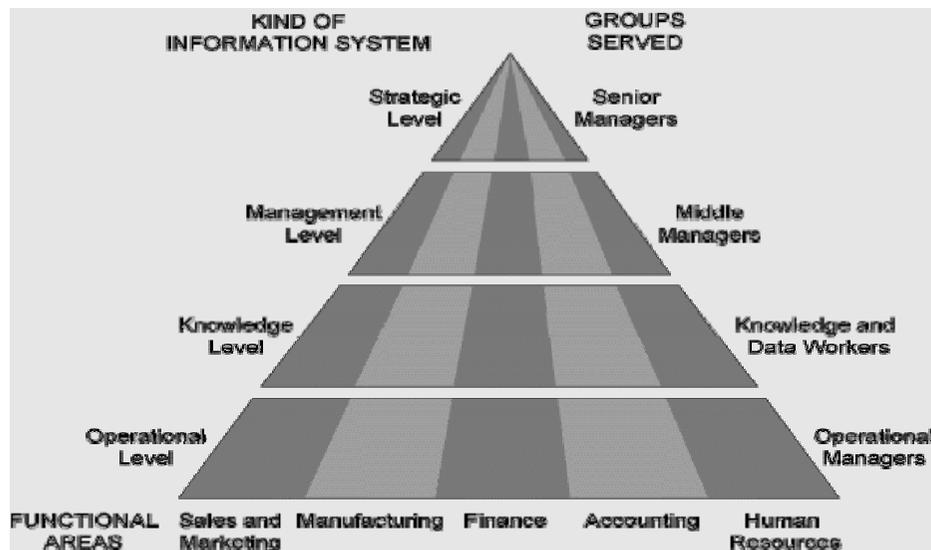


Information Systems in the Enterprise

Strategic Role

- In business, a strategy is a plan designed to help an organization outperform its competitors.
- Better information gives corporations a competitive advantage in the marketplace.
- A company achieves strategic advantage by using strategy to maximize its strengths, resulting in a competitive advantage.

Kinds of Information Systems



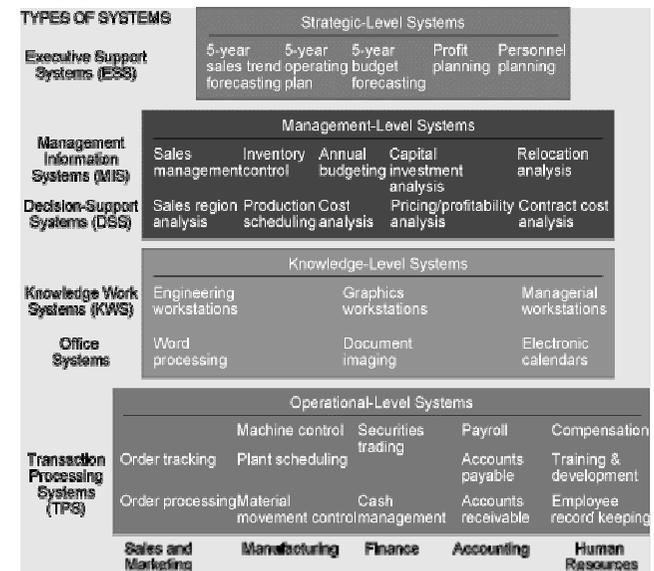
Different Kinds of Information Systems

- **Strategic-level Systems** help senior management tackle and address strategic issues and long range planning and stabilizing organizational goals.
- **Management-level Systems** serve the monitoring, controlling, decision-making and administrative activities of middle managers.
- **Knowledge-level Systems** support knowledge and data workers in an organization.
- **Operational-level Systems** support operational manager by keeping track of the elementary activities and transactions of the organization.

Major Types of Information Systems

- Executive Support Systems (ESS)
- Decision Support Systems (DSS)
- Management Information Systems (MIS)
- Knowledge Work Systems (KWS)
- Office Automation Systems (OAS)
- Transaction Processing Systems (TPS)

Types of Information Systems



Transaction Processing Systems (TPS)

- These are business systems that serve the operational level.
- A computerized system that performs and records the daily routine transactions necessary to the conduct of the business.

Office Automation Systems (OAS)

- Computer system such as word processing, electronic mail system and scheduling system, that is designed to increase productivity of data workers in the office.
- Desktop publishing produces professional publishing quality documents.
- Document Imaging Systems convert documents and images into digital forms so that they can be stored and accessed by the computer.

Management Information System (MIS)

- IS at the management level of an organization serves the functions of planning, controlling and decision making by providing routine summary and exception reports.
- Characteristics of Management Information System
 - ◆ Structured and semi-structured decisions
 - ◆ Reporting and control oriented
 - ◆ Rely on existing corporate data and data flows
 - ◆ Aid in decision making using past and present data
 - ◆ Little analytical ability
 - ◆ Relatively inflexible
 - ◆ Internal orientation
 - ◆ Lengthy design process

Decision Support System (DSS)

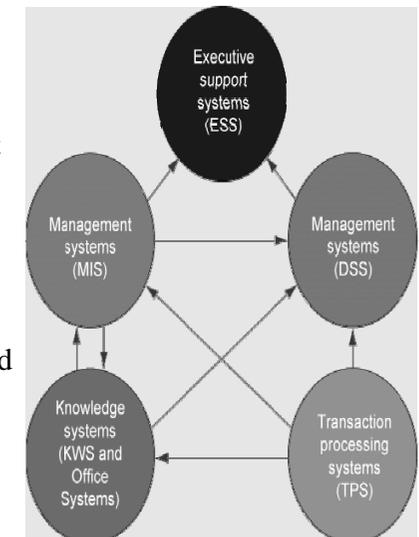
- Information System at the management level of an organization that combines data and sophisticated analytical models or data analysis tools to support semi-structured and unstructured decision making.
- Characteristics of Decision Support System
 - ◆ Offers flexibility, adaptability and quick response
 - ◆ Operate little or no assistance from professional programmers
 - ◆ Provide support for decisions and problems whose solution cannot be specified in advanced
 - ◆ Use sophisticated data analysis and modeling tools
 - ◆ Extensive support staff

Executive Support System (ESS)

- Information System at the management level of an organization designed to address unstructured decision making through advanced graphics and communications.
- Characteristics of Executive Support System
 - ◆ Top level management
 - ◆ Designed to the individual
 - ◆ Ties CEO to all levels
 - ◆ Very expensive to keep up
 - ◆ Extensive support staff

Relationship of Systems to one another

- A TPS is typically a major source of data for other systems.
- ESS is primarily a recipient of data from lower level systems.
- The other types of systems may exchange data among one another as well.
- Data may also be exchanged among systems serving different functional areas.



What is a Strategic Information System?

- Strategic Information Systems are critical to firms' long-term prosperity and survival and are built to seize opportunities.
- Strategic information systems change the goals, operations, products, services, or environmental relationships of organizations to help them gain an edge over competitors.
- Strategic information systems should be distinguished from strategic-level systems for senior managers that focus on long terms, decision-making problem.
- Better information gives corporations a competitive advantage in the marketplace. A company achieves strategic advantage by using strategy to maximize its strengths, resulting in a competitive advantage.

How to Achieve a Competitive Advantages?

- Reduce costs
- Raise barriers to market entrants.
- Establish high switching cost
- Create new products or services
- Differentiate products or services
- Enhance products or services
- Establish alliances
- Lock in suppliers or buyers

Business-Level Strategy and the Value Chain

- At the business level of strategy, the most common generic strategies at this level are
 - ◆ to become the low-cost producer
 - ◆ to differentiate your product or service
 - ◆ to change the scope of competition by either enlarging the market to include global markets or narrowing the market by focusing on small niches not well served by your competitors.
- Moving towards global markets, the firm can generate economies of scale.
- Moving towards niche markets, the firm can generate high-margin products and services.

Leverage Technology in the Value Chain

- At the business level the most common analytic tool is **Value Chain Analysis**.
- The **Value Chain Model** highlights specific activities in the business where competitive strategies can be best applied and where Information System are most likely to have a strategic impact.
- The value chain model identifies specific, critical leverage points where a firm can use Information Technology most effectively to enhance its competitive position.

Leverage Technology in the Value Chain

- The value chain model views the firms as a series of “chain” of basic activities that add a margin of value to firm’s products or services.
- These activities can be categorized as:
 - ◆ Primary Activities
 - ◆ Support Activities

Leverage Technology in the Value Chain – Primary Activities

- Primary Activities are most directly related the production and distribution of the firm’s products and services that create value for the customer.
- Primary activities include inbound logistics, operations, outbound logistics, sales and marketing, and services.

Leverage Technology in the Value Chain – Support Activities

- Support activities make the delivery of the primary activities possible consist of organization infrastructure (administration and management), human resources (employee recruiting, hiring, and training), technology (improving products and the productions process), and procurement (purchasing input).

Leverage Technology in the Value Chain

- Organizations have **Competitive Advantage** when they provide more value to their customers or when they provide the same value to customers at a lower price.
- An Information System could have a strategic impact if it helped the firm provide products or services at lower cost than competitors or if it provided products and services at the same cost as competitors but with greater value.
- The role of Information Technology at the business level is to help the firm reduce costs, differentiate product, and serve new markets.

Information System Products and Services

- Firms can use Information System to create unique new products and services that can be easily distinguished from those of competitors.
- Product differentiation
 - ◆ Competitive strategy for creating brand loyalty by developing new and unique products and services that are not easily duplicated by competitors.

Systems to Focus on Market Niche

- Focus Differentiation
 - ◆ Competitive strategy for developing new market niches for specialized products and services where a business can compete in the target area better than its competitors.
- Data Mining
 - ◆ Analysis of large pools of data to find patterns and rules that can be used to guide decision-making and predict future behavior.

Supply Chain Management Systems

- Supply Chain Management System integrates the supplier, distributor, and customer logistics requirements into one cohesive process.
- It can lower inventory costs and deliver the product or service more rapidly to the customer.

Firm-Level Strategy and IT

- A business is typically a collection of businesses and organized financially as a collection of strategic business units. Information Technology in these synergy situations is to tie together the operations of disparate business units so that they can act as a whole.
- Another strategy for firm-level involves the notion of “**Core Competency**”. A core competency is an activity at which a firm is a world-class leader. The argument is that the performance of all business units can increase insofar as these business unit develop, or to create, a central core of competencies. Information System can use to encourage the sharing of knowledge across business units to enhance competency.

Industry-Level Strategy and IT

- Firms together comprise industries
 - ◆ E.g. automotive industry, telephone, television broadcasting and forest products industries.

Industry-Level Strategy and IT

- Information Partnerships
 - ◆ Firm can form information partnerships and even link their Information System to achieve unique synergies.
 - ◆ In an information partnership both companies can join forces by sharing information, without actually merging.

Industry-Level Strategy and IT

- Network Economies
 - ◆ In a network, the marginal costs of adding another participant are about zero, whereas the marginal gain is much larger.
 - ◆ The larger number of subscribers in a telephone system, or the Internet access, the greater the value to all participants.
 - ◆ For this network economics perspective, Information Technology can be strategically useful.

The Competitive force model

- A firm faces a number of external threats and opportunities:
 - ◆ the threats of new entrants into its new market
 - ◆ the pressure from substitute products and services
 - ◆ the bargaining power of customers
 - ◆ the bargaining power of suppliers
 - ◆ the positioning of traditional industry competitors
- Competitive advantages can be achieved by enhancing the firm's ability to deal with customers, suppliers, substitute products and services and new entrants to its market, which in turn may change the balance power between a firm and other competitors in the industry in the firm's favor.