INFO SYSTEM TYPES

Lecture Intro to SE

Learning Objectives

- Recall the basic types of computer-based systems that a systems analyst needs to address.
- Understand how users working in context with new technologies change the dynamics of a system.

Information—A Key Resource

- Fuels business and can be the critical factor in determining the success or failure of a business
- Needs to be managed correctly
- Managing computer-generated information differs from handling manually produced data

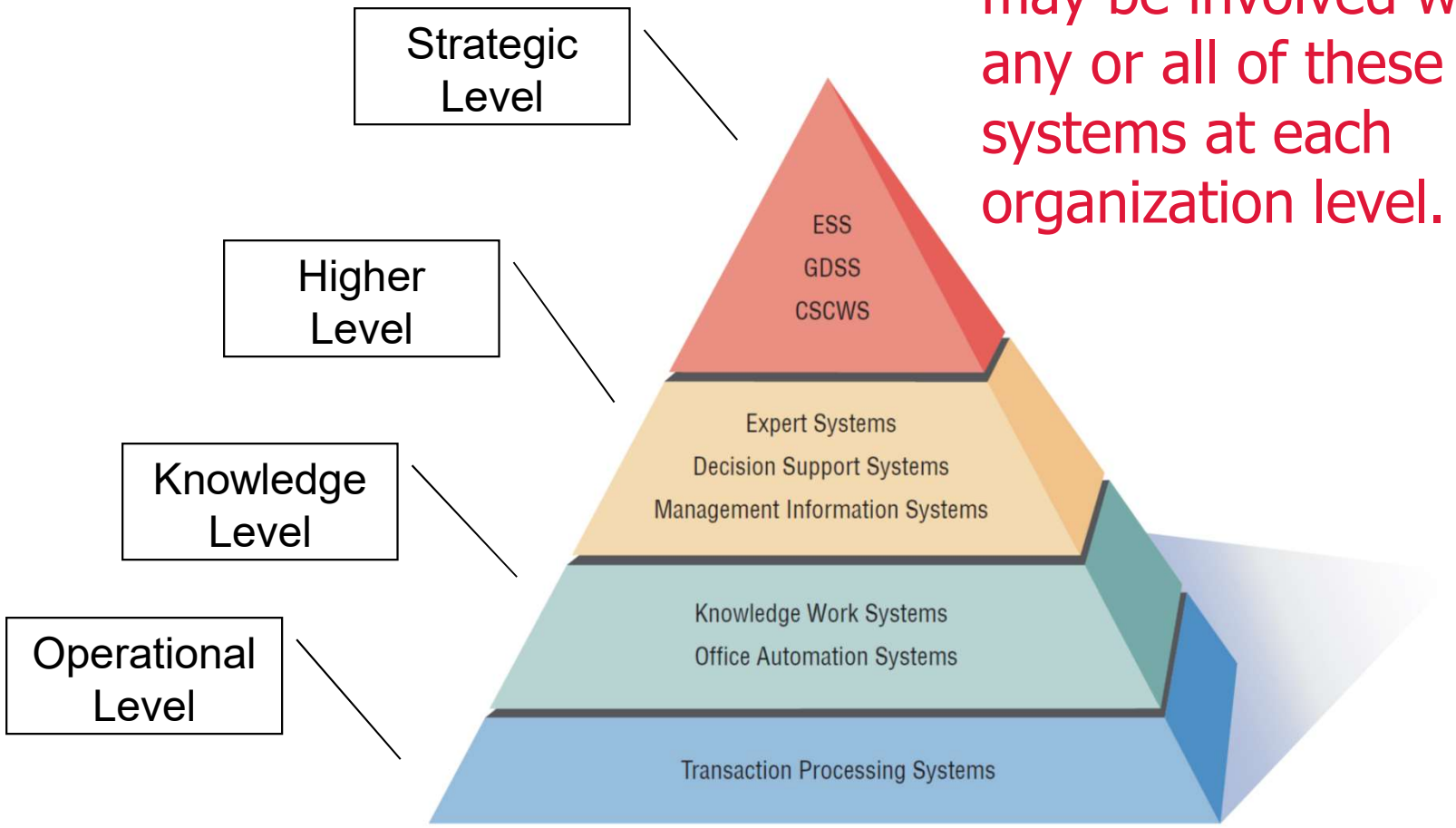
Major Topic

- Fundamentals of different kinds of information systems

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)

A systems analyst may be involved with any or all of these systems at each organization level.



Operational Level

- Transaction Processing System (TPS)
  - Process large amounts of data for routine business transactions
  - Boundary-spanning
  - Support the day-to-day operations of the company
  - Examples: Payroll Processing, Inventory Management

Knowledge Level

- Office Automation System (OAS)
  - Supports data workers who share information, but do not usually create new knowledge
  - Examples: word processing, spreadsheets, desktop publishing, electronic scheduling, communication through voice mail, email, teleconferencing
- Knowledge Work System (KWS)
  - Supports professional workers such as scientists, engineers, and doctors
  - Examples: computer-aided design systems, virtual reality systems, investment workstations

Higher Level

- Management Information System (MIS)
  - Supports a broad spectrum of organizational tasks including decision analysis and decision making
  - Examples: profit margin by sales region, expenses vs. budgets
- Decision Support System (DSS)
  - Aids decision makers in the making of decisions
  - Examples: financial planning with what-if analysis, budgeting with modeling
- Expert System (ES) and Artificial Intelligence
  - Captures and uses the knowledge of an expert for solving a particular problem which leads to a conclusion or recommendation
  - Researching understanding natural language and the ability to reason through a problem to its logical conclusion

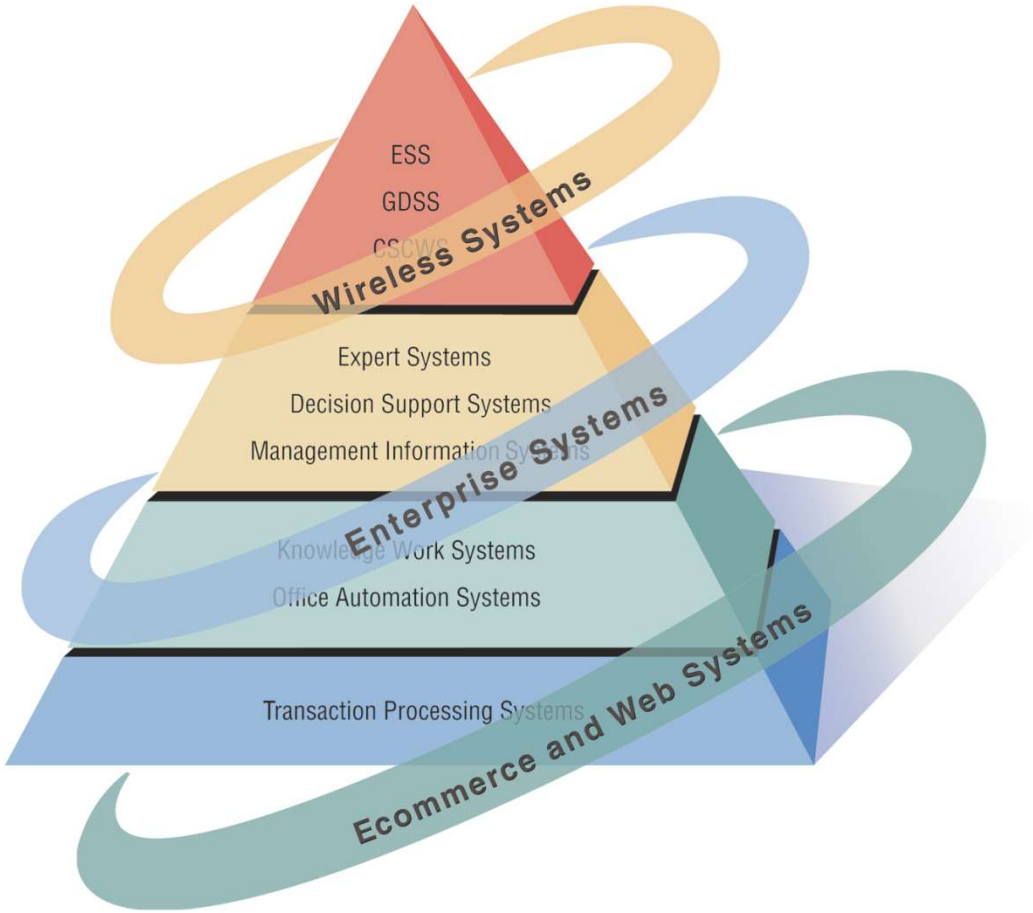
Strategic Level

- Executive Support System (ESS)
  - Helps executives to make unstructured strategic decisions in an informed way
  - Examples: drill-down analysis, status access
- Group Decision Support System (GDSS)
  - Permit group members to interact with electronic support.
  - Examples: email, Lotus Notes
- Computer-Supported Collaborative Work System (CSCWS)
  - CSCWS is a more general term of GDSS.
  - May include software support called *groupware* for team collaboration via network computers
  - Example: video conferencing, Web survey system

Integrating New Technologies into Traditional Systems

- Ecommerce and Web Systems
- Enterprise Resource Planning Systems
- Wireless and Mobile Systems
- Open Source Software
- Need for Systems Analysis and Design

Systems Analysts Need to Be Aware that Integrating Technologies Affects all Types of Systems



Ecommerce and Web Systems

- Benefits
  - Increasing user awareness of the availability of a service, product, industry, person, or group
  - The possibility of 24-hour access for users
  - Improving the usefulness and usability of interface design
  - Creating a system that can extend globally rather than remain local, thus reaching people in remote locations without worry of the time zone in which they are located

Enterprise Resource Planning Systems (ERP)

- Performs integration of many information systems existing on different management levels and within different functions
- Example: SAP, Oracle

Wireless and Mobile Systems

- A system analyst may be asked to design standard or wireless and mobile communication networks that integrate voice, video, and email into organizational intranets or industry extranets.
- A system analyst may also be asked to develop intelligent agents.
- Example: iPhone, iPod, BlackBerry
- Wireless communication & transactioning is referred to as m-commerce (mobile commerce).

Open Source Software

- An alternative of traditional software development where proprietary code is hidden from the users
- Open source software is free to distribute, share, and modify.
- Characterized as a philosophy rather than simply the process of creating new software
- Example: Linux Operating System, Apache Web Server, Mozilla Firefox Web Browser

Need for Systems Analysis and Design

- Developing / Upgrading or Installing a system without proper planning leads to great user dissatisfaction and frequently causes the system to fall into disuse.
- Lends structure to the analysis and design of information systems
- A series of processes systematically undertaken to improve a business through the use of computerized information systems

Roles of the Systems Analyst

- The analyst must be able to work with people of all descriptions and be experienced in working with computers.
- Three primary roles:
  - Consultant
  - Supporting expert
  - Agent of change

Analyst ➔ Analyzes and conceptualize

Qualities of the Systems Analyst

- Problem solver
- Communicator
- Strong personal and professional ethics
- Self-disciplined and self-motivated
- understands who the 'client' is
- maintains open, frequent, and "straight up" communications with the 'client

Role of Designer

- Similarly the designer must be able to work with people of all descriptions and be experienced in working with tools and must possess good technical and aesthetic skills to not only capture but translate the concept into a product

Designer ➔ Translates Concept into Product

Qualities of Designer

- understands the real requirements
- produces a design for all but the simplest projects
- produces, and follows, a plan to implement that design
- chooses the best tools for the job, not according to what's popular today, but by the given project requirements
- maintains high standards of professionalism and doesn't accept low standards from those around them
- maintains the discipline to consistently upholding standards
- understands that maintenance is the most expensive phase of any software project and follows standards that help reduce this cost

Systems Development Life Cycle (SDLC)

- The systems development life cycle is a phased approach to solving business problems.
- Developed through the use of a specific cycle of analyst and user activities
- Each phase has unique user activities.

The Seven Phases of the Systems Development Life Cycle