

**THE MANAGEMENT OF SUCCESSFUL STRATEGIC
ALLIANCES IN SUPPLY CHAIN MANAGEMENT
NETWORKS: AN EMPIRICAL STUDY OF
SUCCESS FACTORS IN SPAIN**

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Abstract

This study addresses the issue of what are the key success factors in developing strategic supplier alliances following Monczka et al. (1998) perspective of the buying company. Data from 56 different supplier alliances had been collected in Spanish companies. The results show that successful Spanish alliances are significantly related to resource commitment, trust and coordination, information quality, information participation, information sharing, joint problem solving, and the existence of a formal supplier/commodity selection process. Interdependence, use of severe conflict resolution tactics, and smoothing over problems were found to be poor predictors of alliance success. The implications of these results for managerial decision making in supplier alliance development are discussed.

Keywords

Strategic supplier alliances, supply chain management, empirical study, Spain.

Introduction

Intense competition in the global marketplace is forcing organizations to consider new practices by which they could enhance and sustain their competitive capabilities. Strategic alliances is such one option through which an organization can leverage its resources to compete effectively against fast and nimble competitors (Kanter, 1994). Furthermore, the emphasis on supplier integration in supply chain management has contributed to the growing interest on strategic supplier alliances by companies around the world. Strategic alliances are innovative and interesting forms of relationships between buyers and suppliers, however, successful supplier alliances have proved to be very elusive for the most part (Monczka, Petersen, Handfield, and Ragatz, 1998; Landeros and Monczka, 1991; Rai, Borah, and Ramaprasad, 1996; Parkhe, 1993). Despite that academic and practitioner literatures have devoted considerable attention to supply chain alliances issues, its dynamics has yet many unanswered questions.

Researchers have provided some evidence that companies relying on strategic alliances are more profitable since closer buyer-supplier relationships may offer many technical, financial, and strategic advantages over spot market transactions and vertical integration (Tully, 1993; Gulati, 1995; Mohr and Speckman, 1994). Furthermore, strategic alliances provide an effective alternative to improve economies of scale and scope (Rai, Borah, and Ramaprasad, 1996). However, still there is some common misunderstandings regarding the deployment and expected benefits associated with strategic supplier alliances. The need for more research that describes how partners are brought together in cooperative alliances, what is the dynamics of interorganizational cooperation, and the performance implications of strategic alliance development has been noted (Smith, Carroll, and Ashford, 1995). The existing empirical literature in the strategic supplier alliances literature is relatively scarce. For a review of this literature and the existing gaps see Monczka, et al. 1998. One of the limitations in the strategic supplier alliances literature is the lack of empirical studies in a wide variety of industries as well as its limited geographical scope. This research addresses these limitations by studying 56 strategic supplier alliances in different industrial sectors in Spain.

This paper is organized as follows. First the relevant literature on strategic alliances is reviewed. Next, the conceptual model and hypothesis are introduced. An overview of the methodology used for testing the hypothesis is provided. The results from the regression analysis are presented and discussed. Finally, some suggestions are offered for future research.

Theory Development and Research Model

Procompetitive alliances are part of the nontraditional contracts category in the strategic alliances taxonomy proposed by Yoshino and Rangan, 1995. This type of organizational relationships consist of an interindustry, vertical, value-chain relationship between manufactures/service providers and their suppliers/distributors. Procompetitive alliances allow companies to focus more on its own core capabilities while adding value, and increasing flexibility. This study focuses on alliances that fall in this category.

Different researchers have studied the antecedents that lead to different forms of supplier alliances. These studies suggest that assets type involved will impact the type of relationships (Dwyer, Schurr, and Oh, 1987; Itami, 1987; Zajac and Olsen, 1993). A different stream of research has studied the relationship between environmental uncertainty and resource

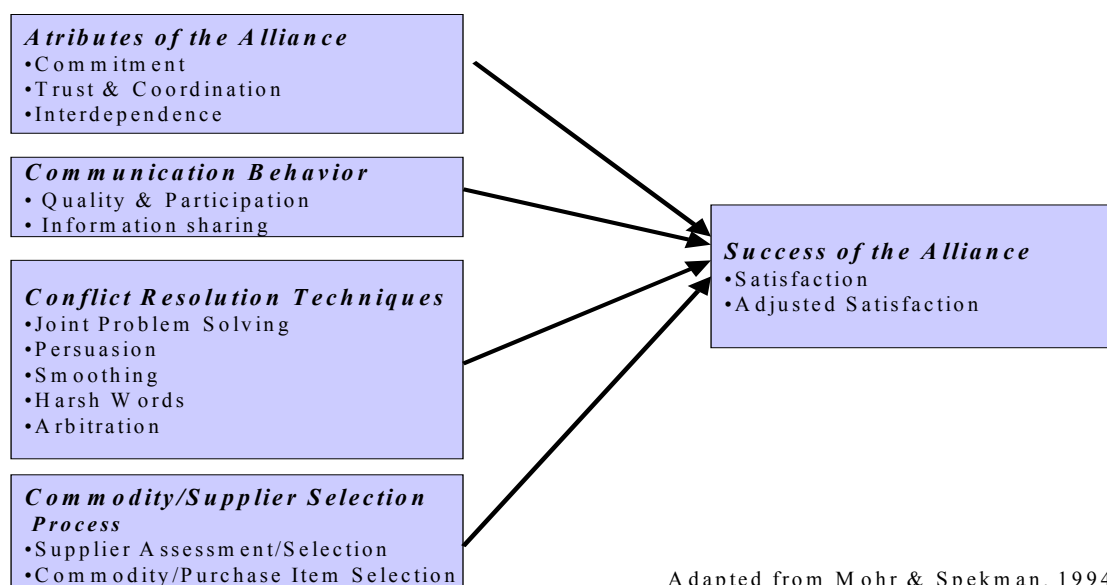
interdependence with the nature of relationships (Hayes and Pisano, 1994). Long-term interorganizational relationships sustaining factors have been studied by Ring and Van de Ven (1994) and empirical exploratory studies on the formation and evolution of interorganizational relationships is scarce (Gulati, 1995; Handy, 1995; Mohr and Spekman, 1994).

In our study, the respondents were provided with the definition of strategic alliance proposed and used by Monczka, et al., 1998:

Strategic supplier alliances are long-term, cooperative relationships designed to leverage the strategic and operational capabilities of individual participating companies to achieve significant ongoing benefits to each party. These alliances continue as long as significant value accrues to both parties. Among the primary benefits of such relationships are enhanced supply chain synchronization, total cost reduction, improved quality and cycle time and a strengthened overall competitive position, which exceeds the contributions possible from other traditional relationships.

This definition distinguish the strategic supplier alliances from simple long-term relationships in three basis aspects. First, strategic supplier alliances goes beyond just buying products or services, it involves also supplier's systems and capabilities. Second, value generations for both parties regulates the duration of the relationship. Third, Success measurement includes soft and hard measures of success. In our study we adopted the model proposed by Monckza et, al, 1998, which was based on the operational definition described above as well as in Mohr and Spekman (1994) research work on successful strategic supplier alliances. The model described in Figure 1, posit that successful strategic alliances are impacted by the attributes of the relationship, the communication behaviors, the conflict resolution mechanisms, and the commodity/supplier selection process. Next section describes a set of hypotheses delineating the relationships proposed in the model.

Figure 1. Supplier Alliance Research Model



Adapted from Mohr & Spekman, 1994

Hypotheses

Following Monzka, et al. 1998, in our study the unit of analysis is the primary buying company's relationship with a single supplier with whom the buying company has established what it considers to be a strategic alliance. The model introduced above will be use to examine the factors that lead to the formation of strategic supplier alliances and how these factors influence performance outcomes. The hypotheses in our study focus on the following four critical dimensions of the strategic alliance posited to be predictors of success: attributes of the alliance, communication behavior, conflict resolution techniques, and commodity/supplier selection process. A brief description of the four dimensions and its components is provided in table 1.

The literature suggests that successful strategic alliances are expected to be characterized by higher levels of commitment, trust and coordination, and interdependence (Anderson and Narus, 1990; Dyer, 1994; Frazier, Gill, and Kale, 1989; Handy, 1995; Nishiguchi, 1994; Ring and Van de Ven, 1994; Williamson, 1995; McAllister, 1995). For a more detailed discussion of these literature see Monczka et al. 1994. The first set of hypotheses asserts that:

- H1a. Successful strategic supplier alliances are associated with high levels of of commitment.
 H1b. Successful strategic supplier alliances are associated with high levels of of trust and coordination.
 H1c. Successful strategic supplier alliances are associated with high levels of of interdependence.

Table 1. Supplier Alliance Predictors of Success

DIMENSION	FACTOR	DESCRIPTION
Attributes of the Alliance	Commitment	Willingness of buyers and suppliers to exert effort on behalf of the relationship.
	Trust and coordination	Reliable performance, cultura- ethnic similarity, profesional credentials, citizenship behavior, and interaction frequency.
	Interdependence	Situation that exists when one actor does not entirely control all of the conditions necessary for achievement of an action or desired outcome.
Communication Behavior	Information sharing	The extent to which critical and proprietary information is communicated to one's supply chain partner.
	Information Quality and Participation	Timeliness, accuracy, adequacy, and credibility of information exchanged.
Conflict Resolution	Constructive conflict resolution techniques	Joint elimination of the conflict or persuasion.

	Conflict avoidance techniques	Smoothing over or ignoring/avoiding the issues.
	Destructive conflict resolution techniques	Coercive influence that firms use with alliance partners (domination, harsh words, arbitration).
Commodity/Supplier Selection Process	Supplier/assessment selection	Existence of a formal process within the buyer firm
	Commodity/purchase item selection	Existence of a formal process within the buyer firm

The importance of communication processes and the sharing of information in organizational functioning has been established by Kapp and Barnett, 1983; and Mohr and Nevin, 1990. Particularly important to an effective alliance are information sharing, and the level of information quality and participation. Both factors have established as requirements to successfully developing supplier alliances. For a more detailed discussion of these literature see Monczka et al. 1994. The second set of hypotheses asserts that:

H2a. Successful strategic supplier alliances are associated with high levels of information sharing.

H2b. Successful strategic supplier alliances are associated with high levels of information quality and participation.

The continuity of a strategic alliance and its success also depends on the way conflict is resolved (Deutsch, 1969; Thomas, 1977, Patterson and Handfield, 1996). For a more detailed discussion of these literature see Monczka et al. 1994. The third set of hypotheses asserts that:

H3a. Successful strategic supplier alliances are associated with high use of joint problem solving.

H3b. Successful strategic supplier alliances are associated with high use of persuasion.

H3c. Successful strategic supplier alliances are associated with low use of smoothing.

H4d. Successful strategic supplier alliances are associated with low use of harsh words.

H3e. Successful strategic supplier alliances are associated with low use of arbitration.

Previous studies have suggested that formal process for the selection and evaluation of commodities and suppliers can increase the likelihood that alliances are formed in appropriate situations and that the right partner is chosen for the alliance (Spekman, 1988; Monczka and Trent, 1995; Handfield, 1993). For a more detailed discussion of these literature see Monczka et al. 1994. The fourth set of hypotheses asserts that:

H4. Successful strategic supplier alliances are associated with the existence of a formalized commodity and supplier strategy process.

Methodology

Sample

Data were collected through a questionnaire survey. Companies that had previously participated in different supply chain, logistics, and purchasing management programs in the Executive Training Program at Instituto de Empresa were contacted to request their participation in the study. Questionnaires were mailed, faxed, or e-mailed and 28 companies out of 58 responded for a response rate of 48%. Almost 86 % of the companies in the sample came from four industries (manufacturing, electric and electronic equipment, transportation and logistic, and retailing). The annual sales for 1999 reported by 49.2 percent of the respondents were above 10.000 millions of pesetas. More than half of the companies (57.7%) were competing in the international markets. Most of the individual respondents had a position of CEO or director (89.3%) and all of them with direct experience in developing and managing strategic alliances with suppliers. The unit of analysis for this study is a strategic alliance. Each respondent was asked to provide data for two of his or her strategic alliances experiences with suppliers: most and least successful. The final 28 responses yielded two independent observations for a final sample size of 56 strategic supplier alliances.

Measures

All of the measurement scales used in this study were based on measures developed and validated by Mohr and Spekman (1994) and confirmed by Monczka, et al. (1998). Of the 11 independent variables, six were multi-item constructs, including, commitment, trust and coordination, interdependence, information quality and participation, information sharing, and commodity/supplier selection process. Five single-item independent variables were used, representing conflict resolution approaches, and include joint problem solving, persuasion, smoothing, harsh words, and arbitration. Two type of measures were used to assess the extent to which each alliance was successful.

The first measure of alliance success included how well the partners worked together, how flexible each alliance partner was to requests made by the other partner, whether each partner would help the other in an emergency, the likelihood that each partner would fill a requirement based on a pre-specified agreement, and the overall satisfaction with the alliance. The second measure of alliance success assessed the buying company's satisfaction with the alliance. The respondents were asked to indicate their overall satisfaction with all of their strategic supplier alliances as well as their overall satisfaction with the specific strategic supplier alliance for which they were responding. The difference between these two satisfaction scores was taken to provide an indicator of alliance success (adjusted for the relative success of all supplier alliances within that company). The calculation of this measure is described in Monczka et al. (1998).

Variables

Principal components confirmatory factor analysis with varimax rotation was performed in order to assess the convergent validity of the variables of the framework. All the multi-item variables (commitment, trust and coordination, interdependence, quality information, information participation, information sharing, communication expected behavior, commodity/supplier selection, and past success) were assessed for construct validity, and the resulting principal components factor loadings are provided in table 2. Factor loadings of at least +0.40 are considered acceptable (Ghiselli, Campbell, and Zedek, 1981), thus, all of the items contributed to their respective scales. Table 2, also contains a summary of the analysis of the reliability of the scales. Reliability was operationalized as internal consistency and was measured by Cronbach's alpha (Cronbach, 1951). All the multi-item measures had $\alpha > 0.70$, in indication of internal consistency (Cook and Campbell, 1979).

Information quality and participation was originally thought to represent one construct. However, the ten single item measures for the constructs loaded in two factors. Hence, these two factors were analyzed and named quality information and quality participation. The same situation occurred with the construct information participation. The six single item measures for information participation loaded in two factors. The two factors were analyzed and named information participation and communication expected behavior.

In being consistent with the methods applied by Monczka et al. 1998; Mohr and Spekman, 1994; and Nevin, 1990; we conducted a hierarchical regression analysis to test the existence of a significant relationship between each of the constructs identified in the model, and the two dependent variables.

Table 2. Factor Loadings

<i>Description of Construct</i>	<i>Factor Loading</i>	<i>Alpha</i>	<i>Description of Construct</i>	<i>Factor Loading</i>	<i>Alpha</i>
<i>Attributes of the alliances</i>			<i>Communication Behaviour</i>		
• Commitment			• Quality Information		
CM1	0,940		QL1	0,727	
CM2	0,925	0,9528	QL2	0,874	
CM3	0,959		QL3	0,790	0,8954
CM4	0,925		QL4	0,910	
			QL5	0,904	
• Trust & Coordination			• Information Participation		
TC1	0,810		PT1	0,742	
TC2	0,684	0,8182	PT2	0,753	
TC3	0,857		PT3	0,769	0,8170
TC4	0,877		PT4	0,815	
• Interdependence			PT5	0,730	
ID1	0,889		• Information Sharing		
ID2	0,908	0,9044	IS1	0,827	
ID3	0,963		IS2	0,638	0,7470
			IS3	0,793	

<i>Commodity/Supplier Process</i>		<i>Selection</i>	IS4	0,757	
NA1	0,966	0,9251	• Communication Behaviour		Expected
NA2	0,966		IS5	0,963	0,9216
			IS6	0,963	
<i>Past Success</i>					
SU1	0,790				
SU2	0,783				
SU3	0,670	0,8177			
SU4	0,768				
SU5	0,814				

Results and Discussion

High levels of commitment and trust and coordination were hypothesized to be associated with successful strategic supplier alliances. Both relationships (H1a, H1b) were significant ($p < 0.01$), large in magnitude ($\beta_1 = 0.34$, $\beta_2 = 0.42$), and in the expected direction (see Table 3). However, the hypothesized relationship between successful strategic supplier alliances and interdependence (H1c) was not supported. For the set of hypotheses related with communication behavior, the original set of two hypotheses (H2a and H2b) were transformed to the following four hypotheses after the confirmatory factor analysis:

- H2a. Successful strategic supplier alliances are associated with high levels of information sharing.
- H2b. Successful strategic supplier alliances are associated with high levels of communication expected behavior.
- H2c. Successful strategic supplier alliances are associated with high levels of information quality.
- H2d. Successful strategic supplier alliances are associated with high levels of information participation.

Table 3 shows that quality information, information participation, and information sharing were significantly related to successful strategic supplier alliances ($p < 0.01$). However the hypothesized relationship between expected communication behavior and supplier alliance success was not significant. Hypotheses H3a, H3b, H3c, H3d, and H3e asserted that successful strategic supplier alliances were associated with high use of constructive resolution techniques (H3a, H3b), low use of conflict avoidance techniques (H3c), and low use of destructive conflict resolution techniques (H3d, H3e). The joint problem solving techniques construct (H3a) was found to be significant ($p < 0.05$) and in the expected direction, whereas the rest of this set of hypotheses were found not significant. Finally, commodity/supplier selection process (H4) was found significantly related ($p < 0.01$) to alliance success.

Table 3. Regression Coefficients: Mean Past Success and Success Difference
Mean Past Success

<i>Description of Construct</i>	Beta	t	Significance	R ²
<i>Attributes of the Alliances</i>				
Commitment	0,341**	3,599	0,001	0,689
Trust & Coodination	0,422**	3,334	0,002	
Interdependence	0,017	0,275	0,785	
<i>Communication Behaviour</i>				
Quality Information	0,280**	2,845	0,006	0,547
Information Participation	0,340**	3,055	0,004	
Information Sharing	0,206	1,365	0,178	
Communication Expected	0,133	1,380	0,174	
<i>Behaviour</i>				
<i>Conflict Resolution Techniques</i>				
Joint Problems Solving	0,553**	4,738	0,000	0,358
Persuasion	0,048	0,491	0,625	
Smoothing	0,006	0,050	0,960	
Harsh Words	0,126	1,085	0,283	
Arbitration	-0,059	-0,486	0,629	
<i>Commodity/Supplier Selection</i>	0,618**	7,168	0,000	0,492
<i>Process</i>				
* p< .05				
** p< .01				

Mean Success Difference

<i>Description of Construct</i>	Beta	t	Significance	R ²
<i>Attributes of the Alliances</i>				
• Commitment	0,948*	6,457	0,000	0,724
• Trust & Coodination	0,164	0,835	0,407	
• Interdependence	0,044	0,442	0,660	
<i>Communication Behaviour</i>				
• Quality Information	0,496*	2,803	0,007	0,461
• Information Participation	0,267	1,335	0,188	
• Information Sharing	0,549*	2,030	0,048	
• Communication Expected	0,161	0,933	0,355	
<i>Behaviour</i>				
<i>Conflict Resolution Techniques</i>				
• Joint Problems Solving	0,420*	2,050	0,046	0,269
• Persuasion	-0,204	-1,196	0,237	
• Smoothing	-0,169	-0,861	0,393	
• Harsh Words	0,105	0,512	0,611	
• Arbitration	-0,224	-1,059	0,295	
<i>Commodity/Supplier Selection</i>	0,543*	3,364	0,001	
<i>Process</i>				
* p< .05				
** p< .01				

The results of our study of Spanish supplier alliances are consistent with the study of Monczka et al. (1998) with four major exceptions: commitment, interdependence, conflict avoidance techniques and destructive conflict resolution techniques. Commitment emerged as a significant predictor of success in Spanish strategic supplier alliances, but not in Monczka's study. Interdependence in Monczka's study was a significant predictor of industrial partnership success, but was not significant in Spanish industrial partnerships. Third and fourth, conflict avoidance and destructive conflict resolution techniques constructs were found significant predictors of alliance success but not in our study of Spanish supplier alliances.

Commitment and trust and coordination explained a sizeable portion of the variance in perceptual measures of success (68.9%). These two variables are important factors in strategic supplier alliances because of the multiple dimensions implicit in such relationships. A good size of the variance in perceptual measures of success (54.7%) was explained by quality information and quality participation. Both variables show that the depth (quality information and participation) are important to the strategic relationship. This study also confirms that the manner in which conflict is resolved has an impact on alliance success. The use of joint problem solving can result in a win-win solution for partners in the alliance. The last variable included in explaining the success of strategic supplier alliances confirmed that a formalized process within the buying company for identifying a specific commodity family for alliance development, as well as formal process for identifying an appropriate supplier, has a significant impact on the success of the alliance.

Conclusion

Integration and closer relationships with local and global suppliers in critical processes are becoming paramount for buying companies. Strategic supplier alliances require time and resources to be built and sustained. In getting the benefits of integration and synchronization with suppliers, building trust represents the most critical issue for purchasing and supply chain managers. Important for successful strategic supplier alliances is the communication expected behavior, particularly the quality of information and participation, and the extent to which relevant information is transparent to suppliers. No less important for alliance success is the existence for a formal purchasing commodity selection process and a formal supplier assessment and selection process.

By adopting the research framework developed by Mohr et al. (1994), and expanded by Monczka et al. (1998), we tested its applicability in a different geographical context. The fact that our results parallel the findings of Mohr et al. 1994, and Monczka, et al, 1998, support the suggestion that the same set of processes can be used to develop stronger relationships and better integration throughout the supply chain. However, our study brings some issues that need to be considered in future studies. How companies can speed up the development of trust with suppliers of critical capabilities? In our study, the four dimensions of successful strategic supplier alliances were studied independently, and interactions among those four dimensions need to be considered in future studies. There is also a need to consider the view of the supplier and to measure the level of alignment with the buyer perspective in strategic supplier alliances. This study of strategic supplier alliances in Spain adds to the international literature of supplier strategic alliances.

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