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KSRA Learning Academy

KSRA Learning System

Object Oriented Technique

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What Are Information Systems?

In This Lecture You Will Learn:

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1. How to define an Information System (IS)
2. Some examples and types of IS
3. How to apply basic concepts of systems theory to IS
4. How IS are related to organizations

Software Engineering Approaches

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- The development of reliable software is a labor-intensive and expensive business.
- Software development is also a high-risk venture, as can be seen by the countless documented reports of software project failures.
- The rapid growth of the software industry over the past three decades has highlighted the need for disciplined approaches to developing large-scale software systems.

McGregor On-Line Retail Site

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A typical modern IS with:

- Online catalogue display and shopping cart
- Back-office systems store stock details, orders, payment transactions, and more
- Communications link to credit-card processing centre
- Robot warehouse control system
- Delivery scheduling

Elements of an IS

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Every IS has:

- A human activity that needs information
- Some stored data
- An input method for entering data
- Some process that turns the data into information
- An output method for representing information

The Role of the Computer

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➢Computers carry out tasks also done by people and by other technologies

- *Storage*: signalman's memory / hard disk
- *Display*: Battle of Britain map / PC screen
- *Calculation*: mental arithmetic / program
- *Communication*: telephone line / LAN

➢Typical advantages of computers:

- high speed, low cost, reliability

System Transformation

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- All useful systems *transform* their inputs into useful outputs
- For IS, both inputs and outputs are typically information
- This *transformation* is the whole reason for building and operating the system

Transformation Example

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- McGregor's *Delivery Scheduling System* may have inputs:
  - Information about orders, available stock, customer addresses, vehicle capacities…
- …And may have outputs:
  Which orders to load on each vehicle, what route the vehicle should follow…
- How does this benefit McGregor?

Characteristics of Systems

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- IS are like any other kind of system

- Every system has:

- Inputs and outputs
- A purpose (related to transformation)
- A boundary and an environment
- Subsystems and interfaces
- Control using feedback and feed-forward
- Some emergent property

Are Systems Real?

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Maybe, maybe not!

- Systems thinking is useful because it helps to analyse and understand problems
- What matters is the understanding you achieve
- You can choose to see *anything* as a system, whether or not it really is one

Systems and the Real World

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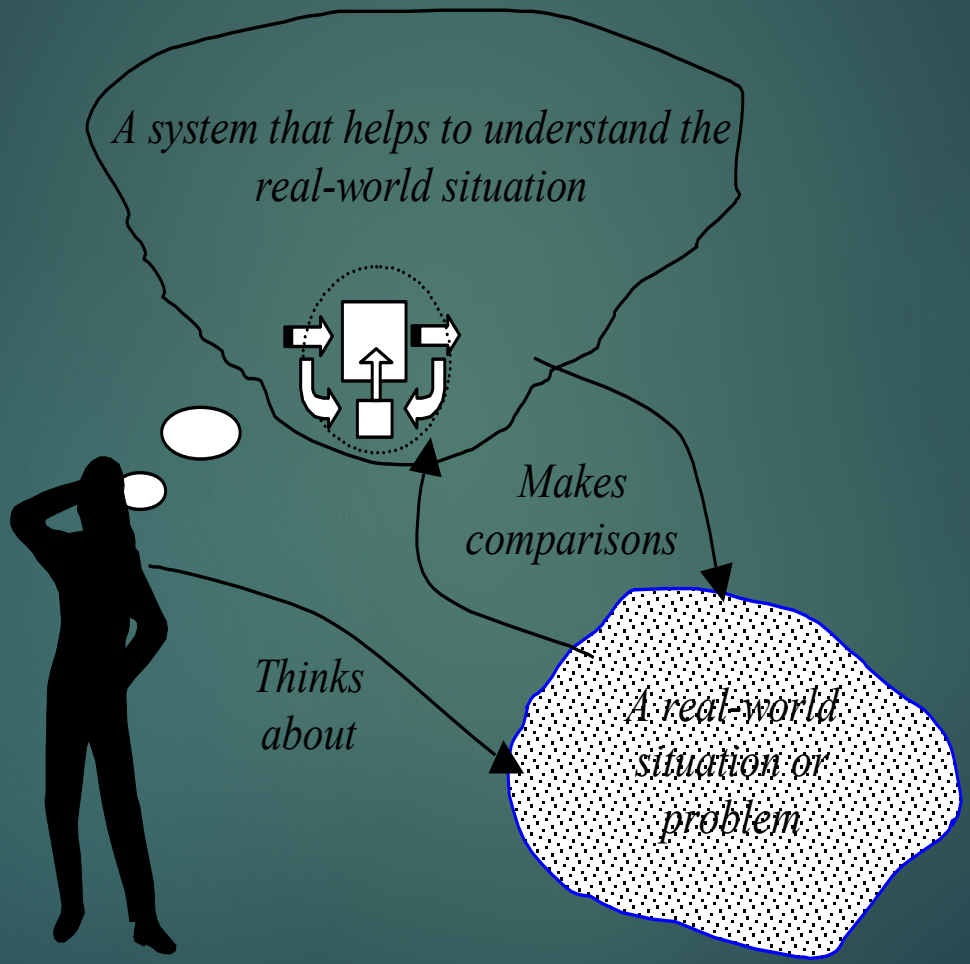

Types of IS

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Information Systems are used to support people's activities

- Store and retrieve information
- Carry out calculations
- Aid communication
- Control and schedule work
- Other support … ?

Types of IS (cont' d)

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- Real-time Control Systems typically operate physical equipment, often in safety-critical settings
  - Some cars have an Engine Management System to control fuel supply and ignition

How Do IS Relate to the Human Activity System?

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- We can view an organization as a system, perhaps with many subsystems
- Ideally, each subsystem helps the overall system fulfil its purpose
- IS are also subsystems and should help to meet goals of people in the organization

Strategy and Planning for IS

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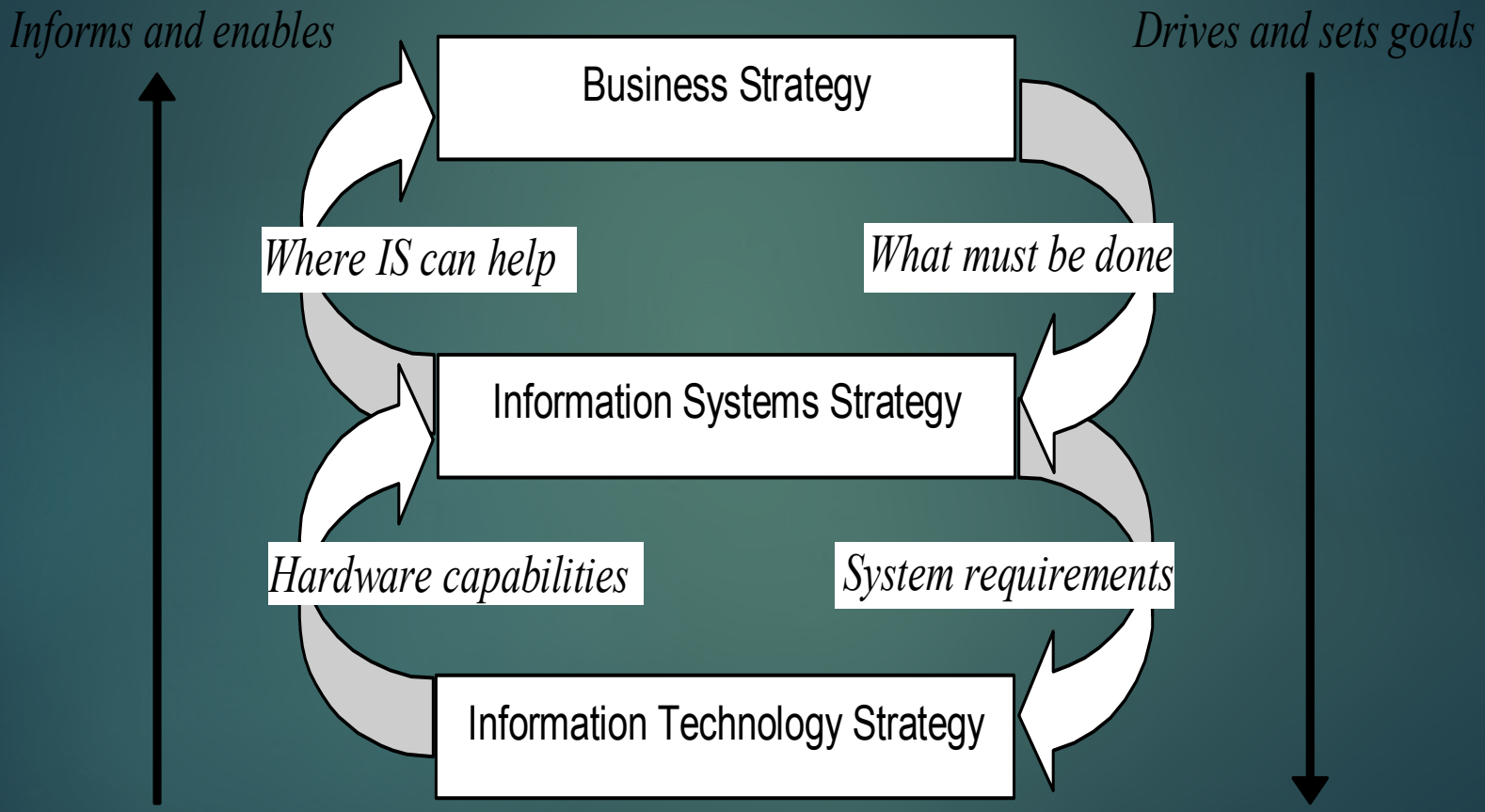

References

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- Bennett, McRobb and Farmer (2005)
- Curtis H.K. Tsang, Clarence S.W. Lau and Y.K. Leung (2005)
- Checkland and Scholes (1990)

(For full bibliographic details, see Bennett, McRobb and Farmer)

WE FOCUS ON KNOWLEDGE-BASED ON EDUCATION

KSRA of Empowerment is a global non-profit organization committed to bringing empowerment through education by utilizing innovative mobile technology and educational research from experts and scientists. KSRA emerged in 2012 as a catalytic force to reach the hard to reach populations worldwide through Learning management system & E-learning & mobile learning.

The KSRA team partners with local under-served communities around the world to improve the access to and quality of knowledge based on education, amplify and augment learning programs where they exist, and create new opportunities for e-learning where traditional education systems are lacking or non-existent.