

**Integrating Total Quality Management and Supply Chain Management: Similarities and Benefits**

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**ABSTRACT**

The purpose of this paper is to comprehensively review, contrast and compare the similarities and to identify potential benefits between total quality management (TQM) and supply chain management (SCM). An extensive overview of the concepts and themes of TQM and SCM are

examined from the literature and are compared to explore how definitions of TQM and SCM, goals, origin, practices, development stages, focus, tools, scope and integration of these concepts and themes could help them in their integration and also listed some of the potential benefits of TQM and SCM from present literature survey. It was found that TQM and SCM have common goals: strengthening organizational competitiveness and customer satisfaction, but their approach are different. TQM focuses more on quality while SCM emphasizes on timely delivery. TQM emphasizes internal participation and SCM focuses on external partnership. The study also reveals some important benefits of TQM and SCM such as improved customer responsiveness, supply chain communication, morale of organization, continuous improvement and innovation, and commitment of employer towards continuous change. Literature review indicates that so far researches have been taken on either one or the other concept only. A comparative understanding of the philosophies, goals, scope, benefits and integration of both approaches therefore, could improve opportunities for integrated implementation and further research.

**Keywords:** Total quality management, Supply chain management, Similarities, Benefits, implementation, Top-management, Performance.

## **INTRODUCTION**

As global market evolve and increase in world-wide competition along with the technological advancements, quality managers and supply chain managers are faced with many new challenges, as traditional approaches to managing quality and supply chains prove increasingly inefficient. The adoption of 'totality' in quality management (QM) principles can improve and manage this new challenges both internal and external functions and operations of the

organization, that is involving 'all' and thus, moving from QM to total quality management (TQM). Supply chain management (SCM) is usually seen as a way to improve competitive performance by combining the internal functions of a company and linking them with external operations of suppliers, customers and other chain members (Tutuncu and Kucukusta, 2008). This may lead to change the traditional structure of the organization. Therefore, the integration of TQM principles offers potential for broadening the perspective of SCM from its traditional narrow focus on costs and competitive relationship to a focus on cooperative relationships between members of the supply chain (Flynn and Flynn, 2005). TQM and SCM have a significant role in strengthening organizational competitiveness (Sila et al., 2006) and share the same ultimate goal, which is customer satisfaction (Gunasekaran and McGaughey, 2003; Gunasekaran et al., 2001; Mills et al., 2004; Lamey, 1996; Vanichchinchai and Igel, 2009). But their approaches to achieve this ultimate goal are different. TQM emphasizes on quality while SCM emphasizes on supply (delivery) both at reduced costs. Finally, better quality and supply delivery will enhance customer satisfaction and competitiveness. In some cases, there may be differences or conflicts arises between quality and supply performance and this can present problems in implementing an integrated TQM and SCM approaches. On the other hand, there is synergy in the ultimate goal, both TQM and SCM aim to achieve customer satisfaction as well as a number of potential benefits in them also exists.

Since, both TQM and SCM requires participation from all the internal functions and continuous collaboration with all external partners, therefore, they offers a unique framework to integrate participation and partnership (Gimenez, 2004; Sohal and Anderson, 1999; Dean and Bowen, 1994). However, TQM focus more on internal participation, whereas SCM focuses more on external partnerships. A fundamental challenge in applying TQM in supply links up and down

the value chain as required in SCM is the development of programs and techniques that encourage culturally diverse workforces to continuously improve all areas of organization performance (Gunasekaran and McGaughey, 2003). TQM can enhance communication along the supply chain, partnership development, and customer relationship management (CRM) (Madu and Madu, 2003). Properly implementing TQM program could play a major role in developing an integrated organization through teamwork, cordial relationship, training and education, cultural change, and customer focus across the supply chain (Gunasekaran and McGaughey, 2003). Also, TQM practices which are very much effective in the implementation of TQM in the organization could also play a major role in promoting effective integration of TQM and SCM.

Little has been done to explore the integration of TQM and SCM. Few studies can be found on TQM and SCM together. A study conducted by Tutuncu and Kucukusta (2008) determined the possible role of supply chain integration in QM systems for hospitals. Results indicate that there is a positive relationship between supply chain integration and QM systems in healthcare organizations. Forker et al. (1997) in their analysis of the QM-quality performance relationship in the supply chain found that TQM practices are related to performance throughout the supply chain and certain practices leads to better performance. In another study by Wong and Fung (1999), aimed to delineate the SCM issues in total quality for construction projects. Through the use of an in-depth case study on the TQM system of a leading construction companies in Hong Kong, the strategy, structure and task for managing supplier/sub-contractor relationships were examined. The study concluded with identification of some SCM issues in the construction industry, as well as scope of integration of SCM with TQM.

Flynn and Flynn (2005) examine the potential that QM offers for improving SCM performance. Four hypotheses related to supply chain and quality goals were constructed and

tested. Results showed that there was strong support for all four hypotheses, indicating that there is a relationship between QM and SCM.

A study on textile-apparel network by Romano and Vinelli (2001) seeks to understand how quality can be managed using a supply chain perspective and what the operative and strategic consequences are for these industries and whole supply network. They report that the whole supply network could improve its ability to meet expectations of the final consumer in terms of quality through the joint definition and co-management of quality practices/procedures.

A very recent study conducted by Vanichchinchai and Igel (2009) aimed to review, contrast and compare the differences and similarities between TQM and SCM found that there are many similarities and differences between them. They concluded that further understanding and comparing them could identify potential areas as well as the development of management framework that integrate the two concepts.

Sila et al. (2006) analyze the state of SCM in US manufacturing companies by testing several hypothesis regarding the knowledge these companies have about their different supply chain partners, the attributes that characterize customer-supplier relationship, the factors that determine the development of quality specifications in a supply chain, and the effect of supply chain quality management (SCQM) activities of companies on product quality. The finding of the study showed that SCQM have a positive impact on the quality of the final product, but these industries do not fully implement this concept. Also, finding showed that although companies included their major customer in their quality initiatives but they did not include their major suppliers.

The study conducted by Bandyopadhyay and Sprague (2003) described how the implementation of TQM could help the manufacturing sector attain SCQM using US automotive

industry as a case example. The authors argued that making TQM an integral part of a supply chain could help manufacturing companies improve quality and make them more competitive. Kuei et al. (2002) in their empirical study identified the variables that were related to supply chain quality, technology management practices, and organizational performance. The authors argued that these variables could be deployed via quality function deployment (QFD) to increase the supply chain's competitiveness.

In another study involving manufacturing companies, Choi and Rungtusanathan (2001) compared the implementation of QM practices across three levels in the supply chain and across several manufacturing industries: final assemblers, top-tier supplier, and tertiary-tier supplier. The study found no differences in QM practices across the three levels in the supply chain, suggesting that all levels were conscious of the importance of QM. The only difference across industries was the implementation of strategic planning.

Overall, the analysis of quality in supply chain especially using empirical research is rare in the literature (Forker et al., 1997). Available literature contains a number of suggestions for potential synergies between TQM and SCM. These range from prescriptive suggestions to case studies, and to studies of supply chain manager's vision of the future. But there is no study which compares the similarities and list out the potential benefits of TQM and SCM integration. Therefore, there is a need of a study which will help in better understanding of the concept of integrating TQM and SCM together with the knowledge of their similarities and benefits. Present study will try to fill this void by exploring and comparing the similarities and potential benefits between TQM and SCM. This paper provides theoretical evidence of these two issues relating to the implications of the relationship between TQM and SCM.

Further, the scope of this paper is to provide thoughts on how organization can improve integration of TQM and SCM by implementing them in a well organized manner to get desired outcomes like improved customer satisfaction, reduced cost, on-time delivery, improved/bets quality products and services.

The structure of this paper is as follows. The next section presents the overview on the similarities between TQM and SCM followed by the benefits of TQM and SCM. The final section discusses the conclusions of the study together with the implication and scope of future research at the end.

### **SIMILARITIES BETWEEN TQM AND SCM**

The integration of quality goals with supply chain goals may lead to cumulative capabilities which better prepare the organization to face its dynamic global competition. The pursuit of cumulative capabilities is effective because of similarities not previously believed to be compatible (Flynn and Flynn, 2005; 2004). Thus, TQM and SCM have both played an important role in stenthgining organizational competitiveness by sharing the common goal of achieving customer satisfaction (Sila et al., 2006; Vanichchinchai and Igel, 2009; Gunasekaran and McGaughey, 2003).

Both TQM and SCM offer a framework to integrate there similarities for integrated implementation. The framework includes a discussion of the different definitions of TQM and SCM and correlating them for there similarities as presented in Table 1 and 2.

**Table 1. Definitions of TQM**

<b>Author</b>	<b>Year</b>	<b>Definition</b>
Deming	1986	A management philosophy which develops all management principles and practices from the belief that continual improvement of quality is the key to success.
Pfau	1989	It is management philosophy that seeks to integrate all organization functions (market, finance, design, engineering, production, customer service etc.) to focus on meeting customer needs & organization objectives.
Chase and Aquilano	1992	Managing the entire organization so it excels in all dimensions of products and services that are important to customers
ISO 8402:1994	1994	It is a management approach for 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.
Roosevelt	1995	A strategic architecture requiring evaluation and refinement of continuous improvement practices in all areas of business.
Mohanty and Lakhe	2002	An approach for continuously improving the quality of goods and services delivered through the participation of 'all' levels and functions of the organizations.
Palo and Padhi	2005	An integrated approach to bring continuous improvement in products and services using proper tools, technology and training to meet customer's expectations on a continuous basis.

**Table 2. Definitions of SCM**

<b>Author</b>	<b>Year</b>	<b>Definition</b>
Ellram and Cooper	1990	An integrated philosophy to manage the total flow of a distribution channel from supplier to ultimate customer.
Ganeshan and Harrison	1995	A supply chain is a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products, and the distribution of these finished products to customers.
Christopher	1998	The management of upstream and downstream relationships with suppliers and customers to deliver superior customer value at less cost to the supply chain as a whole.
Tan et al.	1998	The simultaneous integration of customer requirements, internal processes, and upstream supplier performance
Lambert, Stock, and Ellram	1998	A supply chain is the alignment of firms that bring products or services to market.
Chopra and Meindl	2001	A supply chain consists of all stages involved, directly or indirectly, in fulfilling a customer request. The supply chain not only includes the manufacturer and suppliers, but also transporters, warehouses, retailers, and customers themselves.
Council of Supply Chain Management Professionals(CSCM) (IMDS Journal, Vol.107 No.1, p.104)	2007	SCM encompasses the planning and management of all activities involved in sourcing and procurement, conversion and all logistics management activities as well as coordination and collaboration with channel partners.

The framework also includes a comparative discussion on goals, origin, development stages, practices, tools offered and scope of the two approaches together with their applications and primary integration are also covered to further strengthen integration of TQM and SCM program. Further, this comparison of similarities could improve the conditions for integrated implementation by achieving similarity and avoiding failure. In examining the literature on TQM and SCM, ten general themes that are consistent to create synergies between TQM and SCM emerged. These themes are compared and summarized in Table 3.

**Table 3. Similarities between TQM and SCM**

<b>Theme</b>	<b>TQM</b>	<b>SCM</b>
Definition	Management philosophy, focus on integration of all levels and organization functions, continuous improvement, quality products and services, and customer satisfaction	Management philosophy, focus on integration with external members of chain and customer requirements, timely delivery of products and services, and customer satisfaction
Origin	Quality	Strategic and logistics
Development stages	Quality⇒Inspection⇒QC⇒ QA⇒QM⇒TQM	Logistics⇒SCM⇒SSC (Seamless supply chain) ⇒ GSCM (Global supply chain management)
Goal	Strengthening organizational competitiveness and customer satisfaction	Strengthening organizational competitiveness and customer satisfaction
Focus	Performance as per specification or quality (Q)	Performance as per due time or delivery (D)
Tools	Six sigma, Taguchi methods, quality circle, quality award models	Quick response, just-in-time (JIT), efficient consumer response.
Practices	Top-management commitment, customer focus, training and education, continuous improvement and innovation, supplier management, and employee involvement.	Customer relationship, material management, strategic supplier partnership, information and communication technologies, corporate culture, and close supplier partnership.
Scope	Product safety, flexibility, and improved quality products and services (quality assurance), quality management issues,	Speed to market, agility, and flexibility to respond quickly to customer requirements at minimum cost, marketing, development

	measurement of quality, cost of quality, QMS, quality excellence models, process management and improvement, and strategic, tactical and operational issues for TQM implementation and maintenance.	and commercialization, product return and recycling, buy, make, move, sell and return processes, product design, logistics and inventory management, purchasing, and customer relationship management.
Primary integration	Internal participation (management and employees)	External partnership (suppliers and customers)
Applications	Manufacturing, Service, SMEs, and all ISO 9000 certified organizations.	Manufacturing, retail, consumer, processing industries, and all ISO 9000 certified organizations.

**Theme-Definition**

One stream of literature focuses on the different definitions of TQM and SCM. However, the fact that there is still no consensus on conceptual definitions for TQM and SCM poses obstacles to practical implementation. TQM has been defined in many ways (Sun, 2000), particularly as ‘a management philosophy’ (Perry and Sohal, 2001; Khan, 2003, Chan et al., 1999; Terziovski and Samson, 1999) that encourages ‘integration at all levels and organizational functions’, ‘continuous improvement’, ‘creation of quality products and services’, ‘customer satisfaction’, ‘training and education’, and ‘performance measurements’ (Deming, 1986; Chase and Aquilano, 1992; Palo and Padhi, 2005). Similarly, SCM could also be understood as ‘a management philosophy’ (Ellram and Cooper, 1990; Christopher, 1998; Tan et al., 2002; Chan and Qi, 2003;

and as per Council of Supply Chain Management Professionals (CSCMP), 2007, p. 104) that encourages 'integration of external members of chain and customer requirements (supplier and customer relationship), 'timely delivery of products and services', customer satisfaction', 'management of total flow of a distribution channel from supplier to customer', 'procurement and distribution of materials and finished products', and 'logistic management'.

Despite the lack of a single recognized meaning, these definitions possess some similarities. Common features include an end-to-end coordination at all functional levels and with partners, and focus on integration with internal and external members of organization to deliver value to the end customer to achieve common goal of customer satisfaction.

### **Theme-Origin**

Next theme of categorization between TQM and SCM is the origin of these two concepts. The original function of TQM is based on 'quality'. TQM focuses more on quality by aiming to deliver quality products and services to end customers. The term that embraces a wider scope for defining quality is the 'big Q', which includes a big domain like customer requirement, product safety, flexibility, prompt delivery, and esteem value.

Unlike TQM, SCM origin is developed from strategic and logistics. SCM focuses more on supply and delivery, shorter lead time, reduction in cost, strategic partnership with suppliers, distributors and customers (Meehan and Muir, 2008), and above all creating communication channels for information and improvement i.e. logistics development.

### **Theme-Goal and focus**

Although TQM and SCM share the same set of goal which are strengthening organization competitiveness and customer satisfaction but their focus is slightly different from each other. TQM focuses more on quality conformance by aiming to deliver error-free products and services

i.e. performance as per specification (Sun et al., 2004, Prajogo and Sohal, 2004, 2001) while SCM emphasizes more on delivery or performance as per due time to satisfy customer. SCM aims to respond to customer as quickly as possible, at the right time and at right place at lowest cost possible (Chin et al., 2004; Kuei et al., 2001, Samaranayake, 2005).

### **Theme-Development stages**

This category correlates TQM and SCM through development stages. TQM first focused only on quality then further to quality inspection, then included quality control (QC) that emphasize on monitoring of process, quality assurance (QA) that emphasize process control to conform to customer requirements, then came the concept of management of quality (QM) replacing control by management, a traditional approach which was used to be reactive and result oriented, and finally TQM was introduced which was received as a modern approach to QM by the academicians and practitioners as it was broader and new which emphasizes quality at each and every stage of process to prevent any error. This approach was termed as proactive process oriented approach (Mehra and Agrawal, 2003).

The development of SCM starts from logistics. Initially SCM focused on logistics (Gilmour, 1999). Several SCM researchers defined SCM as an integrated logistics management (Romano and Vinelli, 2001; Dotson et al., 2003; Varma et al., 2006). However, some of the researchers argue that the current scope of SCM goes beyond logistics (Mills et al., 2004; Johnson and Wood, 1996; Cooper et al., 1997). It evolved to cover not only the operation level but also the strategic level of both internal functions and external business partners. SCM starts from a weak coordination among the internal functions, it matures into an ultimate integration among external business partners. The entire supply chain becomes a single system is called 'a seamless supply chain' (SSC) (Towill et al., 2002, p. 89) and finally global supply chain management (GSCM)

was introduced which was received as a modern approach to SCM by the academicians and practitioners. With increased globalization and offshore sourcing, GSCM is becoming an important issue for many businesses. Like traditional SCM, the underlying factors behind the trend are reducing the costs of procurement and decreasing the risks related to purchasing activities. The big difference is that GSCM involves a company's worldwide interests and suppliers rather than simply a local or national orientation (EPIQ, 2010). GSCM provides an integrated and seamless solution at every point along the supply chain country to country. GSCM not only generates significant cost savings, but also substantially simplifies the SCM process for clients (SCM Global (2005). If TQM represents a superior QM, GSCM could be a superior form of SCM. The primary goals of QM and SCM are target quality and delivery.

### **Theme- Tools and applications**

This section discusses the use of tools by TQM and SCM and their application areas. Specific industries such as manufacturing, service, small to medium sized enterprises (SMEs) and especially all ISO 9000 certified organizations as well as non ISO 9000 certified organizations have applied TQM methods/tools such as Six sigma, Taguchi's method, Quality circle, and different Quality Award Models to improve performance, efficiency, effectiveness of business and achieved customer satisfaction. Similarly, for SCM some specific industries such as manufacturing, retail, consumer industries, processing industries as well as ISO 9000 certified organizations have used specific SCM tools/methods such as Quick response (QR), Just-in-Time (JIT), Efficient Consumer Response (ECR), e-procurement, e-marketing, and some other SCM models to improve efficiency, performance, and effectiveness of operational supply and achieved customer satisfaction.

### **Theme-Practices**

Identification of TQM and SCM practices and their implementation is another important theme that compares the two concepts and some similarities could be extracted out from them. Although there is voluminous research literature available on TQM practices but till now there is no single set of practice which could be applied for better results. Through the extent literature review, researchers identified the following six TQM practices (Talib and Rahman, 2010b; Samat et al., 2006; Kanji and Wallace, 2000; Brah et al., 2000) which are commonly used. They are: top-management commitment; customer focus; training and education; continuous improvement and innovation; supplier management, and employee involvement.

In case of SCM, few studies are taken on SCM practices and identified different practices to improve customer service and business performance. After going through extent literature review on SCM practice, six major SCM practices were identified (Chandra and Kumar, 2000; Kuei et al., 2001; Tan et al., 2001; Ulusoy, 2003; Koh et al, 2007; Chin et al., 2004). They are: customer relationship; material management; strategic supplier partnership; information and communication technologies; corporate culture; and close supplier partnership.

After going through these identified TQM and SCM practices critically for any similarity, it was found that management support and commitment, customer focus, and supplier partnership are the most common practices found in both TQM and SCM literature and have strongest impact in the integration of TQM and SCM across the organizations.

### **Theme- Scope**

Scope as a theme to compare TQM and SCM is also an effective way to find out similarities between them. Scope of TQM covers quality management issues, measurement of quality, cost of quality, quality management systems (QMS), quality excellence models, process management

and improvement, tools and techniques of QM, and strategic, tactical and operational issues for TQM implementation and maintenance where as SCM covers marketing, development and commercialization, product return and recycling (Lockamy and McCormack, 2004b), buy, make, move, sell and return processes, product design, logistics and inventory management, purchasing, operations management, and customer relationship management.

### **Theme- Primary integration**

Finally, last theme through which TQM and SCM can be integrated for there similarity is the primary integration. Both TQM and SCM offer unique frameworks to integrate them. TQM focus on integration through internal participation that includes management (top and middle both) and employees while SCM emphasizes on integration through external partnership which includes all suppliers and end customers. Therefore, TQM and SCM can be integrated by participation and partnership i.e. participation from all internal functions and continuous collaboration with all external partners (Dean and Bowen, 1994; Gimenez, 2004; Sohal and Anderson, 1999).

Above theme wise similarities and comparative study can be a potential benefit for the future researchers and practitioners when they are taking issues of integrating TQM and SCM and implementing a synthesis of TQM and SCM in there organization. More research is still needed to explore there implications.

### **BENEFITS OF TQM AND SCM**

The extent review of literature reveals that adoption of TQM and SCM could deliver a number of potential benefits to the organizations. Previous studies have measured organization performance using different criteria such as financial, non-financial, innovation performance, market share,

and employee and customer satisfaction. These criteria may act as performance indicators and are equally important in evaluating the benefits of TQM and SCM. Based on this discussion, this section extracts out some most important benefits of TQM and SCM as well as other few minor benefits or less important benefits of SCM and TQM are also discussed here. Table 4 shows these identified TQM and SCM benefits.

**Table 4. Benefits of TQM and SCM**

<b>TQM</b>	<b>SCM</b>
Reduced cost of operation	Increase in sales
Increased financial performance	More accurate costing
Improvement in company morale	Increase in coordination between departments
Establishing a process of continuous improvement and innovation	Increase in coordination with suppliers
Increased customer satisfaction	Increase in coordination with customer
Improvement in employee involvement	Increase in customer service and responsiveness
Speedier new products introduction	Improve supply chain communications
Long term relations and affinity	Reduction in risk, inventory, and product development cycle time processes
Commitment of employer towards continuous change	Reduction in the duplication of inter-organizational processes

## **SCM benefits**

### ***Increase in sales***

Reduced product cost, improved product quality, faster response, and higher market share could be achieved by efficient use of chain resources in a supply chain of the market. Making supply chain practice as a benchmark would provide organization with the opportunity of increased sales as this practice is an emerging concept adopted by many organizations. Benchmarking the supply chain performance against the best practice in the organization would provide incentives for further improvement that will eventually lead to increased sale.

### ***More accurate costing***

SCM tools such as e-procurement, e-marketing, ECR, JIT, QR would provide organization more accurate costing for there product and service produced. This could be achieved through calculation of real-time and the updated information in key accounts of buyers and suppliers (Rao, 2006). 'JIT' supply reduces the holding cost, which is difficult to predict. 'ECR' predicts future inventory of the product and assists in evaluating cost accurately.

### ***Increase in coordination between departments***

Making healthy relationship between customer and supplier together with the internal members of the organization is the synthesis of SCM concept. Strategic planning could increase integration between different departments of an organization through effective communication and information sharing system. This SCM practice helps to reduce the departmental barriers and develop an integrated plan across the organization. The benefits of close relationship with suppliers and customers are only realized in a well coordinated organization.

### ***Increase in coordination with suppliers***

Since SCM involves many supplier based practices such as ‘many suppliers’, ‘few suppliers’, ‘forming close partnership with suppliers’, ‘supplier management’, ‘strategic supplier management’, and ‘practice of e-procurement’ which could increase coordination with suppliers and helps to build more effective supplier relationships. Close partnership with supplier helps in product, process, and technology innovations like new product development, training required, workforce development, market requirement etc. This partnership will not only benefit the supplier and customer, but will also improve the relation with the suppliers due to a closer ‘control’ of the supply chain (Hello and Szekly, 2005). Further, transactions could be managed more centrally and hence, it is clear that the increase in coordination with supplier in this context is via information technology (Rahman, 2004).

***Increase in coordination with customers***

Similarly SCM also emphasizes on customer relationship. Increase in coordination with customers could be achieved by developing close partnership with customers. This could be achieved by adopting SCM practices such as ‘potential customer orders’, ‘customer relationship’, ‘customer focus’, etc. Increase in coordination with customers can help to reduce late design changes and order changes, which ultimately affects the delivery performance of the organization.

***Increase in customer service and responsiveness***

It is not surprising that most of the SCM organizations have achieved competitive advantage in the marketplace through customer service and responsiveness. Providing better services and quick response to the requirement of the customer gave them an additional advantage. SCM tools such as QR, JIT, ECR, e-procurement, e-marketing helps in increasing customer services and responsiveness.

***Improve supply chain communications***

As per the definition of SCM, it improves communication to deliver superior customer service and value. Maintaining better and coordinated relationship between internal and external members of the chain improves supply chain communication.

***Reduction in risk, product development, duplication of process, and inventory***

Although there is lack of consistent opinion regarding these benefits. The literature shows that they may be treated as benefits of SCM, though, they are less important as compared to above benefits. All these represents the harder side of SCM as they focus on more traditional operations management areas such as process and inventory management.

**TQM benefits**

***Reduced cost of operations***

With the reduction of all type of waste, re-work, cycle-time, and costs, it will lead to an improved productivity and company profit will also be increased. Improved operating procedures will reduce cost of operation. Implementation of TQM delivers better products and service quality, number of errors/defects, the reduction of total quality costs, better processes and productivity. These terms will help to reduce cost of operations.

***Improvement in employee involvement***

By implementing TQM, teamwork is improved through participation of 'all' levels and functions of the organization. Employees experienced more job satisfaction, reduction in absenteeism, and less turn over. In general term, overall employee involvement was increased as a result of TQM. The impact of TQM practices on employee involvement has especially improved employee

participation as well as employee morale. Hence, TQM helps in improving performance in these matters.

### ***Improvement in company morale***

Employees empowerment through the use of teamwork, education and training, employee involvement, better employee relations, giving employees incentives and rewards, and responsibilities for making decisions will also cultivate a friendly and happy working environment. Hence, these will improve the morale of the company which will ultimately increase quality of products and services, and productivity.

### ***Establishing a process of continuous improvement and innovation***

TQM is the best way to improve organizational output through continuously improved performance (Corbett and Rastrick, 2000). TQM stands on the concept that improvement in quality of product and services is a continuous process and is never ending. TQM is a good management practice which helps in developing new and innovative ideas to satisfy its customers, this helps in continuous improvement of quality services.

### ***Increased customer satisfaction***

According to the feedback of the companies who are using TQM practices, the overall customer satisfaction turns out to be the performance-related indicators that had most improvement due to TQM practices (Kumar et al, 2009). The adoption of TQM practices helped to decrease the number of customer complaints and increases the customer retention. Also, by adopting TQM, percentage of on-line delivery also improved significantly (Kumar et al., 2009). TQM takes care of customer' expectation through quality information and performance measurement principles and thus, maintaining continuous improvement in quality of services and demand of customers.

### ***Increased financial performance***

By adopting TQM practices, organizations improved their market share and increased profitability as well as return on sales and return on assets though marginally (Kumar et al., 2009). The firms that make moderate to extensive use of customer focus practices experience an increase in financial performance.

***Commitment of employer towards continuous change***

TQM can never succeed without full support and cooperation of the top-management. It is the top-management responsibility to implement TQM practices in their organization. TQM practices therefore, help to change the behavior of the members of the organization with the support of top-management. It has been argued that change will be more successful if the top-management is committed to change (Senge, 1990). Commitment of employer plays a critical role in shaping the success of strategic changes in organizations and hence, keeping their customer intact and satisfied.

***Speedier new product introduction and long term relations and affinity***

Product innovation is an important dimension of TQM. TQM helps in speedier new product development and hence, fulfills the requirement of customers. In this way TQM keeps long term relation intact and improves customer's affinity towards them. New product aimed at meeting and exceeding the requirements and expectations of customers better than the competitors and hence, improves long-term relations and affinity which is one of the major benefits of implementing TQM in an organization.

**CONCLUSIONS**

This paper successfully presented the similarities and potential benefits of integrating TQM and SCM, and identified many synergies between TQM and SCM as well as useful benefits which

results in improved business performance and customer responsiveness. Understanding and comparing these similarities and benefits of TQM and SCM could further identify potential areas of future research as well as the development of a management framework that integrates the two concepts. Moreover, TQM and SCM could be viewed as management philosophies and from this perspective there is unlimited scope and applications. There is a need of a well integrated framework to implement TQM and SCM together, especially SCM framework, since there is still no well specified SCM framework. However, the ultimate goal of both is customer satisfaction but there approaches to achieve it are quite different. There can be synergy as they share the ultimate goal therefore, there is need for more research into these contradictions to explore how they can be reconciled. When TQM and SCM are integrated, both business processes and the organizational structure will become more complex. Therefore, more research needs to be conducted into the alignment of these aspects. Although TQM and SCM require both internal and external integration, TQM emphasizes participation of all internal members of the organization, whereas SCM focuses on the external partnerships with supplier and customers.

Further, this paper also concludes that there are number of benefits associated with the integration of TQM and SCM, specifically the ability to improve customer responsiveness, supply chain communications, company morale, continuous improvement and innovation, and commitment of employer towards continuous change. Customer orientation and commitment and involvement of top-management are positive signs that TQM and SCM are viewed by the organizations as a fundamental business philosophy rather than just tools and techniques. However, there are still a number of constraints that exist which may prevent TQM and SCM adoption.

This study offers some managerial implications also. First, since quality is an important attribute in organization's relationship with their customer and supplier, therefore, to have a sufficient quality focus, managers must place more emphasis on involving their suppliers in their quality initiatives. Second, managers need to seek more customer input in developing quality specification i.e. listening to the voice of the customers and then respond. Third, there is a need for the use of a more systematic approach to the deployment of TQM and SCM concepts by managers. Lastly, implementation of TQM and SCM principles and practices may have a significant impact on the operational efficiency of an organization in an emerging country context.

Through this study, a number of similarities and benefits of TQM and SCM were revealed, but still there is scope for further research in integrating TQM and SCM. They include: management's role in TQM and SCM, the organizational structure to integrate TQM and SCM for simultaneous implementation, for this there is a need to explore how the strengths of both frameworks could be integrated into a new management concept that could be more effective than either framework on its own. Also, through this study researchers could generate ideas for future studies and top managers can acquire knowledge about how TQM and SCM integration impacts organizational performance.

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