ROLE OF SUPPLY CHAIN MANAGEMENT IN THE INDIAN TEXTILE INDUSTRY

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ABSTRACT: The textile industry play a very important role in the Indian economy and also provides a large number of employees. It is the oldest industry in the Indian economy. The textile industry also spread day–to–day. There are several textiles hub in India, and Bhilwara Raj is also one of them. In this paper, 200 respondents were chosen from four textile industries of Bhilwara Raj. The four textile industries chosen were Spentex Industries Ltd., Namdev Textiles Industry Pvt. Ltd., and Kundkund Textile and Century Textiles & Industries Ltd. 50 respondents from each of the four industries chosen participated in the research work and asked inventory-related questions for analysis.

KEYWORDS:

Supply Chain, Inventory, plan capacity, control inventory

INTRODUCTION

"The SCM Program integrates topics from manufacturing operations, purchasing, transportation, and physical distribution into a unified program. Successful "Supply chain management", then, coordinates and integrates all of these accomplishments into a seamless procedure. It embraces and links all of the partners in the chain. In addition to the departments within the organization, these partners include vendors, carriers, third-party companies, and information systems providers. Efforts, ideas, and procedures are an integral part of SCM. If supplies are only one and manufacturing and distribution sites are more than one then the supply chain is more complex.

In the Current scenario, the sales are very seasonal and changeable, due to this reason fulfilling the market requirement needs planning, scheduling, and controlling for the profitable thing. Through the proper SCM communication between partners, distributors, retailers, and inventory optimization to be perfect.

During the supply chain number of unpredictable things happen like a disturbance in supply, increments, and decrement in demand. Cancellation of orders, maintenance of machine, transportation, strike or quit of the employee, etc.

REVIEW OF RELATED LITERATURE

Vanathi R Swamynathan. R,(2014) works on the competitive advantage using SCC in the Indian textile industry, to find the factors influencing SC collaboration and the competitive advantage. The survey and analysis show that there was a positive relationship between SCC and competitive advantage.

Habib M.(2015) presents the theory and evolution of SCM and also focuses chronological perspective of SCM in several areas of manufacturing and service industries concerning time.

Mahmood S.,Vehkspera H., Pekka K.(2015) work on the comparative study of SC and provide the priority factors for 2 setups.

HYPOTHESIS

  i.   There is a positive relationship between supply chain collaboration and competitive advantage.

 ii.   There is a positive relationship between business process orientation and competitive advantage.

iii.   There is a positive relationship between supply chain collaboration and mitigation of supply chain pressure.

 iv.   There is a positive relationship between business process orientation and mitigation of supply chain pressure.

  v.   There is a positive relationship between the mitigation of supply chain pressure and competitive advantage.

METHOD

200 respondents were chosen from four textile industries in New Delhi. The four textile industries chosen were Spentex Industries Ltd., Namdev Textiles Industry Pvt. Ltd., and Kundkund Textile and Century Textiles & Industries Ltd. 50 respondents from each of the four industries chosen participated in the research work and asked inventory-related questions for analysis.

ANALYSIS

Respondents were asked to indicate the inventory management technique used in their organization.

Table 1: Inventory management techniques

Inventory Management Technique	Frequency	Percent
Economic Order Quantity	6	15.8
Action Level Methods	14	36.8
Just-in-Time	5	13.2
Periodic Review Technique	7	18.4
Material Requirement Planning 1	6	15.8
Total	38	100.0

15.8% said that their organization used economic order quantity, 36.8 % indicated that they used action-level methods, 13.2% used Just-in-time, 18.4% used periodic review technique, and 15.8 % used material requirement planning 1. Action-level methods were the most used.

Respondents were asked to rate inventory management techniques based on their contribution to the performance of the production department.

Table 2: contribution of inventory management techniques to the performance of the production department

Inventory Management Technique	Poor	Fair	Good	Very Good	Excellent	Total
Economic Order Quantity	6 (15.8%)	11 (28.9%)	10(26.3%)	5(13.2%)	6(15.8%)	38(100%)
Action Level Methods	11(28.9%)	9(23.7%)	11(28.9%)	3(7.9%)	4(10.5%)	38(100%)
Just-in-Time	5(13.2%)	6(15.8%)	6(15.8%)	12 (31.6%)	9(23.7%)	38(100%)
Periodic Review Technique	16(42.1%)	10(26.3%)	7(18.4%)	2 (5.3%)	3 (7.9%)	38(100%)
Material Requirement Planning 1	2(5.3%)	6(15.8%)	5(13.2%)	8(21.1%)	17(44.7%)	38(100%)

15.8% rated economic order quantity as poor, 28.9% rated it as fair, 6.3 % rated it as good, 13.2% rated it as very good and 15.8% rated it as excellent. Most respondents rated economic order quantity as fair.

28.9% rated action-level methods as poor, 23.7% rated them as fair, 28.9% rated them as good, 7.9% rated them as very good, and 10.5% rated them as excellent. Most respondents rated action-level methods as good.

5.3% rated material requirement planning as poor, 15.8% rated it as fair 13.2% rated it as good and 21.1% rated it as very good and 44.7% rated it as excellent. Most respondents rated material requirement planning 1 as excellent.

Respondents were asked to indicate the frequency of occurrence of the incidences

Table 3: Frequency of occurrence

Incidence	Never	Rarely	Sometimes	Often	Very Often	Total
Underproduction	1(2.6%)	4 (10.5%)	4(10.5%)	13(34.2%)	16(42.1%)	38(100%)
Overproduction	3(7.9%)	3(7.9%)	6(15.8%)	10(26.3%)	16(42.1%)	38(100%)
Excessive stocks	0 (0%)	4(10.5%)	5(13.2%)	17 (44.7%)	12(31.6%)	38(100%)
Stock out situations	4(10.5%)	3(7.9%)	2(5.3%)	15 (39.5%)	14 (36.8%)	38(100%)
Production Bottlenecks	2(5.3%)	5(13.2%)	7(18.4%)	14(36.8%)	10(26.3%)	38(100%)
Delays in delivery of raw materials	4(10.5%)	8(21.1%)	12(31.6%)	7(18.4%)	7(18.4%)	38(100%)
Stock outs of spare parts for machines	2(5.3%)	5(13.2%)	2(5.3%)	6(15.8%)	23(60.5%)	38(100%)

2.6% indicated that underproduction never occurred, 10.5% indicated that it rarely occurred, 10.5% indicated that it sometimes occurred, 34.2% indicated that it often occurred and 42.1% indicated that it occurred very often. Most respondents indicated that underproduction occurred very often in their organizations.

The respondents were asked to indicate to what extent they thought that their organizations were committed to using effective inventory management techniques.

Table 4: Organization's commitment to using effective inventory management techniques

	Frequency	Percent
Not at all	3	7.9
Slightly	13	34.2
To some extent	9	23.7
Moderately	7	18.4
To great extent	6	15.8
Total	38	100.0

Supplier selection

Supplier selection in the textile supply chain is a critical aspect that results in improving supply chain strategies and enhancing competitive advantage.

Table 5 Friedman test

Criteria	Mean Rank	Ranking
Supplier selection by cost	1.60	1
Supplier selection by design	2.44	2
Supplier selection by varieties	3.12	3
Supplier selection by stock availability	3.84	4
Supplier selection by delivery time	4.00	5

Supplier Relationship

Supplier relationship has been studied under various dimensions like their relationship over several years, the number of times rejection of supplies and the nature of delivery, and the responses by the supply chain partners. The opinion of the respondents been depicted in Figure 1.
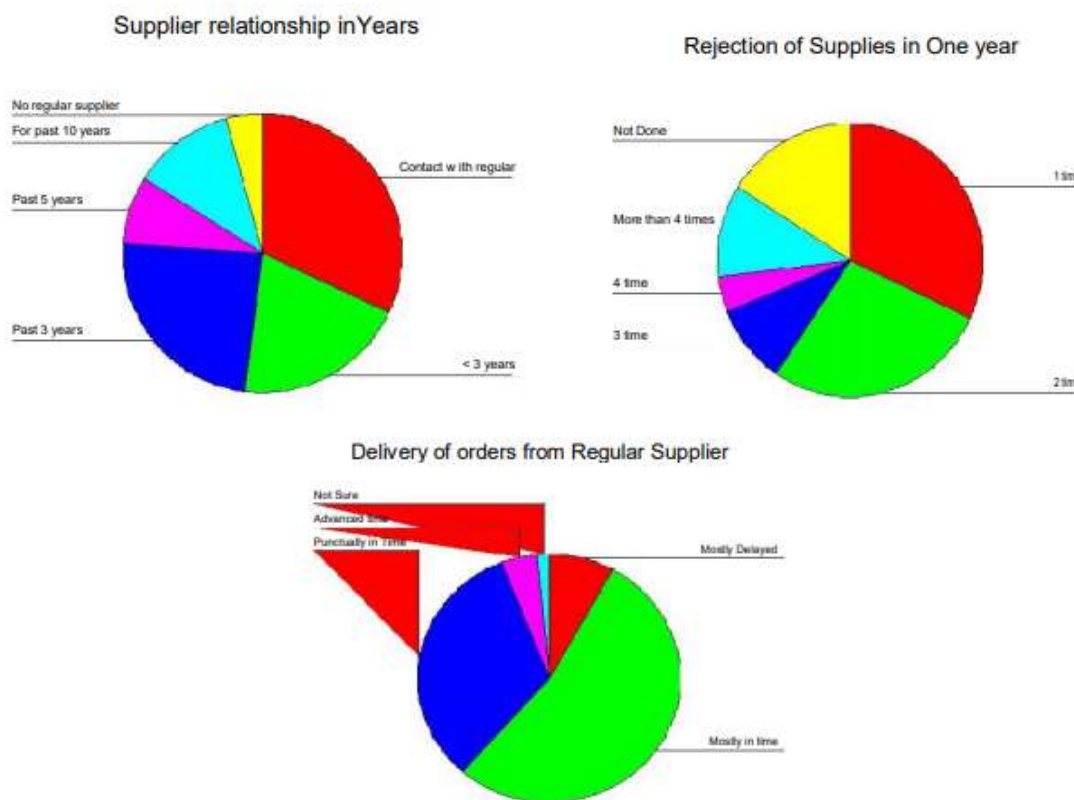

Figure 1 Supplier relationship pie-charts

Figure 1 clearly shows that the majority of the respondents have had a business relationship with their suppliers for more than 3 years. In the aspect of, rejection of supplies," it is interesting to note the fact that the respondents have rejected the supplies only once or twice over 3 years. The delivery of goods from the regular supplier has also been punctual in most of the transactions nearly 75%. These results support the fact that the respondents have established a healthy relationship with their suppliers.

Inspection of Goods

In the Textile business, one of the important activities for the entire supply chain partners is inspection of goods. Figure 2 shows the nature of the inspection of goods done by the supply chain partner and the inspection of

goods performed namely on the pieces, samples, and on lot size. The textile supply chain partners of Erode cluster perform all these inspections regularly, depicted as "Always" in the chart.
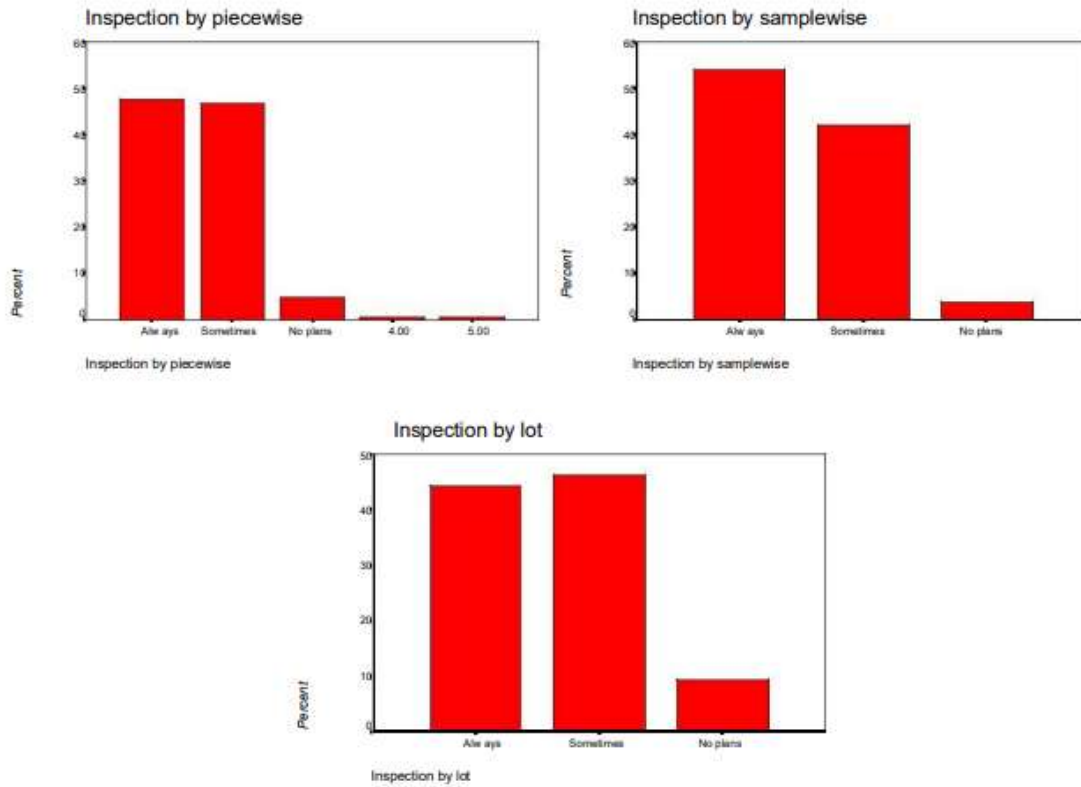

Figure 2: Inspection of goods

Respondents' opinion on Constructs

Supply chain collaboration, Business process orientation, Mitigation of supply chain pressure, and Competitive advantage are the constructs has been taken for describing the data. Frequency analysis has been used to observe the pattern of agreeableness. The opinion of respondents are measured in Likert's measurement scale from strongly disagree to strongly agree for the above-mentioned constructs and it has been depicted in below Figure 3.
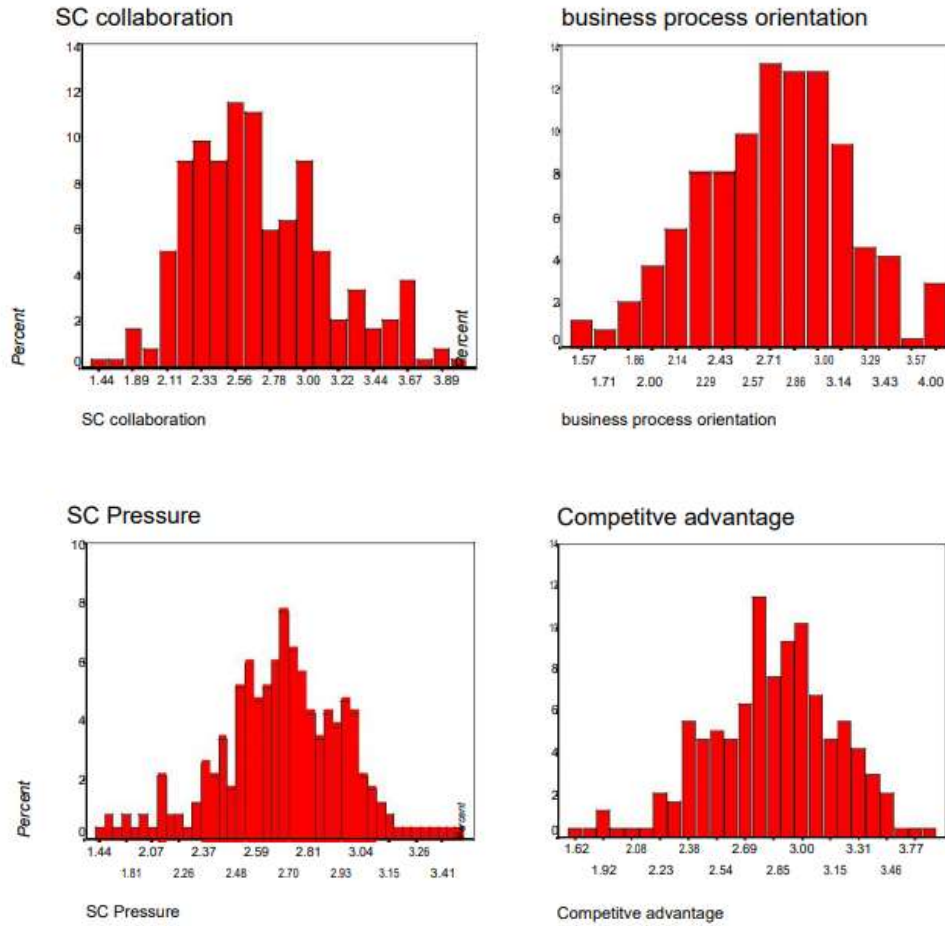
Figure 3: Respondents' opinion on constructs

It is noticeable from the frequency bar chart that, most of the respondents" opinion is in-between the range of 2.35 to 3 upon the maximum limit of 4. This range shows their agreeableness towards all constructs invariably of their major businesses.

FINDINGS OF THE STUDY

7.9% indicated that overproduction never occurred, 7.9% indicated that it rarely occurred, 15.8% indicated that it sometimes occurred, 26.3% indicated that it often occurs while 42.15 % indicated that it occurred very often. Most respondents indicated that overproduction occurred very often in their organizations.

No respondent indicated that excessive stocks occurred, 10.55 % indicated that it rarely occurred, 13.2% indicated that it sometimes occurred 44.7% indicated that it often occurred and 31.6% indicated that it occurred very often. Most respondents indicated that excessive stocks occurred often in their organizations.

10.5% indicated that stock-out situations never occurred, 7.9% indicated that they rarely occurred, 5.3% indicated that they sometimes occurred, 39.5% indicated that they often occurred and 36.8% indicated that they occurred very often. Most respondents indicated that stock-out situations occurred often in their organizations. 14.1% rated the periodic review technique as poor, 26.3 % rated it as fair, 18.4% rated it as good, 5.3% rated it as very good and 7.9% rated it as excellent. There, it is evident that most respondents rated periodic review techniques as poor.

CONCLUSION

The textile industry in India is full of variations consisting of many small and large players at every level of the supply chain. They differ in terms of their operations, their target customers, and their supply chain structures. However, the supply chain in India is full of many complexities, and issues and faces many challenges which are mainly related to inventory management, lead time, collaboration, technology, and logistics and transportation.

Although, these are the major issues where each one is needed be resolved to be efficient, responsive, and competitive in the market; These issues will be resolved if the textile companies adopt the appropriate supply chain strategy according to their size, operational needs, and customer focus. The supply chain strategy needs to be according to the type of offerings and the target customer group. Companies need to work on the zone of strategic fit between their product strategy and their supply chain strategy.

5.3% indicated that production bottlenecks never occurred, 13.2% indicated that it rarely occurred, 18.4% indicated that they sometimes occurred, 36.8% indicated that they occurred often and 26.3% indicated that they occurred very often. Most respondents (31.6%) indicated that delays in the delivery of raw materials sometimes occurred.

13.2% rated Just in time as poor, 15.8% rated it as fair, 15.8% rated it as good, and 31.6% rated it as very good while 23. 7% rated it as excellent. Most respondents rated just-in-time as very good.

Implementation of the QR practices, CPFR, VMI, and use of RFID technology and other Information technology techniques will resolve many issues such as traceability of products and errors, visibility, real-time customer demand analysis, collaboration, and the scope of use of POS data will be increased. However, the study leaves the scope for further research on these issues separately in a detailed way. It also allows future research based on real-time data from textile companies and assessment of their supply chain structures.

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