Impact of Supply Chain Quality Management (SCQM) on Organisation Performance: A Conceptual Framework

Dr. N. Nithya

Associate Professor, Sona School of Management, Salem, Tamil Nadu (India)

ABSTRACT

With the growing importance of inter-disciplinary approaches in management, it was also relevant to study the impact of combined effect of management practices towards any desired outcome. In the present study, the author tried to understand the combination of Total Quality Management and Supply Chain Management and attempted to add value to the existing views on Supply Chain Quality Management (SCQM). Further the literature review approach as carried out to understand the definite gap that exists in the area of SCQM. Also the study added two more objectives of assessing the impact of SCQM on organization's performance in view of two mediating variables say, Business Uncertainties and Customer Expectation. This would enhance the focus of SCQM in relationship with all the included variables which will enable any organization to lay policies based on the identified relationship between the variables of the study. Vast literature was assessed on all the variables and the research gap was identified paving way for an important objective of studying the impact of SCQM on Organization’s performance in purview of Business uncertainties and Customer Expectation.

1. Introduction

It is a known fact that good management practices and firm’s performance are highly correlated irrespective of sectors/industries. The relation is understood and assumed to be a function of proper resource allocation no matter what kind of resource is utilized. It is easily understandable that not all management practices are equally efficient and capable of yielding positive results and it is factual that at times, some practices are clearly dysfunctional. It is evident that some set of management practices followed at an optimum level have marked maximum performance and accompanied management of related areas. The process of identifying and spreading knowledge of best practices seems to be an intrinsic part of managing business (HM Treasury, 2005; AIM, 2003). In the recent days, the competition has shifted from low cost product, high quality or best performing product to the one with high degree of responsiveness to the customer and market needs by making way for right product to right customer at right time (Suhong et al., 2005). This drastic change in the speed of the organization needs highly performing system in practice. This enables implementation of various management practices to work at a higher speed with precision.

2. Methodology

This study is on a approach to conceptual framework building. The use of this approach depends on analyzing theories and combining their dimensions to create a new highlighted conceptual framework. This is based on the rationale that amidst of implementing established management practices, the firm’s performance is not giving a consonance feeling to the customer due to the interruption of unexpected business uncertainties. This research thus provides a more integrated way of looking at the research problem (studies which is integrated with different constructs). This study will offer a distinctive and meaningful insight to meet the gap between manufacturer and customer with holistic views and analysis.

The literature review and the analysis of the collected literature paved the way for the existing conceptual framework to create model for the manufacturer – customer relationship. The study addresses the gaps identified in the previous research and the key propositions are suggested. The gaps are identified and projected as open research issues (Yin, 1994) and the hypothesis reflecting these gaps will be used as a guide in the data collection and analysis, focussing on the research phenomenon (Perry, C., 1998). Thus the main objective of the research is to identify the gap for future research and to attempt to contribute in solving the gap.

In summary, there has been a lack of conceptual and empirical research on studying the link between operational management practices, specifically TQM and SCM. Hence the study attempts to identify the impact of TQM and SCM on firm’s performance in view of supply chain quality management (SCQM).

3. Total Quality Management

A number of studies have attempted to identify the contribution of quality management practices in maximizing the organization performance (Spencer Barbara, 1994). The implementation of quality management in an automated environment has been identified with various constructs and the relationship has also been studies (Oswald et al., 2009).

Preliminary evidence seems to indicate that TQM-adopting firms obtain a competitive advantage over firms that do not adopt TQM (Brah et al., 2002; Powell, 1995). Firms that focus on continuous improvement, involve and motivate employees to achieve quality output and focus on satisfying customers’ needs are more likely to outperform firms that do not have this...
focus (Therese A. Joiner, 2006). Thus, we can expect that to the extent an organization implements TQM practices, performance should be enhanced. According to (Samir Baidoun, 2003) factors such as top management commitment, leadership, people management, strategy, policy, partnership, management of processes and resource management are generally considered as the initial inputs to the implementation process of TQM. TQM can be defined as a comprehensive and universal management philosophy aimed at continuous improvement in all functions of an organization and satisfying customer’s need and requirements by providing quality services under the leadership of top management. (Demirbag et al., 2006). Saravanan & Rao, (2007) studied that effective implementation of TQS, continuously increases quality and performance of an organization. According to (Sharma & Hoque, 2002; Kanji & Sa 2007) public sector organizations adopted and practiced TQM for continuous improvement. It was also found that the eight principles of TQM are applied for both SME’s and large companies (Nihal Erginel, 2010). A study done by (Arash Shahin et al., 2013) has determined that the implementation of TQM is based on soft factors like Committed Leadership, Adoption and Communication of TQM, Customer Relationship, etc. It was studied that found that the implementation levels of TQM principles are fairly mature for large companies (Bayazit, 2003 & Nihal , 2010).

**H1:** TQM is positively related to SCQM

**4. Supply Chain Management**

SCM has become such a “hot topic” that it is difficult to pick up a periodical on manufacturing, distribution, marketing, customer management, or transportation without seeing an article about SCM or SCM-related topics (Ross 1998) There are many reasons for the popularity of the concept. Specific drivers may be traced to trends in global sourcing, an emphasis on time and quality-based competition, and their respective contributions to greater environmental uncertainty. Corporations have turned increasingly to global sources for their supplies. This globalization of supply has forced companies to look for more effective ways to coordinate the flow of materials into and out of the company (John T. Mentzer et al., 2001). Despite the popularity of the term Supply Chain Management, both in academia and practice, there remains considerable confusion as to its meaning. Some authors define SCM in operational terms involving the flow of materials and products, some view it as a management philosophy, and some view it in terms of a management process (Tyndall et al. 1998). There were lot of research done on the SCM literature review and SCM practices (Kevin Burgess et al. , 2006, Antony Paulraj et al., 2012, Injazz J. Chen et al., 2004, K.C. Tan et al., 2009, ) highlights the importance for SCM in the field of business management. Though Academicians and practitioners are showing significant interest to SCM research since 1980’s, there was a massive growth in the business expansion of Indian organization across borders, which paved way for SCM implementation in Indian organizations since 1990’s (Anand Gurumurthy, 2013). There were studies focusing on various aspects of SCM at Indian perspective (Vaan Hoek, 2001; Danny etal., 2002; Grieger 2003; Sachan and Datta, 2005; Power, 2005; Arshinder et al., 2008; Rao and Goldsby 2009; Gosling and Naim, 2009; Sarac et al., 2010; Soni and Kodali, 2011, 2012 & 2013 and Shukla and Jharkharia, 2013). With the improved importance of SCM and the realization of benefits of strategic relationships, organizations began to involve strategic suppliers in resource management decisions (Morgan and Monczka, 1996). Supply chain management was initially seen as a tactical mechanism for coordination logistics, work flows and related information, but it focuses on competitive reality in the recent years and hence SCM practice has become a tool for achieving competitive advantage (Bay et al., 2004; Drake & Schleicher, 2007). Hence, SCM received a great interest by the practitioners to measure the benefits that accrue to firms by managing supply chain partners effectively and bring out organizational performance. In today’s scenario, measure firm’s performance by mere accounting of data was ignored as it eliminates the opportunity cost and the time value of money (Chen and Lee, 1995). Attempt was done to quantitatively analyze the relationship between supply chain competence and firm performance (T. Nimbirajan et al., 2011).

**H2:** SCM is positively related to SCQM

**5. Relationship Between SCM And TQM – Supply Chain Quality Management**

With the increasing global competition and the evolving technological advancements, quality managers and supply chain managers are into lot of challenges to manage the overall efficiency of the firm. Therefore, the integration of TQM principles offers potential for broadening the perspective of SCM from its narrow focus on costs and competitive relationship to focusing on cooperative relationships between members of the supply chain (Flynn B B and Flynn E J, 2005). TQM and SCM play a vital role in enhancing the strength of organizational competitiveness (Sila et al., 2006). Both TQM and SCM focus on the same goal of achieving customer satisfaction (Laney, 1996; Gunasekaran et al, 2001; Gunasekaran and McCaughey, 2003; Mills et al., 2004 and Vanichchinchai and Igel, 2009). TQM and SCM require participation from all the internal functions and continuous collaboration with external partners in a unique way in order to integrate participation and partnership (Dean and Bowen, 1994; Sohal and Anderson, 1999; and Gimenez, 2004). Very few studies have been done to explore the integration of TQM and SCM. A study on supply chain integration in QM systems for hospitals indicated that there is a positive relationship between supply chain integration and QM systems (Tutuncu and Kucukusta, 2008). Studies have proved that TQM practices are related to performance throughout the supply chain in various projects (Forker et al., 1997; Wong and Fung, 1999). With the growth in the field of supply chain management, a great deal of effort has gone into defining and creating the related filed of supply chain quality management (SCQM) (Flynn et al., 1994; Choi and Eboach, 1998; Kuei et al., 2001; Spekman et al., 2002, Foster, 2008;Kaynak and Hartley, 2008). SCQM has been defined as “a systems based approach to performance improvement that leverages opportunities created by upstream and downstream linkages with suppliers and customers(Foster, 2008) Research suggested that there is a relationship between supply chain quality management practices and the positive effect of these practices on the organizational performance (Adel azar, 2009).
The impact of supply chain management practices in Total Quality Management practices and Flexible system practices was studied in Oil and Gas Industry (Fauzia Siddiqui et al., 2012). A study on the impact of total quality management on supply chain management and firm’s supply performance was studied and found that TQM practice not only has a significant direct positive impact on SCM practice and on Firm’s supply performance but also a significant indirect positive impact on firm’s supply performance through SCM performance (Assadej Vanichchinchai and Barbara Igél, 2011). The SCQM system was developed at global level as an extension of the traditional supply chain operations and quality management. The study identified four major SCQM themes – design for six sigma, international standards, supply chain management, global leadership and human resource management (Chun hua kuei et al., 2011). A study on automobile industry in Taiwan found that the implementation of the quality standard was judged to have improved the performance of the supply chain (Chin Hung Liu, 2009). An empirical study on US manufacturing companies regarding the state of SCQM and its effect on product quality was determined (Ismail Sila et al., 2006). A study on impact of supply chain sensitivity to quality certification on QM practices and performances seems to be significant on punctuality, delivery speed and volume flexibility. (Pietro Romano, 2002). A study carried out in electronic components industry has proved that when TQM practices are promoted through Supply Chain, it leads to the better performance of the organization (Forker et al., 1997).

H₃: The degree of implementation of TQM and SCM will be positively associated with the Supply Chain Quality Management (SCQM).


The theory of quality management has been developed based on three different areas viz., contribution of quality gurus, formal quality award models, and the measurement studies and based on the literature, the study determined seven constructs say, Top Management's Commitment to Quality, Employee involvement, Customer focus, Fact based management, Incentive and recognition system process, Monitoring and control and continuous improvement to measure the impact of TQM practices on various levels of improvement with respect to the different dimensions of performance such as quality, business and organizational performance (Masood et al., 2012). It was studied and determined that TQM practices have positive association with organizational performance (Kaplan and Norton, 1996). Several authors (Stiehm et al., 1997; Choi and Eboch, 1998; Samson and Terziovski, 1999; Brah et al., 2002; Brah and Lim, 2006; Demirbag et al., 2006; Feng et al., 2006) identified positive association between TQM implementation and organizational performance.

Total Quality Management (TQM) has been receiving far-flung acceptance by the diverse sectors of the economy such as manufacturing (Fotopoulos and Psomas, 2009), service (Feng et al., 2008), government (Chen, 2005), health care (Kaplan et al., 2010), banking (Irfan et al., 2009) and education (Faganel, 2010; Manivannan and Premila, 2011). Though the implementation of TQM is widely accepted in almost all the sectors, the impact of operational practices is imperative in certain sectors like transportation, courier and parcel services. But there was no deep research done on the operations practice and its impact on those industries. Keeping this as an objective, the research has attempted to measure, the impact of TQM practices in the transportation, courier and parcel services.

H₄: The degree of implementation of TQM practices will be positively associated with the organization performance.

7. Impact of Supply Chain on Firm’s Performance

In the global competitive world, performance can no longer solely be determined by the decisions and actions that occur within a firm as the execution of all members involved contributes to the overall results of the supply chain. In connection to this, organizations progressively find themselves reliant upon having effective supply chains or networks to successfully compete in the global market economy (Lambert, 2008). The goal of SCM is to achieve greater profitability by adding value and creating efficiencies, thereby increasing customer satisfaction (Stock and Boyer, 2009). Improved process performance result in enhanced product quality, customer service, market responsiveness and target market access (Fisher 1997, Lambert et al., 2005; Lee et al., 1997; McCarthy and Golicic 2002; Sabath and Fontanella 2002; Stank et al. 2001; Tan et al. 2002; Tummala et al. 2006). Performance is thus improved through better use of internal and external capabilities creating a seamlessly coordinated supply chain, elevating inter company competition to inter supply chain competition (Burgess et al. 2006, Lummus and Vokurka 1998; Mentzer 2004; Lambert 2008). Literature of SCM gained its importance on its practical positive impact on firm performance. The positive impact of SCM in performance can be better understood if we interpret its constructs using the relational view (Cooper et al., 1997; Mentzer et al., 2001). Only recently, empirical research has been trying to test the causal relationship between SCM and performance, especially in USA and Europe (Miguel & Brito, 2011). While several studies found a positive relationship between SCM and performance (Carr & Kaynak, 2007; Chen, Paulraj, & Lado, 2004; Cousins & Menguc, 2006; Droge, Jayaram, & Vickery, 2004; Fynes, Voss, & Bürca, 2005; Gimenez & Ventura, 2005; Johnston, McCutcheon, Stuart, & Kenwood, 2004; Kaufmann & Carter, 2006; Narasimham & Das, 2001; Salvador, Forza, Rungtusanatham, & Choi, 2001; Shin et al., 2000; Vickery Jayaram, Droge, & Calantone, 2003; Wisner, 2003), others were not conclusive. Weak support for the impact of cooperation on flexibility and delivery (Fynes et al., 2005; Vereeke & Muylle, 2006) and of information sharing on overall operational performance (Krause, Handfield, & Tyler, 2007) are examples of conflicting results. Organizations implementing SCM have obtained improved performance. Cost savings, increased revenues, and the reduction of defects in products are some of the chief advantages of introducing supply chain management (Shin, Collier & Wilson, 2000). These are also mentioned as long-term goals of the supply chain (Tan, Kannan & Handfield, 1998). It has been demonstrated that business profitability is closely associated with market and business shares (Buzzell, Gale & Sultan, 1975). Based on the
long-term and short-term goals of the SCM, the organizational performance measures identified were and financial and market performance and customer satisfaction. In context of SCM, the financial and market performance factor is operationalized in terms of market share, return of total assets, annual sales growth (Hambrick, MacMillan & Day, 1982; Tan, Kannan & Handfield, 1999; Venkatraman & Ramanujan, 1987). The customer satisfaction dimension is measured by total product value to the customer; meeting quality standards set by the customer, understanding customer needs, retention of loyal customers and alignment of organizations goal in terms of customer needs (Daugherty, Ellinger, & Dale, 1995; Feicková, 2004; Jamal & Naser, 2002).

H1: The degree of implementation of SCM practices will be positively associated with the organization performance.

8. Firm Performance

Despite its relevance, research into firm performance suffers from problems such as lack of consensus, selection of indicators based on convenience and little consideration of its dimensionality (Combs, Crook, & Shook, 2005; Crook, Ketchen, Combs, & Todd, 2008; Richard et al., 2009). Many studies measure firm performance with a single indicator and represent this concept as unidimensional, even while admitting its multidimensionality (Glick, Washburn, & Miller, 2005). If several dimensions exist, a researcher should choose the dimensions most relevant to his or her research and judge the outcomes of this choice (Richard et al., 2009). Ray, Barney and Muhanna (2004) stress this, warning against the difficulties of testing the resource based theory (RBT) using aggregated measures of performance and suggesting the use of indicators directly connected to the resources under analysis. As such, the strategic management field clearly needs a clearer conceptualization of firm performance, discussions about its dimensions and better measurement efforts.

The concept of firm performance needs to be distinguished from the broader construct of organizational effectiveness. Venkatraman and Ramanujan (1986) offered an enlightening figure of three overlapping concentric circles with the largest representing organizational effectiveness. This broadest domain of organizational effectiveness includes the medium circle representing business performance, which includes the inner circle representing financial performance. Organizational effectiveness covers other aspects related to the functioning of the organization as absence of internal strain and faults, engagement in legitimate activities, resource acquisition and accomplishment of stated goals (Cameron, 1986a). Although this conceptual proposal of Venkatraman and Ramanujan (1986) is widely referred to by strategic management scholars (Carton & Hofer, 2006; Richard et al., 2009), the analysis of operationalizations of firm performance used in empirical studies shows a wide variety of approaches covering this domain partially and in an unbalanced way. Combs, Crook, and Shook (2005) analyzed all articles published in the Strategic Management Journal between 1980 and 2004 and identified 238 empirical studies that used 56 different indicators. In most cases, financial performance was used (82%) with accounting measures of profitability being the most common choice (52%). Carton and Hofer (2006) and Richard et al. (2009) reported a similar picture, analyzing different journals in other time periods. Both studies reported a rate of indicator per article of close to one.

Another source of confusion is the use of antecedents of performance as performance indicators (Cameron, 1986b). Combs et al. (2005) argue that the operational performance as described by Venkatraman and Ramanujan (1986) is best viewed as an antecedent of financial performance, mediating the effect of resources. The argument has merit and is quite clear in some cases, like production efficiency. But in other aspects, like customer satisfaction, the situation is less clear. While customer satisfaction may be an antecedent of financial performance, is it not a performance outcome, in itself as well? This depends on how one defines firm performance. Defining performance as the satisfaction of stakeholders (Connolly, Conlon, & Deustch, 1980; Hitt, 1988; Zammuto, 1984) helps to differentiate between antecedents and performance outcomes. In this case, customer satisfaction is clearly also an outcome (using the customer – a stakeholder – perspective) and thus part of firm performance. A model done on framing constructs of firm performance identified at least five dimensions: financial performance, customer satisfaction, employee satisfaction, social performance and environmental performance.

H2: SCQM is positively related to organization Performance

9. Business Uncertainties

Management practices that are effective in established businesses are often ineffective and even destructive when applied to processes because of higher levels of uncertainty that occurs in the projects. Understanding the characteristics of processes and the nature of the uncertainty that pervades them is critical to develop suitable management practices. It was clearly known that uncertainties were a problematic issue causing border line in exploiting organizational profit. Many of the researchers put their own factors of uncertainties. Very little literature was available on the measurement of uncertainty. Uncertainty has been described as a state in which one cannot determine the probability of an outcome, owing to lack of information about the cause and effect of a relationship (Miller and Shamsie, 1999; North 1990), the “ inability to differentiate between relevant and irrelevant data “ or “ perceived inability to predict accurately”, due to lack of information (Milliken 1987). A comprehensive model of uncertainty identified four categories of uncertainty as key drivers of project management viz., technical, market, organizational and resource uncertainty (Connor and Rice, 2013). Uncertainty has been addressed in most studies on entry – mode choices, but its definition and importance differ widely with respect to the theoretical approached used to investigate it. In various studies, uncertainties that have been explicitly investigated as influencing entry mode decision include among others cultural uncertainty (Contractor and Kundu, 1998; Tsai and Cheng 2002), behavioural uncertainty (Anderson and Gatignon 1986), political uncertainty (Delios Henisz, 2003 a ), policy uncertainty (Delios and Henisz 2003 b), market uncertainty (Brouthers et al. 2008 ; Li and Li 2010), demand uncertainty (Brouthers and Dikova 2010) and
exchange rate uncertainty (Campa 1993; Cuypers and Martin 2010). Studies were available providing avenues for research on uncertainty and entry mode choices with respect to firm learning, prior experience and host market attractiveness (Ahsan and Musteen, 2011). Significant interest was identified in the impact of uncertainty on the production of creative and cultural goods (Caves, 2000; Devany, 2004; Faulkner & Anderson, 1987; Hirsch, 1972, 2000; Miller & Shamsie, 1999). Studies are done to study the uncertainty in business decisions using fuzzy and games approach (Oderanti et al., 2012). Studies were attempted to evaluate new business demand uncertainties using FMEA principles for making decisions (Scapin and Gomes, 2012). Though very limited research has been done to evaluate the uncertainty, a considerable amount of literature has been published to evaluate the uncertainty factor of late delivery in construction industry. (Polat and Ballard, 2004; Prasanta, 2001; Jeroen and Petr, 2007; Ruwanpura et al., 2004). A study on uncertainty factors in environmental issues on late delivery for construction industry was done where they provided a structure and direction to fix the uncertainty factors by proposed model of underlying causes and effect of the uncertainties (Baharum & Hamdan, 2011). It was suggested that the integration or quasi integration can decrease uncertainties (Williamson, 1985). It was also identified that environmental uncertainty to be positively associated to vertical integration (like supplier integration and customer integration) and internal production (John and Weitz, 1983; Levy, 1985; and Masten, 1984). But it was contradictorily found that there was no significant association between these constructs (Anderson and Schmittlein, 1984 and Maltz, 1994). A study on Chinese manufacturing industry disclosed the relationship between environmental uncertainty (demand, technology and supply uncertainty) and supply chain integration and shows how the uncertainty mediates the effect of supply chain integration (Xu et al., 2009).

H$_7$: Business uncertainties moderates the organization performance positively.

10. Customer Expectation

Expectations provide the foundation on which assessments of performance are made but national differences “make it difficult to establish common expectations” (Lin, 1998). The importance of expectations in business research and practice has been well established, particularly through the disconfirmation of expectations paradigm. This theory proves that buyer evaluations are functions of prior purchase expectations, perceived performance, and disconfirmation (Bolton, 1991).

H$_8$: Customer expectation moderates the organization performance positively.

11. A Conceptual Framework

Pertaining to the different arguments and discussions mentioned above, the current research provides the initial conceptual framework of TQM and SCM practices and links it to the hypothesis (Figure 1). This research is carried out in order to support the data collection and analysis in the future research. While operations management practices are studied across many variables, the combined effect of policies would really help to reach a better performance irrespective of the sector. Further, it is important to find out the real reason for the organization with well-established management practices to face customer expectations as an ultimate reason of existence. Hence this study attempted to identify a model depicting the relationship between the operations management practices like TQM and SCM and focused its interaction effect as SCQM. The study also opened avenues for studying the impact of SCQM on organization performance in the presence of business uncertainties and customer expectations as mediators. Thus the study attempts would lay foundation to proceed with the original research to understand the effectiveness of the model given in the framework.
12. Conclusion

It is known that number of theoretical and methodological issues that provides opportunities for future research. This research highlights for future research to validate the proposed model on the basis of selected variables. This model can be proved either on manufacturing or service sector. The identified hypotheses are suggested to bring a focus on future empirical work related to three themes: Operation Management Practices, Firm Performance and mediating variables. It is argued that there is a need to establish a theoretical link between the three themes. There was a conceptual overlap between many of the dimensions of the three perspectives which has to be unified empirically. Because of impact of many factors on the determination of organization performance, attempt has been made to identify the association with any single factor such as Customer Expectation and Business Uncertainties. Thus to avoid this problem and to establish possible credible links between the three themes, the key dimensions of the three themes are newly combined to introduce antecedents for quality management principles which affects the firms performance amidst of various mediating variables.

References

25. Feigenbaum, AV 1990, Total Quality Development into the 1990’s – An International Perspective in TQM as on IFS Executive Briefings, listed; (IFS Publication, Springer-Verlag).


