

AREVIEW OF COLLABORATIVE STRATEGY FOR SUPPLY CHAIN

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Abstract

Corporations now have to compete in the borderless global market as well as locally. Individual businesses can no longer compete as stand-alone entities with only formal relationships, but need to refashion their supply chains to include a closer network of relationships among suppliers and partners. Those organizations which were able to manage their network in such a way that they gain competitive advantage over their competitors would be able to survive and succeed in the long run. Therefore, this article aims to describe and explain various concepts which constitute collaborative strategy. The increasing presence of environmental uncertainties and competition is what drives firms to adopt a collaborative strategy with their partners. Yet the concept is complex and not to be adopted without a thorough understanding of what it involves.

INTRODUCTION

Collaborative strategy is now considered to be of great significance for partners in a supply chain. In the early days of supply chain management, partnership was mainly about co-ordinating deadlines so as to keep inventory and stock-out to a minimum, and thus minimize cost and keep the customers happy. This came to be seen as an insufficient use of the potential of collaboration in the face of more intense competition and the growth of uncertainties due to the increasing complexity of trade. Relationships of sharing, based on trust between partners, providing win-win situations, are now considered to be an advanced form of collaborative strategy, enabling the achievement of specific characteristics which are difficult for competitors to copy.

The increasing presence of uncertainties and competition is what drives firms to adopt a collaborative strategy with their partners. Yet the concept is complex and not to be adopted without a thorough understanding of what it involves. Therefore, this article describes and explains, by reference to previous research, various concepts which constitute collaborative strategy.

RESPONDING TO THE CHALLENGE OF UNCERTAINTIES

Managing supply chains is a challenging task because of obstacles in the supply chain known as uncertainties. Firms face supply uncertainty that may be caused by a malfunctioning production process at the supplier, or late delivery (Ho, Chi, & Tai, 2005). In addition, firms usually face demand volatility caused by forecast inaccuracy or information hoarding (McCullen & Towill, 2002; Lee, Padmanabhan, & Whang, 2004). Davis (1993) proposed that variations in manufacturing lead time were the major source of manufacturing uncertainty. Companies have to find ways to control these three uncertainties with the aim of minimizing cost and maximizing service. The challenge for managers is to implement an appropriate strategy to achieve this aim.

Supply chain management integrates supply and demand management within and across companies (CSCMP, 2004). This includes the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. It is important that it also includes collaboration with channel partners (suppliers, intermediaries, third-party service providers, and customers), because supply chain management is a collaborative-based strategy by nature.

The literature on supply chain management has focused on the need for collaboration among trading partners, from original suppliers to end users, to better satisfy consumer demand at lower cost (van der Vorst & Beulens, 2002). One example is the experience of Samsung Electronics, which collaborated more extensively with Best Buy to define product requirements and to develop more efficient and flexible processes to manage product lifecycles: this led to the doubling of sales of consumer electronics over a two-year period (Koudal & Coleman, 2005). Ballou (2007) stressed that collaboration among supply chain members was at the heart of supply chain management and was the key to its future success. Moreover, several researchers discovered that companies normally use a collaborative approach to mitigate their uncertainties (Baker, 2007; Christopher & Lee, 2004).

COLLABORATION AND COLLABORATIVE STRATEGY

Collaboration is defined as all companies in the supply chain, actively working together as one, toward common objectives (Mentzer, Foggin, & Golicic, 2000). *Collaborative Strategy* is a relationship-based strategy which is used to characterize the relationship formed between multiple firms linked together in support of a common goal (Rodrigues, Stank, & Lynch, 2004).

An examination of the network relationship of collaborative management shows the context of an integrated supply chain, as multifirm collaboration within a framework of key resource flows and constraints. Within this context, supply chain structure and strategy result from efforts to operationally align an enterprise with customers (who consume a product or use it as an integral part or component of an additional process or product) as well as the distributive and supplier networks to gain competitive advantage. Hence, business operations are integrated from material purchase to the end-customer products and services delivery. The synergy among firms would lead to value creation. In this context, firms developed and managed business relationships with other companies to jointly perform essential logistics activities, i.e. managing flows of informa-

tion, product, service, financial and knowledge (from initial material purchase to delivery of products and services to customers) within its constraints of capacity, information, core competencies, capital and human resources. In summary, the accumulated literature conveys that the integrated value creation must be aligned and managed from material purchase to delivery of products/services. Bowersox, Closs, and Cooper (2010) express this very well in stating that supply chain management consists of firms *collaborating* to leverage strategic positioning and to improve operating efficiency. For each firm, being involved in this relationship reflects a strategic choice, of a channel arrangement based on acknowledged dependency and collaboration.

A survey was conducted by the Council of Supply Chain Management Professionals of its members' views of supply chain management. The results showed that 'collaboration' is identified by the professionals as a key component of supply chain management (Gibson, Mentzer, & Cook, 2005). It is consistent with those definitions which proclaim the idea of collaborating and managing relationships among supply chain participants in order to gain a sustainable competitive advantage for all entities involved in such relationships.

In summary, at the core of supply chain management is the importance of collaborative efforts among the chain participants. As a result, firms attempt to seek appropriate strategies to manage their supply chain.

AN ANALYSIS OF COLLABORATION

Collaboration among supply chain members is at the heart of supply chain management and will be the key to its future success (Ballou, 2007). Collaboration is defined as all companies in the supply chain actively working together as one toward common objectives (Bititci, Martinez, Albores, & Parung, 2004), who also said that other terms used to describe this situation are relationships, partnerships or alliances. Vereecke and Muylle (2006) state that supply chain collaboration involves integrating the real demand perspective into supply chain thinking. Other researchers even use the term 'integration' interchangeably with 'collaboration'. According to

O’Leary-Kelly and Flores (2002, p.226), “integration refers to the extent to which separate parties work together in a cooperative manner to arrive at mutually acceptable outcomes”. In general, there are two types of integration: internal and external. Internal integration is that across various parts of a single organization: external integration is that which occurs between organizations (Chen, Mattioda & Daugherty, 2007). Internal integration is the extent to which logistics activities interact with other functional areas; external integration is the coordination and collaboration with other supply chain members (Gimenez & Ventura, 2005).

Researchers agree that collaboration involves not only information sharing, but also joint efforts which include joint planning, joint decision making, and joint problem solving (e.g. Ballou, 2007; Bowersox et al., 2010; Sheu, Yen, & Chae, 2006;

Simatupang & Sridharan, 2004). The definitions of collaboration are summarized in the following Table.

Collaboration appears when companies recognize that the traditional arm’s length relationship is insufficient to solve problems or to achieve desired goals (Fites, 2000; Wagner, Macbeth, & Boddy, 2002). An example is Chrysler, which survived a financial crisis because it had transformed the organization relationships with suppliers from adversarial to collaborative (Dyer, 2000). In the Caterpillar Company, its close relationships with dealers and customers helped its turnaround (Fites, 2000).

Many and various forms of collaboration practices have emerged. These include: vendor managed inventory (VMI), continuous replenishment programs (CRP), efficient consumer response (ECR), and collaborative planning, forecasting, and replenishment (CPFR). Wal-Mart and P&G are two com-

Table 1: Definitions of Collaboration

Authors	Definitions
Mentzer et al. (2000)	Collaboration means that all companies in the supply chain are actively working together as one toward common objectives.
McLaren, Head, and Yuan (2002)	Collaboration is a recent trend in supply chain management that focuses on joint planning, coordination, and process integration between suppliers, customers, and other partners in a supply chain
Bititci et al. (2004)	The term collaboration is often used when individuals or organizations work together toward a common aim. The other terms that are used to describe this situation are relationships, partnerships or alliances.
Simatupang and Sridharan (2004)	Collaboration consists of three dimensions, namely information sharing, decision synchronization, and incentive alignment. <i>Information sharing</i> aims to capture and disseminate timely and relevant information to enable decision makers to plan and control supply chain operations. <i>Decision synchronization</i> refers to joint decision making at planning and operational contexts. <i>Incentive alignment</i> refers to the degree to which chain members share costs, risks, and benefits.
Bonet and Pache (2005)	True collaboration exists when the trading partners have a balance in power and are interdependent. The willingness of decision-makers to collaborate in the long-term is important.
Min, Roath, Daugherty, Genchev, Chen, Arndt, and Richey (2005)	The principal features of collaboration are information sharing, joint planning, joint problem solving, joint performance measurement, and leveraging resources and skills.
Bowersox et al. (2010)	Supply chain management consists of firms collaborating to leverage strategic positioning to improve operating efficiency. They highlight the collaborative relationship within and across organizational boundaries through information sharing and joint planning.
Naesens, Gelders, and Pintelon (2007)	Collaboration is about identifying and exploiting win-win situations and thus an opportunity for each partner. A collaborative supply chain simply means that two or more independent companies work jointly to plan and execute supply chain operations assuming greater success than when acting in isolation.

Source: Developed by the author.

panies which have experimented with CPFR since 1995, with significant success. Early adopters of CPFR such as Nabisco and Wagmans, reported a greater than 50% increase in sales (Attaran & Attaran, 2007).

Spekman, Kamauff, and Myhr (1998) concluded that a shift is essential in the level of intensity, from adversarial to collaborative relationship among trading partners. Adversarial (arm's length) relationships are purely transactional, implying a zero-sum game, because if one wins, the other loses (Kampstra, Ashayeri, & Gattorna, 2006). Cooperation is the threshold level for interaction, where firms exchange essential information and sign long-term contracts with some suppliers/customers. At the next level is coordination where both parties specify workflow and information exchange and are engaged in making seamless many of the traditional linkages among trading parties (Spekman et al., 1998). The aim of coordination is to synchronize flows and to automate some routine decision-making processes so as to improve speed and accuracy (Kampstra et al., 2006). Collaboration engages partners in joint planning and processes above the levels reached in less intense trading relationships (Spekman et al., 1998). This is demonstrated in the following diagram.

However, not all collaboration is successful. Kotabe and Swan (1995) demonstrated that the efforts of cooperating firms may have a negative impact on the innovativeness of their products. The failure may be due to the inherent difficulty in recognizing the commercial potential of a dramatically innovative product. Also, Mitchell and Singh (1996) suggested that collaboration can sometimes turn on the user, as firms which become dependent on a

single partner may lock into obsolete capabilities following sudden and substantial changes in technology or market segmentation. Ackerman (1996) identified several reasons why logistics partnerships fail: the partners fail to reach an understanding about the job to be done, the seller overpromises, and service failure becomes intolerable for the buyer.

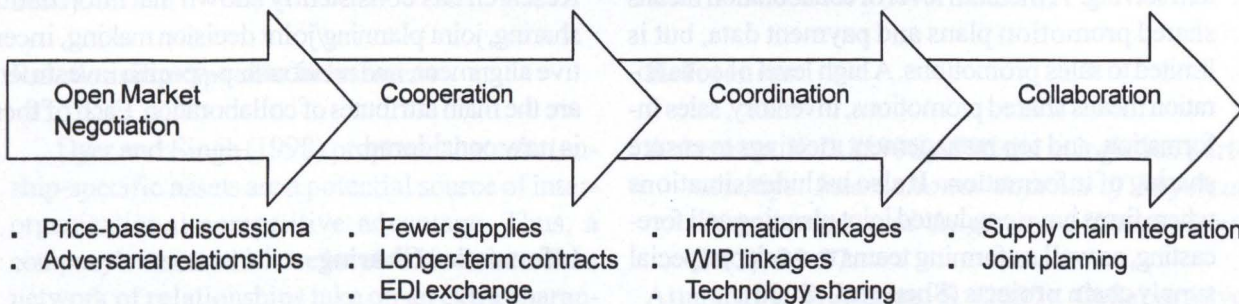
While not all partnering relationships have been successful, the potential benefit from the synergy of working together is significant, and has attracted many firms interested in long-term involvement with exchange partners (Bowersox, 1990; Kumar & Corsten, 2005). Collaborative efforts often contribute to improvements in efficiency, effectiveness and profitability (Min et al., 2005). Consequently, collaboration should lead to a win-win-win situation for all participating partners as well as the end customers (Bititci et al., 2004), although it is not necessarily an equal win for all partners. A summary of the benefits of collaboration is shown in Table 2.

Usually, the motive for supply chain collaboration is the improvement of organizational performance. Mentzer et al. (2000) suggested that supply chain collaboration can deliver powerful competitive advantages (Wagner et al., 2002) if the right enablers are in place and the barriers are overcome.

Degrees of Collaboration

Despite the range of potential benefits, different degrees of collaboration lead to different results. According to Sheu et al. (2006), the degree of collaboration is measured by the activities performed by the collaborating firms, such as the amount of information sharing, joint planning, and problem solving.

The Key Transition from Adversarial to Collaborative Relationships



Source: Spekman et al. (1998, p.634)

Table 2: Benefits of Collaboration

Authors	Benefits of Collaboration
Kalwani and Narayandas (1995)	<ul style="list-style-type: none"> ▪ Reduced costs ▪ Higher profitability
Mentzer et al. (2000)	<ul style="list-style-type: none"> ▪ Reduced inventory ▪ Improved customer service ▪ More efficient use of human resources ▪ Better delivery through reduced cycle times ▪ Faster speed to market of new products ▪ Stronger focus on core competencies ▪ Enhanced public image ▪ Greater trust and interdependence ▪ Increased sharing information, ideas, and technology ▪ Stronger emphasis on whole supply chain ▪ Improved shareholder value ▪ Competitive advantage over other supply chains
Wagner et al. (2002)	<ul style="list-style-type: none"> ▪ Greater awareness of customer service ▪ Raised performance expectation ▪ Increased information transference ▪ Accurate forecasting jointly ▪ Improved competitiveness.
Simatupang and Siharan (2004)	<ul style="list-style-type: none"> ▪ Increasing sales ▪ Ensuring on-time delivery ▪ Lowering inventory costs ▪ Reducing out-of-stock items ▪ Creating accurate forecasts ▪ Better return-on-investment ▪ Reducing obsolete inventory ▪ Reducing lost sales ▪ Cutting order cycle time ▪ Increasing market shares ▪ Reducing markdowns.
Min et al. (2005)	<ul style="list-style-type: none"> ▪ Efficiency, effectiveness and profitability ▪ Reinforcement and expansion of the relationship
Udin, Khan, and Zairi (2006)	<ul style="list-style-type: none"> ▪ Customer service improvement ▪ Cost reductions ▪ Efficient use of resources ▪ Business process improvement

Source: Developed by the author

ing. A low level of collaboration means very little information exchange, and no joint planning or problem solving. A medium level of collaboration means shared promotion plans and payment data, but is limited to sales promotions. A high level of collaboration means shared promotions, inventory, sales information, and top management meetings to ensure sharing of information. It also includes situations where firms have conducted joint planning and forecasting, as well as forming teams to work on special supply chain projects (Sheu et al., 2006).

Simatupang and Sridharan (2004) proposed

three dimensions of collaboration: information sharing, decision synchronization, and incentive alignment. Research has consistently shown that information sharing, joint planning/joint decision making, incentive alignment, and relationship-specific investment, are the main attributes of collaboration. Each of these is now considered.

Information Sharing

Koh, Demirbag, Bayraktar, Tatoglu, and Zaim

(2007) considered information sharing to be one of the activities to promote effective management of a supply chain. They defined information sharing as the information communicated between partners where the accuracy, adequacy, and timeliness are criteria of the quality of information. Similarly, Zailani and Rajagopal (2005) viewed information sharing as an exchange of information among company, customers and suppliers. It is also seen as the extent to which the chain members share their private information about supply chain operations over time (Simatupang & Sridharan, 2004). This sharing includes sales, promotion, inventory payment, and top management meetings (Sheu et al. (2006).

Joint Planning/Joint Decision-Making

Simatupang and Sridharan (2004) used the term decision 'synchronization' for the degree to which the chain members are involved in joint decision making at the planning and operational levels. Sheu et al. (2006) stated that firms and their partners may jointly plan forecasting, category management, new product design, promotion campaigns, display designs, and advertising. Bagchi, Ha, Skjoett-Larsen, and Soerensen (2005) suggested that firms may share decision-making in research and development, procurement, inventory management, manufacturing, and supply chain design.

Incentive Alignment

Incentive alignment is the degree to which the chain members share costs, benefits, and risks of collaboration (Simatupang & Sridharan, 2004). Collaboration in supply chain design and operation with key suppliers and customers lead to risk, cost, and gain sharing of incentive alignment (Bagchi et al., 2005).

Relationship-Specific Investment

Dyer and Singh (1998) proposed that relationship-specific assets are a potential source of inter-organizational competitive advantage. Thus, a company's assets which are involved in an inter-firm network of relationships take on an extra characteristic because of their use in conjunction with the

assets of an alliance partner. Together, these 'joint' assets help lower total value chain costs, lead to greater product differentiation and fewer defects, and accelerate product development cycles.

Such investment is made necessary by the nature of a partnership. On the one hand, suppliers in long-term relationships could face higher inventory costs because of specialized investments, such as warehousing facilities to support just-in-time systems of customers. This leads to more frequent deliveries and higher transportation costs (Frazier, Spekman, & O'Neal, 1988).

On the other hand, substantial research on supply chain collaboration illustrates the benefit gained from learning effects and relationship-specific economies of scale, which lead to eventual lower costs (Kalwani & Narayandas, 1995). Ruben, Boselie, and Lu (2007) indicated that in exchange for long-term contracts, collaborating companies are required to invest in specific assets. Batt (2003), and Cadilhon, Fearn, Moustier, and Poole (2003) proposed that opportunistic behavior and the risk involved in such investments may be reduced by relationship contracts and mutual trust. Firms are required to invest time, personnel, money, training, technology up-dates and other resources to ensure sustainable collaboration (Min et al., 2005). In addition, the feedback from Indian organizations provided evidence that the success of relationships depends in part on the amount of investment in time and resources that the parties make in the relationship (Sahay, 2003). The literature above makes a convincing case for the need for relationship-specific investment to make collaboration effective. Hence, it is concluded that supply chain collaboration is a very broad field and needs further investigation to understand its practical value (Min et al., 2005; Barratt, 2004).

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