Research and concepts

A conceptual framework for TQM implementation for SMEs

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Introduction

TQM implementation has been an important aspect for improving organisational efficiency. Large businesses such as IBM, Rank Xerox, British Airways are in the “premier league” when it comes to such activities. However, their achievements and progress to date could be hampered if they do not extend the improvement boundary beyond their own organisations. This is especially so for those who obtain their raw materials, components, sub-assemblies, semi-finished products, and services, from suppliers, many of which are small businesses (SMEs).

In an attempt to assist TQM implementation in SMEs, this paper proposes a framework believed to be suitable and useful for them. The first two sections of this paper discuss the review conducted on implementation frameworks in general, and the need for small businesses to be involved in TQM. This is followed by a description and a discussion of the authors’ proposed framework with suggested future research directions. SMEs are an important sector and must not be left out in the pursuit for excellence.

With this background, it is imperative that small businesses also adopt TQM to support large businesses’ quality initiatives. Smaller companies cannot just imitate, in total, the approaches adopted by their large counterparts. They need to be modified, adapted, or revised, to SMEs’ needs and characteristics. Small businesses are usually constrained by their size, their lack of technical expertise, of managerial time, and of financial resources and their human resource limitation (Moreno-Luzon, 1993; Lee and Oakes, 1995).

They do, however, have their own strengths on which they can capitalise, when attempting to introduce new changes. They are more flexible, able to respond quickly, have versatile human resources, and suffer less bureaucracy than larger organisations. By analysing the work of Gobadian and Gallear (1997), the differences in characteristics between large and small businesses have been summarised (see Table 1). It is vital that these characteristics be considered when designing implementation strategies for small businesses.

In addition to the peculiar characteristics of small businesses, a TQM definition that suits
### Table I: Small business characteristics – advantages and disadvantages

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Advantage</th>
<th>Disadvantage</th>
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<tbody>
<tr>
<td><strong>Structure</strong></td>
<td>Faster communication line, quick decision-making process, faster implementation.</td>
<td>Low specialisation may result in lack of expertise in change initiatives. Need outside assistance. Owner controls everything and lacks delegation, can stifle growth</td>
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<tr>
<td>Flattened with very few layers of management, top management highly visible and close to the point of delivery. Less delegation. Division of activities limited and unclear. Low degree of specialisation. Flexible structure and information flows. Strategic process incremental and heuristic</td>
<td>Short decision-making chain</td>
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<tr>
<td><strong>Systems and procedures</strong></td>
<td>Simple system allows flexibility and fast response to customer needs</td>
<td>Lack of proper system – difficulty in ensuring efficiency of work, and high variability in work outcome. &quot;Gut feeling&quot; approach may result in wrong decisions</td>
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<tr>
<td>Activities and operations not governed by formal rules and procedures. Low degree of standardisation and formalisation. People dominated. Simple planning and control system. Incidence of “gut feeling” decisions more prevalent. Informal evaluation, control, and reporting procedure. Flexible and adaptable processes</td>
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<td><strong>Culture and behaviour</strong></td>
<td>Corporate mind-set is conducive for new change initiatives, i.e. company first. Unified culture can be a good starting point for say TQM</td>
<td>Uncommitted or dictatorial owner/manager ethos can damage new initiatives</td>
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<tr>
<td><strong>Human resources</strong></td>
<td>High authority and responsibility can ensure job is done. Innovative environment will support improvement culture. Early union involvement needed to ensure success. Fewer employees – better relationship, knows almost everyone</td>
<td>Lack of financial support e.g. no training budget, ad hoc planning, and small-scale approach can stifle improvement efforts. Improvement needs investment in human resources</td>
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<tr>
<td>Personal authority mainly high. Few decision makers. Dominated by pioneers and entrepreneurs. Individual creativity encouraged and high incidence of innovativeness. Modest human capital, financial resources and know-how. Individuals normally can see the results of their endeavours. Low incidence of unionisation. Low degree of resistance to change. More generalist some staff may cover more than one department</td>
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<tr>
<td><strong>Markets and customers</strong></td>
<td>Immediate feedback from customers. Able to respond quicker. Understand better customer needs</td>
<td>International marketing expensive, after sales support not as extensive as large businesses. Easily suppressed/dictated by larger multinationals (if they are customers) e.g. imposed ISO 9000, QS 9000, EMS, etc.</td>
</tr>
<tr>
<td>Span of activities narrow. Limited external contacts. Normally dependent on a small customer base. Close contact, easily accessible and many known personally. Mostly local market, few national or international</td>
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</table>

Small businesses will have to be considered. Existing definitions are large, business oriented and do not reflect the conditions and the characteristics of small ones. It is therefore proposed, for the purpose of this study, that TQM for small businesses is defined as:

Adopting a quality culture through the implementation of quality management initiatives in all aspects of the business with full consideration towards building a continuous improvement culture based on realistic resources, financial and human, and in anticipating and meeting customer needs according to priorities established for continued business success.

The authors believe that this definition fits the small businesses' characteristics by, for example, stressing the need to consider
resources. It also helps SMEs to have a much better understanding of the overall concept of TQM, thus making them much more receptive to the idea of continuous business improvement.

**TQM implementation frameworks**

TQM implementation is considered to be a complex and difficult process (Kanji and Barker, 1996). Meegan and Taylor (1997) and their related publications (Meegan, 1996; Taylor and Meegan, 1997; Taylor, 1997) have highlighted the important role that senior executives play in making the transition from ISO 9000 to TQM. They concluded that senior management understanding and having an enlightened motivation of the real purpose in pursuing quality initiatives, would ensure that companies progressed beyond ISO 9000 and moved towards TQM. Those “enlightened companies” will not stop at certification. Taylor (1997) highlighted that senior executives of smaller organisations were much more likely to suffer from this problem of not progressing beyond ISO 9000. However, he did not provide suggestions as to how companies can move forward to implementing TQM after gaining certification. This problem of SMEs remaining stuck at ISO 9000 quality management foundation was also highlighted by Dale (1998). He pointed out the need to provide simple, effective, and pragmatic advice on the next steps to take in an appropriate and easily understandable manner, to advance from ISO registration to European Quality Award prize winner status.

It is not only advice that they need, the authors believe that to help in the implementation process, a framework is needed which acts as a guide for the way forward. Of the implementation frameworks published in the literature, many had not been considered for applicability in small businesses (for example, Mann, 1992; Oakland, 1993). To the authors’ knowledge, there has not been a study to date which has systematically looked at developing a framework for small businesses. The ones which have been proposed by Gobadian and Gallear (1997), Asher (1992), and Ho and Fung (1994) are too prescriptive, very much tool oriented and not detailed enough. This presents a gap in the current research on TQM implementation for small businesses. A question which arises then, is how can one characterise a good implementation framework that really suits the small business. To answer this, the following characteristics can be considered as a guide in developing such a framework:

1. Systematic and easily understood;
2. Simple in structure;
3. Having clear links between the elements or steps outlined;
4. General enough to suit different contexts;
5. Represent a road map and a planning tool for implementation;
6. Answers “how to?” and not “what is?” TQM; and
7. Implementable.

It is important that these criteria are considered when developing a framework for SMEs. The next section discusses a proposed conceptual implementation framework and culminates with an explanation of how each of these characteristics have been applied in the development process.

**The proposed conceptual framework for SMEs**

The development of any model has to start from an initial idea and concept. In the case of implementing TQM, one can start by trying to analyse the range of options available such as developing a quality assurance system, an improvement strategy and methodology, etc. The whole process of TQM adoption can be broken down into several key areas. First, there should be a strategy for implementation involving the planning and preparation of a document detailing the way forward. The preparation of such a document may constitute:

1. Creation of a co-ordinating body;
2. Development of a vision, mission and policy statements;
3. Education for the top management and co-ordinating body members on total quality principles and philosophy;
4. Selection and trial run of the first improvement project;
5. Appraising the company’s current level (some call this “gap analysis”).

The second point is that the various quality initiatives or quality tools and techniques are to be adopted only when they are needed, and
not to be applied wholesale. So, in a sense, the “toolbox of quality initiatives” (as depicted in box 1 of Figure 1) contains initiatives such as statistical process control (SPC), ISO 9000, quality circles, benchmarking, cost of quality, supplier quality, customer survey, employee survey, etc. A gradual adoption of the necessary “tools” at different stages in the process can ensure a systematic implementation of TQM.

There must also be a “central co-ordinating body”, at senior management level, whose main functions are to co-ordinate improvement and new change initiatives, to make decisions on issues such as overall policies, to measure progress, to implement a tools selection basis/procedure, and to review all activities in this TQM process (as shown in box 3 of Figure 1). Members should comprise all directors from the management team (usually small businesses have only a few directors), and representatives from supervisory and operator level. The necessary authority and responsibility must be accorded to the members of this body to ensure positive outcomes.

Once a tool/initiative is selected for adoption, say SPC, a sequence of activities will have to be followed to ensure that it becomes normal company practice. The ultimate aim is to ensure that any initiative selected must contribute towards a culture for continuous improvement. The suggested general sequence (as shown in box 2 of Figure 1) is planning, education and training, a trial run in a few areas or on a few machines, review effectiveness and improve if required, and finally standardise to be part of the organisation’s practice. This cycle can be repeated until fully satisfied that it is accepted as contributing towards continuous improvement. This same process could be applied to other initiatives, for example, cost of quality. The cycle again begins with planning, then a full understanding is needed not only by the employees who will be directly involved in the data gathering, but also top management who will use the information in decision making. A data collection system will be needed prior to implementation together with a pilot run. This whole process is analogous to that of introducing new product design changes, or new manufacturing processes, whereby a thorough understanding as well as a prototype trial run is needed. The tools, techniques, approaches or methods selected must all aim towards continuous improvement in the organisation. In a way, this is not a prescriptive way of introducing quality initiatives because it does not call for adopting the initiatives in any strict sequence or order. All these elements and activities have been summarised in Figure 1 that illustrates the overall mechanism of the implementation approach.

From the diagram, it can be seen that the framework is simple and can be easily understood because only key elements or components are presented in it, i.e. quality tools, general methodology, and co-ordinating body. This is an advantage over other frameworks (see for example, Mann, 1992; Oakland, 1993), which were, in the authors’ opinions, too complex and complicated and not well suited to small businesses. The framework also provides a roadmap for implementation, as described in the SPC example given earlier. It acts as a planning tool since the general methodology gives major activities that need to be considered when starting on a new quality initiative. The tools in the quality initiatives “box” together with the general methodology create a clear link for the required steps to be taken and show the generic nature of the overall implementation approach. It is not prescriptive as suggested by some authors (see Ghobadian and Gallear’s framework (1997) and Ho and Fung (1994)) and does not actually specify starting from one tool and progressing to another, such as from ISO 9000 to SPC, etc. It is very much dependent on the company’s needs and current situation.
As part of an on-going research project, further investigations to determine its viability, limitations and validity are currently under way. Strengths and weaknesses can be determined from such a study and a modified framework derived, if necessary, from a thorough analysis. The authors believe that the overall concept built within the framework is simple, not prescriptive, and it tries to encompass as much as possible with regard to TQM implementation. It does not suggest doing everything at once, but rather progressing in stages, selecting from a range of available initiatives. It is also deemed inappropriate to suggest which tool or initiative to apply first; this is solely dependent upon the user who will have to conduct an assessment of their available resources, the current problems and the priority. Small businesses in particular need to improve “tangible” things first, rather than “intangible” ones due to their limited resources. Improving waste and defects, complaints or warranty claims are all good options to start with the continuous improvement process.

Discussions and future research

Authors such as Saraph et al. (1989), Ahire et al. (1996), Black and Porter (1996), Zairi (1996) and Ramirez and Loney (1993), have empirically studied critical success factors (CSFs) of TQM. All of them have also developed or utilised some instrument to gauge the perceived quality management practices in a business. A study of critical success factors relevant to small businesses is needed. Towards that end, a questionnaire will be developed through modifying and adapting those developed by previous researchers. It is not the purpose of this research to develop an instrument for studying CSFs, so it will be sufficient if those already developed are used and other factors relevant to SMEs are added. The questionnaire will be distributed to quality experts for validation and modified if necessary. The target group for this study is SMEs in the car components industry. It is hoped that CSFs related to SMEs will be found from this study and can be used for the next stage of this research, i.e. conducting the case study.

Numerous researchers in TQM have used the case study method in their research (see for example, Kowalski and Walley, 1993; Kolesar, 1993; Snowberger, 1996; Naveh et al., 1998). Through case studies, a good depth of information can be obtained by direct observations, document reviews, and interviews with employees. Motwani (1997) suggested that more comprehensive and comparative case studies of successful TQM implementation would be helpful to those who are still struggling. It is without doubt that SMEs are still struggling and they need role models from small not large firms.

The general methodology in conducting the case study will be centred around the following tasks: an assessment of the current level of TQM understanding and practices, developing strategies for adopting TQM, developing a model for implementation, evaluating and validating the framework using subjective measures and where possible from implementation outcome, and modification of the framework. Data collection will be made mainly through interviews with managers, conducting employee surveys, review of documents related to the study, and through observations.

Conclusions

Large businesses have always been in the forefront of adopting many advanced management philosophies including TQM implementation. Smaller businesses are always left behind and are not given the attention they deserve. However, the efforts made thus far by large companies will be stifled if the smaller companies are not involved in the process. Small businesses must implement TQM in order to support and sustain large companies’ efforts.

This paper has attempted to fill the gap through the proposed conceptual framework for TQM adoption in SMEs. It has discussed in some depth the importance and the need for developing such a model. SMEs have been found to differ in many areas from large and must not be treated the same. It is anticipated that this study is able to develop a model for TQM implementation in SMEs, mainly for those involved in the car manufacturing industry. Hopefully, there will be many common elements for the general manufacturing sector, so that the model will
be applicable to other companies albeit with slight modifications or adjustments. Finally, it is hoped that this paper has provided some insights into the need for TQM in such a crucial sector of the UK’s economy, i.e. the SME sector.

References


Commentary

Useful contribution to the still under-researched area of quality management in small organizations.