



**Turban, Aronson, and Liang
Decision Support Systems and Intelligent Systems,
Seventh Edition**

**Chapter 1
Management Support Systems:
An Overview**





Learning Objectives

- Understand how management uses computer technologies.
- Learn basic concepts of decision-making.
- Understands decision support systems.
- Recognize different types of decision support systems used in the workplace.
- Determine which type of decision support system is applicable in specific situations.
- Learn what role the Web has played in the development of these systems.



Harrah's Makes a Great Bet Vignette

- Data Warehouse
- Data Mining
- Business Intelligence
- Transaction Processing System
- Customer Relationship Management
- Decision Support System



Mintzberg's 10 Management Roles

- Interpersonal
 - Figurehead
 - Leader
 - Liaison
- Informational
 - Monitor
 - Disseminator
 - Spokesperson
- Decisional
 - Entrepreneur
 - Disturbance Handler
 - Resource Allocation
 - Negotiator



Productivity

- The ratio of outputs to inputs that measures the degree of success of an organization and its individual parts



Factors Affecting Decision-Making

- New technologies and better information distribution have resulted in more alternatives for management.
- Complex operations have increased the costs of errors, causing a chain reaction throughout the organization.
- Rapidly changing global economies and markets are producing greater uncertainty and requiring faster response in order to maintain competitive advantages.
- Increasing governmental regulation coupled with political destabilization have caused great uncertainty.



What do Decision Support Systems Offer?

- Quick computations at a lower cost
- Group collaboration and communication
- Increased productivity
- Ready access to information stored in multiple databases and data warehouse
- Ability to analyze multiple alternatives and apply risk management
- Enterprise resource management
- Tools to obtain and maintain competitive advantage



Cognitive Limits

- The human mind has limited processing and storage capabilities.
- Any single person is therefore limited in their decision making abilities.
- Collaboration with others allows for a wider range of possible answers, but will often be faced with communications problems.
- Computers improve the coordination of these activities.
- This knowledge sharing is enhanced through the use of GSS, KMS, and EIS.



Management Support Systems

- The support of management tasks by the application of technologies
 - Sometimes called Decision Support Systems or Business Intelligence



Management Support Systems Tools

- DSS
- Management Science
- Business Analytics
- Data Mining
- Data Warehouse
- Business Intelligence
- OLAP
- CASE tools
- GSS
- EIS
- EIP
- ERM
- ERP
- CRM
- SCM
- KMS
- KMP
- ES
- ANN
- Intelligent Agents
- E-commerce DSS

Decision Support Frameworks

	Type of Control		
Type of Decision:	Operational Control	Managerial Control	Strategic Planning
Structured (Programmed)	Accounts receivable, accounts payable, order entry	Budget analysis, short-term forecasting, personnel reports	Investments, warehouse locations, distribution centers
Semistructured	Production scheduling, inventory control	Credit evaluation, budget preparation, project scheduling, rewards systems	Mergers and acquisitions, new product planning, compensation, QA, HR policy planning
Unstructured (Unprogrammed)	Buying software, approving loans, help desk	Negotiations, recruitment, hardware purchasing	R&D planning, technology development, social responsibility plans

Technologies for Decision-Making Processes

Type of Decision	Technology Support Needed
Structured (Programmed)	MIS, Management Science Models, Transaction Processing
Semistructured	DSS, KMS, GSS, CRM, SCM
Unstructured (Unprogrammed)	GSS, KMS, ES, Neural networks

Technology Support Based on Anthony's Taxonomy

	Type of Control		
	Operational Control	Managerial Control	Strategic Planning
Technology Support Needed	MIS, Management Science	Management Science, DSS, ES, EIS, SCM, CRM, GSS, SCM	GSS, CRM, EIS, ES, neural networks, KMS

Figure 1.2 Decision Support Frameworks

Type of Decision	Type of Control			Technology Support Needed
	Operational Control	Managerial Control	Strategic Planning	
Structured	Accounts receivable, account payable, order entry 1	Budget analysis, short-term forecasting, personnel reports, make-or-buy 2	Financial management (investment), warehouse location, distribution systems 3	Management information system, management science models, transaction processing
Semistructured	Production scheduling, inventory control 4	Credit evaluation, budget preparation, plant layout, project scheduling, reward system design, inventory categorization 5	Building new plant, mergers and acquisitions, new product planning, compensation planning, quality assurance planning, HR policies, inventory planning 6	DSS, KMS, GSS, CRM, SCM
Unstructured	Selecting a cover for a magazine, buying software, approving loans help desk 7	Negotiating, recruiting an executive, buying hardware, lobbying 8	R & D planning, new technology development, social responsibility planning 9	GSS, KMS ES, neural networks
Technology Support Needed	Management information system, management science	Management science, DSS, ES, EIS, SCM CRM, GSS, SCM	GSS, CRM EIS, ES, neural networks, KMS	



Management Science/Operations Research

- Adopts systematic approach
 - Define problem
 - Classify into standard category
 - Construct mathematical model
 - Evaluate alternative solutions
 - Select solution



Enterprise Information Systems

- Evolved from Executive Information Systems combined with Web technologies
- EIPs view information across entire organizations
- Provide rapid access to detailed information through drill-down.
- Provide user-friendly interfaces through portals.
- Identifies opportunities and threats



Enterprise Information Systems

- Specialized systems include ERM, ERP, CRM, and SCM
- Provides timely and effective corporate level tracking and control.
- Filter, compress, and track critical data and information.



Knowledge Management Systems

- Knowledge that is organized and stored in a repository for use by an organization
- Can be used to solve similar or identical problems in the future
- ROIs as high as a factor of 25 within one to two years



Expert Systems

- Technologies that apply reasoning methodologies in a specific domain
- Attempts to mimic human experts' problem solving
- Examples include:
 - Artificial Intelligence Systems
 - Artificial Neural Networks (neural computing)
 - Genetic Algorithms
 - Fuzzy Logic
 - Intelligent Agents



Hybrid Support Systems

- Integration of different computer system tools to resolve problems
- Tools perform different tasks, but support each other
- Together, produce more sophisticated answers
- Work together to produce smarter answers



Emerging Technologies

- Grid computing
- Improved GUIs
- Model-driven architectures with code reuse
- M-based and L-based wireless computing
- Intelligent agents
- Genetic algorithms
- Heuristics and new problem-solving techniques