Business Success in Software SMEs: Recommendations for Future SPI Studies

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Abstract. There is presently insufficient data regarding the relationship between software process improvement (SPI) and business success, a fact which may reduce process prioritisation in software development in practice. To assist future studies examining the relationship between SPI and business success, we developed a new two-phased approach to examining business success. The first phase involves the elicitation of business objectives for the forthcoming year, with the second phase determining the extent of achievement of the recorded objectives. At EuroSPI 2011, we described the two-phased approach in detail and reported on the findings from deploying the first phase of the examination to software developing small- and medium-sized enterprises (software SMEs). In this follow-up paper, we report on the findings from the second phase of the investigation in the participating software SMEs, formulating an additional important new recommendation for future studies.

Keywords: Software Process Improvement, Business Success, Software SMEs.

1 Introduction

Business processes are the routines or activities that firms adopt in order to conduct their business [1], with various empirical studies demonstrating that business process management has a positive effect on business success [2], [3]. Within software development organisations, the software development process is a large and complex component of the overall business process, and therefore, it follows that software process management should also have a positive effect on business success. One of the principle vehicles of software process management is the domain that is commonly referred to as software process improvement (SPI).

Earlier research has demonstrated that software companies can benefit from SPI programs, including financial benefits, such as return on investment (ROI) [4]. While Van Solingen [4] examined large software development organisations, other research demonstrated that software SMEs can also derive benefits from SPI, including improvements in quality, schedule and budget adherence [5], [6]. However, none of the earlier research has focused on examining the influence of SPI on business
success, hence it has been reported that there is a lack of direct evidence of the business benefits of SPI [7], resulting in some software companies choosing to implement SPI in response to negative business events alone [8]. Therefore, there is a need to conduct studies that investigate the relationship between SPI and business success – and members of the software process and SPI communities would expect that such studies would highlight the important role of SPI in creating competitive advantages and thus in supporting business success. Future studies examining the relationship between business success and SPI will require a robust, thorough and reliable method for making determinations in relation to business success.

In an earlier published work, we identified a new approach to examining business success in software development organisations [9]. Our approach recommended using a two-phased engagement with companies when making determinations in relation to the degree of business success. The first phase identifies the objectives for a forthcoming period (say for example, 1 year), with the second phase returning to the organisation at the end of the period and examining the extent to which the recorded objectives were achieved. In our earlier published paper, we reported on our experience of applying the first phase to seventeen software SMEs, making a number of recommendations for later studies. In this paper, we report on the findings from the second phase of the business success inquiry, extending our recommendations for later studies seeking to examine business success in software development organisations.

The remainder of this paper is structured as follows: Section 2 presents a brief review of the two-phased technique for examining business success in software companies, along with details of the application of the first phase to participating software SMEs. In Section 3, we describe the second phase of the business success investigation, identifying objectives with the highest and lowest degree of achievement. Finally, in Section 4, we present a summary and a conclusion.

2 Study Background

This section provides an overview of the business success literature, along with a brief review of the two-phased business success examination. In addition, this section presents a summary of the results from the implementation of the first phase of the examination in software SMEs (more comprehensive details are available in [9]).

2.1 Business Success in Software Development Companies

The domain of business success, sometimes referred to as business performance, is multi-faceted. Historically, businesses took the view that only financial measures of business success were of importance [10]. Such financial measures include profitability, ROI, and productivity [11-14]. However, the pursuit of profit is not the only purpose that a company must address [15] and a number of other important non-financial measures of business success also exist [16], [17]. Such non-financial measures include customer satisfaction and business process management. Collectively, the financial and non-financial aspects of business success are addressed in multi-dimensional business performance measurement frameworks [18]. A number