

De-motivators of Software Process Improvement: An Analysis of Vietnamese Practitioners' Views

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Abstract. We have conducted face-to-face questionnaire based survey sessions with twenty-three Vietnamese software practitioners in order to determine software process improvement (SPI) de-motivators. The main objective of this study is to provide SPI practitioners with some insight into designing appropriate SPI implementation strategies and to maximize practitioners support for SPI.

We asked practitioners to choose and rank various SPI de-motivator against the five types of assessments (high, medium, low, zero or do not know). From this, we propose the notion of 'perceived value' associated with each SPI de-motivator. We have identified 'high' and 'medium' perceived values de-motivators that can undermine SPI initiatives. We have identified what de-motivates developers and managers to be actively involved in SPI initiatives. We have also identified SPI de-motivators of small-medium and large sized organisations.

1 Introduction

Software quality problems are widely acknowledged to affect the development cost and time [1; 2]. In order to reduce these problem, much attention has been paid to develop standards and models for SPI [3; 4]. However, the population of organisations that have adopted process capability maturity models is only a part of the entire population of software-developing organisations [5]. SPI initiatives exhibit low levels of adoption and limited success [6]. The recent report of Software Engineering Institute shows that on average organisations need 79 months to achieve CMMI Level-5 [7].

In order to successfully implement SPI standards and models, as researchers, we need to be constantly aware of what really de-motivates practitioners in real life. This will enable us to position our research within an appropriate context [8]. It is important to discover which de-motivators will undermine SPI implementation, as research shows that the SPI approach is often considered an expensive approach for many organisations [6], as they need to commit significant resources over an extensive period of time. Even the organisations, which are willing to commit the resources and time do not always achieve their desired results [9; 10]. The failure rate

of SPI initiatives is very high, estimated as 70% [11; 12]. The knowledge of SPI de-motivation may help us to develop new or improved SPI approaches, whose adoption will better match organisations' objectives, and also may help to communicate a compelling case to organisations making decisions about adopting SPI.

We have conducted a study with twenty-three software development practitioners; an understanding of the perceived value of each SPI de-motivator across different practitioners may help with more effective SPI implementation strategies. We believe that where respondents from different organisations identify a de-motivator as having a high perceived value then that de-motivator should be seriously considered for its importance in SPI initiatives. If different software development practitioners cite the same de-motivator, it is obviously important to the practitioners involved.

Previously, other researchers [13; 14] have also conducted studies to identify de-motivators of software development practitioners. Our research is aimed at not only extending the findings of those studies by conducting a similar study in a different culture; but also intending to expand this type of research by understanding the relative value of each identified de-motivator perceived by practitioners. We believe that software practitioners may associate different values to different SPI de-motivators. Moreover, it is also possible that SPI de-motivators may vary from one geographical region to another. As part of a large project about the SPI motivation, Keele University and National ICT Australia has been carrying out a research project to investigate the SPI motivators and de-motivators in the Asia-Pacific region. The results of this project are expected not only to help software practitioners understand the usage of SPI de-motivators in the Asia-Pacific region, but also help them compare SPI de-motivators identified in other regions [13; 14].

The contribution of this paper is to report the findings of one part of our research project aimed at identifying the factors that are perceived by Vietnamese software practitioners as SPI de-motivators. The findings of this research combined with the findings of the previous similar studies can shed some light on the de-motivators that should be considered critical when designing SPI implementation strategies.

There are three research questions that have motivated the work reported in this paper:

- RQ1. What SPI de-motivators have high and medium perceived values?
- RQ2. What de-motivates practitioners in order to implement SPI initiatives?
- RQ3. How are these de-motivators related to the size of organisations?

This paper is organised as follows. In Section 2 background is described. Section 3 describes the concept of perceived value. Section 4 describes the research design. In Section 5 findings are presented and analysed. Section 6 provides the summary and conclusion.

2 Background

McDermid and Bennet [15] have argued that the human factors to SPI have been ignored and this has impacted on effectiveness of SPI programmes. Hall and Wilson [16; 17] have also suggested that the experiences, opinions and perceptions of software practitioners impact indirectly on the quality of software produced. This also