Chapter 7

QSE: Service Elicitation with Qualitative Research Procedures

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ABSTRACT

The chapter introduces QSE, the Qualitative Service Elicitation method. It applies qualitative research procedures in service elicitation. Service engineering practice lacks lightweight methods to identify service candidates in projects with tight schedules. The QSE provides a systematic method to analyze requirement material in service-oriented systems development with feasible effort by utilizing the procedures of the grounded theory research method to elicit service candidates from business process descriptions and business use case descriptions. The chapter describes the method with examples and a case study.

INTRODUCTION

The promise of service-oriented architecture (SOA) and enterprise service bus (ESB) for enterprises is in eliminating technical barriers for business development and process streamlining (Papazoglou and Van Den Heuval, 2007). SOA has a built-in philosophy to design autonomous and reusable units of software representing business-complete work, which can be used as a part of business processes (Papazoglou and Van Den Heuval, 2007).

Service-oriented computing can provide a way to make great changes in smaller portions by componentizing both the business and the IT and by incrementally building on top of existing assets (Bieberstein, Bose, Fiammante, Jones, & Shah, 2006; Cherbakov et al., 2005). Transforming an enterprise into a service-oriented one is a complex task and the role of IT is no longer supportive, but has often a key role in the change. Alignment between the business and IT is the key towards a service-oriented enterprise, and the implementation of the services should be prioritized to support...
the incremental transformation of the enterprise. (Bieberstein et al., 2006; Cherbakov et al., 2005)

In this chapter, we propose Qualitative Service Elicitation, QSE, a new systematic method to be used in service elicitation. QSE provides practical means to prioritize and identify reusable service candidates in an enterprise context. The method is presented with an example of how to apply it in a sample project. The method is also tested in a real world project, and a case study of the project is provided.

THE CHALLENGE OF SERVICE ELICITATION

The service oriented approach differs fundamentally from the conventional development paradigms in the key concept of dynamically accessible services. The scope and performance of services are under constant development to support an increasing number of consumers. Components and objects do not provide this kind of run-time flexibility. Likewise, traditional requirement engineering practices do not support service composition nor do they encourage the identification of reusable services. (Papazoglou, Traverso, Dustdar, Leymann, & Kramer, 2006; Van Nuffel, 2007; Zimmermann, Schlimm, Waller, & Pestel, 2005)

Papazoglou et al. (2006) have listed the main challenges of the service-oriented engineering domain in their research roadmap. Novel approaches are required in service engineering to match the rate and pace of the business. Also the survey of Razavian et al (2011) suggests that the current service engineering practices fit poorly to the SOA migration challenges enterprises have and there is a need for successful yet cost-efficient approaches to elicit both the To-Be state as well as sufficient knowledge of the legacy applications.

The QSE approach addresses some of the challenges and provides practical means to build an enterprise level service catalogue only to the level of detail needed to be used in gap analysis. Additionally, the catalogue provides a ground for refining the right granularity of the services. The method itself does not provide automation in the analysis, but provides systematic procedures for the analysis, thus helping to reduce human errors. To enable systematic analysis, we have taken ingredients from research methodology literature. We believe service elicitation resembles by nature qualitative research.

The identification of services has been studied for some time and various methods already exist, but they focus on specific areas and the elicitation of specific types of services. A survey by Ramollari et al. (2007) lists ten different methods with varying coverage of the SOA project life cycle. Arsanjani (2005) classifies the SOA approaches into six categories: business process driven, tool-based MDA, wrap legacy, componentized legacy, data driven and message driven approaches.

Razavian et al. (2010) conducted systematic literature review of 39 SOA migration approaches resulting SOA-MF framework dividing the approaches into eight different families following two basic themes: modernizing the legacy system and facilitating reuse during service-based development.

QSE borrows elements suitable for top-down analysis from several of the approaches above. QSE is a top-down analysis method, which starts from business process descriptions and digs down to the essentials of the service candidates with the help of business use cases. Elements from the existing process driven, data driven and message driven methods have been included in QSE.

QSE is meant only to analyze business processes, not to design them. Completely different approaches, such as The MIT Process Handbook (Walker, 2006), are needed for designing business processes.