# A Proposal for Enhancing User-Developer Communication in Large IT Projects

Ulrike Abelein, Barbara Paech Institute of Computer Science, University of Heidelberg, Germany

{abelein,paech}@informatik.uni-heidelberg.de







### User Requirement

An invoice must be delivered to the customer via email



#### System Requirement

Should emails always be sent as the last step of a workflow-based system or should it be possible to send an email after an invoice generation?



End User

### No information about decision, thus end users do not recognize their requirements in the acceptance phase

- No capture of options, criteria and rationale, thus end users do not feel integrated in the project
- Low acceptance of the software and a low motivation to participate in large IT projects



# **Solution Ideas**

We want to extends software development and project management methods by enhancing communication between users and developers to enable a better project integration of users and improve system success. Therefore we identified four aspects: granularity level on which to communicate with the users, trigger points when to start communication, representations of changes and means of communications.

## **Granularity Level**

**Trigger Points** 

- Communication with users is structured by the abstraction levels of Task oriented Requirement Engineering (TORE)
- Most discussions will be on the domain level (e.g. changes on features)

## **Means of Communication [1]**

Decision

Changes to be approved by the management

**Proposed Communication** 



Discussion in meetings (face-to-face or videoconferences)



Use of lean communication (email or a central wiki)

• To start communication decisions taken in the refinement of agreed user requirements should be used as trigger points

### **Representation of Changes**

responsibilities

• Existing documentation for content representation and highlighting of occurring changes should be used

management about changes

Informing end users or

Changes to be approved or consulted by end users

All captured rationale of decisions should be available to all project members

Α



Use of media rich face-to-face workshops or an online meeting place



Use of an lean medium (wiki)

## **Responsibility Matrix**

R = Responsible, A = Approver

# **Further Research**

C = Consulted, I = Informed

С

1	2		
Abstraction level - based on [2]	Changes / decisions in	Mgmt. of users	End users
Project level – definition of scope and resources of the project	Cost allocation	(R),A,C	b
	Timing (go-live dates)	Α	С
Business process level – composition of activities in business processes	Business processes	a A	С
Task level – understanding of user	Responsibilities of users	Λ	<b>C</b>

(roles and tasks)

### **Open questions**

- How can we represent the rationale of decisions?
- How can we represent changes in detail to draw comparisons to previous versions?
- How can we integrate changes or decisions of non-functional requirements?

Domain level – definition of system scope	To-be activities		C A,C
	Features	b	A,C
	Domain data		A,C
Interaction level – distribution of activities between humans and system(s)	Workflow of the system	-	A,C
	User Interface (incl. Input/Output)		A,C
System level – internals of the application core and of the GUI	Technology	a (A), C	b

#### Next steps

• Refinement of our method (e.g. when should which decisions be communicated to which user group?)

 Validation of our approach in case studies to ensure feasibility, if possible in real life IT projects.

#### References

[1] R. L. Daft and R. H. Lengel, "Organizational Information Requirements, Media Richness and Structural Design," Management Science, vol. 32, no. 5, May 1986, pp. 554-571 [2] B. Paech and K. Kohler, "Task-driven requirements in object-oriented development," in Doorn, Jorge. Perspectives on Software Requirements., Boston, MA: Kluwer Academic Print., 2004, pp. 1-25

This work is presented at the 5<sup>th</sup> International Workshop on Cooperative and Human Aspects of Software Engineering (CHASE 2012) at the ICSE 2012 Zurich, June 2nd, 2012