Information Systems

INPUT

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Notes

Fundamental Driving Forces

Key Business Trends:

- Shorter product life cycles
- More customization/specialization
- Narrower market segments
- Higher impact of technology
- More competition from overseas vendors

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Notes

Fundamental Driving Forces

- *Apply to the information systems and services industry*
- *Are restructuring the role of IS management*
  - Reactive to proactive
  - Technology-driven to user-driven
  - Centralized to "federated"

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Notes

Blocking Factors

- Infrastructure gridlock
- Lack of qualified in-house personnel
- Existing applications portfolio
- Organizational response time

Create opportunities for the information services industry

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Notes

Strategic Values

- Information
- Information systems (IS)
- Information technology (IT)

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Notes

Information Systems Major Issues

- Rising management expectations
- Demands for increasingly complex solutions
- Managing the technology investment
- Integration of data/technology/applications
- Delivery of "mission-critical" systems

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Notes

Information Systems Driving Forces

1. Bottom line return
2. Rapid response and deployment
3. Expanding wealth of technology
4. International competition
5. Unstable organizational environments
6. Integration

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Notes

rev. 11/1390

Where's the Productivity?

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Notes

IS Trends

- IS to reduce costs
- IS for competitive advantage
- Mission-critical systems
- Inter-enterprise systems
- Integrated customer-oriented systems

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Notes

IS Issues

- Reporting structure
- Scope of responsibility
- Budgetary authority
- Senior management people expectations

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Notes

Make vs. Buy

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Notes

Development

- Where performed?
- By whom?

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Notes

Telecommunications

- Responsibility?
- Integration?

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Notes

Other Issues

- Education and training
- Standards and policies

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Notes

Internal IS Considerations

- Who owns the data?
- Who gets benefit from its use?
- Is information an "asset"? Or is it free?

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Notes

Information Systems Priorities

- Clear expectations of IS
- Identify mission-critical processes
- Application development—use all alternatives

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Notes

Information Systems Priorities

- Data management—company-wide orientation
- Technology architecture—network management
- Central IS—consulting role

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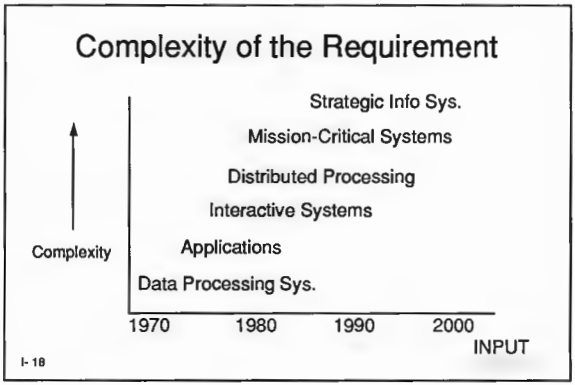
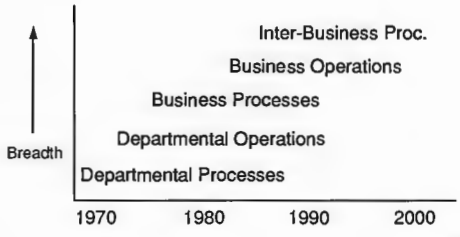
Notes



Notes

Breadth of the Relationship



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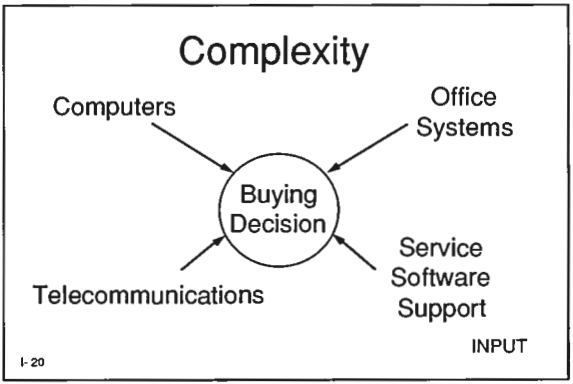
Notes



Notes

Law 1

Rate of supply >

rate of absorption

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Notes

Limits to Growth

- Absorption rate
  - Implementation
  - Education and training
  - Organization changes
  - Resistance to change
  - Logistics

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Notes

Buying Process Changing

- Involves
  - Users
  - IS management
  - Finance
  - Corporate management
- More specialists

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Notes

Technology is a Mixed Blessing

- Technology adds complexity
- Poor application is counter-productive
- Change process with systems

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Notes

Ranking of Key Technology Trends

1. Integrated data bases (relational)
2. Platform independence/systems connectivity
3. CASE technologies
4. Expert systems
5. On-line transaction processing

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Notes

8/29/91

Ranking of Impact of New Technologies

1. Image processing
2. Voice recognition
3. Natural language processing
4. Self-teaching expert systems

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I- 26

Notes

Technology Trends

- Not a driving force
- Evolutionary vs. revolutionary
- Three phases of technology application
  - Comparative advantage
  - Comparative parity
  - Comparative necessity

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Notes

Without Change There is No Benefit from IS

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Notes

The Human Element

- Changing systems is a process
- Evolution not revolution

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Notes

Concerns

- Ergonomics
- Health
- Deskilling
- Organization
- Redundance
- Progress

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Notes

CIM—The Human Element

- U.S.
  - Technology as a fix
- Japan
  - Technology plus people

Notes

Corporate Organization

- IT and IS will change the organization
- How will it operate?
- People
  - How many?
  - When?
  - What skills?

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Notes

V.P. Humatics

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Notes

Key Future Trends—Impact on IS

Trend	Impact on IS
Business integration—within companies	Centralization of infrastructure planning
Business integration—between companies	
Decentralization of technology	

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Notes

1990

Key Future Trends—Impact on IS

Trend	Impact on IS
Increasing use of communications	Network view of the corporation
Emphasis on business planning	Decreased involvement in operations

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Notes

1990

Industry Structure Model

- Information-oriented
- Service-oriented
- Product-oriented

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Notes

Information-Oriented

- Heavy involvement in enterprise planning
- Strong technology strategy
- Mixed systems development roles
- Strong core operations

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I-37

Notes

Service-Oriented

- Varied involvement in enterprise planning
- Mixed technology strategy
- Centralized systems development roles
- Strong core operations

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I- 38

Notes

Product-Oriented

- Varied involvement in enterprise planning
- Varied technology strategy
- Varied systems development roles
- Varied core operations

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Notes

Evolution of CIO Role

- Role will not disappear
- Same objectives/problems
- More focus on strategy/planning
- Less focus on systems development/operations
- Stronger focus on telecom/network

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I- 40

Notes

Information Systems Executive Role In the 1990s

An Internal "Systems Integrator"

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Notes

IS Organization in the 1990s

Not Centralized

Not Decentralized

Federated

Brought together "by agreement of each party to sublimate its power to the central authority in common affairs." - Webster

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Notes

Federated IS Organization

Federal Government	Corporate IS
Defense	Competition
Treaties	Partnerships
Regulation	Standards
National programs	Corporate systems
National policies	Corporate policies

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I- 43

Notes

Federated IS Organization

State Government	Unit IS
Citizens	Customers
Local issues	Business support
Operating programs	Operating systems
Policy implementation	Policy implementation

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Notes

Corporate Information Systems Organization Style

- Smaller
- Expert based—technology and business
- Consulting style—information engineers and solution builders
- Marketeers for technology

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Notes

IS Responsibilities—1990s

- Treat "users" as customers
- Analyze "make" or "buy" decisions
- Consult on strategy and direction

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Notes

IS Responsibilities—1990s

- Support organizational units at all levels in use of:
  - Information
  - Information systems and services
  - Information technology

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I-47

Notes

Communications

- Executives
- Customers (users)
- Staff

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I-48

Notes

Information Systems Technology Trends

- Integrated data bases (relational)
- Platform independence/systems connectivity
- CASE technologies
- Expert systems
- On-line transaction processing capabilities

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Notes

11/13/90

Impacts

- Looking outside for solutions
- Buying process changing
  - Users
  - IS management
  - Corporate management
  - Finance
  - Partnerships with vendors

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Notes

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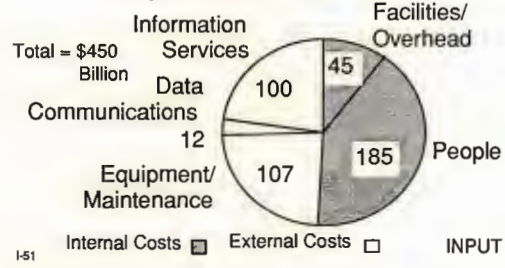
U.S. Information Systems Expenditures, 1990



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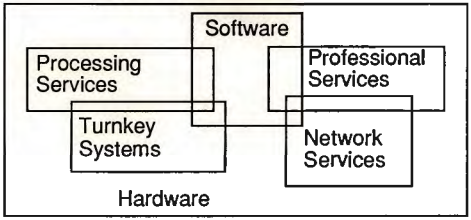
Notes

5/30/91

IS Market Structure—1980s
INPUT's View



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Notes

11/13/90

Key Trends for the 1990s

- Changing market channels
- Internationalization of offerings
- Standards a growing influence
- Vendor consolidation
- Professional services—"the glue"

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Notes

1/14/91

Information Systems Budget Impact of Economic Slowdown

4th Quarter 1990

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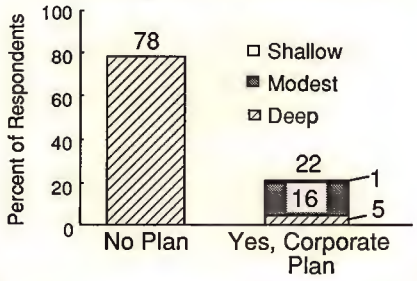
Notes

3/5/91

Planning for a Recession



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Notes

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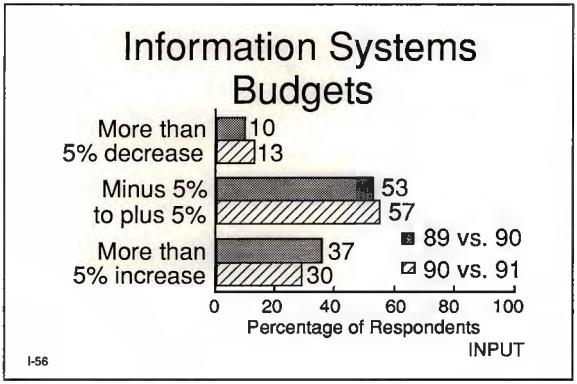


Notes

3/7/91

Current Spending Restrictions Organization-Wide, 1990

- 54% have restrictions in place now
- Of those with restrictions:
  - 42% closely monitor all expenses
  - 31% limit or have frozen hiring
  - 21% limit or have frozen capital spending

Notes

1991 Spending Restrictions Organization-Wide

- 58% plan for restrictions in 1991
  - Only 4% above those with 1990 restrictions

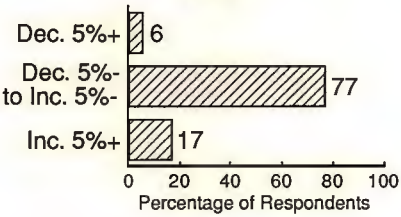
Notes

1991 Spending Restrictions Organization-Wide

- For the 4%, plans include:
  - Across-the-board cuts
  - Staff reductions
  - Reducing new development

Notes

IS Budget, 1990 vs. 1991 Staff



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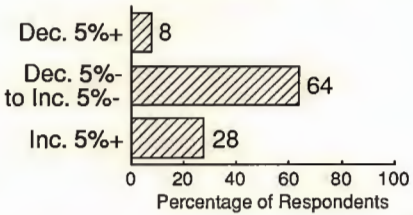
Notes

1/14/91

IS Budget, 1990 vs. 1991 Hardware



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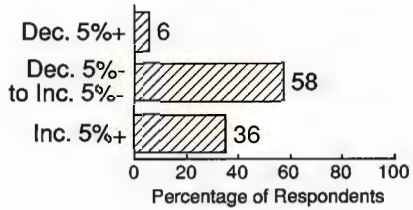
Notes

1/14/91

IS Budget, 1990 vs. 1991 Software Products



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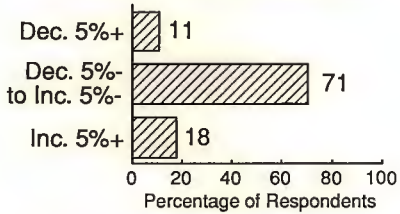
Notes

3/91

IS Budget, 1990 vs. 1991 Telecommunications



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Notes

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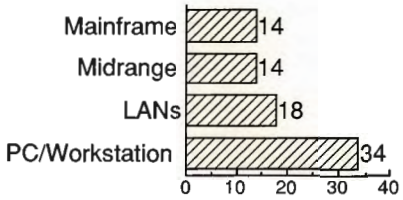
1991 Economic Impacts on Hardware Spending



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Notes

3/5/91

Systems Downsizing

- 52% implementing downsizing
- 20% planning or considering

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Notes

3/7/91

Recessionary Impacts

- Recessionary impacts
  - 53% no impact
  - 39% would increase spending
  - 8% would slow

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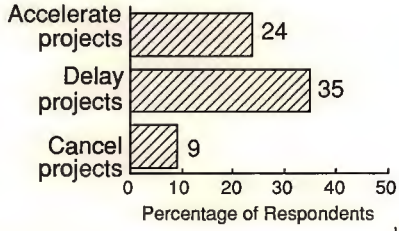
Notes

3/1/91

Recessionary Impacts on Application Development



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Notes

1/14/91

Recessionary Impacts on Information Services

- Question: "If moderate recession, what impacts?"
- Consulting
  - 42%—Spending down more than 10%
  - 39%—Spending unchanged

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I-68

Notes

1/14/91

Recessionary Impacts on Information Services

- Systems Development
  - 41%—Spending down more than 10%
  - 27%—Spending unchanged

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I-69

Notes

1/14/91

Recessionary Impacts on Information Services

- Processing Services
  - 59%—Spending unchanged
  - 33%—Increase spending more than 10%

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I-70

Notes

1/14/91

Recessionary Impacts on Information Services

- Systems Integration
  - 29%—Spending down more than 10%
  - 47%—Spending unchanged

Notes

Recessionary Impacts on Information Services

- Systems Operations (Outsourcing)
  - 50%—Spending unchanged
  - 33%—Increase spending more than 10%

Notes

1991 Spending—Impacts Have Begun

Market Sector	1991 Budget	Recession Spending
Wholesale distribution	n/c	-
Retail distribution	n/c	-
Discrete manufacturing	+	-

+ = Budget/spending up n/c = No change

- = Budget/spending down

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I-73

Notes

1/14/91

1991 Spending—Impacts Have Begun

Market Sector	1991 Budget	Recession Spending
Process manufacturing	+	-
Federal government	nc	-

+ = Budget/spending up n/c = No change
- = Budget/spending down

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Notes

1/14/91

1991 Spending—Impacts Probable

Market Sector	1991 Budget	Recession Spending
Transportation	+	-
Banking and finance	+	-
State & local government	+	-

+ = Budget/spending up n/c = No change

- = Budget/spending down

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Notes

1/14/91

1991 Spending—Minimal Impacts Expected

Market Sector	1991 Budget	Recession Spending
Insurance	+	+
Medical/health care	+	+
Business/consumer svcs.	+	n/c

+ = Budget/spending up
- = Budget/spending down
n/c = No change

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I-76

Notes

1/14/91

1991 Spending—Minimal Impacts Expected

Market Sector	1991 Budget	Recession Spending
Utilities	n/c	n/c
Telecommunications	n/c	n/c
Education	+	n/c

+ = Budget/spending up
- = Budget/spending down
n/c = No change

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Notes

Users: Recession-Related Topics

- Recession vs. current restrictions
- Negotiating and trade-offs
- Speeding vs. slowing development
- Inside vs. outside development
- Inside vs. outside systems operations

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Notes

1/14/91

Vendors: Recession-Related Topics

- Vendor vs. user spending restrictions
- Implications of user downsizing
- Inside vs. outside development
- Inside vs. outside systems operations
- Sector-by-sector questions

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Notes

1/14/91

Information Technology Implementation Trends

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Notes

Information Technologies Surveyed

- Image processing
- Cooperative processing
- CASE
- Distributed DBMS
- Object-oriented programming

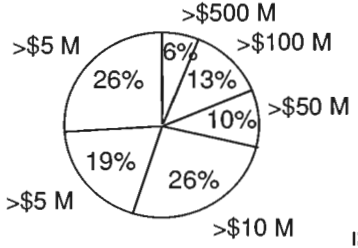
Notes

Information Technologies Surveyed

- LANS,WANS, MANS
- Open systems
- SAA
- UNIX
- Data center management

Notes

Information Technology Trends
Distribution of IS Budget



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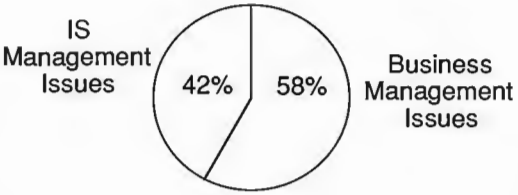
Notes

2/7/91

Technology Implementation
IS vs. Business Inhibitors



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Notes

3/1/91

Technology Implementation Business Mgmt. Inhibitors

Rank	Percent of Respondents	Inhibitors
1	41	Business need
2	19	Business interruption
3	15	Budget
4	10	Cost/benefit
5	9	Startup cost

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I-86

Notes

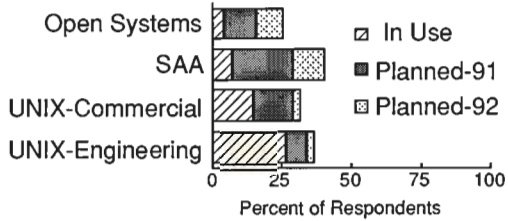
3/1/91

Technology Implementation IS Mgmt. Inhibitors

Rank	Percent of Respondents	Inhibitors
1	22	Staff availability
2	21	Existing systems
3	19	Integration
4	14	Training
5	12	Resistance to change

Notes

Technology Status and Timing
Operating Systems/Architecture



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Notes

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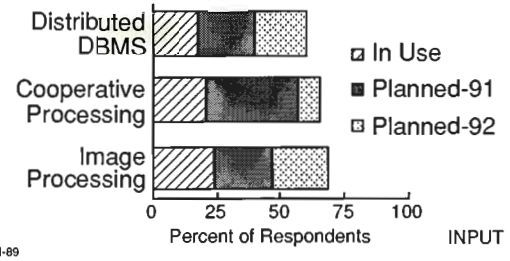
Technology Status and Timing
Operating Systems/Architecture



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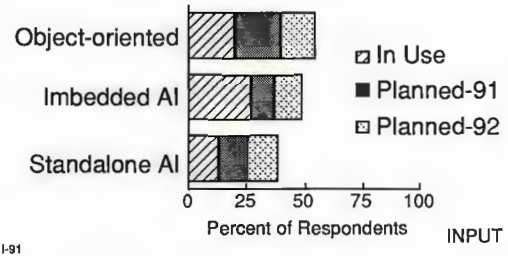
Notes

3/1/91

Technology Status and Timing Application Development



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Notes

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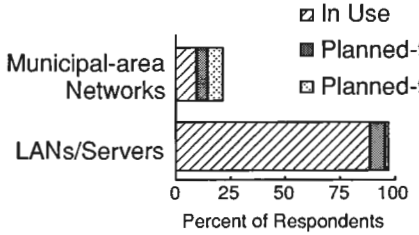
Technology Status and Timing Networks/Communications



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Notes

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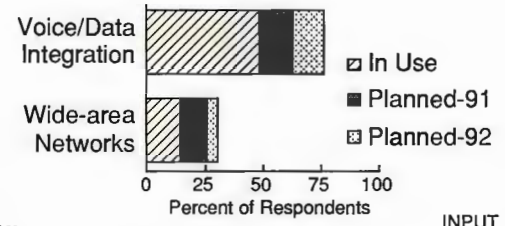
Technology Status and Timing
Networks/Communications



I-93

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Notes

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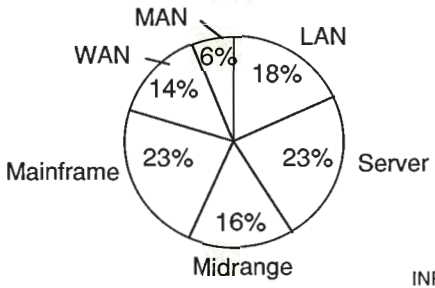
LAN Interconnections



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Notes

2/7/91

LAN Use—Active Central Applications

Application	% Act. 1990	% to be Act.—1992
Accounting	45	60
Executive Info Sys	27	65
Mainframe DBS Queries	40	72

INPUT

Notes

LAN Use—Active Central Applications

Application	% Act. 1990	% to be Act.—1992
Production Scheduling	16	36
Sales Reporting	23	38
Order Entry	23	37

INPUT

Notes

LAN Use—Active PC Applications

Application	% Act. 1990	% to be Act.—1992
Electronic Mail	52	75
Desktop Publishing	55	68
PC Tools	84	90

I-97

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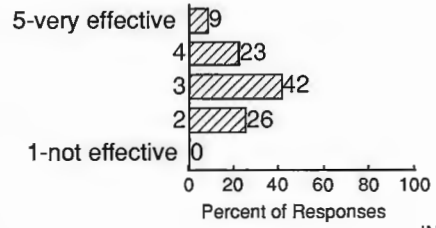
Notes

2/7/91

Effectiveness of LAN Interconnections



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I-98

Notes

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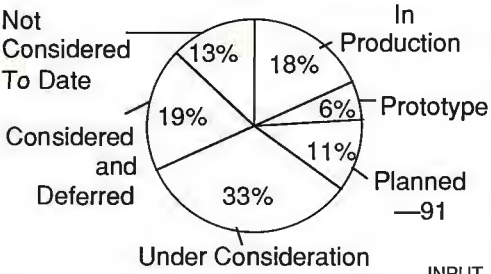
Status of Image Processing



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Notes

2/7/91

Image Processing in Use by Industry

Industry	In Use (Percent)	Planning (Percent)
Insurance	20	8
Transportation	20	12
Discrete Mfg	15	18
Process Mfg	10	23

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Notes

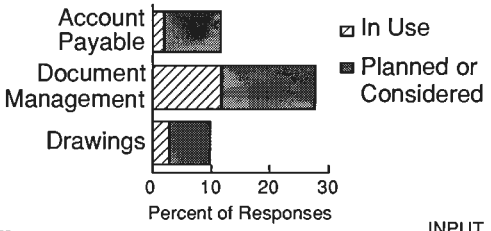
2/7/91

Image Processing in Use by Industry

- Others
  - Education
  - Telecommunications
  - Wholesale Distribution

Notes

Image Processing Applications



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Notes

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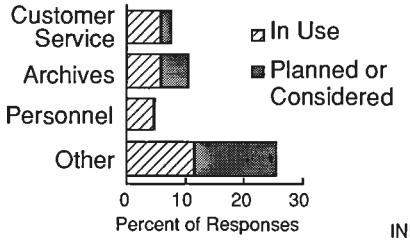
Image Processing Applications



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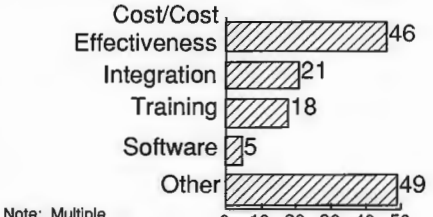
Notes

3/1/91

Issues for Image Processing



Note: Multiple responses allowed

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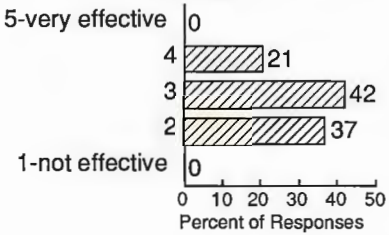
Notes

3/5/91

Effectiveness of Image Processing Systems



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Notes

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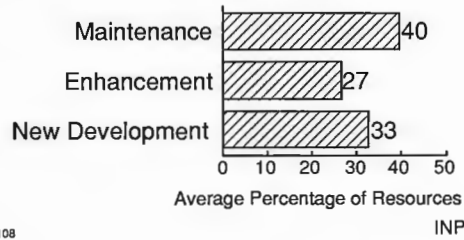
Allocation of Development Resources



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Notes

2/7/91

Controlling Application Maintenance Resources

	% Using
Limited resource allocation	71
Purchased software replacement	43
Re-engineering of applications	38

INPUT

I-109

Notes

2/7/91

Controlling Application Maintenance Resources

	% Using
Maintenance only function	34
Contract out	22
Assign to user	18
Recode	13

I-110 INPUT

Notes

2/7/91

Controlling Application Maintenance Resources

	Effectiveness*
Re-engineering of applications	3.1
Maintenance only function	2.8
Purchase of software replacement	2.7

* 1 = not effective, 5 = very effective

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I-111

Notes

2/7/91

Controlling Application Maintenance Resources

	Effectiveness*
Recode	2.7
Limited resource allocation	2.7
Contract out	2.7
Assign to user	2.6

* 1 = not effective, 5 = very effective

Notes

CASE Activity by Industry

Industry	% Using	% Considering
Discrete Mfg.	18	12
Process Mfg.	14	32
Utilities	11	-
Telecommunications	11	4
Insurance	9	12
Transportation	9	16

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Notes

Issues in Using CASE

Issue	Using	Considering
Staff acceptance	✓✓✓	✓✓
Cost/training	✓✓✓	✓
Integration	✓✓	✓✓
Planning	✓✓	✓
Proven results	✓	✓
Methodology	✓	✓

I-114

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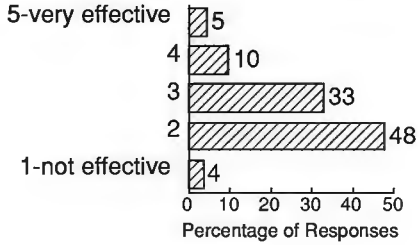
Notes

2/7/91

Effectiveness of CASE



I-115

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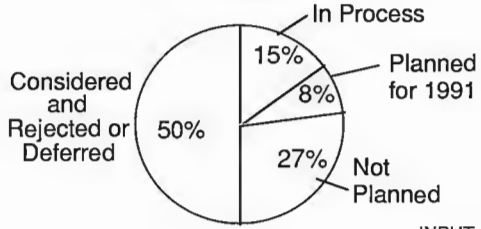
Notes

2/7/91

Consolidation of Data Centers



I-116

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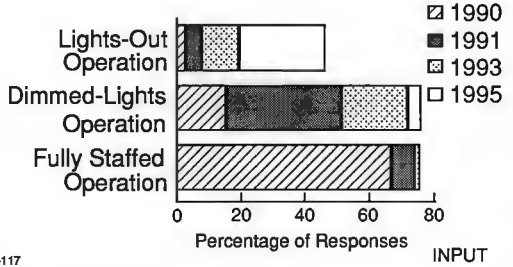
Notes

2/7/91

Data Center Objectives



I-117

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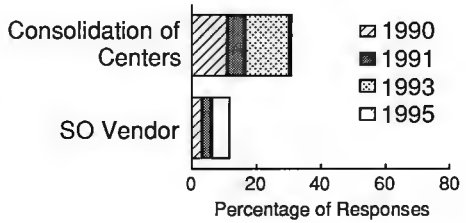
Notes

3/1/91

Data Center Objectives



I-118

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Notes

3/1/91

Information Technology Trends Observations

- Inhibitors differ between IS and top management
- Technologies apparent to top management adopted faster
- Learning curves remain—witness image processing and CASE

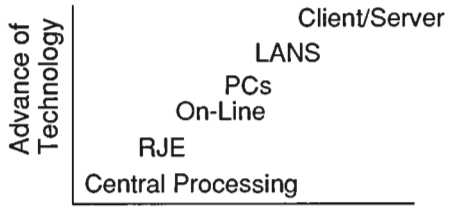
Notes

Information Technology Trends Observations

- Data center management area of focus
- Overall effectiveness satisfactory at best

Notes

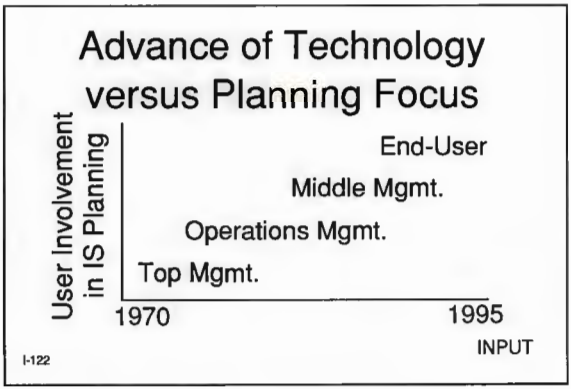
Advance of Technology versus Planning Focus



I-121

Notes

9/9/91



Notes

8/91

1991 Issues

- IT justification
- Impact of the economy

Notes

Revolutions

- Downsizing
- Outsourcing
- Networking

I-124

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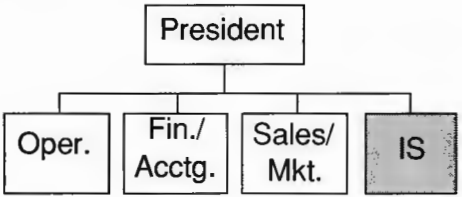
Notes

9/24/91

IS Function

Information Systems View



I-126

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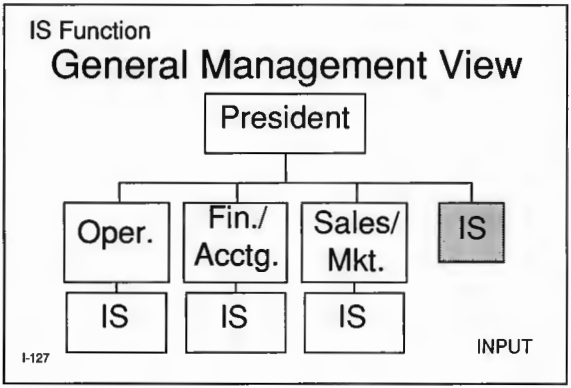
Notes

1/10/92

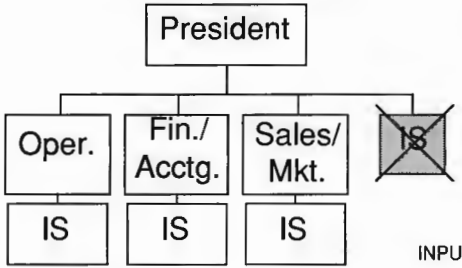


Notes

1/10/92

IS Function

The View in 2001



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I-128

Notes

1/10/92

Question

What thresholds are crossed with technology improvement?

I-129

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Notes

9/24/91