Requirement Engineering

Lecture 5: Negotiation

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General Requirements Engineering Process

Overview

Requirements Engineering					
Requirements Analysis				Requirements Management	
Elicitation	Negotiation	Documentation	Validation	Change Management	Tracing

Lecture 5: Negotiation

Content

1. Negotiation in General
2. Conflict Management

NEGOTIATION IN GENERAL

Negotiation

Why?

- Interpretation of the elicitation results may uncover conflicts between stakeholders

  - Conflict = contradictory demands

  - Example:

    - Stakeholder A wants the system to shut down in case of failure.

    - Stakeholder B wants the system to restarts in case of failure.

- Unresolved conflicts threaten the project

  - Erode support by stakeholders

  - "Loosing" side in a conflict may cease to support the project

- Conflicts may provide opportunities

  - Force thinking about new concepts and solutions

Negotiation

Goals

- Resolve the conflicts between stakeholders

  - Even if a conflict cannot be resolved, negotiation helps with acceptance

  - Loosing party was involved an knows the reasons why they do not get the feature they wanted

- Gain a common and agreed-upon understanding of the requirements

  - Negotiation is closely related to the validation!

CONFLICT MANAGEMENT

Conflict Management

Conflict Identification

- Conflicts can arise at any point during the requirements engineering

  - Stakeholders may change their opinion at any point, leading do conflicts

  - Most conflicts identified during the interpretation

- Identification is the task of the requirements engineer

  - The only person involved with all stakeholders and a complete overview of the requirements

Conflict Management

Conflict Analysis

- The task of analyzing the reason for a conflict

  – Difficult to resolve a conflict without completely understanding it

- Various types of conflicts

  – Subject conflict

  – Conflict of interest

  – Conflict of value

  – Relationship conflict

  – Structural conflict

  – Mixed reasons

Conflict Management

Conflict Analysis – Types of Conflicts

- Subject Conflict

  – Caused by deficit of information, false information, or different interpretation of information

  – Example:

    - "The start-up time of the system does not exceed 2 seconds."

      - → Stakeholder A thinks this is too slow

      - → Stakeholder B thinks this is infeasibly fast

- Conflict of Interest

  – Stakeholders have different goals

  – Usually due to costs

    → Stakeholder A wants to minimize the costs

    → Stakeholder B desires a high quality system

Conflict Management

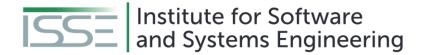## Conflict Analysis – Types of Conflicts

- Conflict of Value

  – Not related to monetary values!

  – Means values in the sense of principles

    - Stakeholder A wants open source

    - Stakeholder B wants closed source

- Relationship Conflict

  – Caused by stereotypical relationship concepts ("I just cannot stand the marketing guys"), communication deficits, or negative personal relationships

    - Stakeholder A and B are of equal importance

    - Stakeholder A tries to distinguish itself through forcing his requirements on the project

Conflict Management

Conflict Analysis – Types of Conflicts

- Structural Conflict

  - Caused by unequal levels of power

    - Superior rejects all input of an employee invariable

    - Important stakeholder A completely rejects opinions and suppresses requirements of less important stakeholder B

- Mixed reasons

  - Often a clear classification not possible

    - Stakeholder A wants open source due to their principles, but also due to cost objectives

    - Stakeholder B wants closed source due to their principles and does not care about potentially higher costs

→ Both conflict of interest and conflict of values

Conflict Management

Conflict Resolution

- Most important part of the conflict management

  - Fair resolution leads to acceptance by all stakeholders

  - Should involve all relevant stakeholders

- Various conflict resolution techniques

  - Agreement

  - Compromise

  - Voting

  - Definition of variants

  - Overruling

  - Consider-all-facts

  - Plus-minus-interesting

  - Decision matrix

Conflict Management

Conflict Resolution – Techniques

- Agreement

  – All conflict parties negotiate a solution to the conflict

  – Exchange of information, ideas, arguments, and opinions

  – Results in an agreeable solution for everyone

    • One of the alternatives is selected

- Compromise

  – All conflict parties try to find a compromise between alternative solutions

  – Difference to agreement:

    • Amalgamation of different parts of alternate solutions

    • Possibly a completely new alternative solution

Conflict Management

Conflict Resolution – Techniques

- Voting

  - All possible solution alternatives are presented to the relevant stakeholders

  - All conflict parties vote on solution alternatives

  - Alternative with the most votes is the accepted solution

- Definition of variants

  - The system is developed to allow multiple alternatives through configuration

    - System directly satisfies the needs of the stakeholder without restrictions

    - Usually associated with higher costs

Conflict Management

Conflict Resolution – Techniques

- Overruling
  - Conflicts are resolved by hierarchical means
  - The solution of the party higher up in the hierarchy is selected
    - If both parties are on the same level, a superior or third party decides
  - Only advisable if other techniques failed!

- Consider-all-facts
  - Not really a technique by itself
  - Precursor to plus-minus-interesting and decision matrix
  - As much information about the conflict as possible is collected
  - Influence factors are prioritized and their relevance is determined

Conflict Management

Conflict Resolution – Techniques

- Plus-minus-interesting

  - Not really a technique by itself

    - Can support other techniques, e.g., agreement

  - Positive repercussions are placed in a "plus" category

  - Negative repercussions are placed in a "minus" category

  - Neither positive repercussions are placed in a "interesting" category

Conflict Management

Conflict Resolution – Techniques

- Decision Matrix

  - Select relevant decision criteria for the conflict resolution

  - Assign a score from 0 to 10 to all alternative regarding for each criterion (Higher = better suited)
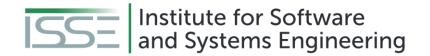
  - Highest sum of scores is elected

	Alternative 1	Alternative 2	Alternative 3
Criterion 1	3	6	2
Criterion 2	5	4	10
Criterion 3	10	3	5
Sum	18	13	17

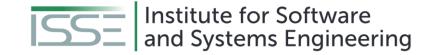# Conflict Management

Conflict Resolution – Documentation

- The resolutions to all conflicts must be documented in a traceable way

    – Who was involved in the resolution

    – Why was a specific alternative chosen

- Otherwise, problems may occur at a later stage

    – The same conflict may arise twice

        • With documentation, you can just point to the previous resolution

    – Inappropriate conflict resolution

        • Sometimes, the resolutions are dissatisfying and need to be reconsidered

        • Without documentation of the first resolution, the same mistakes may happen again

SUMMARY

Summary

- Negotiation deals with gaining a common understanding of the requirements

- Conflicts between stakeholders are resolved
  - Conflict management vital part of the negotiation

- After negotiation, a unified and agreed-upon understanding of requirements between all stakeholders exists

Questions?