

An ISO 9001:2000 Certificate and Quality Awards from Outside – What’s Inside? – A Case Study

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Abstract. In order to survive in a strong competition software houses need to design high-quality software. To achieve this some companies try to certify their software development processes in accordance with well-known industrial standards. Through a case study we investigated what characterizes the use of a quality system among developers and project managers in a large software company that has successfully achieved an ISO 9001:2000 certification. We found that certification not always indicates that the company successfully uses the practices in accordance with quality standards. This caused serious problems, such as projects that follow outdated practices, project managers faking quality documentation before audits, resources wasted by producing documents no one needs, problems created for new employees since they cannot find descriptions of the processes people are working in accordance with, and an expensive system no one uses.

1 Introduction

Along with global market expansion, competition among software development organizations has been growing. Reduction of costs has for a long time been the leading driver when selecting a subcontractor or outsourcing provider (subcontracting parts or whole software development), but lately productivity and quality indicators have become essential when choosing suppliers [9, 18]. Implementing a quality system based on the ISO model [5] or a maturity model, is nowadays one of the most common approaches in achieving the above mentioned objectives.

Quality certificates are meant to give buyers of goods and services an impression of the quality of the suppliers. Therefore many companies are eager to obtain a quality certificate because of market pressure. In Europe, the ISO 9001 set of quality standards are widely used standards for quality management in software development, and the Capability Maturity Model® Integration (CMMI) [17] is one of the common standards in the USA.

Getting the certificate often means that a minimum set of procedures and quality handbooks are developed in the company without a quality system really being implemented or quality awareness being created among the employees. In such cases, the possession of certificates does not guarantee the quality of the software production process or a reasonable price performance ratio for the products delivered to the client [21].

Moreover, even when a company maintains a quality system that meets the ISO 9001:2000 standards, the quality of the final product cannot be guaranteed. Worse still, adhering to strict software quality standards can, in some circumstances, be counterproductive[21].

1.1 ISO Quality Management Systems

The intention of an ISO 9001:2000 quality management system (QMS) is to provide “an orderly and systematic way of providing quality services to the customers”[7]. The key advantages provided by an ISO Quality Management system are: “improve your product and service quality; give your customers confidence that their needs will be met; standardize your business by giving it a consistent approach to its operations; improve work processes, efficiencies, morale and reduce waste” [5].

For useful implementation of the Quality Management systems they are often introduced on the companies’ intranet, containing detailed descriptions of the companies software life cycle processes, also known as an Electronic Process Guide (EPG) [3, 11, 16]. Such process guides usually include activities (how things are done), artifacts (descriptions of products created or modified by an activity), agents (description of entities that can perform activities, roles (roles and agents involved in performing the activities) and resources (tools and techniques used to support or automate the performance of an activity) [6].

However, the potential of QMS/EPG’s can only be realized when key capabilities are not only adopted, but also infused across the organization. There is also a growing body of studies focusing on the determinants of technology acceptance and utilization (e.g. [1, 3, 22]).

1.2 Research Question

The motivation for the work described in this paper is to understand how a quality system is used in a company that successfully has achieved an ISO 9001:2000 certification and several quality distinctions. The core research question has been:

What characterizes the use of a quality system among developers and project managers in a large software company that has successfully achieved an ISO 9001:2000 certification?

1.3 Related Research

Since software organizations have been pressured or required to conform to certain standards, many researchers have been focusing on software process improvement (SPI) and quality system implementation investigation and discussion (such as [4, 8, 13, 14, 20]). However, according to Emam and Madhavji [4] most of the empirical case studies tend to show only success stories, as organizations that have not shown process improvement or have even regressed over time is reluctant to publicize their results.

In this paper we present a case study that investigates a quality certified and awarded company that still faces problems with employee involvement and