

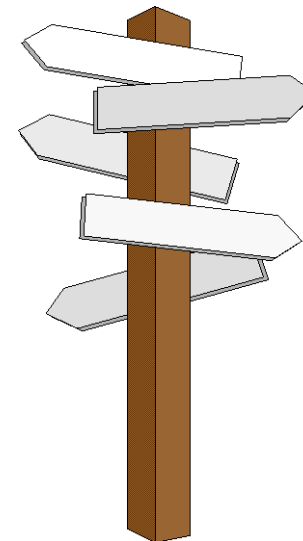
Object-Oriented Software Engineering

Introduction

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Content

- Introduction
- Requirements Management
- Business Modeling
- Analysis & Design
- Implementation
- Testing
- Deployment
- Project Management
- Problem/Change Management
- Document Management

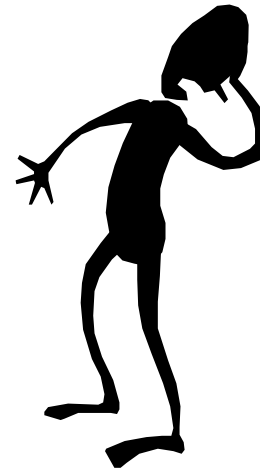


Sources

- IBM Rational Unified Process (RUP)
- Open Unified Process (OpenUP)
- Extreme Programming
- ICONIX Unified Object Modeling approach
- Whitestein Technologies Project Process Model
- “Old-fashioned” O-O development methodologies (OMT, OOSE, Booch, etc.)
- The best SW engineering practices

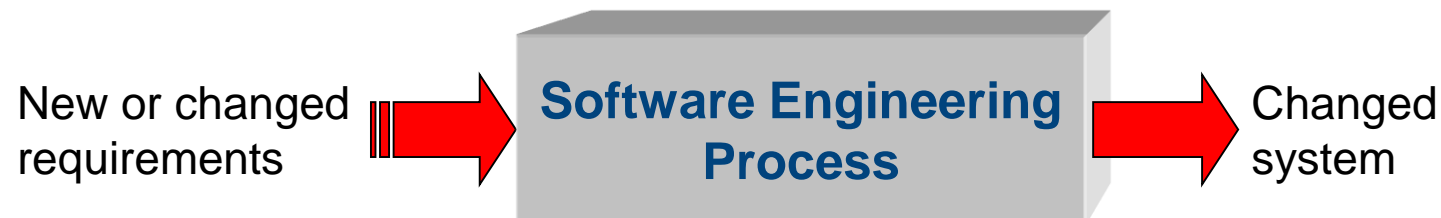
Risk: The Basic Problem

- Schedule slips
- Project canceled
- Project goes sour
- High defect rate
- Business misunderstood
- Business changed
- False feature rich
- Staff turnover
- ...



Software Engineering Process

- a set of partially ordered steps intended to build a software product, or to enhance an existing one
- the process of developing a system from requirements, either new (initial development cycle) or changed (evolution cycle)



Process Characteristics

- Project-oriented
- Iterative-incremental
- Use case driven
- Visual modeling techniques
- Architecture centric
- Object-oriented
- Managed and controlled
- Component based
- Automated
- Generic and configurable



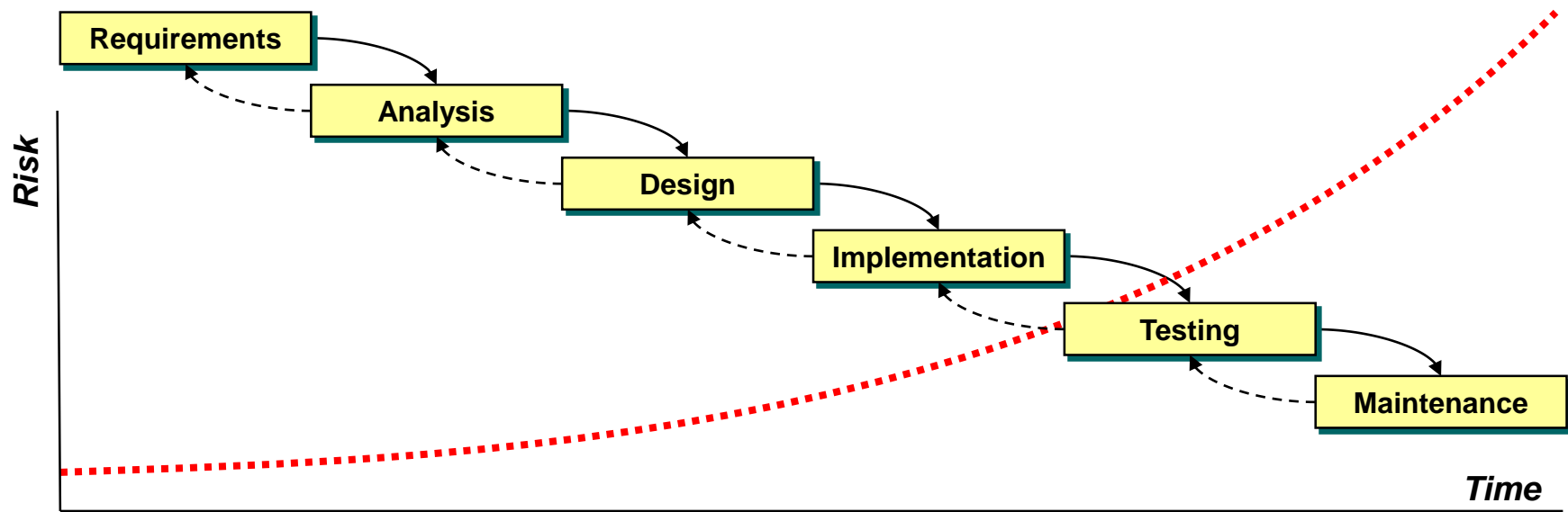
“Classical” Waterfall Lifecycle



- Disciplined development
- Complete end-phase documentation
- Clear and easy manageable
- Good structured programs



- Expensive requirements change
- Difficult to meet real user’s needs
- Product is delivered only at the end
- Difficult to deploy product at once



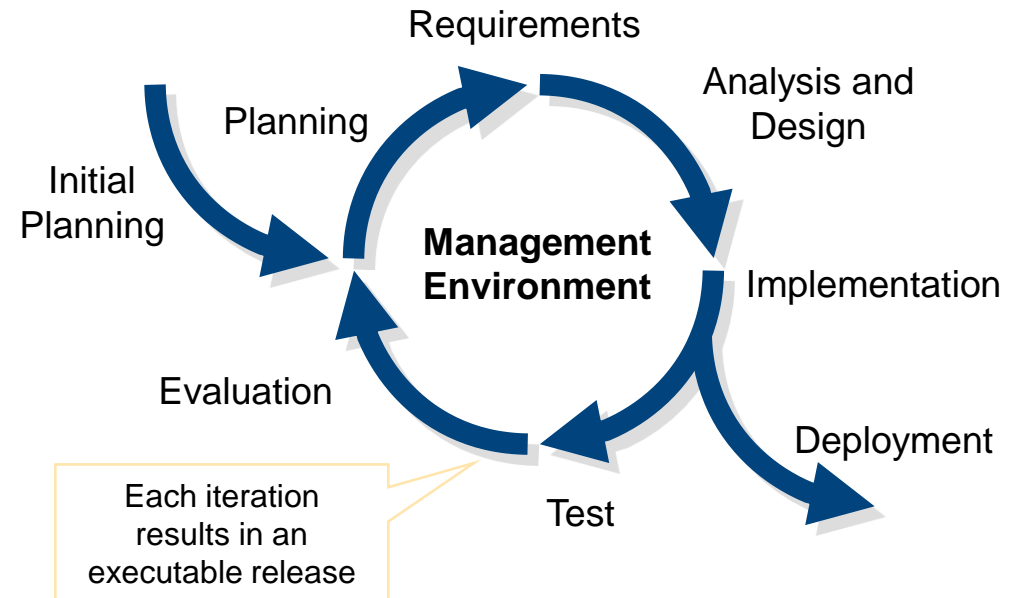
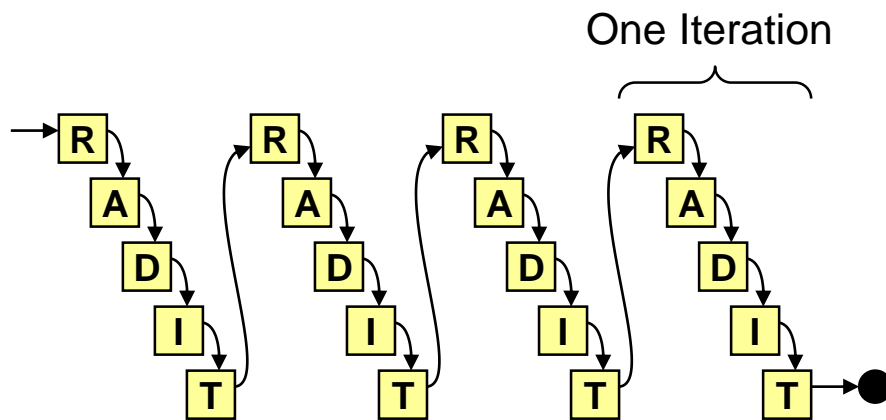
Iterative-incremental Lifecycle



- Soon deployment of first increments
- Lower investment for deployment
- End-user's learning → better requirements
- Step-by-step deployment
- After abortion there is something running

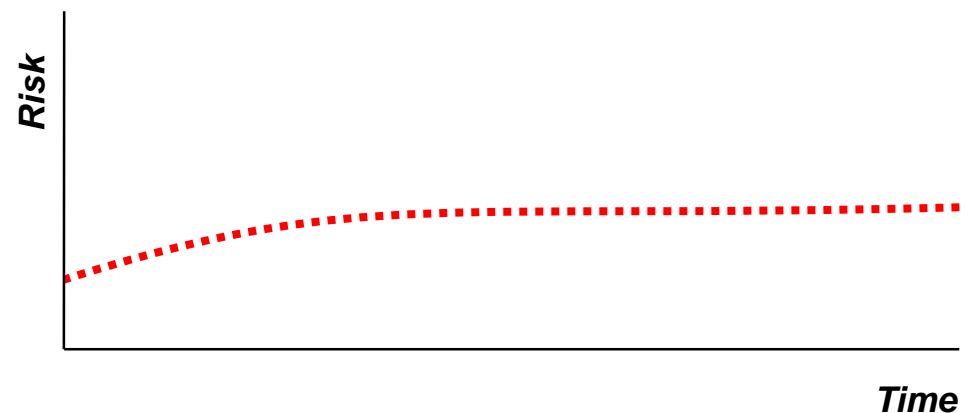


- Open architecture created first
- Difficult to manage

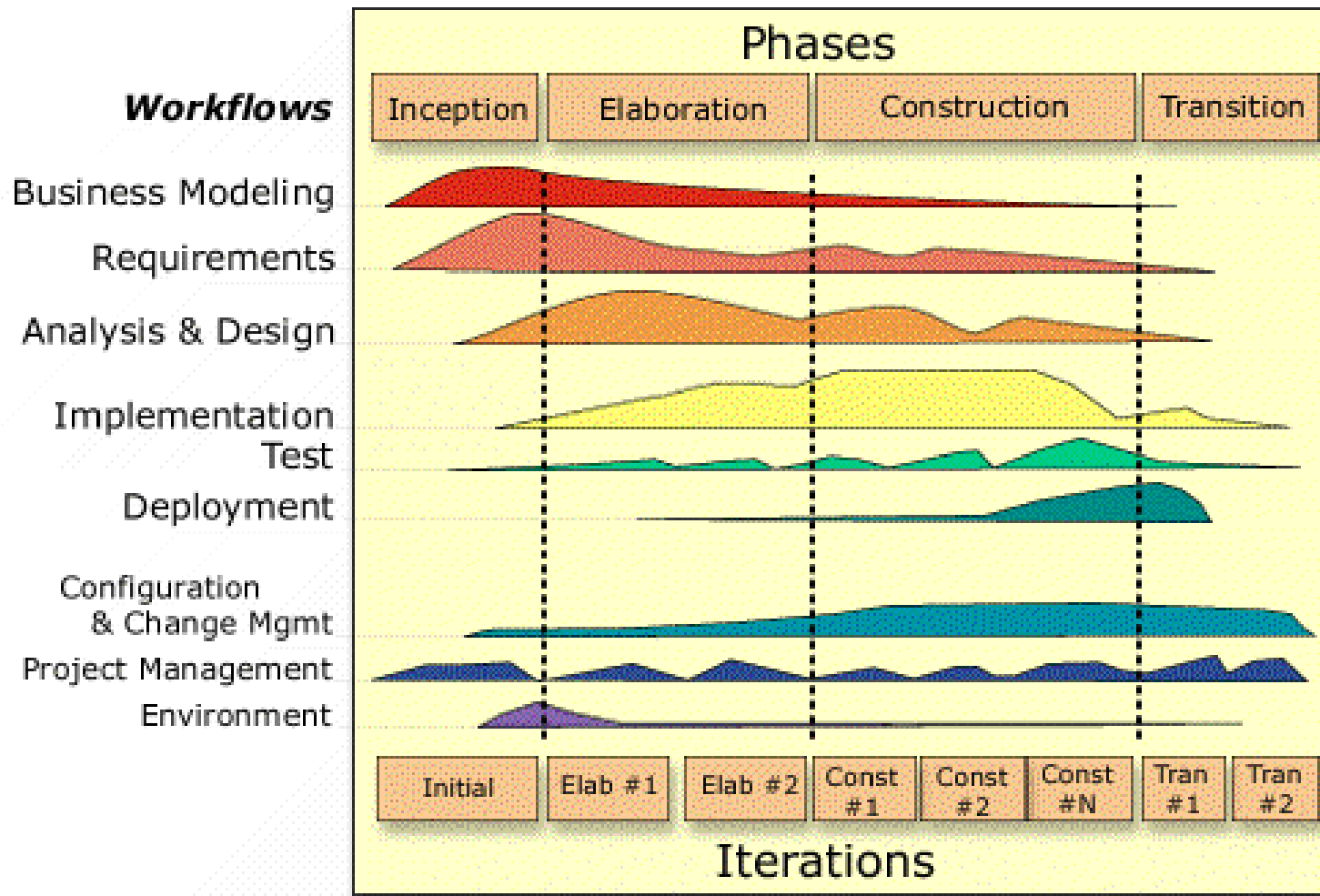


Reducing the Cost of Change

- Incremental change and iteration of solution
- Short release cycles and iterations; “driving the car”
- Small initial investments
- Lots of practice in modifying the design
- A simple design
- Quality work
- Good communication
- Rapid feedback
- Courage
- ...



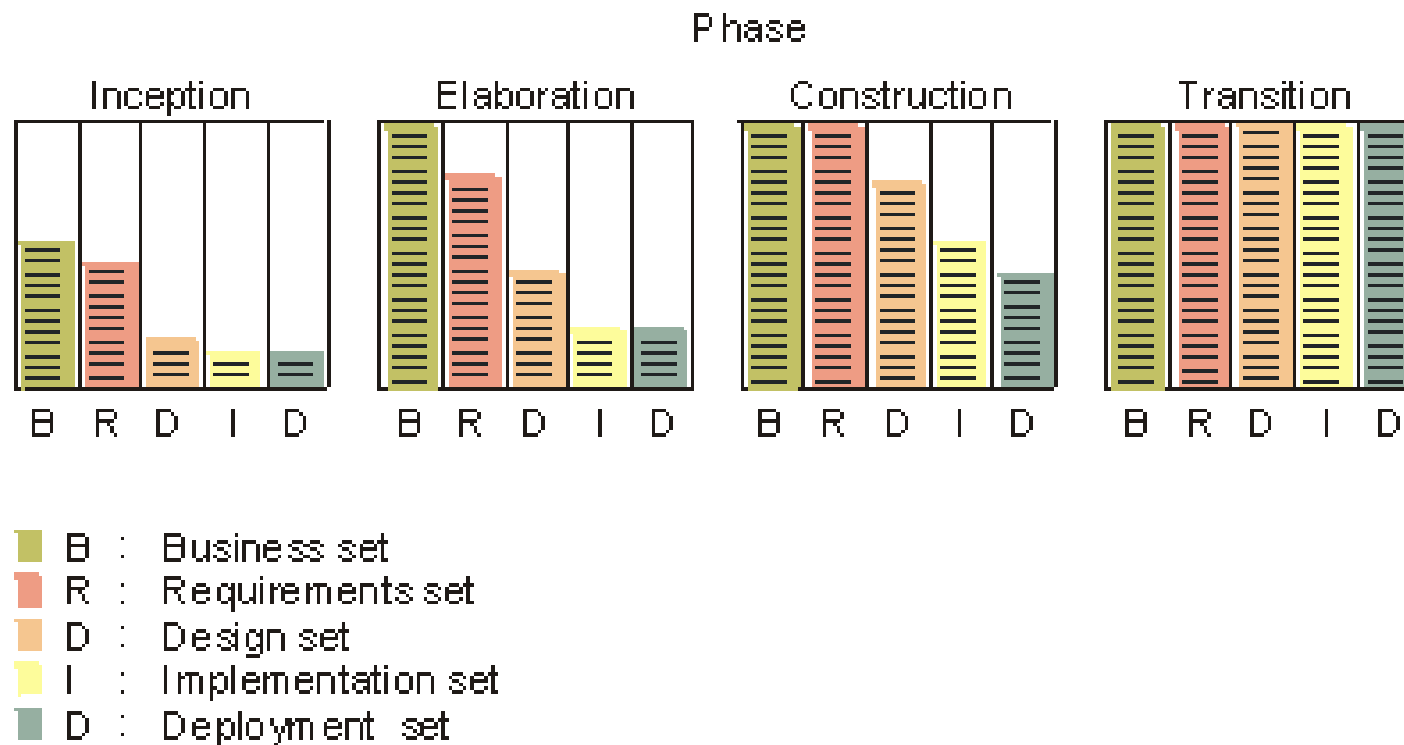
RUP Schedule Framework



Phases

- Inception
 - define a 'vision' of the end-product and the associated business case, and the overall scope of the project
- Elaboration
 - refine the definition of the product, define and baseline an architecture, and develop a more precise plan for its development and deployment
- Construction
 - the product is built, up to the point where it can be put in the hands of its end-users for the first time
- Transition
 - the product is transitioned to the user community; this includes manufacturing, delivering, training, supporting and maintaining the product

Information Evolution



Key Concepts

