

# An Empirical Investigation of the Key Factors for Success in Software Process Improvement

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April 01, 2008

## 1 Summary

This paper performs an empirical investigation of the key factors of the success of Software Process Improvement (SPI). Previous research on this subject, which included case studies and descriptions of SPI programs, lacked theoretical and psychometric justifications. The proposed conceptual model is based on previous research and a quantitative survey of 154 software and quality managers.

The model focuses on six facilitating factors:

- Business Orientation
- Involved Leadership
- Employee Participation
- Concern for Measurement
- Exploitation of existing knowledge
- Exploration of new knowledge

According to the hypotheses of this model, all these factors were positively associated with SPI success. The results of the survey suggest that these hypotheses are valid but in the case of involved leadership, exploration of new knowledge does not seem to play a role in predicting SPI success. But on closer examination, both of the last two factors are considered important and it is recommended that the software organizations should maintain a balance between them.

## **2 Evaluation**

The proposed model, however, does not technically justify causality. These facilitating factors themselves may have been influenced by success or lack of success of the organization. Furthermore, the variables were measured on the basis of subjective performance definitions and assessed using retrospective recall. Even with these limitations, the authors claim that the findings of the paper are significant since they verify the importance organizational factors for SPI success.

## **3 Synthesis**

This research can be further extended by examining several levels of analysis, incorporating conflicting dimensions and viewpoints or by investigating the importance of such variables to several types of SPI problems and validate the proposed approaches for solving them.