Chapter 7

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ABSTRACT
Requirement engineering is a main task in software process. In Software Engineering literature, many best practices and guidelines are present to construct quality software. However, adoption of such uniform guidelines is not in practice across the globe. In this chapter, the authors discuss requirement engineering practices followed in Pakistani small- and medium-scale enterprises. In order to understand work practices the authors conducted a survey and analyzed the responses. They found that cost and budgeting is one of the major issues of Pakistani industry: higher management is not willing to invest to adopt state-of-the-art standardized practices. This situation can be improved by enhancing public private partnerships to get desired quality software in the local IT industry.

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Understanding Requirement Engineering Practices

1. INTRODUCTION

Requirements Engineering (RE) can be defined as the study concerned with examining and documenting requirements for a software application (cf. Thayer & Dorfman, 1997). In this phase requirements of a software system are described, controlled, tested and documented. An effective requirement engineering process ensures that software satisfies customer and user requirements (cf. Kauppinen & Kujala, 2001; Kauppinen et al., 2002; Kauppinen et al., 2004). Davis (1993) highlighted that it may be up to 200 times costly to discover and fix faults in the maintenance phase, compared to discovering and fixing them in requirement engineering phase. Sommerville and Kotonya (1998) described RE process as a planned set of activities followed to obtain, authenticate, and preserve system requirements. Transforming RE research results into work practices are complex tasks and it depends on successful collaboration between researchers and practitioners (Kaindl et al., 2002).

There is a lot of literature in software engineering domain regarding requirement engineering approaches but transferring this knowledge into practice is a complex activity (cf. Siddiqi & Shekaran, 1996; Saeed et al., 2012). Davis and Hsia (1994) described that researchers and practitioner have gap in their practices and it need to be filled to get quality software. Nikula et al., (2000) reported that most companies know the requirements engineering problems but are unable to find the solutions for achieving quality products.

A study on software engineers’ practices at Jet Propulsion Laboratory highlighted that requirements were not properly documented and their rationale were also not listed (cf. Kandt et al., 2002; Kandt, 2003). Belgraver (2007) reported that larger IT organizations are using workshops as default techniques for requirement engineering process. Gunda (2008) conducted a survey on requirement elicitation techniques practiced in multinational companies of India and found that a variety of tools (such as interviewing, brainstorming, questionnaire etc) are used but organizations prefer time efficient tool in their organizations. Keeping this in view we carried out a survey to understand the requirement engineering practices followed in Pakistani local organizations. The objective of the investigation was to get knowledge about current practices and to suggest improvements.

Remaining of chapter is structured as follows. Section 2 highlights problem and methodology adopted to answer these problems. Section 3 discusses main findings and is followed by discussion in section 4. Section 5 presents conclusion of our contribution.

2. PROBLEM STATEMENT AND METHODOLOGY

The requirement engineering is a challenging and demanding phase in software development process. Many software development organizations do not follow standardized practices due to many issues such as cost, time, nature of project and geographical diversity of client/development team. Our focus in this chapter is to highlight major challenges that may encounter during requirement engineering process by Small and Medium Scale Enterprises (SMEs) in Pakistan. Software industry in Pakistan is young and mainly comprised of SMEs (cf. Mahmood & Saeed, 2008). Our main focus was to assess and analyze different practices of requirement engineering process in Pakistan.

In order to answer the questions we adopted a quantitative approach and a detailed questionnaire was developed, aimed at determining the different practices of requirement engineering process. There were total 17 questions. The questions addressed the knowledge on RE literature and Requirements Management (RM) tools as well as the current RE practices. Every question can be answered either a strongly agreed, agreed, uncertain, disagreed and strongly disagreed. Thirty questionnaires were sent to different organizations.
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