SYSTEMS ANALYSIS AND DESIGN IN A CHANGING WORLD

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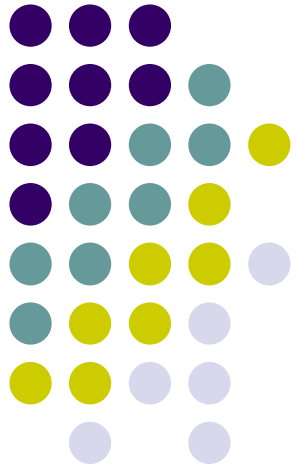
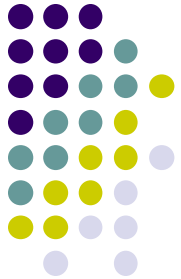
Chapter 2

Approaches to System Development

Chapter 8



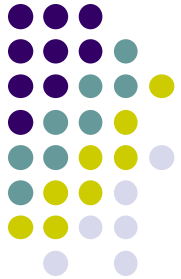
Software Development Life Cycle (SDLC)



- A system development methodology includes instructions for completing the activities of each core process by using specific models, tools, and techniques.

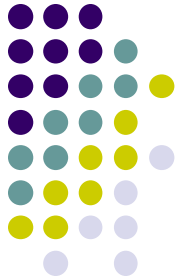
- Two software development approaches:
  - Traditional
  - Object-Oriented

Software Development Life Cycle (SDLC)



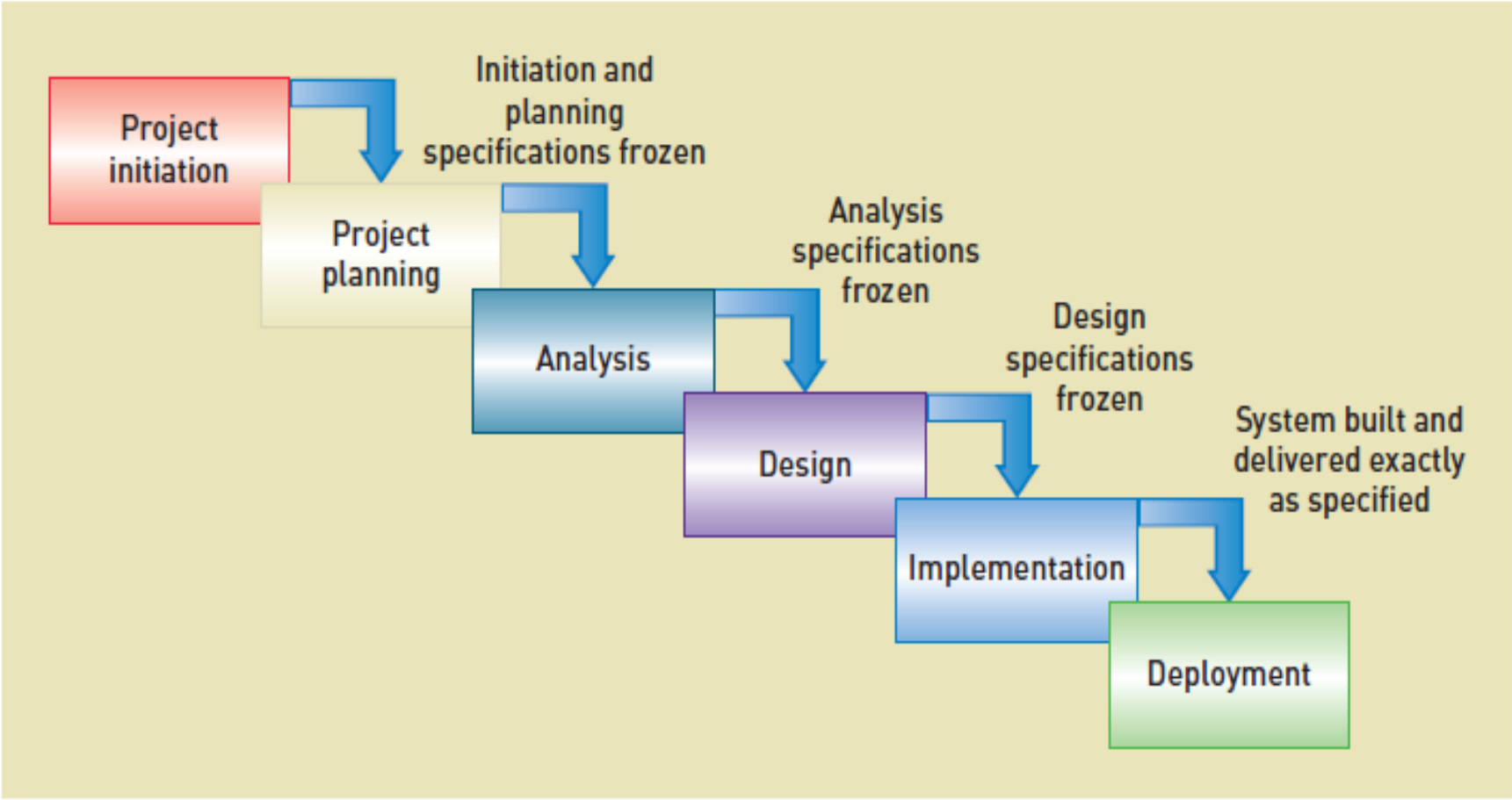
- Predictive approach to the SDLC
  - assumes the project can be planned in advance
- Adaptive approach to the SDLC
  - assumes the project must be more flexible and adapt to changing needs

Traditional Predictive Approaches to the SDLC



1. Project Initiation
2. Project Planning
3. Project Analysis
4. Project Design
5. Project Implementation
6. Deployment

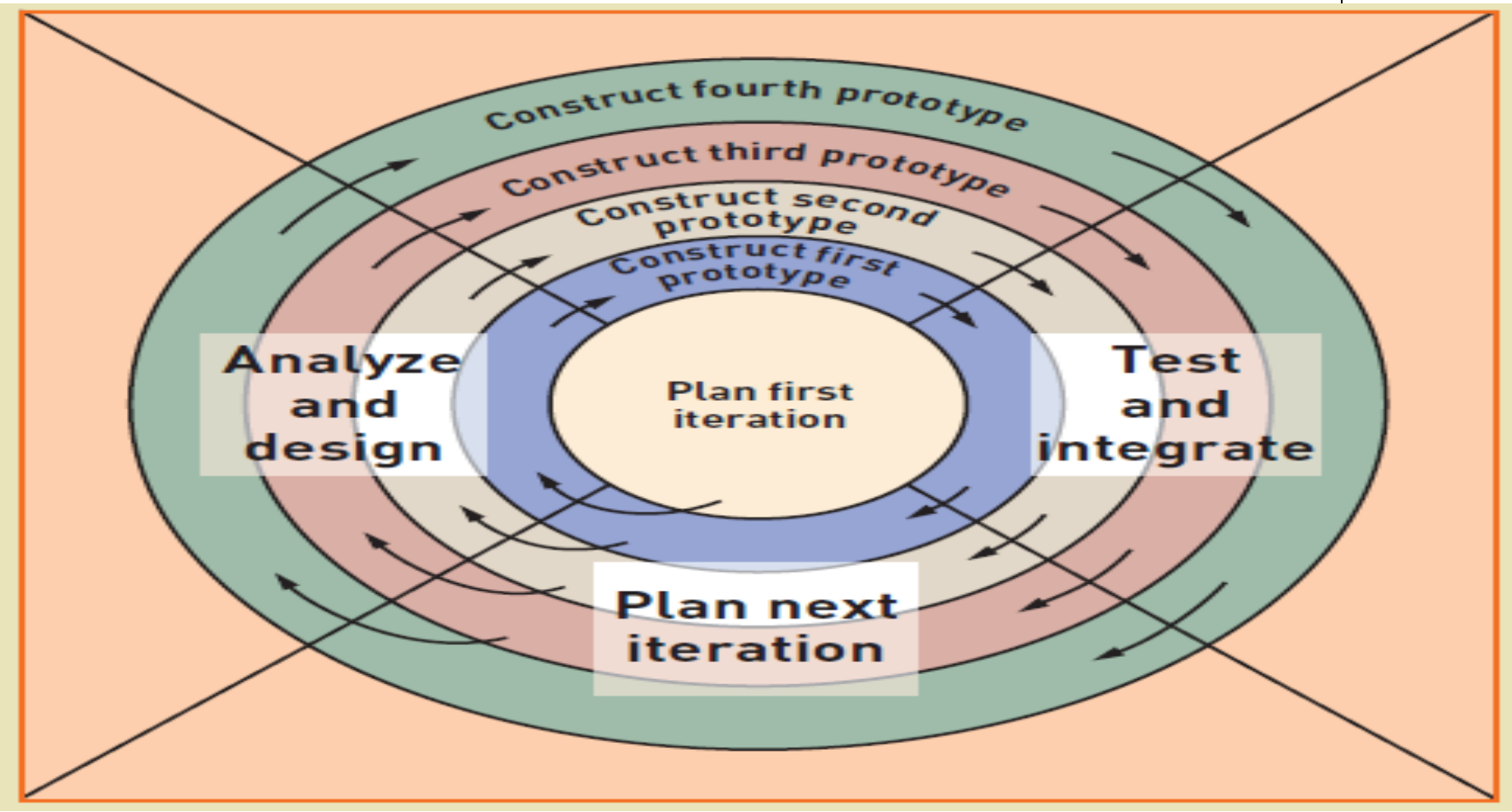
Waterfall Model



Spiral Model

- Starting in the center and working outward, over and over again, until the project is complete.

Spiral Model

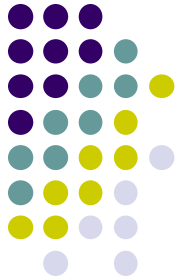


Waterfall vs Spiral

- The waterfall approach do all planning, all analysis, all design, and so forth, with a single pass.

- Iterative approach, with each iteration's analysis, design, and implementation, modifications can be made to adapt to the changing requirements of the project.

Incremental Development



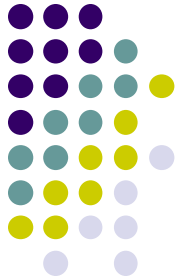
- An SDLC approach that completes portions of the system in small increments across iterations

- Each increment being integrated into the whole as it is completed

Walking Skeleton

- A development approach in which the complete system structure is built but with bare-bones functionality.
- A complete front-to-back implementation.
- Both approaches provide extensive user testing and feedback.

The Support Phase

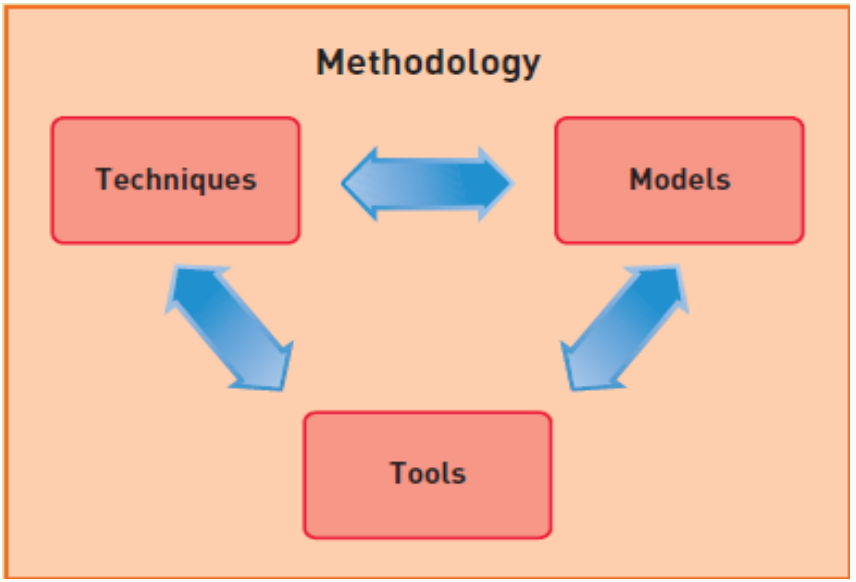


- support activities maintain and enhance the system after it is installed and in use.

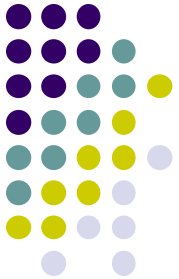
- The predictive waterfall SDLC explicitly includes a support phase, but adaptive, iterative SDLCs typically don't, WHY ?

System Development Methodology

- A set of comprehensive guidelines for the SDLC that includes specific models, tools, and techniques.
- Components:
  - Models
  - Tools
  - Techniques

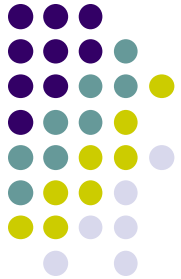


Approaches to Software Construction and Modeling



- There are two main approaches:
  - The Structured Approach
  - The Object-Oriented Approach

The Structured Approach



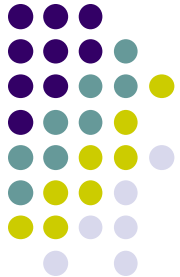
- system development using structured analysis, structured design, and structured programming techniques.

- Structured approach vs traditional predictive approach of SDLC

The Structured Approach

- Techniques of structured approach:
  - Structured analysis
  - Structured design
  - Structured programming

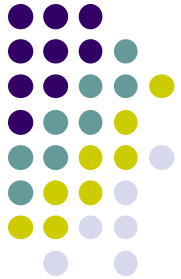
The Object-Oriented Approach



- System development based on the view that a system is a set of interacting objects that work.

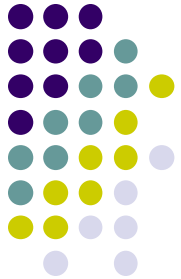
- Object is a thing in an information system that responds to messages by executing functions or methods

The Object-Oriented Approach

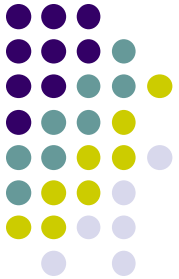


- Techniques of object-oriented approach:
  - Object-oriented analysis
  - Object-oriented design
  - Object-oriented programming

Agile Development



- A guiding philosophy and set of guidelines for developing information systems in an unknown, rapidly changing environment.
- The leading trend in system development.
- keep system development projects responsive to change.



Any Questions !