

Impact of Collaborative Practices on Operational Performance of Firm: Case Study of Automotive Industry of Pakistan

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Abstract: Purpose -- The purpose of this research is to conceptualize this statement “The impact of collaborative practices on the operational performance of the firm”. Collaborative practices are analyzed in terms of “information sharing”, “incentive alignment” and “joint decision making” that how these practices impact operational performance of any firm. The results extract by this research provide a review of the existing relationship in the automobile sector of Pakistan and reports that can be bridged to uplift the operational performance. The extent of “information sharing”, “incentive alignment” and “joint decision making” reflects that how their rise and fall affects the operational performance of the organization. Design/methodology/approach -- The total sample of 53 organizations is collected including Multinationals as well as Domestic ones. Out of that total sample size, the sample size consists of 20 focal companies, 20 dealers and 13 suppliers including 1st and 2nd tier suppliers of the firms. Findings --- Based on the survey it is concluded that, transactional links are available in the automobile sector of Pakistan. Multinationals are bound to follow the rules of their parent company. On the other hand local firms have high competition so they do not focus on these aspects rather focusing production and cost reduction. The players in automobile sector of Pakistan coordinate with one another for a particular period of time because they have high choice for supplier selection. This intense competition increases their operational performance. In other words it can say that, every organization perform at its best to sustain in the market and they build strong relation only when the order is placed specially on the upstream level. Suppliers are not exclusive but exclusive dealers are available. They contribute in joint decision making and share risks and benefits. Some collaboration is available in downstream level due to exclusiveness. Research limitation/implications --- This paper demonstrates the simple collaboration activities from upstream to downstream of focal company. In further research it is inevitably compare the impact of collaborative practices between multinational and domestic firm’s operational performance. Originality/value --- The value of this research is to enhance knowledge in the field of supply chain and to demonstrate that how collaborative practices impact on the operational performance of the firms.

Key words: Collaborative practices • Operational performance

INTRODUCTION

Coordination among the members of supply chain is very much important. There are several problems in coordinating with the supply chain members but it can be managed. Coordination is also relevant to the study of organization for example theories of organization coordination, inter organization relations and inter organization coordination. Coordination issues in an organization are mainly due to the nature of interdependencies.

Collaboration gives sufficient benefits such as increase market share, increase asset utilization, increase customer service, reduce the cost of product development and enhance skill and knowledge and many more.

Information sharing become efficient through this study and different collaboration hurdles can be rectified by supply chain managers. This research provide a snapshot for the supply chain managers about their existing integrated level with their supply chain members that help them to recognize

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the gap and formulate better policies by establishing good relationships with the supply chain members.

The automotive industry of Pakistan has been selected because the major concepts of supply chain management are being applied in auto industry of Pakistan. The build to order phenomena can only be studied well in auto industry in context of Pakistan.

Pakistan is selected as location for this study because auto industry of Pakistan is currently producing approximately 0.12 Million cars annually, 0.0034 Million trucks annually and 0.74 Million motor cycles on per annum basis. So it has a big market and need good coordination for enhancement of operational performance.

Literature Review: From the late 1980's the researcher focused on broader view of supply networks. They worked on the information flow and collaborative learning. The intention was to provide guidance for taking supply chains decision more appreciable. In 1990, supply chain extended to the closest partner. Afterwards companies moved towards learning and listening about the customer needs. That information sharing was the mode of coordination to meet the uncertainties. In short, first step in forming a supply chain that established clear market based relation for the functions that were outsourced. After that market coordination was achieved through standardization, shared system and competitive services.

Few researchers have appeared to develop and test the concept of coordination in supply chain. "Popularized system thinking that can be used to understand the reality of logistics and coordinate the chain members in order to create collective knowledge" (Senge 1990).

[1] suggested that, "Channel coordination, operational efficiency and information sharing improves the overall supply chain performance".

The coordination of collection, processing and dissemination of information among the chain members must be accompanied by the willingness of the chain members to use shared information in the implementation of logistics tasks that contribute to operational performance.

There are some transactional links and some are collaborative links. Every link creates a different type of network. Each type of network has a different nature of relationships (Quinn and Webster 1992). They discussed the collaborative and transactional network relationships on the basis of environmental volatility. They discussed that with collaboration in high environmental volatility, the flexible network exist while in low volatility virtual network exist. In transactional nature of relationship, hollow networks exist in high environmental volatility and value added is low one.

It is by and large accepted that higher degree of collaboration leads towards improved performance (Froehlich 2001, Fearne2006). Tight collaboration within and between organization increase the performance [2] On the other hand, lack of collaboration decreases the performance [3-15].When discussing about the impact of information sharing Seidmann and Sundararajan suggested four levels of information sharing.

Their description is discussed in table 1. Each information exchange level gives benefit to its upstream or downstream activities. Many benefits are extracted from this study of information sharing among the supply chain partners for better performance i.e. reduced cycle times, reduce inventory levels. Every party can improve efficiency independently, improve demand forecasts and get competitive benefits from sales and demand information regarding competitive products. It is argued that development of Intra-organizational information system supports a lot in cost cutting. Flow of demand information reduces the coordination cost, cycle time and increase in time order whereas increase in order information flow increase the in time order and cycle time [16-20](Fu-ren Lin, Sheng-cheng Lin 2002).

Many authors studied the quality of information and its impact on the operational performance. A few studies have identified that poor information quality have a negative impact on the operational performance of the whole supply chain (Gosain *et al.*, 2004-5 Rossin 2007).

Forslund 2007 argued that only a limited number studies have measured the effect of information quality on firm performance. According to the study examining

Table 1: Levels of information sharing

Levels of Information	Description
Order information exchange	Order information for example quantity and prices is transferred through EDI or any other technology
Operation information sharing	It is shared to make use of superior expertise across all organization and further improve efficiency.
Strategic information sharing	The information that has no independent value but for other it may be more beneficial
Strategic and competitive information sharing	Buyer allow supplier to get broad market information that provides strategic and competitive information.

the information quality in order fulfillment processes, Forslund 2007 explains the literature review on information quality measurements concepts. Gustavasson and Wanstrom 2009, measured the role of information quality in manufacturing planning and control processes through case examples. Information quality is measured in terms of accuracy, convenience of access and the reliability of information [21-36](Forslund 2007), however they do not assess the resulting effects of information quality deficiencies. Another study of Monezka *et al.*, 1998, presented the importance of communication behavior, such as information quality for the success of supplier alliance. Their study showed that accuracy, timeliness and adequacy and credibility of information have a positive impact on supplier alliance.

To conclude the previous studies, information quality impacts the certain measures of operational performance. There are extensive empirical investigations about the operational performance of the organization on the basis of high quality information. In linking the dispersed literature on information quality and performance with the collaboration, it is concluded that information sharing plays a vital role in the success. Specifically the discussion on the concept of supply chain collaboration it is argue that information sharing, incentive alignment and joint decision making may have a stronger impact on the operational performance in the high quality transferred information environment. Previous study suggests that supply chain collaboration is decomposed into three practices and they link their impact with the operational performance of the organization (Frank Wiengarten, Paul Humphreys). Those concepts and constructs are selected and apply on the automobile sector of Pakistan and check the results accordingly.

Methodolgy: The multiple case study method has been adopted to address this research question “Impact of collaborative practices on the operational performance of the firm”.

This research is descriptive in nature and face to face interviews and questioners are used to collect the data. This research is used to measure the impact of “information sharing”, “incentive alignment” and “joint decision making” on the operational performance of the organization.

The research is being conducted in the automotive industry of Pakistan. In order to measure the impact, upstream and downstream members of the firms are contacted and interviewed on the basis of the variables defined in the questionnaire. All the activities are judged

according to the scope of the research. “Delphi method” is used to gather the data from supply chain managers/ production managers.

The target respondents are the different automotive manufacturers/ assemblers, their suppliers and dealers in Pakistan. The supply chain and production managers of different companies, owners of first and 2nd tier suppliers and dealer of the firms are involved in this research. The automotive plants are visited to observe how the actual supply chain is operating and to see the current physical structure of the supply chain. The implications of the research are applicable to the auto industry of Pakistan i.e (multinational, domestic) and to the supply chain activities working in the auto industry of Pakistan.

The sampling technique for selection of the sample is non probability sampling. To be more specific, convenient and judgmental sampling technique is used for identifying the sample.

The sample consists of fifty three organizations in the automotive industry involved in production, sales and marketing of cars, trucks, motorcycles and their components in Pakistan. The research data is collected on the basis of a structured questionnaire, which includes different questions that are related to the operating environment of automotive industry of Pakistan. The other tools used in the research are face to face interviews and on spot observation also.

Industry Analysis

Information Sharing: Information sharing is subdivided into five parts, inventory level, product change or modifications, strategic plans, market situations and forecasts. The impact of these variables varies from supplier to supplier and dealer to dealer. Every organization has its concerns, policies through which they cater all their activities. Supplier is sharing information according to his limitation, focal company is following its separate rules regarding sharing of information while dealer are different according to their business nature. Some multinational firms have good relationships with their suppliers but majority have transactional links.

Firstly information sharing regarding inventory level is an important variable to measure. The trend shows that this information is disseminate very frequently from the focal company but some are responding it on somewhat frequent. These are domestic organizations and have limited scope of network with their suppliers and dealers who don't share information therefore minor response is generated. In case of upstream and downstream activities

then this information is somewhat frequently move towards 1st tier suppliers. Very few respond it on very frequent.

Next is the product change and modifications related information that shared among the network. The trend shows that multinational organizations flow the information within the channel members especially more with dealers. Very minor response is generated by the suppliers. This information is mainly shared with the dealers, but domestic firms do not share or give normal response towards this query. Long term strategic plans are also seems to be shared with the dealers but on upstream level their information is not shared on the frequent basis. This information is not moved towards the 2nd tier supplier because there is not close relationship between the firm and the 2nd tier supplier.

The results show that majority share the information of market situations with their upstream and downstream to become updated. The majority of the organizations have responded that they somewhat frequently share the forecasting information. They are of the view that forecasting is done seasonally and everyone in the supply chain forecast their activities according to their nature of business. For example focal companies have to forecast their demands of the product that they have to prepare. This has been done according to their past trends and the current economic conditions. They have to cater the whole country so their forecasting scale is bigger than the supplier and dealers. Some 2nd tier suppliers do not show any positive response. They are of the view that “we just forecast only for our convenience and backup. We share this information with those who are our regular customers” but these 2nd tier suppliers are not the big manufacturer or well organized firms. Companies mostly share the information with 1st tier supplier and in return 1st tier forecast on the basis of 2nd tier responsiveness scale.

Incentive Alignment: Long term incentives plan are not normally given by the local firms. They are of the view that “They have huge number of suppliers so they have a higher choice that minimizes their risk towards the quality of material”.

Some of them which are multinationals respond in the positive manner, they share to some extent in long term incentive schemes. Dealers also response that they have mostly maximum level of practice of sharing long term incentive plans. Some multinational organizations give their employees to dealers to enhance the trust of the customer while local firms do not practice this activity.

Very small number of firms responds that they have such sort of agreements on order changes because all the orders are firstly finalized then move towards the production. Local organizations are reluctant to change the orders. They prepare their products on the specification of the order and the order that generated will be analyzed by many departments then it will be approved according to the feasibility. Some organizations response that in practice at maximum level. They are of the view that “agreements are created and violations penalties are mentioned on those agreements for the both parties.” This sort of practice is typically obtainable in upstream suppliers and in local organization supply chain.

Joint Decision Making: Most of the multinational companies involve their supply chain partners while generating an order. In other words suppliers are well aware of the quantity or demand generated on the basis of experience in the industry. Local organizations do not involve SC members; they just decide by their own and generate the orders. 1st tier supplier is involved in the decision because he is the main supplier of the component and dealer is also involved due to demand forecasting. But the 2nd tier supplier usually is not involved in this decision. It is the responsibility of the first tier supplier to keep in touch with him. Mostly just orders are generated from the 1st tier suppliers. Most organizations respond that they have somewhat moderate joint decision making in the new product development and modification. Some organizations respond that no joint decision is made. 1st and second tier suppliers are not involved in this type of decisions dealers are only involved to generate the motivation for marketing and sale of the product

In long range planning, most of the firms respond that they decide jointly. It includes forecasting of components, prices fluctuations, market environment. Mostly this information is gathered from the dealers because that is sufficient for the firms. 1st tier supplier is not normally involved in this decision. 2nd tier supplier has no concern with this decision of the focal company. Only raw data is collected and then make decision on the basis of those facts.

To forecast component requirement all the organizations mostly take joint decisions because it helps in cost analysis and price allocation. Material availability which is the major concern, 1st tier supplier is involved to take these decisions just to predict the demand of the final product. So that component requirement can be judged.

Information Quality: Majority of organizations respond to have a high information quality regarding their business requirement. The information that flows is qualitative in nature. It is another debate that how much information floats, what is the scope of this information? But the information that flows is better reliable one. Some suppliers that are local in nature show negative response. They are of the view that wrong information is given due to internal politics of the organizations. In this phenomenon again 2nd tier has no response for the focal firm but they have no problem from the 1st tier supplier information.

Approximately same response is generated regarding added value requirements because it is clearly stated that (the information that flows it can be of orders, promotions or delivery) it should be reliable and pure for decision making.

Accuracy and timeliness is major factor for measuring quality. Upstream and downstream activities are also responding it in positive manner. Accuracy is challenged by some 2nd tier suppliers. Very few are responding somewhat good, mostly are on very good or excellent whether they are local or multi nationals. This information is qualitative in the whole supply chain.

Operational Performance: When talking about the operational performance of the organization ordering cost is the first indicator. From the survey, majority of the organization respond average but some of the organizations somewhat good and very good. Some dealers of the local organizations responded that they have to bear high ordering cost. Most of the dealers are universal in nature. They are not exclusive one, they deal with many organizations and display their products.

In terms of quality of procured material major proportionate of industry respond very good some of them respond excellent and somewhat good. For all local and multinationals firms the main focus is the quality of the procured material. Upstream and downstream members do not compromise on the promise quality.

The organizations which have quality control department have good hold on the quality of product. That's why the trend is positive.

Regarding order cycle time major proportionate respond very well. The internal information sharing supports a lot. Some flaws that they point out are

- No access to the information timely.
- Politics among the employees in local organizations.

Major proportionate have very good ability to sense the performance of the supplier and good ability to respond them. Some multinational have respond excellent. On the other hand suppliers are also supplying to more than one company so they try their best to keep their image better in the market.

In downstream, dealers do not compromise on their image because they are direct to the customer. One problem from the supplier creates dissatisfaction for the customer. This is the whole industry analysis and results that is generated by the survey. This gives the snapshot of the whole supply chain collaboration of automobile sector of Pakistan.

Findings: The detail analysis of the trends in the automobile industry of Pakistan shows that information sharing is most frequent from the focal company perspective but its major focus on the downstream activities. Majority of the firms are local and their operations and scope is limited. They have exclusive dealers to whom they share information frequently. On the upstream level, suppliers are not so much connected with the focal firm. Some multi nationals firms conduct supplier relationship seminars and work for the suppliers but they do not become the exclusive suppliers of the firm. Every organization in this sector have more than 80-70 supplier. They do not rely on anyone of them. To whom they feel feasible they switch on that. 2nd tier supplier have no relationship with the focal firm. The suppliers of the supplier are not a big firm. There is a intense competition in this market so rather focusing on the information sharing, they focus on the production. Their internal coordination is strong that make them competitive in the market. Suppliers only help in forecasting procedure for the firm. When organizations forecast they share their forecasting with their supplier on that time to confirm the availability of material. This forecast is based on the information shared by the dealer on their direct sale department. Market situations are also shared by the supply chain members but only dealers exchange this information frequently while suppliers get information when they are involved in the order cycle. Universal dealers are also exceptional from the sharing. They contribute when they deal with the organization at some particular time.

Organizations share risks and benefits with their supply chain members. In Pakistan's industry context, organizations focus on the delivery of the product.

Because it shows the commitment with the customer, whether he is user or non user. Here the phenomenon is same, that organizations share risks and benefits with exclusive members. Local firms have universal dealers which deals with different organizations product. Firms do not put efforts on those dealers but for exclusive ones. They have some well defined rules and policies. On the upstream level organization seems reluctant to share resources, risks and benefits in term of long incentive schemes and agreements in order changes. They have transactional links with the suppliers. They majorly deal with them, for a particular time period. Some multinational are of the view that they share resources for better delivery and give long term incentive schemes. But those are exclusive to their organizations. They do not facilitate those to whom they have flexible relationship.

The trend shows that obtaining optimal order quantity level is the personal decision of every channel member. Multinational firms welcome their dealers in this decision making. On the other hand suppliers are not involved in this decision process. Only order is generated and supplier is hired who has the sufficient capacity to fulfill the order. Now many suppliers become the permanent suppliers and have a good relation with the companies but yet they are not the exclusive one. They provide their products to the other firms also. Suppliers are not involved in the product modifications or development because multinational firms got instructions from their parent company. Local firms are also taking decisions by their own. Exclusive supply chain members are involved in the long range planning of the firm. Because many steps are taken by organizations to nurture their supply chain. 2nd tier supplier are not involved but it have some influence on the 1st tier supplier regarding his decision. So it can be deduct that 2nd tier supplier have indirect influence on the focal company. Decisions regarding forecasting of component requirement are jointly done between firms and the dealers because focal firms have to produce and dealers have to sale. It totally depends on the demand pattern so supplier involvement is not necessary. Firms have huge choice for the supplier's selection. Suppliers are not involved in the decision but share information.

Information that share according to the scope and limitations of the firms discuss above is qualitative. This information is reliable and use for decision making. Every firm has limited relationship with their supply chain members. Maintaining the limitations, information that

shared is qualitative enough but more information should be shared. Scope of information varies because nature of operational level varies in different organizations. They share information according to the requirement of time. But they show the satisfactory results regarding quality of information.

Operational performance regarding ordering cost, quality of procured material, order cycle and ability to respond poor performance is seem to be good but not on the excellent side. Managers of the local firms are of the view that

“We face many problems due to lack of collaboration but if we work on that we have insufficient management support, financial limitations lack of training and internal politics that produce obstacle for us”. The cost incurred by the organization is justified by the management and we have to meet these set targets and requirements. Operational performance can be more increased by the collaborative practices but currently they are meeting the cost and generate benefits. They feel no need because of environmental uncertainties. They build good relationships with their customers and their customers change time by time. Softwares are used in their own organizations but they have no links with their supply chain members.

CONCLUSION

To sum up it is explored that transactional links are available in the automobile sector of Pakistan. Multinationals are bound to follow the rules of their parent company. On the other hand local firms have high competition so they do not focus on these aspects rather focuses on production and cost reduction. As the concept says that coordination and information sharing increase the operational performance of the organization. The players in automobile sector of Pakistan coordinate with one another for a particular period of time because they have high choice for selection. This intense competition increases their operational performance. In other words, every organization performs at its best to sustain in the market and it builds strong relation only when the order is placed specially on the upstream level. Suppliers are not exclusive but exclusive dealers are available. They contribute in joint decision making and share risks and benefits. Some collaboration is available in downstream level due to exclusiveness.

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