Ms. Anika, 2024, 12:3
ISSN (Online): 2348-4098
ISSN (Print): 2395-4752

International Journal of Science, Engineering and Technology

An Open Access Journal

The Impact of Association on Supply Chain Efficiency

Assistant Professor Ms. Anika, Ms. Zeba Tahir, Mr. Abhishek Kumar
Dept. of Commerce,
Shri Ram College, Muzaffarnagar, (UP) India

Abstract- In today's global business environment, with rapidly changing technologies, intense competition, increased emphasis on outsourcing, creation of value-added products for the consumers, and the growth of highly specialized companies; it is increasingly important that companies within the supply chain collaborate. However, collaboration is a complex process that does not always lead to success – if not adopted in a right manner. Collaboration, in this study, refers to the combination of efforts within and between the organizations (internally as well as externally) to utilize their resources in the most efficient manner (instead of replicating them) and thereby to develop and create dynamic capabilities and mutual benefits for all participating firms. This enhanced relationship also brings new innovations to the participating firms in the form of new and improved products, reduced costs, reduced lead time, better customer services, development of trust, commitment between the organizations and enhancement of performance in the overall supply chain. The research paper focus on the aspect of collaboration, the need for new competencies to the organizations and the relevance of collaboration to enhance cross-organizational capabilities. The study aims to find out why most of the organizations want to collaborate instead of competing in the market? Why they want to share their 'Bigger Pie' with others instead of accepting their own 'Pie' from the market? And finally, how does the collaboration enhance cross-organizational capabilities?

Keywords- Global Business Environment, Supply Chain Management, Logistics Coordination, Technology Integration, Performance Metrics, Sustainability

I. INTRODUCTION

The term supply chain integration represents the synthesis of all processes and activities in the complete manufacturing and distribution cycle – this includes everything from product design, materials and component ordering, manufacturing and assembly, and warehousing and distribution, until the finished product reaches the end customers (Svensson, 2003; Morgan and Monczka, 2003; Craxton, Garcia-Dastageer, Lambert, and Rogers, 2001). This complex process implies that supply chain organizations need to re-evaluate the totality of everything they do if they want to remain competitive (Fawcett and Magnan, 2001). New and innovative business designs must also be created to match the new business model (Porter and VanDerLinde, 1995).

Furthermore, since supply chain integration involves more than one organization's benefits and endeavors, this new form of business operation deserves certain protection to prevent organizations' supply chain integration efforts from being subjected to numerous supply chain hazards (for example, the opportunistic behavior) (Williamson, 1999).

II. LITERATURE REVIEW

The Supply Chain is the network of organizations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of product and services in the hands of the ultimate consumer. Supply Chain Management is also defined as "the integration of business processes from the user through original suppliers that provide products, services and information that add value for customers and stakeholders" (Cooper, Lambert and Pagh, 1977, formalized by The International Centre for Competitive Excellence, University of North Florida, 1994) .

The central idea of Supply chain management (SCM) is to apply a total system approach to managing the flow of information, materials, and services from raw materials suppliers, through factories and warehouses, to the end customers, in order to create a higher value compared to competitors supply chain. Successful Supply Chain Management requires cross-functional integration of key business processes within the firm and across the network of firms that comprise the supply chain. Among others, there are a number of factors moving the competition from single companies to supply chain and supply networks: increasing competition, dynamic systems with variability both in demand and supply, higher complexity of new products and, consequently, the need of a higher number of deeper competences required to better serve the customer (both in business-to-business markets and in business to consumer industry).

III. OPPORTUNITIES ARISING FROM COOPERATION AND COLLABORATION

A relationship could be healthy and competitive (also defined as distributive, win-lose, or adversarial relationships) when suppliers are continuously evaluated on the basis of the competitiveness of their offer (price, quality, service). The relationship does not create new value along the supply chain, but buyers and suppliers act in order to capture a larger share of the existing value in their self-interest. This practice is common for lower value items (or service) with low supplier-switching cost and usually based on competitive bidding or price comparisons, shorter-term contracting, regular market testing, and reverse Internet auctions. Usually, the portion of the total spending based on this relation should not be very high.

Cooperative and collaborative relations represent interesting opportunities for companies to better respond to the ever-changing need of the final markets, in terms of higher quality, decreasing costs and shortened lead time. The relationship is defined cooperative when it is based on a mutual win-win closer interaction and a wider sharing of information (based for example on an open book contracts). It is usually intended to be a long-term relation, requiring a longer initial agreement and familiarization period. Each part can contribute to increase the value created for both parties.

A collaborative relationship broadens the process involved in the interaction, and aims to find a shared solution to compete on the market. It is reserved to a limited number of strategic suppliers that provide goods or service that contribute to the company's competitiveness.

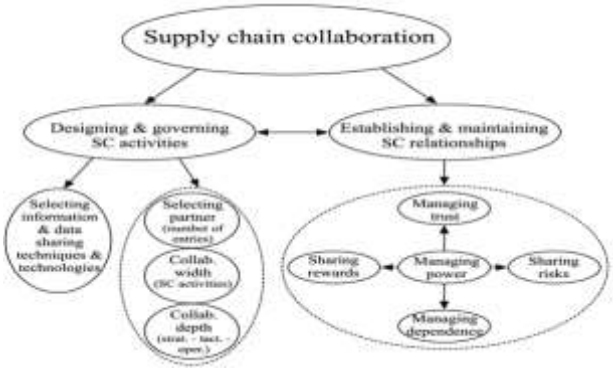

Figure 1: Relevance of Association in Supply Chain

Programs (CRP) (Ireland and Bruce, 2000; Barratt, 2002) and of supplier collaboration through the collaborative planning (CP) and the Supplier Managed Inventory (SMI)

Furthermore, Supplier Relationship Management (SRM) is a broad-based management methodology that underlines how important are the relationships between a company and its suppliers' base. A

relationship with suppliers based on the principles of massive collaboration and partnership derives more from a strategic philosophy than from simple portfolio management assessments. However, the costs required to develop, strengthen and maintain a strategic partnership with a supplier are often very high and need a specific selection criterion that go beyond the traditional operational dimensions (Baglieri and Zamboni, 2005).

Thus, supply chain management becomes the management of the "new extended firm" (Dyer, 1996; Post, Preston and Sachs, 2002). An extended enterprise is a group of individual organizations brought together under a joint strategic purpose (Doz and Hamel, 1998). The strategic fit between these companies is defined on the basis of their core competences (Prahalad and Doz, 1991) and may result in a competitive or cooperative (collaborative) situation.

What Collaboration Refers to

Collaborations on the other hand, for the purposes of this research, refer only to demand, supply or combinations of those types of supply chain relationships that are greater than the sum of dyadic or triadic partnerships. Although it is acknowledged that in the literature, predominantly partnerships and collaborations are used in the same context and more often than not used interchangeably (Holweg, M. et al., 2005, Maloni, M. J. and Benton, W. C., 1997). Collaborative relationships also involve high levels of integration and cooperation, through aligned and formalised intra and inter-dependent relational states within each supply chain unit (Noordewier, T. G. et al., 1990), but are greater in number than those found in a dyadic or triadic partnership. Through all levels of formal cooperation in supply chain relationships, this process can involve sharing research and development activities, strategic management initiatives, personnel, innovation activities, supply chain functions, processes, and systems, in order to affect supply and demand requirements from the market. Although competitive supply chain relationships are more likely to occur predominantly across the horizontal axis of the supply chain, with cooperating relationships occur more readily within the vertical axis, this is not always the case, as competitors within a supply chain can cooperate - a relationship described as cooperation (Brandenburger, A. M. and Nalebuff, B. J., 1996). Bridging competition with cooperation in supply chain relationships, has seen the development of the term cooperation (Brandes, O. et al., 2007), and represents a good example of formalized cooperation in the form of either a partnership or a collaboration of broader proportions, but specifically between competitors operating in the same supply chain. Originally based on games theory (Brandenburger, A. M. and Nalebuff, B. J., 1996), it describes competitor relationships that align and share resources through formal agreements framing the relationships between competing firm on how cooperation and collaboration will take place. These activities are identified and formalized in order that the individual competitive advantage of each partner or collaborator is not diminished, and to ensure the relationship delivers enhanced performance and profitability to each competitor (Dagnino, G. B. and Padula, G., 2002).

The Need for New Competencies

Developing Dynamic Supply Chain Capabilities (DSCC)

In the resource-based view (RBV) theory (Barney, 1991; Grant, 1991; Wernerfelt, 1984) companies' competitiveness was defined by their distinctive resources, mainly static and well-defined for a long-term perspective (i.e. they will be sustainable). Barney (1991) highlighted the necessity of such resources to be valuable, rare, inimitable and non-substitutable (VRIN). The ability of firms to assemble, integrate, develop, improve such resources defined the concept of company (still static) capability (Grant, 1991; Miller, 2003; Ray et al., 2004).

Some authors discussed the inappropriateness of this approach in a highly dynamic and changing environment (Winter, 2003; Barney et al., 2011; Eisenhardt and Martin, 2000; Teece et al., 1997) that characterizes the last decades, compared to the stable environment in which RBV was conceived. They state that capabilities need to continuously

change, becoming dynamic, in order to refresh or develop new sustainable and distinctive capabilities over time. This dynamic view considers continuous improvement for short-term results as the unique way companies can create their temporary advantage (Helfat and Peteraf, 2013; Verona and Ravasi, 2003; Teece et al., 1997). Developing effective dynamic capabilities allows company to perform better than competitors and to achieve and maintain a long-term competitive advantage (Eisenhardt and Martin, 2000; Teece et al., 1997)1. Hence static capabilities are not self-sustaining over the long-run without dynamic capabilities that reshape the improved or entirely new capabilities.
Furthermore, recent research has shown companies develop both internal and external (e.g. cross-organizational) capabilities (Gibson et al., 2019; Defee and Fugate, 2020). 1 Dynamic capability were also defined as "a learned and stable pattern of activities through which the organization systematically generates new static capabilities and/or modifies existing capabilities" (Zollo and Winter, 2002).

As the focus shifts from single firm resources and capabilities to its supply chain, it comes to including multiple companies. In this view, realizing new cross-organizational supply chain capabilities becomes the new challenge to compete through a more responsive, adaptive, agile and better performing supply chain.

IV. SUPPLY CHAIN COLLABORATION AND CROSS-ORGANISATIONAL ENHANCED CAPABILITIES

In a globally competitive, constantly changing environment static capabilities as described above are not only weak weapons to maintain the competitive advantage but also refers to a single company. As the relationships among companies evolved and created a more interconnected structure, static and company-level competencies are not sufficient to create and explain a competitive position of a firm. Collaboration and supply chain focus require a broader spectrum of analysis. (Defee and Fugate, 2010) conceptualize the Dynamic Supply Chain Capabilities (DSCCs) and highlight the importance of the strategic approach to nurture, develop, and continuously innovate these new extended dynamic competencies. "While dynamic capabilities are firm-centric, DSCCs are embedded within the collaborative routines formed between multiple supply chain partners. Thus, multiple partners may jointly develop and use DSCCs to reenergize and update existing (static) capabilities or form entirely new capabilities." (Defee and Fugate, 2010).

Companies that embrace this new strategic approach are supply chain oriented and opened to learn from the partners. This does not mean that they have to identify external competencies that create the competitive advantage of the companies that possess them and try to acquire or internally develop them in order to replicate the competitive advantage and reduce the "knowledge gap".

There are a number of reasons justifying this. First of all, it is very difficult to excel in all the capabilities embedded in an extended organization as the supply chain is, and even worst, these capabilities are distributed in a supply network. It is too costly to develop all of them, it requires too many resources and the more the company increases its asset capabilities the more it reduces its flexibility, which is useful, for instance, to address to rapid changes in its strategic orientation.

Secondly a dynamic, non-imitable, sustainable capability is usually path dependent and developed over time through the accumulation of experiences. It has been developed along a learning curve that is difficult to imitate in short time. It may be embedded in a tacit knowledge, that is difficult or impossible to articulate and formalize, and takes time to learn (Leroy and Ramanantsoa, 1997; Polanyi, 1968)

Finally, replicating or internally acquiring the partners' capabilities is unnecessary once the company is able to access such knowledge and to obtain the possibility of correctly exploiting it without possessing it directly. From a supply chain point of view, copying and internalizing a distinctive capability already possessed by a partner is

redundant, reducing the overall efficiency of the inter-organizational relationship (Hamel, 1991; Levin and Cross, 2004; Pedersen et al., 2008).

Hence, the real competence that needs to be developed nowadays is the capability to interact with external partners, which requires a cultural orientation to collaboration and openness, or "learning orientation", as defined by Defee and Fugate (2010). The firm centric view of learning could reduce the potentiality learning from and through the supply chain members. The inter-organizational learning process proposed by the two authors does not require all supply chain members to absorb the knowledge possessed by other members, but it requires firms to look beyond their own boundaries and view the larger supply chain holistically (Holmberg, 2000).

V. DEVELOP DYNAMIC SUPPLY CHAIN CAPABILITIES (DSCC)

As cultural antecedents to collaboration, the model suggests a company strategic supply chain orientation combined with a learning capability. Both are influenced by the turbulence of the competitive environment that forces companies to experiment new solutions in order to maintain their competitive advantage and their static or already dynamic capabilities up to date. The need to change and the propensity to improvise and experiment increase when the competition becomes fiercer (Moorman and Miner, 1998).

Adopting a Supply Chain Orientation means to recognize and avoid redundancies in the supply chain (Min and Mentzer, 2004) and instead to utilize the existing resources of each supply chain partner, thus facilitating knowledge-accessing routines between supply chain members. To act this way, firms have to build and maintain trust, commitment, cooperative norms, dependence, organizational compatibility, and top management support, just to mention some of the several behavioral elements that allows relationships to be collaborative and effective (Mentzer, 2004).

On the other side a learning organization is characterized by the propensity of the firm to create and use knowledge, by a strong commitment to learning, open mindedness, and a propensity to share its vision with others (Sinkula et al., 1997).

Therefore, in order to efficiently use the capabilities already existent among the supply chain players, firms should not replicate or internally develop the capabilities already available on the market but invest on new "dynamic supply chain capabilities", as the capability to scan and create a contact point with external knowledge (knowledge accessing) and the capability to transform its static and dynamic capabilities in something new, or simply improved, thanks the re-combination of the actual competences with the external sources of knowledge (co-evolving). Indeed, co-evolving was also described as a way of capturing cross-business synergies (Eisenhardt and Galunic, 2000) or "the set of routines businesses use to reconnect webs of collaborations within and across companies to generate new and synergistic capabilities" (Eisenhardt and Martin, 2000). To allow this cross fertilization, supply chain partners should demonstrate awareness of the need to change, and of the perceived capacity to change effectively (Cohen and Levinthal, 1990).

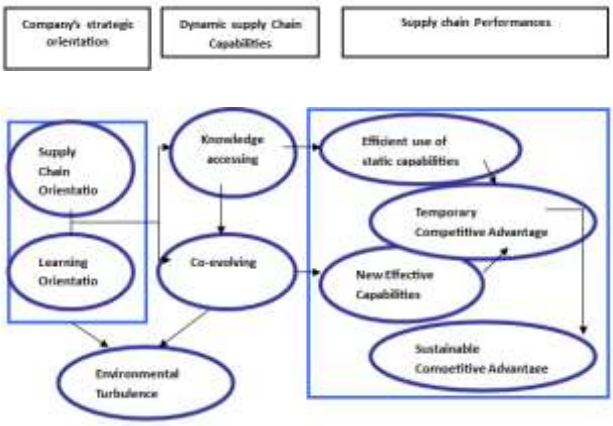

Figure 2: Dynamic Supply Chain Capabilities to Enhance Supply Chain Performances

VI. CONCLUSION

This study analysis the patterns followed by the organizations to build innovative capabilities through collaboration practices. Today, in a highly competitive environment, companies do not believe in static capabilities rather they extend their capabilities in a dynamic manner by sharing their knowledge with the partners, thus benefiting them all in a mutual manner. Supply chain management strategy, organizational learning, dynamic capabilities, innovation, trust, commitment and collaboration have contributed in a significant manner in increasing the overall performance of supply chain and thereby improving the final product quality in the market.

The competition, therefore, moves from the single company to the whole supply chain and networks. The advantages of supply chain collaboration have been already studied in the academic field. Defee and Fugate's model (2020) proposes a path to develop necessary dynamic capabilities to properly compete in a continuous changing environment. The model in this study extends the advancement in Defeee and Fugate (2020) in order to include innovation process and practices.

Further researches can use the proposed model to study and test empirically the strength of the relationship between collaboration and supply chain performance.

REFERENCES

1. Ahuja, G. (2000), Collaboration networks, structural holes, and innovation: A longitudinal study, Administrative Science Quarterly, Vol.45, No.3, (pp. 425-455).
2. AMR. (June 2000), Get your supply chain processes ready for trading exchanges, SCM Report, American Manufacturing Research Inc.
3. Anderson, J. C., & Narus, J. A. (1990), A model of distributor firm and manufacturer firm working partnerships, Journal of Marketing, Vol. 54, (pp. 42-58).
4. Araujo, L., Dubois, A., and Gadde, L.E. (1999), Managing interfaces with suppliers, Industrial Marketing Management, Vol. 28, (pp. 497-506).
5. Argote, L., McEvily, B. and Reagans, R. (2003), Managing knowledge in organizations: an integrative framework and review of emerging themes, Management Science, Vol. 49, (pp. 571-582).
6. Asakawa, K., Nakamura, H. & Sawada, N. (2010), Firms' open innovation policies, laboratories' external collaborations, and laboratories' R & D performance. R&D Management, Vol. 40, No. 2, (pp. 109-123).
7. Baccarach S. B. (1989), Organizational theories: some criteria for evaluation, Academy of Management Review, Vol. 14, No. 4, (pp. 496-515).
8. Ballevre O. (2010), Nestlé Innovation partnerships: the new open innovation, Knowledge transfer Conference, Hong-Kong, November 7-8th. Available at: http://www.ktconference.com/pdf/Dr.%20Olivier%20Ballevre.pdf [Accessed January 2021].
9. Barratt M. A. (2004), Understanding the meaning of collaboration in the supply chain, Supply Chain Management: An International Journal, Vol. 9, No. 1, (pp. 30-42).
10. Bessant, J., Kaplinsky, R. and Lamming, R. (2003), Putting supply chain learning into practice, International Journal of Operations & Production Management, Vol. 23, No. 2, (pp. 167-84).
11. Cooper, Martha C., Ellram, Lisa M., Gardner John T., Hanks Albert M. (1997), Meshing multiple alliances, Journal of Business Logistics, Vol. 18, No. 1, (pp. 67-89).
12. Baglieri E. and Zamboni S. (2005), Partnering along the demand chain: collaboration in new product development process. In 21st IMP Industrial Marketing and Purchasing (IMP) Conference. Rotterdam, Netherland.
13. Barney, J. B. (1991), Firm resources and sustained competitive advantage, Journal of Management, Vol.17, (pp. 99-120).
14. Barney, J. B. (1997), Gaining and sustaining competitive advantage, Reading, MA, Addison-Wesley.

15. Barney, J. B., Wright, M. and Ketchen, D.J. (2001), The resource-based view of the firm: ten years after 1991, Journal of Management, Vol. 27, No. 6, (pp. 625-641).
16. Barratt M. A. (2002), Exploring supply chain relationships and information exchange: A case study in the UK grocery sector, Ph. D thesis, Cranfield University, Cranfield.
17. Bartlett, C, Ghoshal, S. (March-April, 2000), Going global: lessons from late movers, Harvard Business Review, (pp. 132-142).
18. Benbasat, I., Goldstein, D. K., and Mead, M. (1987), The case research strategy in studies of information systems, MIS Quarterly, Vol. 11, No. 3, (pp. 369-386).
19. Bensaou, M. (1999), Portfolios of buyer-supplier relationships, Sloan Management Review, Vol. 40, No. 4, (pp. 35-44).
20. Bessant, J., Kaplinsky, R. and Lamming, R. (2003), Putting supply chain learning into practice, International Journal of Operations & Production Management, Vol. 23, No. 2, (pp. 167-84).
21. Big Idea Group, www.bigideagroup.net [Retrieved December 2020].
22. Birou, L.M. (1994), The role of the buyer-supplier linkage in an integrated product development environment, Unpublished Doctoral Thesis, Michigan State University.
23. Bititci, U.S., Martinez, V. and Albores, P. (2004), Creating and managing value in collaborative networks. International Journal of Physical Distribution & Logistics Management, Vol. 34, No.3, (pp. 251-268).