**IBP2313: Introduction to Information System**

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**CHAPTER1: Introduction to information age**

Information technology is shown as a key enabler to help organizations operate successfully in highly competitive environments

* Age? Hunter and gatherer, horticulture, industrial, etc
* correlation between business and technology
  + How IT influence your life? Business? Family?
* IT roles in supporting and implementing enterprise-wide initiatives and global business strategies
  + Ex. Collecting data, implement strategies, communication, analyzing information and etc
* Privacy, security and media
  + Cyber attack
  + Virus and spyware
* College students start up: facebook, Microsoft, Michael Dell
  + Online retailers…Amazon, Netflix: spin off from other business
* What is fact? The confirmation or validation of an event or object

The core drivers of the information age are:

* Data: raw facts that describe the characteristics of an event or object.
  + Ex. Order date, amount sold, customer numbers, quantity ordered
  + Think about these data, how was it like before the information age
* Information: data converted into a meaningful and useful context
  + Having right information at the right time is the key to success
  + Variable: a data characteristic that stands for a value that changes or varies over time
    - Ex. Fix cost and variable cost in managing business scenario
  + Ex. For information: best-selling product, best customer, worst-selling product, employee turnover rate
* Business intelligence (BI): information collected from multiple sources that analyzes patterns, trends, and relationships for strategic decision making
  + Predict the situation from various variables and information then conduct strategies based on them
  + BI can predict inventory requirement for the store for the week before the big sport match, if the home team is playing, average temperature, and the economic is doing well ……
  + Top managers use BI to define the future of th3e business, analyzing markets, industries and economies to determine the strategic direction the company must follow to remain profitable.
  + Ex. Best-selling product by month compared to sports season and city team wins and losses
* Knowledge: the skills, experience, and expertise, coupled with information and intelligence, that creates a person’s intellectual resources
  + Knowledge worker: individuals valued for their ability to interpret and analyze information
    - Ex. Hunter with tenure, 10 year experience civil engineer
  + Ex. Choosing not to fire a sales representative who is underperforming knowing that person is experiencing family problems
  + Ex. Listing products that are about to expire first on the menu or creating them as daily special to move out the product

Departmental companies

* Accounting
  + Records, measures, and reports monetary transactions
* Finance
  + Deals with strategic financial issues including money, banking, credit investments and assets
* Human Resources
  + Maintains polices, plans and procedures for the effective management of employees
* Marketing
  + Supports sales by planning, pricing, and promoting goods or services
* Operations management
  + Manages the process of converting or transforming or resources into goods or services
* Sales
  + Performs the function of selling goods or services

How these departments interrelated to one another

* It’s easy to see how a business decision made by one department can affect other departments.
* All departments must work together as a single entity sharing common information and not operate independently or in a silo

Management information systems (MIS)

* System: a collection of parts that link to achieve a common purpose
  + Ex. A car (all the part within it, engine, transmission, clutch and so on)
  + Product: material items that customer will buy to satisfy a want or need
  + Service: tasks performed by people that customer will by to satisfy a want or need
* Systems thinking: a way of monitoring the entire system by viewing multiple inputs being processed or transformed to produce outputs while continuously gathering feedback on each part
  + Input, process, and output then observe for feedback
* Management information (MIS)
  + MIS is a business function (like accounting or human resource) which moves information about people, products and processes across the company to facilitate decision making problem solving
  + MIS incorporates systems thinking to help companies operate cross-functionally
    - Ex. To fulfill product orders, an MIS for sales moves a single customer order across all functional area including sales, order fulfillment, shipping, billing, and finally customer service
    - Think about the process of ordering a car and have it delivered to the customer’s door

**CHAPTER 2: Hardware and Software Basics**

Introduction:

* Information technology can be an important enabler of business success and innovation
* IT can be composed of the internet, a personal computer, a cell phone that can access the web, a personal digital assistant, or presentation software.
* Two basic categories of IT
  + Hardware: consist of the physical devices associated with a computer system
    - Ex. CPU, iPhone, keyboard
  + Software: is the set of instructions the hardware executes to carry out specific tasks.
    - Ex. Microsoft excel, IOS 9.2

Hardware

Hardware: the physical devices associated with a computer system

Computer is an electronic device operating under the control of instructions stored in its own memory that can accept, manipulate, and store data

* Central processing Unit
  + CPU or microprocessor is the actual hardware that interprets and executes the program (software) instructions and coordinates how all the other hardware device work together
  + CPU contain two parts
    - Control unit interprets software instructions and literally tells the other hardware devices what to do based on the software instruction
    - Arithmetic-logic unit (ALU) performs all arithmetic (+,-,x,/) operations and all logic operations (sorting and comparing)
    - The control unit receive instruction from the software then interpret and distribute these order to other hard to perform accordingly
  + The CPU cycle per second determines how fast a CPU carries out the instruction ( megahertz (MHz) or Gigahertz (GHz))
  + Ex. Intel Core i3 (2 cores, 4 threads), i5, i7, AMD Ryzen3 (4,4), Ryzen 5 (6,12), Ryzen 7 (8,16)
* Storage
  + Primary storage is the computer’s main memory, which consists of the random access memory (RAM), Cache memory, and read-only memory (ROM) that is directly accessible to the CPU
    - Random Access Memory (Ram) is the computer’s primary working memory, in which program instructions and data are stored so that they can be accessed directly by the cpu via the processor’s high speed external data bus.
      * Read/write data, RAM is volatile – it needs to have constant power to function
      * Most program set aside a portion of RAM as a temporary workspace for data so that one can modify (rewrite) as needed
    - Cache Memory is a small unit of ultra fast memory that is used to store recently accessed or frequently accessed data so that the CPU does not have to retrieve this data from slower memory circuits such as RAM.
      * Primary cache: built directly into CPU circuits
      * Secondary cache is contained on an external circuit
    - Read only memory (ROM) is the portion of a computer’s primary storage that does not lose its contents when one switches off the power.
      * ROM is non-volatile
      * Ex. How PS4 got started and power up
    - Flash memory is a special type of rewritable read only memory that is compact and portable
      * Ex. Memory card, memory sticks
  + Secondary Storage: consists of equipment designed to store large volumes of data for long-terms storage, they are non-volatile and do not lose their content when the computer is turned off. Common storage device include:
    - Magnetic medium: uses magnetic techniques to store and retrieve data on disks or tapes coated with magnetically sensitive materials
      * Ex. Hard drive
    - Optical medium: information is stored at extremely high density in the form of tiny pits, the presence or absence of pits is read by rightly focused laser beam
      * Ex. CD-ROM, DVD
* Input device: equipment used to capture information and commands
  + Ex. Keyboard, mouse, stylus, scanner, gamepad, joystick
    - Think about the game industry and their input device
* Output device: the equipment used to see, hear, or otherwise accept the result of information processing requests.
  + Output device are responsible for converting computer-stored information into a form that can be understood
    - Ex. Monitor, printer, speaker
* Communication device: equipment used to send information and receive it from one location to another
  + Modem use to connect a computer to a phone line in order to access to another computer (digital signal transforms into analog signal)
* Others: PSU, M/O, Graphic card, case, Surge protector, cables and so on

Software

The cost of hardware has decreased while the complexity and cost of software have increased. Some large software applications, such as customer relationship management systems, contain millions of lines of code, take years to develop and cost millions of dollars.

* System software: controls how the various technology tools work together along with the application software. There are two type
  + Operating system software: controls the application software and manages how the hardware devices work together.
    - Dual boot: provide the user with the option of choosing the operating system when the computer is provide the user with the option of choosing the operating system when the computer is turned on.
    - Embedded operating system is used in computer appliances and special purpose applications, such as automobile, ATM, iPod….
    - Multitasking allows more than one piece of software to be used at a time.
    - Ex. Linux, Microsoft window, MS-DOS
  + Utility software: provides additional functionality to the operating system.
    - Control panel is a windows feature that provides options that set default values for the windows operating system
    - Ex. Anti-virus software, screen savers…..
* Application software: used for specific information processing needs, including payroll, customer relationship management, project management, training and many others.
  + Application software is used to solve specific problems or perform specific tasks
  + Ex. Games, course management software, strata, ROV
* Ongoing application software
  + Software updates (software patch) occur when the software vendor releases updates to software to fix problems or enhance features
  + Software upgrade: occur when the software vendor releases a new version of the software
  + Distribution: Application software can be distributed using one of the following methods:
    - Single user license
    - Network user license
    - Site license: enables any qualified users within the organization to install the software, regardless whether the computer is on a network
    - Application service provider license: specialty software paid for on a license basis or per-use or usage-based licensing

Exercise:

Build a desktop computer under 20,000 THB budget