

Information Sharing along the Global Textile Supply Chain for Maximizing their Added Values

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Abstract

Information flows within global textile supply chains and between supply chain stakeholders should be suppressed as much as possible so as to maximize the added value of textile products when they move along the supply chain process. However, information flows between supply chain stakeholders with their corresponding distinct supply chains should not be suppressed in order to make sure that the supply meets the demand effectively and efficiently. Because stakeholders reduce the bullwhip effect by ordering the commercial textiles' consignments based on the demand order sizes which they get from their downstream firms by means of information sharing technology. Out of many reengineering efforts taken by many textile supply chain giants to improve their supply chain operating efficiencies, information sharing between partners is one key initiative and sharing sales information is a significant strategy to counter bullwhip effect. Hence, it is high time; textile scientist as well as the merchandisers gave thought in this segment of global textile supply chain and maximized the revenue by means of information sharing from backward linkage industries to forward linkage industries.

Keywords: Bullwhip effect; Textile supply chain; Supply chain stakeholders; Information flow

Introduction

Information flows within global textile supply chains should be suppressed for retaining the competitiveness in order to optimize the added value of textile products but information flows between supply chain stakeholders with their corresponding distinct supply chains should not be suppressed in order to make sure that the supply meets the demand effectively and efficiently. Because stakeholders reduce the bullwhip effect by ordering based on the demand order sizes which they get from their downstream firms by means of information sharing technology such as ERP technology and others [1]. Out of many reengineering efforts taken by many textile supply chain giants to improve their supply chain operating efficiencies, information sharing between partners is one key initiative and sharing sales information is a significant strategy to counter bullwhip effect. Bullwhip effect has been also termed as demand distortion or demand variability amplification throughout the whole supply chain starting from raw materials to end-users that include from retailers, distributors, manufacturers, manufacturers' suppliers and so on; that create lots of problems for the whole supply chain operations such as inaccurate demand forecasts, excessive inventory, and poor customer service which in turn reverse the concept of minimizing expenses along any supply chain operations [2].

Discussions

Lack of information equivalency, lead-times' discrepancy, demand forecasting uncertainty, bigger batch orders, supply shortages, etc., are few of the reasons for bullwhip effect that exhibits growing variation upstream. Fiala also referred the information asymmetry being one of the root causes of increased bullwhip effect and hence proposed the importance of strategic partnership that could reduce bullwhip effect in supply chains. Because the strategic partnership leads to information sharing and managing uncertainty with great effectiveness which in turn maximizes the value addition for products that move along a supply chain (from raw materials to end-users) [3]. Hence, proper co-ordination of information among units of a supply chain and its stakeholders will create a synergistic supply chain besides presenting effective communication between manufacturers and retailers. Khan et al. also referred the importance of information sharing for the

greater benefits of supply chain partnerships between retailers and manufacturers. It was also found that, for longer lead times information sharing is very effective for stakeholders [1]. Optimizing inventory levels (manufacturers' expected inventory holding and shortage costs) and expected cost reduction for manufacturers are also the obtained benefits of information sharing [2].

Whenever the rubber meets the road, there are possibilities of discrepancies of services provided by the global supply chains. This is a fact for any global supply chain leaders such as, Kimberly-Clark, GlaxoSmithKline, BMW, Johnson and Johnson, BASF, Schneider Electric, Hewlett-Packard, Walmart, PepsiCo, 3M, Nike, Nestle, Coca Cola, Intel, H&M, Amazon, McDonald's, Unilever, etc. Walmart and Dell both have started information sharing with their suppliers throughout their supply chains. Supply chain is a network that comprises and integrates the suppliers, manufacturers, warehouses, and retail stores so that the products are manufactured at right quantity and distributed in right time in right locations to optimize the service level by reducing the system wide costs. Globalization has made the business arena of any successful supply chains very wide, more geographically diverse, and gigantic. Managing uncertainty, minimizing expenses, and service maximization are the ultimate objectives of the any supply chain which is executed through strategic management for global optimization. To ensure these objectives and the over-all operations globally, information sharing with the stakeholders should be done in real-time. Some of the supply giants even developed smart phone apps which the store managers use to alert the staffs to restock the shelves in

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real-life. Because strong information technology imparts shorter lead times and smaller batch size for any supply chain and its stakeholders [3].

Benefits

According to RBT (Resource Based Theory) - "Superior performance depends on the unique resources which are hard to imitate." Advanced information sharing software or tool is a unique resource for any global supply chains that excel it to perform more effectively than its competitors. Many companies use EDI (Electronic Data Interchange) for communication to transmit demand information sharing [2]. By imparting advanced information sharing technology within a firm's operating structure it can strategically get more benefits as according to Porter's Diamond model, the firm itself will have a faster and better way of handling the demand condition through effective supplying forecasting to retain its existing customers and attract new customers for their value added service. By information sharing in real time of the retailer's inventory levels in order to reduce uncertainties; manufacturers can react to retailer's demand condition. Many supply chains has taken the initiatives for demand information sharing between retailers and upstream suppliers. Reputed companies like Campbell Soup and Barilla SpA has reported the success of information sharing where the information sharing is embedded in programs like VMI (Vendor Managed Inventory) or CRP (Continuous Replenishment Programs, QR (Quick Response), ECR (Efficient Consumer Response), etc. Walmart's Retail Link program is one of the most celebrated implementation demand information sharing program that facilitates on-line summary of point-of-sales data to its suppliers such as Johnson & Johnson and Lever Brothers [2]. In the city of Winnipeg; Walmart retail stores are even inter-connected with such IT (information technology) excellence to provide real time news for any products to customers, so that if a customer doesn't find a product in a retail store of Walmart locating in Taylor avenue he/she can instantly go to other locations of Walmart retail stores such as Empress street or Saint Vital and avail that products within short period of time. In this way, the supply chain company will have the grasp to retain its existing customers. Such data can be also shared between a supply chain and supply chain stakeholders in order to meet the demands through smooth supplying capacity and capability. In short, it is easily perceived that information sharing is an effective tool of co-coordinating actions among inter-units and intra-units for any supply chain with its stakeholders [4-7].

For effective negotiation and co-operative decision making in order to reach a consensus among stakeholders of a supply chain to present a synergic effect the importance of information sharing is immense. Fiala proposed a discrete dynamic model that lay-outs the communication through information sharing (Figure 1) [8].

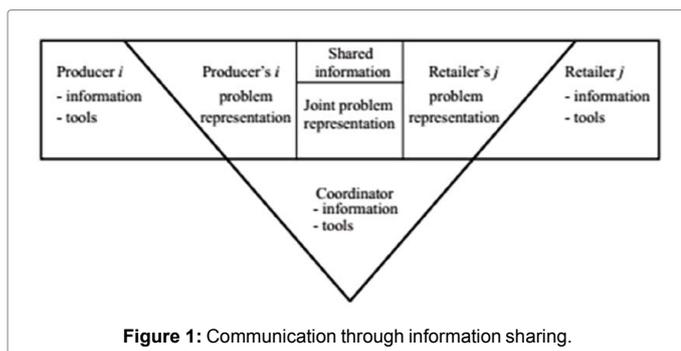


Figure 1: Communication through information sharing.

Khan et al. also portrayed the importance of information sharing for the greater benefit of supply chains by reducing the supply chain costs and resulting in better annual profit with a drop in buyer's price. Khan et al. came up with the following figure that indicates the increase of annual profit that is associated with information sharing which is lucrative for both the stakeholders where harm to environment is low, profit is high and price is low what customer pays for any product (Figure 2) [9,10].

If 'p' denotes the unit holding and shortage costs per time period for the retailer, Lee et al. provided the following figures that represents the impact of information sharing on 'p' along a supply chain (Figures 3 and 4).

In addition to this Lee et al. also illustrated the positive impact of information sharing on lead time as well as on average cost reduction which is illustrated in the following figure (Figure 5) [11].

Conclusion

However, this profit from information sharing depends on the buyer's unit price and the parameters for environmental and social cost and information sharing will not be effective if these parameters go beyond a certain limit. In addition to this, Lee et al. found that, the cost of demand information sharing will be quite high especially when demands are correlated over time.

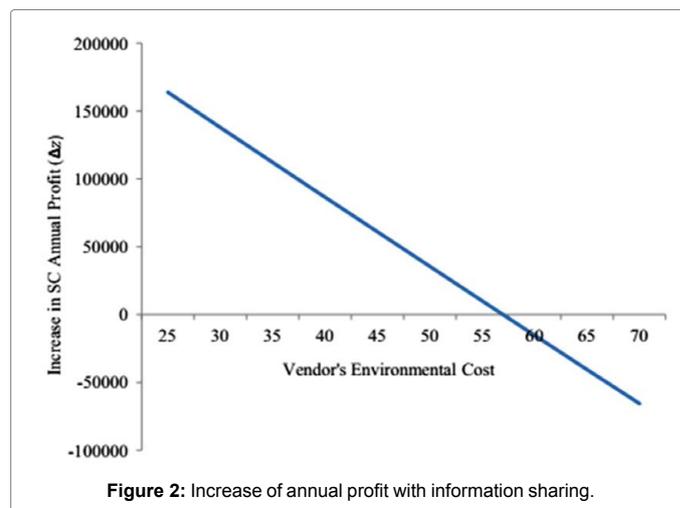


Figure 2: Increase of annual profit with information sharing.

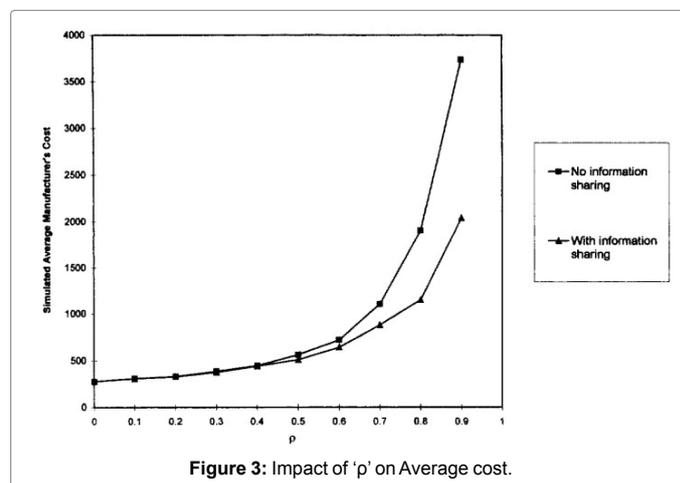


Figure 3: Impact of 'p' on Average cost.

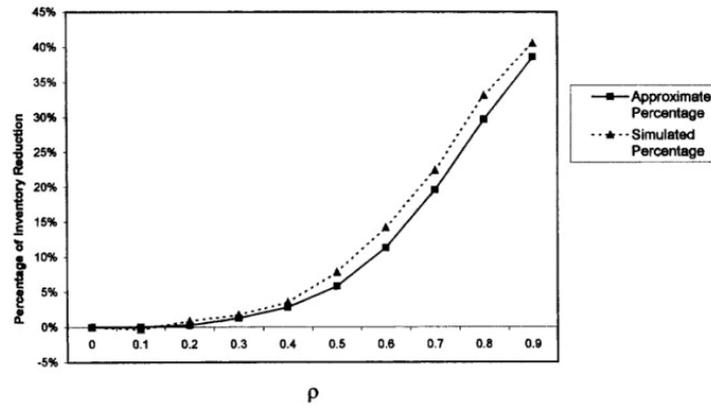


Figure 4: Impact of 'ρ' on % of inventory reduction.

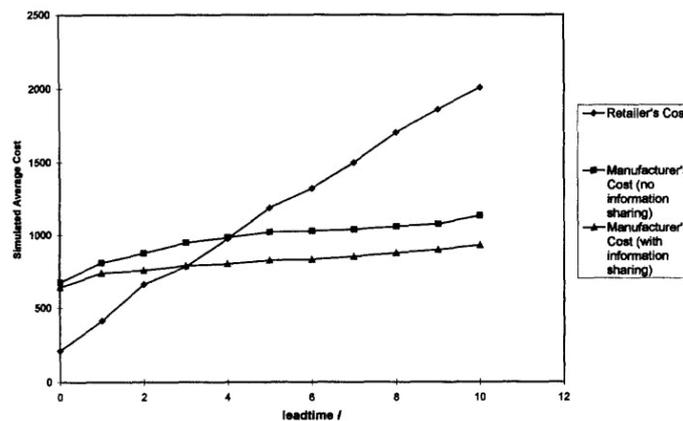


Figure 5: Impact of information sharing on lead time and on average cost.

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