

To Check Standard Performance Of Supply Chain Management Use In Different Method From Textile Industry

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Abstract

Supply chain management is used easily by any organization or industry and it is running successfully world wide. many of the researcher prefer same area for the check in performance of supply chain management they check it internal or external issue. These researcher have found the scope of SCM in textile industry. Today surat has been counted as a biggest hub for textile industry not only in Gujarat but all over India. we have found certain factors which interface in supply chain management like Quality, Flexibility, Determinability Innovation and Inventory. The respond for this factors are come from manager, supplier and people etc.

The researcher has presented and interpreted the collected data supported by validity and reliability measures. Researcher are used technique for check performance of SCM like AHP Method, and Multiple Regression also we check other alternative for justification of supply chain management.

Keywords – Supply chain management, Supply chain performance, Performance measurement, Performance matrices. supply chain management process, Quality, Flexibility.

Paper Type – Literature Review.

1. Introduction.

Supply chain management is more and more recognized as a strategic weapon, since globalization forces companies reduce costs and increase efficiency. The strategic choices include; the selection of goals and objectives; the choice of products and services to offer; the design and configuration of policies determining how the firm positions itself to compete in the product markets[22]. Indian textile Industry is also largest employer (after agriculture) of workers directly and indirectly. Due to ethnic diversity and cultural multiplicity besides racial traces in India's hinterland, several designs and variety of costumes and apparels are used that enrich Indian textile garments design possibilities. Indian textile Industry had been plagued by obsolescence[5], labor problems, raw material vagaries and lack of modernization including that of spindles[12]. The post fabric stage processing technology has also been lagging but is now coming up fast with infusion of textile processing technology. SSI firms perform the majority of weaving and processing operations. The level of weaving technology is of lower order and knitting units don't possess capacity to perform dyeing, processing and finishing to international standards[31].

Cost of production of textiles yarns and fabrics is much higher in India despite low labor rates. We should not forget that India will also loose this advantage over time in as much as ACs (EU-10)[16] are likely to loose the same over a period of time in EU market access.

The objectives of supply chain and performance measurement need to be understood in order to build the most effective supply chain. The objectives of supply chain and performance measurement need to be understood in order to build the most effective supply chain[24]. Considering the rapidly changing market conditions and customer seeking the best value, long-term relationships with the vendors became very critical in the apparel industry[21]. Such a relationship is regarded as partnership since it includes activities such as information sharing, joint product design, or sharing storage spaces[18].

A supply chain is characterized by the flow of goods, services, money, and information both within and among business entities[1] including suppliers, manufacturers, and customers. The ultimate goal of SCM is to meet customers"[33] demand more efficiently by providing the right product, in the right quantity, at the right location, at the right time, and in the right condition.

According to Chan (2003), the aim of supply chain management is to gain an advantage in terms of customer service and cost over competitors. Traditionally, performance measurement is defined as the process of quantifying the effectiveness and efficiency of action[34].

The conceptual diagram of textile industry supply chain is given by Charu Chandra, SameerKumar, (2001) "Enterprise architectural framework for supply-chain integration", IndustrialManagement & Data Systems is given below that helps in order to understand the supply chain in textile industry shown in fig below

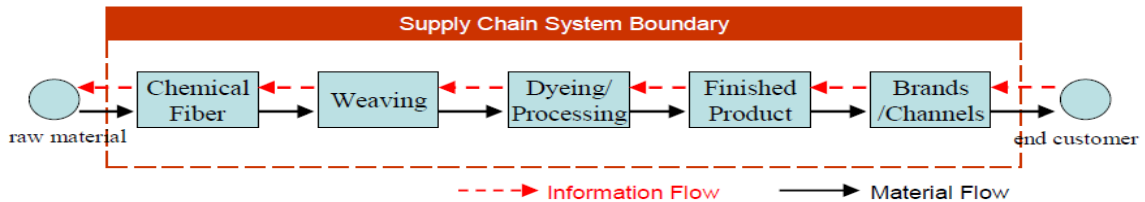


Figure-1 Supply Chain System Architecture for textile industry.

Forker, Mendez & Hershauer (1997) found a strong relationship between quality management practices in supply chains and quality as measured by a customer: in particular it was observed that management of supplier quality throughout the chain was directly related to higher levels of quality conformance, reduced variation in quality performance and reduced production cost.

Salvador, Forza, Rungtusanatham & Choi (2001) reported that when firms interact with suppliers and with customers on issues related to material flow and quality, firms can expect better time-related operational performances in terms of speed and delivery punctuality.

Supply chain management is a multidisciplinary field and it is addressed from many different perspectives. Otto and Kotzab (2003) through desk research identified system dynamics, operation research, logistics, marketing, organizational theory and strategy as relevant scientific fields to performance measurement in supply chains.

A focus on cost over non-cost indicators, there is an insufficient focus on customers and competitors (Toni & Tonchia, 2001). Numerous supply chain performance assessment tools were developed based on cost-related performance, whereas few tools focused on value or non-cost performance. However, most existing assessment tools do not clarify their measurement level (Gunasekaran et al., 2001). No holistic system thinking when developing supply chain measurement dimensions (Chan & Qi, 2003).

2. Literature Review

As business increasingly make use of outsourcing and pursue opportunities beyond their domestic markets, their supply chains are becoming global. For example, product design

often uses inputs from around the world and products are sold globally. Some manufacturing operations or services may be outsourced to other countries for the low labor cost or material costs.

As business increasingly make use of outsourcing and pursue opportunities beyond their domestic markets, their supply chains are becoming global. For example, product design often uses inputs from around the world and products are sold globally. Some manufacturing operations or services may be outsourced to other countries for the low labor cost or material costs [22], Supply Chain Management should be the key focus to enhance competitiveness of existing Pakistani textile industry and can help [23].

The Thai government also realizes the importance of Supply Chain Management concept, which is evidenced in the Information and Communication Technology (ICT) Policy of Thailand 2002-2007 under the 6th national strategic plan. It is also indicated that textile and clothing business is one of the industrial target we need to emphasis'. They are raw material sourcing, information management, production and inventory, performance measurement and organization structure and responsibility. Long sourcing lead time is occurred in every case and it is a major issue destroying competitiveness advantage for all textile industry. [24].

Few years before China opened its market; other developing countries presented similar competitiveness and threatened producers in developed markets. China's position in the textile industry is extremely strong and undoubtedly leads the global production. A study presented by the end of 2009 claims that, even under the negative effects of the global financial crisis, China is still the most competitive location in the world for the textile industry (China's competitiveness index for this industry was evaluated at 102.8 in 2009. During the financial crisis, while the overall decrease in Chinese exports amounted around 15%, the textile industry felt only partially the downturn effects. [25]

By investigating purchasing managers in Germany, the UK and the USA [33], identified four GSCM factors, namely hazardous materials, investment recovery, product design and supply chain relationships, and determined the existence of these four factors with an exploratory factor analysis (EFA)[19].

Bangladesh exports its apparel products worth nearly \$5 billion per year to the United States, European Union (EU), Canada and other countries of the world. It is the sixth largest apparel supplier to the United States and EU countries. Major products exported from Bangladesh include polyester filament fabrics, man-made filament mixed fabrics, PV fabrics, viscose filament fabrics and man-made spun yarns[26]. Major garments exported include knitted and woven shirts and blouses, trousers, skirts, shorts, jackets, sweaters and sportswear, among other fashion apparel.

To help managers measure and evaluate supplier performance, [31],[26] and [14] have developed a multi-objective decision making processes based on an Analytical Hierarchy Process (AHP) method. [33] identified more than 50 criteria among which are ISO 14000 certification, hazardous air emissions, recyclable items, and chemical treatments, because companies do not know which environmental performance indicators should be measured. They outline difficulties in the process of evaluating suppliers while including environmental performance as a criterion. It seems that the integration of environmental criterion complicates the evaluation process as suppliers' environmental responsibility must be added to traditional elements. The alignment of environmental objectives with corporate ones is essential but difficult to address.

Supply chain performance measurement [38] aims at revealing the basic research methodologies approaches followed problem areas and requirements for the performance management of the new supply chain era. Findings reveal that performance measurement in the new supply era is still an open area of research. Further need of research is identified regarding framework development[12], empirical cross-industry research and adoption of performance measurement systems for the requirements of the new era, to include the development of partnership, collaboration, agility, flexibility, information productivity and business excellence metrics. In line with this, the researcher has invested time to understand the measurement of SC performance[36].

Supplier evaluation is management decision-making process that addresses how organizations select strategic suppliers to enhance their competitive advantage [37]. Earlier research used Conventional criteria, such as price and delivery time, to evaluate suppliers.

According to Zhang & Wang (2011), Supply chain reliability and ability to do with risks are important research fields in SCM. The authors empirically document the associations among information technology, supply chain robustness, and supply chain performance. Based on a sample of 186 questionnaires, the results show the positive impact of information technology on supply chain robustness and supply chain performance, and also the positive impact of supply chain robustness and supply chain performance. Reliability is recognized as one of the important factors that determine supply chain performance. And the researcher has renamed this factor as dependability in his research.

While reviewing the studies conducted in the textile and apparel related industries, the most prominent was the study done by Chan & Chan (2010), which presents an example of solving the supplier selection problem in the apparel industry by using the Analytical Hierarchy Process (AHP), which takes the operational performance (for example, flexibility, cost, and delivery) into account for supporting supply chain strategies. The

system was implemented with the aid of the commercial software package expert Choice. The researcher selects the best overall supplier.

The purpose of this study is to develop a decision support model by using AHP to solve the supplier selection problem in the apparel industry. Supplier selection is no longer just the issue of obtaining lower product prices but also a fast and reliable delivery. The model presented in the study addressed the most relevant issues in sourcing suppliers in the apparel industry. With the use of the model, supplier selection will be much easier and effective for buyers.

Yaoli (2009), Based on the excellent performance criteria of the United States Malcolm Baldrige Award, this study proposes that the performance excellence model may become the theoretical foundation of supply chain quality performance measurement, and then establishes the supply chain quality performance measurement systems. The performance excellence model is made up of leadership, strategic planning, customer and market focus, information and analysis, human resource focus, process management and business results. In the supply chain environment, the researcher builds supply chain quality performance measurement system comprising leadership, strategy, customer, market, human resources, supply chain, production process, distribution process, operating result, information, and co-operational level among joint enterprises.

Zeng, Phan & Matsui (2013) proposed a conceptual framework to study the relationships among three dimensions of supply chain quality management (SCQM) – in-house quality management practices (internal QM), interaction for quality with suppliers on the upstream side of supply chain (upstream QM), and interaction for quality with customers on the downstream side of supply chain (downstream QM) – and their impact on two types of quality performance (conformance quality, and customer satisfaction).

The purpose of the study by Sukwadi, Wee & Yang (2013) is to explore how lean–agile operations and supplier–firm partnership can improve garment small and medium enterprise (SME) supply chain performance. To clarify the relationships among these constructs, structural equation model (SEM) is conducted to examine the model fit and the five hypotheses. The result shows that agile supply chain and partnership strategy are critical for garment SMEs because these strategies influence their supply chain performance.

The measurement items were developed on the basis of inputs by industrial experts and the literature (Zsidisin and Hendrick, 1998; Walton et al., 1998; Carter et al., 2000), as discussed earlier. In our previous work (Zhu and Sarkis, 2004), we refined these 21 measurement items with comments from academics and practitioners in environmental studies and supply chain management.

3. RESEARCH METHODOLOGY

The methodology adopted in this study is presented in this chapter. The theoretical perspectives discussed in the first chapter, the review of relevant literature in the second chapter, the objectives and hypotheses developed in the third chapter form the basis for the formulation of the research methodology adopted in this investigation. The major purpose of this investigation is to capture the performance of supply chain in the textile industry.

For the purpose of studying the objectives and testing the hypotheses, a questionnaire was used as an instrument to collect the data. As discussed earlier in the introduction chapter, the variables chosen for this study on the performance of the supply chain are: 1) quality 2) flexibility 3) dependability 4) innovation and 5) overall supply chain performance[18][33].

Accordingly, the first part consisting of the background information including the main business of the company captured as a direct measure, yarn manufacturing coded 1, 2 for Fabric manufacturing, 3 for garment manufacturing, 4 for distribution and retailing, 5 for garment trading, 6 for finishing and printing, 7 for auxiliary materials and 8 for others. The respondents were requested to specify the other category. The annual turnover was reported in categories with turnover more than 20 and upto 40 lakhs coded 1, more than 40-60 lakhs coded 2, more than 60- 80 lakhs coded 3, more than 80-100 coded 4 and annual turnover more than 100 lakhs coded 5.

Quality was measured using three sub scale process control consisting of 6 items and response time consisting of 8 items and delivery consisting of 10 items. The items were measured on a 5 point scale with 5 coded for strongly agree 4 for agree, 3 for neither agree nor disagree 2 for disagree and 1 for strongly disagree. The item under the sub

scale response time, “The Company’s inventory in-flow interval” was captured as 1 coded for less than 10 days, 2 for 10-20 days and 3 for more than 21 days. The second variable that captured the performance of supply chain performance was „Flexibility“. Flexibility was captured as a construct consisting of 6 other sub constructs. The first sub construct “Input: - Labour flexibility” was measured using 6 items; “Input machine flexibility” measured 5 items; “Process operation / material handling flexibility (actual changing of operation sequences) measured using 7 items; “process routing flexibility” measured using 6 items; “output mix and volume flexibility” measured using 7 items; “improvement: - modification flexibility” measured using 4 items. The third variable dependability was measured using 6 items and the fourth variable measured using 8 items. The items were captured on a 5 point scale with 1 coded for strongly disagree, 2 for disagree, 3 for neither agree nor disagree, 4 agree and 5 for strongly agree. The items

that constituted “Quality” were adapted from Chan (2003), Van (1999), whose research has found customized transportation services, postponement, and the need for consistent, reliable, on-time delivery to be top considerations in structuring and managing the supply chain. Beamon (1999), Beamon et al. (1998), Lockamy & McCormack (2004), Gunasekaran et al.

4. ANALYSIS

The data collected from the respondents was tabulated and analysed using appropriate statistical techniques mentioned in the research methodology. The first part contains a tabulation of the background characteristics, the mean and standard deviation and the intercorrelations between the variables, the second part contains tables testing the objective 1, the third part contains table testing objective 2 and the fourth part consists of testing objective.

PART I

The background characteristics of the company are presented in the table 6.

Background Characteristics Items	Description	Frequency	Percent	Cumulative Percentage
Total Activities	1	21	15.2	16.2
	2	6	2.8	14.0
	4	90	52.2	68.2
	5	5	2.3	70
	6	49	27.5	88.5
	7	54	29.5	100
	Income of the Companies	More than 30 and upto 40 lakhs	32	19.3
More than 40 and upto 60 lakhs		28	16.9	36.1
More than 60 and upto 80 lakhs		52	31.3	67.5
More than 80 and upto 100 lakhs		35	21.1	88.6
More than 100 lakhs		19	11.4	100

Age of the Company	Upto 5 years	30	18.1	18.1
	More than 5 and upto 10 years	34	20.5	38.6
	More than 10 and upto 15 years	52	31.3	69.9
	More than 15 years	50	30.1	100

5. RESULTS AND DISCUSSION:

Data from 100 companies were screened for evaluating the mean, standard deviation and the inter-correlation between the variables of the background characteristics of companies.

Based on the results, it is found that innovation, dependability, response time, input machine flexibility and overall supply chain performance are the most important strategic priorities to be considered since it represents the most significant of supply chain performance across different levels of income.

6. LIMITATIONS

The researcher has identified the following limitations for this research: The results were primarily based on the textile and apparel industry in India ,particularly the region in and around Surat and therefore results may vary with regard to other countries. The researcher has found that there are few companies which were involved in one or only a few of the textile manufacturing processes like yarn manufacturing, dyeing, warping, stitching, etc., whereas, there were also companies which engaged themselves in almost all of the processes in textile manufacturing.

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