Department Of Business Administration
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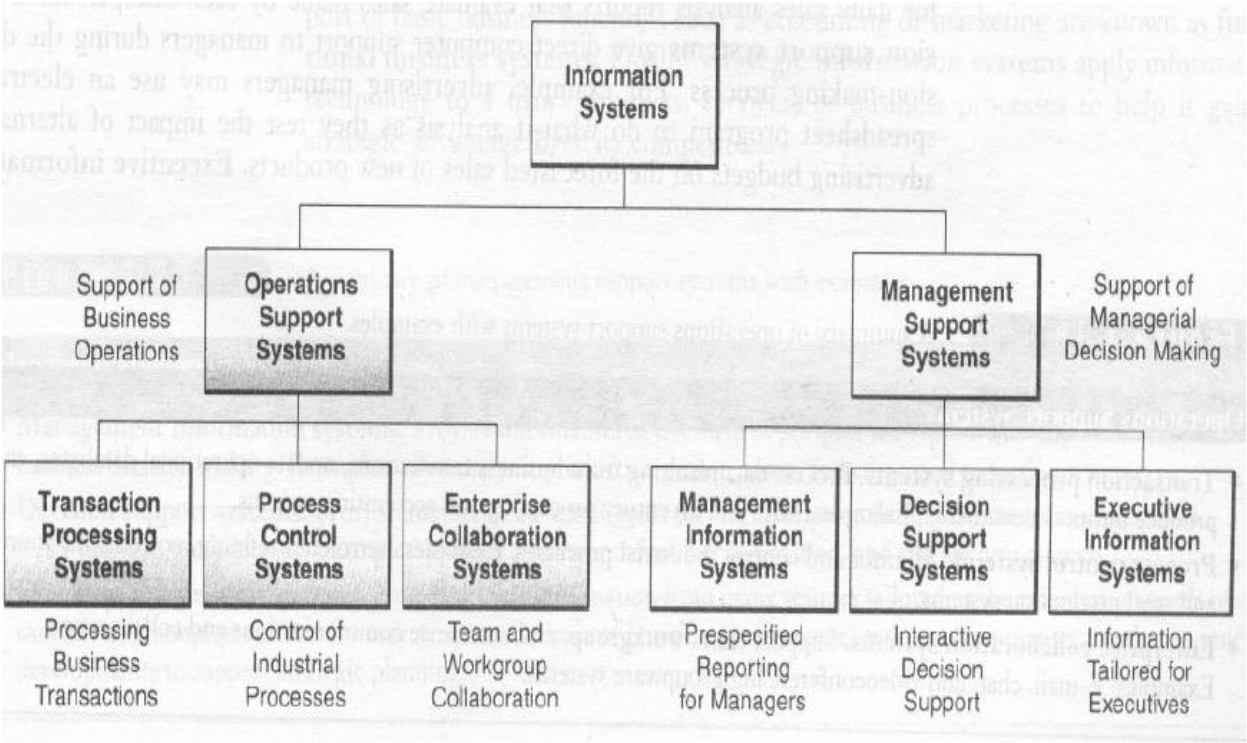
BBA Sem -V

Level of Management in Organization

Some small businesses can have just three levels, that is, transaction processing system (TPS), management information system (MIS), and decision support system (DSS), large organizations can have two additional information systems, namely office automation/information system (OAS/OIS) and executive information system (EIS).

Operations and management classifications of information systems



(a) Operations Support Systems :

Operations Support Systems are used to process data generated by, and used in, business operations. The role of a business firm's operations support systems is to efficiently process business transactions, control industrial processes, support enterprise communications and collaboration, and update corporate databases.

1. Transaction Processing Systems

A transaction is a business activity (like deposit, payment, order, or reservation), Correspondingly, TPS is an information system that is specifically designed to capture and process data generated in an organization, during its day-to-day transactions. It is basically used by clerical staff, front-office personnel, and other employees working at the lowest level of the pyramid to perform the following transactions online. Record information regarding a student during his registration, an order placed by the customer, payment details of a client, and the like.

- Confirm an action or send a response to inquiries, issue receipts of payments, send a thank-you mail to customers, and so on.
- Collect customers' feedback.
- Generate employees' paycheck.
- Add, update, and delete existing data.

Transaction processing system was one of the first computerized systems developed to process business data (also known as *data processing).* The first TPS was based on batch processing, in which data is collected over a period of time, and all transactions are processed later as a group. But with drastic improvements in computing technology, batch processing systems were upgraded to online transaction processing systems (OLTPs), in which the computer processes transactions as they are entered.

These days, the OLTPs have widely replaced the earlier and now obsolete batch processing systems, and you have already seen OLTPs when registering yourself in college, shopping in a showroom that generates electronic invoices, paying bills in a restaurant that generates a printed receipt, and so on. Other places in which TPS is used includes payroll systems, order processing systems. reservation systems, stock control systems, and systems for payments and funds transfers.

Advantages : Here are some of the advantages of TPS:

(1) Enhanced efficiency and accuracy of business activities
(2) Faster processing
(3) Reduced clerical costs
(4) Improved customer service

They record and process data resulting from business transactions. They process transactions in two basic ways.

In *batch processing*, transactions data are accumulated over a period of time, and processed periodically.

In *real-time* (or online) processing, data are processed immediately after a transaction occurs.

For example, point-of-sale (POS) systems at many retail stores use electronic cash register terminals to electronically capture and transmit sales data over telecommunications links to regional computer centers for immediate (real-time) or nightly (batch) processing.

2. Process control systems :

Process control systems monitor and control physical processes. For example, a petroleum refinery uses electronic sensors linked to computers to continually monitor chemical processes and make instant (real-time) adjustments that control the refinery process.

3. Enterprise Collaboration Systems :

Enterprise collaboration systems enhance team and workgroup communications and productivity, and are sometimes called *office automation systems.* For example, knowledge workers in a project team may use electronic mail to send and receive electronic messages, and videoconferencing to hold electronic meetings to coordinate their activities.

4. Office Automation Systems :

Office information system (OIS) or office automation system (OAS) uses hardware, software, and networks to enhance work flow and facilitate communication among employees. While hardware includes computers equipped with modems, video cameras, speakers, microphones, scanners, and fax machines, software comprises word processing, spreadsheets, databases, presentation graphics, email, web browsers, web page authoring, personal information management, and groupware to support the aforementioned activities. Besides hardware and software, an OAS also uses technology for communication, such as voice mail, fax, video conferencing, and electronic data interchange (EDI) for the electronic exchange of documents, which include text, graphics, audio, and video In such a system, employees perform their tasks electronically rather than manually. For example, in an OAS in your college, the time table, academic calendar, subjects in the semester, along with their guidelines, notification of events in the university, fee structure, and the like, are all published online, either on the website or as notifications, using emails.

(b) Management Support Systems

When information system applications focus on providing information and support for effective decision making by managers, they are called management support systems. Conceptually, several major types of information systems support a variety of decision making
responsibilities:

(1) Management information systems,
(2) Decision support systems, and
(3) Executive information systems.

1. Management Information Systems

MIS provide information in the form of reports and displays to managers and many business professionals. For example, sales managers ,may use their networked computers and Web browsers to get instantaneous displays about the sales results of their products and to access their corporate intranet for daily sales analysis reports that evaluate sales made by each salesperson.

While TPS is best suited for routine transaction processing, business managers felt the need for an information system that could perform rapid calculations and data comparisons, in order to produce meaningful information for management.

This need led to a new type of information system called MIS. It is an information system generating accurate, timely, and organized information that helps business managers make decisions, solve problems, supervise activities, and track progress by generating useful reports on a regular basis. Therefore, it is also known as a *management reporting system(MRS).*

For better integration with business activities, MIS is integrated with TPS, so that MIS can generate reports using the data collected by TPS. For example, while TPS records the daily sales, updates the customer's account balance, and makes a deduction from inventory, MIS can use this information to produce reports that recap daily sales activities, list customers with past due account balances, identify slow or fast-selling products, and highlight inventory items that need reordering. It generates three types of reports.

These are explained as follows.

Detailed report : This lists transaction processing activities. For example, a detailed order report enlists all transactions that involve ordering of items.

Summary report : This aggregates data so that managers can get a quick overview of the business activity. It synopsizes large amounts of information that contains totals, tables, or graphs. For example, an inventory summary report summarizes the items and the number of units available.

Exception report : This filters data to identify information that is beyond a normal condition (also called *exception condition)* and notify business managers, so that corrective measures can be instantly taken. For example, an inventory exception report notifies the purchasing department of items whose stock is less than .the specified normal stock. These items must be reordered at the earliest. Exception reports enable managers to save their time, as they no longer have to go through the detailed report to identify exceptional conditions.

2. Decision Support Systems

Decision support systems give direct computer support to managers during the decision making process. For example, advertising managers may use an electronic spreadsheet program to do what-if analysis as they test the impact of alternative advertising budgets on the forecasted sales of new products.

Transaction processing system and MIS are very well suited for providing information to appropriate users on a regular basis. But senior managers need some other type of information to make some longer term decisions. For short-term decisions, MIS is enough, but for decisions regarding a longer period of time, say a year, an MIS is not the one we should look for. For example, a sales manager needs information to find out how high to set yearly sales quotas, based on increased sales and lowered product costs. A DSS provides information to support such decisions. In order to make vital decisions, DSS not only uses data from its internal information systems, but also makes use of data from external sources, like business magazines, surveys of competitors available on the Internet, interest rates, population trends, customer demographics, spending behavior of a group of customers, and so on. Decision support system makes full use of query language,

statistical analysis tools, spreadsheets, and graphics to analyse data, evaluate results, and identify and document factors affecting a decision. This could not only help the sales manager to estimate the expected sales volume at each price level with greater accuracy, but also enable him to ask what-if questions, by changing one or more of the factors (that could affect the sales) and view the projected results.

3. Executive Information Systems

Executive information system is a special type of DSS, which is specifically designed for the information needs of business executives. It makes use of charts and tables to represent information that could help executives view trends, ratios, and other statistics, predict future sales patterns, summarize current costs, and forecast sales revenues.

Executive information system is basically used to make strategic decisions, and therefore, relies heavily on external sources of data like the Dow Jones news and the Internet, to retrieve information on interest rates, commodity prices, and other leading economic indicators. To store all the external as well as internal data, current as well as historical data,

DSS and EIS use extremely large databases, called data warehouses. Data warehouses, along with EIS, help executives analyse data according to the entire business or at the individual department, region, or a particular store.

EIS provide critical information from a wide variety of internal and external sources in easy to- use displays to executives and managers. For example, top executives may use touch screen terminals to instantly view text and graphics displays that highlight key areas of organizational and competitive performance.

1. Expert systems can provide expert advice for operational chores like equipment diagnostics, or managerial decisions such as loan portfolio management.

2. Knowledge management systems are knowledge based information systems that support the creation, organization, and dissemination of business knowledge to employees and managers throughout a company. Information systems that focus on operational and managerial applications in support of basic business functions such as accounting or marketing are known as ***Functional business systems***.

3. Strategic information systems

Strategic information systems apply information technology to a firm's products, services, or business processes to help it gain a strategic advantage over its competitors. Strategic MIS is the set of systems which are considered critical to the current or future business competitiveness, and hence the survival of an organization. Strategic MIS also supplies an organization with business intelligence. In other words, if an information system is used in creative ways to achieve goals and fulfill set organizational missions, it can be considered to be a strategic MIS.

Strategic MIS can be external or internal systems. External strategic MIS are used mainly by external quantities in the business environment, such as customers, suppliers, distributors etc and have a value added component that gives developers some time to reap the benefits of the system innovation. Internal strategic MIS are used by employees within the organization and do not have value added component. The employees focus on issues such as improving the quality of products, services and also enhancing the decision making capabilities of managers. Such systems are used at all levels in the organization and they have long term implications for the firm and also for the business processes within the firm.

In general, Strategic MIS can be divided into 3 categories :

(a) systems that focus on innovation from competitive edge

(b) systems that use information as a weapon

(c) systems that increase productivity and lower the costs of goods and services

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