Higher Efficiency through Tailored Requirements Processes in Reuse-oriented Development

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1 Introduction

Even though reuse in general and product lines (PL) in particular have been proven to be a promising strategy to fasten software development, developing new software applications based on existing artifacts is often less efficient than expected.

Among others, one important reason is the non-systematic mapping of customer requirements to reuse capabilities. On the one hand, current reuse-oriented RE approaches rather foster the direct reuse of anticipated requirements than the effective alignment of actual needs with available components. Thus, especially for systems where a high degree of customizability is required, these approaches lead to significant iterations, because a large number of individual requirements has to be addressed in order to allow the customer to stand out from the competition. On the other hand, eliciting customer requirements from scratch without considering any reuse capability early on is also not an appropriate option. Particularly since reuse implies a certain set of constraints, it becomes apparent that not all customer requirements can be realized as initially stated. Rather, trade-offs between ideal requirements and rapid development benefits must be made, leading also to costly rework iterations. However, making this trade-off is challenging, because information about the realizability of requirements is often neither formalized nor available in the early requirements phase. Requirements elicitation therefore becomes an error-prone task, and it relies on experts to predict the impact of non-anticipated requirements. Thus, checking the fit in an analytical manner and improving the requirements afterwards is still the state-of-the-art, and approaches, which better cope with this challenge, have not been provided yet. Hence, it is still hard to elicit new requirements while considering reuse characteristics early on.

In our previous research, we have introduced the notion to tailor requirements processes based on the characteristics of a given reuse infrastructure. These tailored processes should enable requirements engineers to use externalized knowledge about the infrastructure for guiding the elicitation and negotiation in a better informed way.

2 Wanted from Industry

While we have already shown the general feasibility of this idea, we are now looking for a case study organization (ideally from Europe and the domain of information systems) that develops software in a reuse-based manner by either

combining components from a repository, or by configuring a core product platform. After making a base lining by performing some interviews, we plan to conduct a RE process tailoring, in which platform architects, developers, and development process owners should participate. The result of this tailoring will be a customized RE process guideline that is expected to lead to **significant improvements in the organization especially with regard to requirements coverage and required rework**. For checking this hypothesis according to a measurement plan that we will provide, the process guideline should therefore be used by the case study organization in at least one customer development project after the tailoring workshops.