TQM and Six Sigma – the Role and Impact on Service Organization

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The aim of this paper is to explore the most common challenges, difficulties, common myths and problems that both Total Quality Management and Six Sigma met in the service organization and the way they had been adopted and implemented.
Expected scientific results will suggest that just like any other concept, the extent to which Total Quality Management and Six Sigma will be successful in a service organization depends on both the initial impact and their importance as perceived by members of each service organization.
Conclusions will highlight that although there is no single formula that guarantees success of Total Quality Management or Six Sigma implementation, in practice there are a variety of tactics for implementation. All these tactics of implementation involve the existence of an operational plan for identifying activities that must be met in order to achieve the intended results.
Key words: *TQM, Six Sigma, service quality.*
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1. Introduction

Quality is not only a strategic weapon for competing in the current marketplace, but it also means pleasing consumers, not just protecting them from annoyances. Therefore, a company's specific advantage is to identify and then compete on one or more of the dimensions of quality (Kumar, V. et al., 2009, pp. 24-25).

Many organizations have come to realize that achieving zero-defect goods and services can lead not only to customer satisfaction but also to improved internal efficiency and reduced costs. The Six Sigma quality and management programme has been a key basis for the success of multinational companies such as Motorola. According to recent figures, fewer than 10 percent of companies are adopting a Six Sigma program to the point where it is going to make any sort of significant difference to the bottom line in any meaningful period of time.

2. The TQM philosophy

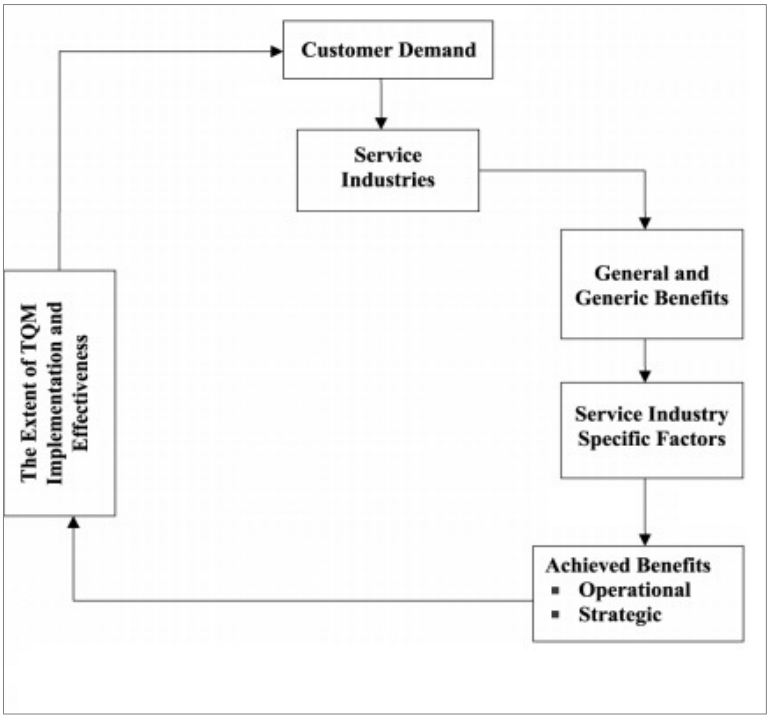
Over the past decade, companies experienced dramatic changes in business environment characterized by such phenomenon as increasing consumer consciousness of quality, rapid technology transfer, globalization and low cost competition. After more than a year of continuous decline on international trade, the global economy begins to recover but this news can block the development and also can block policies adopted in order not to fall into a new crisis (Anagnoste, S. & Agoston S. 2009). In response to these challenges, many companies have joined the quality movement and implemented various quality improvement initiatives as a means to enhanced competitiveness. The complexities of modern business require approaches that are more sophisticated (Cioana, G. 2009, p. 474).

TQM is a revolutionary management philosophy that requires radical and pervasive change within the firm. The strength of TQM lies in

successfully combining the scientific /system-oriented school of management with that of the human behaviour/social system school of management. It relies on systems, but unlike the scientific school of management, it does not assume that people will fit into system. Therefore, in designing structures and systems, human emotions and needs are taken into account. The human behaviour/social system school of management unlike the scientific school is based on the premise that employees are essentially honourable; therefore, correction is replaced by cooperation. Employees are allowed to take initiative and participate in the decision-making processes directly relevant to them and as such deviation from tightly defined rules does not result in sanction provided that there is no transgression against the organisational values. The organisation is viewed as a system of cultural interrelationships rather than a series of tasks, procedures and rules (Ghobadian, A. Gallear, D. & Hopkins, M., 2007, pp. 707-708).

Because quality means both producing products to specifications and meeting customer's expectations, the needs of customers becomes a key input to TQM (Prajogo, D.I. & Sohal, A.S. 2001, p. 542). A review of the literature also shows that, according to some authors, TQM is rather than a mere set of factors, a network of interdependent components, a management system consisting of critical factors, techniques and tools (Hellsten and Klefsjo, 2000 cited in Tari, J.J. 2005, p. 184). Figure 1 show the benefits obtained by service organizations after the implementation on TQM.

Figure 1. A conceptual framework for TQM implementation and benefit in a service operational setting



Source: Yasin, M. et al. 2004, p. 378

The TQM approach is characterized by an orientation towards quality which helps to prevent problems and to produce continuous improvement of the existing situation. This attention should permeate all levels of the company right from the top management down and all company functions (Forza, C. & Filippini, R. 1998, p. 2).

Many organizations have difficulties with measuring TQM progress, which is one of the reasons for the failure of attempts to introduce TQM (Boyce, 1992 cited in Arumugam, V. et al., 2009, p. 49). There is support for conducting a cultural assessment before implementing TQM or similar initiatives in order to identify possible barriers and to

assist in designing the implementation programme (Davies et al., 2007 cited in Arumugam, V. et al., 2009, p. 49).

TQM can be studied from three different approaches: contributions from quality leaders, formal evaluation models and empirical research. Taking the initial research as a basis, the critical factors of TQM found in the literature vary from one author to another, although there is a common core, formed by the following requirements: customer focus, leadership, quality planning, management based on facts, continuous improvement, human resource management (involvement of all members, training, work teams and communication systems), learning, process management, cooperation with suppliers and organizational awareness and concern for the social and environmental context (Tari, J.J. 2005, p.183).

A company's success in the long term depends on how effectively it satisfies its customers' needs on a constant basis. Therefore, TQM's success is determined by how willing the organization is to change and whether it uses customer satisfaction as a measure in assessing the success of its decisions and actions (Madu and Kuei, 1993 cited in Sila, I. 2007, p. 87).

3. The Six Sigma methodology

Six Sigma is a process-focused and data driven methodology aimed at near elimination of defects in all processes (i.e. manufacturing, service and transactional) which are critical to customers. As a powerful business strategy, Six Sigma has been around for almost 20 years and has grown exponentially in financial services sector during the past seven years or so in the USA and probably four years in the UK. The financial service companies which have made significant impact to the bottom-line include Citigroup, Bank of America, American Express, J. P. Morgan Chase, Zurich Financial Services, HSBC, Credit Suisse, Royal Bank of Scotland, Barclays Bank to name but a few here. Although six sigma was developed in the late 1980's in Motorola, it

has taken several years for service-oriented companies (such as financial services) to embark on six sigma initiative (Antony, J., 2007).

Six Sigma is a statistical measure whereby it measures variation in process around its mean. It considers any data point that is beyond customer specified limit, as defect. The measure is quite proven and one could always assume that there will be 3.4 defects per million opportunities to have a process at Six Sigma levels.

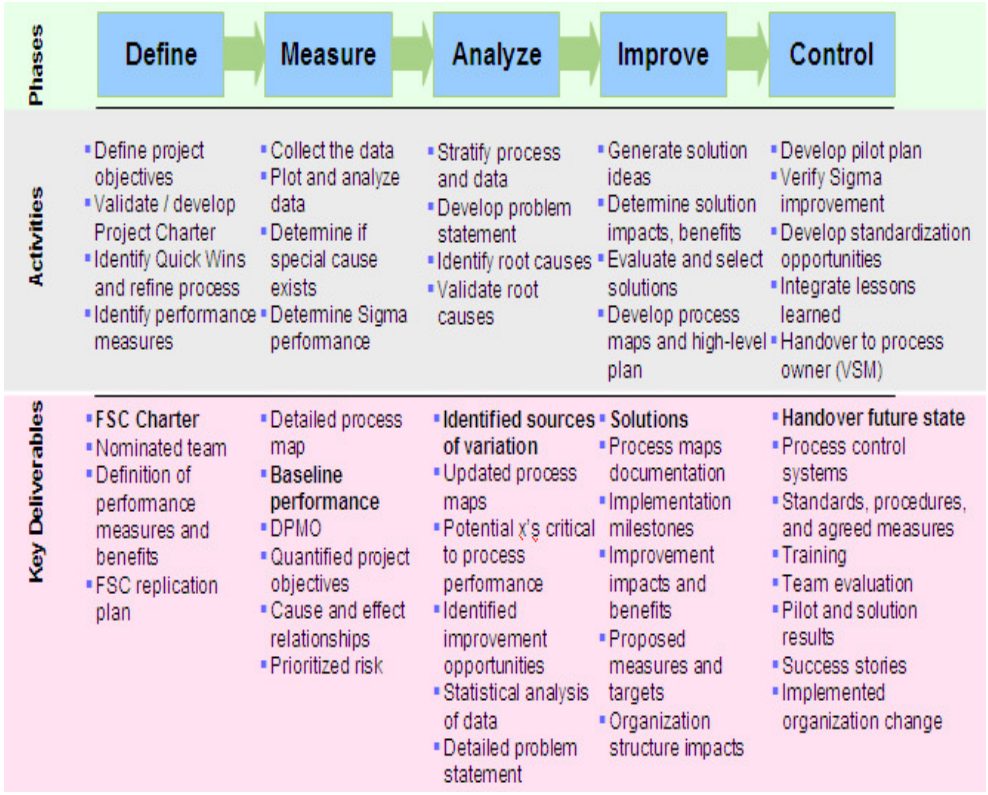
Six Sigma has evolved into an organizational approach to operational excellence by recognizing that it:

1. Fundamentally changes an organization's culture.
2. Has proven successful in all industries despite varying processes and functions.
3. Is built on principles such as customer focus, proactive management (versus fire-fighting), and measurement of variation; all essential to achieving world-class operational capability.

Six Sigma enterprises are intensely customer-focused and reliable and consistent in the delivery of their products and services.

Six Sigma drive for defect reduction, process improvement and customer satisfaction are based on the "statistical thinking" paradigm, a philosophy of action and learning based on process, variation and data. Statistical thinking provides practitioners with the means to view processes holistically (Kumar, M. et al., 2008, p. 882). There is a logical thought progression from process-variation-data to define-measure-analyse-improve-control (DMAIC) shown in figure 2.

Figure 2. DMAIC implementation approach: Six Sigma methodology



When all key processes within a business are completed for each of these five each phases, the business will naturally reach the Six Sigma quality. To ensure the success of a DMAIC methodology, the company's top leaders must undertake the role of Champion, giving active support and encouragement to all business process owners. The process owners in the specific Six Sigma project implementation must emphasize the bottom-line, which has a profit contribution to the business (Byrne, 2003 cited in Cheng, J.L. 2008, p. 185).

The key elements of Six Sigma implementation which service organizations must take in consideration are:

- Customer → Customer Satisfaction;
- The customer is the center of the universe → He defines the quality;
- Process → Think from outside to inside;
- Quality requires watching your business from customer's perspective rather than yours. With this knowledge can add value significantly or can improve the process of Customer Perspective→ CTQ's (critical to quality are customer needs translated into critical process requirements that are specific and measurable. A fully developed CTQ has five elements: Output Characteristic, Project Output Metric, Target, Specification/Tolerance Limits and Defect Definition);
- Employee → Management commitment;
- People create results. Fundamentally in quality approach is the involvement of all members/employees. The company is committed to providing opportunities and incentives for employees who focus their talent and energy in achieving customer satisfaction → For all employees.

This is why it can be beneficial to embed Black Belts in business units, where they can monitor processes regularly, collect feedback and make sound, data-based decisions. Six Sigma identifies several key roles for its successful implementation such as: Six Sigma Champions, Six Sigma Master Black Belt, Black Belts, Six Sigma Green Belt, Six Sigma Yellow Belt.

4. Linking TQM and Six Sigma to business strategy of service organizations

Services are by nature very often bound by time in terms of the processes that are run and lead to the delivery of an outcome that benefits a customer.

It is difficult to argue that any change management philosophy or methodology is new. TQM development has followed two major strands, namely mechanistic perspective TQM and organic perspective TQM. Parallels can be drawn with the current measures and process focus of Six Sigma, along with its tentative people development. It is contended that Six Sigma is a specific development of TQM, and that Six Sigma currently belongs to the mechanistic development of TQM, although it may be developed in a more holistic manner. Many of the organizations currently claiming success from Six Sigma have also long established TQM programmes, e.g. Motorola, GE, Nortel, Boeing (Henderson and Evans, 2000 cited in McAdam, R. & Lafferty, B. 2004, p. 533).

It is quite a common view among many people engaged in service organizations that Six Sigma requires complicated statistical tools and techniques. The truth is that Six Sigma is not about a collection of statistical tools and techniques. In fact, service organizations do not simply need many of the tools and techniques of the Six Sigma toolbox. The majority of the process and quality related problems in service organizations can be readily tackled using the simple problem-solving tools of Six Sigma such as process mapping, cause and effect analysis, Pareto analysis, control charts and so on (Kumar, M. et al., 2008, p. 884).

The main weakness of traditional TQM concepts is the exclusive focus on customer requirements. Six Sigma in contrast focuses on quality from both the customer's and the investor's perspectives with the aim to meet customer requirements fully and profitably. Nevertheless, like TQM, Six Sigma requires a strong incorporation of

the corporate control system to enable companies to objectively measure and monitor their long-term development within, and monetary outcome of TQM using statistical techniques (Wessel, G. & Burcher, P. 2004, p. 265).

There is a cause-and-effect relationship between the total quality management practices and corporate performance, measured by employee relations, productivity, customer satisfaction, or profitability (Kumar, V. et al., 2009, p. 26). The results are:

- Better employee relations. Employees experienced more job satisfaction, there was a higher rate of attendance, and there was less turnover, absenteeism and accidents.
- Improved operating procedures. Companies increased the reliability and on-time delivery of their products or services and reduced errors product lead-time, and cost of quality.
- Greater customer satisfaction. There were fewer customer complaints and a greater number of customers stayed with the company.
- Increased financial performance. Each company also improved its market share and increased profitability.

Many processes in the finance sector can be performed in a standardized way, especially in the field of processing customer-related outputs like payments/credit cards transactions, processes using self service devices like ATMs, securities settlement and loan approval processing. A similar potential can be found in the insurance sector, e.g. application handling, contract issuing, and processing of claims (Puaar, 2006; Ruggier, 2006, cited in Heckl, D et al., 2010, p. 5). Table 1 shows how an organization can pursue its business strategy across the similarities and differences between TQM and Six Sigma.

Table 1. Different approach for TQM and Six Sigma for better business strategy

TQM	Six Sigma
Not necessarily part of the Business Strategy	A strategy from the top of the Business Unit
No bottom line accountability	Projects frequently have a profitability hurdle
Improve and uniform processes	3.4 defect per million opportunities
Usually not targeted to a process or business	Targeted areas
Management and employees' involvement.	Management takes an active role in all phases of Six Sigma

Since the goal of any organization is to make profits, Six Sigma projects make business processes profitable while attacking variability which leads to high scrap rate, high rework rate, low productivity etc. In every single project, the link between the project objectives and the business strategy should be identified (Antony J. & Banuelas R. 2002, p. 23).

Conclusion

TQM and Six Sigma are two different approaches that can be very strong together if they are implemented in a service organization with a good business strategy. While TQM is focused on customer, Six Sigma focused on improving quality and obtaining zero defects in all the processes of an organization. While TQM it advocates for increasing customer satisfaction, Six Sigma can act as an enabler for cultural change. Nowadays because of the global crisis, almost all service organizations have suffered and it's very important for them to know what their customers think about the services offered and how they can improve their process with the objective of increasing their

customer's satisfaction, which is the goal of any competitive organization.

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