Work-Centered Analysis (WCA) Framework

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1

Computer Science vs. Information Science

- What is the difference between computer science and information systems as a discipline?
- **Computer Science** has its concentration in the study of algorithms, computation, software, and data structures. Its roots are in mathematics and engineering. Programming is only one aspect of computer science.
- **Information Science** is an extension of management and organization theory that applies technical capabilities and solutions initially developed by computer science, to tasks in organizations. It involves the study of information – its structure, representation, and utilization. It focuses on the information needs of organizations for a wide variety of business processes, management, decision-making, and planning purposes.

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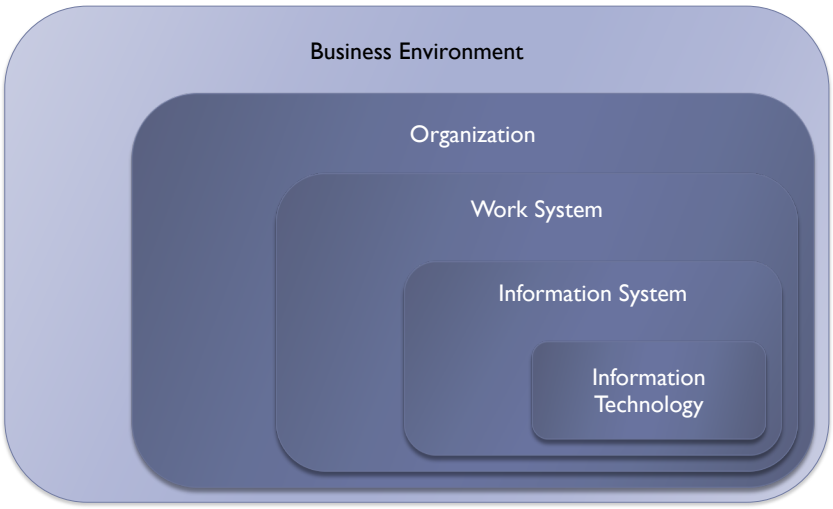
Putting Things in Context



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Putting Things in Context

- *Information Technology* - the hw, sw, and networks that make Information Systems possible
- *Information System* - a system that uses information technology to capture, transmit, store, retrieve, manipulate, and display information
- *Work System* - is a system in which human participants and/or machine perform a business process using information, technology and other resource to product or/and services for internal or external customer
  - …
  - *Business process* - a related group of steps or activities that use people, information, and other resources, to create value for internal or external customers
  - …
- *Organization* - consists of a large number of interdependent business processes that work together to generate products of services in a business environment
- *Business environment* - includes the firm and everything else that affects its success, such as competitors, suppliers, customers, regulatory agencies, and demographic, social, and economic conditions

4

4

Frameworks for Understanding IS

- A *framework* is a brief set of ideas for organizing a thought process about a particular type of thing or situation. Any useful framework helps make sense of the world's complexity by identifying topics that should be considered and showing how these topics are related.
- A **framework** is typically used to create a **model**, a useful specification of thing. Model are useful because they describe or mimic reality without dealing with every detail of it.
- We will consider the …

Work-Centered Analysis (WCA) Framework by Alter

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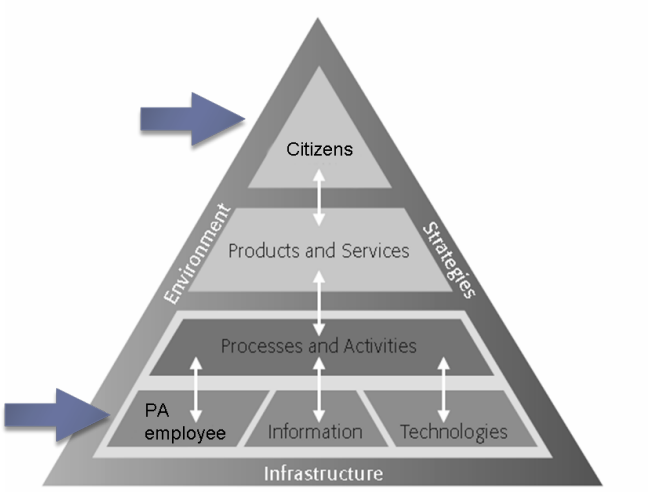
Work-Centered Analysis (WCA) Framework



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Elements of the Work-Centered Analysis (WCA) Framework - I

- The CUSTOMERS are the people who use and receive direct benefits from the products and services produced by the work system. They may be external customers who receive the organization's products and/or services or they may be internal customers inside the organization
- The PRODUCTS & SERVICES are the combination of physical things, information and services that the work system produces for its customers. The work system exists to produce these products and services.
- The BUSINESS PROCESS is the set of work steps or activities that are performed within the work system. These steps may be defined precisely in some situations or may be relatively unstructured in others. In some situation, different participants might perform the same step differently based on differences in their skills, training, and interests.

7

7

Elements of the Work-Centered Analysis (WCA) Framework - II

- The PARTICIPANTS are people who perform the work steps in the business process. Some participants may use computers and information technology extensively, whereas others may use little or no technology.
- The INFORMATION is the information used by the participants to perform their work. Some of the information may be computerized, but other important information may never be captured on a computer.
- The TECHNOLOGY is the hardware, software, and other tools and equipment used by the participants while doing their work. The technology considered to be within a work system is dedicated to that system, whereas technical infrastructure is technology shared with other systems.

8

8

Elements of the Work-Centered Analysis (WCA) Framework - III

- CONTEXT is the organizational, competitive, technical, and regulatory realm within which the work system operates. These environment factors affect the system's performance even through the system does not rely on them directly in order to operate.
- INFRASTRUCTURE is shared human and technical resources that the work system relies on even though these resources exist and are managed outside of it. This typically include human infrastructure such as support and training staff, information infrastructure such as shared databases, and technical infrastructure such as networks and programming technology.

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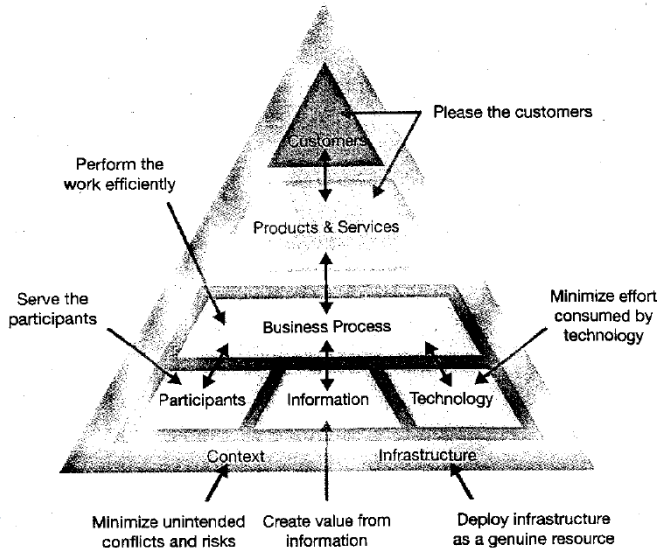
Work-Centered Analysis (WCA) Framework - **Principles to guaranteed a good work system operation** -



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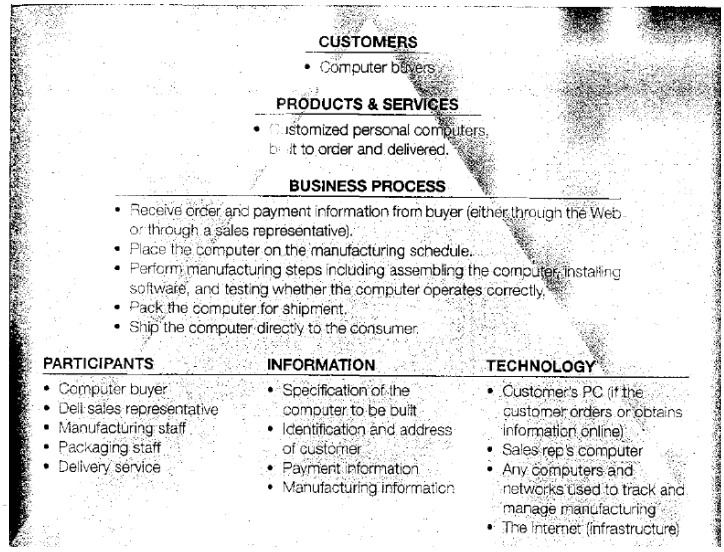
Work System Snapshot – Dell Computer Manufactury a computer to order



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Relationship between IS and WS

- An INFORMATION SYSTEM is a particular type of work system that uses INFORMATION TECHNOLOGY to capture, transmit, store, retrieve, manipulate, or display information used by one or more work systems
- Information systems often play crucial roles in the work system they support, but some aspects of those work systems are usually related to information systems.
- The more information-intensive the work system is, the larger the role the information system plays.

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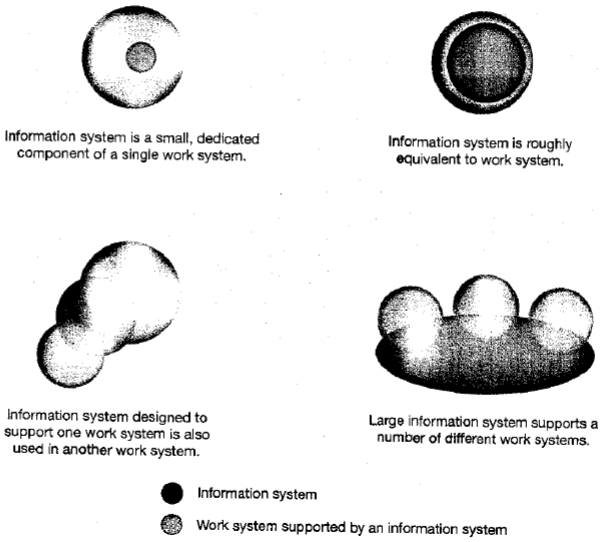
Relationships between IS and work system they support



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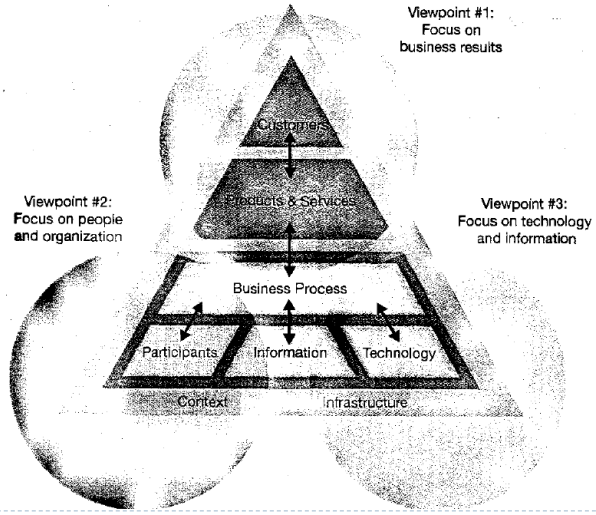
Viewpoints for thinking about a system in a organization



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Need for a balanced views of a system

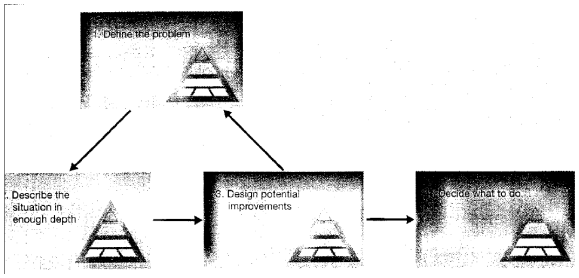
- FOCUSING ON BUSINESS RESULTS
  - Emphasize the customer's satisfaction with whatever is being produced along with concern for the efficiency of the business process.
- FOCUSING ON PEOPLE AND ORGANIZATION
  - Emphasize the work environment, job satisfaction, and whether the organization is operating smoothly
- FOCUSING ON TECHNOLOGY AND INFORMATION
  - Emphasize processing of information in database, transmission of information, and whether the technology is operating efficiently and effectively.

15

15

The principle-based systems analysis method

- The SYSTEMS ANALYSIS is one of many ways to analyze any work system from a business viewpoint.
- It is a very general process of defining a problem, gathering pertinent information, developing alternative solutions, and choosing among those solution.



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The Principle-Based Systems Analysis Method

The principle-based analysis (PBSA) method starts with defining the problem and the work system within which the problem exists. It then uses the seven work system principles to explore the situation and to find potential improvements. The last step is making a recommendation about what to do and why.

Systems analysis step	Steps in principle-based systems analysis
1. Define the problem	Define the problem and the work system together
2. Describe the current system in enough depth and 3. Design potential improvements	Use each work system principle in turn as a lens for summarizing the current situation and search for possible improvements Principle #1: Please the customers Principle #2: Perform the work efficiently Principle #3: Serve the participants Principle #4: Create value from information Principle #5: Minimize effort absorbed by technology Principle #6: Deploy infrastructure as a genuine resource Principle #7: Minimize unintended conflicts and risks
4. Decide what to do	Make a recommendation that addresses the problem while supporting the organization's priorities

17

17

Objectives

- We will consider the importance of information modelling
- We will focus on the information in relation to the other aspects proposed by the WCA framework
- We will analyse the role of information in the development of IT systems
- We will underline the importance of the information to support innovation

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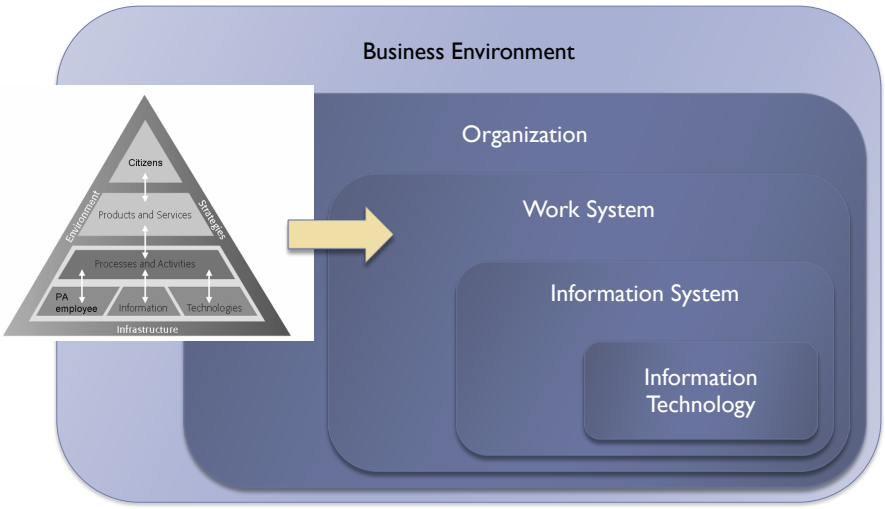
Exercise I – open!



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Reading

- Alter. Chapter 1 – Moving Toward eBusiness as Usual
- Alter. Chapter 2 – Understanding System from a Business Viewpoint

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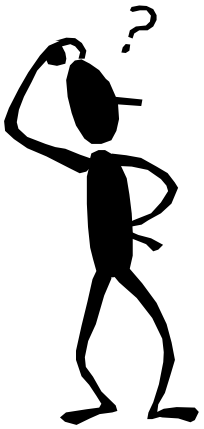

Questions?

21

21