ABSTRACT

Software process improvement is a way that allows organizations to get a competitive advantage toward its competitors, therefore, in order to implement a successfully software process improvements process assessment is a key element, because it is the first step to know the performance of the organizational software process. Unfortunately, the current approaches to evaluate processes performance in software organizations most of the time increase the people resistance to perform software process improvement initiatives because they are based on applying questionnaires that people perceive as an assessment of their job. Besides, questionnaires used in those approaches are adaptations from models and standards mainly ISO 15504 and CMMI. Consequently the processes gaps are not focus on organization needs, however, organizations use these gaps as targets in the implementation of software process improvements. As a result, the obtained processes do not reflect the needs of the organizational business goals nor the way the organization works. This paper presents an approach to carry out internal fast assessment to software process using an alternative way to do it. So, resistance to change is minimized. The method is focused on using internal best practices and the organization business goals as a main source to assess process performance. This way allows organizations to identify improvements opportunities based on business goals needs and to address the improvement effort to those processes that need to be improved in order to achieve these needs.

Keywords: Best Practices, Business Goals, Process Assessment, Project Management, Resistance to Change, Software Organizations, Software Process Improvement

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INTRODUCTION

Organizations need to create strategic advantages with respect to its competitors in order to be competitive (Soto-Acosta et al., 2010). In this context the implementation of software process improvement initiatives is an obvious and logical way to be competitive in the software industry (Gupta, Sharma & Hsu, 2004; Molina & Marsal, 2002; Turban, Aronson & Liang, 2005).

The above mentioned is because it is well known that the quality of software products is largely dependent on the processes that are used to create it (Williams, 2008). Therefore, software industry is more and more concerned about software process improvement (SPI) (Mishra & Mishra, 2009).

However, although many organizations are motivated to improve their software processes, very few know how to do so in a proper way. As a result, most improvement efforts fail, stakeholders feel frustrated, organizations are more convinced than ever that they must continue doing their work as before and the resistance to change in software process improvement increases (Calvo-Manzano, Cuevas, Gómez, Mejía, Muñoz & San Feliu, 2012).

In this context, a key element to achieve a successful software process improvement that has been identified by many authors is the process assessments (Garcia, Pacheco & Cruz, 2010; Pino, García & Piattini, 2007; Pino, Pardo, García & Piattini, 2010) because the personnel perceive most of the time the process assessments as an assessment of their job.

As a result, answering the questionnaires that are often used in the process assessments increase the resistance to change of personnel. Given that software industry is intensive in human capital (Colomo-Palacios et al., 2011), people issues must be tackled in process assessments. In this scenario, two cases are usually presented in organizations: the resistance to the implementation of software process improvement increases and the process improvement does not have the expected results (CMMI working group, 2009).

The goal of this paper is to present a method that allows a fast internal assessment of organization software processes performance focused on two key elements: internal best practices and business goals.

This assessment method allows organizations to carry out fast and frequent assessments of their software processes performance with two features: 1) using few resources and 2) carrying out in a short time. Thus, the organization is enabled to have a solid baseline related to its business goals needs when implementing a software process improvement initiative.

This paper is structured as follows: research context section describe the importance of process assessments; background section introduce to the assessment method background; assessment method section describe the phases and activities of the assessment method; experimentation section shows how the experimentation of the method was performed; results section present the results of implementing the method, and finally, conclusion section presents the conclusions of this research work.

RESEARCH CONTEXT

Software Process Improvement (SPI) is a field of research and practice, arising out of the need to solve software development issues (Kautz et al., 2004). Therefore, SPI is the action taken by organizations to change processes, taking into account the business needs, so that, their business goals are achieved in a more effectively way (Burke & Howard, 2005).

Unfortunately, investments in SPI often have not achieved the expected results (Munk-Madsen, & Nielsen, 2011). In this context, literature (e.g. Garcia, Pacheco, & Cruz, 2010; Pino, Pardo, Garcia, & Piattini, 2010; Pino, Garcia & Piattini, 2007) has identified the process assessment as a key element in order to implement a successful software improvement.

An indicator of this importance is the increasing number of many methods (Members Of The Assessment Method Integrated Team, 2001) (ISO/IEC 15504:2004 (IEEE Computer Society, 2004), IDEAL (Members Of The Ass-