

## Chapter 16: Strategic Role of Information Systems

### Management Information Systems

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## Relevance of Information to Management Decisions

- Managers are not able to directly observe all aspects of operations and therefore depend on information in the form of reports to help them.
- Management are faced by an accelerating rate of change, an ever more complex environment and at higher levels, by considerable uncertainty.
- It is difficult to produce relevant information but ironically, it is even more important to managers today.

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## What is an MIS?

- To convert data from internal & external sources into information
- To communicate this information to managers
- To enable them to make timely and effective decisions
- Emphasis on the use of information, not on how it is produced.

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## Definition of MIS

- The definition of a Management Information System is:
  - ◆ *A system to convert data from internal and external sources into information and to communicate this information, in an appropriate form, to managers at all levels in all functions to enable them to make timely and effective decisions for planning, directing and controlling the activities for which they are responsible.*

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## Input to MIS

- **Internal Data Sources:** TPS and ERP systems and related databases; data warehouses and data marts; specific functional areas throughout the firm
- **External Data Sources:** Customers, suppliers, competitors, and stockholders, whose data is not already captured by the TPS; the Internet; extranets

## Outputs of MIS

- **Scheduled Report:** Produced periodically, or on a schedule
- **Key-indicator Report:** Summary of the previous day's critical activities
- **Demand Report:** Developed to give certain information at someone's request
- **Exception Report:** Automatically produced when a situation is unusual or requires management action
- **Drill-down Report:** Provides increasingly detailed data about a situation

## MIS and IT

- An MIS in today's context is usually a mixture, with the computer being used for storage and processing of data, while the human processes come into play when judgment is called for, or when an unusual situation arises.
- Information technology is not essential to an MIS but it can be very useful.
- At higher levels of management, there is a greater amount of unstructured problems and decisions where human involvement is essential.

## Management Levels

- Management is often divided into three levels based on the type of management activity performed.
  - ◆ Strategic Management
  - ◆ Tactical Management
  - ◆ Operational Management



## Strategic Management

- Strategic management deals with long range considerations.
- Decisions to be made deal with the choice of business direction, market strategy, product mix, etc.

## Tactical Management

- Tactical management has a medium term planning horizon.
- It includes acquisition and organization of resources, structuring of work, and recruiting and training of personnel.

## Operational Management

- Operational management is related to short term decisions for current operations.
- Pricing, production levels, inventory levels, etc, are the result of operational planning and control.

## MIS for Operational Management

- At the operational management level, the main concern is with the implementation and control of the day-to-day activities of the organization.
- Operational management require their MIS to provide them detailed control information about transactions.

## MIS for Tactical Management

- Tactical level management implement strategic objectives and monitor operations.
- Unlike MIS at the operational level, there is no best design for tactical level MIS.
- In many cases, the MIS for tactical management is part of a transaction processing system.
- Control systems with information feedback are essential to carry out the monitoring role and it is this level which administers most of the well known conventional control systems such as budgetary control, production control, inventory control and so on.

## MIS for Strategic Management

- Strategic planning and decision making involves setting a long term direction for the company.
- Strategic management needs to understand the environment and predict key trends and challenges facing the organization in the future.
- There is a need for MIS to obtain information about the environment by a scanning and information gathering process in order to identify potential threats and opportunities.

## Problems with MIS

- MIS cannot provide management with the information they need due to the following reasons:
  - ◆ Lack of Management Direction
  - ◆ Lack of management knowledge of computers
  - ◆ Lack of top management support
  - ◆ Lack of management participation in MIS design
  - ◆ Management do not always know what information they need
  - ◆ IT personnel often do not know enough about management to produce relevant information for the managers they serve

## Comparison of DSS and MIS

Factor	DSS	MIS
Problem Type	A DSS is good at handling unstructured problems that cannot be easily programmed.	An MIS is normally used only with more structured problems.
Users	A DSS supports individuals, small groups, and the entire organization. In the short run, users typically have more control over a DSS.	An MIS supports primarily the organization. In the short run, users have less control over an MIS.
Support	A DSS supports all aspects and phases of decision making; it does not replace the decision maker—people still make the decisions.	This is not true of all MIS systems—some make automatic decisions and replace the decision maker.
Emphasis	A DSS emphasizes actual decisions and decision-making styles.	An MIS usually emphasizes information only.
Approach	A DSS is a direct support system that provides interactive reports on computer screens.	An MIS is typically an indirect support system that uses regularly produced reports.
System	The computer equipment that provides decision support is usually online (directly connected to the computer system) and related to real time (providing immediate results). Computer terminals and display screens are examples—these devices can provide immediate information and answers to questions.	An MIS, using printed reports that may be delivered to managers once a week, may not provide immediate results.
Speed	Because a DSS is flexible and can be implemented by users, it usually takes less time to develop and is better able to respond to user requests.	An MIS's response time is usually longer.
Output	DSS reports are usually screen oriented, with the ability to generate reports on a printer.	An MIS, however, typically is oriented toward printed reports and documents.
Development	DSS users are usually more directly involved in its development. User involvement usually means better systems that provide superior support. For all systems, user involvement is the most important factor for the development of a successful system.	An MIS is frequently several years old and often was developed for people who are no longer performing the work supported by the MIS.

## Comparison between MIS, DSS and TPS

- A MIS generates accurate, timely and organized information to allow managers to make decisions and solve problems, while a DSS is used more to help users analyze data and make decision.
- A TPS on the other hand, captures and processes data from the daily business activities.

## Chapter 16: Strategic Role of Information Systems

### Strategic Role of Information Systems

## Strategic Role of Information Systems

- Information systems are no longer restricted to backroom support roles.
- Organizations are increasingly aware of the potential strategic applications of information systems.

## Competitive Forces

- Michael Porter discussed 5 organization-level competitive forces in an industry which together determine how strong an organization is in its industry.
- These forces are:
  - ◆ Bargaining Power of Suppliers
  - ◆ Bargaining Power of Buyers
  - ◆ Threats of New Entrants
  - ◆ Threats of Substitution
  - ◆ Intensity of Rivalry

## Bargaining Power of Suppliers

- The bargaining power of suppliers is high if there are concentrated sources of supply and few substitutes.
- If these near monopoly situations, the suppliers can push prices upward and can be indifferent about service or quality.
- Information Technology can be used to reduce supplier power by developing in-house capability to produce or service or buying into a supplier.

## Bargaining Power of Buyers

- When buyer is high (e.g. when the buyer is large and/or the products are undifferentiated), then there is downward pressure on prices and upward pressure on both product quality and service.
- Information Technology can be used to reduce buyer power such as increasing switching costs.

## Threats of New Entrants

- When an industry experiences good profit margins, it is attractive for new entrants to join the industry and this will create downward pressure on prices due to the increased availability of products and service.
- An existing player in the market can create an entry barrier by using IT to make the cost too high for any new player.
- A new entrant can use IT to improve its services or product and thereby overcome barriers set up by existing players.

## Threats of Substitution

- Substitution of products and services can reduce or eliminate the market for existing organizations and thereby weaken it.
- A late entrant to the market may choose to introduce a product that is a technological advancement over the existing products in the market, and thereby weaken existing players by the threat of substitution.

## Intensity of Rivalry

- The intensity of rivalry in the market affects the overall profitability, and it is usually greater in mature or declining markets.
- Price wars usually benefit the consumer and eliminate some of the weaker players in the market.
- IT can be used to overcome the dilemma of having to lower prices while increasing levels of service.

## Competitive Strategy

- Firms have discovered many different approaches and the best strategy for a given firm is ultimately a unique combination reflecting its particular circumstances.
- At the broadest level we can identify three internally consistent generic strategies for creating such a defensible position in the long and outperforming competitors in an industry:
  - ◆ Overall Cost Leadership
  - ◆ Differentiation
  - ◆ Focus

## Competitive Strategy – Overall Cost Leadership

- Cost leadership exists when a company can provide an “identical” product or service at the lowest cost in that industry.
- Cost leadership requires aggressive construction of efficient – scale facilities, vigorous pursuit of cost reductions from experience, tight cost and overhead control, avoidance of marginal customer accounts, and cost minimization in areas like R&D service, sales force, advertising, and so on.
- A great deal of managerial attention to cost control is necessary to achieve these aims.

## Competitive Strategy – Differentiation

- An organization may choose to provide a differentiated Unique product or service at a premium price in that industry.
- The aim in differentiating the product or service offering of the term is to create something that is perceived industry-wide as being unique.

## Competitive Strategy – Focus

- Focus its product or service provision on a particular buyer group, segment of the product line, or geographic market for an identified market segment, by either cost leadership or differentiation.
- The entire focus strategy is built around serving a particular target very well, and each functional policy is developed with this in mind.
- Able to serve its narrow strategic target more effectively or efficiently than competitors who are competing more broadly.
- Achieves either differentiation from better meeting the needs of the particular target, or lower costs in serving this target, or both.