Master Thesis

Quality Assurance of Software Engineering Methods using Graph Transformation Rules

s-lab – Software Quality Lab

Background

Together with its partner, HJP Consulting GmbH, the s-lab develops a tool-driven approach that allows for the project-specific assembly of models that represent software development methods (SDM). The approach is developed with specific attention to the domain of eID systems. Examples for eID applications are electronic passports and electronic eHealth cards like the German "Gesundheitskarte".

In software projects typically software engineering methods (SEMs) like V-Modell XT or Scrum are used as best practices for how to plan, develop and test the software. One important question is how to mix or extend these SEMs in order to provide optimal support for each individual project situation, e.g. by mixing agile and plan-driven software development.

In our approach SEMs are created by choosing suitable method building blocks (method services) from a database and combining them to a SEM.

As the creation of method building blocks as well as SEMs is manual, it can be tedious as well as error prone. It is difficult to say whether the method building blocks of the database work well together and that they are marked incompatible otherwise, such that they are not used together in a SEM.

Task

The aim of the thesis is to create graph transformation rules that formalize the operations for creating SEMs. This rule base can than be used to formally check whether the database of method building blocks fulfills certain quality properties and is save to be used by the method engineer to create a SEM.

Supervision:

Prof. Dr. Gregor Engels

Contact

s-lab – Universität Paderborn
Masud Fazal-Baqaie

Tel.: (+49) 5251 - 5465-224
Email: masudf@upb.de

HJP Consulting GmbH
Holger Funke

Tel.: +49 (o)5251-4177-633
Email: holger.funke@hjp-consulting.com

HJP CONSULTING.