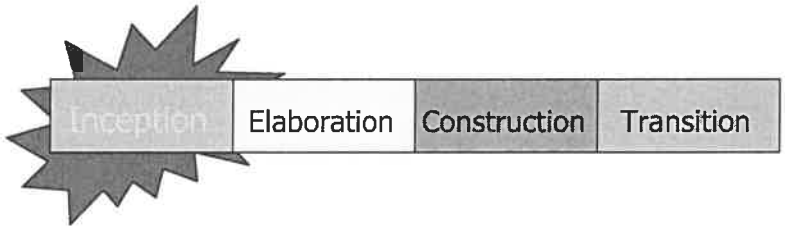
Inception



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Inception - Goals

- Establish feasibility of the project
- Create a business case
- Capture key requirements
- Scope the system
- Identify critical risks
- Create proof of concept prototype

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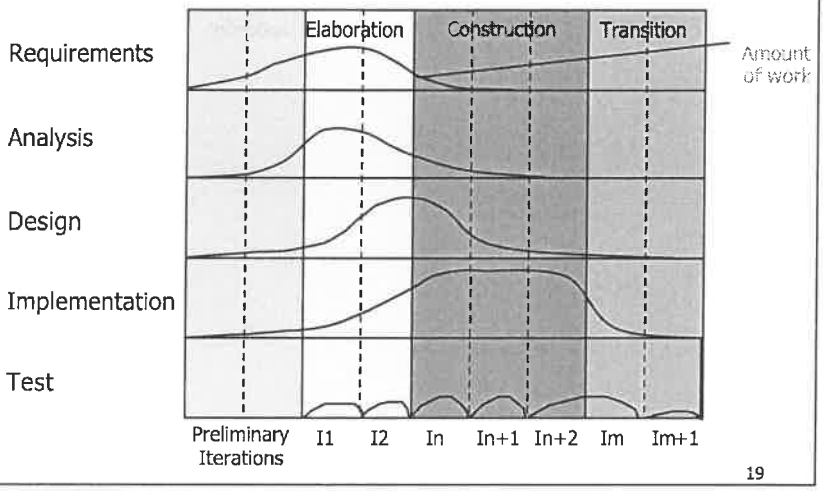
Phases and Workflows



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Inception - Focus

- Requirements – establish business case, scope and core requirements
- Analysis – establish feasibility
- Design – design proof of concept or technical prototypes
- Implementation – build the proof of concept prototype
- Test – not generally applicable

The blue bars indicate approximately the relative amount of resource needed

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Life Cycle Objectives

- Conditions of satisfaction:
  - System scope has been defined
  - Key requirements for the system have been captured. These have been defined and agreed with the stakeholders
  - An architectural vision exists. This is just a sketch at this stage
  - A Risk Assessment
  - A Business Case
  - Project feasibility is confirmed
  - The stakeholders agree on the objectives of the project

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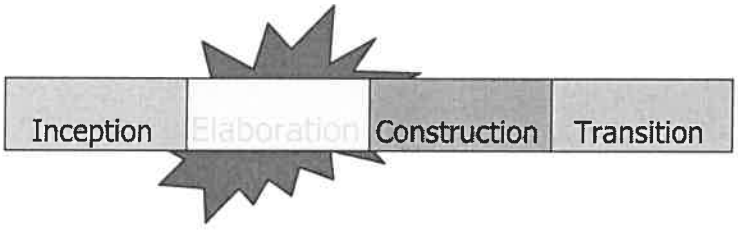
Elaboration



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Elaboration - Goals

- Create an executable architectural baseline
- Refine Risk Assessment
- Define quality attributes (defect rates etc.)
- Capture use-cases to 80% of the functional requirements
- Create a detailed plan for the construction phase
- Formulate a bid which includes resources, time, equipment, staff and cost

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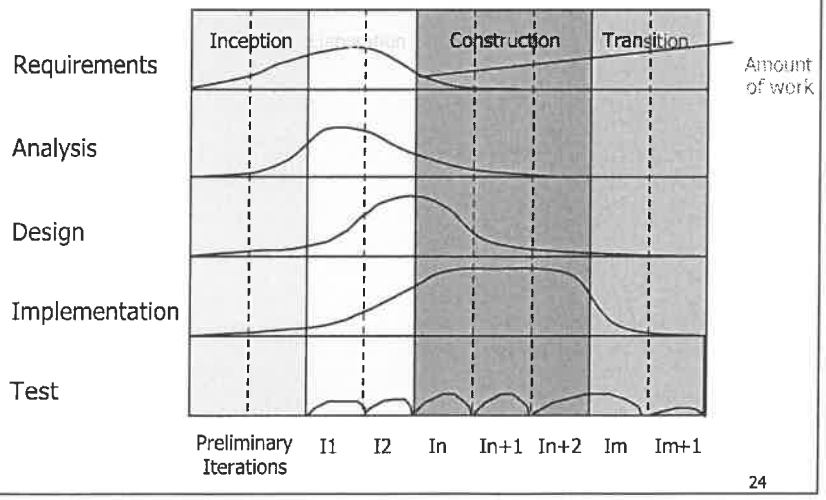
Phases and Workflows



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How many use-cases?

- Our goal is to find sufficient use-cases to allow us to build a system
- Aim to *identify* about 80% of the use-cases based on a consideration of functional requirements
  - The other 20% will come out in later phases if important
- Aim to *model in detail* only about 40% to 80% of the set of identified use-cases
- For each use-case modelled in detail, only a small fraction of the possible scenarios may need to be modelled

Model *just enough* use-cases to capture the information you need!

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Elaboration - Focus

- Requirements – refine system scope and requirements
- Analysis – establish what to build
- Design – create a stable architecture
- Implementation – build the architectural baseline
- Test – test the architectural baseline

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Life Cycle Architecture

- Conditions of satisfaction:
  - A resilient, robust executable architectural baseline has been created
  - The Risk Assessment has been updated
  - A project plan has been created to enable a realistic bid to be formulated
  - The business case has been verified against the plan
  - The stakeholders agree to continue

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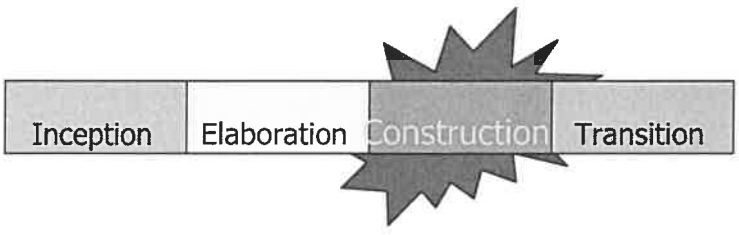
Construction



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Construction - Goals

- Completing use-case identification, description and realisation
- Finish analysis, design, implementation and test
- Maintain the integrity of the system architecture
- Revise the Risk Assessment

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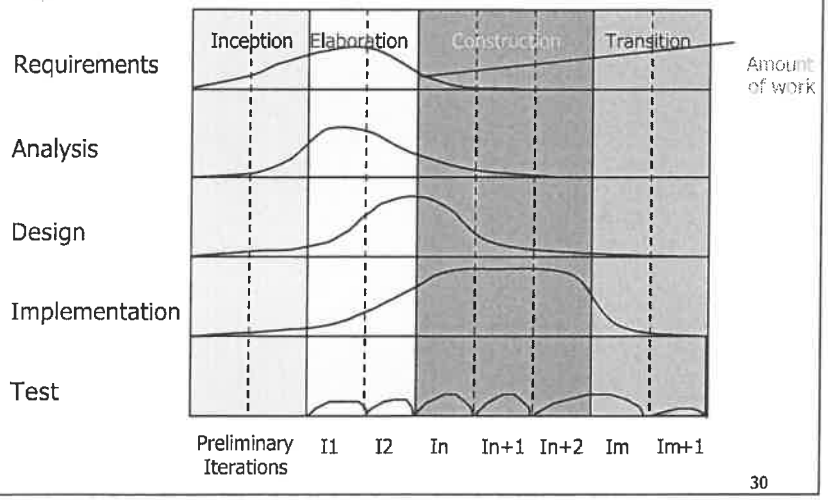
Phases and Workflows



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Construction - Focus

- Requirements – uncover any requirements that had been missed
- Analysis – finish the analysis model
- Design – finish the design model
- Implementation – build the Initial Operational Capability
- Test – test the Initial Operational Capability

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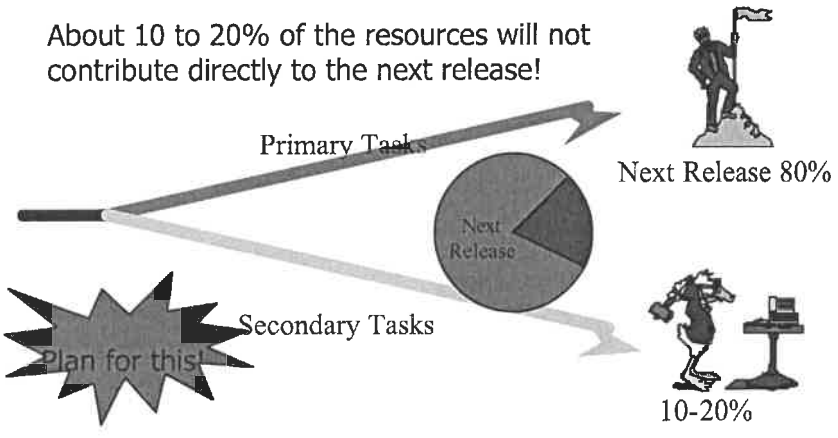
Plan for two lines of work...

About 10 to 20% of the resources will not contribute directly to the next release!



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Primary and secondary tasks

- Primary tasks:
  - Everything that contributes directly to the next increment
- Secondary tasks:
  - Everything else!
  - Attack risks with behavioural prototypes
  - Solve critical problems with taskforces (tiger teams)
  - Research into problem and solution domains
  - Bug tracking and reporting

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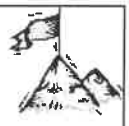
Initial Operational Capability



- Conditions of satisfaction:
  - The product is ready for beta testing in the user environment

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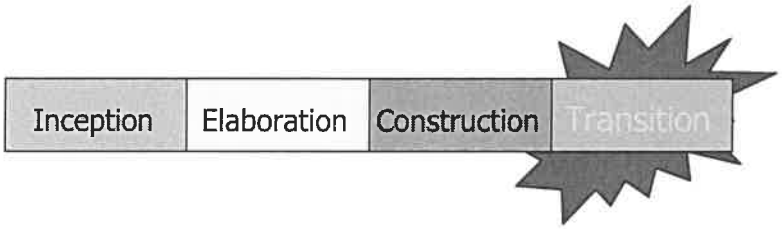
Transition



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Transition - Goals

- Correct defects
- Prepare the users site for the new software
- Tailor the software to operate at the users site
- Modify software if unforeseen problems arise
- Create user manuals and other documentation
- Provide customer consultancy
- Conduct post project review

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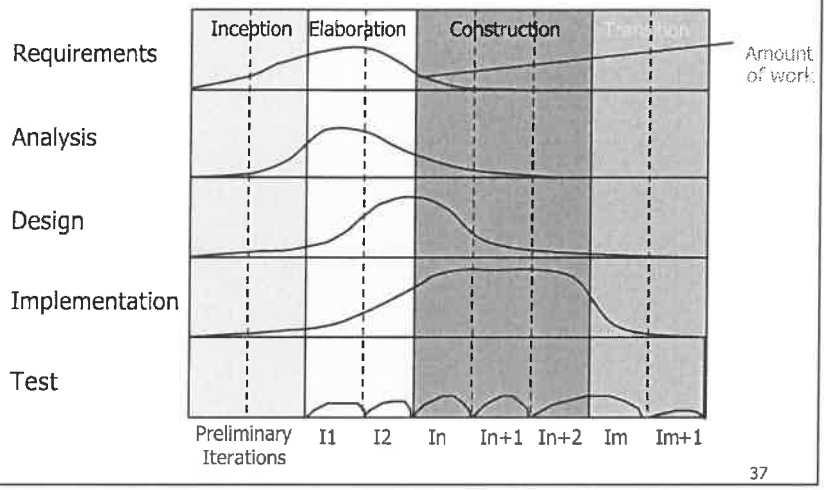
Phases and Workflows



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Transition - Focus

- Requirements – not applicable
- Analysis – not applicable
- Design – modify the design if problems emerge in beta testing
- Implementation – tailor the software for the users site and correct problems uncovered in beta testing
- Test – beta testing and acceptance testing at the users site

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Product Release

- Conditions of satisfaction:
  - Beta testing, acceptance testing and defect repair are finished
  - The product is released into the user community

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Key Points

- USDP is the iterative and incremental software engineering process for the UML
- USDP has four phases:
  - Inception
  - Elaboration
  - Construction
  - Transition
- Each phase may have one or more iterations
- Each iteration has five iteration workflows
  - Requirements,Analysis,Design,Implementation,Test

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