

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 and 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 to 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:
 - Mix and match 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 nor negative 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?