Elective 4 (Information System Development and Management)

INTRODUCTION TO INFORMATION SYSTEMS AND DEVELOPMENT AND MANAGEMENT

IT 415

Pearl R. Caspillo, CpE
Instructor

LEARNING OBJECTIVES

1. Understand Information Systems Analysis and Design
2. Understand the Information Systems Development Life Cycle
3. Understand the concept of Software Engineering
4. Understand the importance of Project Management in Software Development

Information Systems

- it encompasses the tools (combination of hardware, software, data sources, telecommunications, and human expertise) that organizations use to collect, manage, and analyze data. This data guides decision-making to improve efficiency and profitability.

Examples of Information Systems

- Expert Systems
- Office Automation Systems
- Process Control Systems

5 Components of Information Systems

1 **Hardware**

computers, smartphones, and their components

2 **Software**

search engines, social media applications, etc.

5 Components of Information Systems

3 Data Sources

databases and data warehouses

4 Telecommunications

PAN (Personal Area Network)
LAN (Local Area Network)
MAN (Metropolitan Area Network)
WAN (Wide Area Network)
Satellite network
Cellular data network

5 Components of Information Systems

5 Human Expertise

System Analyst, Business Analyst, Data Analyst, Software Developer, Project Manager, Software Tester

Humans possess a unique ability to empathize, interpret emotions, and cater to the user experience. This empathetic understanding is vital for designing IT solutions that resonate with the needs, emotions, and expectations of end-users, fostering a more meaningful and user-centric technological landscape.

Information Systems Analysis and Design

- is the complex, challenging, and stimulating organizational improvement process that a team of business and systems professionals uses to develop and maintain information systems.

Application Software

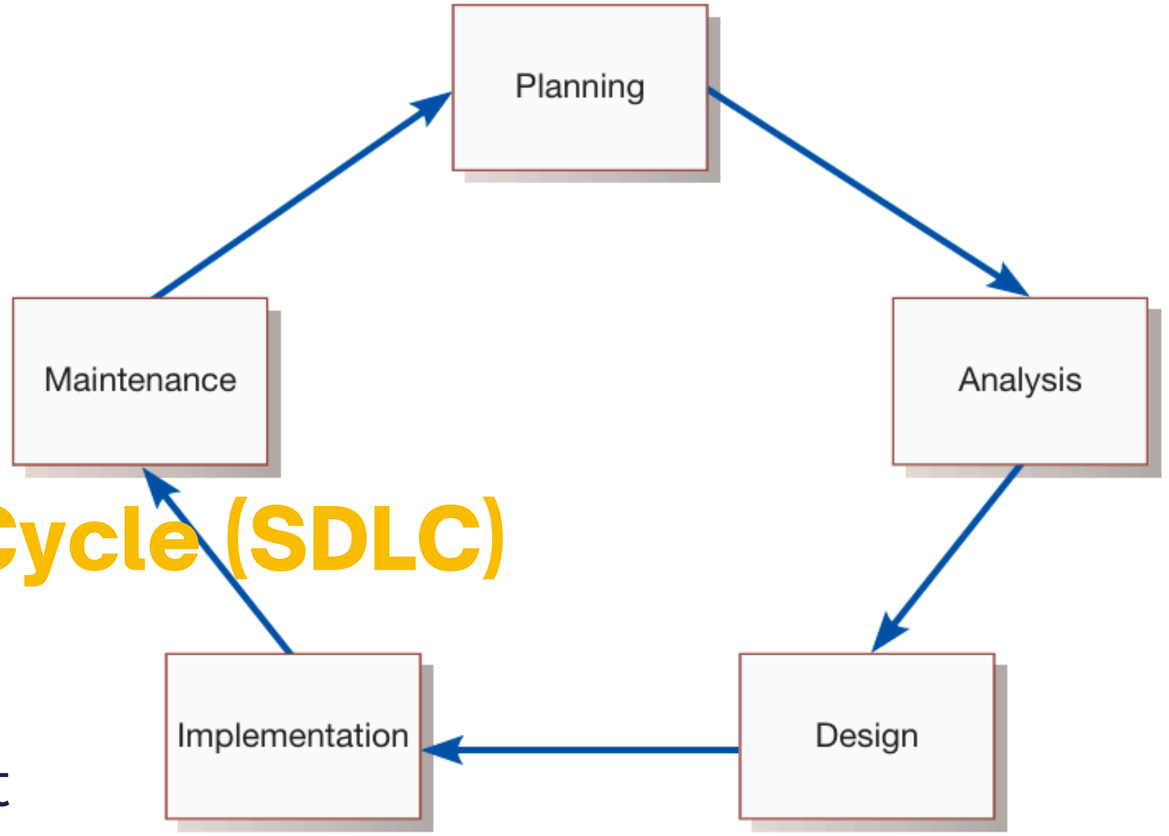
- one of the important results of systems analysis and design
- a software designed to support a specific organizational function or process.

Systems Analyst

- the organizational role most responsible for the analysis and design of information systems.
- study the problems and needs of an organization in order to determine how people, methods, and information technology can best be combined to bring about improvements in the organization.
- served as liaison between the stakeholders and software development team
- creates technical documentation, software testing, user training and actively take part in the software deployment

Systems Development Methodology

- a standard process followed in an organization to conduct all the steps necessary to analyze, design, implement, and maintain information systems.



Systems Development Life Cycle (SDLC)

- a common methodology for systems development in many organizations; it features several phases that mark the progress of the systems analysis and design effort.

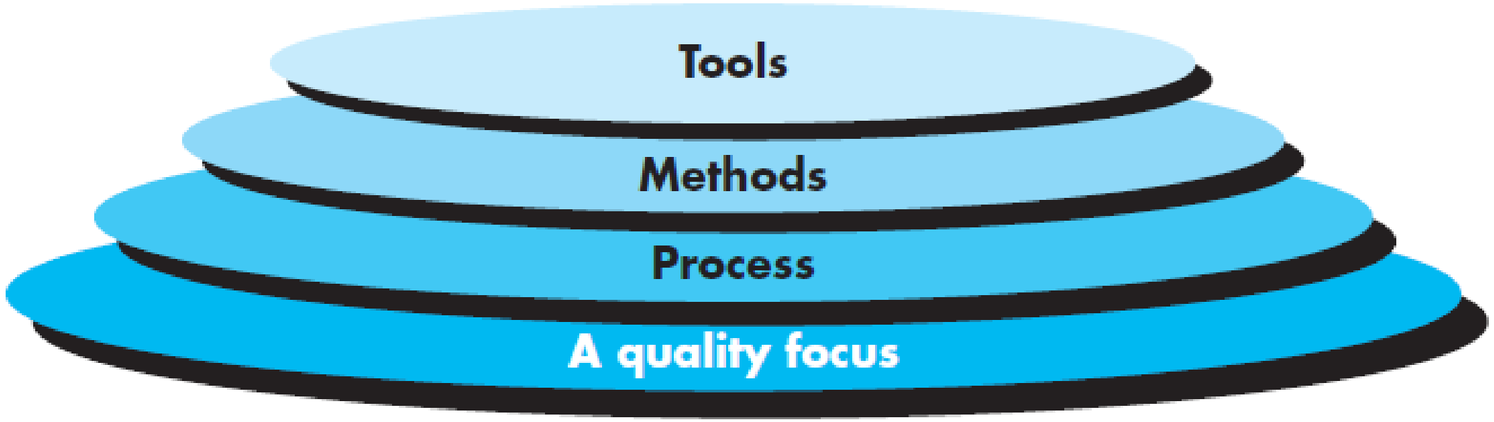
Products of SDLC Phases

Phase	Products, Outputs, or Deliverables
Planning	Priorities for systems and projects; an architecture for data, networks, and selection hardware, and information systems management are the result of associated systems Detailed steps, or work plan, for project Specification of system scope and planning and high-level system require ments or features Assignment of team members and other resources System justification or business case
Analysis	Description of current system and where problems or opportunities exist, with a general recommendation on how to fix, enhance, or replace cur rent system Explanation of alternative systems and justification for chosen alternative
Design	Functional, detailed specifications of all system elements (data, processes, inputs, and outputs) Technical, detailed specifications of all system elements (programs, files, network, system software, etc.) Acquisition plan for new technology
Implementation	Code, documentation, training procedures, and support capabilities
Maintenance	New versions or releases of software with associated updates to documentation, training, and support

Software Engineering

- encompasses process, methods, and tools that enable complex computer-based systems to be built in a timely manner with quality. The software process incorporates five framework activities—communication, planning, modeling, construction, and deployment—that are applicable to all software projects.

Software Engineering Layers



Software Engineering Practice

Understand the problem (communication and analysis). It's sometimes difficult to admit, but most of us suffer from hubris when we're presented with a problem.

Plan a solution (modeling and software design). Now you understand the problem (or so you think), and you can't wait to begin coding.

Carry out the plan (code generation). The design you've created serves as a road map for the system you want to build.

Examine the result for accuracy (testing and quality assurance). You can't be sure that your solution is perfect, but you can be sure that you've designed a sufficient number of tests to uncover as many errors as possible.

Project Management

- is the practice of planning, organizing, and overseeing the execution of a project from start to finish.
- involves defining project goals, identifying tasks and resources required to achieve them, setting timelines, and monitoring progress to ensure the project is completed on time, within budget, and to stakeholders' satisfaction.
- involves various processes and methodologies, including risk management, stakeholder management, and communication management. It is essential for ensuring the success of projects in various fields, including software development, construction, marketing, and many others.

References

- Software Engineering A Practitioner’s Approach (8th Edition) - PDF

QUESTIONS?