Rational Unified Process Review

Chapter 3

Part #2

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The Phases of the Unified Process

- The four increments are labeled
  - Inception phase
  - Elaboration phase
  - Construction phase
  - Transition phase

- The phases of the Unified Process are the increments

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The Phases of the Unified Process

- In theory, there could be any number of increments
  - In practice, development seems to consist of four increments

- Every step performed in the Unified Process falls into
  - One of the five core workflows and *also*
  - One of the four phases

- Why does each step have to be considered twice?

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The Phases of the Unified Process

- Workflow
  - Technical context of a step

- Phase
  - Business context of a step

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3.10.1 The Inception Phase

- The aim of the inception phase is to determine whether the proposed software product is economically viable

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The Inception Phase

1. Gain an understanding of the domain

2. Build the business model

3. Delimit the scope of the proposed project
   Focus on the subset of the business model that is covered by the proposed software product

4. Begin to make the initial business case

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The Inception Phase : The Initial Business Case

- Questions that need to be answered include:
  - Is the proposed software product cost effective?
  - How long will it take to obtain a return on investment?
  - Alternatively, what will be the cost if the company decides not to develop the proposed software product?
  - If the software product is to be sold in the marketplace, have the necessary marketing studies been performed?
  - Can the proposed software product be delivered in time?
  - If the software product is to be developed to support the client organization's own activities, what will be the impact if the proposed software product is delivered late?

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The Inception Phase: The Initial Business Case

- What are the risks involved in developing the software product
- How can these risks be mitigated?
  - Does the team who will develop the proposed software product have the necessary experience?
  - Is new hardware needed for this software product?
  - If so, is there a risk that it will not be delivered in time?
  - If so, is there a way to mitigate that risk, perhaps by ordering back-up hardware from another supplier?
  - Are software tools (Chapter 5) needed?
  - Are they currently available?
  - Do they have all the necessary functionality?

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The Inception Phase: The Initial Business Case

- Answers are needed by the end of the inception phase so that the initial business case can be made

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The Inception Phase: Risks

- There are three major risk categories:
  - Technical risks
    - See earlier slide
  - The risk of not getting the requirements right
    - Mitigated by performing the requirements workflow correctly
  - The risk of not getting the architecture right
    - The architecture may not be sufficiently robust

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The Inception Phase: Risks

- To mitigate all three classes of risks
  - The risks need to be ranked so that the critical risks are mitigated first

- This concludes the steps of the inception phase that fall under the requirements workflow

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The Inception Phase: Analysis, Design Workflows

- A small amount of the analysis workflow may be performed during the inception phase
  - Information needed for the design of the architecture is extracted

- Accordingly, a small amount of the design workflow may be performed, too

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The Inception Phase: Implementation Workflow

- Coding is generally not performed during the inception phase

- However, a *proof-of-concept prototype* is sometimes build to test the feasibility of constructing part of the software product

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The Inception Phase: Test Workflow

- The test workflow commences almost at the start of the inception phase
  - The aim is to ensure that the requirements have been accurately determined

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The Inception Phase: Planning

- There is insufficient information at the beginning of the inception phase to plan the entire development
  - The only planning that is done at the start of the project is the planning for the inception phase itself

- For the same reason, the only planning that can be done at the end of the inception phase is the plan for just the next phase, the elaboration phase

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The Inception Phase: Documentation

- The deliverables of the inception phase include:
  - The initial version of the domain model
  - The initial version of the business model
  - The initial version of the requirements artifacts
  - A preliminary version of the analysis artifacts
  - A preliminary version of the architecture
  - The initial list of risks
  - The initial ordering of the use cases (Chapter 10)
  - The plan for the elaboration phase
  - The initial version of the business case

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The Inception Phase: The Initial Business Case

- Obtaining the initial version of the business case is the overall aim of the inception phase
- This initial version incorporates
  - A description of the scope of the software product
  - Financial details
  - If the proposed software product is to be marketed, the business case will also include
    - Revenue projections, market estimates, initial cost estimates
  - If the software product is to be used in-house, the business case will include
    - The initial cost–benefit analysis

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3.10.2 Elaboration Phase

- The aim of the elaboration phase is to refine the initial requirements
  - Refine the architecture
  - Monitor the risks and refine their priorities
  - Refine the business case
  - Produce the project management plan

- The major activities of the elaboration phase are refinements or elaborations of the previous phase

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The Tasks of the Elaboration Phase

- The tasks of the elaboration phase correspond to:
    - All but completing the requirements workflow
    - Performing virtually the entire analysis workflow
    - Starting the design of the architecture

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The Elaboration Phase: Documentation

- The deliverables of the elaboration phase include:
    - The completed domain model
    - The completed business model
    - The completed requirements artifacts
    - The completed analysis artifacts
    - An updated version of the architecture
    - An updated list of risks
    - The project management plan (for the rest of the project)
    - The completed business case

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3.10.3 Construction Phase

- The aim of the construction phase is to produce the first operational-quality version of the software product
    - This is sometimes called the beta release

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The Tasks of the Construction Phase

- The emphasis in this phase is on
    - Implementation and
    - Testing
        - Unit testing of modules
        - Integration testing of subsystems
        - Product testing of the overall system

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The Construction Phase: Documentation

- The deliverables of the construction phase include:
  - The initial user manual and other manuals, as appropriate
  - All the artifacts (beta release versions)
  - The completed architecture
  - The updated risk list
  - The project management plan (for the remainder of the project)
  - If necessary, the updated business case

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3.10.4 The Transition Phase

- The aim of the transition phase is to ensure that the client's requirements have indeed been met
  - Faults in the software product are corrected
  - All the manuals are completed
  - Attempts are made to discover any previously unidentified risks

- This phase is driven by feedback from the site(s) at which the beta release has been installed

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The Transition Phase: Documentation

- The deliverables of the transition phase include:
  - All the artifacts (final versions)
  - The completed manuals

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