HDMT-1308
Technology, Business and Society

Unit 01

Managing Information

Information Systems in Global Business Today

Section A

I.T. Transform Business

And

The emergence of Digital Firms

I.T. Transforming Business

- information systems are transforming businesses in many ways
- such as
  - Increased technology **investments**
  - Increased responsiveness to customer demands
  - Shifts in communication media and advertising media
  - New (national) laws are made to govern I.T. and online business
  - Internet has drastically reduced costs of operating on global scale
- These changes have led to the *emergence of the* ***digital firms*** *數碼化的公司*

Digital Firms 數碼化的公司

- a ***digital firm*** is a firm in which:
  - Most of the firm's significant business relationships with customers, suppliers, and employees are digitally enabled and mediated.
  - Core business processes, or logically related business tasks, are accomplished through digital networks.
  - Key corporate assets (e.g. intellectual property, core competencies, and financial and human assets) are managed through digital means.
  - Business responses rapidly to changes in their environment are enhanced through digital communications, allowing for:
    - **time shifting** (business being conducted 24x7) and
    - **space shifting** (business being conducted globally or beyond traditional geographic boundaries).

Section B

Investment Objectives in Information Systems

Objectives of Investing in I.S.

- Business firms invest heavily in information systems to achieve six strategic business objectives:
  1. **Operational excellence** : Efficiency, productivity, and improved changes in business practices and management behavior
  2. **New products, services, and business models**:
     - A business model describes how a company produces, delivers, and sells a product or service to create wealth.
     - Information systems and technologies create opportunities for products, services, and new ways to engage in business.
     - e.g. electronic books, online auctions, groupons, …
  3. **Customer and supplier intimacy (Close relationship)** (親密): Improved communication with and service to customers raises revenues, and improved communication with suppliers lowers costs.
     - e.g. digital help-desk, EDI systems, instant massaging, …

Objectives of Investing in I.S. …

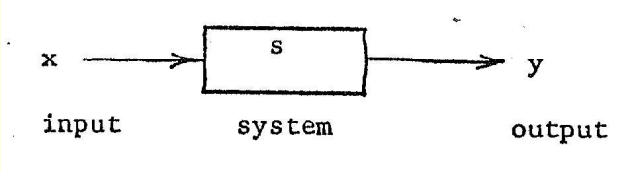
4. **Improved decision making**: With more accurate and timely information, business managers can make better decisions based on better forecasts.
   - It reduces the chances of over and under-production of goods, raising costs, and the loss of customers.
5. **Competitive advantage** : Implementing effective and efficient information systems can allow a company to charge less for superior products, adding up to higher sales and profits than their competitors.
6. **Survival** : Information systems can also be a necessity of doing business.
   - A necessity may be driven by industry-level changes, such as online banking in the retail banking industry.
   - A necessity may also be driven by governmental regulations, e.g. to use electronic customs declaration)

Section C

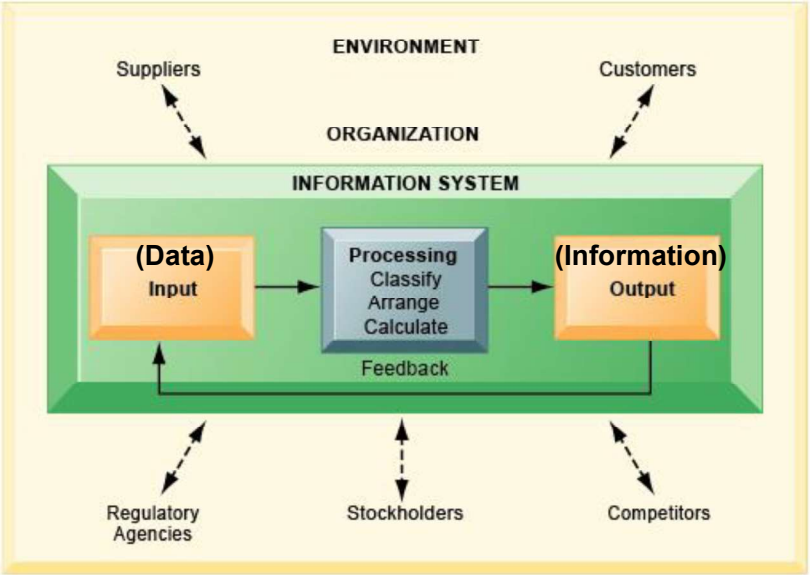
Information Systems Perspectives

System ???

- A system gets inputs and then processes them into outputs
- e.g. food (inputs) → digest (process) → energy (outputs)



Information Systems Perspectives…



Information Systems Perspectives…

- *Input, processing, output and feedback are the core activities* in an information system that produce the information an organization needs.
- **Input**
  - Input captures or collects raw data from within the organization or from its external environment.
- **Processing**
  - Processing converts this raw input into a meaningful form.
  - Example of processing: summarizing data, analyzing data, organizing data, etc.
- **Output**
  - Output transfers the processed information to the people who will use it or to the activities for which it will be used (i.e. information)
- **Feedback**
  - Feedback is output that is returned to appropriate members of the organization to help them evaluate or correct the input stage

Example: HKBU Roster System

- Example: the HKBU electronic roster system:
- Input:
  - the attendance of each student on each lesson. The instructor clicks on the names of the students who are present or absent.
- Processing:
  - The system stores the data, summarize the data and calculate the attendance percentage. Output:
  - The office can get the reports of attendance in different ways.
- Feedback:
  - The system will generate an error message to the user if the user forgets to take someone's attendance.

Information Systems Perspectives…

- **Data** (input) — are streams of raw facts and figures,
  - e.g. names of employees, attendance of employees, …
  - E.g. order no, order date, customer names, …

  (these "data" are the one we usual input into "Excel" or I.T. system.)
- **information** (output) – is data that has been summarized or data shaped into meaningful form for use in decision-making.
  - e.g. employees reports, summary and statistics that are readable and usable by decision makers (e.g. managers).
  - e.g. sales figures by product types, territories, or salespersons
- * **people use information to make decisions but not data.**

Information Systems Perspectives…

- Now let's look into more details about the term "Information systems":
- An **information system** turns data into **INFORMATION** to support decision making and control in an organization.
  - Managers make decisions everyday in managing a firm and its business.
- Information systems can also be used to analyze problems, visualize complex subjects, and create new products
  - E.g. TikTok's system analyzes complex human activities and then push suitable videos for the users.
  - E.g. AirBnB is a new business concept comparing to traditional hotel rooms booking.

Section D

Organization, Management and Technology

Organization, Management & Technology

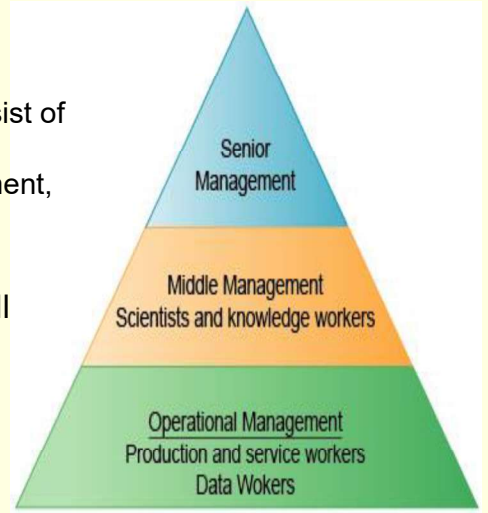
- *Using information systems effectively requires an understanding of the organization, management, and information technology shaping the systems*.
- Organization, management and technology are interrelated, which determine the use and effectiveness of I.S.
- (T.O.M.)

Organization, Management & Technology…

- Organization:
  - The key elements of an organization are its people, structure, business processes, policies, and culture.
  - An organization coordinates work through a structured hierarchy and formal standard operating procedures .
  - The information system of an organization must be compatible with the hierarchy, business processes, policies and culture.

Organization, Management & Technology…

- Management:
  - Organizational hierarchies consist of three principal levels: senior management, middle management, and operational management.
  - Information systems serve all these levels.



Organization, Management & Technology…

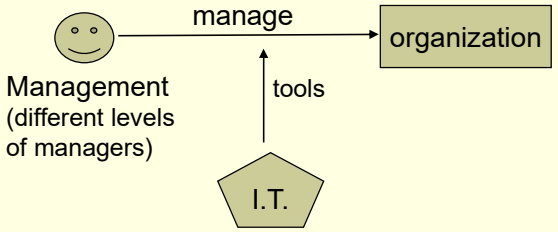
- **Senior management** makes long-range strategic decisions and ensures the firm's financial performance.
- **Middle management** carries out the plans of senior management
  - **Knowledge workers** such as engineers and scientists design products and create and distribute new knowledge for the organization.
- **Operational management** (First-Line Management) monitors the firm's daily activities.
  - **Data workers** such as secretaries process the organization's paperwork.
  - **Production or service workers** produce the products or services.

Organization, Management & Technology…

- Roles of Managers to ensure the effective use of information systems in an organization:
  - Identify opportunities of using I.T. to improve business performance
  - Make the wise I.T. decisions
    - What to use, how to use, make the right choices, …
  - Acts as role models to support I.T. development and use the systems.
  - Provide resources to support the I.T. development
    - E.g. Money, manpower, facilities
  - Participate in the development process by sharing their knowledge and experience to improve the system design.

Organization, Management & **Technology…**

- Technology:
  - Information technology (I.T.) is one of the many tools used by management to cope with change, making decisions and running the operations.
  - A firm's **I.T. infrastructure** is a technology platform or foundation on which a firm can build its information systems.
  - The utilization of the proper technology is a technical decision.
  - New Technologies are invented continuous, e.g. block-chain (bitcoins), 5G, …



I.T. Complementary Asset Investments

- Information technology investments cannot make organizations and managers more effective unless they are accompanied by **complementary assets.**:
  - **Complementary assets** : assets required to derive value from a primary investment. Firms supporting technology investments with investment in complementary assets receive superior returns.
    - For instance, to realize value from automobiles requires complementary investments in highways, roads, gasoline stations, repair facilities, and a legal regulatory structure to set standards and control drivers
- Firms also need to manage the complementary assets of I.T. investment. 3 types of complementary assets are: (OMS)
  - Organizational assets
  - Managerial assets
  - Social assets

I.T. Complementary Asset 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

Source: Laudon & Laudon