System Analysis and Design

Part1: Fundamentals of System Analysis &Design

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Course Outline

System analysis fundamentals: systems, roles, and development methodologies; Understanding and modeling organizational system; Project management;

Information requirements analysis: Interactive methods; Information gathering: Unobtrusive methods; agile modeling and prototyping;

The analysis process: Using data flow diagrams; Analyzing systems using data dictionaries; Process specifications and structured decisions; Object oriented systems analysis and design using UML;

The essentials of design: Designing effective output, Designing effectiveinput; Designing databases; Human-computer interaction;

Quality assurance and implementation: Designing accurate data entry procedures; Quality assurance and implementation.

Learning Objective

o   By the end of this lecture, you will be able to:

o   Recall the basic types of computer--based systems that a systems analyst needs to address

o   Understand how users working in context with new technologies change the dynamics of a system

o   Realize what the many roles of the systems analyst are

o   Understand what CASE tools are and how they help a systems analyst

o   Explore other methodologies such as object--oriented systems design and prototyping

o   Learn RPA.

What is Information Systems (IS)?

A system which assembles, stores, processes and delivers information relevant to an organization, in such a way that the information is accessible and useful to those who wish to use it, including managers, staff, clients and citizens. An IS is human activity (social system) which may or may not involve the use of computer systems
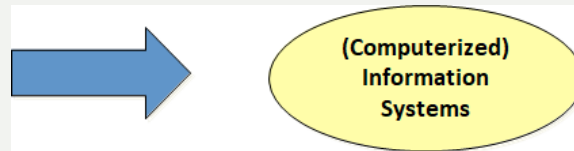
What and Why ISD ???

Systems analysis and design is a systematic approach to identifying problems, opportunities, and objectives; analyzing the information flows in organizations; and designing computerized (in this case) information systems to solve a problem

What and Why ISD ?

- System development needs proper planning.

- There is a cost in system development.

- It is time consuming and needs project management.

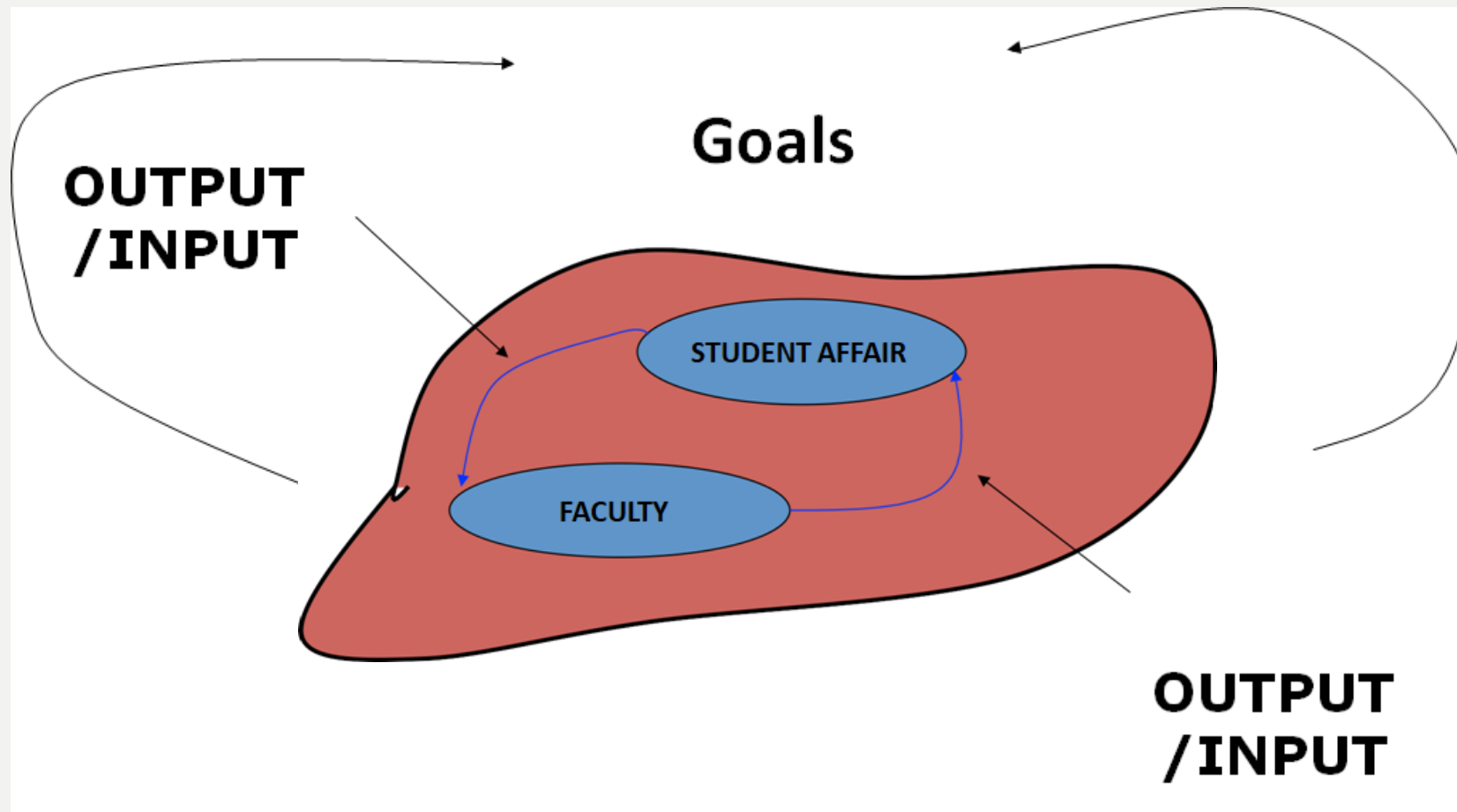- SADM is about problem solving that needs to be creative, critical, and innovative.
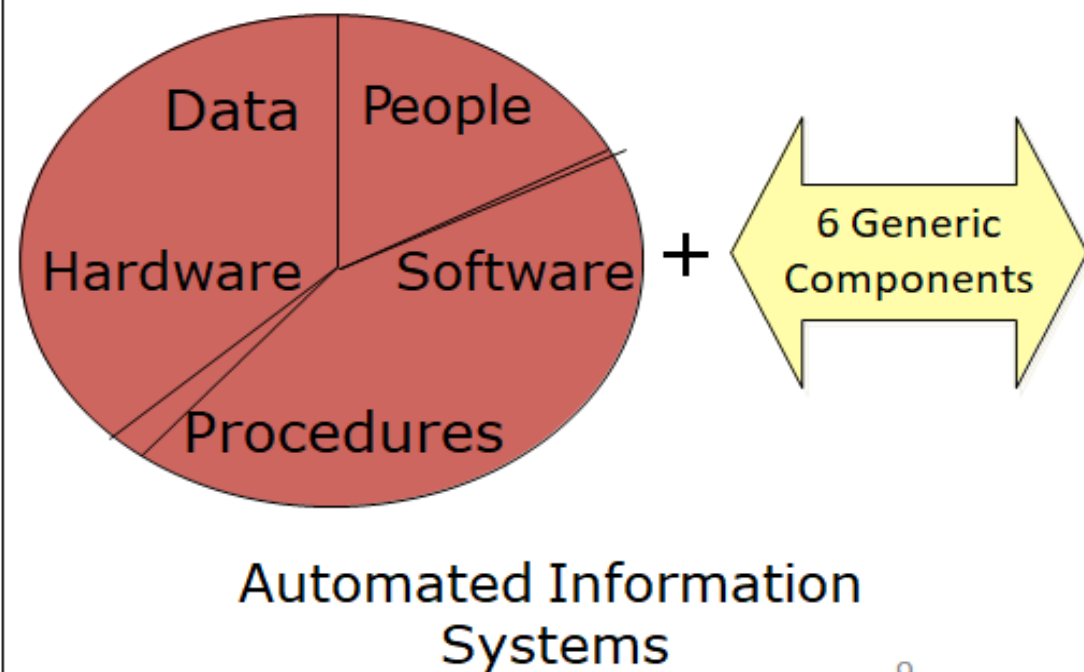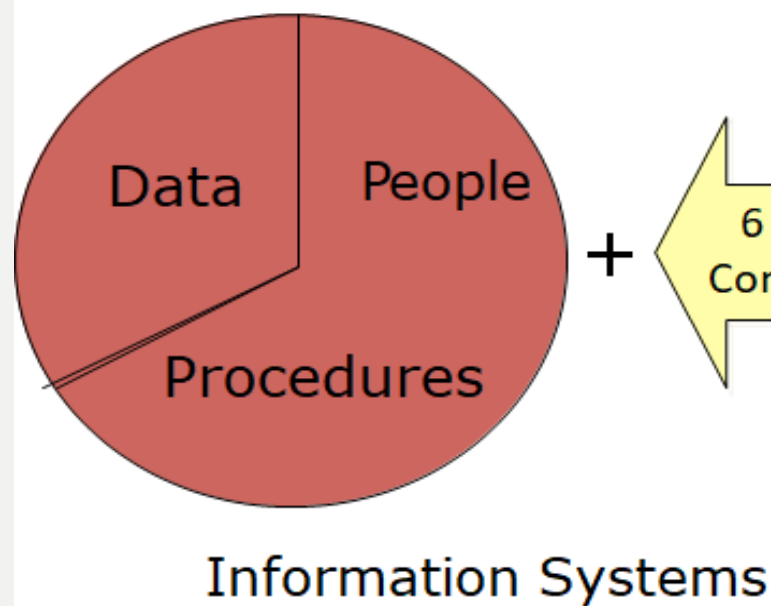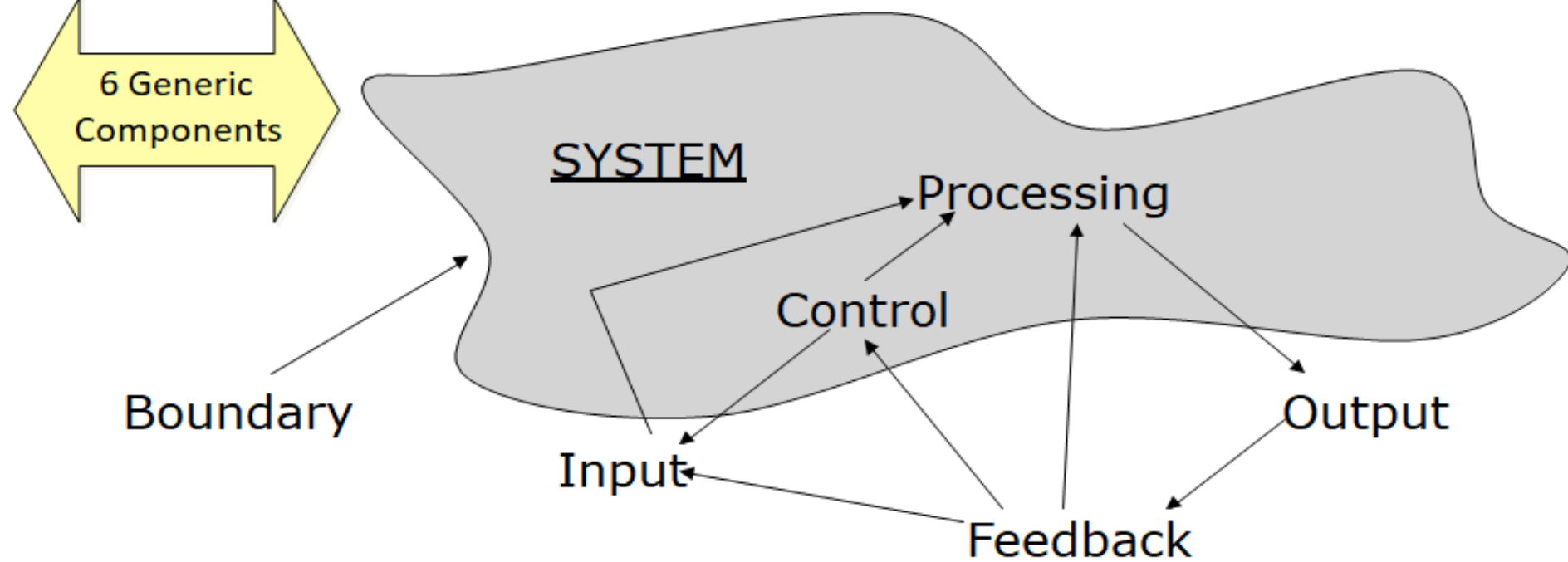
Organization as Systems

- Organization as systems, is composed of subsystems and so on.

- It is mainly involving levels of management and culture.

- These will impact the information system development.

- The different levels of management will produce the different levels of decisions.

- The culture influences the way people in subsystems interrelate.
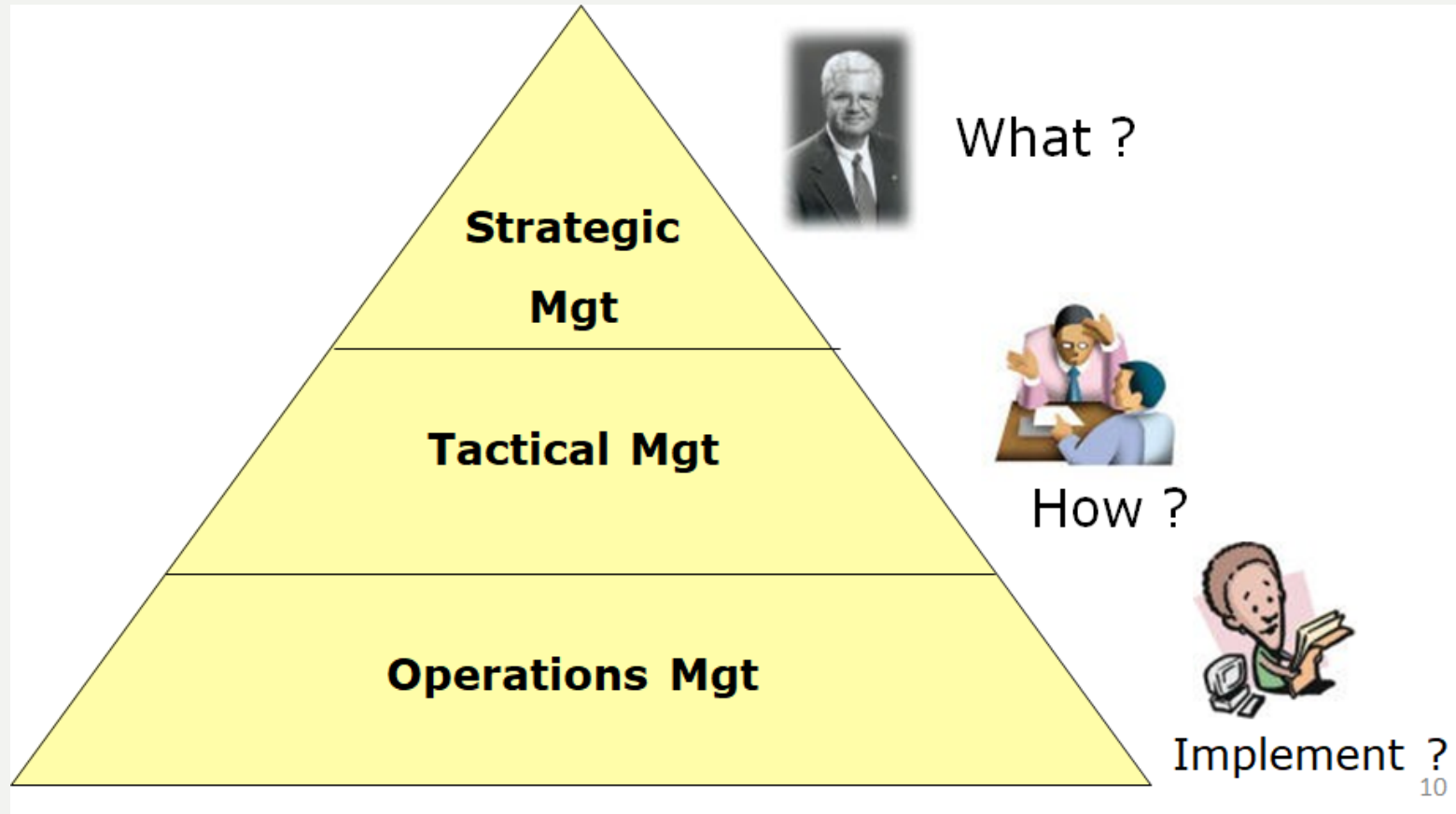
Organization as Systems

6 Generic Components

SYSTEM

Boundary

Processing

Control

Input

Output

Feedback

Data | People | Procedures

+ 6 Generic Components

Information Systems

Data | People | Hardware | Software | Procedures

+ 6 Generic Components

Automated Information Systems

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Organizations as Systems> Levels of Management

Business Drivers for Today's Information Systems

- Globalization of the Economy

- Electronic Commerce and Business

- Security and Privacy

- Collaboration and Partnership

- Knowledge Asset Management

- Continuous Improvement and Total Quality Management

- Business Process Redesign

Business Drivers for Today's Information Systems

- Networks and the Internet

- Mobile and Wireless Technologies

- Object Technologies

- Collaborative Technologies

- Enterprise Applications

- Fundamentals of different kinds of information systems

- Roles of systems analysts

- Phases in the systems development life cycle as they relate to Human--Computer Interaction (HCI) factors
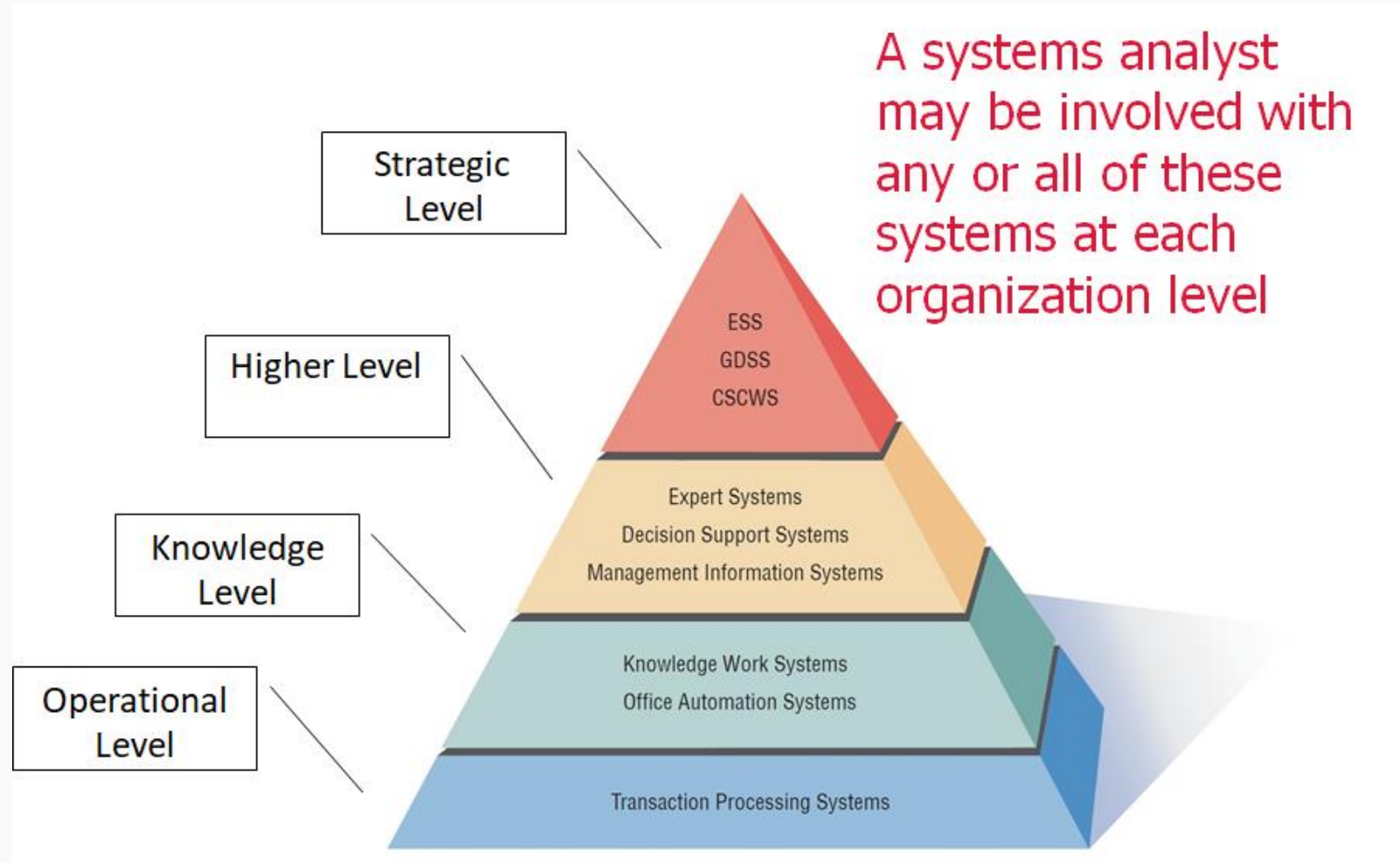
- Computer--Aided Sodware Engineering (CASE) tools

Major Topics

Systems Analysts Recommend, Design, and Maintain Many Types of Systems for Users

–Transaction Processing Systems (TPS)

–Office Automation Systems (OAS)

–Knowledge Work Systems (KWS)

–Management Information Systems (MIS)

–Decision Support Systems (DSS)

–Expert Systems (ES)

–Executive Support Systems (ESS)

–Group Decision Support Systems (GDSS)

–Computer--Supported Collaborative Work Systems (CSCWS)

System Analyst Role