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A Study of Information Visibility for in Bound & Out Bound Driven Logistics & Supply Chain Management

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Abstract – The Textile Industry is characterized by a complex production network which spans many businesses and usually crosses International boundaries. It has become an essential commodity in day to day life like food and water. The verities of production in Textile field has spread in all areas right from apparel to Industrial fabrics, protective Textiles, Composite Textiles, Medical textiles, Automotives, Aerospace and in so many other areas. Now- a -days the product range are not within the periphery of one area but reached at nook and corner all over the world.

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

Keywords: Supply, Chain, Inventory

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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."

With SCM, "information, systems, procedures, efforts, and ideas are integrated across all functions of the entire 'Supply chain'. 'Supply chain's become more complex as goods flow from more than one supplier to more than one manufacturing and distribution site. The possibility of outside sources for functions like assembly and packaging are also options in the chain.

The basic tasks of a company do not change, regardless of whether or not it practices SCM. Suppliers are still required to supply material, manufacturing still manufactures, distribution still distributes, and patrons still purchase. All of the traditional functions of a company still take place. The ultimate difference in a company that manages its 'Supply chain' is their focus shifts from what goes on inside each of the links, to include the connections between the links."

"A company practicing effective SCM also recognizes that the chain has connections that extend beyond the traditional boundaries of the organization. Managing the connections is where the integration of the 'Supply chain' begins. Any improvement in or disruption to the 'Supply chain' linkages affects the entire chain. The cumulative 'Supply chain' effect of uncertainty can be seen in this example. Suppose a manufacturer of integrated circuit boards receives a shipment of poor quality silicon. Because the manufacturer is dependent on its supplier for timely shipments, the poor quality lot results in a shipment delay to one of its patrons.

Today, the sales are highly volatile and seasonal and to fulfill the requirements it needs good capacity planning, production scheduling, process control, inventory management to make the whole thing a profitable proposition. To make an integrated solution which spans stock balancing, inventory management, production planning and distribution scheduling a proper system needs to develop. Hence to make all the systems in order, it is ideal to have a proper supply chain Management in Textile Industries.

Flow of information between business partners, producers to distributors and retailers, the inventory

optimization, demand-supply is to be perfect through proper supply chain management.

"A wide variety of events occurs in the 'Supply chain' that is largely unpredictable. Suppliers can make early or late deliveries. Patrons can increase, decrease, or even cancel orders. New patrons can place large orders. Machines or trucks can break down. Employees can get sick, go on strike, and quit. Supplier shipments or manufactured products can have quality problems. In the past, companies prepared for uncertainty and improved their levels of patron satisfaction by allowing inventory levels to rise. This is no longer an acceptable solution. High inventories translate to increased carrying costs and risks of obsolescence that can limit a company's flexibility."

"Throughout the 'Supply chain', inventory is traditionally created and held at many locations. Any time a portion of that inventory can be reduced or eliminated, the company decreases costs and increases profitability. Shortening the length of time it takes to move a product from one link of the chain to the next also shortens the cycle time of the entire chain and thereby increases competitiveness and patron satisfaction."

"SCM provides "needed visibility along the chain to improve performance. Without visibility up and down the 'Supply chain' an effect known as the "bullwhip" can result. In reviewing the demand patterns at various points in their 'Supply chain', Procter & Gamble [P&G] noticed that while the consumers, or in this case the babies, consumed diapers at a steady rate, the demand order variability in the 'Supply chain' was amplified as it moved up the 'Supply chain'. Without being able to see the sales of its product at the distribution channel stage, they had to rely on sales orders from resellers to make product forecasts, plan capacity, control inventory, and schedule manufacture.

This lack of visibility resulted in excessive inventory, inaccurate forecasts, excessive or constrained capacity, and reduced patron service levels. Each link in the 'Supply chain' stockpiled inventory to counteract the effects of demand uncertainty and variability. Various studies have shown that these inventory stockpiles can equal as much as 100 days' supply and by considering the effect on raw materials, the total chain could contain more than a year's supply of inventory."

In addition "helping to create an efficient, integrated company, SCM also plays a large part in reducing costs. A study by the A.T. Kearney management consulting company estimates that 'Supply chain' costs can represent more than eighty percent of the cost structure in a typical manufacturing company. These numbers indicate that even slight improvement in the procedure eventually can translate into millions of dollars on the bottom line. These costs include lost sales due to poor patron service or out of stock retail products. For every dollar of inventory in a system, there are one to two dollars of hidden 'Supply chain' costs: working capital costs, asset costs, delivery costs, write downs and so on. Leaner inventories free up a large amount of capital."

METHOD

200 respondents were chosen from four textile industries of New Delhi. Four textile industries chosen were Spentex Industries Ltd., Namdev Textiles Industry Pvt. Ltd., Kundkund Textile and Century Textiles & Industries Ltd. 50 respondents from each of four industries chosen were participated in the research work and asked about 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. It is evident that 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 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, and 13.2% rated it as very good while 15.8% rated it as excellence. It is evident that most respondents rated economic order quantity as fair.

28.9% rated action level methods as poor, 23.7% rated it as fair, 28.9% rated it as good, and 7.9% rated it as very good, while 10.5% rated it as excellent. It is evident that most respondents rated action level methods as good.

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. It is evident that most respondents rated just-in-time as very good.

142.1% rated periodic review technique as poor, 26.3 % rated it as fair, 18.4% rated it as good, and 5.3% rated it as very good while 7.9% rated it as excellent. There, it is evident that most respondents rated periodic review techniques as poor.

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 while 44.7% rated it as excellent. It is evident that most respondents rated material requirement planning 1 as excellent.

Respondents were asked to indicate 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 while 42.1% indicated that it occurred very often. It is evident that most respondents indicated that underproduction occurred very often in their organizations.

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. It is evident that 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 while 31.6% indicated that it occurred very often. It is evident that most respondents indicated that excessive stocks occurred often in their organizations.

10.5% indicated that stock out situations never occurred, 7.9% indicated that it rarely occurred, 5.3% indicated that it sometimes occurred, 39.5% indicated that it often occurred while 36.8% indicated that it occurred very often. It is evident that most respondents indicated that stock out situations occurred often in their organizations.

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 while 26.3% indicated that they occurred very often. Most respondents (31.6%) indicated that delays in delivery of raw materials sometimes occurred.

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

Table 4: Organization's commitment in 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

CONCLUSION

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, supply chain in India is full of many complexities, issues and facing many challenges which is 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 in order 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 type of the 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.

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, the real time customer demand analysis, collaboration

and the scope of use of POS data will be increased. However, the study leaves the scope for the further research on these issues separately in a detailed way. It also allows the future researches based on the real time data from the textile companies and assessment of their supply chain structures.

REFERENCES

1. Ballou, R.H., Gilbert, S.M. and Mukherjee, A. (2010). "New Managerial Challenges from Supply Chain Opportunities," *Industrial Marketing Management*, 29, pp. 7–18.

2. Bell, S.J., Whitewall, G.J. and Lukas, B.A. (2012). "Schools of Thought in Organizational Learning," *Academy of Marketing Science*, 30(1), pp. 70–86.

3. Cooper, M.C., Lambert, D.M., and Pagh, J.D. (2013). "Supply Chain Management: More Than a New Name for Logistics," *The International Journal of Logistics Management*, 8(1), pp. 1–13.

4. Copacino, W.C. (2014). *Supply Chain Management: The Basics and Beyond*, Boca Raton, FL: St. Lucie Press.

5. Das, T.K. and Teng, B.S. (2011). "Resource and Risk Management in the Strategic Alliance Making Process," *Journal of Management*, 24(1), pp. 21–42.

6. Davis, E.W. and Spekman, R.E. (2014). *The Extended Enterprise: Gaining Competitive Advantage Through Collaborative Supply Chains*, Upper Saddle River, NJ: Financial Times Prentice Hall.

7. Fiol, C.M. and Lyle, M.A. (2013). "Organizational Learning," *Academy of Management Review*, 10(4), pp. 803–813.

8. Foster, T.A. (2012). "World's Best-Run Supply Chains Stay on Top Regardless of the Competition," *Global Logistics and Supply Chain Strategies*, 10(2), pp. 27–35.

9. Fries, K.E. (2012). "Practical, Hands-on Change Management," Presented at the 28th Annual WERC Conference, Dallas, Texas.

10. Gartner (2014). "Gartner Says Worldwide PC Shipments in the Third Quarter of 2014 Declined 0.5 Percent," *Newsroom*, October 8, http://www.gartner.com/newsroom/id/2869019, retrieved on February 17, 2015.

11. Ghemawat, P. and Luis Nueno, J. (2010). "Zara: Fast Fashion," Harvard Business School Case: 9, pp. 703-497.

12. Gibson, B.J., Mentzer, J.T., and Cook, R.I. (2011). "Supply Chain Management: The Pursuit of a Consensus Definition," *Journal of Business Logistics*, 26(2), pp. 17–25.

13. Hendricks, K. and Singhal, V.R. (2013). *The Effects of Supply Chain Disruptions on Long-term Shareholder Value, Profitability, and Share Price Volatility*, Unpublished Report, Atlanta, GA.

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