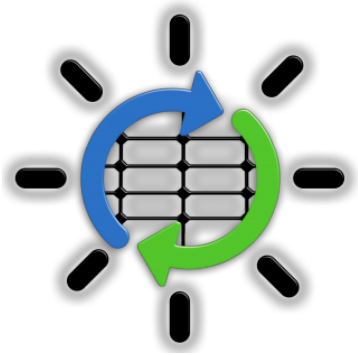
Unit 2.2 Inception & Elicitation

Requirement Engineering

Requirement Analysis & Specification

Requirements Engineering Tasks

1 Inception



- Roughly define scope
- A basic understanding of a problem, people who want a solution, the nature of solution desired

At project inception, you establish a basic understanding of the problem, the people who want a solution, the nature of the solution that is desired, and the effectiveness of preliminary communication and collaboration between the other stakeholders and the software team.

Feasibility Study is a crucial phase in software development

Project Inception

- During the initial project meetings, the following tasks should be accomplished
  - Identify the project stakeholders
    - These are the folks we should be talking to
  - Recognize multiple viewpoints
    - Stakeholders may have different (and conflicting) requirements
  - Work toward collaboration
    - It's all about reconciling conflict
  - Ask the first questions
    - Who? What are the benefits? Another source?
    - What is the problem? What defines success? Other constraints?
    - Am I doing my job right?

Feasibility Study

Is cancellation of a project a bad news?

As per IBM report, “31% projects get cancelled before they are completed, 53% over-run their cost estimates by an average of 189% & for every 100 projects, there are 94 restarts

How do we cancel a project with the least work?

➡ CONDUCT A FEASIBILTY STUDY

Feasibility Study

Technical feasibility

- Is it technically feasible to provide direct communication connectivity through space from one location of globe to another location?

- Is it technically feasible to design a programming language using “Sanskrit”?

Feasibility Study

Feasibility depends upon non technical Issues like:

- Are the project‟s cost and schedule assumption realistic?
- Does the business model realistic?
- Is there any market for the product?

Feasibility Study

Purpose of feasibility study

"evaluation or analysis of the potential impact of a proposed project or program "

Focus of feasibility studies

- Is the product concept viable?
- Will it be possible to develop a product that matches the project"s vision statement?
- What are the current estimated cost and schedule for the project?

Feasibility Study

Focus of feasibility studies

- How big is the gap between the original cost & schedule targets & current estimates?
- Is the business model for software justified when the current cost & schedule estimate are considered?
- Have the major risks to the project been identified & can they be surmounted?
- Is the specifications complete & stable enough to support remaining development work?

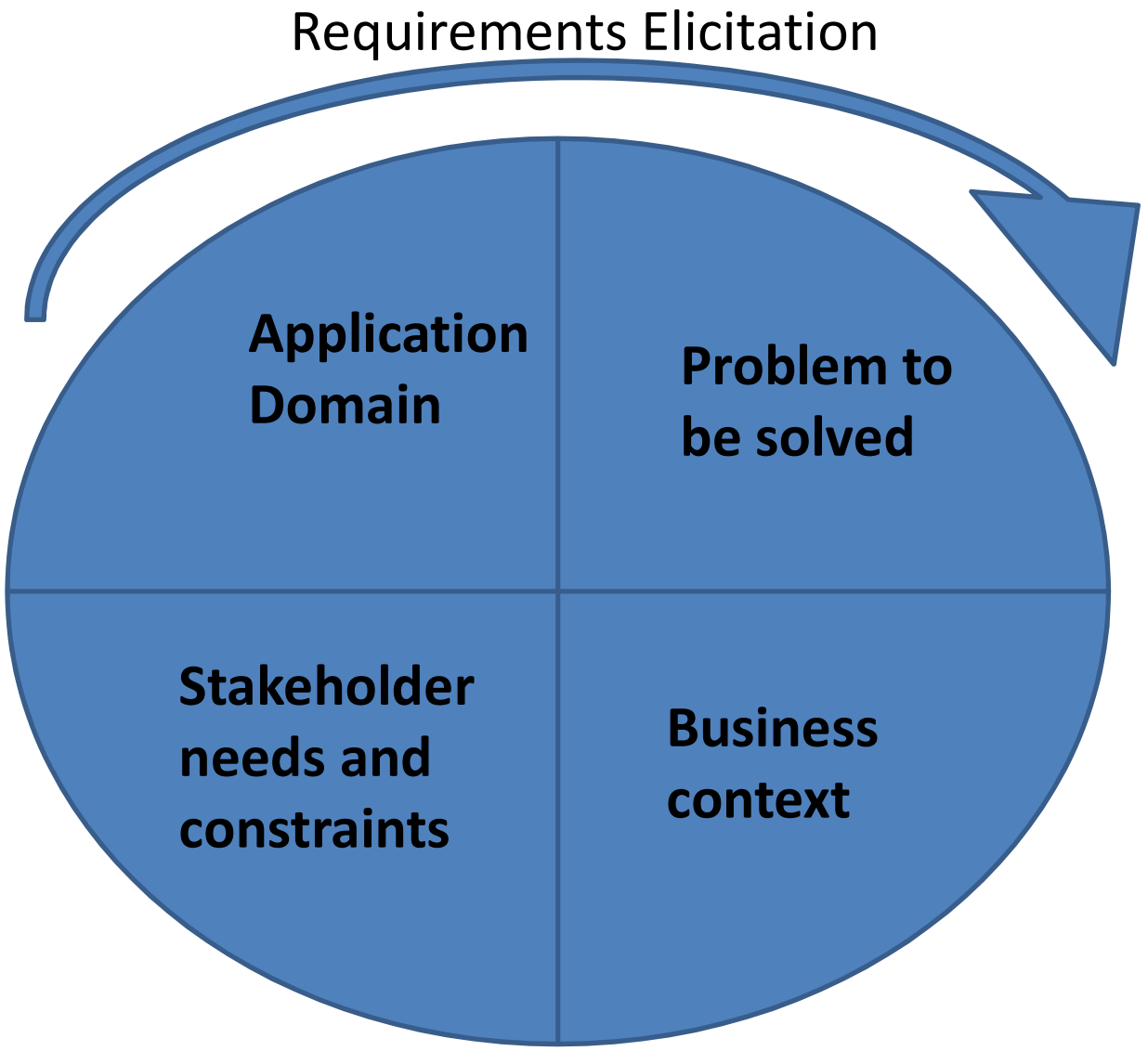
Requirements Engineering Tasks

2 Elicitation (Requirement Gathering)

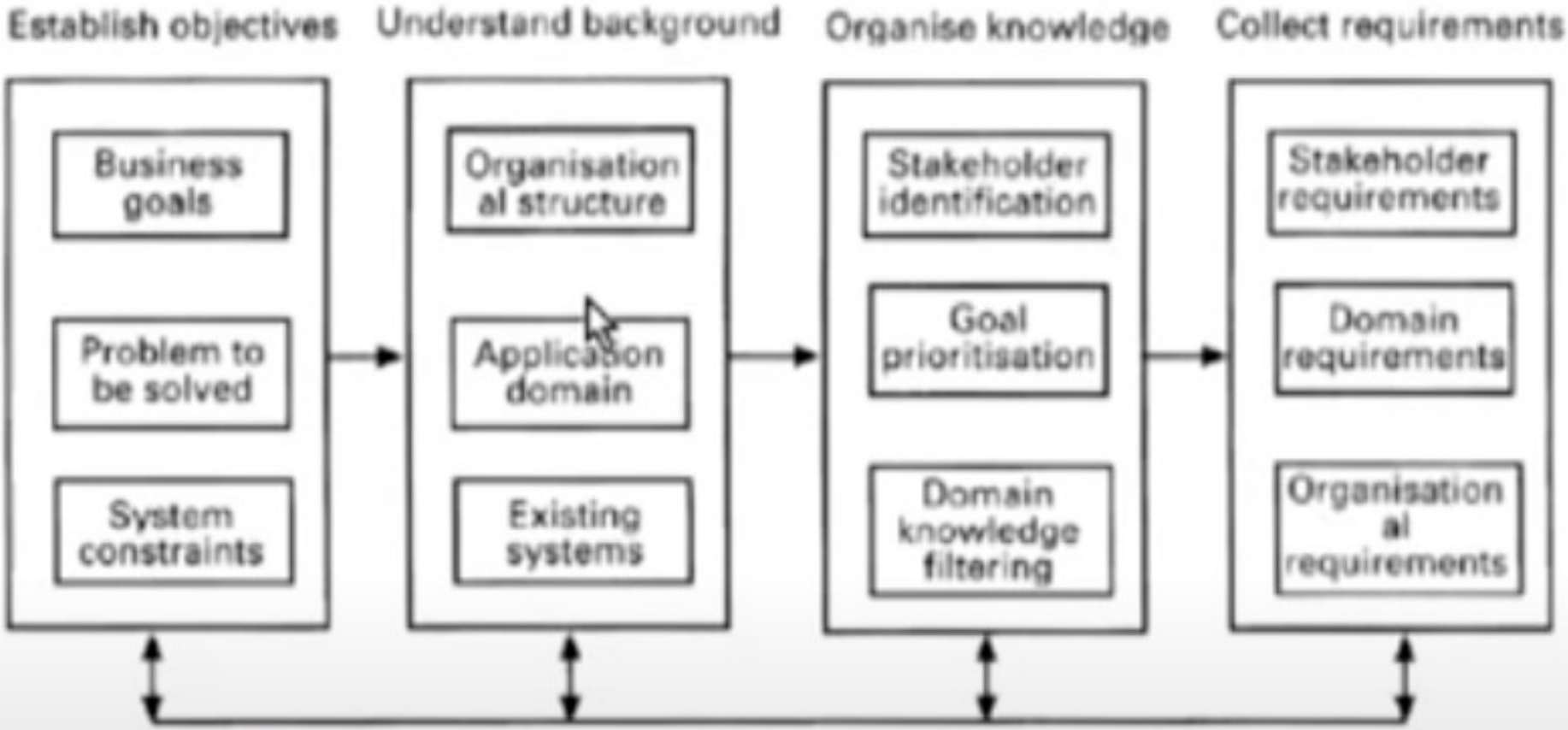
- Define requirements
- The practice of collecting the requirements of a system from users, customers and other stakeholders

In **requirements** engineering, **requirements elicitation** is the practice of researching and discovering the **requirements** of a system from users, customers, and other stakeholders. The practice is also sometimes referred to as "**requirement gathering**".

Component of Requirements elicitation



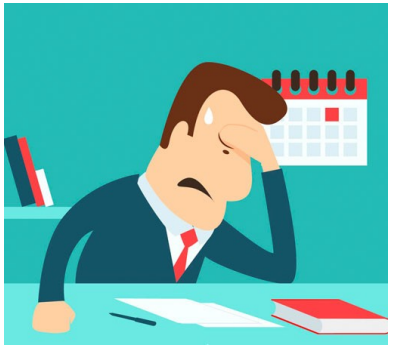
The requirements elicitation process



A generic requirements elicitation process.

Elicitation is the Hardest Part!

- Problems of scope
  - System boundaries are ill-defined
  - Customers will provide irrelevant information
- Problems of understanding
  - Customers never know exactly what they want
  - Customers don't understand capabilities and limitations
  - Customers have trouble fully communicating needs
- Problems of volatility
  - Requirements always change



It certainly seems simple enough—ask the customer, the users, and others what the objectives for the system or product are, what is to be accomplished, how the system or product fits into the needs of the business, and finally, how the sys- tem or product is to be used on a day-to-day basis. But it isn't simple—it's very hard.

Requirements Elicitation

Perhaps

- Most difficult
- Most critical
- Most error prone communication
- Most intensive

Succeed

→ effective customer developer partnership

Collaborative Elicitation

- One-on-one Q &A sessions rarely succeed in practice; collaborative strategies are more practical

Requirements Elicitation

1 Interviews

Both parties have a common goal

--- open ended
--- structured

} Interview

Success of the project

Selection of stakeholder

1 Entry level personnel

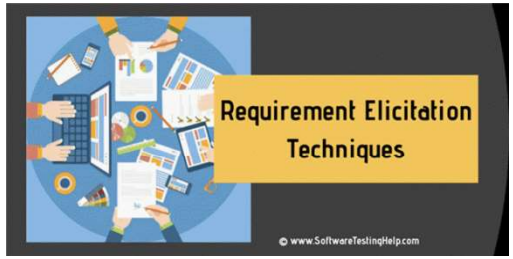
2 Middle level stakeholder

3 Managers

4 Users of the software (Most important)

Requirements Elicitation

Types of questions



- Any problems with existing system
- Any Calculation errors
- Possible reasons for malfunctioning
- Possible benefits
- Satisfied with current policies
- How are you maintaining the records?
- Any requirement of data from other system
- Any additional functionality
- Most important goal of the proposed Development

At the end, we may have wide variety of expectation from the proposed software

Requirements Elicitation- Brainstorming

It is a group technique

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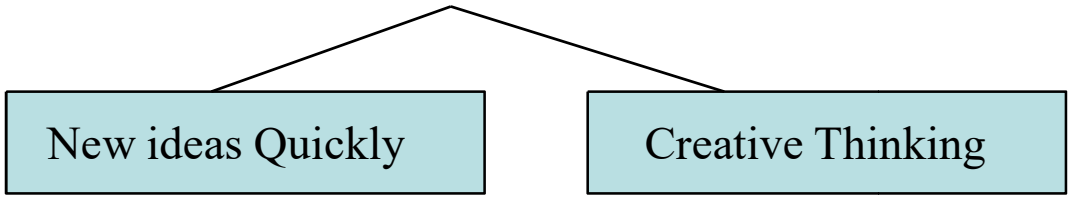
group discussions



Prepare long list of requirements

Categorized
Prioritized
Pruned

*Idea is to generate views ,not to vet them

Groups

1 Users 2 Middle Level managers 3 Total Stakeholders

Requirements Elicitation

A Facilitator may handle group bias, conflicts carefully

-- Facilitator may follow a published agenda

-- Every idea will be documented in a way that everyone can see it.

--A detailed report is prepared

3 Facilitated Application specification Techniques (FAST)

-- Similar to brainstorming sessions

-- Team oriented approach

-- Creation of joint team of customers and developers

Requirements Elicitation

Guidelines

1. Arrange a meeting at a neutral site
2. Establish rules for participation
3. Informal agenda to encourage free flow of ideas
4. Appoint a facilitator
5. Prepare definition mechanism board, worksheets, wall stickier
6. Participants should not criticize or debate

FAST session Preparations

Each attendee is asked to make a list of objects that are:

Requirements Elicitation

Activities of FAST session

1 Every participant presents his/her list
2 Combine list for each topic
3 Discussion
4 Consensus list
5 Sub teams for mini specifications
6 Presentations of mini-specifications
7 Validation criteria
8. A sub team to draft specifications

Requirements Elicitation

4 Quality Function Deployment

- Incorporate voice of the customer

Technical requirements

Documented

Prime concern is customer satisfaction

What is important for customer?

-- Normal requirements (Explicit)

-- Expected requirements (Implicit)

-- Exciting requirements

Quality Function Deployment (QFD)

- This is a technique that translates the needs of the customer into technical requirements for software
- It emphasizes an understanding of what is valuable to the customer and then deploys these values throughout the engineering process through functions, information, and tasks
- It identifies three types of requirements
  - **Normal requirements**: These requirements are the objectives and goals stated for a product or system during meetings with the customer
  - **Expected requirements**: These requirements are implicit to the product or system and may be so fundamental that the customer does not explicitly state them
  - **Exciting requirements**: These requirements are for features that go beyond the customer's expectations and prove to be very satisfying when present

Elicitation work products

- Collaborative elicitation should result in several work products

- A bounded statement of scope
- A list of stakeholders
- A description of the technical environment
- A list of requirements and constraints
- Any prototypes developed
- A set of use cases
  - Characterize how users will interact with the system
  - Use cases tie functional requirements together

Requirements Elicitation - Steps

Steps

1 Identify stakeholders

2 List out requirements

3 Degree of importance to each requirement