

Implementation of Total Quality Management (TQM) in Small and Medium Enterprises (SMEs): A Literature Review

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Abstract

Total Quality Management (TQM) has been a most important manufacturing practice in the aspect of business. The implementation of TQM will increase the level of performance for the Small-sized and Medium Enterprises (SMEs). The objective is to review the literature for implementation of TQM in SMEs. The study reviewed the research papers from the period of 1994 to 2018 for implementation of TQM in SMEs. The review of literature showed that there are many studies conducted for TQM in technology-intensive SMEs like automobile, electronics and other engineering when compared to labour-intensive SMEs including leather, garment and textile for implementation of TQM.

Keyword: TQM, Technology-intensive SMEs, Labour-intensive SMEs

Introduction

In the past few decades, TQM has been a most important manufacturing practice in the aspect of SMEs. TQM is used as a philosophy that helps to increase the level of quality. An organization performance is required to achieve the business goal, such as customer satisfaction in SMEs. TQM is one of the most important manufacturing systems to improve the organization performance to achieve quality in SMEs.

Review of Literature

Goh and Ridgway (1994) observed that SMEs were not the appropriate organizations for introducing TQM which seemed to have evolved as an approach that was relevant only to large companies. They suggested that the SMEs should develop a cost-effective TQM framework. Comparing the implementation of TQM in SMEs and in large organizations, Ghobadian and Gallear (1996) found that the inherent structural limitations of SMEs retarded

the adoption of TQM. They studied the impact of TQM on organizational changes and the difficulties encountered in the implementation of TQM. They found that SMEs have been slow to adopt TQM, owing to their inherent organizational structure which is very different from large organizations. Ghobadian and Gallear (1997) provided additional information using a Delphi study and an in-depth analysis to the earlier study. Based on the case analysis and Delphi study, they developed a model for the implementation of TQM in SMEs and suggested that the SMEs should adapt the manner of implementing TQM, based on their unique requirements, with a suitable framework for implementation. Otherwise, a blind application of TQM in SMEs is likely to produce adverse results.

Husband and Mandal (1999) developed the conceptual model by integrating dimensions (core, structural, fundamental, sustainability, integrative and external dimensions) of SMEs and this model could be used by owners, operators, managers, quality professionals and other SME stakeholders. This conceptual model was developed to improve the implementation rate by clearly understanding and interpreting the quality methods. McAdam (2000) developed a quality model for SMEs from the large corporate business model and concluded that five Critical Success Factors (CSFs), viz., business goals, management commitment, customer satisfaction, employee participation and performance measurements are similar for both large companies and SMEs to scale down the factors used in large companies, while introducing TQM in SMEs. Interestingly, most of the TQM implementation frameworks were developed based on the context and the experience of large companies and applied in the SMEs (Yusof and Aspinwall, 2000a). Based on the CSFs, Yusof and Aspinwall (2001) developed a framework for bringing TQM into automotive SMEs.

Yusof and Aspinwall (2000b) surveyed SMEs and found that initiatives such as the introduction of a quality system was crucial for successful implementation of TQM and has become a stepping stone in practicing TQM. Most companies regard Quality Audit systems as just mandatory requirements to meet customers' needs (Goh and Ridgway, 1994).

Yusof and Aspinwall (2000b) concluded that the CSFs were (i) leadership and support from top management, (ii) effective and appropriate training for employees, (iii) performance measures and (iv) continuous improvement. They also considered the selection of tools and techniques to be important. Later, Yusof and Aspinwall (2000c) surveyed SMEs and found the various CSFs that were crucial for successful implementation of TQM. They reported

that lack of human resources, lack of involvement and motivation to achieve goals in a short span of time were the key obstacles. The key enabler for implementation was continuous improvement.

Yusof and Aspinwall (2000d) examined the tools and techniques of TQM. They developed a conceptual framework for TQM implementation. This framework uses three elements, (i) quality tools, (ii) methodology for planning and training and (iii) a co-coordinating body for linking the elements with company goals and policies. They concluded that SMEs should adopt TQM gradually and progress by selecting appropriate quality tools as initiatives.

Hansson and Klefsjo (2003) focused on the core value of an organization that needs to change for implementing TQM. The main core values are top management commitment, continuous improvement, focus on customer and process, decisions on fact and all-round commitment. They suggested that the core values should be supported by techniques and tools in quality culture. Lee (2004) emphasized in extensive training, employee involvement and management commitment at all levels in the organization after examining how TQM was introduced in Chinese SMEs.

Tari and Sabater (2004), through an empirical study, pointed out the tools and techniques as important CSF for implementation of TQM. Bamford and Greatbanks (2005) described the simple tools and techniques with a problem-solving approach can be applied for implementation. They recommend the use of a simple model that includes using appropriate simple tools through formal training at all levels of an organization, to impart in-depth knowledge of the process. Sousa et al. (2005) determined the level of knowledge of performance measures and the use of quality tools along with the extent of their implementation in SMEs. Sousa et al. (2006) showed that of employees' training as important CSFs for the implementation of TQM with the new performance measures.

Fotopoulos and Psomas (2009) surveyed and examined the level of use of tools and techniques in ISO certified companies and they concluded that the level of use of tools and techniques was low because of insufficient training. Gadenne and Sharma (2009) and McAdam et al. (2010) surveyed and identified several CSFs such as commitment of top management, involvement of employee, customer satisfaction, continuous improvement, selection of tools and techniques and the use of appropriate performance measures. Sousa

and Aspinwall (2010) developed a performance measurement framework for implementation of TQM in SMEs.

Brkic et al. (2012) examined the impact of quality tools, application in business performance, such as financial, employee and operational. Kirkham et al. (2014) surveyed the extent to which TQM practices were implemented by SMEs in European manufacturing industries when compared to larger enterprises. Sinha et al. (2016) investigated the result of TQM principles on performance measure in Indian auto SMEs. Oliveira et al. (2017) investigated TQM implementation in the context of SMEs ISO registered Brazilian companies. They pointed out that ISO practices may not necessarily drive performance improvements towards implementation of TQM because of the lack of awareness of TQM and commitment to continuous improvement philosophy. Anholon et al. (2018) observed the implementation of quality management systems (QMSs) in Brazilian manufacturing SMEs.

SMEs	TQM – Author
Technology-intensive	Goh and Ridgway, (1994); Ghobadian and Gallear, (1996) and Ghobadian and Gallear, (1997); Husband and Mandal, (1999); McAdam, (2000); Yusof and Aspinwall, (2000d); Yusof and Aspinwall, (2001); Hansson and Klefsjo, (2003); Tari and Sabater (2004); Lee (2004); Bamford and Greatbanks (2005); Sousa et al. (2005); Sousa et al. (2006); Fotopoulos and Psomas, (2009); Gadenne and Sharma, (2009); McAdam et al. (2010); Sousa and Aspinwall (2010); Brkic <i>et al.</i> , (2012); Kirkham <i>et al.</i> , (2014); Sinha et al. (2016); Oliveira et al. (2017); Anholon et al. (2018)
Labour-intensive	Cagliano <i>et al.</i> , (2001); Faisal, (2016); Salaheldin, (2009) and Valmohammdi, (2011)

Based on the literature review, there are plenty of discourses on TQM and LM implementation in technology-intensive SMEs like automobile, electronics and other engineering (Table 1). Some of the studies (Cagliano *et al.*, 2001; Salaheldin, 2009 and

Valmohammdi, 2011; Faisal 2016) conducted in labour-intensive SMEs including leather, garment and textile for implementation of TQM.

Conclusion

The review of literature showed that there are many studies conducted for TQM in technology-intensive SMEs like automobile, electronics and other engineering when compared to labour-intensive SMEs including leather, garment and textile for implementation of TQM.

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