TOTAL QUALITY MANAGEMENT: CONCEPT, REALITY AND CHALLENGES

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Abstract

This paper examines the background history and concept of Total Quality Management (TQM), a comparison of TQM with Business Process Reengineering (BPR) and Six Sigma, challenges facing TQM implementation in contemporary organizations, and offers a number of strategies/success characteristics/models for successful TQM implementation thereby enhancing the chances of turning TQM rhetoric/concept into reality in modern organizations. Recommendations include a culture review by management to accommodate TQM introduction/implementation and linking quality initiative objectives with departmental and organizational strategy to decrease the likelihood of failure.

Introduction

Organizations are usually involved in manufacturing of products or provision of services that are offered for sale to potential customers

and clients. There are major issues to be considered in the sale of these products or services, which include price and quality. To Heizer and Render (1993) quality is often the major issue because poor quality can be very expensive for both the producing firm and the customer. It is therefore imperative for every organization's operation manager to ensure that his or her firm delivers a quality product or service at the right place, at the right time and at the right price.

In view of this, the continuously growing competition in the market place has forced many contemporary Nigerian organizations to start focusing on quality improvements and cost reduction in order to stay competitive. However with the continued growth in competition, managers were forced to pursue corporate strategy that is customer-focused (Oni, 1998). Thus, a systematic and continuous work with quality improvement and quality methods constitutes central activities that should be implemented in an environment often characterized by limited resources available, high workload and by a workforce where few, if any, employees are familiar with quality methods.

Thus, today customer expectations are rising. Customers choose from among the competing firms, which produce or offer the best products and services for their money. This trend towards getting customers satisfied at consistently lower real costs stimulated interest in the TQM concept. TQM is the management concept based on the principles of total customer satisfaction, employee involvement, continuous improvement, and long- term partnerships with suppliers and customers.

The concept of TQM has dominated the management scene for some decades. Many organizations all over the world have tried to use TQM to achieve increased competitiveness and improved financial results. Some organizations have succeeded. For instance, quality award recipients show better financial results than comparable 'average companies' (Hendericks and Singhal, 1997). However, many organizations have also failed (Cao, Clarke and Lehaney, 2000). In other words, there have been significant debates regarding the success of TQM in business organizations. These have been between those

supporting it for bringing improvements in performance and those considering it a failure and fad.

In view of this, in a situation where there is a strong strategic intent to promote quality as a strategic advantage through TQM, there is lack of achieving this due to poor communication and policy infrastructure, lack of quality strategies to act as a foundation and continuing misperceptions of TQM by company leaders. Besides the above challenges, there are several other reasons for these mixed results from TQM, and the failures have tarnished the TQM star and have intensified the search for turning the TQM rhetoric into reality. In other words, working around cum overcoming the challenges facing TQM through effective and efficient strategies for TQM implementation and the success characteristics/models associated with it will turn the TQM rhetoric into reality.

Against this background, this paper examines TQM concept, reality and challenges. After this brief introduction, the rest of the paper is structured as follows: background history of TQM, concept of TQM, comparison of TQM with BPR and Six Sigma, challenges of TQM implementation in contemporary organisations, reality and models of TQM implementation, recommendations and conclusion.

TQM: Background history

The origin of the name TQM is disputed (Martinez-Lorente, Dewhurst and Dale, 1998: 378-386). The Quality Movement has a long history. Often its development is described in terms of a four-phase model consisting of quality inspection, quality control, quality assurance and total quality management (Bergman and Klefsjo, 2003). Other descriptions of the development of TQM include two schools of thought: the Deterministic School of Thought and the Continuous Improvement School of Thought. The Deterministic School of Thought evolved around a deterministic view of reality with a belief in the existence of one best way. This means that conformance to standards is the best way to meet customer requirements. On the other hand, the Continuous School of Thought is founded on a reality full of

variation, with an awareness of improvement potential in every aspect of work. Continuous improvements are used to reduce the impact of environmental changes and other variations. The Deterministic School has its origins in Taylorism and was developed roughly via Philip Crosby and the international ISO 9000 series of standards. The continuous improvement school has Walter A. Shewart, Armand Feigenbaum and Edwards W. Deming as some of its figure-heads. To Bergman and Klefsjo (2003), the two schools are currently converging.

Thus, the basics of what we today call TQM may be dated to the early 1950s and are often referred to as based on fundamental works from people like Edwards W. Deming, Joseph M. Juran and Kaoru Ishikawa. Learning the basics from Deming and Juran, Japanese companies extended and customized the integrated approach and culture of TQM. Arguably, the economic growth and manufacturing dominance of Japanese industries in the 1980s can be attributed to the successful application of TQM (Basu, 2004: 44-64]. Much of the Japanese success was based on the three fundamental tenets of Juran's view of quality programmes; upper management leadership of quality, continuous education on quality for all, and an annual plan for quality improvement and cost reduction- foundations that, by the way, still are valid today.

Concept of TQM

Different definitions and descriptions of TQM have been presented over the years. Dale (1999) is of the view that TQM is a management approach of an organization, centered on quality, based on the participation of all its members and aiming at long-term success through customer satisfaction, and benefits to all members of the organization and to society. Several definitions with a system emphasis have been suggested. One of these definitions is that from Hellsten and Klefsjo (2000), who defined TQM as "a continuously evolving management system consisting of values, methodologies and tools, the aim of which is to increase external and internal customer satisfaction with a reduced amount of resources". Based on this

definition, TQM can be characterized by a number of values, illustrating how to act in professions. The values include continuous improvements, fact-based decisions, participation of all the staff, process focus, and lastly, a customer perspective in what is done.

TQM methodologies include quality function deployment, quality circles, employee development, supplier partnership, benchmarking, process management, design of experiment, self assessment, and policy deployment. The tools include relation diagram, factorial design, control charts, Ishikawa diagram, criteria of MBNQA, ISO 9000, process maps, and tree diagram. It should be noted that the listed methodologies and tools are just examples and not a complete list.

Basically, TQM has two ingredients: employee involvement and quality circles. Employee involvement means including the employee in every step of the process - from product design to final packing. Quality control circles is a situation in which a group (between 6 and 12 employees) volunteer to meet regularly to solve work-related problems. The members (all from the same work area) receive training in group planning, problem solving and statistical quality control (Heizer and Render, 1993).

Tobin (1993: 343-363) is of the view that TQM is a totally integrated programme for gaining competitive advantages by continuously improving every facet of organizational culture. TQM is thus, a management concept for quality improvement based on the principles of total customer satisfaction, employee involvement, continuous improvement, and long- term partnerships with suppliers and customers.

However, TQM concept and its definitions are not without controversy. Boaden (1997: 153-171) claimed that attempting to define TQM is like shooting at a moving target: as it became more widely practiced, and other initiatives emerged, the emphasis on different aspects changed. Foley (2004) summarized some of the criticism against TQM and claimed in particular that it does not have a generally accepted definition and has failed to deliver promised results. Due to

the criticism, consultants and quality promotion institutions are trying to expunge "quality" from their lexicon. TQM now appears under a different guise, often with new 'catchy' slogans, but its substance remains the same. Singhal (2006: 4) observed that new paradigms/concepts, such as re-engineering, customer-centered organizations, process-oriented organizations, learning organizations, supply chain management, Six Sigma, among others that have recently surfaced are basically a spin-off of key TQM concepts packaged and labeled differently. For example, Six Sigma was the centerpiece of Motorola's TQM initiative, but it is now being sold as something unique and different from TQM. Selling these paradigms was easy, given the controversy about TQM.

Comparison of TQM, BPR and Six Sigma

There are few studies that directly compare TQM and BPR. To Carr and Johansson (1995: 5), the origins of BPR can be found in the TQM concept. TQM is process focused and takes a holistic view of workplace activities, whereas BPR concentrates on selected vital processes. TQM is related but different from BPR. BPR builds on TQM. BPR is thus the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical contemporary measures of performance, such as cost, quality, service and speed.

Few studies also directly compare TQM with Six Sigma, and conclusions on the relationship differ significantly. Ricondo and Viles (2005: 323-354) compared Six Sigma and its link to TQM, BPR, Lean and Learning Organization, paying attention to their origins, values, methodologies and tools. Yang (2004:97-111) presented an interesting comparison between TQM and Six Sigma based on twelve dimensions; development, principles, features, operation, focus, practices, techniques, leadership, rewards, training, change and culture, and concluded, among other things, that the core values differ and suggested an integration of TQM and six sigma.

The term 'Six Sigma' arose from the relationship between the variation in a process or an operation and the customer requirements associated with that process. The fundamental thesis of Six Sigma is that variation is evil because a high level of variation means customers will not get what they want. Originally Six Sigma was developed as a set of practices designed to improve manufacturing processes and eliminate defects, but its application has been subsequently extended to other types of business processes as well. In Six Sigma, a defect is defined as anything that could lead to customer dissatisfaction. Bill Smith at Motorola in 1986 came up with the idea of inserting hard-nosed statistics into the blurred philosophy of quality. The programme cum concept was inspired by the Japanese work of Ishikawa, but also strongly influenced by Juran's thoughts. Due to Six Sigma, Motorola managed to reduce their costs and variation in many processes and were an inaugural winner of American Malcolm Baldridge National Quality Award in 1988. Six Sigma is, thus, a process oriented way to reach improvements through reducing variation and measuring the financial output of each given project.

To Snee (2004), there are four aspects of Six Sigma that are not emphasized sufficiently in TQM. First, Six Sigma places a clear focus on bottom-line financial results, i.e. there is a clear focus on achieving measurable and quantifiable financial returns from any Six Sigma project. Thus, no Six Sigma project is approved unless the bottom-line impact has been identified, meaning that there is a clear project-by-project focus. Many projects have reported saving between USD 175, 000 and up to USD 1million. This bottom-line focus is central to strong and passionate management leadership and support. That is, the culture of Six Sigma demanded the engagement of the CEO and profit-and-loss managers. However, it should be noted that, in many cases, only projects referred to as 'Six Sigma projects' are investigated from a financial point of view. An investigation of successful Swedish companies revealed that the financial benefit from improvements projects related to TQM were not measured at all (Erickson and Garvare, 2005: 894-912).

Secondly, Six Sigma builds on improvement methods that have been shown to be effective and integrates the human and process elements of improvement. The human element of improvement involves continuous education of staff and subsequent full time commitment from the entire organization to improvement of projects. The third characteristic of six sigma that are not emphasized sufficiently in TQM is that it sequences and links the improvement tools into an overall approach - that is, DMAIC (Define-Measure-Analyze-Improve-Control) sequences and links key tools proven to be effective in improving processes. This means the highly data driven approach of Six Sigma. The fourth point is that Six Sigma creates an infrastructure of Champions, Master Black Belts, Black Belts and Green Belts that lead, deploy and implement the approach. The champions are not belts or analysts in any traditional sense of the word. Champions are responsible for keeping the Six Sigma programme focused within their business area. They select Black Belts, approve projects, set improvement targets and provide the resources needed to conduct the projects. However, from a statistical perspective, most of the ingredients/tools used in TQM as well as in six sigma are fairly old.

To Snee (2004) these tools include Gossett's t-test developed in 1908, used among other things, to test statistical significance of effects of process improvements, Fisher's Design of experiments (DOE or DOX) and Analysis of Variance (ANOVA) developed in the 1920s and used to analyze experimental data, Taguchi's experimental designs used to achieve product and process robustness. Others include the control charts, statistical quality control (SQC) used to control and improve quality, and the Pareto charts. Many other methodologies and tools, statistical and non-statistical, such as Quality Function Deployment (QFD), Failure Modes and Effects Analysis (FMEA), Lean Management, Process Mapping and Project Management, are also employed in Six Sigma and TQM. Thus, Six Sigma has been described as 'old wine in a new bottle', since most of the tools

packaged in it have been around for several decades (Thawani, 2004: 655-664).

Challenges facing TQM implementation in contemporary organizations

There are numerous challenges facing TQM implementation in organizations. Such challenges include quality strategies to act as foundation and the continuing misperceptions of TQM by company leaders. In a situation where there are strong strategic intent to promote quality as a strategic advantage through TQM, another challenge to achieving this is poor communication and policy infrastructure. This means that continuous communication to everybody in the organization helps enormously in implementing the quality initiative. However, often times this continuous communication is not available due to poor communication and policy infrastructure - and this remains a challenge.

Furthermore, TQM implementation in organizations requires that management give employees a say in the production processes that they are involved. In a culture of continuous improvement, workforce views are invaluable. The challenge is that many businesses have barriers to involvement. For example, middle managers may feel that their authority is being challenged.

Another challenge facing TQM implementation in organizations is lack of change management skills by staff and lack of adaptability to a TQM culture. The key to success is to identify the management culture before attempting to install TQM and to take steps to change towards the management style required for it. Since culture is not the first thing that managers think about, this suggestion has often been missed or ignored with the resultant failure of a TQM strategy. Another way to look at this is that if members of an organization believe that a change to a TQM culture is something to be feared and avoided, then the TQM implementation is often reactive and haphazard.

TQM also focuses the business on the activities of the business that are closest to the customer – example, the production department where the employees face the customer. This can cause resentment amongst departments that previously considered themselves "above" the shop floor. This remains a challenge to a successful TQM implementation in organizations.

Many companies have failed to implement TQM successfully (Brown et al, 1994; Cao et al, 2000; Foley, 2004). Several explanations for this have been offered. Some writers blame the TQM concept itself for being vague (Knights and McCabe, 1997). Others believe that failure is more due to poor planning and implementation than to a vague management concept. Implementation of TQM is a complex process, since all employees starting with top management need to accept a fundamental organizational change (McAdam and Bannister, 2001: 88-107). Thus, as has been stated earlier, awareness of the fact that TQM implementation really means a thorough organizational development and cultural change seldom exist (Reed, Lemak and Mero, 2000: 5-26). Accordingly, the time, resources and work needed during the implementation are underestimated. Furthermore, Lau and Anderson (Lau and Anderson, 1998: 85-98) indicated that blame can often be laid at the feet of 'Partial Quality Management'- less than full implementation.

The reality of TQM in contemporary organizations

The reality of TQM in organizations involves the strategies for implementing it in organizations and the success characteristics cum models associated with it. By using the TQM implementation strategies and the success characteristics cum models associated with it effectively and efficiently in organizations, TQM rhetoric/concept will turn to reality.

Strategies for implementing TQM

Many strategies exist for the implementation of total quality. They include:

Clear and engaging leadership

Leadership is based on a common thread between those who lead and those who follow into the same moral and emotional commitments. Implementing TQM is a never ending process that must be constantly and genuinely supported by the leadership of the organization. This means that in order to accomplish this effort at the respective levels of an organization structure, the supervisory manager, the departmental/middle manager, the board of directors and/or president/CEO must play a proactive role in ensuring that the followers understand the changes and are motivated to make the transformation to total quality. The move to total quality requires the leader(s) to understand and communicate to everyone before, during, and after the implementation.

To Deming (1986), the successful leader must possess profound knowledge - a clear level of understanding systems, variation, theory and psychology. While some styles of leadership may lend themselves to implementing TQM, it is apparent that leading the transformation requires the proper mix of leadership styles and theories. In other words, there is no single leadership style that will ensure successful implementation of TQM philosophies, but it is critical to the effort that the leader must be willing to use their power to the best interest of all involved.

Develop a plan

It is hard to conceive a contractor ever building a project without a set of plans. So, too, should be the case when dealing with organizational change (TQM implementation): there must be a formalized plan. The concept of planning thus suggests that one must 'plan the preplan' with passion. When implementing total quality, the concept of false starts comes to mind and it is important to understand whether or not your plan failed, or did you simply fail to plan.

Provide direct access to customers

Direct access to both internal and external customers allows for timely and accurate responses to customer needs and expectations. No matter the identity of the customer, internally or externally, there must be a direct link from the customer(s) to the value adding process through advisory councils, surveys, employer surveys, among others.

Embrace technology

Change is enhanced through technology. In fact, many times technology is the catalyst for change. With respect to a quality movement in organizations, technology is the leading component for new directions being faced today. Such technologies include CD-Rom, internet, and integrated information technologies that give employees and managers access to virtually everything in real time. Technology will thus play the largest role in the movement to implement TQM, because the customer has immediate access to the system via electronic means for both information access and feedback.

Promote interdependence

Effective cross-communications and functionality provide for actions to take place simultaneously instead of linearly. Although each portion of the system is responsible for different sub-processes, an integrated approach for technology, information, and problem solving will improve the implementation and continuous monitoring. This also reinforces the importance of understanding internal customers and the dependency of outputs from one another, which serve as the input of the next.

Involvement promotes acceptance/team effort

Based on the idea that participation increases ownership, commitment, and loyalty of everyone involved, quality leaders must develop and support a team effort to ensure success.

Lead by example

Remember, 'don't do as I say, do as I do' is the maxim in TQM implementation. In order to truly lead the changes to total quality, top level persons must genuinely show their support and dedication to the effort through their own actions. Do not ever expect others to do anything that you are not willing to do. Change affects everyone in the system, so this example will soften the transition.

Scope of implementation

Remember, the scope of quality implementation should not exceed the level or influence of those leading the implementation. In addition, limit the scope to those processes that need improvement. Perharps even those processes that need the most improvement, but do not attempt something that is perceived as impossible. Concentrate on those processes that can be accomplished and share inputs and outputs. By doing so, an environment of shared necessity is created and everyone has a stake in the situation.

Success characteristics associated with TQM

There are six success/survival characteristics for reengineered systems, including TQM systems. Once the implementation has begun, watch to see if any of these characteristics are evident within your quality system.

Customers matter most

For internal and external customers, whatever matters to them matters to you. Without customers you have no reason of being in business. Always start improvement efforts on what your customers agree as needing improvement.

Create and keep only what is value-adding

Once a raw material enters into the system, then each step of the value-adding process must truly enhance the raw material by increasing its value. In simple terms, if the step does not enhance the product, then do not waste the time and effort; improve the step or remove it.

Lead from the top: Work the detail from the bottom
Through effective leadership, establish the goals and objectives and create an environment that supports the individuals in their efforts.

Design the whole: Implement the pieces
Remember the system in its entirety by taking a holistic approach, while laying the foundation for the implementation. Then, each phase of the implementation should deliver results. These results will increase momentum and free up resources that can be used on the next phase, creating a perpetual situation.

Be disciplined and stick to it
Once the plan is established follow through it, maintaining a constancy of purpose and a systematic approach. Persistence, patience, performance measurement and a pursuit of perfection should be the key ingredients to the implementation.

Do not let the consultants do it for you or to you
Just like dieting, if you want advice on healthy habits you should get it. However, no matter how much money you spend on the advice and counseling, it all comes down to the fact that you must do it yourself. No one can do it for you. While consultants are valuable part of the total quality movement, they cannot do it for you.

Models for TQM implementation in contemporary organizations

No two organizations have the same TQM implementation. There is no recipe for organizational success. However, there are a number of great TQM models that organizations can use. These include the Deming Application Prize, the Malcolm Baldrige Criteria for Performance Excellence, the European Foundation for Quality Management, and the ISO quality management standards. Any organization that wants to improve its performance would be well served by selecting one of

these models and conducting a self assessment. The simplest model of TQM is shown in Fig. 5.1.

The simplest model of TQM is shown in Fig. 5.1. The model begins with understanding customer needs. TQM organizations have processes that continuously collect, analyze, and act on customer information. Activities are often extended to understanding competitor's customers. Developing an intimate understanding of customer needs allows TQM organizations to predict future customer behaviour.

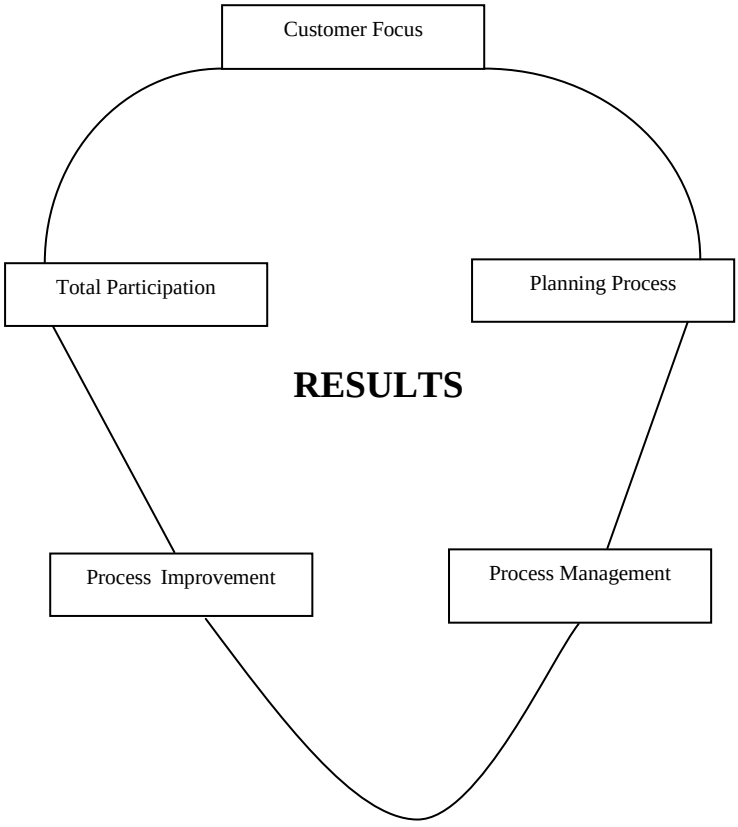

Fig. 5.1: **A Simple TQM Model**
Source: www.totalqualitymanageentinc (2010)

TQM organizations integrate customer knowledge with other information and use the planning process to orchestrate action throughout the organization to manage day-to-day activities and achieve future goals. Plans are reviewed at periodic intervals and adjusted as necessary. The planning process is the glue that holds together all TQM activity.

TQM organizations understand that customers will only be satisfied if they consistently receive products and services that meet their needs, are delivered when expected, and are priced for value. TQM organizations use the techniques of process management to develop cost-controlled processes that are stable and capable of meeting customer expectations.

TQM organizations also understand that exceptional performance today may be unacceptable performance in the future, so they use the concept of process improvement to achieve both breakthrough gains and incremental continuous improvement. Process improvement is even applied to the TQM system itself.

The final element of the TQM model is total participation. TQM organizations understand that all work is performed through people. This begins with leadership. In TQM organizations, top management takes personal responsibility for implementing, nurturing and refining all TQM activities. They make sure people are properly trained, capable, and actively participate in achieving organizational success. Management and employees work together to create an empowered environment where people are valued. Thus, all of the TQM model's elements work together to achieve results.

Recommendations

On the basis of the challenges facing TQM in contemporary organizations, the following recommendations are made, in order to enhance the chances turning the TQM rhetoric/concept into reality:

1. Managements of contemporary organizations should endeavour to provide quality strategies to act as a foundation for TQM implementation.
2. Effective and efficient communication and policy infrastructure should be provided by managements towards an unambiguous, unadulterated and continuous communication to everybody in the organization that is affected by TQM introduction/implementation.
3. Managements should strive to give employees a say in the production processes, as a culture of continuous improvement requires invaluable workforce views.
4. Organizations' management should try to identify and address organizational forces likely to drive or impede a cultural change. They should undertake a culture review to accommodate TQM introduction/implementation.
5. Managements should identify the key objectives of the quality initiative and clearly link them to departmental and organizational strategy, in order to avoid the likelihood of failure.

Conclusion

This paper has reviewed TQM concept, reality and challenges with particular reference to contemporary organisations, and has offered a number of strategies, characteristics and models for TQM implementation, which managers may adopt, thereby enhancing the chances of turning TQM rhetoric/concept into reality. Armed with the strategies for TQM implementation in contemporary organisations, the success characteristics cum models associated with it, wise managers can confront the dismal quality of their products, service, processes and personnel work in a practical and conrageous manner, and thus, turn TQM rhetoric/concept into reality.

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