

This document contains an excerpt of the survey “*Requirements Reuse and Patterns*”. Specifically, it contains the questions whose results have been analysed for a paper submitted to [REFSQ'14](#) by Cristina Palomares, Carme Quer and Xavier Franch (see footer for more authors' information).

A completed version of the online survey could be found in:

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

Originally, the survey was initiated at *19th International Working Conference on Requirements Engineering: Foundation for Software Quality (REFSQ 2013)* by the same authors, although it is still open to gather as much data points as possible.

Cristina Palomares
cpalomares@essi.upc.edu

Carme Quer
cquer@essi.upc.edu

Xavier Franch
franch@essi.upc.edu



[GESSI](#) Research Group, Universitat
Politécnica de Catalunya ([UPC](#)),
Barcelona, Spain

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 11*)
- Academy without any exposure to Industry (*Survey not included in this document*)

REQUIREMENTS REUSE AND PATTERNS

EMPIRICAL STUDY

(VERSION FOR INDUSTRY PEOPLE AND ACADEMY WITH SIGNIFICANT EXPERIENCE IN INDUSTRY PROJECTS)

In case your experience as Requirements Engineer comes from industry, because your work consists mainly on developing projects in an industrial environment or because you are a researcher with significant experience in industry projects. This questionnaire will be about your experience as Requirements Engineer in Industry.

This survey is part of an empirical study done at *19th International Working Conference on Requirements Engineering: Foundation for Software Quality (REFSQ 2013)*.

If you have any doubt or comment about this survey, please contact one of the authors:

Cristina Palomares
cpalomares@essi.upc.edu

Carme Quer
cquer@essi.upc.edu

Xavier Franch
franch@essi.upc.edu



[GESSI](#) Research Group, Universitat Politècnica de Catalunya ([UPC](#)), Barcelona, Spain

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 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	

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		

REQUIREMENTS REUSE AND PATTERNS

EMPIRICAL STUDY

(VERSION FOR ACADEMY WITH SOME KNOWLEDGE OF INDUSTRY PRACTICES)

In case your experience as Requirements Engineer comes from academy, but you also have some knowledge of industry practices. This questionnaire will be about your knowledge, probably limited but still real, about Requirements Engineering practices followed in Industry.

This survey is part of an empirical study done at *19th International Working Conference on Requirements Engineering: Foundation for Software Quality* ([REFSQ 2013](#)).

If you have any doubt or comment about this survey, please contact one of the authors:

Cristina Palomares
cpalomares@essi.upc.edu

Carme Quer
cquer@essi.upc.edu

Xavier Franch
franch@essi.upc.edu



[GESSI](#) Research Group, Universitat Politècnica de Catalunya ([UPC](#)), Barcelona, Spain

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 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 observation of Requirements Engineering industrial practices.

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.

* **Q17.** The requirements in each of the categories above are quite similar from project to project. (1=Totaly disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Totaly 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	

About Reuse during Requirements Engineering

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



All the questions refer to your observation of Requirements Engineering industrial practices.

* **Q22.** 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.

* **Q23.** How do companies usually implement requirements reuse?

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.

- Q24.** 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	

- Q25.** 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		

Q26. 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	

Q27. 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		

Q28. 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	

Q29. 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		