

Selection of Software Cost Estimation Methods – A Framework Regarding Project – and Organisation Context

Abstract :

Project managers and organisation management want early and accurate predictions on the effort needed to develop software. A number of alternative estimation methods have been proposed by researchers to support this. The alternative methods all tend to have drawbacks and advantages, making them suitable in different environments. Empirical results on cost estimation accuracy of software projects suggest that the selection of software cost estimation method should be context-dependent.

Selecting the most appropriate among the variety of existing estimation methods regarding organisational and project context is important. This topic has almost been neglected in software cost estimation research. Developing and evolving model-based estimation techniques have dominated research. In this thesis I present a framework on software cost estimation method selection. The work is based on a study of published literature on software cost estimation and general prediction theory.

The framework is based on a selection strategy called Structured Judgment. Here you evaluate the available estimation methods on a set of selection criteria. First I suggest a categorization of existing methods to sketch the alternatives available. Existing categorization have been evaluated, but found to be biased towards model-based methods. Therefore a new categorization is presented, elaborating different types of expert judgment as well.

Then a number of selection criteria are presented. Research has been dominated by publications regarding accuracy as the only criteria. In my framework thirteen selection criteria are suggested to be able to consider context in an appropriate way. I propose selection criteria divided into the categories: 1) Process constraints, 2) Purpose and use, 3) Estimation capability, 4) Project characteristics and 5) Information availability.

This framework has been developed considering the fact that estimation is a supportive activity with limited resources available to make a selection among alternative methods.