

MODULE 1

CHAPTER 1

Introduction to Information Systems

University Prescribed Syllabus

Introduction To Information Systems : Computer based Information Systems, Impact of IT on Organizations, Impact of IS to Society, Organizational Strategy, Competitive Advantages and IS

1.1	Computer based Information Systems	1-2
UQ.	What is information system? Explain the necessary element with neat diagram? (MU - Q. 1(a), Dec. 19, 5 Marks)	1-2
1.1.1	Role of Information Systems in Organizations	1-3
1.1.2	Computer Based Information Systems (CBIS)	1-4
1.1.3	Types of Information Systems or Types of Computer based Information Systems.....	1-5
UQ.	List the types of Information system? Explain in brief. (MU - Q. 2(a), Dec. 19, 10 Marks)	1-5
UQ.	With a neat diagram explain the various types of Information Systems. (MU - Q.2(c) Jan. 21, 5 Marks)	1-5
1.2	Impact of Information Technology (IT) on Organization	1-10
UQ.	What is the impact of information system on organization and society. (MU - Q. 2(d), Jan. 21, 5 Marks)	1-10
1.3	Impact of IS to Society	1-11
1.4	Organizational Strategy, Competitive Advantages and IS	1-12
UQ.	Discuss competitive advantage achieved in information systems. (MU - Q. 2(a), Dec. 19, 10 Marks)	1-12
1.4.1	Concepts	1-12
1.4.2	Business Pressures Faced by Organizations.....	1-13
1.4.3	Porter's Five Forces Model.....	1-14
1.4.4	Strategies for Competitive Advantage	1-15
1.5	Multiple Choice Questions.....	1-16
•	Chapter Ends	1-21

► 1.1 COMPUTER BASED INFORMATION SYSTEMS

UQ. What is information system? Explain the necessary element with neat diagram?

(MU - Q. 1(a), Dec. 19, 5 Marks)

- Today, managing information for organizations has become a very crucial task. Also, dependency of organizations on the information systems that handle this information is even higher.
- In the past decades, organizations were using information systems to manage data processing and record keeping activities associated with maintaining business transactions, payroll, billing, inventory management, etc.
- The focus was mainly on maintaining files and databases related to routine business operations. But today, these information systems are gaining great strategic importance within the business organisations.
- They are helping organizations in making complex decisions, planning strategies to accomplish organizational goals and building a competitive advantage in the market.
- Although owning and maintaining these systems is quite expensive, but the business operations cannot function without the support of these various functional area information systems.
- Information technology (IT) and Information systems (IS) are used by organizations to enhance their performance.
- Also one of the very important types of information systems within modern organisations for managing information resources i.e the Management Information Systems (MIS) play a very significant role.
- These days every modern business organization has a MIS department for managing and sharing of information resources to the end users. These end users could be anyone like the executive or top level managers using the information generated for some strategic planning process.
- So, let us first start with what is information.
- From the point of view of Information Systems it is necessary to understand the difference between data, information and knowledge although they sound quite similar.
 1. **Data** is an unorganized elementary item which alone cannot convey any meaning. Data can be anything like numbers, letters, figures etc. Suppose we consider few numbers like Rs.100000, Rs.50000, Rs.75000 and names such as Arti, Mahesh, and Geeta. This can be said to be some data which is not conveying any meaning.
 2. **Information** refers to an organized and meaningful data. Any information must satisfy characteristics such as completeness, conciseness, correctness and unambiguity. Now suppose we relate the above numbers with the names, we can convey some meaningful information. Say, Rs.100000 is the monthly sales target achieved by Arti, Rs.50000 by Mahesh and Rs. 75000 by Geeta who is working in a particular firm.

- 3. **Knowledge** is processed and well structured information that can be used for analysis, accumulated learning, expertise and decision making to solve any business problem. Continuing with the same example, based on the accumulated knowledge of monthly sales target achieved by its employees the firm may take up a decision on the percentage of incentives to be given to Arti, Mahesh and Geeta.
- An **information system** is a set of organized and interrelated components that work collectively to collect, store, process and disseminate information for a specific purpose, like to support decision making, coordination, control, analysis, and visualization in an organization.

1.1.1 Role of Information Systems in Organizations

- As already stated that every organization wants to be a market leader and to achieve this they are adopting various strategies.
- One such strategy is the adoption of information systems that could enable them to make adequate use of organizational information and improve the efficiency of business processes.

The three primary roles that information systems play in an organization are:

- | | |
|--------------------------------------|-------------------------------|
| (1) Information Storage and Analysis | (2) Assist in Decision Making |
| (3) Assist with Business Processes | |

- (1) **Information Storage and Analysis** : Modern information systems can integrate data from various internal and external sources and keep the user updated with the most relevant information. By adopting information systems such as database management systems, organizations can make use of databases that store all the organizations data at one place. Such systems provide timely and updated information to the user.
- (2) **Assist in Decision Making** : The most important role of information systems is the assistance that they provide in analysing and evaluating information for decision making process and for further formulating strategic plans for the business organization.
- (3) **Assist with Business Processes** : Information systems can be used in developing various value added systems. Integrating the information system with the various business processes simplifies and helps reduce the number of activities and invariably the time spent on these activities. Repetitive tasks are totally eliminated from the system and greater accuracy is provided. Also, information systems ensure that access is provided to only authorised employees. These systems play a very critical role in project management as they facilitate effective monitoring and control as well as comparison with standards. However, the entire capacity of such systems needs to be harnessed to gain maximum benefits from the company's information systems.

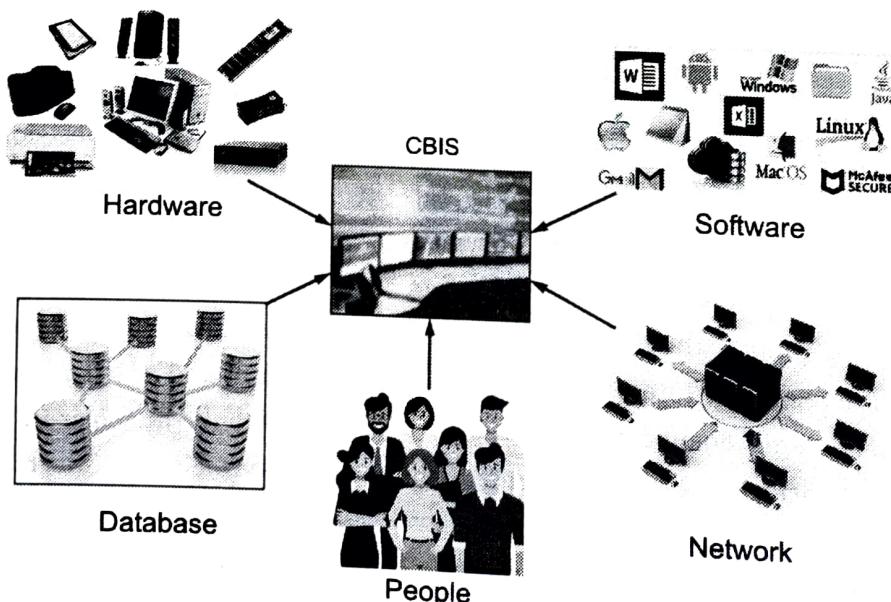
1.1.2 Computer Based Information Systems (CBIS)

CBIS are those that make use of computer technology to perform some dedicated task.

The essential elements / components of a CBIS are:

- (a) **Hardware** : All the physical components including devices such as monitors, CPUs, printers etc. which handle information in one way or the other belong to this category. These hardware components enable input, processing and output of information.
- (b) **Software** : These are not physical but logical components that facilitate the processing of information with the help of hardware components. It can be a simple program to calculate leaves availed by an employee in a month or a complex software application to generate payroll of all employees within an organization.
- (c) **Database** : This component deals with the storage of information. The information can be stored in any form as in simple files or relational tables.
- (d) **Communication Networks** : The communication network helps to share information between the various hardware and software components of a CBIS. It includes all the communication media either wired e.g. twisted copper wires or wireless e.g. bluetooth, Wi-Fi etc.
- (e) **Business Procedures**: Business procedures define the policies to make efficient use of the information available as aligned to the business objectives. Business procedures could be related to any business process within an organization like manufacturing, inventory, human resources etc.
- (f) **People** : They are the ones playing various roles, performing different responsibilities for producing, maintaining and consuming the information.

Fig. 1.1.2 illustrates how these basic components interact to form an organized computer based information system.



(1A1)Fig. 1.1.2 : Elements of Computer based Information Systems

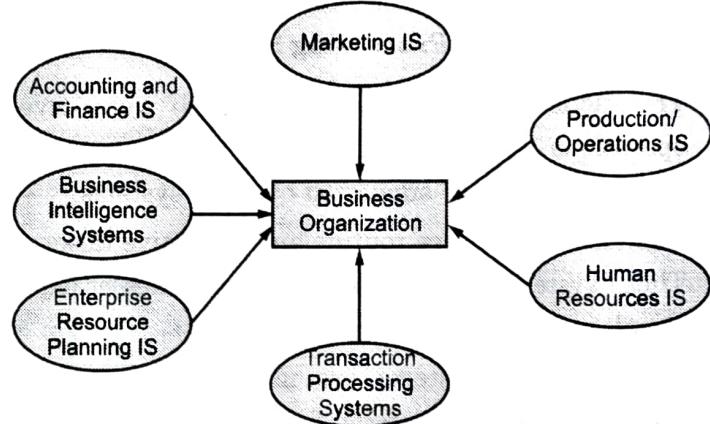
Information systems need not always be computer based but with reference to the subject, Information system and Computer based Information systems have been used interchangeably.

1.1.3 Types of Information Systems or Types of Computer based Information Systems

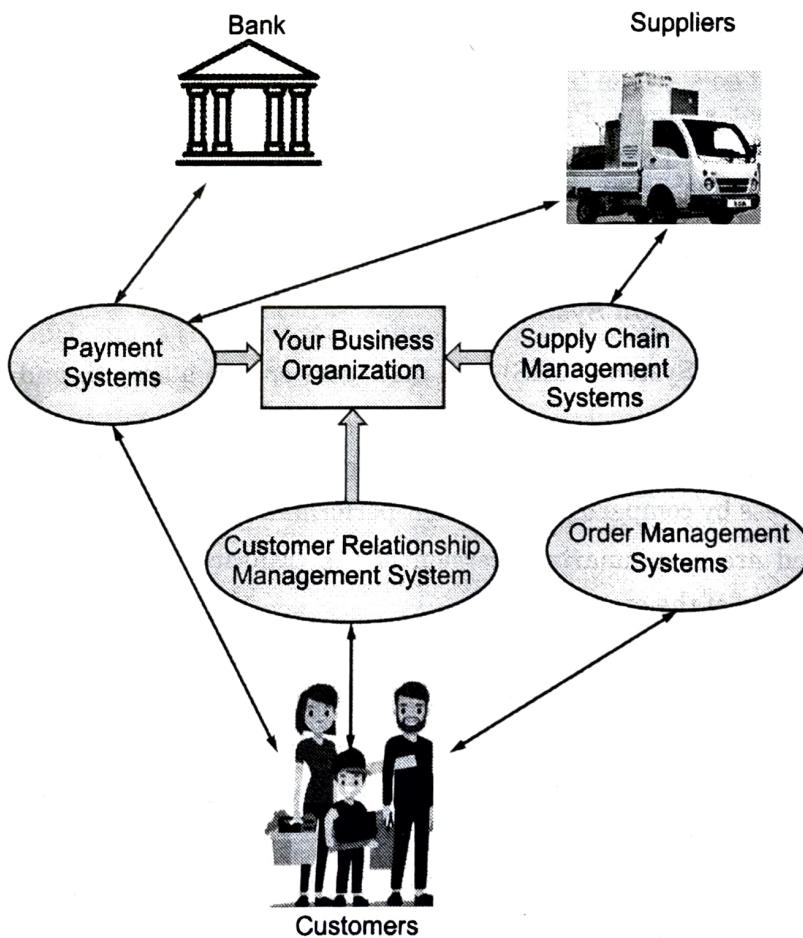
- UQ.** List the types of Information system? Explain in brief. **(MU - Q. 2(a), Dec. 19, 10 Marks)**
- UQ.** With a neat diagram explain the various types of Information Systems. **(MU - Q.2(c) Jan. 21, 5 Marks)**

Information systems have been designed to serve various functional areas. Business organizations deploy various types of Information Systems.

There can be information systems that operate *within* an organization or those which function among multiple organizations. Both the types of Information systems are illustrated in Fig. 1.1.3(a) and 1.1.3(b) respectively.



(1A2)Fig. 1.1.3(a) : Information Systems within a business organization



(1A3)Fig. 1.1.3(b) : Information Systems among different business organizations

The very common and important types of Information systems are listed below.

- | | |
|---|--|
| 1. Transaction Processing Systems (TPS) | 2. Management Information Systems (MIS) |
| 3. Decision Support Systems (DSS) | 4. Executive's Information Systems (EIS) |
| 5. Enterprise Resource Planning (ERP) Systems | |

We will study the important information systems in the next section.

► **1. Transaction Processing Systems**

- Transaction processing systems (TPS) were developed to gather, process and store the daily operations within an organization. They are very important to the organization because all the core operations are supported by these systems.
- The transactions are routine and repetitive tasks which are handled in large volumes by the TPS. These systems manage very large volumes of transactions without any errors, even if they occur simultaneously.
- Usually these systems are used by managers or supervisors at the operational level. The operations are well defined for any particular business process may it be an order processing task or a ticket booking activity or for that matter any other routine job.
- These systems require very complete and thorough information for processing the transactions accurately.
- Inventory management systems, Payroll systems, Airline reservation systems, Online shopping systems are all examples of Transaction Processing System.
- These systems are very essential to keep the regular business operations going on. But such systems cannot support any decision making.

► **2. Management Information Systems**

- Management Information Systems (MIS) help managers ensure a smooth and efficient running of the organization.
- These systems collect information and generate reports regularly which help managers to evaluate the company's progress by comparing the current performance with previous performances.
- The reports created are a summarized version of the transactional data generated in different functional departments of the organization.
- Stating clearly, MIS gather information from transaction processing systems and also from various other external sources such as competitor sales information for similar products.
- Say for example reports such as daily, monthly or annual regionwise sales report for a particular product sold can be generated by such systems based on which managers can evaluate and decide whether the desired sales was achieved or not.
- Thus, MIS are the base for data analysis and further decision making. Such systems are mainly used at tactical level of decision making for management.

- MIS generally provide answers to routine questions that have been specified in advance and have a predefined procedure for answering them.
- These systems have very little analytical ability but can very well provide answers to routine queries which can be solved by comparison procedures predefined in these systems.
- Almost all MIS provide functions to perform comparisons and generate summarized reports in contrast to systems that implement complex statistical and analytical techniques.

► 3. Decision Support Systems

- Decision Support Systems (DSS) also commonly known as Business Intelligence Systems because they emphasize on helping managers make intelligent business decisions.
- DSS have the capability to perform complex analysis on organizational information that no other type of information system can perform.
- The main purpose of these systems is to support decisions to problems that are rapidly changing, and cannot be pre specified. DSS support decision making for managers at both tactical and strategic management level.
- The DSS are user friendly softwares that take input as data from different sources such as the transactional systems, from management information systems and from other external sources such as competitor prices of similar products or stock prices from stock markets etc.
- And then they perform various statistical and mathematical analysis on this input data or at least convert them into a form that will make decision maker's task easier.

The basic components of a decision support system are:

1. **User interface** through which users interact with the system (for entering inputs or displaying analysis results),
 2. **Database** which stores the necessary values of variables/parameters required for analysis (for e.g.: value of sales figures for a particular product),
 3. **DSS/Knowledge model** which specifies relationships between variables and/or parameters, performs what-if analysis, provides alternate solutions and stores the predictions.
- What-If Analysis is a technique to analyse different parameters and their values to determine various possible outcomes, make predictions and take decisions.
 - For example, suppose a bank loan manager wants to take up a decision whether to sanction loan to a loan applicant. After verifying various parameters like applicant's credit history, income level, assets possessed ,the manager can decide whether to offer him loan or not.DSS play a very important role in making such decisions
 - Another example, where DSS (Decision Support System) are used is Amazon where customers are given a chance to choose products from a best selling product list which is displayed on the home page.

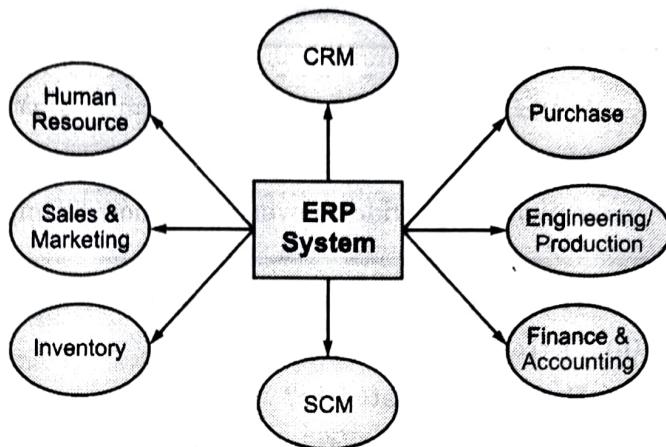
► **4. Executive's Information Systems**

- Executive's Information Systems (EIS) sometimes also called as Executive's Support System (ESS).
- They are specialized form of Decision Support Systems or they are integrated along with DSS and are specially designed for senior managers at strategic levels for decision making.
- These systems consist of interactive graphical display, easy-to-use interfaces with menus to access historical data from internal as well as external sources.
- ESS is basically a reporting tool that has well-built reporting and drill-down capabilities to convert an organization's data into meaningful summarized reports.
- These reports are used by top level managers for quick access to information coming from all company levels and departments such as billing, cost accounting, staffing, scheduling, and sometimes even from external sources.
- Apart from fast access to organized data from different functional departments there are some systems that also provide analysis for predicting performance outcomes and quick access to statistics required for decision-making.
- Say for example, an ESS is a portal which uses a Web interface that can present to a senior manager a timely view of the organisation's financial performance as calculated by working capital, accounts receivable, accounts payable, cash flow, and inventory.
- These systems track critical data, sort and filter, compress, expand and display the data of utmost significance to senior managers.

► **5. Enterprise Resource Planning Systems**

- Enterprise Resource Planning (ERP) software integrates the various business functions into one complete system to streamline processes and information across the entire organization.
- A central repository or a database shared by different business units is an important feature of ERP systems. ERP systems and TPS both function within an organization. Almost all ERPs are TPSs but it is not necessary that all TPSs are ERPs.
- These are business softwares that are used to manage all the resources of the entire enterprise. Everything from a small IC brought into the company to the employee payments, everything can be managed and tracked by using ERP Systems.
- By employing such systems, employees from different departments who require same information—for example, accounting department and sales department – can easily access it from a central place. Or suppose both Sales and Marketing department as well as Customer relationship department need customer information. In that case both can access the same central database of customers to get the required information.
- Many vendors in the market provide packaged ERP solutions where technologies used may be different but the basic modules within every ERP system remain the same.
- And further based on the organization's requirements the systems can also be customized. The basic modules found in an ERP system are as depicted in **Fig. 1.1.4.**

- (a) Human Resource
- (b) Sales & Marketing
- (c) Inventory
- (d) Purchase
- (e) Engineering / Production
- (f) Finance & Accounting
- (g) Customer Relationship Management (CRM)
- (h) Supply Chain Management (SCM)



(14)Fig. 1.1.4 : ERP Systems

- Every component within an ERP software supports a dedicated business process within the business organization. Thus the major objectives of an ERP system are to improve the overall efficiency and accuracy of all business processes by integrating them together into a single package.
- All the business processes are streamlined thereby increasing the productivity. Also, such systems lead to reduction of operational and administrative costs and increased profits.

Few other systems that support the employees within an organization are discussed below

1. **Office automation systems** support the lower and middle level managers in creating documents, scheduling meetings, communication between employees etc. Systems which support these tasks include word processing systems, electronic calendars, e-mails, videoconferencing systems, instant messaging systems etc.
 2. **Functional area information systems** support middle level managers within a specific department for collecting data and generating regular reports.
 3. **Business intelligence (BI) systems** support data analysis and knowledge discovery through data warehousing and mining techniques, to support more effective strategic, tactical, and operational decisions.
 4. **Expert systems (ESs)** provide expert advice and assist in the decision making process by providing valuable insight into the specific area. Say for example navigation systems provide expert advice in the best route to be selected while travelling.
- **Interorganizational systems** include systems such as **Supply Chain Management systems** that manage and control the entire supply chain of an organization right from procurement of raw materials to delivery of finished products. The supply of digital content could be through the internet and physical products through physical medium.
 - Another type of interorganizational information systems are the **Electronic commerce (e-commerce) systems** which make use of electronic medium such as the internet to perform commerce i.e. buying and selling of goods and services.

► 1.2 IMPACT OF INFORMATION TECHNOLOGY (IT) ON ORGANIZATION

UQ. What is the impact of information system on organization and society. (MU - Q. 2(d), Jan. 21, 5 Marks)

In this section, we provide an overview of how IT impacts the business organizations.

- (a) IT reduces number of middle managers and experts
- (b) IT transforms the manager's job
- (c) Does IT eliminate jobs?
- (d) IT impacts the lifestyle of employees at work

► **(a) IT reduces number of middle managers and experts**

With the advent of Information Technology and most of the tasks within a business organization being automated using various types of Information systems, it increases the work efficiency and productivity of one single manager thereby reducing the need and number of middle level managers to handle the same amount of workload.

► **(b) IT transforms the manager's job**

- Decision making being one of the important tasks of managers, increased use of information systems such as Management Information systems and Decision Support Systems has made the decision making process more easy, faster and accurate.
- With so much of real time information available from different sources, analyzing and evaluating this information and taking decision is a very difficult task. But managers take up support of such IT tools to make their tasks simpler.

► **(c) Does IT eliminate jobs?**

- To achieve competitive advantage, the use of IT by organizations is increasing rapidly which is resulting in replacement of people by machines. Nevertheless, it is giving scope to opening of new job opportunities.
- New classes of jobs such as data scientists and analysts are introduced where people with enhanced IT skills are required.

► **(d) IT impacts the lifestyle of employees at work**

- IT has a negative impact on employees' health as the employee is continuously under job stress. He needs to be constantly updated with new technologies in market. The prolonged use of computer screens, keyboards and mouse also affect the vision and muscles of hands and finger and also leads to back problems.

- On the other side, IT has developed various capabilities for people with disabilities such as speech recognition systems for employees who are physically impaired and cannot type on their own, for employees who are visually impaired there are audible screen tips made available.

In this way IT impacts both positively and negatively to employees at work within an organization.

► 1.3 IMPACT OF IS TO SOCIETY

Here we discuss how IT affects the society as a whole.

☞ (A) IT affects our Quality of Life

- IT has drastically changed the way we think, live and work. The boundaries between work time and free time are overlapping.
- The use of portable devices such as Laptops and Smartphones makes it easier to access text, email and voice communications from anywhere at any time.
- Employees carry their laptops and smartphones at home or even when on vacation to keep the office work undisturbed.
- It has become a 24×7 job rather than traditional 9 to 5 job but with flexibility and convenience of work time and work place. Many employees avail work from home facility rather than physically travelling to the workplace wasting long hours in traffic.

☞ (B) Robotic Revolution

- With the advent of IT, machines in the form of robots are performing the routine tasks of humans. Robots are used in Industry in performing different tasks like manufacturing, farming, healthcare and also at homes for cleaning homes and pools, washing clothes and utensils etc. Self-driven cars, drones are few other examples where robotic techniques are used.
- Mitra, the first humanoid robot is launched by Prime Minister Narendra Modi and Ivanka Trump, First Daughter of the President of the United States Donald Trump, at the Global Entrepreneurship Summit (GES) conference in 2018. It can be found floating in the corridors of the Canara Bank and PVR Cinemas in Bengaluru, chatting with the customers.
- Genrobotics a Kerala based startup company in joint venture with the Kerala Government deployed a **spider-shaped robot named “Bandicoot”** to clean sewers and manholes in the city.
- INDRO robot built in India is an autonomous and the tallest robot that was made inside a house with easily available low-cost material like aluminium, wood, cardboard, plastic etc. It can be used to perform simple tasks like entertainment, education and a few household works.

☞ (C) Improvements in Healthcare Industry

- IT has brought in much advancement in Healthcare Industry as well. There are different expert systems which have been developed using artificial intelligence and machine learning techniques for faster and better diagnosis of diseases.

- ICUs and NICUs in hospitals have specialised automated equipments such as pulse oximetry, temperature and blood pressure monitoring systems, heart rate monitoring systems etc. to observe conditions of critically ill patients.
- Radiologists are using machine vision techniques to improve their work.
- Different modern laboratory equipments are used for enhancing process of research and development of new advanced drugs.
- Even robots can be used to perform complex surgeries (Robotic Surgeries). Videoconferencing can be used by doctors for discussing complex cases.

► 1.4 ORGANIZATIONAL STRATEGY, COMPETITIVE ADVANTAGES AND IS

UQ. Discuss competitive advantage achieved in information systems.

(MU - Q. 2(a), Dec. 19, 10 Marks)

☛ 1.4.1 Concepts

1. **Competitive advantage** refers to the assets of an organization which make it strong enough to compete with its competitor in terms of cost, quality or speed. Information Systems can be strategic as they can provide competitive advantage if used in the right way.
2. The **Strategic information systems** make use of conventional information systems in an innovative way. They can be defined as information systems that create or enhance the company's competitive advantage or change the industry structure by fundamentally changing how business is conducted. Strategic Information systems can be any kind of information systems (such as TPS, MIS, DSS, EIS, ERP, etc.) that help an organization either gain a competitive advantage or reduce a competitive disadvantage or atleast meet the other strategic organizational objectives. Thus, any IS that has the capability to change the goals, business processes, organizational products, or environmental relationships to help an organization gain a competitive advantage or reduce a competitive disadvantage is a strategic IS (SIS). These SIS make use of information technology to build up products and services that provide an organization with strategic advantages over the competitors in the global market.
3. Organisations try to align their IS or IT strategies with their business strategies to achieve competitive benefits. **Organizational strategies** could include reducing overall transactional and operational costs, minimizing the errors in the work carried out and greater accuracy while carrying out business operations, developing high quality products and services, speeding up the data communications and information sharing, improving performance and productivity, and making the management tasks more efficient and effective.
4. **Business process reengineering (BPR)**, is an organizational strategy for redesigning and restructuring the business processes to make them more productive and profitable. Moreover, the support of such SIS enhances the manager's decision-making skills.

Strategic information systems must be built in such a way that they stand different from the competitors, are built on the strengths of the company and that cannot be easily copied. To satisfy these needs an organization faces lots of pressures that affect its functioning.

An intelligent organizational strategy should help the organization withstand those pressures and still make a position in the market. An effective strategy will be the one that combines both implementation of information systems and hardwork of employees to achieve competitive advantage.

❖ 1.4.2 Business Pressures Faced by Organizations

The environment surrounding a business is an integration of social, legal, political and economic factors within which the businesses conduct their operations. Any drastic change in these environmental factors tends to create business pressures on organizations.

The three major types of business pressures are (i) market, (ii) technology and (iii) societal pressures.

☞ Market Pressures

Market pressures are caused due to competitors, global economy and demanding customers.

- 1) **Globalization** : Globalization means the increasing interdependence of the world's economies, cultures, and populations, made possible due to cross-border trade in goods and services, technology, and flows of investment, people, and information. Some examples of globalization like Outsourcing, Insourcing, Off shoring facilitate organizations to connect, compute, communicate, collaborate, and compete anywhere in the global world.
- 2) **Powerful Customers** : As customers have wide variety of choices in the market and they have become very knowledgeable about the options available in the outside world, retaining the customers has become a major challenge. Customer relationship management is a key to maintaining the customer loyalty.
- 3) **Changing nature of workforce** : Information technology is giving opportunity for women, single parent, physically challenged to work and also work from home facility for employees, all which is making the nature of work quiet diversified.

☞ Technology Pressures

The next type of pressure is related to advancement in technology.

- 1) **Technological innovation** : There is continuous and faster deployment of competitive products in the market with upgraded features. So, a company has to always be on its toes to meet those technological changes.
- 2) **Information overload** : Due to Internet, vast amount of information on any particular topic, product or service is available. For the managers to make effective decisions they need to make use of search engines and advanced data mining tools to extract knowledge from the huge pools of information.

Societal / Political / Legal Pressures

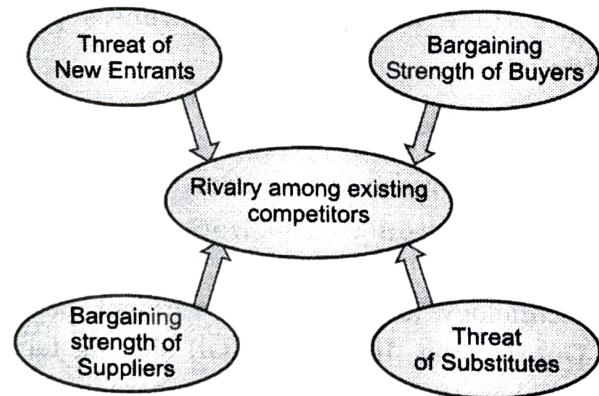
The third category of pressure includes government rules and regulations, society related issues etc.

- 1) **Social responsibilities :** As a responsibility organizations need to also spend time and/or money to tackle various social problems. Green IT revolution, ways to conserve energy, computer power management, use of solar energy to operate the equipments, carbon management are all initiatives taken by organizations as a social responsibility.
- 2) **Compliance with Government Regulations :** Organizations find abiding government laws as a major constraint because not following rules and regulations completely ,say by escaping from paying taxes, somehow intensifies competition. There are also many laws which the IT companies need to abide to, while buying IT products to disposing them off.

1.4.3 Porter's Five Forces Model

As shown in Fig. 1.4.3. Porter's five forces model is a strategic model put forward by Michael Porter.

This model provides an outline for evaluating the strengths and weaknesses as well as competitive position of a company in the market.



(1A5)Fig. 1.4.3 : Porter's Five Forces Model

1. **The threat of new entrants.** The fear that new competitors will enter the market is high when making the entry is effortless whereas it is low when there are considerable barriers to the entry. We can consider entry barriers as the outstanding characteristics of products or services owned by the organization and which is difficult for the competitor to achieve.
2. **The bargaining strength of suppliers.** The strength of suppliers is high when the buyers have very limited options from whom to buy and it is low when buyers have various alternative options of sellers. Therefore, having more number of suppliers will make the position of the organisation powerful when negotiating on prices, quality, and delivery terms.
3. **The bargaining strength of customers or buyers.** In the same way as suppliers have bargaining power even the buyer position can be stronger if buyers have several choices from whom to buy and low when buyers have very little choices.
4. **The threat of substitute products or services.** If there are many substitute products or services available in market to an organization's products or services, then the threat of substitutes is high. If there are few alternatives in the market, then the threat is low.

- 5. The rivalry among existing firms in the industry.** The threat from rivals to an organisation is high when there is powerful competition among many firms within the same type of industry. Whereas the threat is less when there are fewer powerful firms to compete.

1.4.4 Strategies for Competitive Advantage

Organizations constantly try to build up strategies to counteract the Porter's five forces. They must select a strategy intelligently and follow it properly to achieve success. Based on this selection an organization will employ its information systems. Below are explained these strategies for achieving competitive advantage.

- | | |
|------------------------------|--|
| 1. Cost leadership strategy. | 2. Differentiation strategy. |
| 3. Innovation strategy. | 4. Operational effectiveness strategy. |

- ▶ **1. Cost leadership strategy:** This strategy states that an organization will develop a product and/or service at the lowest cost than all its competing organizations in the same type of industry. For example, McDonald's implements a cost leadership strategy by offering the basic fast-food meals at considerable low prices.
- ▶ **2. Differentiation strategy:** According to differentiation strategy, an organization should offer products and/or services that have some unique features which no other organization within the same industry can provide. For example, Apple has been a giant in selling variety of products such as the Iphone, the Ipad and the Ipod. It makes use of differentiation strategy for pricing and marketing i.e. they make superior quality products which none of their competitors can provide at a lower cost with same paybacks.
- ▶ **3. Innovation strategy:** Innovation strategy is the one where an organization continuously works to introduce new ways to improve quality of existing products and/or services, or incorporate new ways to produce them. For example, Samsung follows an innovative strategy where it is into continues R&D for improving its variety of products. One such example is the curved mobile phone screens first developed by Samsung.
- ▶ **4. Operational effectiveness strategy:** Under this strategy, the business organization tries to improvise the internal business processes and operations so that it performs better than its rivals. The organization can work on reducing delivery times, improving productivity, increasing employee satisfaction etc. Here we can take an example of Fortis group of Healthcare Systems which strives to achieve Operational effectiveness. They have tried to employ and continuously track clinical outcomes in India. Clinical Outcomes are the globally agreed upon, evidence-based measurable changes in health or quality of life resulting from patient care. The monitoring of outcomes provides a feedback to these healthcare organizations for both assessing and improving the quality of clinical excellence, patient health and care.

► **5. Customer-orientation strategy:** This strategy aims at maintaining customer loyalty and keeping them satisfied. The organization should try to build better customer relationships and keep them happy. A very rightful example of customer orientation strategy is products by Apple. Apple is always into launching new products that satisfy customer's requirements and needs before they even express them.

► 1.5 MULTIPLE CHOICE QUESTIONS

- Q.1** For any information to be useful, it must be _____. (Jan 2021)
 (a) Efficient (b) Safe (c) Complete (d) Optimized ✓ Ans. : (c)
- Q.2** Types of information systems include _____. (Jan 2021)
 (a) Management support system (b) Hardware processing system
 (c) Output handling systems (d) Storage processing systems ✓ Ans. : (a)
- Q.3** The most fundamental information systems in an organization are _____. (Jan 2021)
 (a) Office automation systems (b) Decision support systems
 (c) Functional area information systems (d) Transaction processing systems ✓ Ans. : (d)
- Q.4** The term Field in a data represents _____.
 (a) Integrated collection of logically related data (b) A group of related records
 (c) logical structure (d) Data attribute ✓ Ans. : (d)
- Q.5** _____ refer(s) to an elementary description of things, events, activities, and transactions that are recorded, classified, and stored but are not organized to convey any specific meaning.
 (a) Data items (b) Knowledge (c) Information (d) Wisdom ✓ Ans. : (a)
- Q.6** _____ are/is organized so that they have meaning and value to the recipient.
 (a) Data items (b) Knowledge (c) Information (d) Wisdom ✓ Ans. : (c)
- Q.7** _____ are/is organized and processed to convey understanding, experience, accumulated learning, and expertise as they apply to a current business problem.
 (a) Data items (b) Knowledge (c) Information (d) Wisdom ✓ Ans. : (b)
- Q.8** You take orders at a local fast food restaurant. A customer approaches the counter and says "I would like 3 please." This is example of _____.
 (a) A data item (b) Knowledge (c) Information (d) Wisdom ✓ Ans. : (a)
- Q.9** You take orders at a local fast food restaurant. A customer approaches the counter and says "I would like 3 hamburgers please." This is example of _____.
 (a) A data item (b) Knowledge (c) Information (d) Wisdom ✓ Ans. : (c)

- Q.10** You take orders at a local fast food restaurant. A customer approaches the counter and says "I would like 3 hamburgers please." Since this customer comes in every day, you know he also wants 3 small fries to go with it. This is example of _____.
(a) A data item (b) Knowledge (c) Information (d) Wisdom ✓ **Ans. : (b)**

Q.11 _____ is a program or collection of programs that enable the hardware to process data.
(a) A database (b) A network (c) A procedure (d) Software ✓ **Ans. : (d)**

Q.12 _____ is a connecting system that permits different computers to share resources.
(a) A database (b) A network (c) Hardware (d) Software ✓ **Ans. : (b)**

Q.13 Information systems that connect two or more organizations are referred to as _____- organizational information systems
(a) infra (b) infer (c) inter (d) intra ✓ **Ans. : (c)**

Q.14 When thinking about how IT eliminates jobs, which of the following is FALSE?
(a) Many companies have responded to difficult economic times by increasing their IT investments.
(b) Employees need to find a way to show they add value beyond IT and ensure their managers are aware of this value.
(c) IT creates entirely new categories of jobs.
(d) Organizations are finding ways to do less with more IT resources. ✓ **Ans. : (d)**

Q.15 Which of the following statements is TRUE?
(a) IT decreases the number of executives (b) IT eliminates all jobs eventually
(c) IT does not affect health (d) IT reduces job stress ✓ **Ans. : (a)**

Q.16 Which of the following is NOT a way that IT affects our lives?
(a) Businesses can offer 24/7/365 service (b) Employees are constantly on call
(c) It improves the quantity of leisure time (d) It is easier to work from any location ✓ **Ans. : (c)**

Q.17 The IS function can be strategic within organizations.
(a) True (b) False ✓ **Ans. : (True)**

Q.18 The traditional functions of the MIS department tend to be technology-focused while the consultative functions of the MIS department tend to be strategic or inter-disciplinary in nature.
(a) True (b) False ✓ **Ans. : (True)**

Q.19 Information and knowledge are the same things because both depend on data in context.
(a) True (b) False ✓ **Ans. : (False)**

- Q.20** An _____ collects, processes, stores, analyzes, and disseminates information for a specific purpose.
- (a) Information technology (b) Information system
 (c) Machine (d) Algorithm
- ✓ Ans. : (b)
- Q.21** _____ define the policies to make efficient use of the information available as aligned to the business objectives.
- (a) Software (b) Program (c) Business procedures (d) Contract
- ✓ Ans. : (c)
- Q.22** Which type of systems involves what-if analysis?
- (a) Transaction Processing Systems (b) Decision Support Systems
 (c) Operational Systems (d) ERP systems
- ✓ Ans. : (b)
- Q.23** _____ is positive impact of IS on Healthcare Industry
- (a) Excessive dependency on machines (b) Robotic Surgeries
 (c) Elimination of jobs (d) 24 X 7 working hours
- ✓ Ans. : (b)
- Q.24** Strategic Information systems are those information systems
- (a) that help an organization either gain a competitive advantage
 (b) that help in overcoming the competitive threats in market
 (c) reduce a competitive disadvantage
 (d) all of above
- ✓ Ans. : (d)
- Q.25** _____ is an organizational strategy for redesigning and restructuring the business processes to make them more productive and profitable.
- (a) Business process restructuring (b) Business process redesigning
 (c) Business process reengineering (d) Business procedure reengineering
- ✓ Ans. : (c)
- Q.26** The full analytical capability and statistical evaluation is a highlighting feature of
- (a) Decision Support Systems (b) Management Information Systems
 (c) Transaction Processing Systems (d) None of above
- ✓ Ans. : (a)
- Q.27** _____ strategy aims at maintaining customer loyalty and keeping them satisfied.
- (a) Marketing orientation (b) User orientation
 (c) People orientation (d) Customer orientation
- ✓ Ans. : (d)
- Q.28** Innovation strategy is the one where
- (a) maintaining customer loyalty and keeping them satisfied is necessary.
 (b) working continuously to introduce novel ways to improve quality of existing products and/or services.
 (c) developing products that are higher in cost than similar products.
 (d) none of above
- ✓ Ans. : (b)

Q.29 Operational effectiveness strategy is the one where

- (a) a business organization tries to improvise the internal business processes and operations so that it performs better than its rivals.
- (b) that an organization will develop a product and/or service at the lowest cost.
- (c) an organization should offer products that are different from other products developed by the same firm.
- (d) All of above

✓ Ans. : (a)

Q.30 Which strategy states that an organization will develop a product and/or service at the lowest cost than all its competing organizations in the same type of industry?

- (a) Differentiation strategy
- (b) Cost leadership strategy
- (c) Operational strategy
- (d) Customer orientation

✓ Ans. : (b)

Q.31 According to differentiation strategy

- (a) an organization should offer products that have some unique features which no other organization within the same industry can provide.
- (b) an organization should offer products that have highest cost which no other organization within the same industry can provide.
- (c) an organization should offer products that are different from other products developed by the same firm.
- (d) an organization should offer products that have a higher cost from other products developed by the same firm.

✓ Ans. : (a)

Q.32 A firm restructuring the business processes in effort to reduce delivery times is an example of _____ strategy.

- (a) Differentiation strategy
- (b) Leadership strategy
- (c) Operational effectiveness strategy
- (d) Marketing strategy

✓ Ans. : (c)

Q.33 McDonald's implements a _____ strategy by offering the basic fast-food meals at considerable low prices.

- (a) Differentiation
- (b) Operational effectiveness
- (c) Cost leadership
- (d) Innovative

✓ Ans. : (c)

Q.34 The strength of suppliers is ____ when the buyers have very limited options from whom to buy.

- (a) high
- (b) low

✓ Ans. : (a)

Q.35 Which out of the following is not a negative impact of IT on lifestyle of employees at work?

- (a) no clear boundaries between work time and leisure time
- (b) flexibility of work hours due to work from home facility
- (c) health issues such as vision and back problems
- (d) elimination of jobs

✓ Ans. : (b)

- Q.36** _____ system support creation and dissemination of knowledge to its employees and managers.
- (a) data management (b) information management
 (c) operation management (d) knowledge management
- ✓ Ans. : (d)
- Q.37** Which of these is not an Office automation system?
- (a) electronic calender (b) email
 (c) word processing system (d) knowledge management
- ✓ Ans. : (d)
- Q.38** _____ systems make use of electronic medium such as the internet to perform buying and selling of goods and services.
- (a) Ebusiness (b) ECommerce
 (c) Enterprise Application System (d) Etransaction
- ✓ Ans. : (b)
- Q.39** _____ systems that manage and control the entire supply chain of an organization right from procurement of raw materials to delivery of finished products.
- (a) Supply Chain Management (b) Customer Relationship Management
 (c) Operation management (d) Knowledge management
- ✓ Ans. : (a)
- Q.40** Which of these is an Interorganizational system?
- (a) transaction Processing system (b) supply chain management
 (c) operation management (d) knowledge management
- ✓ Ans. : (b)
- Q.41** Which of the following is a Strategic Information system?
- (a) TPS (b) EIS (c) DSS (d) all of above
- ✓ Ans. : (d)
- Q.42** Which of these are core modules of an ERP package?
- (a) Human Resource (b) Sales & Marketing
 (c) Inventory (d) all of above
- ✓ Ans. : (d)
- Q.43** Which of these is an example of expert system?
- (a) navigation system (b) word processing system
 (c) email system (d) videoconferencing system
- ✓ Ans. : (a)
- Q.44** _____ techniques facilitate organizations to connect, compute, communicate, collaborate, and compete anywhere in the global world.
- (a) globalization (b) technological innovation
 (c) competitive (d) none of above
- ✓ Ans. : (a)
- Q.45** Which among these is not among Porter's five forces
- (a) Threat of new entrant (b) Bargaining power of buyer
 (c) Bargaining power of supplier (d) Threat of customer
- ✓ Ans. : (d)

Q.46 _____ systems support knowledge discovery through data analysis using data warehousing and mining techniques.

- (a) business intelligence
- (b) knowledge management
- (c) expert management
- (d) data management

✓ Ans. : (a)

Q.47 _____ support the lower and middle level managers in creating documents, scheduling meetings and communication between employees

- (a) Office automation systems
- (b) Expert Systems
- (c) Business Intelligence systems
- (d) Knowledge management systems

✓ Ans. : (a)

Q.48 _____ support middle level managers within a specific department for collecting data and generating regular reports.

- (a) Expert Systems
- (b) Functional area information systems
- (c) Transaction processing system
- (d) Knowledge management systems

✓ Ans. : (b)

Q.49 Societal pressures that impact organizations to handle certain social responsibilities are

- (a) Green IT revolution
- (b) Conservation of energy
- (c) Carbon management
- (d) All of above

✓ Ans. : (d)

Q.50 Various globalization techniques that facilitate organizations to connect, compute, communicate, collaborate, and compete anywhere in the global world include

- (a) Outsourcing,
- (b) Insourcing
- (c) Offshoring
- (d) all of above

✓ Ans. : (d)

Q.51 Managing information systems in modern organizations is _____ because _____.

- (a) difficult; organizations are dependent on them and they are expensive to acquire, operate, and maintain
- (b) difficult; while people are accustomed to using technology in their daily lives, they don't adjust so easily to using them at work
- (c) easy; organizations are dependent on them but they don't cost that much to acquire, operate, and maintain
- (d) easy; people are so accustomed to using technology in their daily lives that they easily adjust to using them at work

✓ Ans. : (a)

Chapter Ends...

