The Sustainability and Evolution of Quality Improvement Programmes—an Australian Case Study

DANIEL I. PRAJOGO* & AMRIK S. SOHAL**

*Bowater School of Management and Marketing, Deakin University, Australia,
**Department of Management, Monash University, Australia

ABSTRACT: This paper presents a case study on the implementation of quality management programmes and initiatives in one manufacturing company in Australia, which has lasted for more than two decades. Using data collected through in-depth interviews, the case study describes how the company progressed from an earlier initiative based on quality control to the present initiatives that emphasize customer focus, product development, and innovation. Several important insights are drawn from the case study, including the importance of aligning the quality programmes or initiatives with a clear strategic focus. In addition, the commitment and leadership of senior management of the company has been demonstrated, particularly in the provision of resources and facilities to support the TQM programme, and also shown is how the company has been successful in maintaining its long-term commitment to quality management, which has led to an accumulation of various knowledge and competencies, which function as a valuable resource to sustain its business performance.

KEY WORDS: Sustainability, quality management

Introduction

Total Quality Management (TQM) has been one of the most prominent developments in the management field in the last two decades. Initially popularized in Japan, TQM has spread around the world as a source of competitive advantage. The emergence of TQM as a modern management model, however, has received strong challenges. Numerous authors, such as Brown (1993), Harari (1993), Schaffer & Thomson (1992), and Tatikonda & Tatikonda (1996) have reported on the failure of TQM programmes. A number of major consulting companies, such as Arthur D. Little, Ernst & Young, McKinsey & Col, A. T. Kearney, and Boston Consulting Group have also provided similar evidence. It is commonly agreed that only about one-third, sometimes even one-fifth, of TQM programmes in the United States and Europe have achieved significant or even tangible improvements in quality, productivity, competitiveness or financial returns. On the other hand, there are no fewer success stories about TQM. For example, in their study among 84 North American manufacturing firms, Ginnodo & Wellins

Correspondence Address: Amrik S. Sohal, Department of Management, Monash University, PO Box 197, Caulfield East, VIC 3145, Australia. E-mail: amrik.sohal@buseco.monash.edu.au

1478-3363 Print/ 1478-3371 Online/04/020205-16 © 2004 Taylor & Francis Ltd
DOI: 10.1080/1478336032000149036
D. I. Prajogo & A. S. Sohal (1992) conclude that TQM does improve organizational performance in terms of operational benefits, customer satisfaction and retention, and organizational climate. Indeed, the TQM movement in the West initially started in the US in the early 1980s, primarily in manufacturing companies that were facing severe competitive pressure from their Japanese counterparts. Early adopters of TQM in the US included companies such as AT&T, Du Pont, IBM, Xerox, Monsanto and Ford (Hunt, 1993). By and large, despite numerous critics against TQM arguing that it is but another management fad, a significant number of arguments have supported the case for TQM. TQM supporters unanimously affirm that the failure of TQM should not be attributed to its principles but its implementation process (Becker, 1993; Shin et al., 1998). An empirical study by Powell (1995) came up with a similar conclusion that the organizational internal environment plays a significant role in determining the results yielded form TQM implementation.

The implementation of the total quality management (TQM) process is still providing difficulties for many companies around the world, including Australia. Scores of researchers discussing the TQM implementation processes have attempted to identify the major factors that could determine the success or failure of TQM programmes in yielding significant benefits for the organizations (Brown et al., 1994; Dale & Cooper, 1994; Eisen et al., 1992; Shani et al., 1994; Shin et al., 1998; Sohal et al., 1998; Tatikonda & Tatikonda, 1996; Wilkinson et al., 1994). Several authors have also attempted to summarize and classify these manifold factors in a systematic way. For example, Mann & Kehoe (1995) developed a framework—labelled as Quality Critical Organizational Characteristics (QCOC)—which can be used for analysing the organizational characteristics that influence the implementation or effectiveness of quality activities. The QCOC framework consists of 24 items that are grouped into seven categories, namely process factors, type of employees, shared values, management style, organizational structure, number of employees, and industrial relations.

In their study amongst Hong Kong’s services and industrial companies, Ngai & Cheng (1997) attempted to articulate the underlying dimensions to potential barriers to TQM implementation. Using the Principal Component Analysis (PCA) method, they identified four dimensions of TQM impediments, namely employee and cultural barriers, infrastructure barriers, managerial barriers, and organizational barriers. Dale et al. (1997) designed a toll to audit the issues that impact negatively or impede the sustainability of TQM implementation developed from fieldwork carried out in 12 sites of six manufacturing organizations. These issues are grouped into a five-part classification of internal and external environment, management style, policies, organization structure, and process of change.

Apart from the above classical issues, which have survived in the management field for more than two decades, it is important to examine further issues with regard to TQM implementation. The first issue is sustainability of TQM. As mentioned earlier, the TQM literature has noted that many TQM programmes stall shortly after being launched, yet it has been strongly suggested that TQM will only produce significant benefits if it is implemented in a long-term basis (Shin et al., 1998). In studying the trends in the adoption of quality management
practices in the Australian manufacturing industry, Sohal & Terziovski (2000) conclude that, overall, the popularity of TQM, ISO 9000 certification, statistical process control and quality circles has diminished. Zairi (2001), however, argues that sustainability does not only look at how TQM can survive over a long period in the organization but, more importantly, how it supports organizations to maintain their competitiveness.

The second key issue is concerned with the evolution of TQM. Dale et al. (1994) highlight that the evolution of TQM has undergone several stages from inspection, to quality control, then quality assurance, and through to total quality management. They further argue that TQM, as a management philosophy, has successfully elevated the implementation of quality management practices from an operational level to a strategic level. Zairi & Liburd (2001, cited in Zairi, 2001) affirm that sustainability cannot be separated from evolution since sustainability itself should be defined as the ability of an organization to adapt to change in the business environment, to capture contemporary best practice methods and to achieve and maintain superior competitive performance. The evolution of TQM therefore always evolves along with the changes in the business environment. In this regard, a number of scholars have argued that in today’s competition quality has now been ‘degraded’ as an ‘order qualifier’ criterion and been replaced by other aspects such as flexibility, responsiveness, and innovation, which now function as the ‘order winner’ criteria (Hamel & Prahalad, 1994; Tidd et al., 1997). As a result, TQM, which was originally intended for managing quality has also been faced with a similar challenge in the sense that organizations may now ask whether they should continue to implement it as a management model, particularly when they need to pursue a higher level of innovation performance.

Hitherto, only a few studies have presented cases of ‘TQM survivors.’ For example, Van der Viele & Brown (2001) conducted a quasi-longitudinal case study research on quality management activities in five large Australian organizations over a decade through four rounds of interviews in 1994, 1996, 1999 and 2001. Several interesting key findings regarding the evolution of quality management programmes include less common use of the word quality and the acronyms QM or TQM, the removal of specific quality-related functions and positions and the transfer of the responsibility for quality to line managers, the tendency to pay more attention to the external environment of the organization, and finally the influence of business planning and performance agreements on quality.

This paper presents a case study of a large manufacturing firm in Australia which has been implementing a TQM programme for more than two decades. A case study is chosen because it is an appropriate strategy for a research aiming for understanding complex organization problems that cannot be handled using a quantitative method. Yin (1994) suggests that the case study method is especially appropriate to answer the ‘how’ and ‘why’ questions of the research, and these are typical questions investigated in TQM implementation research. Many examples exist that have employed this method when conducting TQM research (see for example, Terziovski et al., 1996; Van der Wiele & Brown, 2001). In particular, the case study method is suitable for this research because it focuses
on the dynamic process of TQM implementation in a chronological mode spanning more than two decades (the 1980s to now). In terms of the case study design, we used an in-depth single case study, which has been widely used in studies on the TQM implementation process, such as Chapman et al. (1991), Numerof & Abrams (1992), Sohal & Lu (1995, 1998), Simmons et al. (1995) and Mahler (1995). Yin (1994) specifically suggests that the single-case design is remarkably justifiable where the case represents a critical test of existing theory, or where the case represents a rare or unique event, or where the case serves a revelatory purpose. In our view, the present case study typifies a rare case of TQM implementation, which makes it unique from the rest in the following terms. The first uniqueness is its sustainability for more than two decades. The second is the positive results yielded from the programmes in terms of both tangible and intangible measures. Thirdly, the case study is exceptional with respect to its evolutionary process in terms of focus and scope and the accumulation of capabilities.

The case study involved interviews with six managers of the case study company as the source of information, including the Director of Operations, Assistant to Managing Director, Continuous Improvement Manager, and Business performance Improvement Manager. These people were amongst those who were significantly involved in the implementation process of various TQM programmes at different times. In total, 12 interviews were conducted with these people, amounting to around 20 hours of interview time. A case study protocol was established as a guideline for the researchers when conducting the case study. It contains all the relevant questions about the company’s experiences of, and when, implementing quality management programmes. The main issues being considered as crucial to be addressed in this study were:

- What kinds of quality management activities have been implemented by the company since the 1980s?
- How did these programmes evolve along with the changes in the business environment of the industry where the company operates?
- How did the company implement these programmes? What were the major challenges in the implementation process?
- What are the impacts of these programmes on the company’s performance?

The remainder of the paper is structured as follows. The case study starts with a brief background of the company, followed by a chronicle of quality management programmes that have been implemented in the last two decades, divided into three time periods: the 1980s, the 1990s, and 2000 onward. The case study is then followed by a discussion highlighting the key findings with reference to the relevant literature, and finally conclusions are given.

Background of the Company

The company began to operate in Melbourne, Australia, in 1922 as a supply and service firm. Today it employs more than 1800 people from over 70 nationalities. Its primary products are a wide range of automotive products for local car manufacturers and major export customers worldwide. The sales revenue in 2000
amounted to AU$703 million, with automotive equipment accounting for over 80% of this figure. The company has been extremely successful in exporting its products to Europe, Asia and the USA. Exports increased from almost zero ten years ago to nearly AU$300 million in 2000. It is also known as a very innovative company, being named as one of Australia’s ten most innovative companies. Currently, the company employs more than 100 research and development (R&D) engineers and has invested more than AU$150 million over the past 5 years in R&D. It also maintains strong links with numerous educational and research institutions for the transfer of knowledge and advanced technologies to Australian industry. In particular, through pioneering work in electronics, the company has become a leading innovator in automotive technology. Today, the company holds worldwide responsibility within the corporation for the development and manufacturing of Automotive On-Board Electronics, which has allowed the company to play an important role in the corporation’s ability to offer customers R&D services around the world.

Quality Management Programmes

Quality Management Programme in the 1980s

The company’s journey towards becoming a TQM organization can be traced back to the mid-1980s although, as part of a multinational corporation, it had implemented a quality system before that period. The awareness of the need to implement quality management initiatives was triggered by two major driving forces, namely the increasing levels of international competition, and the demand of major customers for quality system implementation; for example, the demand placed by Ford to implement the Q101 quality system. During the 1980s and the 1990s, most of the focus was on quality being used as the source of competitive advantage. Car companies, as the major customers, began to impose the formal implementation of a quality system on their suppliers. Ford, in particular, demanded that all major suppliers must implement the Q1 and Q101 quality system if they wanted to secure their business with Ford. Therefore, during this period, quality was essentially defined as ‘conformance to specification’ and the specification was fully dictated by customers. For many car companies the basis for new business was detailed specifications documents that were often more than 100 pages long and related to existing, or even out-of-date, products. In the process of implementing the Q101 system, the company had an advantage because it had maintained its own quality system, which was established by the corporation. Although this system was similar in many respects with the Ford Q101 quality system, this situation had made the company implement two systems in parallel that in some ways conflicted with each other.

In addition, the mid-1980s was the time when The Passenger Motor Vehicle Plan (which came to be known as The Button Car Plan after Senator John Button, the Minister responsible) was introduced by the Australian government. The introduction of this Plan facilitated the opening of the automotive industry and its supplier base to international competition and consolidation that subsequently led the companies in the industry to be more focused on improving
quality and efficiency in order to compete with imported products. From the car companies’ point of view, they could benefit from this situation since lower tariffs reduced the cost of components for car manufacturers, as imported components represent a large proportion of the cars built in Australia. With the implementation of the tariff reduction programme, the level of competition was heightened as price became a critical factor.

These two major events led the company to start thinking seriously about managing quality. Towards the end of the 1980s, the company was also becoming familiar with the Total Quality Management (TQM) philosophy and the concept of continuous improvement and employee involvement.

**Quality Management Activities in 1990s**

During the 1990s, continuous improvement and employee involvement became the primary activities of the company’s quality management programmes. A large proportion of the company’s managers and supervisors became aware of the concept of continuous improvement after attending a seminar in 1992 presented by Masaaki Imai, the author of the well-known book *Kaizen—The Key to Japanese Competitiveness* (Imai, 1986). Within six months of Imai’s seminar, the company began to involve its employees in contributing to continuous improvement, and this was achieved through the Quality Circles programme. The main weakness with this programme at the company was that it was largely driven by management with shop floor employees being told what to do rather than being given responsibilities to run their own meetings and come up with their own solutions to problems. The Quality Circles programme was replaced by the major initiative in the mid 1990s—the Continuous Improvement Program (CIP)—which was initially developed in Europe and simultaneously implemented at all subsidiaries around the world. Under the CIP umbrella there are two major elements of activities: Continuous Improvement Workshops (CIW) and Continuous Improvement Team (CIT).

**Continuous Improvement Workshops (CIW)**

The CIW programmes were established with the objective of providing employees with a common set of methodologies for making improvement and a common set of standard tools for problem solving. The concept of the workshops was publicized and announced throughout the organization, and covered all manufacturing and administrative areas. During the workshop, employees formed themselves into teams and started to work on projects identified in their own work areas, with considerable assistance being provided to these teams by departmental managers as well as the CIW task force. One of the earlier workshops was held in the logistic area, and involved not only the company’s employees but also a number of their suppliers. This workshop led to the completion of a project over a 12 months period that saved the company approximately $200 000. This success encouraged the managers in other departments to run similar workshops. Subsequent workshops were held off-site, typically of one-day duration, involving 20 to (a maximum of) 30 people. Over
the period 1995–1998, approximately 15 workshops were held each year, and by 2000 most of the shopfloor employees had participated in the CIW programmes. Many of the tools and techniques taught in the workshops had become part of daily practices in the workplace; regularly used by employees, supervisors, and also managers up to the present. This suggests that the TQM programme has brought a significant change on behaviours and culture at the employees’ level.

**Continuous Improvement Team (CIT) Programme**

The other major initiative that was implemented under the CIP umbrella was the Continuous Improvement Team (CIT) programme. CIT was introduced on the shopfloor only and involved employees and staff in one-hour regular meetings to discuss and brainstorm ideas. Therefore, CIT was, in the main, an improved model of the Quality Circles (QC) programme that had previously been run at the shop floor level. The CIT had weekly meetings that were held in the form of workshops to help its members identify problem areas and come up with solutions. All CITs then made presentations on their projects, and these presentations were assessed by a team whose members included the Production Manager and the Quality Assurance Manager. By the end of 1996, there were 20 CITs (six people per team) operating in the company, and up to this time, CITs were recognized as being very successful. It was estimated that a total saving of $400,000 had been achieved during 1996. In order to encourage employees’ participation in the CIT programme, management provided AIS$50,000 to be used as reward money for CITs that performed well. This award system, however, then appeared to impact negatively on the motivation of the employees to continue their participation in the CIT programme, particularly amongst those that did not get a share of the AU$50,000. After modifying the award system several times in order to regain the employees’ participation, in 1999 management announced that any CIT team completing a successful project would be provided with a $3000 reward and therefore abolished the ‘spirit of competition’ among the CITs. This system works effectively and, by the end of 1999, all teams had again come together and completed a variety of improvement projects. The CIT programme is still operating, involving between 12 to 14 teams every year.

Overall, the company believes that it has benefited from the implementation of the CIP initiative, although its impact on the bottom line is considered to be relatively small. The reason for this is that, with such volunteer-type programmes, employees usually cannot identify, either subjectively or deliberately, the areas that could significantly impact the bottom line. This situation can be improved if management is willing to drive the improvement programme by directing employees to focus on certain processes that will produce more significant results. However, this requires a change in the mindset not only of the employees but, more importantly, on the part of management. Managers who believe more in the radical change paradigm often find it difficult to support the incremental type of improvements.

The company’s current approach is to let employees continue to drive their own continuous improvement projects. Management provides guidance where it is considered necessary but largely employees are left to undertake projects in
whichever way they feel will bring benefits. The principal hidden benefit of allowing employees to choose and work on their own ideas is to ‘open up’ their minds as well as enhancing their motivation and enthusiasm to making contributions to the company. Another clear benefit was that employees became very proficient in using the various TQM tools (e.g. brainstorming, Pareto chart, Plan-Do-Check-Act (PDCA) cycle, fishbone diagram, 5-Why’s) and were intuitively using them in their daily work. This incremental improvement approach is also important in sustaining the results of any quantum leap or major investment made by the company as a result of the growth in the production volumes. In addition, the CIP programme also produces benefits in the area of productivity by having sharper and more focused attention on resource utilization, applying more discipline in the resource allocation, and being conscious about using the CIP principles in identifying and correcting waste.

Quality Management Activities in the 21st Century

In late 1999, the corporation introduced a new major initiative and vision which was focused on producing excellent business results through improvement in quality, innovation and customer service. This initiative was initially introduced to top management of the corporation at the headquarters in Europe. Two senior directors from the company went to this forum and, on their return to Australia, they formed a steering committee consisting of senior managers from a number of functional areas to help develop a mission and an implementation plan for the new vision.

As a guiding vision, this initiative was deployed into several sequential programmes. In 2000, the programme was ‘Customer Focus’, for 2001, the programme was ‘Total Innovation Management’ (TIM). Through each of these programmes, the company implemented new methods or tools that would be continued in the future. Therefore, once a programme is launched, it will become the permanent practice of the company into the future.

In Australia, the new initiative was launched at a Conference that was held in Melbourne in December 1999. In launching this new initiative, however, there were some concerns that it might cause confusion among shop floor employees to differentiate it from the CIP programme. Therefore, a strong link between the initiative and the CIP programme was established with the initiative being the guiding vision and the CIP programme being the means, or a tool kit, to achieve the vision. In addition, in order to minimize such confusion, shop floor employees were not initially involved in the new initiative and only recently have employees been informed about it and are being involved in various projects under its umbrella, particularly the ‘Customer in Focus’ programme.

Customer Focus

The Customer Focus programme was launched together with the new vision and initiative in December 1999. Its primary goal is to provide better service to customers; both internal and external. This programme started with 30 work-
shops that were held to introduce the programme to employees across the company. Twenty of these 30 workshops were specifically departmental-oriented, and focused on such issues as: what are our functions, what are our services and how we can improve those and what are our priorities? The other ten workshops were more cross-functional and could involve up to ten departments. As a result of these workshops, approximately 1500 ideas were generated and many of these were then developed into improvement projects that were classified into quality, innovation, and customer focus type projects. By June 2001, 200 projects had been completed from a total number of 400 that were targeted for that year. Several significant improvements have been made through this programme, for example, the trade sales business has now established a procedure called ‘service promise’ that addresses the problems in customer service in terms of quality, delivery, and handling of the complaints.

One of the major lessons learned from activities undertaken during 2000 was that implementing a cross-functional team was very difficult because of a lack of process ownership. This required strong leadership from managers from different areas and many projects failed to accomplish their targets because of the lack of ownership. The company learned that the workshops and the projects had to be owned by the managers as sponsors rather than merely as facilitators.

Total Innovation Management

Following the Customer Focus programme, the Total Innovation Management (TIM) programme was launched in April 2001. It was first launched at the headquarters in 1999 as a partnership between the company and an international-based consulting company. The need for implementing TIM was driven by several key factors. First, the company began to recognize that the leverage point must now be shifted from downstream processes (i.e. manufacturing or production) into upstream processes that are concerned with product planning and development. This is because, in the automotive industry, quality is now measured in parts per million (ppm), with most leading companies achieving less than 50 ppm, and therefore it becomes more difficult to generate a differentiation value from this aspect. The company also began to acknowledge the serious challenges of its competitors, particularly those in the Asian countries, such as China, Korea or Malaysia. With standardized and automated processes, these competitors can match the quality produced by Australian companies and, in terms of cost, they have an advantage based on cheaper labour and overhead rates and, in the case of China and Korea, much larger local vehicle production. Given the above situation, the ultimate strategic goal the company now wants to pursue is innovation by developing new initiatives in process development, employee development, manufacturing technology and management under its ‘innovation’ definition, and particularly, product innovation. With this new focus, the orientation of the company’s strategy and operations has now shifted into the upstream processes (i.e. product planning, product design and process design), and managing the product development phase more quickly and at a lower cost so as to optimize the total cycle from product definition to manufacturing in a more efficient way. Second, in conjunction with the first reason, feedback from
customers indicated that the company was very slow compared to its competitors in its product development process. Third, from an internal perspective, the company perceived that it needed to have an initiative that could effectively drive cross-functional teamwork and improvement projects as well as enforcing ownership of the programme or project by managerial staff.

The focus of the TIM programme is to ensure that the upstream processes, starting from marketing, through to product concept, development, and specification—before being conveyed to the manufacturing line—are done in a systematic and structured manner. The most interesting point with TIM is that it brings the application of the principles (without necessarily referring to specific tools) that have been developed and applied in optimizing manufacturing processes for many years, into the upstream processes: the design and development processes. The TIM programme therefore applies a structured and disciplined approach to development processes and does it to the same extent as has traditionally been done in the manufacturing processes. This becomes a major challenge because many principles that have been applied in manufacturing processes, such as failure rate and process capability, are now applied to development processes that were normally considered as an ‘art’, where one cannot simply put a regimented discipline on the process, measure it, or even control it. The other focal point of TIM is the assessment and management of the level of non-determinism. The level of non-determinism is related to the level of unsubstantiated assumptions made, for example, on criteria or specifications of the product that are not clearly defined (by customers), and for which there are no proven solutions. As more such assumptions are needed, the process becomes more non-deterministic, hence increasing the risk. The objective of the TIM programme is therefore to manage the risk by minimizing non-determinism, either by having as much input as possible from the customer during the development process and/or by having pre-defined proven solutions to offer the customer. The company, however, is fully aware that it must balance the desire to reduce the non-determinism level to zero with the need to offer innovative products, services and processes (i.e. not to ‘kill’ innovation).

TIM has four basic components or steps. The first step is Process Mapping that describes how a baseline (i.e. real time and real life) process works and flows in converting input into output. The second step is identifying process barriers that hinder a process from achieving its goals and outcomes. The third step is process measurement that measures the first time quality, termed as First Pass Yield (FPY), cycle time (CT), on time delivery (OTD) and resources absorbed by a particular process by breaking it up into work packages. The final step is called Action in Process Management (AIP) Management), which is a method used to analyse a task or activity in terms of scope, priority, resources, and deadline before it is carried out. These four methods are mainly derived from practices implemented in manufacturing processes. For example, the method of identifying process barriers is conducted by using a simple cause and effect (fishbone) diagram to ascertain all potential causes of particular problems. Therefore, the company believes that the implementation of TQM is a prerequisite to having a successful TIM programme, because it will be very difficult for the company to introduce this programme if employees and staff are still
ignorant about the basic concepts of TQM, such as cross-functional teams, or what quality means. The company has an advantage in this respect because many of the TQM principles and practices have been embedded in the mindset and behaviour of its people for several years.

The TIM programme was piloted in late 1997 at the company’s car stereo division before a full-scale programme was implemented across all the corporation’s divisions in late 1999. The TIM programme was realized through completing a number of projects in various areas such as product introduction, project management, and new product creation, sales, quotation process, metrics and measurement, and communication. The first two or three months of the TIM programme were spent on training people to raise their awareness and understanding about the TIM concept. This was then immediately followed up by the implementation of the TIM concept across all departments and divisions. The best outcome of these projects was that senior managers and department managers were actively involved in teams that led them to have ownership of the changes.

Although the company has yet to see the full impact of the TIM programme on business performance, particularly as the new product development lead-time typically has a time span of between three to five years, some recent examples have shown some dramatic results. In one very recent case, a product with a normal lead-time of 12 to 18 weeks was introduced at a major overseas customer in nine weeks. In addition, a number of positive results have been realized. Every division has now developed its process map of product planning and identified the major barriers to the processes, such as lack of clear strategy, slow decision process due to unclear responsibilities, weak project management, poorly defined specifications/design briefs, etc. They have also started to deal with those barriers and a number of process barriers have been removed. In parallel, a measurement system (e.g. quotation, on-time delivery (OTD), first pass yield (FPY) of design briefs, achievement of product cost targets during development) has been established to track the improvements resulting from this programme. The company’s procedures have now been re-structured according to the process maps, and they have been deployed by an interactive web-based interface. Finally, although TIM is primarily concentrated on the design and development (upstream) process, the company has found that the manufacturing (downstream) processes have also benefited from this programme in the sense that its scope of management has now become more integrated and synchronous with the upstream processes.

Discussion

The case study presented above provides several important insights into understanding the success and sustainability of TQM programme implementation. First, the success enjoyed by the company for many years is closely tied to its long history of implementing a sound quality management system. This provides a case to support the notion that only through a sustained quality management programme can organizations harvest the benefits of TQM (Shin et al., 1998). Quality management has become a ‘tradition’ in the company, from which the company has benefited, particularly in securing the confidence of its major
customers, who demand a high level of quality performance. The case study has exemplified that, although the company's quality journey was partly enforced by its key customers, it has strategically adopted and capitalized quality as a primary source of its competitive advantage. In this way, the company has successfully aligned its quality system along with other quality management initiatives with a clear strategic focus. This supports the argument suggesting that organizations need to implement quality management with a strong link to their competitive strategy (Schonberger, 1992).

Second, the case study has demonstrated the significant role of senior management in sustaining a TQM programme and how such management demonstrates excellent leadership in the implementation process. Senior management commitment and leadership has always been at the top amongst the various factors that determine the success or failure of TQM implementation (Choi & Behling, 1997; Tatikonda & Tatikonda, 1996; Whalen & Rahmin, 1994; Wilkinson et al., 1994). In their empirical study, Dale (1991, cited in Lascelles & Dale, 1994) reported that lack of top management commitment is one of the primary difficulties and barriers in both introducing and sustaining a TQM programme. Specifically, the commitment and leadership of senior management of the company has been demonstrated in the following terms.

- The provision of resources and facilities to support the TQM programme, including funding training programmes, assigning task forces to facilitate the programme, and budgeting reward systems. This demonstrates that the management's commitment to the TQM programme is not simply lip service.
- The active involvement in following the implementation process and assessing the results, for example, by attending the presentation of the CIT results. As suggested by the literature, senior management's lack of commitment is typically caused by a view that total quality is something that can be delegated to others (Brown, 1993; Tatikonda & Tatikonda, 1996). Whilst delegation in certain cases is necessary, it should not provide an excuse for not being involved in the TQM programme.
- Long-term commitment to sustain the TQM programme. As highlighted in the case study, the CIT programme at one time experienced a serious withdrawal by employees due to their dissatisfaction with the reward system. In response to this problem, management worked out a solution and successfully revived the programme and regained the employees' participation. Further to this, senior management commitment has demonstrated a consistency in developing and introducing new TQM practices from year to year. This, according to Choi et al. (1997), strongly indicates that the introduction of TQM has gone beyond faddism to a long-term commitment.
- Valuing intangible results. As highlighted in the case study, although the cost savings resulting from the TQM programme are huge, they appear to be insignificant when being linked to the bottom-line performance of the company. This is a typical fact occurring in large-sized firms. Similar findings have been reported in the study among four Australian firms by Fisher (1992), in which, as measured by traditional overall company performance indicators, the direct impact of these quality-oriented processes is greatly overshadowed by the
effects of the other internal and external factors that influence business performance. However, the case study also underscores that, despite the relatively insignificant impacts of a TQM programme on financial performance, the company values the intangible aspects of the results, particularly the affective outcomes such as job satisfaction and commitment of the employees to the organization. As Gardner & Carlopio (1996) suggest, quality programmes, to the extent that they enhance employee participation, involvement, and responsibility, should be associated with these kinds of results rather than merely bottom-line performance.

Third, the case study demonstrates the company-wide employee involvement in the TQM programme, especially at the shop floor level through the CIW and CIT programmes. This indicates another aspect of excellent leadership by company management in terms of winning the trust and commitment of the employees to participate actively in the TQM programme. This is a very important factor since the literature has strongly suggested that employees will be willing to participate in TQM only if their views on the benefits of TQM are positive, and that employees’ assessment of the beneficial impact of TQM is more important in predicting subsequent participation in TQM than is their initial participation (Coyle-Shapiro, 1999; Verma & McKersie, 1987). Moreover, the significant results yielded from TQM witnessed by employees have reinforced the commitment of these people to continue embracing TQM. As Schaffer & Thomson (1992) argue, employees need to experience success in their improvement programmes because it builds confidence and skills for continual improvement.

Fourth, the company has witnessed a major change in the industry wherein it operates. The level of competition is continuously being heightened and the basis of competitive advantage becoming more complex. In particular, it has been clearly indicated in the case study that several aspects of quality resulting from downstream processes (i.e. conformance to specification) have lost leverage, and therefore the company has shifted its focus onto innovation, which is concerned more with upstream processes. However, the case study has indicated that this shift does not lead to the abandonment of TQM programmes, tools and techniques; rather, they are now implemented in harmony with the newer initiatives. The insight drawn from this point is in accordance with what Dale et al. (1997) argues, that in order to sustain TQM programmes, organizations need to understand and react to the threat posed by competitors. Similarly, Salegna & Fazel (1995) suggest that the success of TQM implementation depends on the congruency that exists between the TQM goals and organizational goals.

Finally, the company (recently through its TIM programme) has successfully adapted the discipline based on TQM principles that it built in the manufacturing area (downstream) and creatively applied it in the design and development area (upstream), which it believes will provide a greater leverage for the business in the future. This provides an excellent example of how knowledge and systems can be effectively built up in an organization, and that allow it to cope with
more complex dimensions of competitive bases. By linking to the previous point, it can be suggested here that TQM provides a sound foundation of resources from which an organization can build its competitive advantage, including innovation, as asserted by Bolwijn & Kumpe (1990, p. 54):

Although each phase differs considerably from the previous ones, the strengths developed in each phase not only are retained during the evolutionary process, but newly acquired capability contain the previous ones and reinforce them.

In summary, Bolwijn & Kumpe (1990) argue that quality management is the prerequisite of innovation management, which has been supported by the case study. Substantiating this argument, the case study by Zairi (1994) indicates that one of the many inhibitive factors to innovation is caused by the difficulty of organizations to achieve quality standards imposed on them 'right-first-time'.

Finally, the company has also demonstrated that not only has it maintained its experience and knowledge on managing quality, but has also creatively transferred this into another area that was traditionally beyond the primary domain of quality. This provides a ‘breakthrough’ case against the conventional paradigm, suggesting the contrast between quality management and innovation management. For example, the case study by Zairi (1994) suggests that although TQM in many instances has been acknowledged by participant organizations as the vehicle by which successful innovative activity has been instigated, these organizations have also found it extremely difficult to apply TQM concepts in the area of innovation and therefore they do not use TQM principles for innovating.

Conclusions

The case study has presented a sustainable TQM programme that has been continuing for two decades. As mentioned in the discussion, the programmes have undergone an evolutionary process along with the changes in the business environment. The development of the TQM programme essentially started from quality control and assurance, followed by continuous improvement, and is now towards innovation. The focus of the programme has also expanded from downstream, moving to upstream areas, and in terms of the scope, it has captured the wider level of the organizational structure, from the shopfloor level (through CIP) into the management level (through TIM). This consistent but dynamic process has produced a cycle of learning and knowledge accumulation, from a solid quality management system to innovation management. In concluding this paper, we strongly argue that, despite the recent decline of its popularity, quality management will remain an essential part of developing and maintaining a competitive advantage for organizations.

Notes

1. Further readings on TQM sustainability can be found in the special issue, on total quality management sustainability, of *The International Journal of Quality & Reliability Management*, 2001, Vol. 19, No. 5.
2. Many terms and acronyms used in the case study are pseudonyms. This is done to secure the anonymity of the company without changing the substance of the case study. The authors thank the six managers of the case study company for providing valuable information that have been presented in this paper.
References


