

The Role of Creativity in

Requirements Engineering

Outline

- Introduction
- Techniques to introduce Creativity
- Issues
- Conclusion

Introduction

Software implements Requirements

- Requirements are specified what involves:
 - Gain Requirements
 - Analyze Requirements
 - Document Requirements
 - Validate Requirements

How to Gain Requirements

- Talk to stakeholders
- Observe processes
- Study documents

So what is the Problem?

- *“Everything that can be invented, has been invented”*. (Charles H. Duell, Commissioner, U.S. Office of Patents, 1899)
- “This ‘telephone’ has too many shortcomings to be seriously considered as a means of communication.” (Western Union internal memo 1876)

So what is the Problem? - II

- Stakeholders worked for decades in the domain
- Organizational processes are inflexible and dull

Creativity: The Solution to the Problem

- “*Think out of the box!*” may lead to new insights over several domains
- Creativity is a key enabler for innovation as history has shown
- Do not miss these opportunities in Requirements Engineering!

Creativity in Requirements Engineering

Maiden: Setup

- Maiden 2004 / Maiden 2005
- Workshops
- Starting activities
 - Explanations why creativity is difficult
 - Balloons: Play & interact
 - Shouting sessions
 - Relaxing music
 - Launchtime exercises

Maiden: Techniques 1 / 2

- Exploratory creativity: Analogical reasoning
 - Invite experts from similar domains
 - Find analogies and generate new ideas
- Worst case scenarios
 - Special method: Give the groups every ten minutes a new object to include in the scenario
- Combinatorial creativity
 - Investigate pairs of requirements to create new ones

Maiden: Techniques 2 / 2

- Transformational creativity: „Change the solution space“
 - Make ideas possible once considered impossible
 - Remove constraints
- Storyboards
- Additional techniques
 - Make ideas visible by posting them on cards
 - Swap ideas between groups

Maiden: Issues

- Analogical reasoning
 - Provide step-by-step guidance
 - The domains must be carefully selected
- Time is needed
- People are not ready for being creative
- Plan
- Workshops are expensive

General: Thoughts

- Alternative solutions
 - Is such a setup really needed?
 - Brainstorming, Clusters, Mind Maps
- Is the „traditional“ way a way without creativity?
 - No of course not

Conclusion

- Creativity is
 - Useful or even required
 - Maybe expensive