

## Interested in improving your requirements engineering process? Try requirement patterns!

Xavier Franch<sup>1</sup>, Cindy Guerlain<sup>2</sup>, Cristina Palomares<sup>1</sup>, Carme Quer<sup>1</sup>, Samuel Renault<sup>2</sup>

<sup>1</sup> GESSI Research Group, Universitat Politècnica de Catalunya (UPC), Barcelona, Spain  
{franch, cpalomares, cquer}@essi.upc.edu

<sup>2</sup> SSI Department, CRP Henri Tudor, Luxembourg, Luxembourg  
{cindy.guerlain, samuel.renault}@tudor.lu

### Introduction

Requirement elicitation is the process of acquiring the system requirements from the system stakeholders. This process is critical in all software projects: if not all the requirements are elicited, or if some elicited requirements do not describe real stakeholder needs, or if the quality of the requirements is poor (e.g., they suffer from ambiguities), the chance of project failure increases.

Techniques supporting requirements elicitation (interviews, meetings, storyboards...) are mostly oriented to obtain requirements from scratch and they may hardly take advantage of a fundamental observation:

When specifying a system, it is quite usual that a significant proportion of requirements is recurrent and belongs to a relatively small number of categories, especially in the case of non-functional requirements.

Our motivation is to consider this observation for improving the effectiveness of the requirement elicitation process. We are using the concept of software requirement pattern [1] (SRP). An SRP basically consists of a template that generates one or more requirements, and some information to identify its need in a particular project, and how it may be tailored to this project.

The main benefits of using SRPs may be summarized as: 1) more effective requirement elicitation (requirements are not built from scratch; a process guides the engineer by giving advices, suggesting information, ...); 2) improved quality and consistency of requirements documents (by using a uniform style); 3) improved requirements management (e.g., clear traceability from requirements to goals).

### What have we done?

The GESSI-UPC and SSI-CRPHT departments have built a framework, PABRE, for integrating the concept of SRP in the requirements elicitation [2]. PABRE has been designed and validated from the postmortem analysis of real projects in Luxembourg and the vicinity area. As result of this collaboration, PABRE embraces several assets (see <http://www.upc.edu/gessi/PABRE/index.html> for details):

- A catalogue of 32 SRPs for non-functional requirements (related to concepts like security, performance, availability, etc).
- Tool Support - two subsystems: one for catalogue management, one for pattern application.
- A method for guiding the elicitation process using patterns.

### **Wanted from industry: which collaboration scenarios are possible?**

We distinguish three different scenarios, depending on the desired interaction among all the parties and the exploitation of the offered assets:

- Free experimentation. For organizations interested on exploring our framework. GESSI-SSI will provide demo versions of the catalogue and the tool, the method and off-line training support. The organization will be allowed to use these assets for an established period of time. At the end, the organization will fill a feedback form (short questionnaire) and present in a 2-hour wrap-up meeting.
- Guided experimentation. For organizations interested on using our framework in a specific project without any modification. GESSI-SSI will provide the catalogue, the tool and the method and a 4-hour training to the project team. The organizations will be allowed to use the assets for an established project, and during it we will provide support under request and agreed terms. At the end of the project there will be an assessment meeting and an assessment report of the experience will be written by the organization. Also the requirement book resulting from the project will be made available to GESSI-SSI.
- Assets customization. For organizations that want to customize our assets for their specific context. The scope both in domain and time will be negotiable. The assets to customize may be:
  - the catalogue, both by: a) including new patterns or modifying the existing ones, b) changing the shape that a pattern may take (e.g., to link requirement patterns to test suites or test strategies),
  - the tool, adding or modifying existing functionalities or import/export capabilities (e.g., to export the requirements to some requirement management tool),
  - the method, by thinking on a specific context of use.

In all of these situations, an individual study will be made to determine the details of the collaboration (e.g., schedule, charging schema, etc.).

In all of the scenarios, the collaboration will be formalized with a signed agreement.

### **References**

1. J. Withall. *Software Requirement Patterns*. Microsoft Press (2007).
2. S. Renault, O. Mendez, X. Franch, C. Quer: "A Pattern-based Method for building Requirements Documents in Call-for-tender Processes". *International Journal of Computer Science & Applications (IJCSA)*, 6(5): 175-202 (2009), available electronically at <http://www.tmrfindia.org/ijcsa/v6i57.pdf>.