



ISSN 2278 – 0211 (Online)

A Comparison Analysis of Information Sharing in Supply Chain: Two Friend Countries

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Abstract:

In today's supply chain is not effective and efficient without information sharing. Many researches have been published on information sharing. In this article, we will examine the comparison of two countries -Pakistan and China-. For the fulfil the purpose of this research, we have sent structured-questionnaire to companies as well we conducted couple of interviews with senior management of supply chain for investigation the phenomena and get in-depth knowledge of topic. We have used "Paired T-Test" for analysis of research. Mainly research findings are: The Pakistani companies are more willing to share their information with supply chain partners (suppliers) as compare to the Chinese companies; because of higher information sharing in Pakistani's firms; their performance is better than Chinese firms; but one interesting findings; we got is "both countries firms are on same page about fear of compromising of their confidentiality and several times firms share information late" and due to these "fear" still firms are unable to achieve and enjoy fruitful benefits of information sharing on full scale.

Keywords: *Information sharing, friends-countries, trust, suppliers, collaboration*

1. Introduction

The information sharing in the supply chain has become very hot topic from last few decades; due to the increasing pressure of competition and customer's demand. Since last couple of years, information sharing relationship is become more reliable and strong between manufacturers and customers, retailers.

The sharing of information about demand, customers' feedback is very important for the manufacturer perspective as well retailers. As per the Kurt Salmon, (1993) the greater coordination and info sharing among supply chain partners in the industry of grocery; (Troyer, 1996) saves almost \$30 billion dollar per year. Similarly, a research study in the industry of food-service, results that execution of "efficient food-service response" can save more than 14 billion dollars per year. The information sharing also has been increased due to the; usage of latest and new technology. Beyond the latest advances of technology, companies itself, recognizing that information sharing between partners are significantly important to fulfil the customers' demand, needs and easy to make them delighted as well it is more vital for "customer linking capabilities" (Day, 1994). According to the Lee, (2000) the information sharing is become a responsibility of senior managers to overview the information sharing flow and keep it smooth and gain fruitful benefits and strengthen the relationships with supply chain members. Companies that struggle to possess exceptional linking capabilities must need to establish and build skills, which allow open communication with their partners, in order to information sharing, problem solving team or cross functional team, involvement of suppliers in production and scheduling process etc.

The information sharing between manufacturer and customer, retailer; the results and findings gives mixed flavours with respect to the usefulness of such info sharing for improving profitability of manufacturer. For example, in the research of Gavirneni et al., (1999) define a model in which demand is independent across period, the capacity of manufacturer is limited, incurs stock penalty and linear holding costs, and has no lead-time. Their research' results shows that higher information sharing, particularly supplier knowledge of the number of units sold by the retailer since his last order, generate value for the manufacturer relative to only knowing the optimal ordering policy (s, S) of retailers. This value is increase when the variance of finish-item demand is moderate, the size of batch for replenishment is neither too large nor small, and production capacity of supplier is large. Finally the advantages of info sharing are depends over the ability of manufacturer to react to the knowledge of the retailer's current stock level. These findings greatly hinge on the assumption that demand is independent as well identically dispersed across time. Lee et al., (2000) indicates that advantages of info sharing of demand with manufacturer is very important and it's becomes more important, when the product demand is highly

variable (unpredictable). So as per this researcher, the info sharing gives accurate fact and figures to manufacturer to drive more accurate forecast. As per the Cachon and Fisher, (200) they finds only few benefits of info sharing; retailer info is important to the supplier only before an order is placed and remaining benefits is not very significant. Kulp, (2002) the benefits of info integration efforts depends over the information's precision (i.e., how finely it is relayed) as well reliability –how comfortably manufacturer can capture and use it accurately) if the environment of information sharing is not precise or reliable, so on the other side, traditional inventory management practices may control & dominate VMI systems. According to the Clark and Hammond, (1997) the benefits of VMI and EDI; they have analysed the inventory turns of 26 retailers that work with Campbell Soup Company. The results of research, shows that EDI only cannot produce significant improvements in retailer performance measure. But VMI is related with vital and important performance improvements. This research study will investigate the benefits of information sharing (manufacturer and retailer, customer) in order to, comparison of two friends' country –Pak-China.

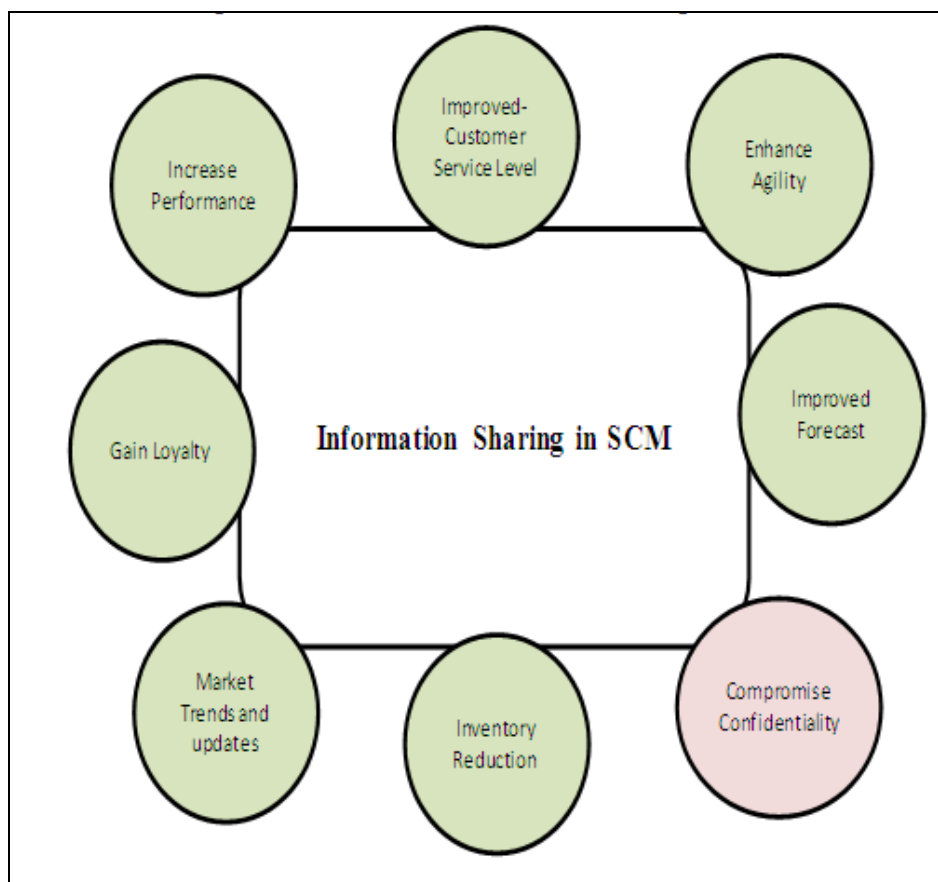


Figure 1: The Benefits & Risks of Information Sharing in SCM

2. Conceptual Framework and Literature Review

According to the various researchers, information sharing lead to the un-countable benefits including; higher visibility, velocity & responsiveness, increase to the whole supply chain performance. Due to the information sharing, companies do not need to keep huge inventories in the stock or in pipeline. Because-off lack of information sharing, companies face a lot problem and they need to store huge inventory level to satisfy customers' un-predictable demand. As shown in Figure: 1. these are the major benefits and risk, which can be avail and face through information sharing. In the light of APCIS-USA, the book of CSCP, (2013) visibility is the backbone of successful supply chain, in the book of CSCP, (2013) 3vs concepts has been defined in detail; 3vs concept is based on visibility, velocity and variability. In the light of this concept, higher visibility and velocity will play a role to minimize the variability or variation in the whole supply chain management. On the other hand, biggest risk or threat, which normally companies feel, is compromising confidentiality or leakage of information (info can go in wrong hands), misuse of information sharing. That's why many companies keep strong eyes over information sharing procedure, method and technology. In our article or study, we will compare to the information sharing benefits of two countries. Our research is more focus over the information sharing between retailer and manufacturer of Pakistan vs. China

As per the many researchers and also APCIS –USA, the book of CSCP, (2013) indicates that's (3Vs Concept) information sharing can improve the visibility and performance of whole supply chain, which is almost impossible to achieve without information sharing. But on the other side, Kaipia & Hartiala, (2006) indicates that's companies do not need to invest a lot in information sharing systems; they can use historical demand data intelligently. If companies want to respond actively and productively to rapid change, so ultimately company must be aware of new information generated in its environment and adopts new systems and approaches, which can make

speedy decision making and practices which can reduce information overload (Mendelson, 2000). Due to this reason (info overload) companies are investing a lot in information technologies to increase their ability to manage information across the whole supply chain (Ofek, 2001). Several companies' managers mistakenly focus their information sharing over only the software and hardware, ignoring the decision making in the information sharing process. Kaipia and Hartiala, (2006) the important thing is how to use information, only collecting and receiving information is nothing itself, but make it useful in their supply chain is crucial and critical part of information sharing.

A number of practitioners and academia have pointed-out various important characteristics of information quality sharing. (Neumann, 1979) explain 4 information characteristics: accuracy, frequency, content and recency. McCormack, (1998) information measured through frequency, credibility, accuracy and availability of forecast. Petersen, (1999) measured information quality through accuracy, completeness, currency. Vijayasarath and Robey, (1997) measured info intensity & quality. In the light of Sum et al., (1995) state that's, data accuracy is very significant for affecting operating efficiency and customer service. McGowan, (1998) have argument that's, info system can be useful, when the info is high readily accessible, quality is good and accurate and relevant info (Zhou, 2007). There is no doubt that, knowledge is the key and important to the success of a supply chain as it affects decisions (Wadhwa, (2005). And mostly researchers divide knowledge in to two categories: 1. explicit knowledge or information and second is Tacit knowledge (Hart, 2004). Information includes axiomatic propositions, facts, and symbols (Kogut, 1992). Through comparison, know-how includes knowledge that is sticky, tacit, and complex to codify (Kogut, 1992). The characteristics of knowhow suggest that, compared to information, know-how is more likely to result in advantages that are sustainable (Nonaka, 1994). Knowledge of tacit; flows from the people in the organization. To be made explicit in its processes, practices and policies (Hart, 2004). According to the (Goffin, 1997) today's supplier management is no more emphasized over only transactions and price bargaining, but more focused over a wider range of issues and problems. Now, the objective of supplier management is to achieve an optimal flow of higher quality from innovative suppliers. (Spekman, 1998) due to this reason, now the new job role of purchasing manager has been described as an information exchange broker.

In the latest environment and practices of business, buyers face relationship should not be concerned simply with maximizing the difference among purchasing costs and the price of sales. There are needs to be relationship building (Kim, 1999). As per the research of Leenders and Fearon (Leenders, 1997) the art of relationship with supplier from a supply perspective is to bring both sides into an effective working relationship. In the light of Zhenxin et al., (Zhenxin, 1997) shows the advantages of supply chain partnerships based on information sharing. A close relationship and collaboration means that supply chain partners are agree to share rewards and risk. (Cooper, 1993) As well agree to maintain the longer term relationships. in the study of Hahn et al., (Hahn et al., 1983) conceptual research gives some useful insights to compare the potential cost associated with different strategies of sourcing and also firms will able to gain benefits by placing a bigger volume of business with fewer suppliers using long-term contracts. However, the long term relationships are also create positive affect over whole supply chain (Choi & Hartley, 1996). As per the (Toni & Nassimbeni, 1999) a longer perspective between the supplier and buyer increases the strength of buyer-supplier coordination. In the research of Pearson, (1999) explore that impact of strategic procurement over buyer-supplier relationships and the subsequent impact of buyer-supplier relationships over the financial performance of companies.

According to the Dwyer et al. (1987) explains a continuum of different types of buyer-supplier relationships. As per the Dwyer, the automobile firms of Japan cultivate their suppliers by investments, joint problem solving and information sharing. As per the Noordewier et al., (1990), purchasing performance is very significant element of a company's competitiveness. Building relationships –longer term with the main suppliers will lead improvement in financial performance (Han, 1993). In the light of Larson, (1994) purchasing coordination of the company's activities with main key suppliers may create impact over total costs. Ford's success proves that companies can increase their competitiveness through implementing cooperative supplier relationships (Zeller et al., 1995). In the research of Filho et al., (Filho, et al., 2008); (Brazilian Automotive Chain) analysed the extent of strategic alignment in the automotive supply chain of Brazilian through examining the strategies adopted by procurement/ purchasing function in the first tier suppliers for managing relationships with their suppliers. Freires and Guedes, (39) explain the influence of power and the trust between players over performance –efficiency and effectiveness- of reverse logistics systems. Above all the literature highlighted on the company buying performance. No further research work was performed on the performance from the supplier perspective. But the positive influence of relationships of buyer-supplier focused the probability of having a positive link among supplier performance and relationships.

3. Methodology

In this research to fulfil the requirement, we have chosen deductive approach, and we have developed instrument (semi-structured) questionnaire as well as we will also conduct in-depth interviews with supply chain senior managers and practitioners of manufacturing industries. Besides this we also have used some data and theme from previous published research papers & books. In our research sample size, we have collected from two countries (Pakistan and China). We sent questionnaire to 2340 manufacturing firms; and in response we received total 1478 filled questionnaire. But have included data in our research from total 1,114 manufacturing firms; in which 557 companies is from Pakistan and remaining is from mainland China; we selected sample size same from both countries to find realistic and more comparable findings.

Industry Name	Pakistan	China
Chemicals	74	86
Fertilizers	3	5
Cement	6	18
Sugar	16	10
Refined Floor	14	12
Paper & Stationery	91	57
Metal	14	35
Polymers & Toys	74	95
Leather & Shoe	6	8
Textile	97	41
Home Appliances	4	16
Furniture	22	10
Frozen Food	14	24
Other	122	140
Total	557	557

Table 1: Industry Wise Respondent Data

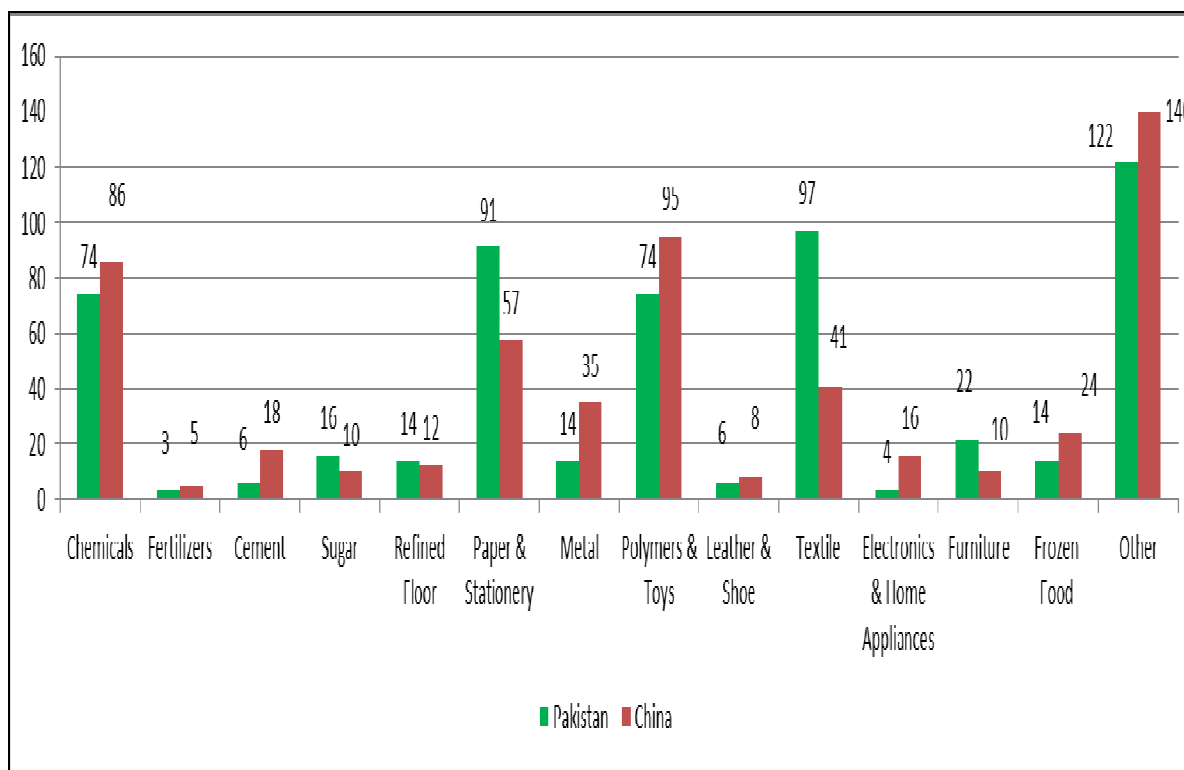


Figure 2

4. Analysis and Discussion

After the statistical (Paired Sample Test), the results shows the all variables' hypothesis (except "Compromise Confidentiality" variable) has been accepted with 95% confidence level and sig value of all accepted hypothesis is less than 0.05 and t value is also greater than +2. It means, the mean differences of the both samples (Pakistan and China) are strongly and significantly different. In our analysis, only one variable's hypothesis has been rejected, which is "compromise confidentiality" the sig value of this variable is 0.58 and t value is -1.902, which is very near from accepting criteria. We can predict from our results that's population mean of these variables from both countries will also behave almost like our results.

		Mean	Std. Deviation	95% Confidence Interval of the Difference		Sig. (2-tailed)
				Lower	Upper	
Pair 1	Enhanced Agility Pakistan - Enhanced Agility China	.32316	.71700	.26349	.38283	.000
Pair 2	Improved Forecast Pakistan - Improved Forecast China	.43268	.85949	.36114	.50421	.000
Pair 3	Inventory Reduction Pakistan - Inventory Reduction China	.42908	.79618	.36282	.49535	.000
Pair 4	Market feedback Pakistan - Market feedback China	.11849	.90580	.04310	.19388	.002
Pair 5	Gain Loyalty Pakistan - Gain Loyalty China	.17415	1.13647	.07956	.26873	.000
Pair 6	Increase Performance Pakistan - Increase Performance China	.03950	.27852	.01632	.06268	.001
Pair 7	Improved Customer Service Pakistan - Improved Customer Service China	.63734	.95468	.55789	.71680	.000
Pair 8	Compromise Confidentiality Pakistan - Compromise Confidentiality China	-	.13368	-.02190	.00035	.058

Table 2

In our research results, the interesting point, which we found is in the Pakistan: many companies are willing to share information with their retailers and vice versa. In fact many Pakistani companies are not using very expensive technology or approaches as compared to Chinese companies and the research results show that's, the Pakistan's companies are availing various benefits from information sharing including; reduction inventory level: in the various stages of distributions and transportation, gain loyalty & receive market-updates in terms to fulfil the requirement of retailers and make them satisfy as well receive customer's feedback by retailer, improved forecast due to the real time information or strong coordination with retailers companies are able to make their forecast more near from actual demand. Increase performance of the whole supply chain, especially financial savings in order to reduction of waste and improvement of processes with collaboration and coordination of retailers. Increased companies agility and customer service level, to fulfil customer / consumer demand as per their requirement and make them delighted.

In the analysis, one more interesting finding is, in the Pakistan's companies are availing many benefits from information sharing, but they are also face fear of "compromise confidentiality" of their companies' information as per the many supply chain supervisors and managers. They disclosed their fear with us in telephone interviews "we cannot trust on retailers, because it's not our company entity". It means, that's the fear of "compromise of confidentiality", is common problem in Chinese and Pakistani companies. And that is the biggest hurdles in the information sharing process. Because companies have lack of trust so they are still not share many information with retailers, which should be share to gain maximum benefits of information sharing process.

Due to know the retailer views, we also conducted some face to face interviews with them. In the light of retailers' interviews, companies usually do not share their upcoming "promotion program" with retailers. And ultimately mostly times retailers are ready for promotional activity and due to the lack of training about promotions, mostly retailers cannot convey true and right message to the consumers or final customers. As per few retailers, companies do not tell us about their upcoming and new products. In fact, sometimes they launched and started their products' advertisement. But we have no information about products' features and due to this lack of information sharing customers become disappointed and sometimes customers also stop buying old products' of companies.

5. Conclusion

The previous research works have been considered the information sharing effect in different industries. But this research mission was to recognize the benefits and effect of information sharing in terms of comparison between two countries. The manufacturer and retailer relationships are very significantly important for the whole process of information sharing. Due to the good relationships and collaborations, both partners feel comfortable to share their own information for mutual long term benefits. The information sharing gives fruitful benefits for both partners; but as per the research's results, Pakistani' firms are more willing to share information with their retailers as compared to Chinese firms. The interesting findings is, mostly Pakistani' companies are not well developed or not using as such very expensive technologies and information sharing procedure, but information sharing is better than Chinese firms. That's the major reason, Pakistani firms are enjoying the benefits of information sharing; but still there is need and gap for more improvement. Second, the Pakistani firms are also feeling fear of "Leakage of confidentiality or Compromising Confidentiality" in fact, they are enjoying several benefits of information sharing. According to the our results findings, the major problems in the information sharing is "lack of trust" due to this problems manufacturer and retailers are not feel freely to share their own information and several times, manufacturer they hide their actual / real information and only interesting to gain advantage from other party (retailer) and vice-versa. The sharing of information from supplying firms has a weak linkage or relationships, this is due to the late

response of relevant info and inaccuracy; many times the right information is not shared on the right time. The information sharing have various benefits, in the results of our research, we also found that's, due to the information sharing, is also gives chance to knowledge sharing. If there is a continuous flow of information like price, quality, and demand forecast information like organizational philosophy, and the new market directions and future demand and customer requirements as per their feedback. Finally, the information sharing spirit is buyer-supplier relationships, due to strong collaboration and co-ordination; companies can easily achieve the real benefits of information sharing. The fear of "compromise confidentiality" is also will be minimize from the collaboration and long-term relationships between suppliers and buyers. The results of research indicate that if there is a close dyadic relationship between the manufacturer and retailer, the manufacturer's response to buying firms (retailers) needs is improved.

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