Impact Analysis of Process Improvement on IT Service Quality

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Abstract. Process improvement focuses primarily on the improvement of process management and not explicitly on the improvement of the intrinsic qualities of a service or a product. Similarly to the lack of studies concerning calculations of ROI in process improvement, there is a lack of studies evaluating the impact of process improvement on the intrinsic qualities of products and/or services. The customers are more interested in the quality of the product or service and less in the speed of development or automation of processes. This paper highlights why it is necessary to investigate the impact of process improvement on IT service qualityand describes how the listed research questions will be addressed.

Keywords: Process Improvement, IT Service Management, IT Service Quality, and ImpactAnalysis.

1   Introduction

Process improvement approaches are means to develop an organization's processes to more effectively meet its business goals. Process assessments are used to find out the capability of the process to reach this goal [1]. Although an increasing number of articles about the benefits of process improvement have been published [2-5], there is still resistance against process improvement in industry. As Jones points out[6], it is not wise to start process improvement work if managers do not calculate the return on investment or collect the data to demonstrate the progress. Unfortunately, there are almost no reliable statistical studies carried out that would help companies become aware of the benefits of process improvement [7].

Our research aims to evaluate the impact of process improvement on IT service quality by conducting a series of studies in IT service industry.In this paper, we describe the research objectives, the related work, and the next steps that we will take to reach the aim of our study.

2   Related Work

Process models of ISO/IEC 15504 and CMMI, used for process assessment, have first and foremost been applied in software industry. This trend is currently changing with

the growing need of objectively evaluating and improving processes in various fields, including IT Service Management. IT Service Management has popular descriptive models of best practices like ITIL® and ISO/IEC 20000. ITIL was combined with the measurement framework of ISO/IEC 15504 resulting in anAssessment Model for IT Service Management Processes(TIPA) that allows the IT Service Management processes to be assessed and consequently improved in an objective and continuous manner [8].

Although there have been case studies conducted in software industry about the higher capability levels of process models increasing the performance of the software companies [2, 9-12], little can be found on process improvement effects in IT service management on service quality. There is also an extensive amount of literature about the key success factors of process improvement (e.g., [13-17]),but still a lot of improvements are not yet implemented or their benefits are unclear. This study aims to evaluate the impact of process improvement extending on various works describing different approaches to measure process improvement and innovation [18-23]. The aim is attained through international surveys and multiple case studies in IT Service Management area.

3   Research Objectives

Process improvement aims to support organizational business goals and should increase organization's performance. Processes are often improved in organizations with their impact notbeing measured. In the field of IT Service Management, there are many descriptive models that suggest best practices for IT Service Management, ITIL and ISO/IEC 20000 being the most popular ones. These best practices together with a measurement framework describe an improvement roadmap. Organizations' managers want to see benefits of process improvement fast and it is therefore important that the impact of each process improvement implementation can be measured. We aim to analyze the benefits IT Service Management process improvement has on service quality and how quickly the IT service providers might receive feedback from their customers about the increased quality of their provided services.

Our hypothesis is that the model-based IT Service Management process improvement has a positive impact on the intrinsicIT service quality indicators.In order to tackle this broad question, we need to establish IT service quality measures and understand process improvement in IT service management domain. In other words, we have many sub-questions to answer: what are the IT service quality measures and indicators; how relevant is the IT service best practice guidance to IT service industry and to the quality of the IT services provided; how do managers justify investments into process improvement; what is a successful process improvement for top managers, operational managers, customers, and users; and how are process improvements measured?

4   Discussion and Future Work

Since one cannot improve what he cannot measure, we will first define the IT service quality measures that will form the basis of data gathering in industry. The IT service

quality measures will be derived from ITIL V3 [24], ISO/IEC 20000[25], and SERVQUAL [26] and classified based on ISO/IEC 25010 (SQuaRE) [27] and the Practical Software and Systems Measurement framework (PSM) [28].

Since software engineering is a domain where measurement has played an important role for a long time, we will apply this insight into IT service management domain. SQuaRE is an international standard of software product quality requirements and evaluation describing four different kinds of product quality measures – process measures, internal measures, external measures,and quality in use measures.We will adapt these measures to IT services and map them to the PSM framework that is widely used in the practice of software and systems measurement.

Quality of service refers to the extent to which the service fulfills the requirements and expectations of the customer [25]. The quality attributes will be derived from ITIL, ISO/IEC 20000, and SERVQUAL. While ITIL and ISO/IEC 20000 are mostly addressing process measures, SERVQUAL targets various customer satisfaction measures.

Once we have defined the IT service quality measures, the next step will be to find out the relationship between the process measures and the other IT service quality measures. For that we will construct a survey to gather data from industry, focusing on the most critical processes that industry prioritizes for improvement like incident management, change management, problem management, and service level management[29].

The survey will have a non-probability sampling focusing on two groups of respondents: a) companies who have used the model-based approach for assessing their IT Service Management processes and b) companies who have improved their processes based on descriptive ITSM best practice model like ITIL. The non-probability sampling will differentiate the results of formal process improvement and the process improvements based on alternative process measurement approaches.

As a result of the study we will be able to see how process improvement influences the IT service quality measuresand how relevant the IT service best practice guidance is to industry.

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