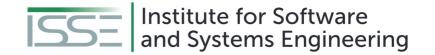


# **Requirement Engineering**

**Lecture 5: Negotiation** 

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## **General Requirements Engineering Process**

#### **Overview**

		Requirements Engineering			
	Requirem	ents 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 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 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 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 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 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 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





- 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





- 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





- 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



- 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

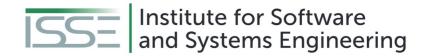




#### **Conflict Resolution - Documentation**

- 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?**