2007

Forecasting of Software Development Work Effort: Introduction

J. Scott Armstrong
University of Pennsylvania, armstrong@wharton.upenn.edu

Forecasting of Software Development Work Effort: Introduction

Disciplines
Business | Marketing

Forecasting of Software Development
Work Effort: Introduction

J. Scott Armstrong
The Wharton School, University of Pennsylvania

Jørgensen's paper examines the application of the one of the most well established findings in forecasting - - namely, the superior accuracy of quantitative models in comparison to judgmental forecasts. Models improved accuracy in 72% of the 136 studies in the meta-analysis by Grove, et al. (2000). However, in Jørgensen's meta-analysis, restricted to forecasts of software effort, models were superior for only 38% of the studies.

Jørgensen examines what happens when practitioners use quantitative models to forecast how long it takes to complete software development projects. Forecast errors in this area tend to be large, so improvements would be of great practical value. But his paper and the commentaries are also important for the more general topic of how to implement new forecasting methods most effectively.

The main paper by Jørgensen went through a review process that led to many revisions. Once accepted in 2005, the paper was scheduled for discussion at the International Symposium on Forecasting in Santander, Spain, in June 2006. This led to further revisions. The commentaries from the symposium were also subjected to peer review and these are published along with the main paper.

Jørgensen did an excellent job of searching for relevant studies and in summarizing their findings. To ensure that he properly quoted the authors in the meta-analysis, he contacted each of them. This is a key issue because, as shown in Wright and Armstrong (2007), it is common for papers to be misquoted.

The findings were unexpected. On average, there was no gain. What is going on? There are two practical considerations. First, the conditions might have been unfavorable to the use of quantitative models, And, second, the quantitative models may not have been properly implemented.

Jørgensen's analysis revealed that many of the studies on software work effort did not report fully on the conditions. Journals should insist on full disclosure. There is no longer any excuse that space is limited; details can be provided on the Internet.

Details were also lacking in many studies as to the implementation of the procedures. The procedures seem critical. For example, in many of the studies, the forecasts were not separated from the planning process. That is, the planners/decision makers made the forecasts, and then they had the ability to modify the inputs to achieve the desired results.

The commentators address key issues involved in using important findings for practical problems.

Reference

Grove, W.M., Zald, D.H., Lebow, B.S., Snitz, B.E., & Nelson, C. (2000). "Clinical versus mechanical prediction: A meta-analysis," *Psychological Assessment*, 12 (1), 19-30.

Wright, Malcolm & J. Scott Armstrong (2007), "Verification of citations: Fawlty Towers of knowledge?" *Interfaces* xx, xx-xx.