Reassessing Software Quality Performance: The Role of Knowledge Management

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ABSTRACT

Software quality has always been described as a poorly developed construct. Several reports and much evidence show clear problems related to software quality. This research empirically tests if ineffective implementation of knowledge management activities would be a reason behind possible existence of defective quality performance in the software industry. The main finding shows that knowledge management would directly affect quality performance in the Egyptian software industry. Statistical correlation is significant between the two constructs: knowledge management and quality performance.

Keywords: Knowledge Management, Knowledge Management Activities, Knowledge Management Gaps, Quality Performance Gaps, Software

INTRODUCTION

The growing publicity about the failure of many software quality management programs to reduce the level of defective products, for example, Toyota ‘quality crisis’ due to a software glitch has prompted interest in this research (Automotive News, 2010; Canning 2010; Kanter, Maynard & Tabuchi, 2010; Willacy, 2010). Furthermore, the growing awareness of links between knowledge and quality in the business literature over the last decade has deepened interest in the topic of this study (Lyons, Acsendt & Waesberghe, 2008; Rangachari, 2008a; Rangachari, 2008b; Wang & Wang, 2009; Yang J., 2008). On one hand, it is widely accepted that the underlying theories of quality are fundamental and essential for effective management and competitive survival of organisations (Nair, 2006). On the other hand, Knowledge Management has been considered a fundamental component for the delivery of quality (Stewart & Waddell, 2008).

Knowledge management can be broadly seen as a conscious strategy of getting the right knowledge to the right people at the right time and helping people share and put information into action in ways that strive to improve organizational performance (Jennex, 2013, Ribière and Khorramshahgol, 2004). In this essence, knowledge management different activities have been evolved as an important...
mean to enhance organizational performance. However, the question arises: Could we increase the performance of quality management by better managing knowledge? This research draws on an empirical study in the Egyptian Software Industry seeking an answer to the previous question. This research starts with reviews of knowledge management and quality management theories followed by research design and results. This research then concludes with a practical suggestion as to how knowledge management may play a comprehensive role in software quality performance.

KNOWLEDGE MANAGEMENT, EVOLUTION OF A DISCIPLINE

Knowledge has been considered as of central importance for the functioning and competitiveness of organisations in modern life (Jennex & Olfman, 2005; Soliman, 2000). In consequence, knowledge management has emerged over the last decade of the twentieth century and the first decade of the twenty-first century as one of the major improvements in managerial theory (Fugate, Stank & Mantzer, 2009; Pappa et al., 2009).


By knowledge management, I mean public policy for production, dissemination, accessibility, and use of information as it applies to public policy formulation. In this sense, knowledge management constitutes what Yehazkel Dror calls ‘metapolicy’, that is policy for policy-making procedures.

However, Tiwana (2004) argues that knowledge management developed after the 1950s and improved in many forms. In the 1950s, 1960s and 1970s, the appearance of Management by Objective (MBO), Program Evaluation and Review Technique (PERT), and Strategic Planning formed the first characteristics of knowledge management tools and techniques.

Several authors state that knowledge management has been at the forefront of management theory and organisations since the mid-1990s (Gold, Malhotra & Segars, 2001; Gunasekaran & Ngai, 2007; Hsieh, 2007; Keen & Tan, 2007). Several publications indicate the increasing consequences of knowledge in enhancing organisational performance (Afouuni, 2007; Eftekharzadeh, 2008; Gloet & Terziowski, 2004; Seleim & Khalil, 2007). In essence, Maqsood, Walter and Finegan (2007) argue that knowledge is the ‘race for the future’. According to Delone and Mclean (2003), Jennex et al., (2012), and Soliman (2000), knowledge looks like the main core for surviving and success.

While knowledge management is considered to have a multidisciplinary definition (Bose, 2004; Chen & Chen, 2006; Lee, Ho & Chiu, 2008), there seems to be agreement among researchers that the aim of knowledge management is to build and develop intellectual capital in order to improve productivity and competitiveness (Nevo, Furneaux & Wand, 2008; Pappa, Stergioulas & Telonis, 2009). Liebowitz and Wilcox (1997, i) define knowledge management as an organisation’s ability to ‘manage, store, value and distribute knowledge’. Bassi and Van Buren (1999, p. 424) state that knowledge management is ‘the process of creating, capturing, and using knowledge to enhance organizational performance’.

From a strategic point of view, Beckman (1997, pp. 1-6) defines knowledge management as ‘the formalization of, and access to, experience, knowledge, and expertise that create new capabilities, enable superior performance, encourage innovation, and enhance customer value’. Murray and Myers (1997, p. 29) agree that knowledge management is not more than a ‘collection of processes that govern the creation, dissemination and utilization of knowledge to fulfill organizational capabilities’. That is why Wiig (2002) argues that the definition of knowledge management is broad and embraces related approaches and activities throughout
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