Empirical Studies Applied to Software Process Models

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Introduction

Organisations involved in developing, maintaining and enhancing software experiment constant changes in all the relevant domains and face increasing demands for improvements in cycle time, cost-effectiveness and product quality. Software process modelling (Curtis et al., 1992) is emerging as an effective tool for *inter alia* evaluating changes made to a software project or development organization and to help manage these changes. But its implications extend beyond the software process. Business process models, for example, are also used to represent end-user business processes to support requirements elicitation and analysis of activities. Research programmes such as Systems Engineering for Business Process Change (SEBPC, 1998) highlight the importance of modelling business processes in evolving and maintaining the software systems that support those processes. Hence, process modelling and simulation are becoming widely used within software engineering, for a variety of purposes and audiences, and using a variety of notations and tools. However, the relationship between empirical studies and software process modelling and simulation is relatively unexplored, as exemplified by the scarcity of empirical studies relating to the practical impact of process modelling and simulation. This paper addresses some relevant aspects of the multifaceted relationship between empirical studies and the building, deployment and usage of software process models. The paper draws on a variety of experiences and perspectives of process modelling and suggests techniques and questions for further investigation.

Simulation Model Uses and Types

Models and simulation are used as an aid to decision making, to aid in risk reduction, and to help management at the strategic, tactical, and operational levels. The many uses of