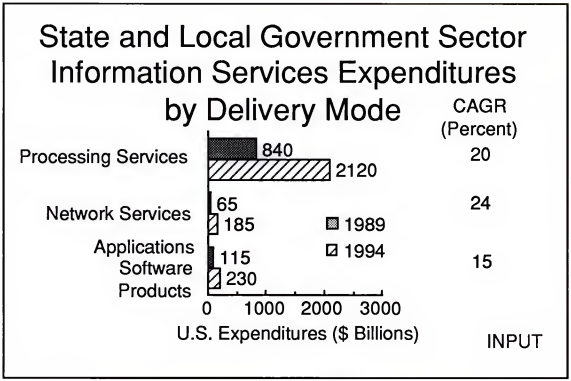
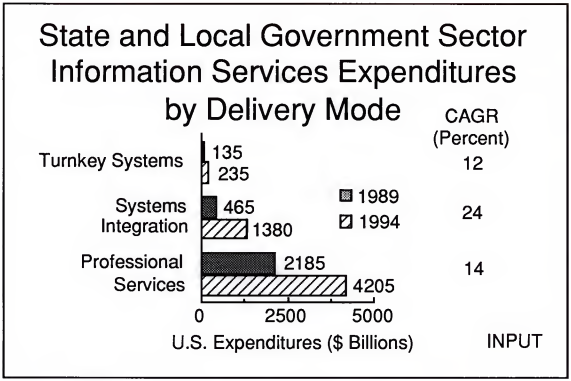


Notes

MPRE90-251

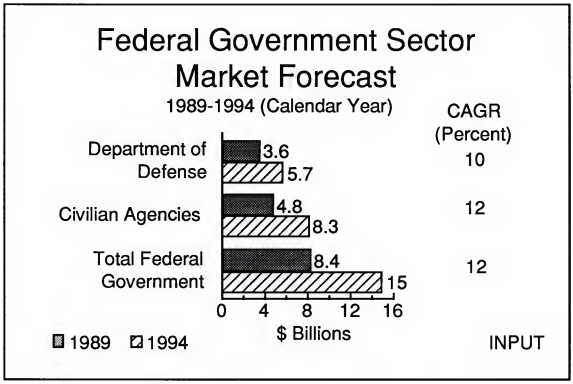
© 1990 by INPUT. Reproduction Prohibited.



Notes

MPRE90-252

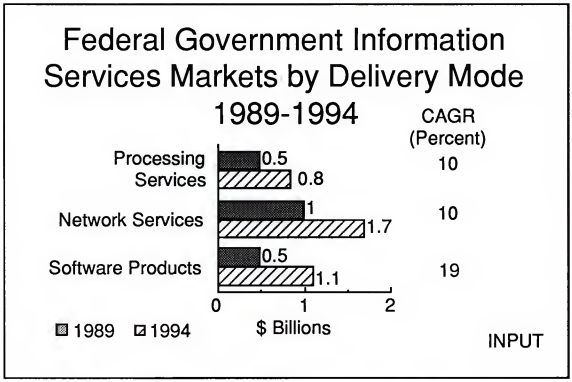
© 1990 by INPUT. Reproduction Prohibited.



Notes

MPRE90-253

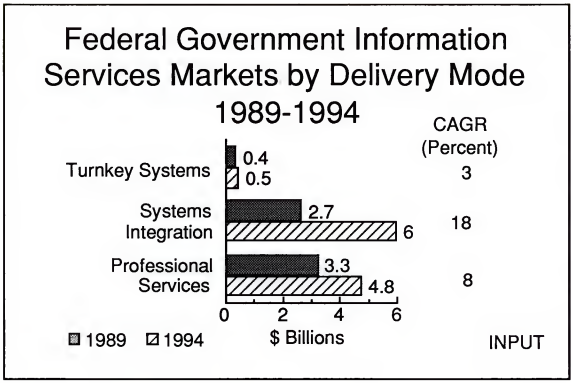
© 1990 by INPUT. Reproduction Prohibited.



Notes

MPRE90-254

© 1990 by INPUT. Reproduction Prohibited.



Notes

MPRE90-255

© 1990 by INPUT. Reproduction Prohibited.

Medical Industry—Trends

- Movement to HMOs, away from traditional health care
- Aging U.S. population
- Government regulation
  - MediCare catastrophic illness
  - Prescription reimbursements
  - Medicare budget cutting

INPUT

Notes

MPRE90-256

© 1990 by INPUT. Reproduction Prohibited.

Vendor Opportunities

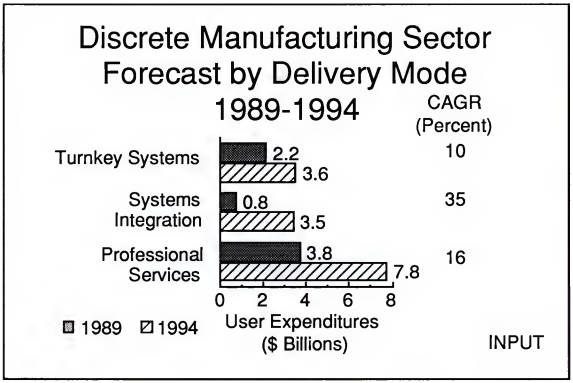
- Integrated systems
- Clinical/laboratory applications
- Networking: physicians & hospitals
- Professional services

INPUT

Notes

MPRE90-257

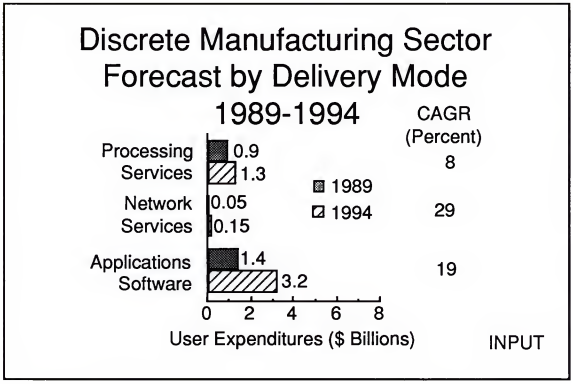
© 1990 by INPUT. Reproduction Prohibited.



Notes

MPRE90-258

© 1990 by INPUT. Reproduction Prohibited.



Notes

MPRE90-259

© 1990 by INPUT. Reproduction Prohibited.

Trends—Discrete Manufacturing

- Large market, growing at 16%
- High-end MRPII saturation
- Micro-based solutions & workstations
- Need for integrated systems

INPUT

Notes

MPRE90-260

© 1990 by INPUT. Reproduction Prohibited.

State and Local Government Driving Forces

- Changes in information systems organization
- Lack of internal staff expertise
- Reliance on information services vendors

INPUT
MPRE90-261

Notes

© 1990 by INPUT. Reproduction Prohibited.

Issues for IS Departments

- Rising expectations of key users and officials
- User demands for more complex solutions
- Planning for changes in technology
- Productivity and backlogs
- Integration of data/technology applications
- Budgeting and funding

INPUT
MPRE90-262

Notes

© 1990 by INPUT. Reproduction Prohibited.

Federal Government

INPUT
MPRE90-263

Notes

© 1990 by INPUT. Reproduction Prohibited.

Federal Government Sector Issues

- Cost containment
- Acquisition reforms
- Budget deficit control measures

INPUT
MPRE90-264

Notes

© 1990 by INPUT. Reproduction Prohibited.

Federal Government Sector Issues

- Regulations imposed on agency
- Internal agreement on requirements
- Availability of skilled staff

INPUT
MPRE90-265

Notes

© 1990 by INPUT. Reproduction Prohibited.

Federal Government Sector Driving Forces

- Rising service demands
- Equipment obsolescence
- High maintenance costs
- End-user computing needs

INPUT
MPRE90-266

Notes

© 1990 by INPUT. Reproduction Prohibited.

Federal Government Sector Driving Forces

- Connectivity requirements
- Improved security/privacy demands
- Presidential priority programs

INPUT
MPRE90-267

Notes

© 1990 by INPUT. Reproduction Prohibited.

Federal IS Goals and Objectives

- Improve information technology support
- Improve productivity
- Maintain and enhance systems
- Increase contracting out
- Overcome staff shortages

INPUT
MPRE90-268

Notes

© 1990 by INPUT. Reproduction Prohibited.

Medical

INPUT
MPRE90-269

Notes

© 1990 by INPUT. Reproduction Prohibited.

Medical Industry—Trends

- Need for functional integration
  - Patient care
  - Billing/financial
  - Clinical/testing
  - Medical records

INPUT
MPRE90-270

Notes

© 1990 by INPUT. Reproduction Prohibited.

Vendor Opportunities

- "Point of care" systems
- Skill nursing/health care systems
- Physicians: PC usage
- Prescription drug programs

INPUT
MPRE90-271

Notes

© 1990 by INPUT. Reproduction Prohibited.

Trends—Higher Education

- Centralized IS control
- Integrated, networked solutions
- Standards for intercampus networking
- Spending on microcomputers in past, leading to connectivity needs

INPUT
MPRE90-272

Notes

© 1990 by INPUT. Reproduction Prohibited.

Trends—Higher Education

- User involvement in software
- Development
- CAI/courseware development
  - EDUCOM
- Budgetary concerns

INPUT
MPRE90-273

Notes

© 1990 by INPUT. Reproduction Prohibited.

Driving Forces—Higher Education

- Administrative applications
- Research applications
- Word processing (faculty/students)
- Intracampus networking

INPUT
MPRE90-274

Notes

© 1990 by INPUT. Reproduction Prohibited.

RBOC Network Services

- Integrated services digital network (ISDN)
- Information gateways
- Virtual private networks
- Metropolitan-area networks (MAN)

INPUT
MPRE90-275

Notes

© 1990 by INPUT. Reproduction Prohibited.

RBOC Network Services

- Open network architecture (ONA)—future
- Videotex (future)—subsidized terminals?
- Voicemail
- Electronic mail
- Voice recognition services

INPUT
MPRE90-276

Notes

© 1990 by INPUT. Reproduction Prohibited.

RBOC Network Services Limited by:

- Varying services make national customer network usage difficult
- Gateways limited to LATA
- RBOC "culture"
- RBOC sales/marketing expertise

INPUT
MPRE90-277

Notes

© 1990 by INPUT. Reproduction Prohibited.

Conclusions—Network Services Markets

- Data base alone Is not a guarantee of success
- Vendors can leverage unique
- Gateways and interfaces
- OLDB companies are highly valued
- RBOCs will be a factor
- EDI has leverage into interorganizational services
- Market growth remains strong

INPUT
MPRE90-278a,b

Notes

© 1990 by INPUT. Reproduction Prohibited.

Discrete Manufacturing

INPUT
MPRE90-279

Notes

© 1990 by INPUT. Reproduction Prohibited.

Trends—Discrete Manufacturing

- MAP versus Ethernet—inconclusive
- CIM—from buzzword to reality?
- Rapid growth in CAD/CAM, but on less expensive platforms

INPUT
MPRE90-280

Notes

© 1990 by INPUT. Reproduction Prohibited.

Discrete Manufacturing Leading Vendors

Vendor	1988 US Revenues ($M)*	Market Share (%)
Prime (Computervision)	500	6
IBM	480	6
Intergraph	450	5
McDonnell Douglas	240	3

* INPUT Estimate

INPUT
MPRE90-281

Notes

© 1990 by INPUT. Reproduction Prohibited.

Discrete Manufacturing Leading Vendors

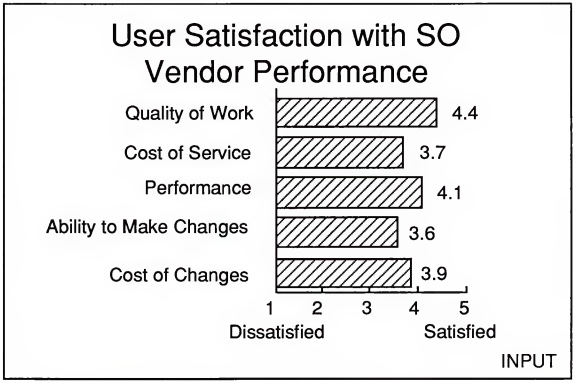
Vendor	1988 US Revenues ($M)*	Market Share (%)
Schlumberger	210	3
Arthur Andersen	200	2
Control Data	140	2

* INPUT Estimate

INPUT
MPRE90-282

Notes

© 1990 by INPUT. Reproduction Prohibited.



Notes

SCON-DRW2-28

MPRE90-285

© 1990 by INPUT. Reproduction Prohibited.

Systems Operations Vendor Selection Criteria—Buyers' View

Ranking	Criteria
1	Vendor SO experience
2	Overall cost
3	Data security and protection
4	SO performed by prime SI contractor
5	Vendor-provided hardware and systems software maintenance
6	Application software maintenance

INPUT

Notes

SCON-DRW2-30a

MPRE90-286

© 1990 by INPUT. Reproduction Prohibited.

Discrete Manufacturing Leading Vendors

Vendor	1988 US Revenues ($M)*	Market Share (%)
Gerber	130	2
ASK	130	2
Boeing	105	1
All Others		68

* INPUT Estimate

INPUT
MPRE90-287

Notes

© 1990 by INPUT. Reproduction Prohibited.

Vendor Recommendations: Discrete Manufacturing

- Be a leader in your niche
- Build alliances, provide integrated solutions
- Look at international markets

INPUT
MPRE90-288

Notes

© 1990 by INPUT. Reproduction Prohibited.

Banking and Finance

INPUT
MPRE90-289a

Notes

© 1990 by INPUT. Reproduction Prohibited.

Banking/Finance Industry Trends—Examples

Changing Outlook for Individual Products/Services

- Product creation/evolution proceeding at more rapid pace
- 24 hour/automated trading systems
- Increased demand for electronic information services

INPUT
MPRE90-289b

Notes

© 1990 by INPUT. Reproduction Prohibited.

State and Local Government

INPUT
MPRE90-290a

Notes

© 1990 by INPUT. Reproduction Prohibited.

European Companies

- CAP Gemini Sogetti (CAP-SESA) is parent of CAP GEMINI AMERICA (CGA)
  - Close to $1 billion in 1989
  - Focus on professional services
- Aggressive acquirer
- Will not attack operations market directly
  - Provide support services
  - Emphasizes development market

INPUT
MPRE90-292ab

Notes

© 1990 by INPUT. Reproduction Prohibited.

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"

INPUT
MPRE90-293

Notes

© 1990 by INPUT. Reproduction Prohibited.

Big-Six Accounting Professional Services

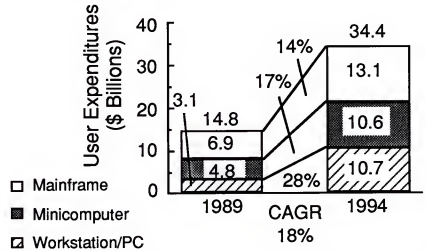
- Predominately accounting/audit
- Professional services growing faster
- Andersen Consulting reorganization
- Entering software markets
  - Andersen's *Foundation*
  - Peat Marwick's *Catalyst*
- Mergers/acquisitions/strategic alliances

INPUT
MPRE90-294ab

Notes

© 1990 by INPUT. Reproduction Prohibited.

Systems Software Product Market by Platform Size, 1989-1994

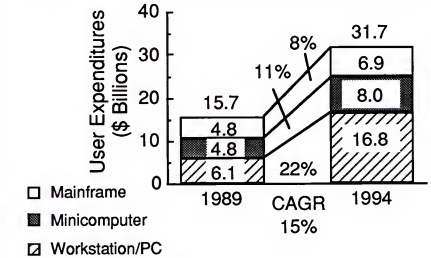


INPUT
MPRE90-295

Notes

© 1990 by INPUT. Reproduction Prohibited.

Applications Software Product Market by Platform Size, 1989-1994



INPUT
MPRE90-296

Notes

© 1990 by INPUT. Reproduction Prohibited.

Network Standards Battle

OSI NM standards

Vendor 'standards'
- Netview, IBM
- UNMA, AT&T
- NetPartner, AT&T
- Other vendors

INPUT
MPRE90-297

Notes

© 1990 by INPUT. Reproduction Prohibited.

CASE Vendors

- Index Technology

  The largest vendor, one of the first, with a front-end focus

- KnowledgeWare

  The first U.S.-based front-end tool developer to introduce a code generator

INPUT
MPRE90-298

Notes

© 1990 by INPUT. Reproduction Prohibited.

CASE Vendors

- Cadre Technologies

  A real-time systems CASE vendor trying to enter the IS market

INPUT
MPRE90-299

Notes

© 1990 by INPUT. Reproduction Prohibited.

CASE Vendors

- Bachman Information Systems

  The first to truly address re-engineering

- Softlab

  An established German vendor entering the U.S. market

INPUT
MPRE90-300

Notes

© 1990 by INPUT. Reproduction Prohibited.

CASE Vendors

- Texas Instruments

  A full I-CASE vendor with a very specific solution

- Andersen Consulting

  A professional services company applying technology to its proven methodology

INPUT
MPRE90-301

Notes

© 1990 by INPUT. Reproduction Prohibited.

Systems Operations
Definition

Operation of all or a major portion of a customer's information systems function on a long-term (more than one year) contract.

INPUT

Notes

MPRE90-302

© 1990 by INPUT. Reproduction Prohibited.

Characteristics of Types of Systems Operations

Location of Main Computer	Ownership of Main Computer	
	Vendor	Customer
Vendor Site	**Processing Services**	Professional Services
Customer Site	Processing Services	**Professional Services**

[ ] Dominant modes

INPUT

Notes

MPRE90-303

© 1990 by INPUT. Reproduction Prohibited.

Characteristics of Types of Systems Operations

Location of Main Computer	Dedication of Main Computer	
	Shared	Single Customer
Vendor Site	**Processing Services**	Processing Services
Customer Site	Professional Services	**Professional Services**

[ ] Dominant modes

INPUT

Notes

MPRE90-304

© 1990 by INPUT. Reproduction Prohibited.

Characteristics of Types of Systems Operations

Application Provider	Type of Systems Operation	
	Platform	Application
Customer	X	
Systems Operation Vendor		X
Third-Party	X	X

New mode of partnership

INPUT

Notes

MPRE90-305

© 1990 by INPUT. Reproduction Prohibited.

Trends

Large Scale SI Projects

→

Systems Operations Contracts

INPUT
MPRE90-306

Notes

© 1990 by INPUT. Reproduction Prohibited.

Systems Operations Buyers' Initial Evaluation Criteria

Ranking	Criteria
1	Better or more-flexible service
2	Availability of operations skills internally
3	Lower operating expenses
4	Faster application changes
5	Data security/privacy
6	Faster new application development

INPUT

Notes

MPRE90-307

© 1990 by INPUT. Reproduction Prohibited.

Systems Operations Buyers' Initial Evaluation Criteria

Ranking	Criteria
7	Ability to add/delete personnel
8	Reduced capital investment requirements
9	Mission-critical application
10	Near-term cash flow improvements
11	Labor relations/unions
12	Executive time commitment

INPUT

Notes

MPRE90-308

© 1990 by INPUT. Reproduction Prohibited.

Systems Operations Targets

- Industry Markets
  - Volatile, rapidly changing environment
    e.g. semiconductor manufacturing, construction
  - Strong cost pressures and systems needs
  - Restructuring, e.g. advertising

INPUT

Notes

MPRE90-309

© 1990 by INPUT. Reproduction Prohibited.

Systems Operations Targets

- Prospect Companies
  - Expanding multinationals, particularly aggressive acquirers
  - Troubled companies, going through turnaround
  - Very fast-growing companies
  - Companies undergoing major organizational changes, e.g. LBOs, divestiture

INPUT

Notes

MPRE90-310

© 1990 by INPUT. Reproduction Prohibited.

Systems Operations Targets

- Prospect Companies
  - Companies wanting to change basic IS architecture (e.g. Honeywell to IBM)
  - Companies with disparate, incompatible computer centers

INPUT

Notes

MPRE90-311a

© 1990 by INPUT. Reproduction Prohibited.

Systems Operations Targets

- Companies with major development contracts with professional services companies without operational capability
- Generally medium/large companies for domestic U.S. services and large/very large for international services

INPUT

Notes

MPRE90-311b

© 1990 by INPUT. Reproduction Prohibited.

Who is the SO Buyer?

- Varies greatly—dependent on prospect
- Individual more than team
- Customized marketing required

INPUT

Notes

MPRE90-312

© 1990 by INPUT. Reproduction Prohibited.

What is the SO Buyer Looking For?

- Depends on the prospect
- Requires customized marketing

INPUT

Notes

MPRE90-313

© 1990 by INPUT. Reproduction Prohibited.

What are the SO Buyer's Key Motivators?

- Most often, solving a problem
- Reducing risk and time often important
- Scarcity of people

INPUT

Notes

MPRE90-314

© 1990 by INPUT. Reproduction Prohibited.

Essential SO Service Requirements

- Computer, communications, software and people package
- Complete, up-to-date operation using accepted standards
- Varied, detailed support requirements
- Simple, accurate billing

INPUT

Notes

MPRE90-315

© 1990 by INPUT. Reproduction Prohibited.

SO Terms Characteristics

- Resource use pricing difficult
- Price-packaging required
- Flexible period of contract
- Charge for value-added support
- Customized contracts

INPUT

Notes

MPRE90-316

© 1990 by INPUT. Reproduction Prohibited.

"Computer Utility" Market

- Small market for supercomputer computation services
- Small, transient market for compute capability only
- All markets require other value-added parameters
  - Operational, "computer-utility"
  - Applications, FM/SO

INPUT

Notes

MPRE90-317

© 1990 by INPUT. Reproduction Prohibited.

Therefore Do Not Use the Term "Computer Utility"

- "Systems utility"
- "Support services"
- "Operations support" (IBM term)
- "Systems operational services" (SOS!)
- "Computer operation services"

INPUT

Notes

MPRE90-318

© 1990 by INPUT. Reproduction Prohibited.

Platform Systems Operations =
Computer/Systems Utility

INPUT

Notes

MPRE90-319

© 1990 by INPUT. Reproduction Prohibited.

Platform Systems Operations

Prospect View of System
Utility Relationship

- "Technology" rather than "application" solution
- View could be:
  - Short-term, solve a problem
  - Long-term, provide basic architecture

INPUT

Notes

MPRE90-320

© 1990 by INPUT. Reproduction Prohibited.

Prospect View of System Utility Relationship

- Account control will vary
  - Strong for technology
  - Medium to weak for applications
  - Varied for people
- Competition for other IT services will be strongly affected

INPUT

Notes

MPRE90-321

© 1990 by INPUT. Reproduction Prohibited.

Prospect View of System Utility Relationship

- Should become stronger over time
- Opportunity for service expansion

INPUT

Notes

MPRE90-322

© 1990 by INPUT. Reproduction Prohibited.

Systems Utility Partnering Opportunity

- Could be key motivator
  - Compute utility/operational capability
  - Vendor application/industry capability

INPUT

Notes

MPRE90-323

© 1990 by INPUT. Reproduction Prohibited.

Impact on Existing Markets

- "Traditional" FM/SO markets could be attacked by combination of:
  - Systems utility
  - Application/industry specialist software/service

INPUT

Notes

MPRE90-324

© 1990 by INPUT. Reproduction Prohibited.

"Systems Utility" Market Potential

- Vast, unmeasurable
- Replaces in-house data/network centers
- Attractive features:
  - Avoids equipment upgrade/choices
  - Avoids software (operating systems/DBMS/ communications) upgrade/operations problems
  - Avoids systems staffing needs and problems
  - Avoids maintenance problems

INPUT

Notes

MPRE90-325

© 1990 by INPUT. Reproduction Prohibited.

"Systems Utility" Market Potential

- Increasingly data/network centers are 'operatorless'
- Can be moved, taken over without users noticing
- INPUT always considered major opportunity

INPUT

Notes

MPRE90-326

© 1990 by INPUT. Reproduction Prohibited.

"Systems Utility" Market Potential

- Questions
  - To what extent will IBM impact its own business?
  - Can anyone else impact the market as well?

INPUT

Notes

MPRE90-327

© 1990 by INPUT. Reproduction Prohibited.

"Systems Utility" Market Potential

- Issues to be addressed:
  - Ownership
  - Control
  - Security
  - Competitiveness
  - People

INPUT

Notes

MPRE90-328

© 1990 by INPUT. Reproduction Prohibited.

Recommendations

- Include systems operations and systems integration in business strategies
- Focus on full service offerings
- Target organizations experiencing change
- Leverage skills and resources

INPUT

Notes

MPRE90-329

© 1990 by INPUT. Reproduction Prohibited.

Systems Integration: Globalized Activity

- Gaining overseas acceptance
- Prime contractors need local subcontractor relationships
- Big players with deep pockets and high visibility required
- Leads to systems operations (facilities management) contracts

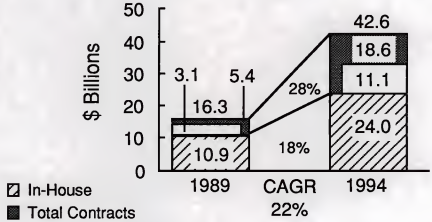
INPUT

Notes

MPRE90-330

© 1990 by INPUT. Reproduction Prohibited.

Commercial Systems Integration Project Value and Expenditures, 1989-1994



INPUT

Notes

SCON-JEF-7

MPRE90-331

© 1990 by INPUT. Reproduction Prohibited.

Key Commercial SI Market Factors

- Rising demand for connectivity
- Major infrastructure rebuilding
- Growing user management trend
- Growing application complexity

INPUT

Notes

SCON-JEF-13

MPRE90-332

© 1990 by INPUT. Reproduction Prohibited.

Cross-Industry Market Distribution, 1989

Cross-Industry	$ Millions	
	Total Value	Average Award
Office	490	6.5
Engineering/Science	428	33.0
Automation	280	13.5
Accounting	208	5.2
Others	140	3.4

INPUT SI Data Base

INPUT

Notes

SCON-JEF-30

MPRE90-333

© 1990 by INPUT. Reproduction Prohibited.

Vendor Selection Criteria

Type	Percent of Respondents
Support skills	64
Service orientation	50
On-site visits	43
References	43
Alliances	21

INPUT

Notes

SCON-JEF-18

MPRE90-334

© 1990 by INPUT. Reproduction Prohibited.

Buyer Acceptance Methodologies

Type	Percent of Respondents
Performance criteria	40
Functionality definition	26
Simulation	13
Prototype/parallel processing/unknown	7 (each)

INPUT

Notes

SCON-JEF-19

MPRE90-335

© 1990 by INPUT. Reproduction Prohibited.

Market Share by Competition Class, Mid-1989

Vendor Class	Percent of Market		
	Federal	Commercial	Overall
Hardware manufacturers	21	24	23
Communication vendors	6	12	9
Professional services	50	30	40
"Big 6"	4	12	8
Aerospace	15	9	12
Other	4	13	8

INPUT

Notes

SCON-JEF-32

MPRE90-336

© 1990 by INPUT. Reproduction Prohibited.

Future Trends

- New domestic and off-shore competitors as primary and secondary vendors
- Increased centralization of vendor SI "product" management
- Increased development of program management methods

INPUT

Notes

SCON-JEF-38

MPRE90-337

© 1990 by INPUT. Reproduction Prohibited.

Future Trends

- Growing marketing/promotion investment
- Formal market strategy development by non-SI vendors
- Telecommunications and engineering companies

INPUT

Notes

SCON-JEF-39

MPRE90-338

© 1990 by INPUT. Reproduction Prohibited.

Conclusions

- Financial characteristics
  - Rapid revenue growth
  - Commercial profits—stable/increasing
  - Federal profits—stable/decreasing

INPUT

Notes

SCON-JEF-41

MPRE90-339

© 1990 by INPUT. Reproduction Prohibited.

Conclusions

- SI market strategies
  - Vertical market penetration
  - Full service emphasis
  - Fewer cross-industry markets
  - User business sensitivity
  - Less emphasis on alliances

INPUT

Notes

SCON-JEF-42

MPRE90-340

© 1990 by INPUT. Reproduction Prohibited.

Conclusions

- Buyer Emphasis
  - Users becoming buyers
  - Interest in solutions, not technology
  - Preference for industry knowledge
  - Project management key
  - Acceptance by performance

INPUT

Notes

SCON-JEF-43

MPRE90-341

© 1990 by INPUT. Reproduction Prohibited.

Vendor Recommendations

- Develop/expand business consulting skills
- Involve program managers in business acquisitions
- Use repeatable processes, strive for end-to-end methodologies

INPUT

Notes

SCON-JEF-44

MPRE90-342

© 1990 by INPUT. Reproduction Prohibited.

Computer Sciences Corp/Infonet

- Continues strong in federal markets
  - Primarily professional services/SI
- Resurgent interest in commercial markets
  - Health and insurance
  - Tax and credit
  - Professional services/SI

INPUT

Notes

MPRE90-343

© 1990 by INPUT. Reproduction Prohibited.

Computer Sciences Corp/Infonet

- Acquisitions key to commercial activities
  - Index
  - Computer Partners

INPUT

Notes

MPRE90-344

© 1990 by INPUT. Reproduction Prohibited.

IBM

- Fundamental changes
- 1. Sales incentives for services
- 2. Willingness to provide systems operations services

INPUT

Notes

MPRE90-345

© 1990 by INPUT. Reproduction Prohibited.

IBM National Services Division

- Will provide systems operations for customers
- 30,000 people
- Works with IBM's SID and INS operations

INPUT

Notes

MPRE90-346

© 1990 by INPUT. Reproduction Prohibited.

IBM National Services Division

- Provides all "operations support" functions
  - Data center design and building
  - Remote, "Lights-out" data center operations
  - Hardware/software/network maintenance
  - Disaster recovery
  - End-user software support
  - Systems operations studies
  - Conversion services

INPUT

Notes

MPRE90-347

© 1990 by INPUT. Reproduction Prohibited.

Aerospace Subsidiaries

- Tried the "Computer Utility" route
- Have enjoyed limited success
- Successes
  1. Government
     - BCS
     - Gruman
     - MMDS
  2. Specialized areas
     - TRW

INPUT

Notes

MPRE90-348

© 1990 by INPUT. Reproduction Prohibited.

Aerospace Companies

- Litton Computer Services
- Provides "computer utility" processing services
  - $30M revenues
  - "Packaged" pricing
  - Emphasis in Los Angeles

INPUT

Notes

MPRE90-349

© 1990 by INPUT. Reproduction Prohibited.

European Companies

- Hoskyns:
  - Very successful in FM
  - Good "computer utility" model
  - Avoided industry specialization
- Thorn-EMI
  - Also successful in processing utility
- SD-Scicon, GSI, Sema-Cap, others
- PTTs becoming more aggressive

INPUT

Notes

MPRE90-350

© 1990 by INPUT. Reproduction Prohibited.

Japanese Companies

- NT&T Data Services
  - Primary market government
  - SI/Systems operations
- Many VAN companies (500)

INPUT

Notes

MPRE90-351

© 1990 by INPUT. Reproduction Prohibited.

U.S. Information Services Market

INPUT
MPRE90-352

Notes

© 1990 by INPUT. Reproduction Prohibited.

Summing It Up

- Broadening product strategies
- Emphasis on "solution" niches
- Focus on quality and service

Accomplished through:

- Self-funded expansion
- Consolidation—partnering/acquisitions

INPUT
MPRE90-353

Notes

© 1990 by INPUT. Reproduction Prohibited.

Where's the Productivity?

INPUT
MPRE90-354

Notes

© 1990 by INPUT. Reproduction Prohibited.

Technology is a Mixed Blessing

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

INPUT
MPRE90-355

Notes

© 1990 by INPUT. Reproduction Prohibited.

The Human Element

- Changing systems is a process
- Evolution not revolution

INPUT
MPRE90-356

Notes

© 1990 by INPUT. Reproduction Prohibited.

Concerns

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

INPUT
MPRE90-357

Notes

© 1990 by INPUT. Reproduction Prohibited.

CIM—The Human Element

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

INPUT
MPRE90-358

Notes

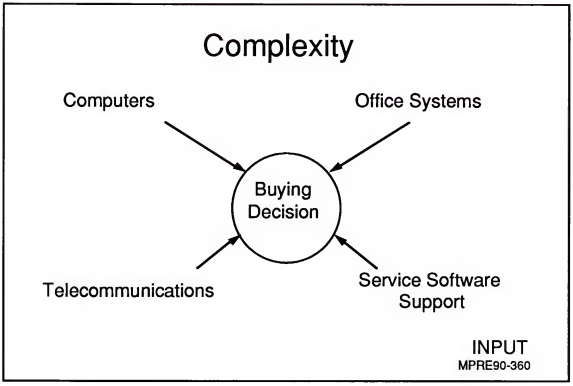
© 1990 by INPUT. Reproduction Prohibited.

V.P. Humatics

INPUT
MPRE90-359

Notes

© 1990 by INPUT. Reproduction Prohibited.



Notes

© 1990 by INPUT. Reproduction Prohibited.

Law 1

Rate of supply >
rate of absorption

INPUT
MPRE90-361

Notes

© 1990 by INPUT. Reproduction Prohibited.

IS Trends

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

INPUT
MPRE90-362

Notes

© 1990 by INPUT. Reproduction Prohibited.

Next Generation of DBMSs

- Distributed/networked
- Interconnected
- Relational +
- Information-oriented
- Hardware-assisted

INPUT
MPRE90-363

Notes

© 1990 by INPUT. Reproduction Prohibited.

Strategic Values

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

INPUT
MPRE90-364

Notes

© 1990 by INPUT. Reproduction Prohibited.

Without Change There is No Benefit from IS

INPUT
MPRE90-365

Notes

© 1990 by INPUT. Reproduction Prohibited.

Corporate Organization

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

INPUT
MPRE90-366

Notes

© 1990 by INPUT. Reproduction Prohibited.

Limits to Growth

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

INPUT
MPRE90-367

Notes

© 1990 by INPUT. Reproduction Prohibited.

Buying Process Changing

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

INPUT
MPRE90-368

Notes

© 1990 by INPUT. Reproduction Prohibited.

IS Issues

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

INPUT
MPRE90-369

Notes

© 1990 by INPUT. Reproduction Prohibited.

Development

- Where performed?
- By whom?

INPUT
MPRE90-370

Notes

© 1990 by INPUT. Reproduction Prohibited.

Telecommunications

- Responsibility?
- Integration?

INPUT
MPRE90-371

Notes

© 1990 by INPUT. Reproduction Prohibited.

Internal IS Considerations

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

INPUT
MPRE90-372

Notes

© 1990 by INPUT. Reproduction Prohibited.

Other Issues

- Education and training
- Standards and policies

INPUT
MPRE90-373

Notes

© 1990 by INPUT. Reproduction Prohibited.

Make vs. Buy

INPUT
MPRE90-374

Notes

© 1990 by INPUT. Reproduction Prohibited.

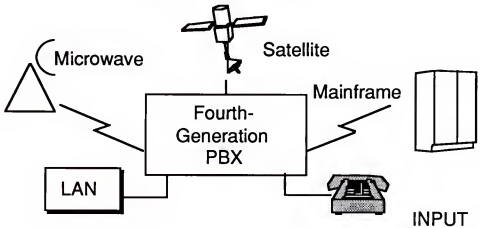
Micro-Mainframe
vs.
Micro-LAN-Mainframe
vs.
Micro-Mini-Mainframe

INPUT
MPRE90-375

Notes

© 1990 by INPUT. Reproduction Prohibited.

Fourth-Generation PBX: The Voice/Data Manager of the Future



INPUT
MPRE90-376

Notes

© 1990 by INPUT. Reproduction Prohibited.

The Network Will Become the System

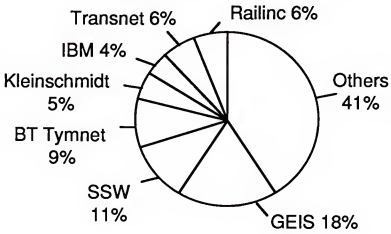
- Implications for users
  - Nodes are almost equal in power
  - Telecommunications skills are vital
  - IS management at many nodes
  - More complex systems design

INPUT
MPRE90-377

Notes

© 1990 by INPUT. Reproduction Prohibited.

EDI Network Services Market Shares



Excludes private networks, EMC, interface, federal

INPUT
MPRE90-378

Notes

© 1990 by INPUT. Reproduction Prohibited.

Forecasts Are for U.S. Non-Captive User Expenditures, in Current Period Dollars.

INPUT
MPRE90-379

Notes

© 1990 by INPUT. Reproduction Prohibited.

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

INPUT
MPRE90-380

Notes

© 1990 by INPUT. Reproduction Prohibited.

Blocking Factors

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

Create opportunities for the information services industry

INPUT
MPRE90-381

Notes

© 1990 by INPUT. Reproduction Prohibited.

Technology Trends

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

INPUT
MPRE90-382

Notes

© 1990 by INPUT. Reproduction Prohibited.

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	

INPUT
MPRE90-383

Notes

© 1990 by INPUT. Reproduction Prohibited.

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

INPUT
MPRE90-384

Notes

© 1990 by INPUT. Reproduction Prohibited.

Information Services Industry Trends

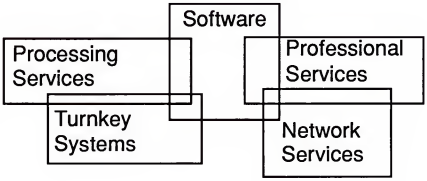
INPUT
MPRE90-385

Notes

© 1990 by INPUT. Reproduction Prohibited.

IS Market Structure—1980s

INPUT's View



INPUT
MPRE90-386

Notes

© 1990 by INPUT. Reproduction Prohibited.

Market Forecasts
1989-1994

INPUT
MPRE90-387

Notes

© 1990 by INPUT. Reproduction Prohibited.

Impact of Equipment Slowdown on Information Services

- Information services will lag Equipment
- Selective downturn
  - Mainframe-related
  - Minicomputer-related

INPUT
MPRE90-388

Notes

© 1990 by INPUT. Reproduction Prohibited.

Impact of Equipment Slowdown
(Short-Term)

	Change in Growth Rate
Processing Services	
- Transaction Processing	↑
- Systems Operations (FM)	↑
Network Services	
- On-Line Data Bases	—
Software Products	↓

INPUT
MPRE90-389

Notes

© 1990 by INPUT. Reproduction Prohibited.

Impact of Equipment Slowdown
(Short-Term)

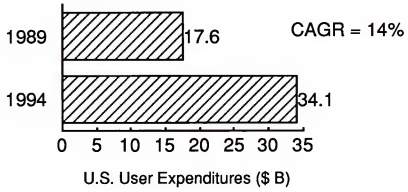
	Change in Growth Rate
Turnkey Systems	↓
Professional Services	
- Consulting	↑
- Software Development	↑
- Education/Training	↓
- Systems Operations	↓
Systems Integration	↓

INPUT
MPRE90-390

Notes

© 1990 by INPUT. Reproduction Prohibited.

Professional Services Market Forecast

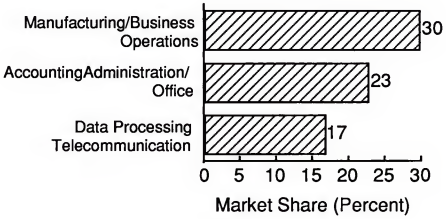


INPUT
MPRE90-391

Notes

© 1990 by INPUT. Reproduction Prohibited.

Professional Services Expenditures by Application Area

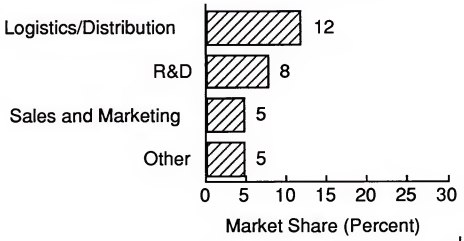


INPUT
MPRE90-392a

Notes

© 1990 by INPUT. Reproduction Prohibited.

Professional Services Expenditures by Application Area



INPUT
MPRE90-392b

Notes

© 1990 by INPUT. Reproduction Prohibited.

Professional Services Major Trends

- New technology creates demand
  - Conversions
  - Knowledge-based systems
  - Cooperative processing
  - Networking
  - C++
  - Image processing
  - Multimedia systems

INPUT
MPRE90-393

Notes

© 1990 by INPUT. Reproduction Prohibited.

Major Vendors' Shares of Total U.S. Professional Services Market—1988

Company Name	1988 US Revenue ($ M)*	Market Share (Percent)
IBM	1,180	8
GM/EDS	740	5
Andersen Consulting	500	3
Unisys Corporation	440	3
CSC Corporation	415	3

* INPUT Estimates

INPUT
MPRE90-394

Notes

© 1990 by INPUT. Reproduction Prohibited.

Major Vendors' Shares of Total U.S. Professional Services Market—1988

Company Name	1988 US Revenue ($ M)*	Market Share (Percent)
Emhart/Planning Research	320	2
Ford Aerospace/BDM Int'l	300	2
TRW, Inc.	290	2

* INPUT Estimates

INPUT
MPRE90-395

Notes

© 1990 by INPUT. Reproduction Prohibited.

Major Vendors' Shares of Total U.S. Professional Services Market—1988

Company Name	1988 US Revenue ($ M)*	Market Share (Percent)
Boeing Computer Services	240	1
Peat Marwick	190	1

* INPUT Estimates

INPUT
MPRE90-396

Notes

© 1990 by INPUT. Reproduction Prohibited.

Opportunities and Recommendations

- Specialize
- Develop alliances within other delivery modes
- Enhance education and training offerings
- Follow standards and regulatory processes
- Monitor new technologies

INPUT
MPRE90-397

Notes

© 1990 by INPUT. Reproduction Prohibited.

Processing Services Opportunities

- Voice/data processing services
- Link to network services
- Catastrophic health care bill
- Time-sensitive solutions
- Bank and financial services processing
- Non-IBM disaster recovery
- Time-shared super-computing

INPUT
MPRE90-400

Notes

© 1990 by INPUT. Reproduction Prohibited.

Transaction Processing

- Major Trends
  - Continuing trend for users "outsourcing"
  - Customer inertia
  - Vendor ability to deliver proven results quickly
  - Strong vendor positions in specific niches
  - Continual improvement in workstation/PC price performance

INPUT
MPRE90-401

Notes

© 1990 by INPUT. Reproduction Prohibited.

Recommendations

- Evaluate role of new technologies/ applications
- Determine how transmitted data can be processed
- Understand technical requirements for connection between user's operations and your services

INPUT
MPRE90-402

Notes

© 1990 by INPUT. Reproduction Prohibited.

Network/Electronic Information Services Market—Driving Forces

- Business need for rapidly available electronic information
- RBOC entry
- Network management services
- Voice information services
- Transaction "electronification"

INPUT
MPRE90-403

Notes

© 1990 by INPUT. Reproduction Prohibited.

Network/Electronic Information Services Market—Driving Forces

- PC population
- Consumer information services
- ISDN
- EDI popularity
- Wide-area networking

INPUT
MPRE90-404

Notes

© 1990 by INPUT. Reproduction Prohibited.

Network/Electronic Information Services Market—Inhibiting Forces

- Data overload
- CD/ROM as alternative
- Profitability questions

INPUT
MPRE90-405

Notes

© 1990 by INPUT. Reproduction Prohibited.

Software Products

INPUT
MPRE90-407

Notes

© 1990 by INPUT. Reproduction Prohibited.

Software Products Market Issues

- Hardware and software development moving toward synchronization
- Software vendors promoting a number of "de facto" standards
- Technical, not market, differentiation

INPUT
MPRE90-408

Notes

© 1990 by INPUT. Reproduction Prohibited.

Software Products Market Issues

- Software complexity increasing
- Development resources decreasing
- Product life cycles
- Capital supply constraints
- Redundant software products

INPUT
MPRE90-409

Notes

© 1990 by INPUT. Reproduction Prohibited.

Vendor-Related Driving Forces

- Computer equipment
  - Link disparate product lines
  - Leverage system software
  - Leverage 3rd party software relationships
- Computer software
  - Leverage software development efforts
  - Maximize equipment vendor relationships

INPUT
MPRE90-410

Notes

© 1990 by INPUT. Reproduction Prohibited.

Major Vendors' Shares of Systems Software Market—1988

Company Name	1988 US Revenue ($ M)*	Market Share (Percent)
IBM Corporation	2,800	23
Digital Equipment Corp.	900	7
Computer Associates	570	5
Unisys Corporation	500	4
Hewlett-Packard	230	2

* INPUT Estimates

INPUT
MPRE90-411

Notes

© 1990 by INPUT. Reproduction Prohibited.

Major Vendors' Shares of Systems Software Market—1988

Company Name	1988 US Revenue ($ M)*	Market Share (Percent)
Ashton-Tate	200	2
Microsoft	180	1
Wang Laboratories	170	1
NCR Corporation	160	1
Novell, Inc.	150	1
Cincom Systems	140	1

* INPUT Estimates

INPUT
MPRE90-412

Notes

© 1990 by INPUT. Reproduction Prohibited.

Vertical Markets

INPUT
MPRE90-413

Notes

© 1990 by INPUT. Reproduction Prohibited.

Conclusions

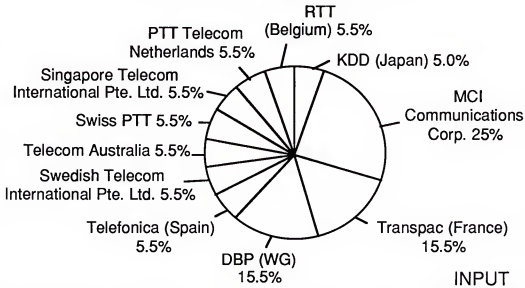
- Double-digit annual growth for all vendors no longer "automatic"
- Worldwide markets offer real opportunities
- All vendors need alliances
- Consolidation will continue
- Standards play key role
- Users want total solutions

INPUT
MPRE90-414

Notes

© 1990 by INPUT. Reproduction Prohibited.

INFONET Ownership



INPUT
MPRE90-415

Notes

© 1990 by INPUT. Reproduction Prohibited.

Application Development Key Issues

Issue	Resp.
Productivity & quality	38
Use of technology	16
Responsiveness	14
Development process	11

INPUT
MPRE90-416

Notes

© 1990 by INPUT. Reproduction Prohibited.

MIRE 89 266

Applications Development Summary

- Backlog will never go away
- External resources becoming more common

INPUT
MPRE90-417

Notes

© 1990 by INPUT. Reproduction Prohibited.

MPRE89 268

Applications Development Summary

- End user becoming a force and alternative
- Relational DBMS use in full bloom
- Data Management Will Have to Change

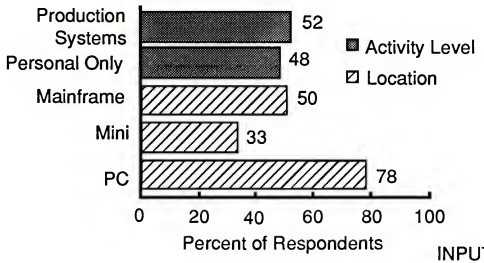
INPUT
MPRE90-418

Notes

© 1990 by INPUT. Reproduction Prohibited.

MPRE89 269

Development by the End User



INPUT
MPRE90-419

Notes

© 1990 by INPUT. Reproduction Prohibited.

MPIK581 267

CASE Tools

New Development

Lifecycle Management	
Design	Code Generation
Documentation	

Maintenance

- Translators
- Analyzers
- Comparators
- Restructurers

INPUT
MPRE90-420

Notes

© 1990 by INPUT. Reproduction Prohibited.

MPRE89 106

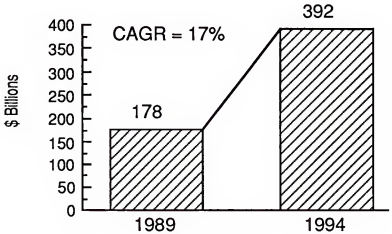
Application Development/CASE

INPUT
MPRE90-421

Notes

© 1990 by INPUT. Reproduction Prohibited.

Worldwide Market Summary
Five-Year Forecast 1989-1994

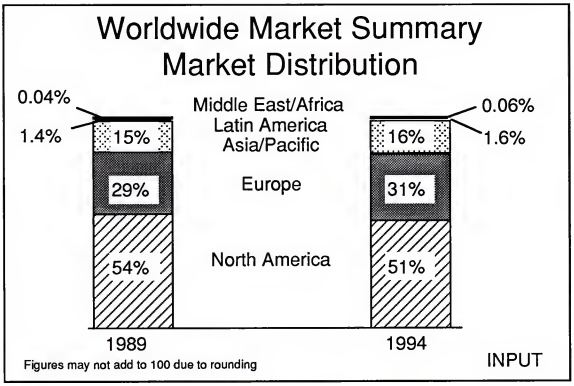


INPUT

Notes

MPRE90-A

© 1989 by INPUT. Reproduction Prohibited.

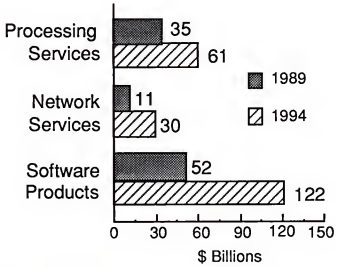


Notes

MPRE90-B

© 1989 by INPUT. Reproduction Prohibited.

Worldwide Market Summary by Delivery Mode



	CAGR (Percent) World	CAGR (Percent) U.S.
Processing Services	12	12
Network Services	22	20
Software Products	19	17

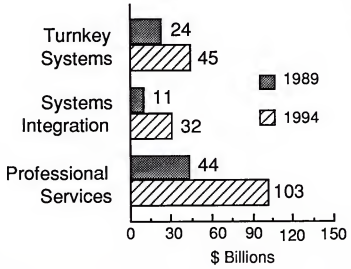
INPUT

Notes

MPRE90-C

© 1989 by INPUT. Reproduction Prohibited.

Worldwide Market Summary by Delivery Mode



	CAGR (Percent) World	CAGR (Percent) U.S.
Turnkey Systems	13	9
Systems Integration	24	24
Professional Services	19	14

INPUT

Notes

MPRE90-D

© 1989 by INPUT. Reproduction Prohibited.