Software Requirements Engineering (SE2001)

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Requirements Analysis

- The goal of requirements analysis is to find problems in the draft requirements document.
- Al thought this is shown as a sequence of discrete activities, in reality , the analysis activities are interleaved.

Requirements Analysis

- Requirements Analysis activities:
  - Necessity checking
  - Consistency and Completeness checking
  - Feasibility checking

Requirements Analysis

❖ Necessity Checking:

- ➢ The needs for the requirements are analyzed.
- ➢ In some cases requirements may be proposed which don’t contribute to:
  - The business goals of the organization.
  - The specific problems to be addressed by the system.

Requirements Analysis

❖ Consistency and Completeness Checking:

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

Requirements Analysis

❖ Feasibility Checking:

- ➢ The requirements are checked to ensure that they are feasible in context of .
  - Budget
  - Schedule

Requirements Negotiation

- The requirements negotiation process also have a number of interleaved process steps, which are.
  - Requirements discussion
  - Requirements prioritization
  - Requirements agreement

Requirements Negotiation

❖ Requirements discussion:

- ➢ Requirements which have been highlighted as problematical are discussed
- ➢ The stakeholders involved presents their view about the requirements.

Requirements Negotiation

❖ Requirements Prioritization:

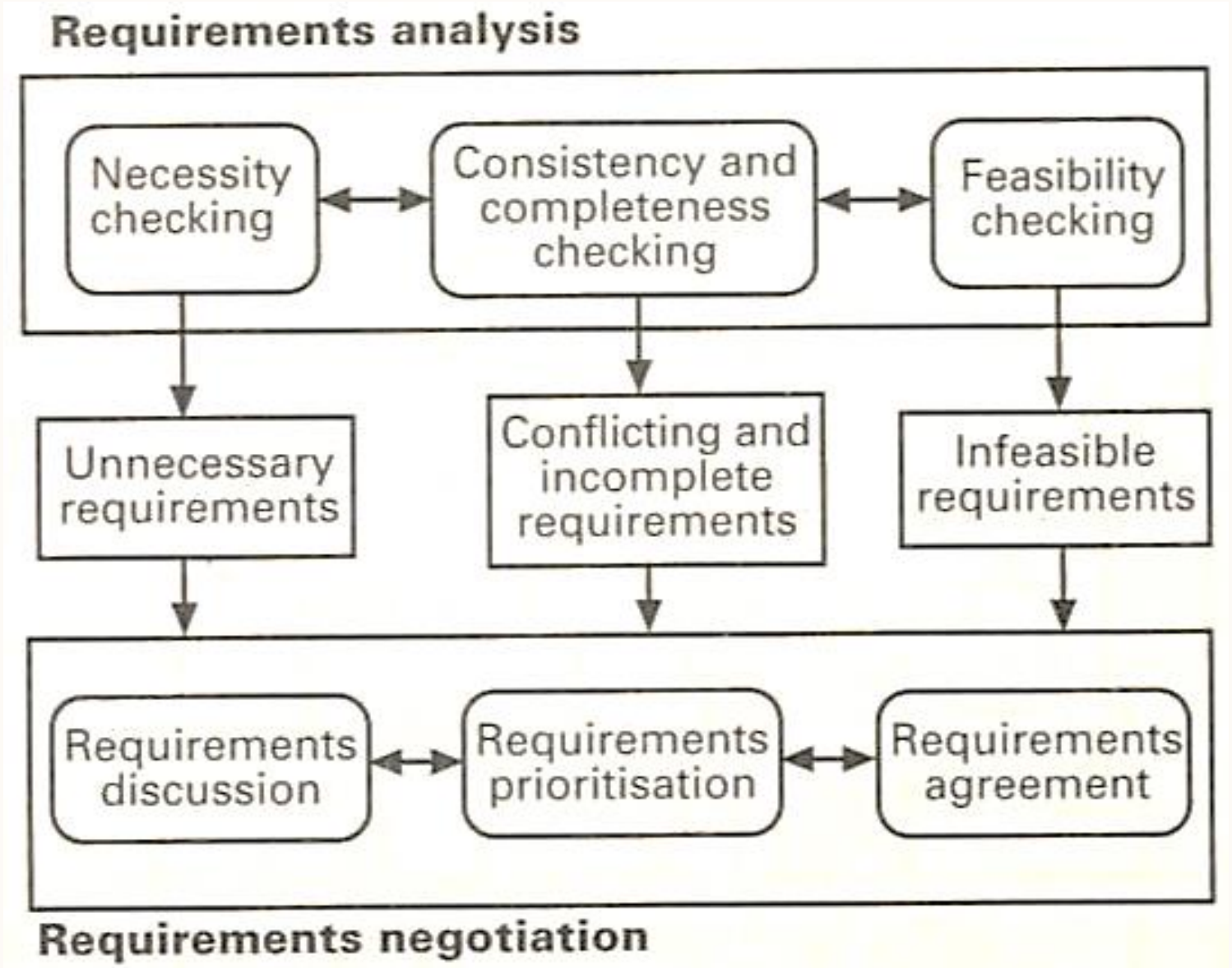
- ➢ Requirements are prioritized to identify:
  - The critical requirements
  - To help the decision making process

Requirements Negotiation

❖ Requirements Agreement:

- ➢ Solutions to the requirements problems are identified:
  - A compromised set of requirements are agreed.
  - This involve making changes to some of the requirements.

Requirements Negotiation



Elicitation Techniques

Basics of Knowledge Acquisition

- Multiple sources:
  - Reading the documents
  - Listening to the people
  - Asking from the people
  - Observing individuals
- Results in large volume of information, which must be organized to make it understandable

Knowledge Structuring Techniques

- Partitioning
- Abstraction
- Projection

Knowledge Structuring Techniques

Partitioning:

- Organization of knowledge into aggregation relationships
- Where requirements knowledge is described in terms of its parts.
- **Booking system example:**
  - A booking record may be defined as a flight reference, source & destination of flight, the name & address of the passenger, fare, and date of travel.

Knowledge Structuring Techniques

Abstraction:

- Organization of knowledge according to general/specific relationships.
- Requirement knowledge is described by relating specific instances to abstract structures Passenger abstraction may represent all classes of passengers (children, adults, full-fare paying, concessionary passengers, etc.)

Knowledge Structuring Techniques

Projection:

- Organization of knowledge from several different perspectives or viewpoints.
- **Booking system example:**
  - travel agents, airline management, check-in desk operators, passengers, a bookings database, etc.

Knowledge Structuring Techniques

- Requirements elicitation is a cooperate process involving requirements engineers and stakeholders.
- Effective elicitation requires effective cooperation.
- In many cases, it is difficult for requirements engineer s and stakeholders to form good working relationship.

Knowledge Structuring Techniques

❖ **Some of the problems they may face are:**

- Insufficient time has been allowed for the requirements election.
- Requirements engineers may not well prepared themselves for the requirements engineering process.
- Stakeholder may not want a new system.

Knowledge Structuring Techniques

- There are various techniques of requirements elicitation which may be used including
  - Interviewing
  - Scenarios
  - Prototyping
  - Participant observation

THANK YOU

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