This document contains all the questions of the survey *"Requirements Reuse and Patterns"*.

Originally, the survey was initiated at *19th International Working Conference on Requirements Engineering: Foundation for Software Quality* (REFSQ 2013) by the same authors. The survey is already closed.

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About your Context and Work Experience

This question is crucial for the questionnaire. It asks about your experience in industry, which is of course determinant in your knowledge about requirements engineering practices, therefore the answer you give determines the flow of the survey.

- *In case your answer is **Industry** or **Academy but with significant experience in Industry** the rest of the questionnaire will be about your experience as Requirements Engineer in Industry.*
- *In case your answer is **Academy with some knowledge of Industry practices** the rest of the questionnaire will be about your (probably limited but still real) knowledge about Requirements Engineering practices followed in Industry.*
- *In case your answer is **Academy without any exposure to Industry** the rest of the questionnaire will be about your opinions, expectations and beliefs about some Requirements Engineering practices, or to your academic experience.*

Q0. Your experience as Requirements Engineer comes from:
Choose one of the following answers

- ○ Industry (*go to page 3*)
- ○ Academy with a significant experience in Industry projects (*go to page 3*)
- ○ Academy with some knowledge of Industry practices (*go to page 3*)
- ○ Academy without any exposure to Industry (*go to page 21*)

REQUIREMENTS REUSE AND PATTERNS

EMPIRICAL STUDY

VERSION FOR PEOPLE WITH INDUSTRIAL EXPERIENCE ON REQUIREMENTS ENGINEERING

In case your experience as Requirements Engineer comes from industry, because you have participated on developing projects in an industrial environment. This questionnaire will be about your experience as Requirements Engineer in Industry.

Introduction

Requirements reuse has been proposed as a key asset for requirements engineers to efficiently elicit, validate and document software requirements and as a consequence, obtain software requirement specifications of better quality through more effective engineering processes.

One of the existent approaches to requirements reuse is based on the existence of Software Requirement Patterns. The goal of this online questionnaire can be defined as follows: to know requirements engineering practices related with essential aspects for the definition of such patterns, and analyze their current and potential use in industry.

It is mandatory to fill all fields marked with (*).

About your Context and Work Experience

All the questions below refer to your work and experience as Requirements Engineer. Do not consider other positions or assignments in your answers.

All the questions refer to your experience in the projects in which you have participated as Requirements Engineer.

Q1. How did you now about this survey?
Choose one of the following answers

- ◦ At REFSQ'13
- ◦ I saw publicity in the REFSQ'13 website
- ◦ I saw publicity in any other media (please, specify _____)

*** Q2.** What is your educational background (highest degree obtained so far)?
Choose one of the following answers

- ◦ BSc
- ◦ MSc
- ◦ PhD
- ◦ Other: _____

Q3. What professional certificates do you have? (Examples are ITIL, IREB, etc.)

_____

*** Q4.** How many years have you worked in industry?
Choose one of the following answers

- ◦ <5 years
- ◦ 5..10 years
- ◦ 11..15 years
- ◦ >15 years

*** Q5.** How many different companies have you worked for?
Choose one of the following answers

- ◦ 1 company
- ◦ 2..5 companies
- ◦ 5..10 companies
- ◦ >10 companies

*** Q6.** How many projects have you participated in?

Choose one of the following answers

- ○ 1..5 projects
- ○ 6..10 projects
- ○ 11..15 projects
- ○ >15 projects

*** Q7.** Which is the sector where you have acquired most of your experience? Select just those options in which your experience is significant.

Check any that apply

- □ Automotive
- □ Consulting
- □ Customer relationship management
- □ E-commerce
- □ Education
- □ Embedded systems
- □ Finance
- □ Healthcare
- □ Human resources
- □ Insurance
- □ Manufacturing
- □ Power distribution
- □ Public administration
- □ IT Provider
- □ Telecommunication
- □ Transportation
- □ Travel
- □ Other: _____

*** Q8.** What is the size of company which you have worked for /collaborated with (number of employees)? Select just those options in which your experience is significant.

Check any that apply

- □ <10 employees
- □ 10..49 employees
- □ 50..499 employees
- □ 500..4.999 employees
- □ >5.000 employees

*** Q9.** In which country have you mainly developed your professional activity? In case there is more than one significant country, list all of them.

_____

*** Q10.** Do you have experience on academic research?

Choose one of the following answers

- ○ No experience as researcher
- ○ <5 years
- ○ 5..10 years
- ○ 11..15 years
- ○ >15 years

About Requirements Engineering Practices

The following questions are about general aspects of the projects in which you have participated, and specific aspects of the requirements engineering practices applied.

All the questions refer to your experience in the projects in which you have participated as Requirements Engineer.

*** Q11.** What languages were used to write requirements?
Check any that apply

- □ Natural Language without a specific approach
- □ Use Cases or other scenario-based approach
- □ UML
- □ Goal-oriented Languages (which one: _____)
- □ Other: _____

*** Q12.** What standards or templates were followed to write requirements specifications?
Check any that apply

- □ I never or very rarely have used any standard or template
- □ Volere
- □ IEEE 830
- □ Company established template
- □ Personal template
- □ Other: _____

*** Q13.** What classification schemas were used for organizing requirements specifications?
Check any that apply

- □ I never or very rarely have used any classification schema
- □ Volere
- □ ISO 9126-1
- □ ISO 25010
- □ Company established classification schema
- □ Personal classification schema
- □ Other: _____

*** Q14.** What elicitation methods were followed in meetings with customers?
Check any that apply

- □ I never or very rarely have used any elicitation method
- □ Interviews
- □ Workshops
- □ Focus Groups
- □ Observations
- □ Questionnaires
- □ Perspective-based reading
- □ Other: _____

About Requirements Engineering Problems

This part of the questionnaire is related to the problems you came across during the requirements elicitation processes in which you participated and in the requirements specifications built.

All the questions refer to your experience in the projects in which you have participated as Requirements Engineer.

Q15. Each of the following problems was common during requirements elicitation in your projects. *(1=Totally agree, 2=Agree, 3=Neutral, 4=Disagree, 5=Totally disagree)*

	Rate (1..5)
Stakeholders did not know exactly their needs	
There were conflicts among the needs stated by stakeholders	
The needs stated by stakeholders changed during the requirements elicitation process	
There was too much time spent in requirements elicitation	
The time invested in requirements elicitation was too little	
Some requirements were missing at the end	

Q16. If you think that some common problem during requirements elicitation in your projects is missing in the list above, specify it and rate it.

	Problem Definition	***Rate (1..5)***
1		
2		
3		

Q17. Each of the following problems was common in the requirements specification documents built in your projects. (1=Totally agree, 2=Agree, 3=Neutral, 4=Disagree, 5=Totally disagree)

	Rate (1..5)
Ambiguity	
Incompleteness	
Inconsistency	
Lack of prioritization	
Non-verifiableness	
Lack of traceability	
Lack of uniformity	
Lack of quantification	

Q18. If you think that some common problem in requirements specification documents built in your projects is missing in the list above, specify it and rate it.

	Problem Definition	***Rate (1..5)***
1		
2		
3		

About Observations on Requirements

For the questions in this block, we use the following requirement classification that is based on the first level of the software quality model proposed in the standard ISO/IEC 25010. Specifically, the standard has been extended with four additional non-technical categories that correspond to requirements that are not about the intrinsic characteristics of software products, but about their context (price, licensing schemas, etc). ***All the questions that follow refer to this classification.***

All the questions refer to your experience in the projects in which you have participated as Requirements Engineer.

Non-Functional Categories	**1. Functionality Suitability**	Degree to which a product or system provides functions that meet stated and implied needs when used under specified conditions.
	2. Performance Efficiency	Performance relative to the amount of resources used under stated conditions.
	3. Compatibility	Degree to which a product, system or component can exchange information with other products, systems or components, and/or perform its required functions, while sharing the same hardware or software environment.
	4. Usability	Degree to which a product or system can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use.
	5. Reliability	Degree to which a system, product or component performs specified functions under specified conditions for a specified period of time.
	6. Security	Degree to which a product or system protects information and data so that persons or other products or systems have the degree of data access appropriate to their types and levels of authorization.
	7. Maintainability	Degree of effectiveness and efficiency with which a product or system can be modified by the intended maintainers.
	8. Portability	Degree of effectiveness and efficiency with which a system, product or component can be transferred from one hardware, software or other operational or usage environment to another.
Non-Technical Categories	**9. Supplier Suitability**	Degree to which the supplier of the product or system suits the needs of the customer.
	10. Product Non-Technical Suitability	Degree to which commercial aspects of the product or system suit the needs of the customer.
	11. Business Suitability	Degree to which business aspects of the contract among the supplier and the customer suit the needs of the customer.
	12. Project Suitability	Degree to which the stages, management and scheduling aspects of project as written in the contract suit the needs of the customer.

*** Q19.** The requirements in each of the categories above were quite similar from project to project. (*1=Totally disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Totally agree*)

	Rate (1..5)
1. Functionality Suitability	
2. Performance Efficiency	
3. Compatibility	
4. Usability	
5. Reliability	
6. Security	
7. Maintainability	
8. Portability	
9. Supplier Suitability	
10. Product Non-Technical Suitability	
11. Business Suitability	
12. Project Suitability	

Q20. If you think that some requirement category is missing in the classification above, specify it (with a brief definition) and rate it.

	Name	***Definition***	***Rate (1..5)***
1			
2			
3			

Q21. Indicate which were the 3 categories whose requirements were more complex to elicit.

1. _____
2. _____
3. _____

Q22. Indicate which were the 3 categories whose requirements were more prioritary.

1. _____
2. _____
3. _____

□ The priority was too different from project to project.

Q23. Indicate which were the 3 categories whose requirements were more difficult to quantify.

1. _____
2. _____
3. _____

About Reuse during Requirements Engineering

The following questions are about your experience of current practices on requirements reuse in industry and which are these practices.

All the questions refer to your experience in the projects in which you have participated as Requirements Engineer.

*** Q24.** How would you rate the level of requirements reuse?

Choose one of the following answers

- ○ 0 (not able to answer)
- ○ 1 (inexistent or very low)
- ○ 2 (low)
- ○ 3 (medium)
- ○ 4 (high)
- ○ 5 (very high)

IMPORTANT! Only answer the following question if the answer to the previous question is not 0 or 1.

*** Q25.** How was requirements reuse usually implemented?

Check any that apply

- □ Copy and paste individual existing requirements in the requirements specification under construction.
- □ Copy and paste of groups of existing requirements in the new requirements specification under construction.
- □ Duplicate a full existing specification and work selectively in its parts as needed.
- □ Fill in predefined templates.
- □ Use of a requirements patterns catalogue. If possible, provide some reference or URL: _____
- □ It varies depending on the project.
- □ Others: _____

Software Requirement Patterns

In order to facilitate the answer of the survey, let's assume in the following questions that:

- A **Software Requirement Pattern (SRP)** consists on natural language templates for generating those requirements that are related to a specific objective (goal), as well as some information to identify its adequacy to a particular project and how it may be tailored to the project.

- A **catalogue of software requirement patterns (SRP catalogue)**, together with the adequate reuse processes and tool support, may exist to facilitate the classification, search and recommendation of suitable software requirement patterns for a specific project.

About Reuse through Patterns

This block of questions is about your opinion of the benefits that requirements reuse could bring to companies and possible barriers to adoption.

All the questions refer to your opinion as Requirements Engineer.

Q26. Could the problems in the following list, which are common problems in Requirements Engineering, be ameliorated by the existence of an SRP catalogue? *(1=At all, 2=Somehow, 3=A lot)*

	Rate (1..3)
Stakeholders do not know exactly their needs	
There are conflicts among the needs stated by stakeholders	
The needs stated by stakeholders change during the requirements elicitation process	
There is too much time spent in requirements elicitation	
The time invested in requirements elicitation is too little	
Some requirements are missing at the end	
Incompleteness of requirements specification	
Ambiguity of requirements	
Inconsistency of requirements	
Non-verifiableness of requirements	
Lack of requirements prioritization	
Lack of requirements traceability	
Lack of requirements uniformity	
Lack of requirements quantification	

Q27. If you think that some Requirements Engineering problem is missing in the list above, specify it and rate it.

	Problem	***Rate (1..3)***
1		
2		
3		

Q28. Each of the following factors may be critical in the introduction of an SRP catalogue in a company. (*1=Totally disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Totally agree)*

	Rate (1..5)
Existence of tool support	
Existence of a well-defined method	
Offering of training courses	
Existence of a help desk	
Existence of a community of users	

Q29. If you think that some critical factor is missing in the list above, specify it and rate it.

	Critical Factor	***Rate (1..5)***
1		
2		
3		

Q30. Each of the following facts may represent a barrier to the successful adoption of an SRP catalogue by companies. **(***1=Totally disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Totally agree)*

	Rate (1..5)
The integration of the catalogue with the existing requirement engineering processes	
The resistance of requirement engineers to change	
The risk of converting requirement elicitation in a stiff process	
The amount of reusable knowledge that is necessary to create and maintain	

Q31. If you think that some barrier fact is missing in the list above, specify it and rate it.

	Barrier Fact	***Rate (1..5)***
1		
2		
3		

IMPORTANT! Only answer the following block of questions if:

- ***The answer to Q24 is equal to 1***

About Why Requirements Reuse is not Adopted in Companies

The following questions are related to your opinion about why requirements reuse was not adopted in companies.

All the questions refer to your experience in the projects in which you have participated as Requirements Engineer.

*** Q32.** Why companies did not adopt requirements reuse methods or techniques?
Check any that apply

- □ Their projects were very different one from each other.
- □ They tried but didn't succeed.
- □ They considered it too complex.
- □ They didn't think it would bring any benefit in the long run.
- □ Even if it may provide benefit, the initial investment was too high.
- □ They didn't know how.
- □ Others: _____

Q33. Which are the aspects that requirements reuse proposals made by researchers were missing and thus not applied in the projects in which you have participated?

Thank you!

Thank you for taking the time to answer this questionnaire. We will appreciate if you take some more minutes to complete the final remarks.

- If you want us to send you the results once we finish the analysis, please provide us the following information:
  - Name: _____
  - E-mail: _____

- Time spent on completing the questionnaire (minutes): ____

- Any clarification about your answers:

- Any comment with respect to the questionnaire:

If you have any doubt or comment about this questionnaire, contact us at cpalomares@essi.upc.edu.

For more information about Software Requirement Patterns visit:

http://www.upc.edu/gessi/PABRE/

REQUIREMENTS REUSE AND PATTERNS

EMPIRICAL STUDY

VERSION FOR RESEARCHERS WITH NO EXPOSURE TO INDUSTRY

In case your experience as Requirements Engineer comes from pure academy without any exposure to industry. This questionnaire will be about your opinions, expectations and beliefs about some Requirements Engineering practices, or to your academic experience.

Introduction

Requirements reuse has been proposed as a key asset for requirements engineers to efficiently elicit, validate and document software requirements and as a consequence, obtain software requirement specifications of better quality through more effective engineering processes.

One of the existent approaches to requirements reuse is based on the existence of Software Requirement Patterns. The goal of this online questionnaire can be defined as follows: to know requirements engineering practices related with essential aspects for the definition of such patterns, and analyze their current and potential use in industry.

It is mandatory to fill all fields marked with (*).

About your Context and Work Experience

With the following questions we ask you about some personal and experience aspects relevant during the analysis of the survey results.

Q1. How did you now about this survey?
Choose one of the following answers

- ◦ At REFSQ'13
- ◦ I saw publicity in the REFSQ'13 website
- ◦ I saw publicity in any other media (please, specify _____)

*** Q2.** What is your educational background (highest degree obtained so far)?
Choose one of the following answers

- ◦ BSc
- ◦ MSc
- ◦ PhD
- ◦ Other: _____

Q3. What professional certificates do you have? (Examples are ITIL, IREB, etc.)

_____

*** Q4.** How many years have you been in academy?
Choose one of the following answers

- ◦ <5 years
- ◦ 5..10 years
- ◦ 11..15 years
- ◦ >15 years

*** Q5.** What is the size of your organization (number of employees)?
Choose one of the following answers

- ◦ <10 employees
- ◦ 10..49 employees
- ◦ 50..499 employees
- ◦ 500..4.999 employees
- ◦ >5.000 employees

*** Q6.** Which country does your organization belong to?

_____

*** Q7.** What is your position?
Choose one of the following answers

- ○ PhD Student
- ○ Postdoc Position
- ○ Research Assistant
- ○ Senior Researcher
- ○ Professor
- ○ Director of a Research Lab
- ○ Researcher in a Research Lab
- ○ Other: _____

*** Q8.** What activities have you been involved in?
Check any that apply

- □ Doing research
- □ Teaching
- □ Sporadic participation in some industrial project
- □ Other: _____

About Requirements Engineering Practices

The following questions are about general aspects of the practices you have observed in your academic projects, and specific aspects of the requirements engineering practices applied.

All the questions refer to the academic activities (basically, project assignments) in which you have participated related to Requirements Engineering activities.

*** Q9.** What languages have you used or taught to write requirements?
Check any that apply

- □ Natural Language without a specific approach
- □ Use Cases or other scenario-based approach
- □ UML
- □ Goal-oriented Languages (which one: _____)
- □ Other: _____

*** Q10.** What standards or templates have you used or taught to write requirements specifications?
Check any that apply

- □ I never or very rarely have taught or explained any standard or template
- □ Volere
- □ IEEE 830
- □ An organization established template
- □ My own template
- □ Other: _____

*** Q11.** What classification schemas have you used or taught for organizing requirements specifications?

Check any that apply

- □ I never or very rarely have used or taught any classification schema
- □ Volere
- □ ISO 9126-1
- □ ISO 25010
- □ An organization classification schema
- □ My own classification schema
- □ Other: _____

*** Q12.** What elicitation methods have you used or taught?

Check any that apply

- □ I never or very rarely have used or taught any elicitation method
- □ Interviews
- □ Workshops
- □ Focus Groups
- □ Observations
- □ Questionnaires
- □ Perspective-based reading
- □ Other: _____

About Requirements Engineering Problems

This part of the questionnaire is related to the problems you have experienced in the requirements specifications built in your academic activities.

All the questions refer to the academic activities (basically, project assignments) in which you have participated related to Requirements Engineering activities.

Q13. Each of the following problems is common in requirements specification documents built in your academic projects. *(1=Totally agree, 2=Agree, 3=Neutral, 4=Disagree, 5=Totally disagree)*

	Rate (1..5)
Ambiguity	
Incompleteness	
Inconsistency	
Lack of prioritization	
Non-verifiableness	
Lack of traceability	
Lack of uniformity	
Lack of quantification	

Q14. If you think that some common problem in requirements specification documents built in your academic projects is missing in the list above, specify it and rate it.

	Problem Definition	***Rate (1..5)***
1		
2		
3		

Thank you!

Thank you for taking the time to answer this questionnaire. We will appreciate if you take some more minutes to complete the final remarks.

- If you want us to send you the results once we finish the analysis, please provide us the following information:
  - Name: _____
  - E-mail: _____

- Time spent on completing the questionnaire (minutes): ____

- Any clarification about your answers:

- Any comment with respect to the questionnaire:

If you have any doubt or comment about this questionnaire, contact us at cpalomares@essi.upc.edu.

For more information about Software Requirement Patterns visit:

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