96 ($B)	CAGR (%)
North America	18.9	27.4	8
Europe	9.4	13.3	7
Asia/Pacific	6.3	10.2	10
Latin America	0.3	0.5	8
Mid East/Africa	0.3	0.6	14

INPUT

WM-39

Worldwide Market

Turnkey Systems

	'91 ($B)	'96 ($B)	CAGR (%)
North America	11.7	17.8	9
Europe	12.3	24.3	15
Asia/Pacific	4.4	8.1	13
Latin America	0.5	1.0	16
Mid East/Africa	0.1	0.2	12

WM-40 INPUT

Worldwide Market

Applications SW Products

	'91 ($B)	'96 ($B)	CAGR (%)
North America	20.5	39.3	14
Europe	9.1	20.9	18
Asia/Pacific	2.9	7.0	19
Latin America	1.0	2.8	22
Mid East/Africa	0.3	1.1	30

WM-41 INPUT

Worldwide Market

Systems Operations

	'91 ($B)	'96 ($B)	CAGR (%)
North America	8.5	18.3	16
Europe	1.5	3.8	21
Asia/Pacific	3.2	7.9	20
Latin America	0.2	0.4	12
Mid East/Africa	-	-	-

WM-42 INPUT

Worldwide Market

Systems Integration

	'91 ($B)	'96 ($B)	CAGR (%)
North America	8.2	18.6	18
Europe	3.4	8.1	19
Asia/Pacific	3.2	8.5	21
Latin America	0.1	0.2	13
Mid East/Africa	-	-	11

WM-43 INPUT

Worldwide Market

Professional Services

	'91 ($B)	'96 ($B)	CAGR (%)
North America	18.7	29.8	10
Europe	24.7	51.9	16
Asia/Pacific	12.7	31.0	20
Latin America	0.6	1.5	19
Mid East/Africa	0.3	1.1	30

WM-44 INPUT

Worldwide Market

Network Services

	'91 ($B)	'96 ($B)	CAGR (%)
North America	9.5	20.5	17
Europe	4.7	11.6	20
Asia/Pacific	1.6	4.4	22
Latin America	0.1	0.3	14
Mid East/Africa	-	-	-

WM-45 INPUT

Worldwide Market

Systems SW Products

	'91 ($B)	'96 ($B)	CAGR (%)
North America	18.5	32.4	12
Europe	12.6	21.6	11
Asia/Pacific	2.7	6.3	18
Latin America	0.7	1.7	20
Mid East/Africa	-	0.1	10

WM-46

INPUT

Worldwide Information Services Market by Country

Country	1991 Market	
	$ Billions	Percent
United States	111	47
Japan	32	14
France	18	8

WM-22a

INPUT

Worldwide Information Services Market by Country

Country	1991 Market	
	$ Billions	Percent
Germany	14	6
United Kingdom	14	6
Rest of World	45	19
Total	234	100

WM-22b

INPUT

Building a Global Capability

- Andersen Consulting
- CAP Gemini Sogeti
- Infonet
- Digital
- CSC

WM-23

INPUT

Acquiring a Global Capability

- CSC
- EDS
- CAP Gemini Sogeti
- DEC

WM-24

INPUT

Leading Vendors

Worldwide Information Services

Rank	Vendor/ Country	1990 Rev. ($B)	Market Share (%)
1	IBM (U.S.)	13.5	6.4
2	EDS (U.S.)	2.9	1.4
3	DEC (U.S.)	2.8	1.3
4	NTT (Japan)	2.5	1.2

WM-47

INPUT

Leading Vendors

Worldwide Information Services

Rank	Vendor/ Country	1990 Rev. ($B)	Market Share (%)
5	Reuters (U.K.)	2.5	1.2
6	Andersen (U.S.)	2.2	1.0
7	Siemens-Nixdorf (Germany)	1.8	0.9

WM-48

INPUT

Leading Vendors

Worldwide Information Services

Rank	Vendor/ Country	1990 Rev. ($B)	Market Share (%)
8	CSC (U.S.)	1.7	0.8
8	CAP Gemini Sogeti (France)	1.7	0.8
9	Microsoft (U.S.)	1.4	0.7

WM-49

INPUT

Leading Vendors

Worldwide Information Services

Rank	Vendor/ Country	1990 Rev. ($B)	Market Share (%)
10	Computer Assoc. (U.S.)	1.3	0.6
11	Oracle	1.1	0.5
12	Bull (France)	0.9	0.4

WM-50a

INPUT

Leading Vendors

Worldwide Information Services

Rank	Vendor/ Country	1990 Rev. ($B)	Market Share (%)
12	TRW (U.S.)	0.9	0.4
12	First Fin'l. Mgmt. (U.S.)	0.9	0.4
13	AMEX (U.S.)	0.8	0.3

WM-50b

INPUT

Leading Vendors

Worldwide Information Services

Rank	Vendor/ Country	1990 Rev. ($B)	Market Share (%)
14	Nomura Res. (Japan)	0.7	0.3
14	CSK (Japan)	0.7	0.3
15	Sema	0.6	0.3

WM-50c

INPUT

Leading Vendors

Worldwide Information Services

Rank	Vendor/ Country	1990 Rev. ($B)	Market Share (%)
15	Japan Res. Inst. (Japan)	0.6	0.3
15	Hitachi Info. Sys. (Japan)	0.6	0.3

WM-50d

INPUT

Canadian Market Business Environment

- Recession
- Impact of free trade
- Low productivity

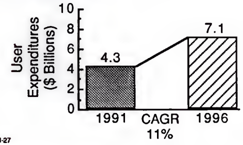
WM-26a INPUT

Canadian Market Business Environment

- Federal budget and taxes
- Need for improved business systems and telecommunications
- Limitations on funding automation

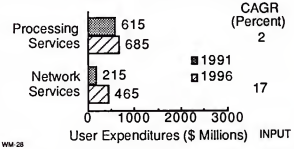
WM-26b INPUT

Canadian Information Services Market, 1991-1996



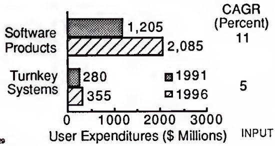
WM-27 INPUT

Canadian Information Services Market,1991-1996



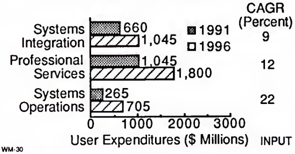
WM-28 INPUT

Canadian Information Services Market,1991-1996



WM-29 INPUT

Canadian Information Services Market,1991-1996



WM-30 INPUT

Canadian Market Key Technology Needs

- Integration is key
- Growing DBMS use
- Local/wide-area networking

INPUT

WM-31

Canada

Leading Information Services Vendors, 1991

Vendor	Market Share (%)
IBM	>10
ISM	>6
DEC	>4
SHL	>3

INPUT

WM-117

Canada

Leading Information Services Vendors, 1991

Vendor	Market Share (%)
Andersen	<2
CGI	<2
DMR	<2

INPUT

WM-118

Canada

Leading Information Services Vendors, 1991

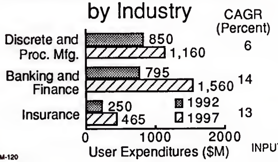
Vendor	Market Share (%)
EDS	<2
IST	<2
LGS	<2

INPUT

WM-119

Canada

Information Services Market by Industry

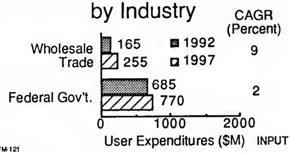


INPUT

WM-120

Canada

Information Services Market by Industry



INPUT

WM-121

6/17/92

10

Canada

Key Technology Trends

- Relational data base technology
- Network expansion
- Client/server introduction
- Expanded use of EDI
- Integration of applications

INPUT

WM-32

Canada

Forces Driving Information Services Expenditures

Factor	User Rank	Vendor Rank
Cost savings	1	4
Skills need	2	8
Productivity	3	1

INPUT

WM-35a

Canada

Forces Driving Information Services Expenditures

Factor	User Rank	Vendor Rank
Response to business need	4	3
Competition	5	2
Growth	6	-

INPUT

WM-35b

Canada

Forces Driving Information Services Expenditures

Factor	User Rank	Vendor Rank
Distribution	-	5
Quality	-	6
Outsourcing	-	7

INPUT

WM-35c

Canada

Ranking of Technology Importance

Factor	Average User Rank	Average Vendor Rank
Relational data base	1	-
Distributed data base	2	-
LAN	3	4
Client/server	4	1

INPUT

WM-34a

Canada

Ranking of Technology Importance

Factor	Average User Rank	Average Vendor Rank
Network	5	3
EDI	6	5
Electronic mail	7	-
Open systems	8	2

INPUT

WM-34b

Canada

Forces Inhibiting Outside Services Expenditures

Factor	Average Rank: User	Average Rank: Vendor
Economy (or recession)	1	1
Higher cost of using services	2	-
Expense constraints	3	2

WM-36a

INPUT

Canada

Forces Inhibiting Outside Services Expenditures

Factor	Average Rank: User	Average Rank: Vendor
Government regulation	4	-
Impact on user organization	5	-
Downsizing	-	4

WM-36b

INPUT

Canada

Forces Inhibiting Outside Services Expenditures

Factor	Average Rank: User	Average Rank: Vendor
User doesn't have enough knowledge to utilize vendor	-	3
Loss of control by user	-	5

WM-36c

INPUT

Canada

Conclusions

- Recession and trade agreement continues to have a negative effect
- Users are highly cost conscious
- Financing diff. limit project activities
- Present application systems and networks limit business

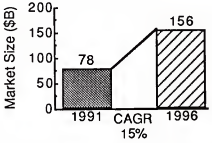
WM-37

INPUT

Europe

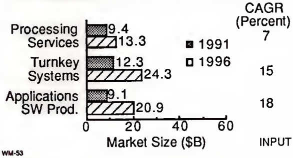
WM-51 INPUT

European Information Services Market



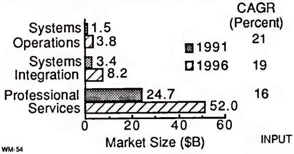
WM-52 INPUT

European Information Services Market



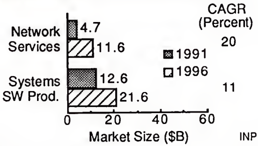
WM-53 INPUT

European Information Services Market



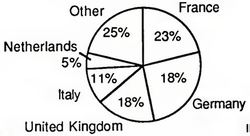
WM-54 INPUT

European Information Services Market



WM-55 INPUT

European Info. Svcs. Market Distribution, 1991



WM-56 INPUT

Information Services Markets by Country

Country	Market ($B) 1991	Market ($B) 1996	CAGR (%)
France	18.1	36.1	15
Germany	14.4	30.3	16
United Kingdom	14.2	26.4	13
Italy	8.4	16.5	15

WM-57

INPUT

Information Services Markets by Country

Country	Market ($B) 1991	Market ($B) 1996	CAGR (%)
Netherlands	4.6	9.2	15
Sweden	3.4	6.6	15
Spain	2.7	6.3	18
Switzerland	2.7	5.6	15

WM-58

INPUT

Information Services Markets by Country

Country	Market ($B) 1991	Market ($B) 1996	CAGR (%)
Belgium	2.2	4.7	18
Denmark	1.8	3.2	12
Norway	1.6	3.0	13

WM-59a

INPUT

Information Services Markets by Country

Country	Market ($B) 1991	Market ($B) 1996	CAGR (%)
Finland	1.3	2.6	14
Austria	1.2	2.3	14
Other Europe	3.7	6.3	14

WM-59b

INPUT

European Information Services Markets by Industry

	Market ($B) 1991	Market ($B) 1996	CAGR (%)
Distribution	4.1	7.1	12
Banking & Finance	15.3	31.0	15

WM-60

INPUT

European Information Services Markets by Industry

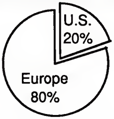
	Market ($B) 1991	Market ($B) 1996	CAGR (%)
Insurance	3.8	8.4	17
Discrete Mfg.	10.5	22.0	16
Process Mfg.	4.4	10.2	18

WM-61

INPUT

Vendors in the Western European Market, 1991

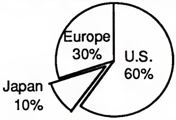
Software and Services Market—$77B



WM-78 INPUT

Vendors in the Western European Market, 1991

Computer Equipment Market—$60B



WM-79 INPUT

Leading Vendors in Europe

Rank	Vendor	Country	Info. Svcs. Rev. '90 ($M)
1	IBM	U.S.	4,900
2	Siemens-Nixdorf	Germany	1,690
3	CAP Gemini Sogeti	France	1,650
4	Reuters	U.K.	1,430

WM-80 INPUT

Leading Vendors in Europe

Rank	Vendor	Country	Info. Svcs. Rev. '90 ($M)
5	Digital	U.S.	1,220
6	Bull	France	795
7	Andersen Consulting	U.S.	705

WM-81 INPUT

Leading Vendors in Europe

Rank	Vendor	Country	Info. Svcs. Rev. '90 ($M)
8	Unisys	U.S.	720
9	Microsoft	U.S.	655
10	Sema Group	France	640

WM-82 INPUT

Europe

Driving Forces

- Creation of single market
- Vendor consolidation for single market
- Privatization drives new investment

WM-64 INPUT

Europe

Driving Forces

- Increasing acceptance of packaged software
  - Penetration less than U.S.
- Acceptance of standards
  - UNIX, etc. faster than U.S.

WM-65 INPUT

Europe

Inhibiting Factors

- Continuing economic downturn
- Languages and cultures

WM-66 INPUT

Single European Market Many Trade Barriers

- Languages, cultures, currencies
- EEC + EFTA
- Eastern countries

WM-67 INPUT

Single European Market One Strategy or Many

- Pan European vendors?
- Developed vs. undeveloped areas
- Strong open systems trend

WM-68 INPUT

Europe

Areas of Opportunity

- UNIX
  - Software products
  - Professional services
- Systems operations
- Network operations
- Desktop services

WM-69 INPUT

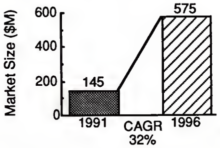
Europe

Areas of Opportunity

- Applications software products
- Professional services
  - Software maintenance
  - New technology training
  - New technology services

WM-70 INPUT

Eastern European Information Services Market



INPUT

WM-71

Eastern European Information Services Market

	Market ($M)		
	1992	1997	CAGR (%)
Processing Services	14	27	14
Turnkey Systems	18	59	27
Applications SW Prod.	69	146	16

INPUT

WM-72a

Eastern European Information Services Market

	Market ($M)		
	1992	1997	CAGR (%)
Systems Operations	8	50	44
Systems Integration	10	151	73

INPUT

WM-72b

Eastern European Information Services Market

	Market ($M)		
	1992	1997	CAGR (%)
Professional Services	27	63	18
Systems SW Prod.	35	128	30
Network Services	2	17	53

INPUT

WM-73

Eastern Europe

Driving Forces

- Major change in political environment
- Increased free world aid
- Industrial modernization
- Privatization

INPUT

WM-74

Eastern Europe

Inhibitors

- Economic status
- Lack of local skills
- Small computer installed base
- Currency weakness
- Languages

INPUT

WM-75

Eastern Europe

Market Entry Considerations

- Small markets—many markets
- Small computer installed base
- PC products favored
- Support service complications
- Long-term commitment

WM-76 INPUT

Eastern Europe

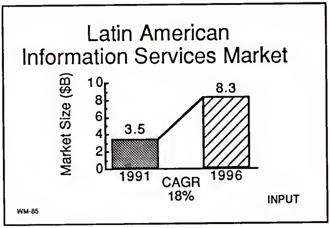
Areas of Opportunity

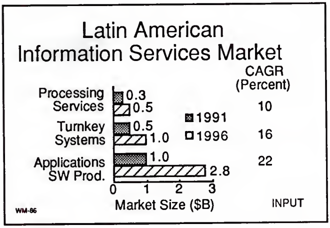
- Education & training
- Local agent business development
- Turnkey systems
- National and local government
- Professional services—all kinds

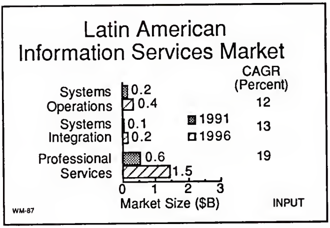
WM-77 INPUT

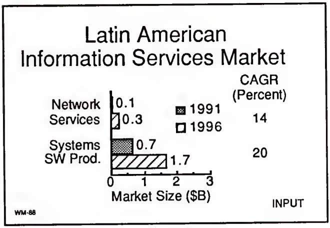
Latin America

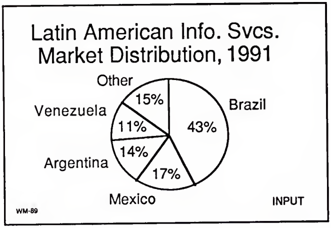
WM-84 INPUT











Latin America

Driving Forces

- Public sector spending
  - Education
- Improving labor skills
- Mini/PC growth
- Privatization
- Political stability improving

INPUT

WM-90

Latin America

Inhibiting Factors

- Inflation
- Protectionism
- Stalled economies
- Inflation
- Software licensing rules

INPUT

WM-91

Latin America

Market Entry Considerations

- Vendor stability—foreign and local
- Long-term view essential
- Local representation required
- Product ownership issues
- Improving software licensing laws

INPUT

WM-92

Latin America

Areas of Opportunity

- Office Productivity
- Turnkey systems—mini & PC
- Education & training
- Professional services—tied to software products
- New technology—transfer of skills

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WM-93

Latin American Info. Svcs. Markets by Country

Country	'91 ($B)	'96 ($B)	CAGR (%)
Brazil	1.5	3.7	20
Mexico	0.6	1.4	19
Argentina	0.5	1.1	17
Venezuela	0.4	0.7	13
Other	0.5	1.4	20

INPUT

WM-94

Latin America

Applications Software Products Market Forecast

	Market ($B)		
	1990	1995	CAGR (%)
Brazil	0.3	1.0	24
Mexico	0.1	0.4	27
Argentina	0.1	0.3	24

INPUT

WM-95

Latin America

Applications Software Products Market Forecast

	Market ($B) 1990	Market ($B) 1995	CAGR (%)
Venezuela	0.1	0.2	20
Other	0.2	0.6	25

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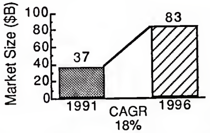
WM-96

Asia/Pacific

INPUT

WM-102

Asian/Pacific Information Services Market



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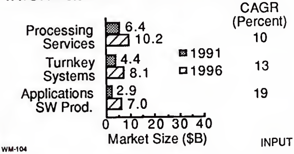
WM-103

Asian/Pacific Information Services Market



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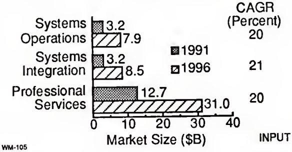
WM-104

Asian/Pacific Information Services Market



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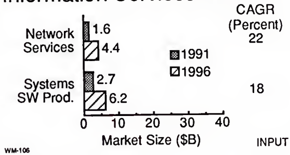
WM-105

Asian/Pacific Information Services Market



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WM-106

Asia/Pacific

Market Considerations

- Many small markets
- One large market—Japan
- Local representation mandatory
- Language issue for software
- Copyright exposures
- Australia/New Zealand more open

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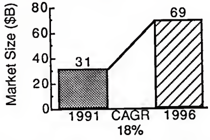
WM-107

Japan

INPUT

WM-108

Japanese Information Services Market



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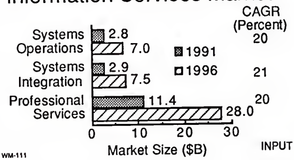
WM-109

Japanese Information Services Market

INPUT

WM-110

Japanese Information Services Market



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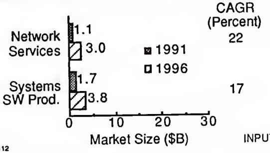
WM-111

Japanese Information Services Market



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WM-112

Japan

Leading Information Services Vendors, 1991

Vendor	Revenue ($B)	Market Share (%)
NTT Data	2.9	8
Nomura Res. Inst.	1.0	2
Hitachi Info. Sys.	0.8	2

INPUT

WM-113a

Japan

Leading Information Services Vendors, 1991

Vendor	Revenue ($B)	Market Share (%)
CSK	0.7	2
Hitachi SW Engr.	0.7	2
Japan Res. Inst.	0.6	2

INPUT

WM-113b

Japan

Leading Information Services Vendors, 1991

Vendor	Revenue ($B)	Market Share (%)
Quick	0.55	2
Toyo Info. Sys.	0.5	1
INTEC	0.5	1

INPUT

WM-113c

Japan

Driving Forces

- Global market objectives
- Increasing competition
- Increased interest in outsourcing
- Government policies
- New competitors

INPUT

WM-114

Japan

Inhibiting Factors

- Very large systems projects
- Software development capabilities
- Trade friction
- Language
- Protectionism

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WM-115

Japan

Market Considerations

- Long-term investment required
- Japan-specific products needed
- Value-added products essential
- Unique personal computers
- Use distributor approach

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WM-116