Chapter- 1

Information Systems in Business Today

Topic- 1: How Information Systems Are Transforming Business?

What's New in Management Information Systems?

Plenty. In fact, there's a whole new world of doing business using new technologies for managing and organizing. What makes the MIS field the most exciting area of study in schools of business is the continuous change in technology, management, and business processes. Five changes are of paramount importance.

- **IT Innovations.** A continuing stream of information technology innovations is transforming the traditional business world. Examples include the emergence of cloud computing, the growth of a mobile digital business platform based on smartphones and tablet computers, big data, business analytics, and the use of social networks by managers to achieve business objectives. Most of these changes have occurred in the past few years. These innovations are enabling entrepreneurs and innovative traditional firms to create new products and services, develop new business models, and transform the day-to-day conduct of business. In the process, some old businesses, even industries, are being destroyed while new businesses are springing up.

- **New Business Models.** For instance, the emergence of online video services like Netflix for streaming, Apple iTunes, Amazon, and many others for downloading video has forever changed how premium video is distributed and even created. Netflix in 2016 attracted more than 75 million subscribers worldwide to what it calls the "Internet TV" revolution. Netfl ix has moved into premium TV show production with 30 original shows such as House of Cards and Orange Is the New Black, challenging cable and broadcast producers of TV shows, and potentially disrupting cable network dominance of TV show production. Apple's iTunes now accounts for 67 percent of movie and TV show downloads and has struck deals with major Hollywood studios for recent movies and TV shows. A growing trickle of viewers is unplugging from cable and using only the Internet for entertainment.

- **E-commerce Expanding.** E-commerce generated about $600 billion in revenues in 2016 and is estimated to grow to nearly $900 billion by 2020. E-commerce is changing how firms design, produce and deliver their products and services. E-commerce has reinvented itself again, disrupting the traditional marketing and advertising industry and putting major media and content firms in jeopardy. Facebook and other social networking sites such as YouTube, Twitter, and Tumblr along with Netfl ix, Apple Beats music service, and many other media firms exemplify the new face of e-commerce in the twenty-first century. They sell services. When we think of e-commerce, we tend to think of selling physical products. While this iconic vision of e-commerce is still very powerful and the fastest-growing form of retail in the United States, growing up alongside is a whole new value stream based on selling services, not goods. It's a services model of e-commerce. Growth in social commerce is spurred by the powerful growth of the mobile platform: 80 percent of Facebook's users access the service from mobile phones and

tablets. Information systems and technologies are the foundation of this new services-based e-commerce. Mobile e-commerce hit $130 billion in 2016 and is growing at more than 30 percent a year.

- **Management Changes.** The management of business firms has changed: With new mobile smartphones, high-speed wireless Wi-Fi networks, and tablets, remote salespeople on the road are only seconds away from their managers' questions and oversight. Business is going mobile, along with consumers. Managers on the move are indirect, continuous contact with their employees. The growth of enterprise-wide information systems with extraordinarily rich data means that managers no longer operate in a fog of confusion but instead have online, nearly instant access to the really important information they need for accurate and timely decisions. In addition to their public uses on the web, wikis, and blogs are becoming important corporate tools for communication, collaboration, and information sharing.

- **Changes in Firms and Organizations.** Compared to industrial organizations of the previous century, new fast-growing twenty-first-century business firms put less emphasis on hierarchy and structure and more emphasis on employees taking on multiple roles and tasks and collaborating with others on a team. They put greater emphasis on competency and skills rather than position in the hierarchy. They emphasize higher speed and more accurate decision making based on data and analysis. They are more aware of changes in technology, consumer attitudes, and culture. They use social media to enter into conversations with consumers and demonstrate a greater willingness to listen to consumers, in part because they have no choice. They show a better understanding of the importance of information technology in creating and managing business firms and other organizations. To the extent organizations and business, firms demonstrate these characteristics, they are twenty-first-century digital firms.

The Emerging Digital Firm

What does globalization have to do with management information systems? That's simple: everything. The emergence of the Internet into a full-blown international communications system has drastically reduced the costs of operating and transacting on a global scale. Communication between a factory floor in Shanghai and a distribution center in Rapid City, South Dakota, or Antwerp, Belgium is now instant and virtually free. Customers can now shop in a worldwide marketplace, obtaining price and quality information reliably 24 hours a day. Firms producing goods and services on a global scale achieve extraordinary cost reductions by finding low-cost suppliers and managing production facilities in other countries. Internet service firms, such as Google, Netflix, Alibaba, and eBay, are able to replicate their business models and services in multiple countries without having to redesign their expensive fixed-cost information systems infrastructure. Briefly, information systems enable globalization.

All of the changes we have just described, coupled with the equally significant organizational redesign, have created the conditions for a fully digital firm. A digital firm can be defined along several dimensions. A digital firm is one in which nearly all of the organization's significant business relationships with customers, suppliers, and employees are digitally enabled and mediated. Core business

processes are accomplished through digital networks spanning the entire organization or linking multiple organizations.

Business processes refer to the set of logically related tasks and behaviors that organizations develop over time to produce specific business results and the unique manner in which these activities are organized and coordinated. Developing a new product, generating and fulfilling an order, creating a marketing plan, and hiring an employee are examples of business processes, and the ways organizations accomplish their business processes can be a source of competitive strength.

Key corporate assets—intellectual property, core competencies, and financial and human assets—are managed through digital means. In a digital firm, any piece of information required to support key business decisions is available at any time and anywhere in the firm.

Digital firms sense and respond to their environments far more rapidly than traditional firms, giving them more flexibility to survive in turbulent times. Digital firms offer extraordinary opportunities for a more flexible global organization and management. In digital firms, both time-shifting and space-shifting are the norms. Time-shifting refers to business being conducted continuously, 24/7, rather than in narrow "workday" time bands of 9 a.m. to 5 p.m. Space shifting means that work takes place in a global workshop as well as within national boundaries. Work is accomplished physically wherever in the world it is best accomplished.

Many firms, such as Cisco Systems, 3M, and GE, are close to becoming digital firms, using the Internet to drive every aspect of their business. Most other companies are not fully digital, but they are moving toward close digital integration with suppliers, customers, and employees.

Strategic Business Objectives of Information Systems

What makes information systems so essential today? Why are businesses investing so much in information systems and technologies? In the United States, more than 57 million managers and 120 million workers in the information and knowledge sectors in the labor force rely on information systems to conduct business. Information systems are essential for conducting day-to-day business in most advanced countries as well as achieving strategic business objectives.

There is a growing interdependence between a firm's ability to use information technology and its ability to implement corporate strategies and achieve corporate goals (see Figure 1. 2). Specifically, business firms invest heavily in information systems to achieve six strategic business objectives; operational excellence; new products, services, and business models; customer and supplier intimacy; improved decision making; competitive advantage; and survival.

1. **Operational Excellence:** Businesses continuously seek to improve the efficiency of their operations in order to achieve higher profitability. Information systems and technologies are some of the most important tools available to managers for achieving higher levels of efficiency and

productivity in business operations, especially when coupled with changes in business practices and management behavior. Walmart, the largest retailer on earth, exemplifies the power of information systems coupled with state of the art business practices and supportive management to achieve world-class operational efficiency.

2. **New Products, Services, and Business Models** Information systems and technologies are a major enabling tool for firms to create new products and services as well as entirely new business models. A business model describes how a company produces, delivers, and sells a product or service to create wealth.

3. **Customer and Supplier Intimacy** When a business really knows its customers and serves them well, the customers generally respond by returning and purchasing more. This raises revenues and profits. Likewise with suppliers, the more a business engages its suppliers, the better the suppliers can provide vital inputs. This lowers costs. How to really know your customers or suppliers is a central problem for businesses with millions of offline and online customers.

4. **Improved Decision Making** Many business managers operate in an information fog bank, never really having the right information at the right time to make an informed decision. Instead, managers rely on forecasts, best guesses, and luck. In the past decade, information systems and technologies have made it possible for managers to use real-time data from the marketplace when making decisions.

5. **Competitive Advantage** When firms achieve one or more of these business objectives—operational excellence; new products, services, and business models; customer/supplier intimacy; and improved decision making—chances are they have already achieved a competitive advantage. Doing things better than your competitors, charging less for superior products, and responding to customers and suppliers in real-time all add up to higher sales and higher profits that your competitors cannot match.

6. **Survival Business firms** also invest in information systems and technologies because they are the necessities of doing business. Sometimes these "necessities" are driven by industry-level changes. Today, most national banks in the world have ATMs and links to national and international ATM networks, such as CIRRUS. Providing ATM services to retail banking customers is simply a requirement of being in and surviving in the retail banking business.

Topic- 1.2: Information system- How, What, Why?

Information system- How, What, Why?

An information system can be defined technically as a set of interrelated components that collect (or retrieve), process, store, and distribute information to support decision making and control in an organization. In addition to supporting decision making, coordination, and control, information systems may also help managers and workers analyze problems, visualize complex subjects, and create new products.

An information system can be defined technically as a set of interrelated components that collect (or retrieve), process, store, and distribute information to support decision making and control in an organization. In addition to supporting decision making, coordination, and control, information systems may also, help managers and workers analyze problems, visualize complex subjects, and create new products.

Information systems contain information about significant people, places, and things within the organization or in the environment surrounding it. By information, we mean data that have been shaped into a form that is meaningful and useful to human beings. Data, in contrast, are streams of raw facts representing events occurring in organizations or the physical environment before they have been organized and arranged into a form that people can understand and use.

Three activities in an information system produce the information that organizations need to make decisions, control operations, analyze problems, and create new products or services. These activities are input, processing, and output.

1. Input captures or collects raw data from within the organization or from its external environment.
2. Processing converts this raw input into a meaningful form.
3. Output transfers the processed information to the people who will use it or to the activities for which it will be used.
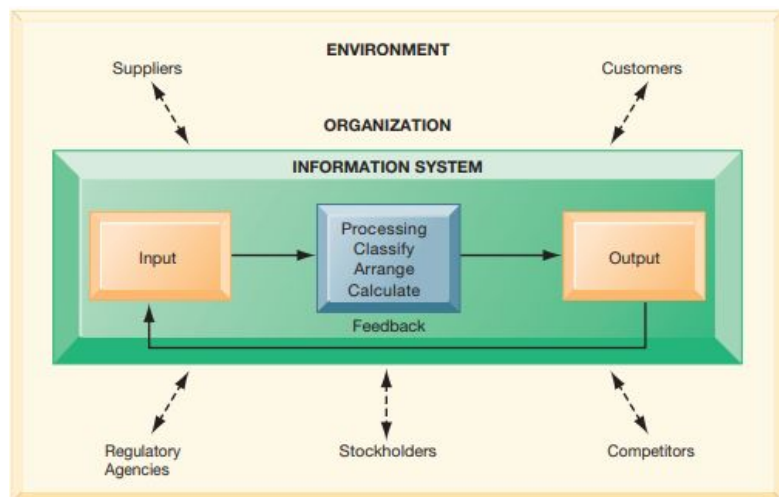
Information systems also require feedback, which is the output that is returned to appropriate members of the organization to help them evaluate or correct the input stage.

Dimensions of Information Systems

To fully understand information systems, you must understand the broader organization, management, and information technology dimensions of systems and their power to provide solutions to challenges and problems in the business environment. We refer to this broader understanding of information systems, which encompasses an understanding of the management and organizational dimensions of systems as well as the technical dimensions of systems, as information systems literacy. Computer literacy, in contrast, focuses primarily on knowledge of information technology.

The field of management information systems (MIS) tries to achieve this broader information systems literacy. MIS deals with behavioral issues as well as technical issues surrounding the development, use, and impact of information systems used by managers and employees in the firm.

Organizations: Information systems are an integral part of organizations. Indeed, for some companies, such as credit reporting firms, there would be no business without an information system. The key elements of an organization are its people, structure, business processes, politics, and culture. Organizations have a structure that is composed of different levels and specialties. Their structures reveal a clear-cut division of labor. Authority and responsibility in a business firm are organized as a hierarchy or a pyramid structure. The upper levels of the hierarchy consist of managerial, professional, and technical employees, whereas the lower levels consist of operational personnel

- Senior management makes long-range strategic decisions about products and services as well as ensure the actual performance of the firm.
- Middle management carries out the programs and plans of senior management, and
- Operational management is responsible for monitoring the daily activities of the business.
- Knowledge workers, such as engineers, scientists, or architects, design products or services and create new knowledge for the firm, whereas
- Data workers, such as secretaries or clerks, assist with scheduling and communications at all levels of the firm.
- Production or service workers actually produce the product and deliver the service

Experts are employed and trained for different business functions. The major business functions, or specialized tasks performed by business organizations, consist of sales and marketing, manufacturing and production, finance and accounting, and human resources

Management: Management's job is to make sense out of the many situations faced by organizations, make decisions, and formulate action plans to solve organizational problems. Managers perceive business challenges in the environment, they set the organizational strategy for responding to those challenges, and they allocate the human and financial resources to coordinate the work and achieve success. Throughout, they must exercise responsible leadership. The business information systems described in this book reflect the hopes, dreams, and realities of real-world managers.
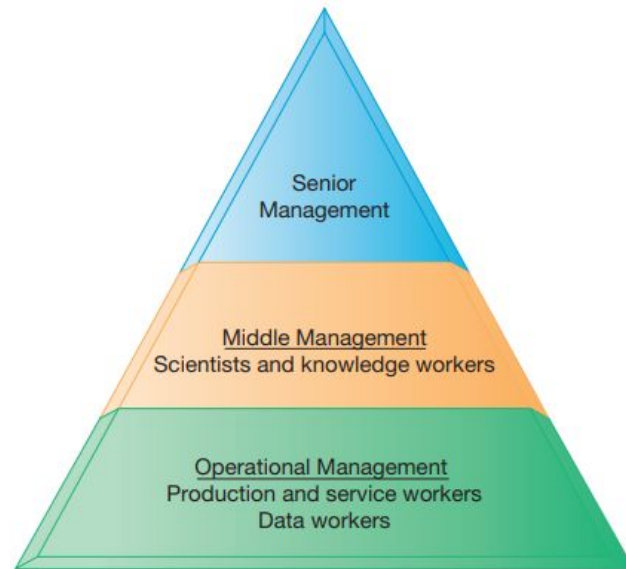
Information Technology: Information technology is one of many tools managers use to cope with change. Computer hardware is the physical equipment used for input, processing, and output activities in an information system. It consists of the following: computers of various sizes and shapes (including mobile handheld devices); various input, output, and storage devices; and telecommunications devices that link computers together.

Computer software consists of the detailed, preprogrammed instructions that control and coordinate the computer hardware components in an information system.

Data management technology consists of the software governing the organization of data on physical storage media.

Networking and telecommunications technology, consisting of both physical devices and software, links the various pieces of hardware and transfers data from one physical location to another. Computers and communications equipment can be connected in networks for sharing voice, data, images, sound, and video. A network links two or more computers to share data or resources, such as a printer.

The World Wide Web is a service provided by the Internet that uses universally accepted standards for storing, retrieving, formatting, and displaying information in a page format on the Internet.

All of these technologies, along with the people required to run and manage them, represent resources that can be shared throughout the organization and constitute the firm's information technology (IT) infrastructure.