

Requirements Reuse and Patterns: A Survey

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Engineering: Foundation for Software Quality



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Outline

1. Context
2. Research Method
3. Survey Results
4. Validity
5. Conclusions & Future work

Context

PABRE Framework (PAtterns Based Requirements Elicitation)

SRP
(Software
Requirement
Patterns)

Heavily relies on
empirical work

Created by:

- **GESSI@UPC**
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Survey

- 1) Requirements reuse state of the practice
- 2) PABRE requirement patterns opinion

Research Method

Research Questions

- RQ1** Is requirements reuse a usual practice in current RE processes?
- RQ2** Which benefits and drawbacks can appear from the use of a catalogue of SRP?

Design

- 8 sections
- 33 questions

Data Points

- Practitioners
- Researchers with RE industrial experience

Channel

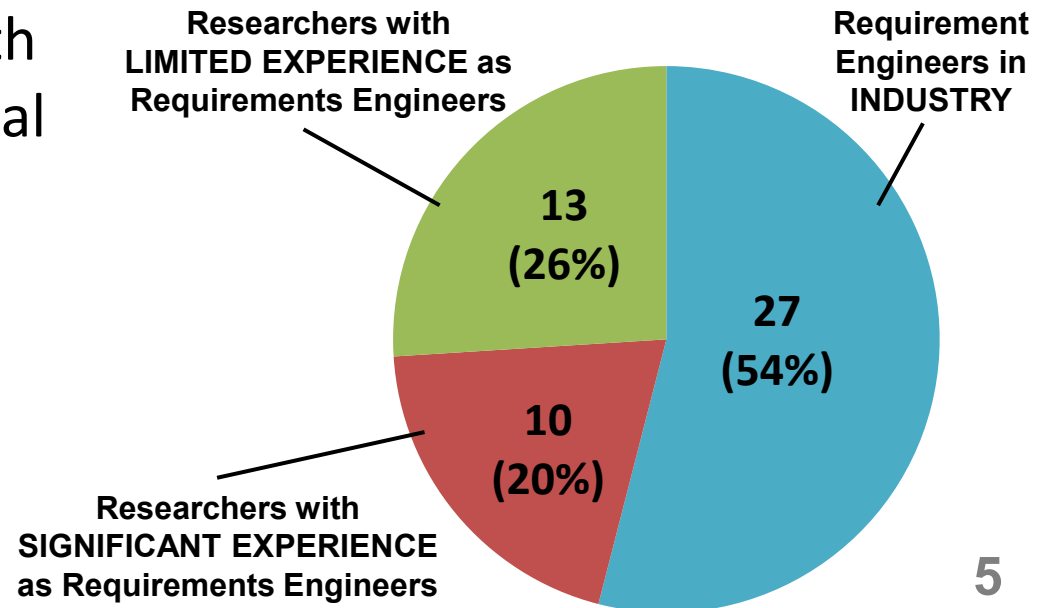
- Online
- Started at REFSQ'13
- Open to RE community afterwards

Data Analysis

- Descriptive statistics
- Content analysis

Survey Results

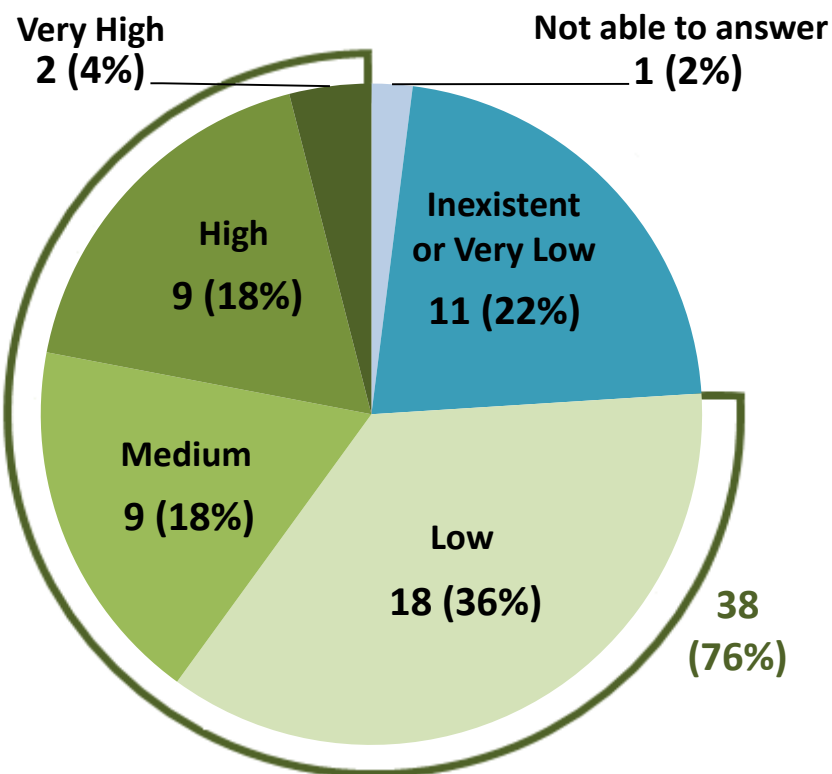
- Preliminary results analysis
- 50 completed responses...
- ... coming from 19 countries...
 - Europe → 21 participants (42%)
 - North America → 15 participants (30%)
- ...and most of them with significant RE industrial experience



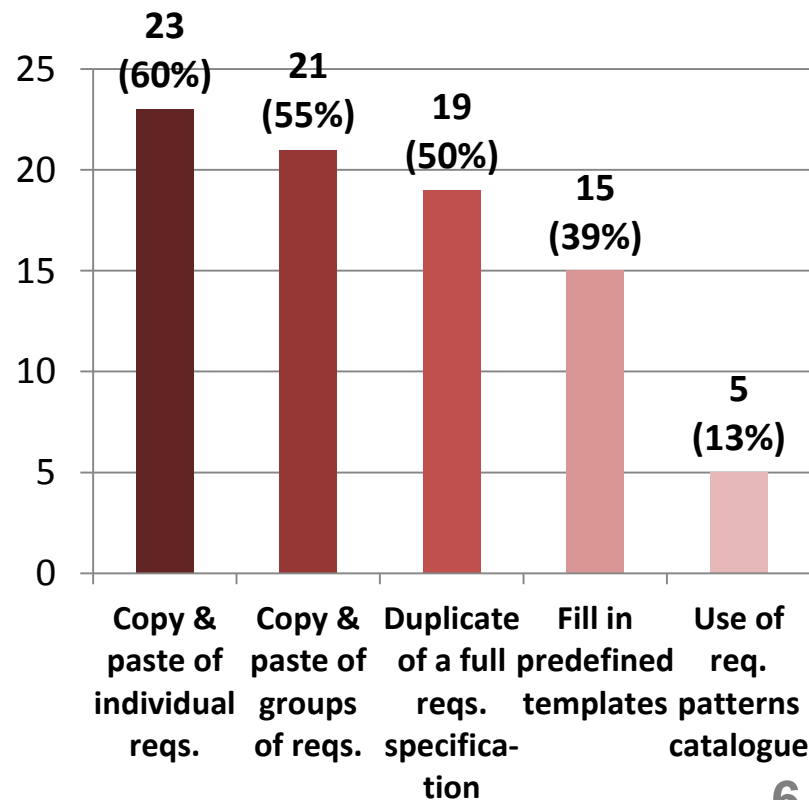
Survey Results: RQ1 (i)

RQ1: Is requirements reuse a usual practice in RE processes?

Requirements Reuse Level



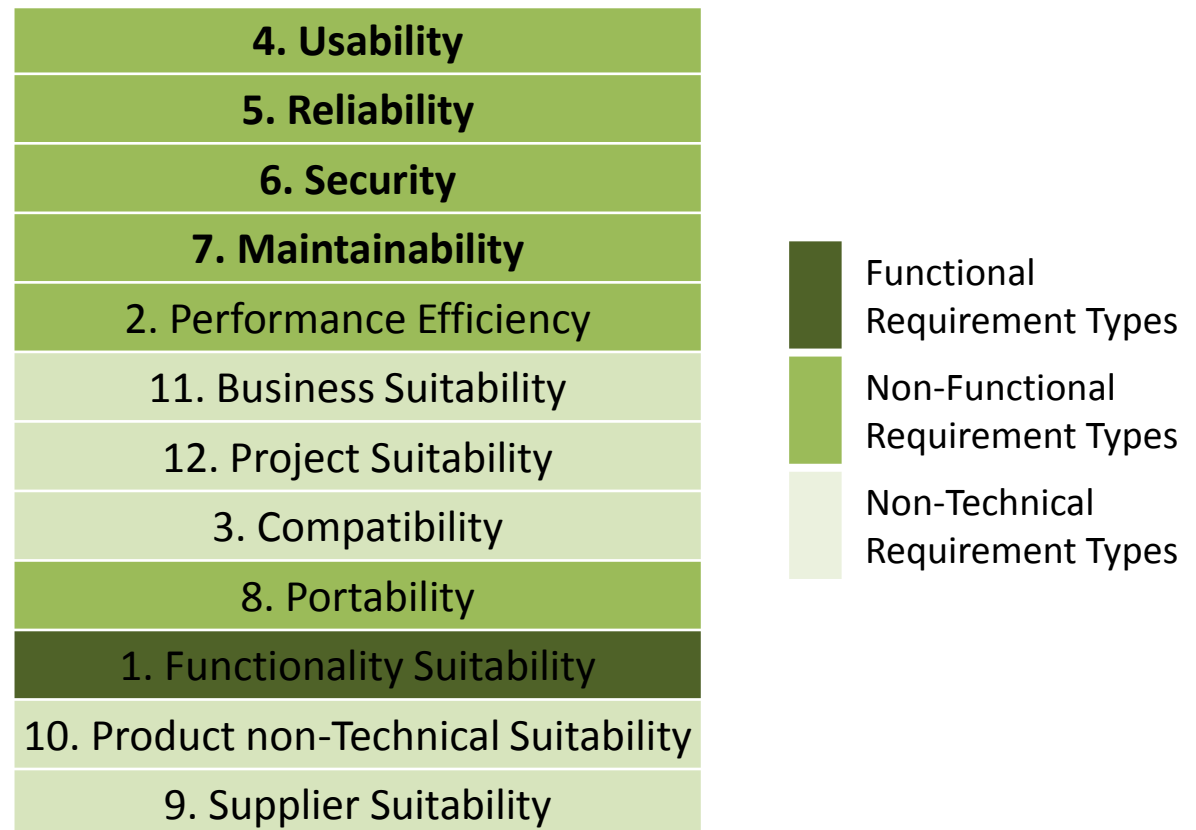
Requirements Reuse Techniques



Survey Results: RQ1 (ii)

RQ1: Is requirements reuse a usual practice in RE processes?

Requirements Types more Similar between Projects



Survey Results: RQ2 (i)

RQ2: Which benefits and drawbacks can appear from the use of a catalogue of SRP?

Problems ameliorated by using a SRP catalogue

Lack of requirements uniformity
Incompleteness of requirements specification
Requirements ambiguity
Too little time invested in requirements elicitation
Requirements non-verifiable
Too much time spent in requirements elicitation
Stakeholders do not know exactly their needs
Stakeholders needs' change during the elicitation process
Requirements inconsistency
Lack of requirements. traceability
Lack of requirements quantification
Lack of requirements prioritization
Conflicts among needs stated by stakeholders

Survey Results: RQ2 (ii)

RQ2: Which benefits and drawbacks can appear from the use of a catalogue of SRP?

Critical factors for introducing a SRP catalogue

Well-defined use method
Tool support
Community of users existence
Training courses
Help desk

- *Ready-to-use SRP catalogue*
- *Free trials periods*
- *Success cases*

Barriers to adopt successfully a SRP catalogue

Resistance of req. engineers to change
Integration of the catalogue with the existing req. engineering processes
Risk of converting requirements elicitation in a stiff process
Amount of reusable knowledge necessary to create and maintain

- *Lack of management support*

Validity

- Questionnaire design: avoid errors and misunderstandings
 - Glossary
 - Open-text fields
 - Pilots
- Low response-rate
 - Engage participants
- Sampling validity
 - Random sampling
- Results generalization

Conclusions & Future Work

- Requirements reuse is not a widespread practice
- SRP could help to ameliorate common problems in requirements specifications
 - Lack of uniformity, Incompleteness, Ambiguity
- Critical aspects for adopting SRPs
 - Staff and management support
 - Well-defined method
 - Tool support
- Future work
 - More responses
 - Analyse pure researchers' answers
 - Correlation and cluster analysis

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THANK YOU!!!!

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<http://www.upc.edu/gessi/PABRE/Survey.html>



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