Chapter 16
Could Knowledge Gaps Drive Quality Improvement?

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ABSTRACT

Quality problems could constitute a major obstacle to improvement of products and/or services. The model for assessing the quality of quality management programs presented in this chapter focuses on the role of Strategic Gaps and Knowledge Gaps in driving the quality management programs. The chapter also identifies Strategic Gaps and Knowledge Gaps that could exist in some organisational quality management processes. Those gaps are shown to adversely affect expected outcomes from the implemented quality management programs. Furthermore, the chapter explores the relationship between the perception of the developers or implementers of quality management programs and other related organizational attributes in some software industries.

INTRODUCTION

The growing publicity about the failure of many software quality management programs to reduce the level of defective products, for example, the recent 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, Acsente & 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). Indeed Stewart & Waddell (2008) pointed out the possible link between Knowledge Management and Quality Management. They considered the link to be an important part of doing business. Current world

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wide quality crisis with Toyota car manufacturing plants suggest that quality has once again become a competitive advantage for successful companies. A number of authors have pointed out to a link between Knowledge Management (KM) and Quality Management (QM).

Soliman & Youssef, (2003 and 2001) recognised that knowledge management processes could provide a structure around QM where knowledge is captured, codified and stored, retrieved and utilised for the benefit of the organisation. That is why there are an increasing number of managers who are seeking to use the link between KM and QM to identify the best method of using KM to address causes of failure of QMP.

This means that appropriate strategies for developing and implementing QMP within organisations need to be adopted. Two factors that need to be considered here:

1. KM strategy does not necessarily lead to positive impact on KM performance, i.e. KM does not dominate QM but it is rather dependent on a number of factors required to deliver quality to customers (Gloet, 2002).
2. The increasing pressure on organisations to provide better and more effective QMP, has led to the emergence of KM as an influential factor for enhancing the development and implementation of a new approach to the application of the QMP (Soliman & Youssef, 2003).

In other words, the quality of Quality Management Programs (QMP) requires more scrutinized research and analysis. This necessitates taking into account: (a) the properties of products and/or services that the organisation provides; (b) the attributes of organisational processes used for decision making; and (c) the aims and objectives of the QMP. This in turn means the relationship between KM and the success of QMP needs further exploration. Accordingly, the paper seeks to examine: (a) the causes of the failure/success of QMP to deliver the anticipated outcomes and (b) impact of knowledge about the appropriateness and adequacy of the QMP (if any) on the success of the QMP.

This research identifies and empirically analyses the impact of Knowledge Gaps on quality management in software firms. While software quality has always been described as a poorly developed construct (Andrews 1988; Schmitt 1991) with significant evidence of disasters resulting from poor software quality (Kaiser 1996; McDonald 2010; Nuseibeh 1997; Schmitt, 1991), the literature evidences a lack of studies to identify possible reasons (gaps) in getting desired quality performance in software firms. Additionally, although the failure or success of quality performance in software product development process *may* be related to the omission of Knowledge Management, no studies were found that examine links between Knowledge Gaps and Quality Performance in software development firms. This research plans to fill this void in the literature, presenting a deeper analytical research by investigating the question: w*hy doesn't quality management in software firms achieve its anticipated outcomes?* Research will identify whether *critical gaps* exist while implementing Knowledge Management activities, and if the existence of these possible knowledge gaps affect quality performance in software firms.

THE ROLE OF KNOWLEDGE MANAGEMENT IN QUALITY MANAGEMENT IN THE SOFTWARE INDUSTRY

It has always been argued that software quality is often seen as an 'elusive and mysterious subject' (Kenett and Baker1999, p.13). Kenett and Baker (1999, p.13) add that 'it is perhaps the most ignored topic in the world of software development'. Hong and Goh (2003, p. 364) confirm this by stating, 'Of all the mysteries of producing software, none