

# The multidimensionality of TQM practices in determining quality and innovation performance — an empirical examination

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## Abstract

This paper examines the multidimensionality of TQM in association with organizational performance. The primary proposition examined in this study is that TQM embodies two different models of practices, mechanistic and organic, with each showing a different role in the association with two different types of performance, quality and innovation. Using empirical data gathered from 194 middle/senior managers in Australian firms, the findings support the proposition in pairing the mechanistic elements of TQM with quality performance and the organic elements with innovation performance. Further results, however, fail to support the proposition that organizations need to configure TQM practices in different ways for achieving different type of performance. © 2002 Elsevier Ltd. All rights reserved.

*Keywords:* TQM; Multidimensionality; Mechanistic; Organic; Quality; Innovation; Structural equation modeling

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## 1. Introduction

Prajogo and Sohal (2001) have presented a comprehensive literature review on the relationship between TQM and innovation performance. They argued that the need to examine this relationship arises from the fact that, today, the basis for competitive advantage has shifted from quality to innovation, and given that TQM principles and practices were developed in the context of quality management, it is important to evaluate their suitability for pursuing innovation performance. In reviewing a body of literature concerning the relationship between TQM and innovation, they identified two competing schools of thought with one suggesting that TQM is positively related to innovation performance and the other group contending that the implementation of TQM principles and practices could hinder organizations from being innovative.

As discussed in the next section, a number of scholars have suggested that TQM actually embodies several practices whose characteristics are different to each other, highlighting the multidimensionality of TQM.

This paper examines the multidimensional aspects of TQM and uses this to resolve the debate concerning the relationship between TQM and innovation by drawing on the experience of Australian firms.

## 2. Literature review

As a theoretical proposition, the multidimensionality of TQM has been suggested by a number of scholars (Dean and Bowen, 1994; Lau and Anderson, 1998; Moreno-Luzon and Peris, 1998; Sitkin et al., 1994; Spencer, 1994; Watson and Korukonda, 1995). In particular, Moreno-Luzon and Peris (1998) suggest that the multidimensionality of quality management can be easily found by examining the various terminologies so far introduced into the areas of quality control, quality assurance, total quality control, company-wide quality control, total quality management, and strategic quality management. Among these many terminologies, they argue that quality assurance (QA) and total quality management (TQM) are the best models in contrasting the multidimensionality of quality management. This is because the first is focused on controlling processes and products to conform to and satisfy established requirements, whilst the latter is directed toward involvement and commitment of management and employees, train-

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ing, learning, and internal cooperation or teamwork — in other words, promoting the human aspects of the system. When contrasting QA with TQM, they used basic organizational design variables — formalization, standardization, and centralization — and proposed that in general, QA was situated in the area with high levels of these three variables, whereas TQM was located in the opposite area. Considering the above description, it can be concluded that what is designated as QA can be clearly associated with the mechanistic or control approach, and that the TQM approach can be linked with the organic or learning approach. A similar view was also held by Kekale and Kekale (1995) when differentiating the “behavioristic” approach of TQM practices, such as systematic measurement, control of work, standards, and statistical procedures from a “cognitive” approach that emphasizes “soft” qualitative characteristics, such as open management style, delegated responsibility and autonomy.

Watson and Korukonda (1995) affirm that examining the juxtaposition of different facets of TQM, particularly the dichotomy between mechanistic and organic elements, is problematic. This is, nonetheless, important to facilitate theoretical insights and conceptual clarity of TQM, as asserted by Watson and Korukonda (1995, p.105):

Yet, the promoters of TQM are not as enthusiastic about discussing the mechanistic aspects of TQM as they are about its organic aspects. This is to be expected considering the connotations of passivity, subjugation, and suppression of freewill stirred up by a mechanistic model. Yet, not to recognize them would be tantamount to ignoring some basic tenets of the TQM philosophy

Furthermore, Prajogo and Sohal (2001) have affirmed that examining the dichotomy of TQM in terms of mechanistic and organic models is important for resolving the controversies in the literature concerning the relationship between TQM and innovation. In this context, the work of Sitkin et al. (1994) and Spencer (1994) provide a theoretical basis to build up the link between the multidimensionality of TQM and innovation. In their argument, Sitkin et al. (1994) hold that under similar underlying TQM precepts, organizations can apply two different goals and practices based on two different orientations, namely TQC (Total Quality Control) and TQL (Total Quality Learning) with TQC being associated with quality in terms of conformance, and TQL being related to innovation. In her seminal work, Spencer (1994) argues that various practices under the TQM umbrella can be categorized into several organizational models, including the mechanistic and the organismic models. For example, the stated goal of TQM to improve quality is associated with the mechanistic model, because in prac-

tice the real objective of pursuing quality could well shift into productivity and efficiency, something on which a mechanistic organization focuses. On the other hand, the ideas of employee empowerment and cross-functional teamwork are closely linked to the organismic model<sup>1</sup>

A further link can be made between the arguments of Sitkin et al. (1994) and Spencer (1994) with control-orientation being strongly associated with the mechanistic model and learning-orientation with the organic model. For example, Sitkin et al. associate the TQC approach (for example, through the application of SPC tools) with a cybernetic control system on the basis of the similarity of two critical requirements: the need for regulatory standards and the need for activities that are sufficiently routine to be well understood. At the same time, Spencer (1994, p. 453) affirms “In the mechanistic model, stability is prized because it increases predictability, which, in turn, increases control”.

In this regard, when referring to the mechanistic or control-oriented model, TQM will focus more on quality by conformance, and thus appear to meet all negative arguments concerning its relationship with innovation. On the other hand, both TQL and an organic model are more related to innovation. Sitkin et al. suggest that TQL stresses development of new skills, exploration of new arenas, and other innovative-like activities, whilst an organic model has long been identified as instrumental in supporting innovation in the literature on innovation (Burns and Stalker, 1961).

Finally, the discussion of the multidimensionality of TQM is concerned with its application in organizations. In contrasting QA with TQM, Moreno-Luzon and Peris (1998) argue that although each of these approaches come from different conceptions and apply different tools, they are not exclusive; indeed, TQM arises as an evolution of the quality assurance (QA) approach and both perspectives can coexist in the same organization at different levels. The question then is how these two contrasting practices co-exist within one organization. Spencer (1994) argues that organizations that practice TQM do not necessarily hold strictly to any one of her three models; rather, they “oscillate” among them. It can be inferred that under the umbrella of TQM, organizations can emphasize or promote the exercise of certain practices over others. In other words, one could expect various configurations of TQM practices implemented in different organizations, particularly in the context of the pursuit of different strategic objectives.

<sup>1</sup> The term “organic” has been recognized in the literature on innovation, and therefore from this sentence onward, the term “organic” will replace the term “organismic”

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