

Chapter

5

Supporting Decision Making

Chapter Highlights

- Introduction
- Decision support systems
- Management information systems
- Online analytical processing
- Using decision support systems
- Executive information systems
- Enterprise information portals
- Knowledge management systems

Learning Objectives

- Identify the changes taking place in the form and use of decision support in business.
- Identify the role and reporting alternatives of management information systems.
- Describe how online analytical processing can meet key information needs of managers.
- Explain how the following IS can support the information needs of executives, managers and business professionals:
 - a. Executives information systems
 - b. Enterprise information portals
 - c. Knowledge management systems

INTRODUCTION

- To succeed in business today, companies need IS that can support the diverse information and decision making needs of their managers and business professionals.
- Internet, Intranets and other Web enabled information technologies have significantly support the role that IS play in supporting the decision making activities of every managers and knowledge workers in business.

- The type of information required by decision makers in a company is directly related to the level of management decision making and the amount of structure in the decision situations they face.
- Levels of managerial decision making that must be supported by information technology in a successful organization are:
 - Strategic management
 - Tactical management
 - Operational management

- **Strategic Management**

- Board of directors and an executive committee of the CEO and top executives develop overall organizational goals, strategies, policies and objectives as part of a strategic planning process.
- They also monitor the strategic performance of the organization and its overall direction in the political, economic and competitive business environment.

- **Tactical Management**

- Business professionals in self directed teams as well as business unit managers develop short and medium range plans, schedules and budgets and specify the policies, procedure and business objectives for their subunits of the company.
- They also allocate resources and monitor the performance of their organizational subunits, including departments, divisions, process teams, project teams and other workgroups.

- **Operational Management**

- The members of self-directed teams or operating managers develop short-range plans such as weekly production schedules.
- They direct the use of resources and the performance of tasks according to procedures and within budgets and schedules they establish for the teams and other workgroups of the organization.

DECISION SUPPORT SYSTEMS

- DSS are computer based IS that provide interactive information support to managers and business professionals during the decision making process.
- DSS use:
 1. analytical models
 2. specialized databases
 3. decision makers own insights and judgments
 4. an interactive computer based modeling process to support semi structured business decisions.

MANAGEMENT INFORMATION SYSTEMS

- An MIS produces information products that support many of the day-to-day decision making needs of managers and business professionals.
- MIS provide a variety of information products to managers. Four major reporting alternatives are:
 - Periodic scheduled reports
 - Exception report
 - Demand reports and responses
 - Push reporting

- **Periodic scheduled reports**

- This traditional form of providing information to managers uses a pre-specified format designed to provide managers with information on a regular basis.
- Typical examples of such periodic scheduled reports are daily or weekly sales analysis reports and monthly financial statements.

- **Exception reports**

- In some cases, reports are produced only when exceptional conditions occur. In other cases, reports are produced periodically but contain information only about these exceptional conditions.
- For example, a credit manager can be provided with a report that contains only information on customers who have exceeded their credit limits.

- Demand reports and responses
 - Information is available whenever a manager demands it.
 - For example, Web browsers, DBMS query language and report generators enable managers at PC workstations to get immediate responses or to find and obtain customized reports as a result of their requests for the information they need

- **Push reporting**

- Information is pushed to a managers networked workstation. Thus, many companies are using Webcasting software to broadcast selectively reports and other information to the networked PCs of managers and specialists over their corporate intranets.

ONLINE ANALYTICAL PROCESSING

- OLAP enables managers and analysts to interactively examine and manipulate large amounts of detailed and combine data from many perspectives.
- OLAP involves analyzing complex relationship among thousands or even millions of data items stored in data marts, data warehouses and other multidimensional databases to discover patterns, trends and exception conditions.

- Online analytical processing involves several basic analytical operations including:

- Consolidation
- Drill down
- Slicing and dicing

- **Consolidation**

- Involves the aggregation of data, which can involve simple roll-ups or complex grouping involving interrelated data.
- Example, data about sales offices can be rolled up to the district level and the district level data can be rolled up to provide a regional level perspective.

- **Drill down**
 - OLAP can also go in the reverse direction and automatically display detailed data that comprise consolidated data. This process is called drill down.
 - For example, the sales by individual products or sales reps that make up a region's sales totals could be easily accessed.

- **Slicing and dicing**

- Refers to the ability to look at the database from different viewpoints.
- One slice of the sales database might show all sales of a product type within regions.
- Another slice might show all sales by sales channel within each product type.
- Slicing and dicing is often performed along a time axis to analyze trends and find time – based patterns in the data.

- OLAP Examples
 - Marketing and sales analysis
 - Database marketing
 - Budgeting
 - Financial reporting
 - Profitability analysis
 - Quality analysis

USING DECISION SUPPORT SYSTEMS

- A decision support system involves an interactive analytical modeling process.
- For example, using a DSS software package for decision support may result in a series of displays in response to alternative what – if changes entered by a manager.

- This differs from the demand responses of MIS because decision makers are not demanding pre-specified information rather they are exploring possible alternatives.
- Thus, they do not have to specify their information needs in advance.

- Four basic types of analytical modeling activities are involved in using a decision support system:
 - What-if analysis
 - Sensitivity analysis
 - Goal-seeking analysis
 - Optimization analysis

- **What-if analysis**
 - Observing how changes to selected variables affect other variables.
 - Example: what if we cut advertising by 10 percent? What would happen to sales?
- **Sensitivity analysis**
 - observing how repeated changes to a single variable affect other variable.
 - Example: lets cut advertising by 100 repeatedly so we can see its relationship to sales.

- **Goal-seeking analysis**
 - Making repeated changes to selected variables until a chosen variable reaches a target value.
 - Example: lets try increases in advertising until sales reach 1 million.
- **Optimization analysis**
 - Finding an optimum value for selected variables, given certain constraints.
 - Example: what's the best amount of advertising to have, given our budget and choice of media?

EXECUTIVE INFORMATION SYSTEMS

- EIS, information is presented in forms tailored to the preferences of the executives using the system.
- For example, most EIS emphasize the use of GUI as well as graphics displays can be customized to the information preferences of executives using the EIS.

ENTERPRISE INFORMATION PORTAL

- EIP is a Web based interface and integration of MIS, DSS, EIS and other technologies that give all intranet users and selected extranet users access to a variety of internal and external business applications and services.
- For example, internal applications might include access to e-mail, web sites and discussion groups, customer and other corporate databases.

KNOWLEDGE MANAGEMENT SYSTEMS

- For many companies, enterprise information portals are the entry to corporate intranets that serve as their KMS.
- Thus enterprise knowledge portals play an essential role in helping companies use their intranets as KMS to share and disseminate knowledge in support of business decision making by managers and business professionals.