

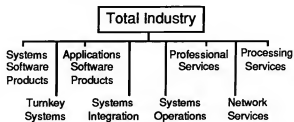
7. INFORMATION SERVICES
INDUSTRY TRENDS (IS)

Information Services Industry Trends

IS-1

INPUT

Information Services Industry Structure



IS-2

INPUT

Information Services Market

- Major Trends
 - Slow rebound from U.S. recession, 1991-1992
 - Information services growth rate—12% to 15% per year

IS-3a

INPUT

Information Services Market

- Major Trends
 - Sheer market size causes lower growth rates
 - International markets grow more rapidly

IS-3b

INPUT

Information Services Market

- Major Trends
 - Growing acceptance of standards, open systems
 - Systems complexity fuels need for vendor expertise

IS-4a

INPUT

Information Services Market

- Major Trends
 - Introduction of new technology drives market growth, but user "absorption" capability limits growth

IS-4b

INPUT



Information Services Market

- Major trends
 - Shift to client/server gaining momentum
 - Outsourcing acceptance increasing

IS-4c

INPUT

Information Services Market

- Major Trends
 - Globalization of information services creates market opportunities
 - Vendor consolidation continues
 - Profit opportunities shift from equipment to services, software

IS-5

INPUT

Key Trends for the 1990s

- Products and services markets blurring
- Changing market structure
- Internationalization
- Standards
- Industry market focus

IS-6

INPUT

Products and Services Markets Blurring

- Traditional competitors are changing:
 - Traditional *product* companies adding services
 - Traditional *service* companies adding products

IS-7a

INPUT

Products and Services Markets Blurring

- Traditional competitors are changing:
 - Consulting companies adding development services

IS-7b

INPUT

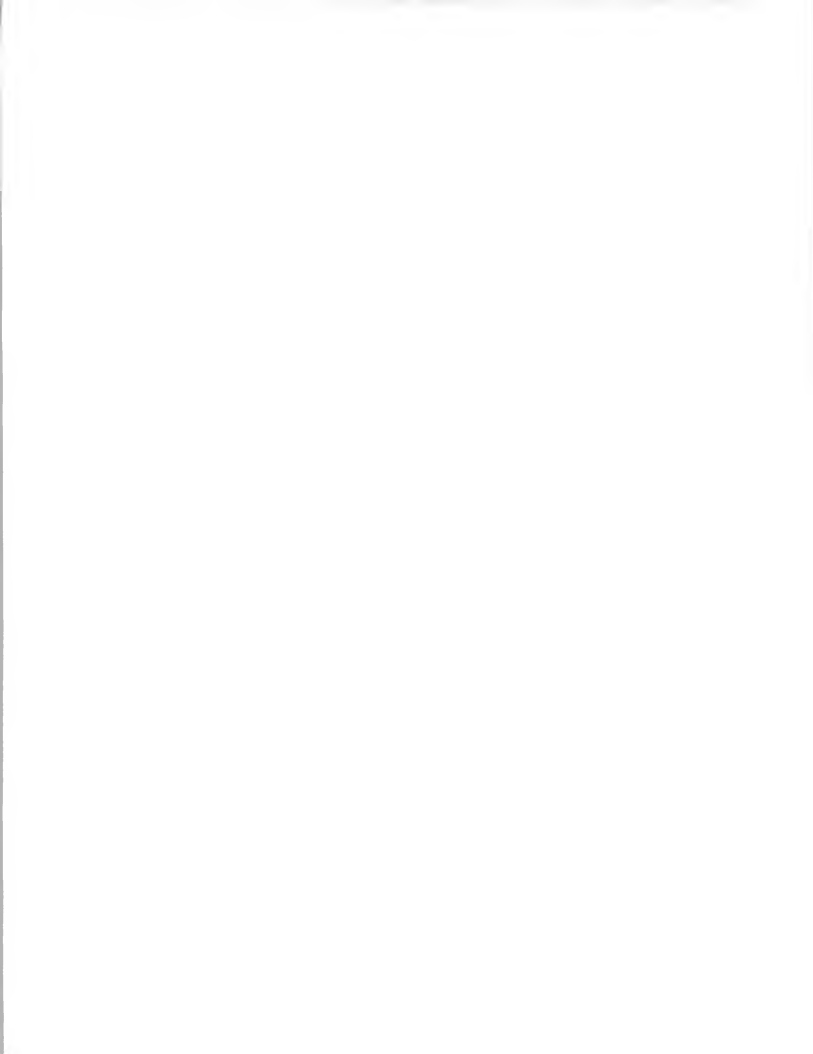
"Blurring" of Offerings Reflects Changing Market Structure

New technologies will create additional changes

- Image processing
- Integrated voice/data
- High-performance digital communications

IS-8a

INPUT



**"Blurring" of Offerings Reflects
Changing Market Structure**

New technologies will create additional changes

- Object-oriented programming
- Client/server-based application

IS-9b

INPUT

**"Blurring" of Offerings Reflects
Changing Market Structure**

- *Systems integration* continues to emerge
- Interorganization services becoming critical

IS-9a

INPUT

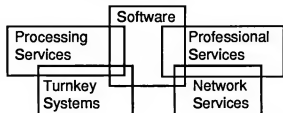
**"Blurring" of Offerings Reflects
Changing Market Structure**

- Computer companies emphasizing communications
- Communications companies adding computer units

IS-9b

INPUT

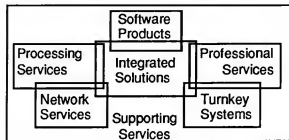
**IS Market Structure—1980s
INPUT's View**



IS-10

INPUT

**Information Services Market Structure—1990s
Emphasis on Supporting Services**



IS-11

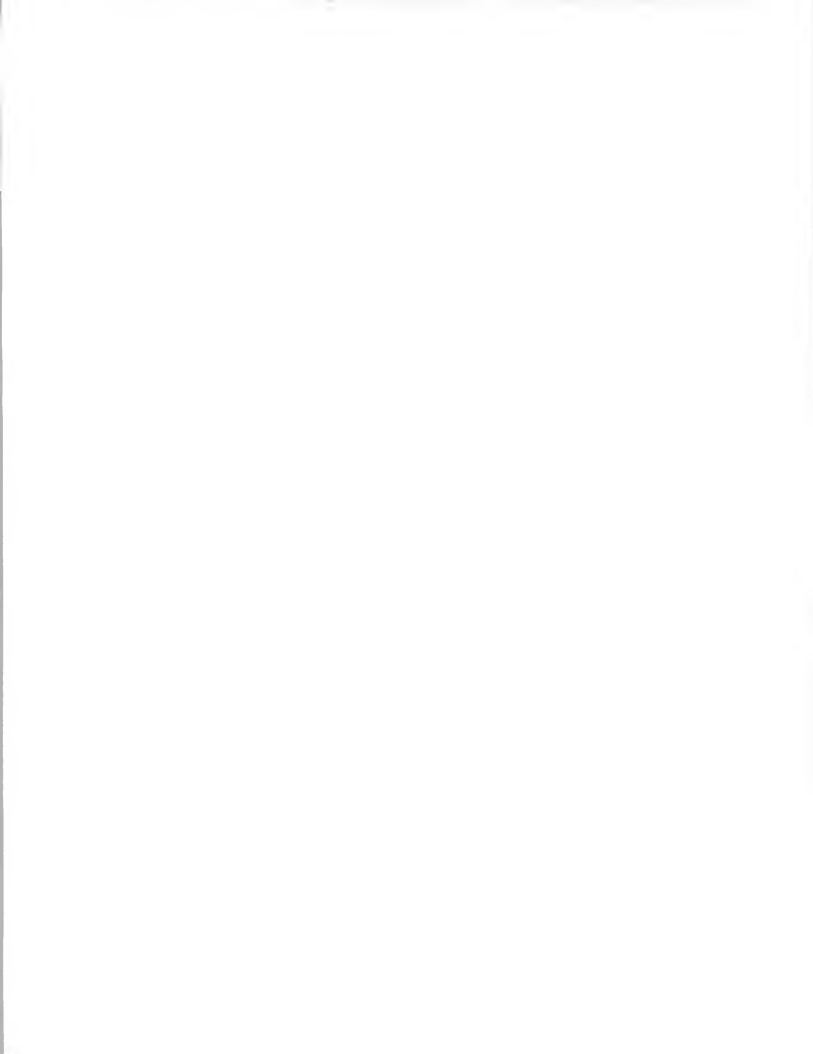
INPUT

**Internationalization
A Dominant Trend in the '90s**

- Collapsing market barriers
 - Europe (East and West)
 - North America

IS-14a

INPUT



Internationalization

A Dominant Trend in the '90s

- Growing market interest/participation
 - Pacific Rim
- Internationalization of buyer requirements

IS-14b

INPUT

Internationalization

- U.S. computer manufacturers ahead
- U.S. information services companies falling behind
- Competition coming to U.S.:
 - CAP Gemini Sogeti
 - Sema Group
- Japanese vendor interest

IS-15

INPUT

Standards

- Evolving, Conflicting
- Problems

IS-16

INPUT

Standards

Driven by:

- Internationalization
- Buyer's integration requirements
- Large providers/coalitions

IS-17

INPUT

Standards

- *Focused on:*
 - Technical interface
 - Applications interface
 - Human interface, HUMATICS™

IS-18

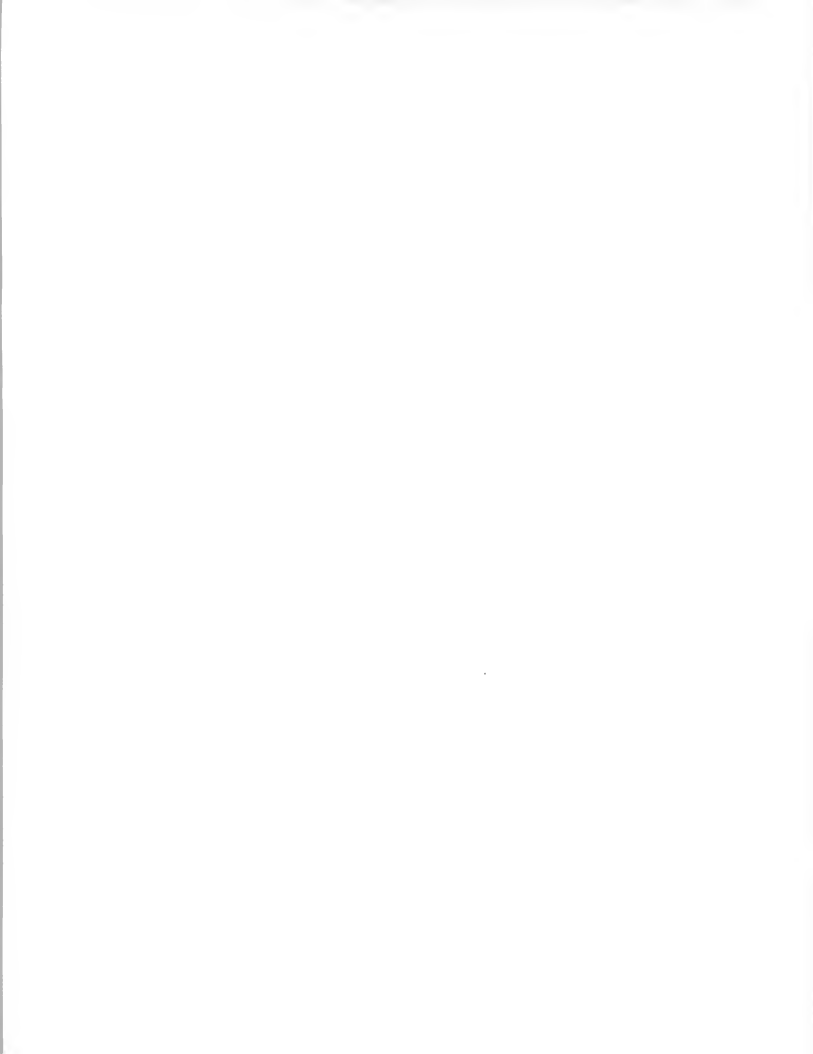
INPUT

Standards

- OSF vs. UNIX int'l
- MCA vs. EISA
- Graphical interfaces
- OSI
- X/OPEN
- SAA
- SQL

IS-19

INPUT



Standards Are Evolving Long-Range Implications

- Diminishing importance of proprietary operating systems
- Systems integration a key to success
- Ease of program customization

IS-23

INPUT

Standards Are Evolving Long-Range Implications

- More comprehensive global networks of diverse computers
- Graphics-based user interface
- Fewer hardware manufacturers

IS-24

INPUT

Standards Inhibitors

- Application interface confusion
 - RDBMS vendors
 - Computer vendors

IS-25a

INPUT

Standards Inhibitors

- Enterprise architecture competition
 - SAA (IBM)
 - NAS (DEC)
 - New Wave (HP)
 - Other independents

IS-25b

INPUT

Consolidation in the Industry

- Dominant industry phenomenon in the 1990s:
 - A smaller number of larger vendors
 - Providing a broader range of integrated offerings
 - Supported by smaller niche vendors
 - Targeted at providing solutions

IS-26

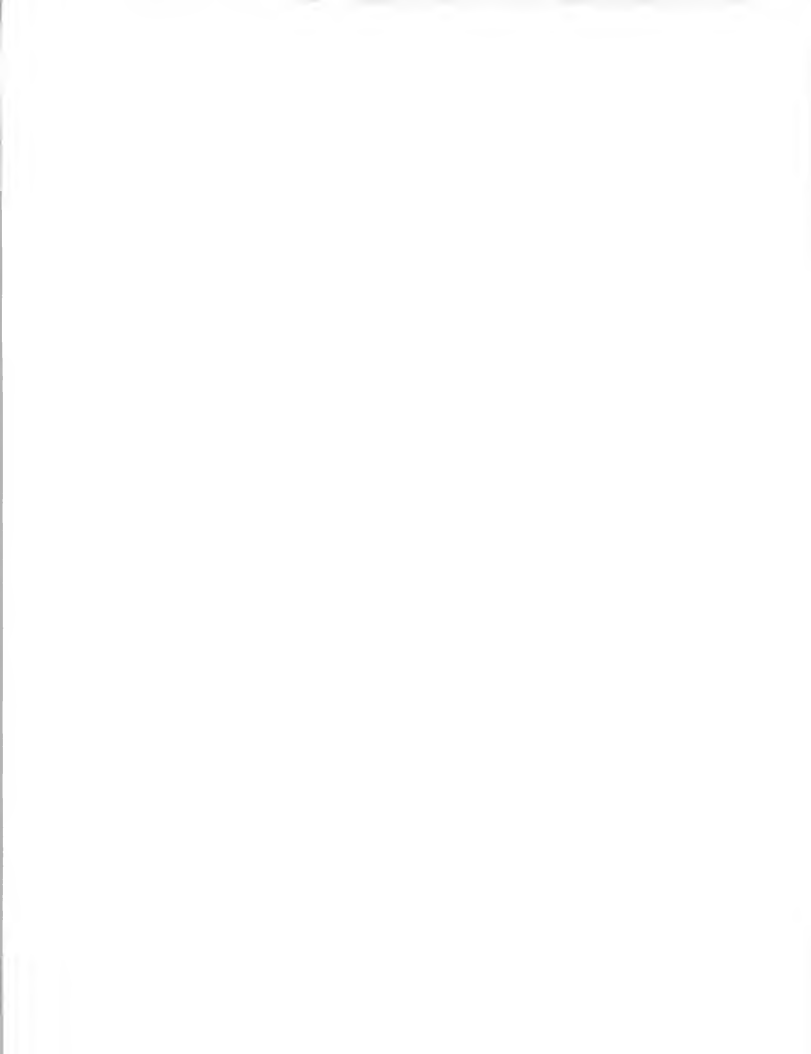
INPUT

Acquisition Trends

- Pace of acquisitions slowed recently
- 'Wait and see' attitude
- Highest level of activity:
 - Software products
 - Professional services
 - Systems integration

IS-26

INPUT



Acquisition Trends

- Strong interest in processing services companies—outsourcing factor
- Interest in larger companies

IS-29

INPUT

Issues Addressed by Acquisitions in the Information Services Industry

- Declining information services IPOs
- Declining interest of venture capitalists
- Maturing market growth rates

IS-30

INPUT

Issues Addressed by Acquisitions in the Information Services Industry

- Increasing competition from large companies
- Globalization of competition
- Shortening product life cycles/higher product development costs

IS-31

INPUT

Issues Addressed by Acquisitions in the Information Services Industry

- Product and services redundancies
- Lack of "breakthrough" (high growth) technologies

IS-32a

INPUT

Issues Addressed by Acquisitions in the Information Services Industry

- "Critical Mass" issues in both product development and marketing
- Capital constraints

IS-32b

INPUT

Acquisition Process

- Provides capital from 'outside' sources
 - Growth still seen in information services
 - Significant resources available
 - Minority positions lower risk

IS-33

INPUT

Strategic Alliances

- Accelerating pace of alliance activity
 - Systems integration/professional services/CASE partnerships
- Equity (10-15%) positions vendors
 - Large systems companies—IBM
 - Projected general trend of the 1990s
- Problems of alliance management

IS-34

INPUT

Summing It Up

- Broadening product strategies
 - Emphasis on "total solution"
 - Focus on quality and service
- Accomplished through:*
- Self-funded expansion
 - Consolidation—partnering/acquisitions

IS-35

INPUT

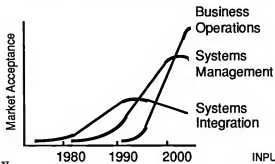
Systems Management

- Market of the 1990s
- Evolution and revolution
- Offerings to become mix of
 - Information technology
 - Professional expertise
 - Business execution

IS-36

INPUT

Outsourcing Market Waves



IS-37

INPUT

Business Operations Market

- Potential market 2 to 5 times information systems expenditures
- Contractors will show reduction in overall costs of 25% or more

IS-38

INPUT

Business Operations Examples

- Insurance claims processing
- Telephone company yellow pages operation
- Credit card operations
- Coupon processing for retailers
- Fulfillment for direct marketing

IS-39

INPUT

U.S. IS Industry Conclusions

- Slower growth in near term
- Shift to broad-based services zones
- Large services vendors grow fastest
- Software products—turmoil continues

IS-40

INPUT

Information Services Industry, 1980 vs. 1990

Difference	Implication
Five times as big Many large vendors	Slowing growth Consolidation and dominance
Stronger vendors	Greater reliance by user

IS-41

INPUT

Information Services Industry, 1980 vs. 1990

Difference	Implication
Willingness to outsource operations	Processing services shifts to systems operations
More technological alternatives	More services required to integrate

IS-42

INPUT

Information Services Industry, 1980 vs. 1990

Difference	Implication
Greater variety of services	Changing distribution channels
Worldwide orientation	Breadth and complexity of service offerings
Many small vendors	Alliances to succeed

IS-43

INPUT

Information Services Industry—What It Does

Provides services and products to develop, implement and operate information technology-based systems.

IS-44

INPUT

Processing Services/ Systems Operations

- 24% of industry
- Alternatives to internal investment
- Specialized services—payroll
- Services to specific industries—banking
- Worldwide capabilities desirable

IS-45

INPUT

Network Services

- 8% of market
- Network applications—services that link organizations
 - Electronic data interchange
 - Electronic mail
 - Network management
 - Foundation for electronic commerce

IS-46

INPUT

Network Services

- Electronic information services—
On-line access to public information
 - News services
 - Securities, credit
 - Industry information

IS-47

INPUT

Professional Services/ Systems Integration

- 23% of industry
- Alternative to internal employment
- Access to skills & technology
- Solutions oriented services
- Developer of IT skills for U.S.

IS-48

INPUT

Applications Software Products

- 18% of industry
- Products to manage a business
- Products to improve personal productivity
- International markets

IS-49a

INPUT

Turnkey Systems

- 10% of market
- Software plus hardware purchase
- Channel for applications software products
- Vendors add professional services

IS-49b

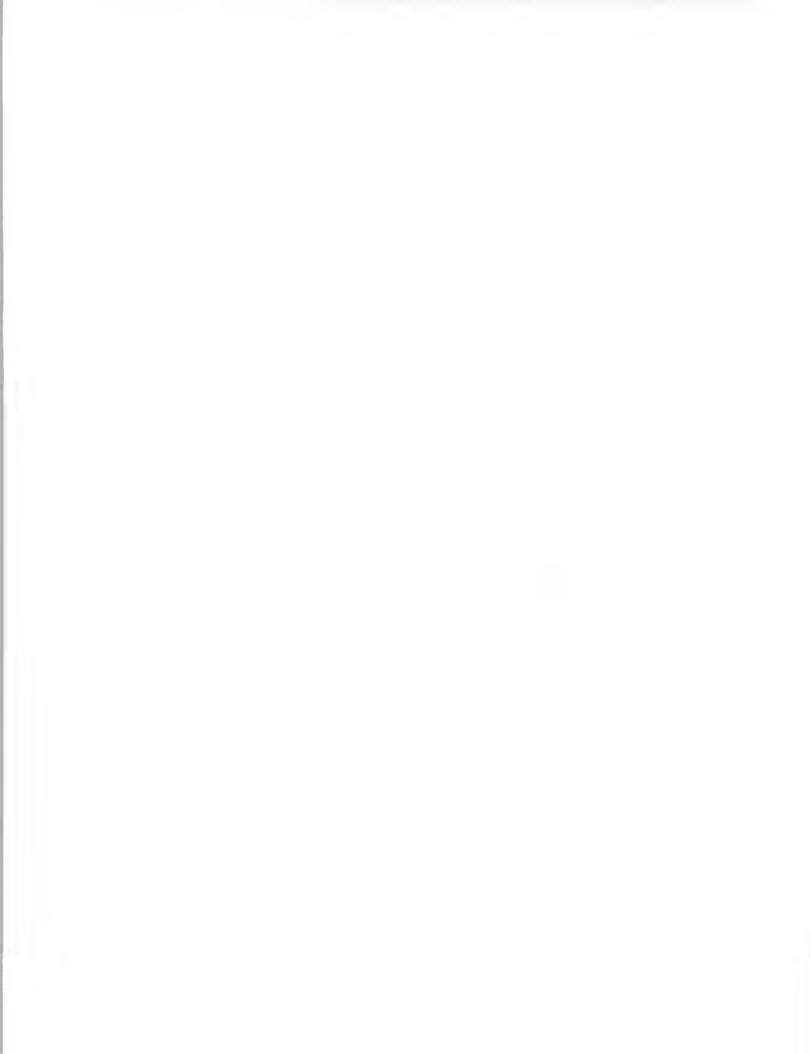
INPUT

Systems Software Products

- 16% of industry
- Tools that support computer operation
- Products to create application systems
- Basis for U.S. leadership

IS-50

INPUT



U.S. Information Services Industry—Importance

- International leadership
- Outgrows the economy—2 to 3 times
- Developer of people skills
- Source of competitive strength

IS-51

INPUT

U.S. Information Services Industry

Sector	No. of Companies
Software products	2,900
Turnkey systems	2,500
Professional services/ Systems integration	1,800

IS-52a

INPUT

U.S. Information Services Industry

Sector	No. of Companies
Processing services/ Systems operations	3,500
Network services	500
Total	11,200

IS-52b

INPUT

U.S. Information Services Industry 1991-1996 Outlook

IS-53

INPUT

Maturity or A New Beginning?

IS-54

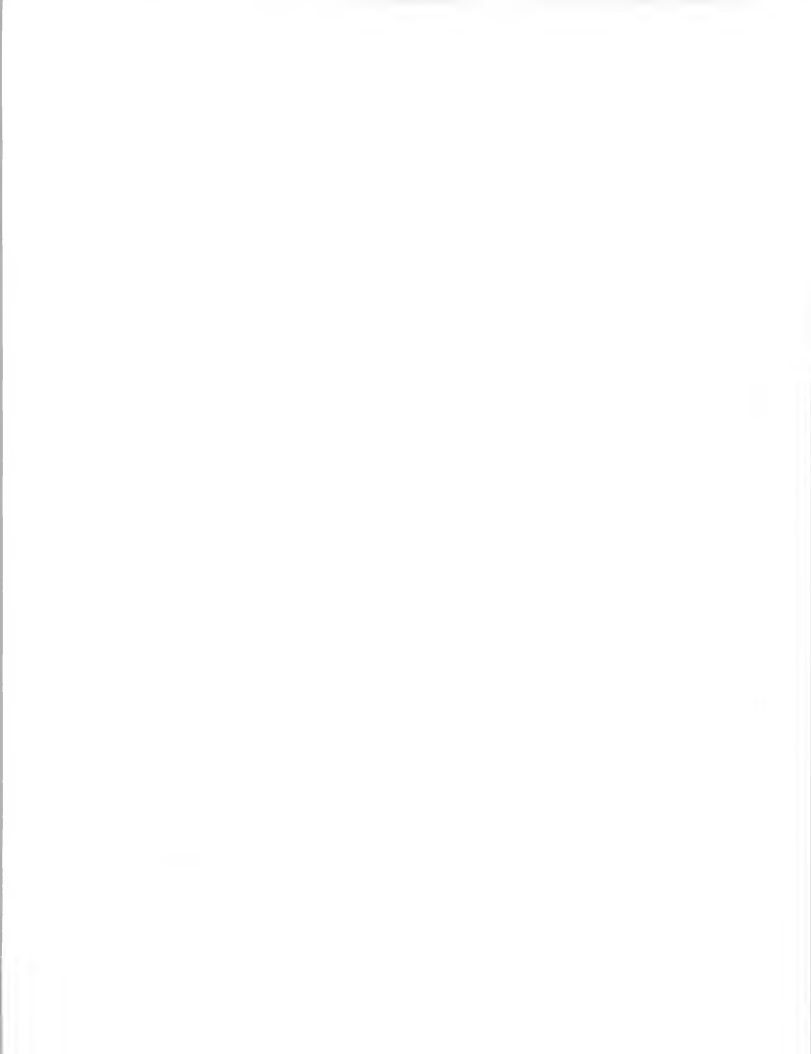
INPUT

Topics

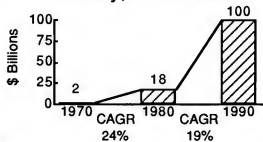
- Historic Perspective
- Driving Forces
- Market Outlook
- Opportunities and Conclusions

IS-55

INPUT

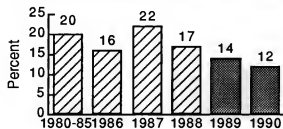


U.S. Information Services Industry, 1970-1990



IS-56

U.S. Information Services Industry—Annual Growth Rates



IS-57

U.S. Information Services Industry, 1970 - 1990

- The industry grew 50 times
- U.S. economy grew 5.7 times
- Consists of 11,000 vendors
- Created a U.S. competitive strength

IS-58

INPUT

1990 Results Summary

- Reached the \$100 billion milestone
- Growth 2 to 3 times faster than the economy continues
- Growth slowed in 1990 relative to 1989
- Economy causes confusion

IS-59

INPUT

Primary Forces Slowing Growth

- Weak economy
- Market size—\$100 billion
- Increasing influence of large vendors

IS-60a

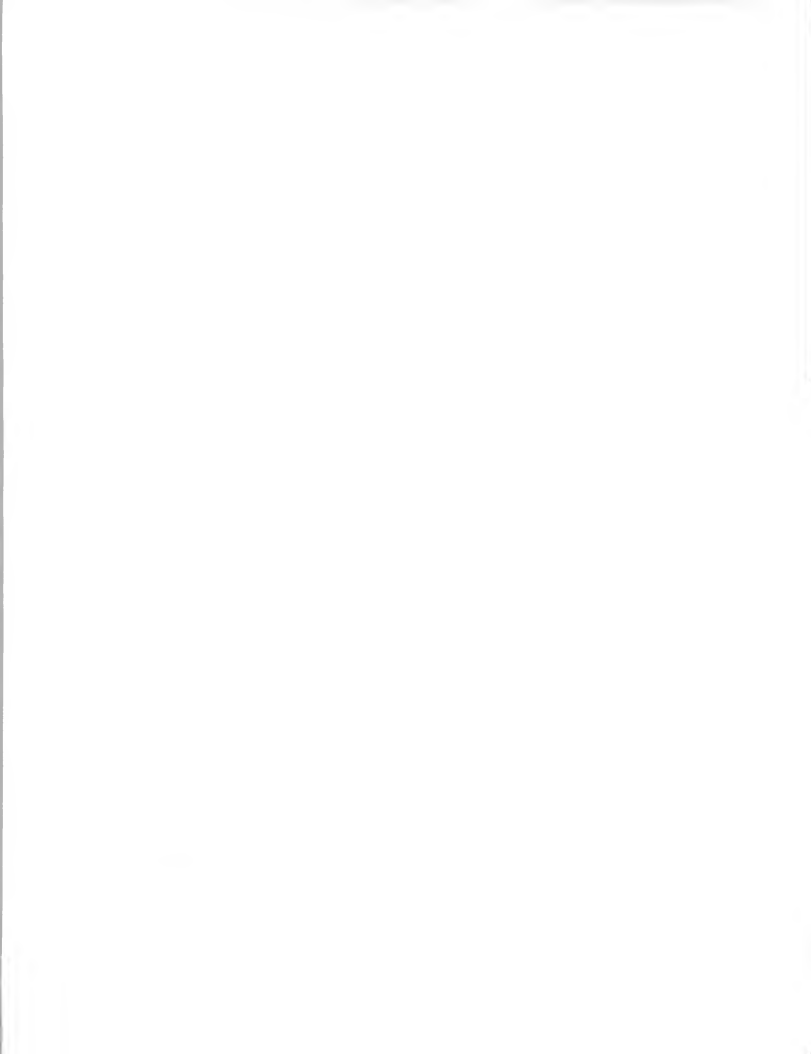
INPUT

Primary Forces Slowing Growth

- Outsourcing—users making larger decisions
- Shifting technology foundation
- The changing buyer
- The standards process

IS-60b

INPUT



The Economy

- Lingered recession—delays decisions
- Information systems under tight control
- Information systems budgets—5%-10% increase
- Vendor investment is slowed

IS-61

INPUT

Increasing Influence of Large Vendors

- Consolidation continues
- Market share creeping up
- Outsourcing favors larger vendors
- Slows technological change and adoption

IS-62

INPUT

New Technology Foundations

- International standards
- Graphical user interface
- Client-server
- Networking and integration

IS-63a

INPUT

New Technology Foundations

- Distributed data
- Imaging
- Engineered/re-engineered software

IS-63b

INPUT

The Changing Buyer

- General manager becomes primary buyer
- IS becomes internal consultant
- Solutions versus technology

IS-64a

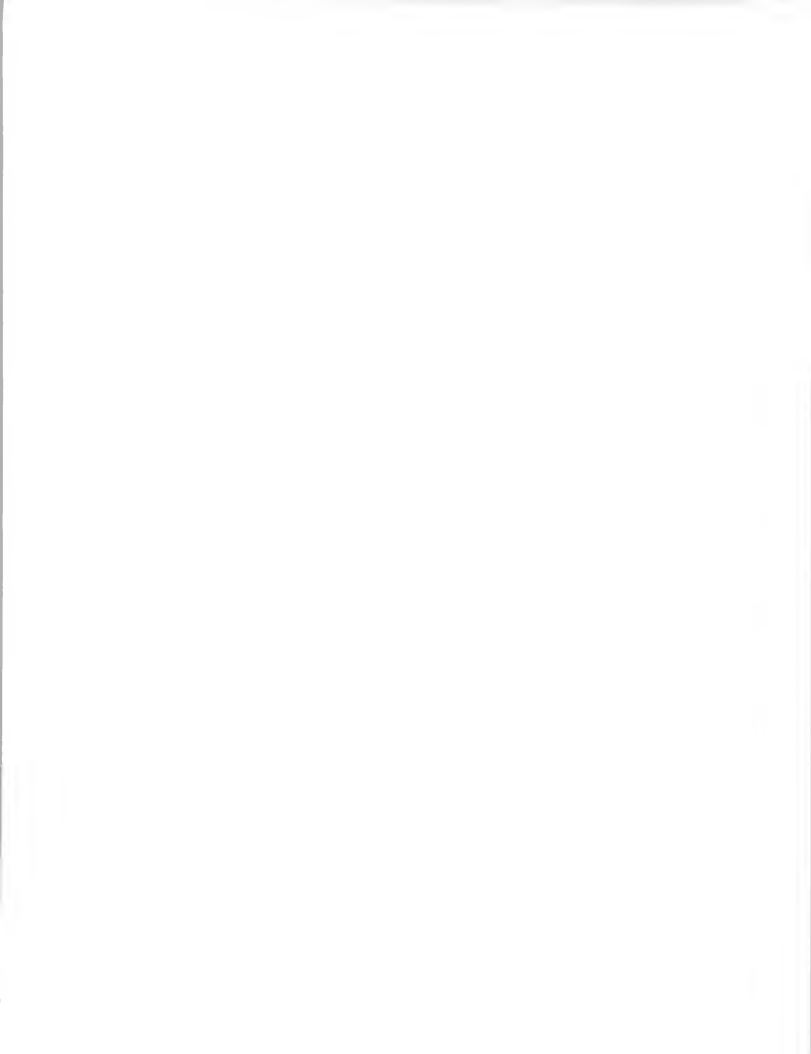
INPUT

The Changing Buyer

- Decisions become larger—take longer
- The budget is decentralized—multiple buyers

IS-64b

INPUT



The Standards Process

- Buyers wait to gain benefits
- Decrease technological differentiation
- Decrease inclination to change technologies
- Can add life to existing applications
- Foundation for integration

IS-45

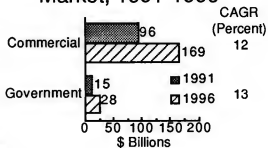
INPUT

U.S. Information Services Market Outlook

IS-46

INPUT

U.S. Information Services Market, 1991-1996



IS-47

U.S. Information Services Market—Vertical Sectors

Largest	Fastest Growing
Banking and Fin.	State and Local Gov't.
Discrete Mfg.	Telecommunications
Federal Gov't.	Discrete Mfg.
Process Mfg.	Retail Distribution

IS-48

INPUT

Vendor Initiatives

Vendor	Direction
Microsoft	Prof. services
Computer Associates	More acquisitions
Technology Solutions	Solutions approach to prof. services

IS-49a

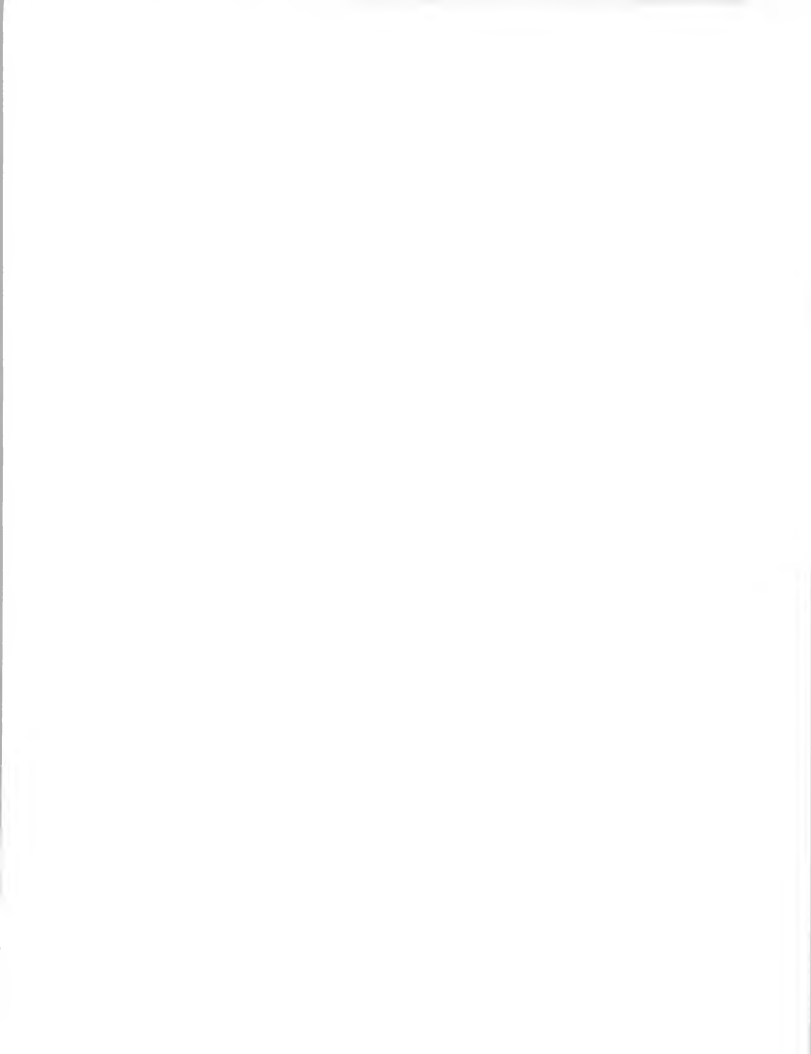
INPUT

Vendor Initiatives

Vendor	Direction
IBM/DEC	Profitability measurement for sales
NCR	Broaden prof. services
UNISYS	Commercial prof. services

IS-49b

INPUT



Opportunities and Conclusions

IS-70

INPUT

Where Is the New Beginning?

- Real user is the buyer
- Solutions not products or services
- Client-server could lead to a revolution

IS-71a

INPUT

Where Is the New Beginning?

- Outsourcing = basis for shared success
- Standards eventually open new opportunities
- Regionalization of market

IS-71b

INPUT



IS-72

INPUT

Single Message

Solutions focus on:
what it does
NOT
how it does it

IS-73

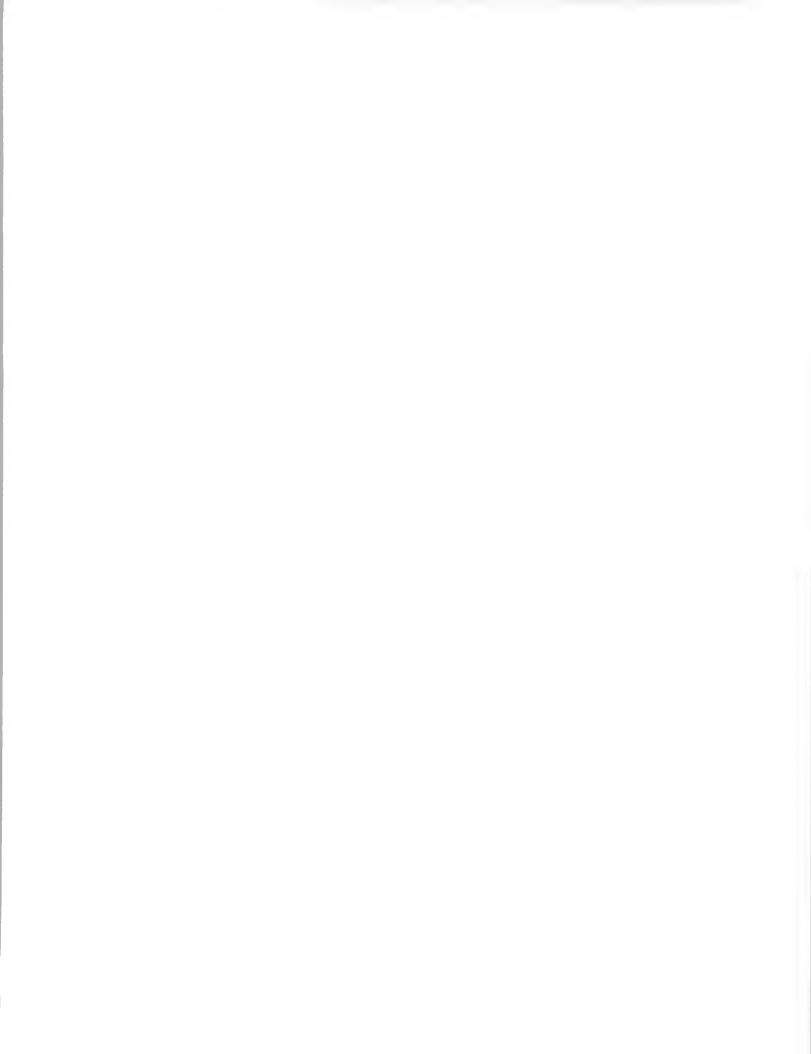
INPUT

Information Services Industry

Competing in a Revolution

IS-74

INPUT



Topics

- Industry In Revolution
 - Revolutions
 - Impacts
 - Outlook

IS-75

INPUT

Topics

- Competitive Reactions
 - Partnering
 - Alliances
 - Vendor Strategies
- Future Revolutions

IS-76

INPUT

Outsourcing What's Different

- The vendor makes it all work
- Once out it stays out
- Developing outside drives
 - Operating outside
 - Supporting outside

IS-77

INPUT

Competing in a Revolution

What used to work
doesn't work now!

IS-78

INPUT

Why Form an Alliance?

- Short term reasons (speed)
 - Specific opportunity
 - New service sooner
 - Competitive pressure
 - Can walk away

IS-79

INPUT

Why Form an Alliance?

- Long term reasons
 - Market entry
 - Financial leverage
 - Avoid internal conflict

IS-80

INPUT



Why Alliances Don't Work

- Unbalanced benefits
- Over extended benefits
- Unclear authority
- Biased incentive systems
- Unclear measurements

IS-61

INPUT

Why Alliances Don't Work

Alliances require synergy—

Millar:

"Synergy is an unnatural act"

IS-62

INPUT

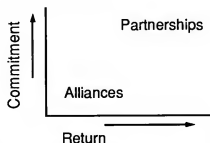
Partnerships vs. Alliances

Partnerships	Alliances
Marriage	Cohabitation
Joint ownership	License to Distribute
Shared financing	Own financing
Formal	Convenient

IS-63

INPUT

Partnerships vs. Alliances



IS-64

INPUT

Vendor Strategies

Company	Partnerships	Alliances
EDS	Few	Few
Andersen	Few	Many
IBM	Increasing	Many

IS-65

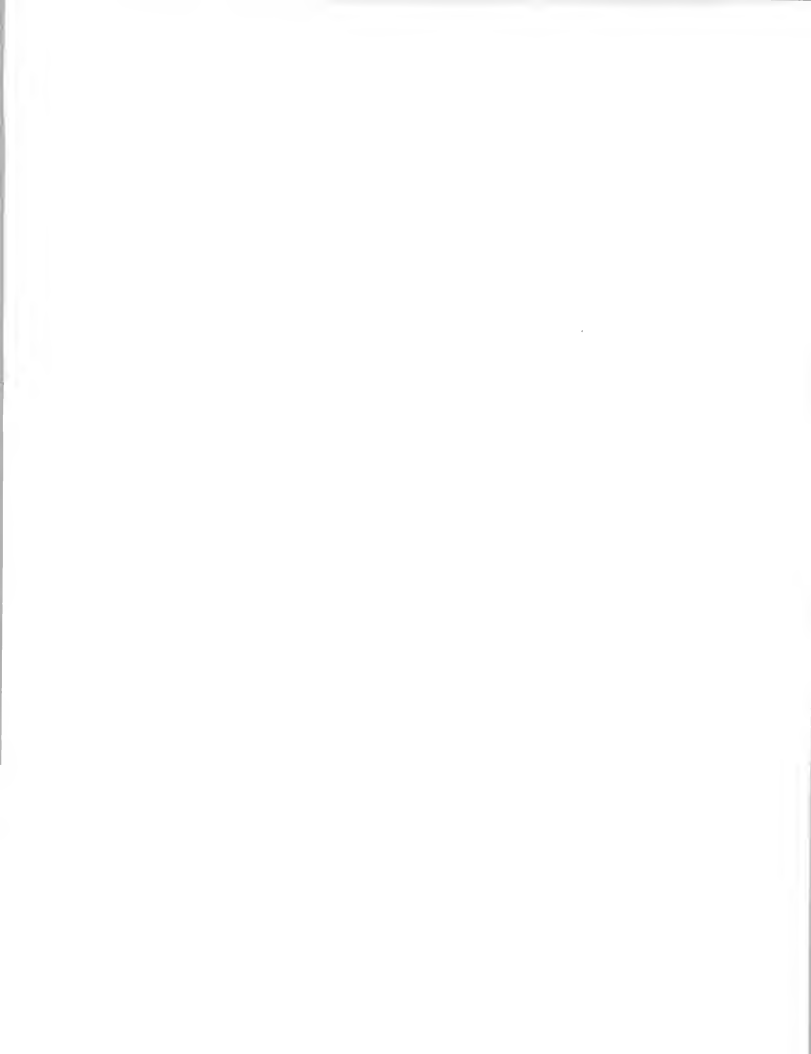
INPUT

Vendor Strategies—EDS

- Partnerships
 - Outsourcing customers
 - Hitachi Data Systems
 - Ask Computer Systems

IS-66

INPUT



Vendor Strategies Andersen

- Alliances
 - Access to needed technology
 - Flexibility
 - No fixed commitments

IS-87

INPUT

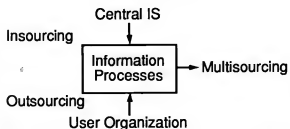
Future Revolutions

- Rightsizing
- Multisourcing
- Business operations

IS-88

INPUT

Sourcing IT



IS-89

INPUT

Revolutions

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

IS-90

INPUT

Revolutions

- Downsizing
- Outsourcing
- Re-engineering
- Networking

IS-94a

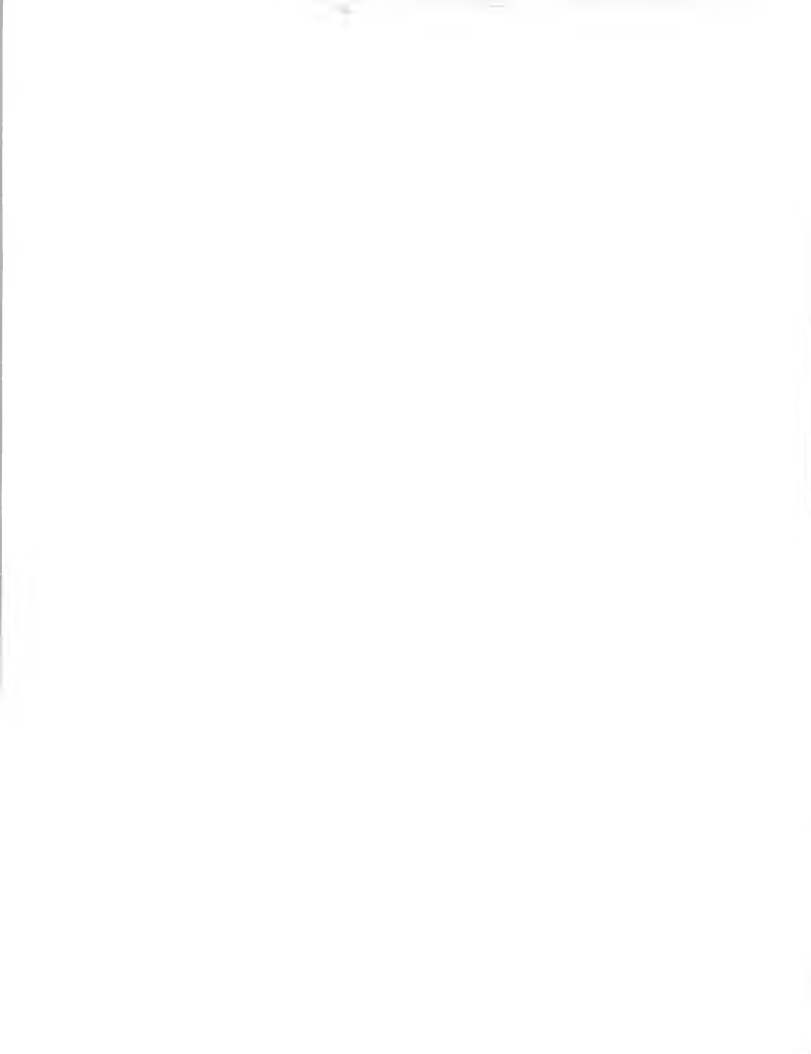
INPUT

Revolutions or Evolutions?

- Re-engineering
 - Organization: All or parts
 - IS Organization

IS-95

INPUT



Re-engineering IS

- Used to be a separate function
- Now being integrated into organization
- Will it disappear?

IS-96

INPUT

The Computer Industry in the 1990s

Technology Revolutions
+
Organizational Evolutions
=
All the rules have changed

IS-97

INPUT

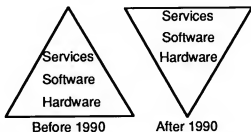
The Computer Industry in 2001—Vendor Role

Services
Replace
Proprietary Technology

IS-98

INPUT

Industry Turned Upside Down



IS-99

INPUT

The Computer Industry in 2001

- IS is a process, not an organization
- Solutions and services are bought
- Services vendor role greatly enhanced
- Hardware role greatly diminished

IS-100

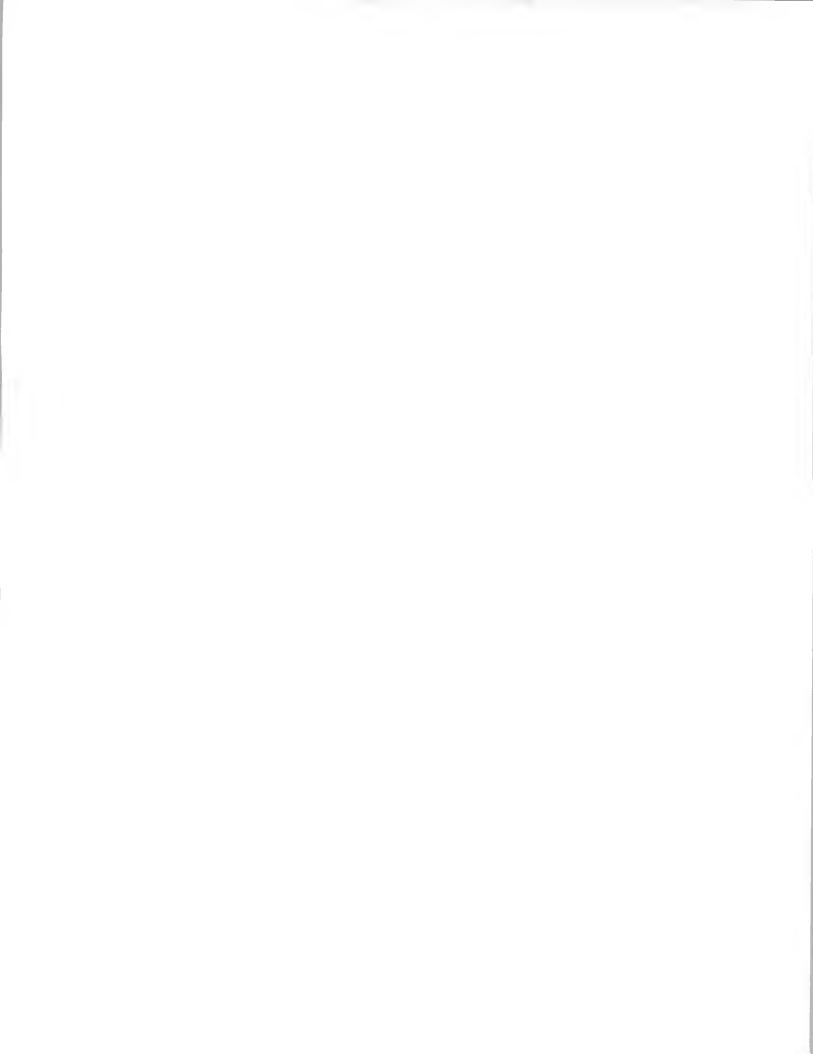
INPUT

User's Needs

- Results
- Solutions and tools
- Vendor responsibility
- Global/local support
- Understanding of business
- Simplified decisions

IS-101

INPUT



Supply Side

- Fragmented
- Uncoordinated
- Under-financed/resourced
- Poorly positioned

IS-102

INPUT

Why Partner?

- Make money
- Protect against competition
 - Defensive
- New opportunities
 - Offensive

IS-103

INPUT

Why Partner?

- Complete offering
- Upstream/downstream capabilities
- Technology "futures"
- 'Peer-to-peer' positioning

IS-104

INPUT

Why Partner?

- Combines complementary strengths
- Minimizes risk
- Accelerates time-to-market
- Substitutes funding method
- Expands market opportunities

IS-105

INPUT

Partnering Success Criteria

- Strong partners
- Clear objectives
- Minimal infrastructure
- Peer relationships

IS-106

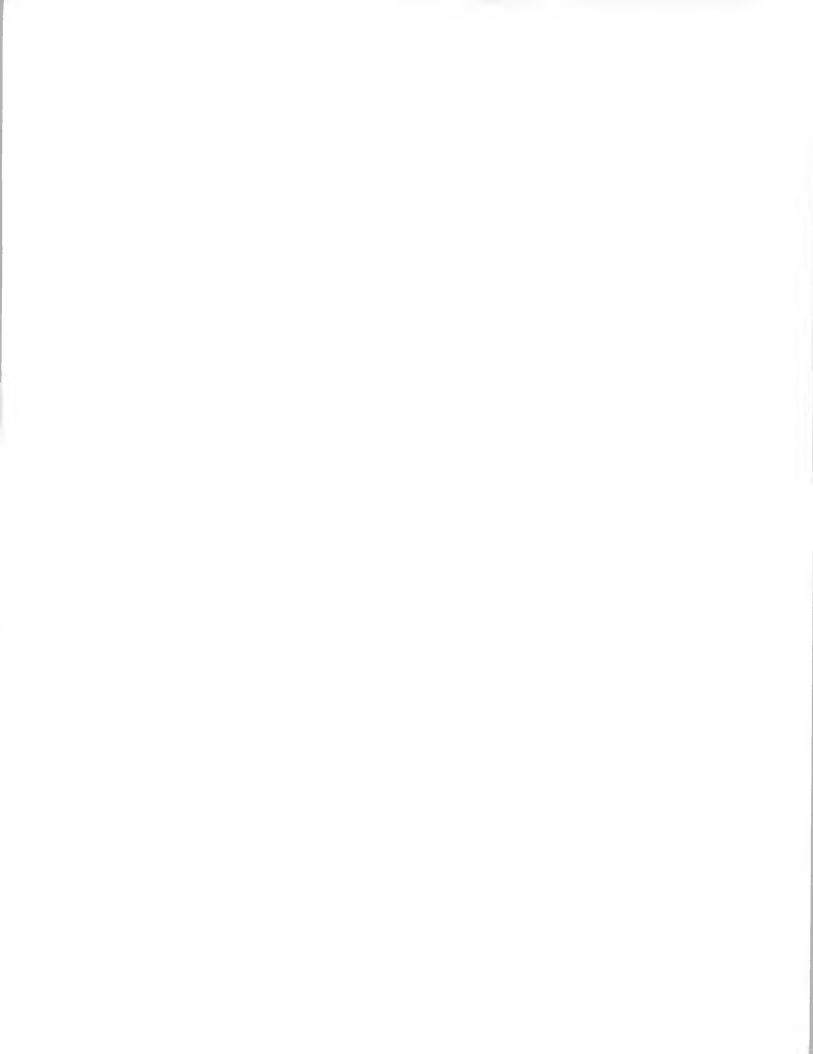
INPUT

What to Look For

- Resources—money, people, technology
- Distribution—global/local
- Support
- Customer base
- Product/service capabilities

IS-107

INPUT



How Can Partners Deal with Bull?

- Define objectives over time
- Establish customer/account ownership
- Address exclusivity
- Both parties invest
- Exit strategy

IS-108

INPUT

How Can Bull Deal with Partners?

- Equitably
- Quickly
- Provide access to technology
- Provide access to knowledge
- Treat partners as peers

IS-109

INPUT

Hardware Vendors Opportunities in the Services Market

IS-110

INPUT

- Introduction
- Environment
- IT Services Markets
- Software and Services Opportunities
- Strategies for Success
- Recommendations

IS-111

INPUT

Infrastructure Change

- Avoid applications
- Provide platform and add-on distribution
- Support: local and central
- Systems architecture
- Elements of desktop services

IS-112

INPUT

