INFS1602 – INFORMATION SYSTEMS IN BUSINESS

1. INFORMATION SYSTEMS IN GLOBAL BUSINESS TODAY

The Role of Information Systems in Business Today

Growing interdependence between a firm's IT use and its ability to implement strategies to achieve corporate goals

- Changes in strategy, rules and process require changes in software, databases, telecommunications

- Firms invest heavily in information systems to achieve 6 strategic business objectives:
    1. *Operational Excellence:* Improved efficiency to achieve high productivity
    2. *New products, services and business models:* Enables firms to create new G&S, a business model describes how a company produces, delivers and sells a product/service to create wealth.
    3. *Customer and supplier intimacy:* Engaging with customers and suppliers for revenue and vital inputs, lowering costs along the way.
    4. *Improved decision making:* Managers can use real time data from the market place
    5. *Competitive Advantage:* Better quality, charging less, responding to customers and suppliers add to higher sales and profits in the real time
    6. *Survival:* Necessities to do business

- **INFORMATION TECHNOLOGY:** Hardware and software used to achieve business objectives
- **INFORMATION SYSTEM:** Set of interrelated components that collect, process, store and distribute information to support decision making and control in an organization
    o Help managers analyze problems, visualize complex subjects and create new products
    o Data shaped into a form useful for others (data are streams of raw facts)
    o There are three activities that help produce the information needed:
        1. Input: Captures raw data from within organization or from externally
        2. Processing: Converts input into a meaningful form
        3. Output: Transfers information to users

Dimensions of Information Systems

- *Information Systems Literacy (ISL):* Understand the organization, management and IT dimension of systems
- The field of Management Information Systems (MIS) tries to achieve broader ISL
- Deals with behavioral, technical issues surrounding the development, use and impact of IS
    o **ORGANISATIONS:** Some companies need information systems such as credit reporting firms
        - Have a structure composed of different levels and specialties
        - Senior Management make long strategic decisions and ensures financial performance
        - Middle Management carries out programs and plans of senior management
        - Operational Management is responsible for monitoring daily activities
        - Knowledge workers (engineers, scientists) design products and create knowledge
        - Data workers (secretaries/clerks) assist with scheduling and communication
        - Production/Service workers produce the product and deliver the service

TABLE 1.2 Major Business Functions

Function	Purpose
Sales and marketing	Selling the organization's products and services
Manufacturing and production	Producing and delivering products and services
Finance and accounting	Managing the organization's financial assets and maintaining the organization's financial records
Human resources	Attracting, developing, and maintaining the organization's labor force; maintaining employee records

- Information systems automate business processes (how a customer receives credit)
- Each organization has a unique culture found embedded in its information systems

- o **MANAGEMENT:** Perceive challenges in environment and set the organizational strategy
  - Must create new products/services and recreate the organization
  - IT can help managers design and deliver new products and redirecting their organisation

- o **INFORMATION TECHNOLOGY:** Computer hardware is physical equipment for input, processing and output and consists of computers, storage devices, telecommunications.
  - *Computer Software:* Detailed preprogrammed instructions that control/coordinate computer hardware components in information systems
  - *Data Management Technology:* Software governing organisation of data
  - *Networking and Telecommunications Technology:* Physical and software, links to hardware and transfers data from one location to another
  - *Network:* Links two or more computers to share data
  - The largest and most used network is the Internet (1.4 billion users in 230 countries)
  - Internal corporate networks based on IT are called intranets and extranets
  - WWW is a service provided by the internet to store, retrieve, format and display info
  - The IT infrastructure provides the platform where firms can build specific IS

Business Perspective on Information Systems
- They provide real economic value to the business through increased productivity and revenue
- Can contribute to superior long term strategic positioning of the firm in certain markets
- Every business has an information value chain where raw information is systemically acquired and transformed through stages which add value to the information
- Primary purpose is to contribute to corporate value

Organizational Capital & the right business model
- Returns from information technology investments can vary between firms
- IT investments alone cannot make firms more effective unless accompanied by values, structures, behavior patterns and complementary assets
- *Complementary Assets:* Required to derive value from a primary asset (eg. To realize value from automobiles requires investments in roads, gas stations and structure to set standards for drivers)
- Firms that support their investments with assets receive superior returns
- Some assets include buildings, machinery and tools
- Key complementary organizational investments are a supportive business culture that values effectiveness and efficiency, appropriate business model, effective processes, decentralization of authority, highly distributed decision rights and a strong information system
- Important managerial investments are strong senior management, support for change, team work, training and flexibility and knowledge.

TABLE 1.3 Complementary Social, Managerial, and Organizational Assets Required to Optimize Returns from Information Technology Investments

Organizational assets	Supportive organizational culture that values efficiency and effectiveness
	Appropriate business model
	Efficient business processes
	Decentralized authority
	Distributed decision-making rights
	Strong IS development team
Managerial assets	Strong senior management support for technology investment and change
	Incentives for management innovation
	Teamwork and collaborative work environments
	Training programs to enhance management decision skills
	Management culture that values flexibility and knowledge-based decision making.
Social assets	The Internet and telecommunications infrastructure
	IT-enriched educational programs raising labor force computer literacy
	Standards (both government and private sector)
	Laws and regulations creating fair, stable market environments
	Technology and service firms in adjacent markets to assist implementation

Contemporary Approaches to Information Systems

- *Technical:* Emphasise mathematically based models and physical technology
  - The disciplines that contribute are computer & management science and operations research
  - Computer science is concerned with establishing theories of computability, methods of computation and methods of efficient data storage and access
  - Management science emphasizes development of models
  - Operations research focuses on mathematical techniques for optimizing organisations such as transportation, inventory control and transaction costs

- *Behavioural:* Issues include strategic business integration, design, implementation, utilization
  - Interest in understanding the production of digital goods, dynamics of markets and how new information systems can change the control and cost of structures within firms
  - Concentrates on changes in attitudes, management and organizational policies

- *Sociotechnical Systems (APPROACH OF TEXT):* Management information systems (MIS) focus on the use of computer based information systems & combines work of computer science, management science and operations research with a practical orientation toward developing solutions
  - Concerned with behavioural issues as well
  - Sociotechnical view is where optimal organizational performance is achieved by jointly optimizing both social and technical systems used in production
  - Helps avoid a purely technological approach to information systems
  - Technology must be changed and designed to fit organizational and individual needs
  - Individuals and organisations must be changed through training and learning
  - Planned organizational change must allow technology to operate and prosper