

Requirement Elicitation

Chapter 4.4-4.7



© Scott Adams, Inc./Dist. by UFS, Inc.

Topics

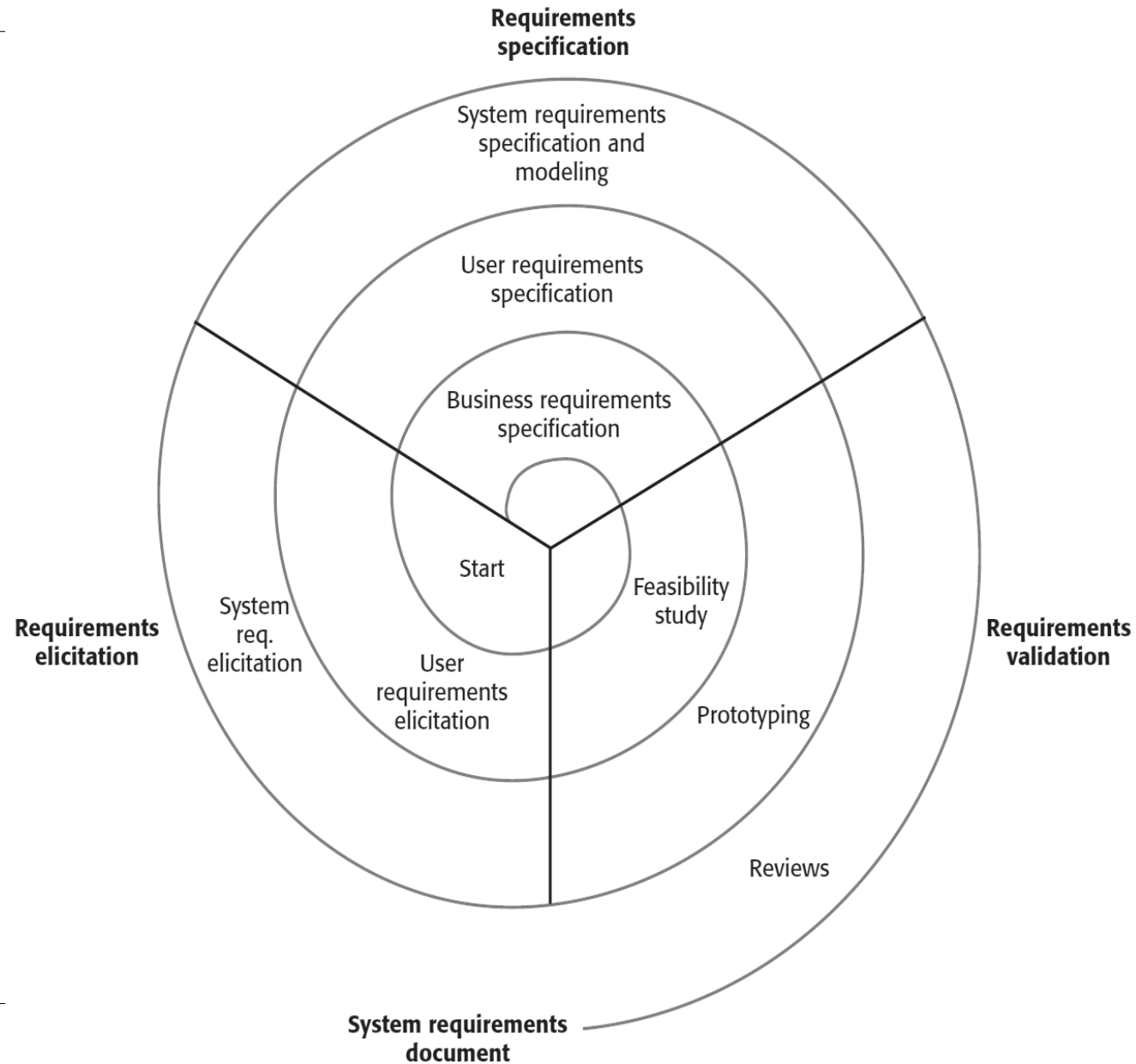
- 1) What is the requirements engineering processes?
- 2) How do we elicit and analyze requirements?
- 3) How do use cases record requirements?
- 4) How do we manage changes to requirements?

Requirements Engineering (RE) Process

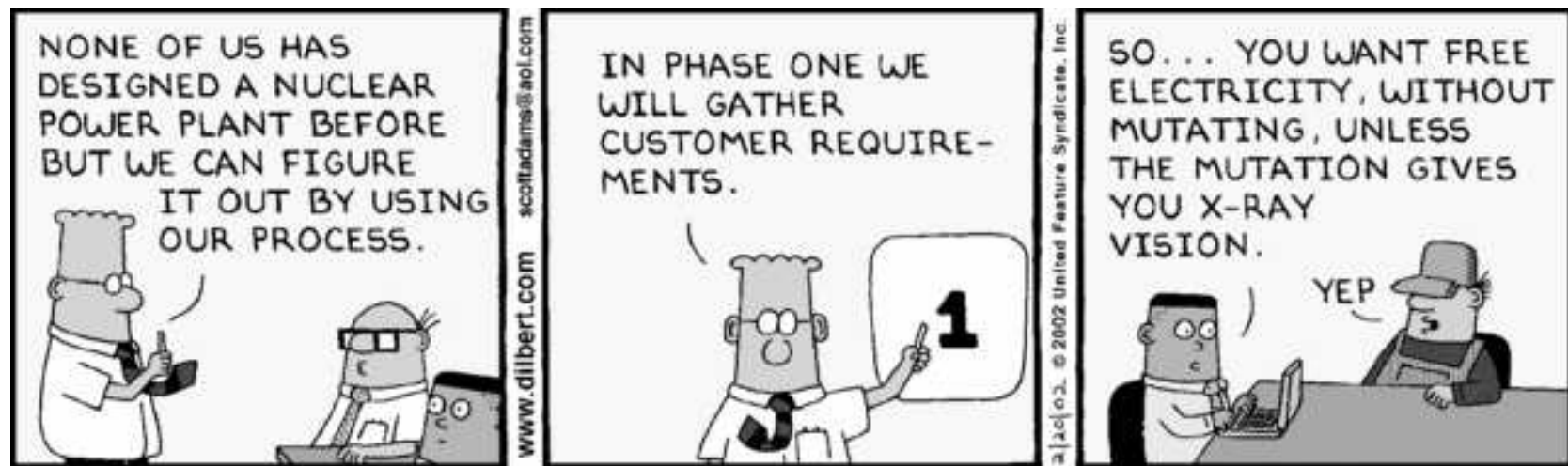
- RE processes vary widely depending on:
 - ..
 - people and organization
- Generic activities common to all RE processes:
 - Requirements elicitation
 - Requirements analysis
 - Requirements validation
 - Requirements management

Spiral view of RE process

In practice,
RE is an iterative
activity in which...



Requirements elicitation and analysis



Requirements elicitation and analysis

- Software developers work with..
to find out about:
 - application domain;
 - services that the system should provide;
 - required system performance;
 - hardware constraints;
- Requirements Discovery:
 - Gathering information about the system and..

Problems of requirements elicitation

- Stakeholders..
- Stakeholders express requirements in their own terms.
- The requirements change during the analysis process.
- Different stakeholders may have..
- How can you get the information from the customer?

RD: Interviewing

- Stakeholder interviews common in RE process.
- Types of interview
 - based on predetermined list of questions
 - explore various issues with stakeholders.
 - Both are often used together.
- Effective interviewing
 - listen & learn customer's needs.
 - Get discussions going using some questions, or working together on a prototype system.

Exercise: Course Reg Survey

- Consider this questionnaire for SFU students, generated by Acme Coding Inc related to course registration:
 - 1) Would you like to be able to configure the registration system to automatically enroll you in into a set of courses at your registration appointment?
 - 2) If your selected classes are full, would you like it to automatically enroll you in another class?
 - 3) Should the auto-enroller allow you to enroll in two classes which have conflicting schedules?
- What's good vs bad? What does the survey miss?

RD: Interviews in practice

- Interviews good at..
- Interviews poor at understanding domain requirements:
 - Developer's don't understand domain terminology;
 - Some domain knowledge is so familiar that people find it hard to articulate or...
- You have to be tenacious about working to truly understand system.

Implicit

- Implicitness problem
 - Domain specialists understand the area so well that they do not think of..
 - Examples
 - Replace video card in computer:
..
 - Source current from an electric vehicle's high-power battery:
..
 - Test nuclear power plant:
..

Ethnography

- People are generally not very good at...
- Ethnography:
 - Analyst immerses themselves in work environment where system will be used.
 - Analyst observes..
people don't explain it to them.

Ethnography

- Benefits of Ethnography
 - Good for documenting what people really do, and finding..
- Limits of Ethnography
 - Poor at..

Recording Requirements

User Stories

- Scrum User Stories..
 - Use template:

(user role)

(what)

(why?)

- Example

As a TA, I want to download all student submissions as a ZIP file so that I don't have to individually download each student's work.

- User stories

..

not how the software lets them do it.

Epic stories

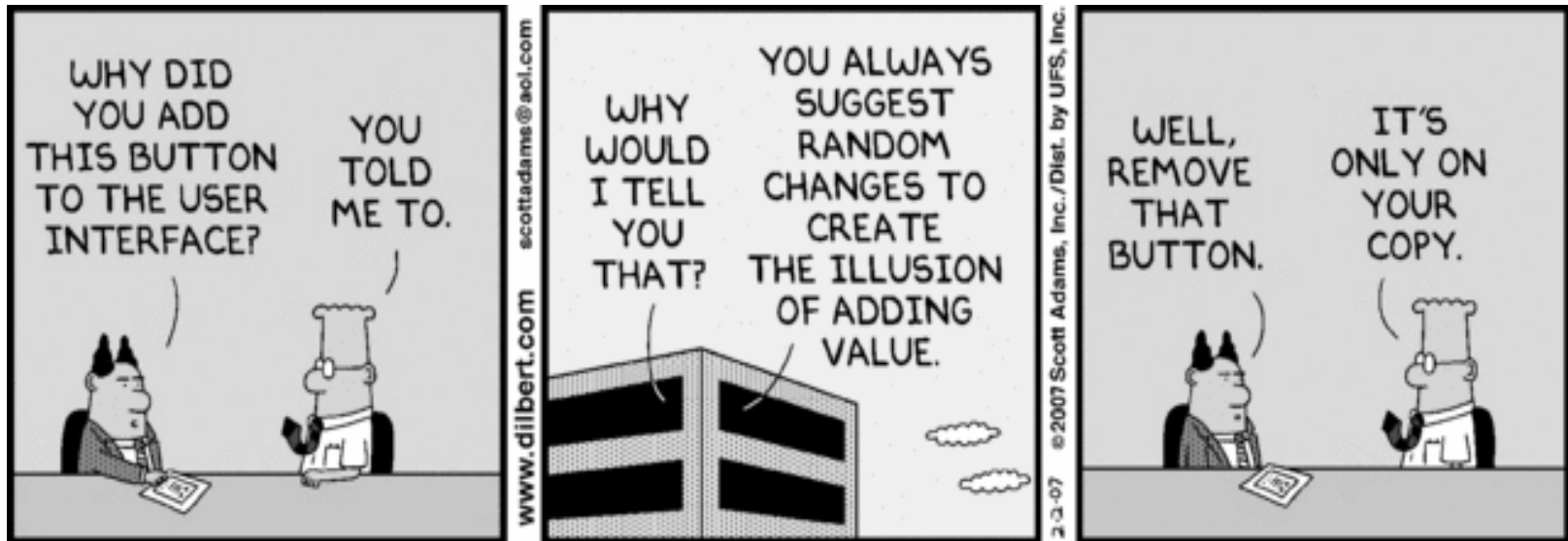
- Epic
 - ..
 - Epics are coarse-grained, very high level
 - Team breaks down epic into smaller, more detailed and specific, stories
- Example
 - *As a student, I want to submit my assignment so that I can get credit for my work.*
 - Break down into smaller use cases addressing:
 - Submitting parts of my assignment.
 - See history
 - Resubmit, etc.

Exercise: User Stories

- Write an epic related to course registration:

- Break it down into 2+ user stories:

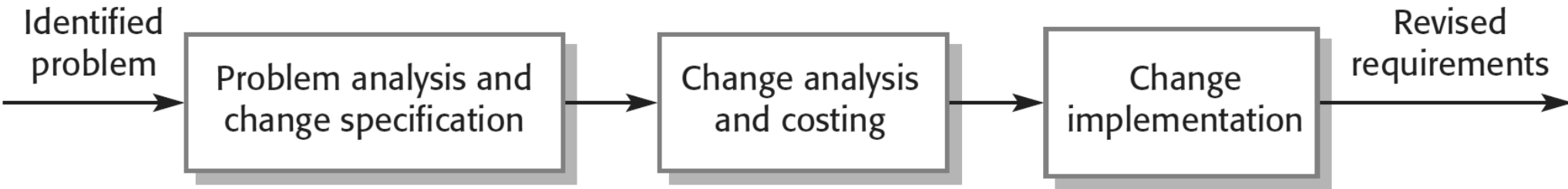
Requirements management



Requirements management

- Requirements management:
 - during the requirements engineering process and system development.
- Reasons for changing requirements:
 - Business and technical environment of the system always changes after installation.
 - Adding new hardware and systems.
 - New legislation and regulations apply to the system.

Requirements doc. change management



Requestor can help resolve any conflicts: change or remove the request.

Make decision to accept or reject change request based on analysis.

Modify req. document, system design, and implementation.
Organize req doc so changes easy to implement.

Changing requirements in Agile

- ..
so it's simpler to record requested change.
- Example process for recording change in Scrum
 - Discuss with PO (or as a team)
 - Create user story
 - Customer assigns priority in backlog
 - Team estimates its size
 - Team selects it for an iteration.

Summary

- Requirements engineering – a spiral or iterative process:
 - Requirements elicitation and analysis: iterative process.
 - Requirements Discovery:
Using interviews, use cases, ethnography
 - Requirements management – process of managing and controlling changing system requirements.