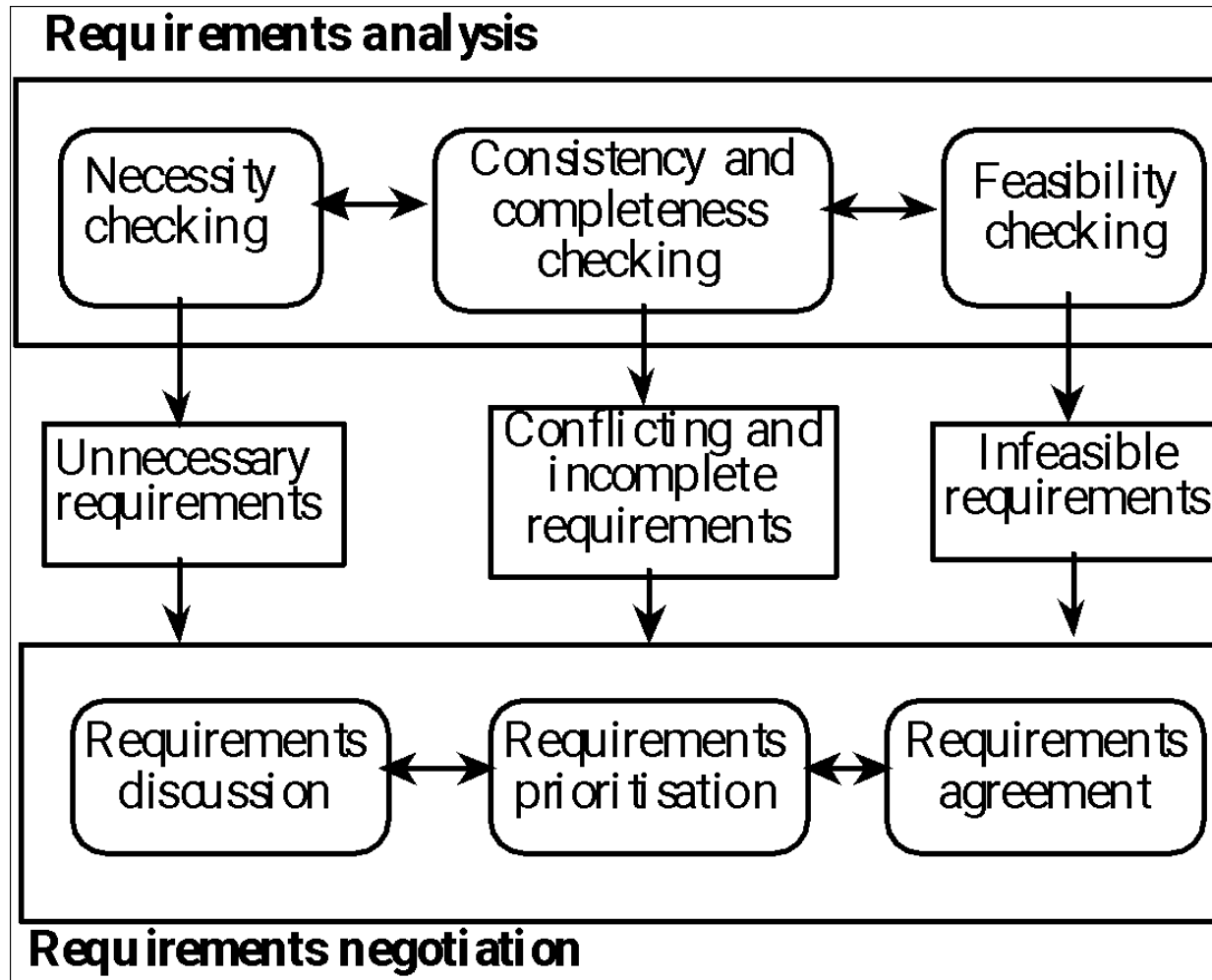


REQUIREMENTS ANALYSIS AND NEGOTIATION



Requirements analysis and negotiation



Analysis checks

▣ *Necessity checking*

- ▣ The need for the requirement is analysed.
- ▣ In some cases, requirements may be proposed which don't contribute to the business goals of the organisation or to the specific problem to be addressed by the system.

Analysis checks....

▣ *Consistency and completeness checking*

- ▣ The requirements are cross-checked for consistency and completeness.
- ▣ Consistency means that no requirements should be contradictory;
- ▣ completeness means that no services or constraints which are needed have been missed out.

▣ *Feasibility checking*

- ▣ The requirements are checked to ensure that they are feasible in *the context of the budget and schedule* available for the system development.

Requirements negotiation

▣ *Requirements discussion*

- ▣ Requirements which have been highlighted as problematical are discussed and the stakeholders involved present their views about the requirements.

▣ *Requirements prioritisation*

- ▣ Disputed requirements are prioritised to identify critical requirements and to help the decision making process.

▣ *Requirements agreement*

- ▣ Solutions to the requirements problems are identified and a compromise set of requirements are agreed.
- ▣ Generally, this will involve making changes to some of the requirements.

Requirements analysis

- The goal of analysis is to discover problems, incompleteness and inconsistencies in the elicited requirements.
- These are then feedback to the stakeholders to resolve them through the negotiation process.
- Analysis is inserted with elicitation as problems are discovered when the requirements are elicited.
- A problem checklist may be used to support analysis.
- Each requirement may be assessed against the checklist.

Analysis checklists



- Premature design
 - Does the requirement include premature design or implementation information?

- Combined requirements
 - Does the description of a requirement describe a single requirement or could it be broken down into several different requirements?

Analysis checklists....

- Unnecessary requirements
 - Is the requirement ‘gold plating’? That is, is the requirement a cosmetic addition to the system which is not really necessary.

- Use of non-standard hardware
 - Does the requirement mean that non-standard hardware or software must be used? To make this decision, you need to know the computer platform requirements.

Analysis checklists....

- Conformance with business goals
 - Is the requirement consistent with the business goals defined in the introduction to the requirements document?.

- Requirements ambiguity
 - Is the requirement ambiguous i.e. could it be read in different ways by different people? What are the possible interpretations of the requirement?

Analysis checklists...

□ Requirements realism

- Is the requirement realistic given the technology which will be used to implement the system?

□ Requirements testability

- Is the requirement testable, that is, is it stated in such a way that test engineers can derive a test which can show if the system meets that requirement?

Requirements interactions

- A **very important objective** of requirements analysis is to **discover** the interactions between requirements and to **highlight** requirements **conflicts** and **overlaps**.
- A **requirements interaction matrix** shows **how** requirements interact with each other.
- Requirements are listed along the rows and columns of the matrix.
 - For requirements which **conflict**, fill in a 1
 - For requirements which **overlap**, fill in a 1000
 - For requirements which are **independent**, fill in a 0

Interaction matrices

Requirement	R1	R2	R3	R4	R5	R6
R1	0	0	1000	0	1	1
R2	0	0	0	0	0	0
R3	1000	0	0	1000	0	1000
R4	0	0	1000	0	1	1
R5	1	0	0	1	0	0
R6	1	0	1000	1	0	0

Requirements negotiation

- Disagreements about requirements are expected when a system has many stakeholders.
- Conflicts are not ‘failures’ but reflect different stakeholder needs and priorities.
- Requirements negotiation is the process of discussing requirements conflicts and reaching a compromise that all stakeholders can agree to.
- In planning a requirements engineering process, it is important to leave enough time for negotiation.
- Finding an acceptable compromise can be time-consuming.

Negotiation meetings

- An **information stage** where the nature of the problems associated with a requirement is explained.
- A **discussion stage** where the stakeholders involved discuss how these problems might be resolved.
 - All stakeholders with an interest in the requirement should be given the opportunity to comment.
 - Priorities may be assigned to requirements at this stage.
- A **resolution stage** where actions concerning the requirement are agreed.
 - These actions might be to delete the requirement, to suggest specific modifications to the requirement or to elicit further information about the requirement.

Key points

- Requirements elicitation involves:
 - Understanding the application domain
 - The specific problem to be solved,
 - The organisational needs and constraints and
 - The specific facilities needed by system stakeholders.
- The processes of requirements elicitation, analysis and negotiation are iterative, interleaved processes which must usually be repeated several times.

Key points

- There are various techniques of requirements elicitation which may be used including
 - Interviewing
 - Scenarios: how a user interacts with a system
 - soft systems methods:- produce informal models of a social-technical system. They consider the system, people & organization
 - prototyping and participant observation.
- Prototypes are effective for requirements elicitation b/c stakeholders have something which they can experiment with to find their real

Key points

- Checklists are particularly useful as a way of organising the requirements validation process.
- They remind analysts what to look for when reading through the proposed requirements.
- Requirements negotiation is always necessary to resolve requirements conflicts and remove requirements overlaps.
- Negotiation involves information interchange, discussion and resolution of disagreements.

Question & Answer

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Thank You !!!