

1-1-2017

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Recommended Citation

DeCampos, Hugo A., Fawcett, Amydee M., and Fawcett, Stanley E. (2017). Cultural and structural forces: A potentially symbiotic or dysfunctional relationship in the journey towards supply chain collaboration. *Journal of Transportation Management*, 27(1), 23-38.
doi: 10.22237/jotm/1498867380

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CULTURAL AND STRUCTURAL FORCES: A POTENTIALLY SYMBIOTIC OR DYSFUNCTIONAL RELATIONSHIP IN THE JOURNEY TOWARDS SUPPLY CHAIN COLLABORATION

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ABSTRACT

Despite its promises to generate superior supply chain performance, supply chain collaboration remains an elusive goal for many organizations. While much research has explored various facets of successful management of supply chain relationships, the complexity of factors that can impact the quality of collaboration make implementation difficult to achieve. This paper uses a series of case studies of twelve exemplary European firms from a supply chain standpoint to explore potential frameworks that can better categorize those factors that lead to exemplary supply chain collaboration. Both barriers and initiatives to overcome those barriers are identified and categorized as either structural or cultural. The study reveals an interesting relationship between these categories and provides a series of propositions that can inform future confirmatory studies in supply chain collaboration.

INTRODUCTION

What began in the 1950's as an awareness of the need to understand and manage the cross-functional and interfirm physical flow of products (Bowersox, 1969) has evolved into an entire discipline dedicated to understanding the value creation process of the end-to-end supply chain and its constituents (Mentzer et al., 2001). Supply chain management continues to evolve with an ever-dynamic global business environment and continuous technological advances in order to meet the changing needs of today's consumers (Drucker, 1994; Gattorna, 2010; Arora et al., 2016; Stevens and Johnson, 2016). Further, the supply chain organization is now being called upon to not only lower total operational costs (bottom line impact), but also to help the firm achieve desired outcomes commensurate with firm strategy (top line impact) such as innovation, sustainability, resilience, responsiveness and security (Melnyk, Davis, Spekman, & Sandor, 2010; Terjesen et al., 2012;

Wiengarten et al., 2014) all of which ultimately impact customer satisfaction (Anderson & Sullivan, 1993; Mentzer et al., 2001).

Collaboration among supply chain partners is a key initiative needed to capitalize on the full advantages of supply chain management. Collaboration with both upstream and downstream partners has been shown in the literature to result in improved performance (Ellram & Cooper, 1990; Frankel, et al., 2008; Nyaga et al., 2010; Huo 2012; Schoenherr & Swink, 2012; Enz & Lambert, 2015). Logistics network planning tools, automated material handling systems, connectivity and other technological advances over the past decades have all served to support and further the cause of supply chain collaboration. Despite these advances, however, collaboration within supply chains remains elusive. This paradox suggests that while progress in structural elements within a supply chain may provide the means for improved collaboration, achieving actual collaboration may lie more in

cultural human elements than in the structural elements discussed above (Beth et al., 2003). This research focuses on exploring the paradox by developing a richer understanding of the interactions among the cultural and structural barriers and initiatives within an organization that is seeking to embrace supply chain collaboration.

Fawcett et al. (2008) applies the dual lens of field theory (Lewin, 1951) and open systems design to explain how firms can successfully make the shift towards a collaborative paradigm in firm strategy and supply chain practice. Understanding what forces work for the change and what forces work against the change is an important consideration in the successful operationalization of this theory. While Fawcett et al. (2008) propose an overall three-staged framework for change implementation, this paper takes a focused look at how the choice of structural versus cultural initiatives as propelling forces for change may or may not impact the ability of the firm to proceed in their journey towards supply chain collaboration.

Given the exploratory nature of this research question, we conducted 12 separate case studies of European firms in order to identify real-world situations where these complex dynamics take place. Analysis of these case studies allows us to identify some potential relationships between the types of initiatives a firm undertakes to become a collaborative organization and the types of barriers that these initiatives are working to overcome. We find that not only are structural and cultural variables interrelated, but they also may take on a symbiotic or dysfunctional relationship, depending on how they are implemented. More specifically, in order for structural initiatives to take hold in an organization, it seems that they are preceded or coupled with cultural initiatives focused on the same goals. If not, progress achieved under the structural initiatives will likely be tenuous at best and highly susceptible to reversal. In the section that follows, we discuss the theoretical background that underpins our research. We then present the methodology and findings of the 12 case studies and conclude the paper with a synthesis of our findings and propositions for future confirmatory research.

Theoretical Background

Firms are not closed systems, but rather are open systems, susceptible to the influences of environmental forces (Emery & Trist, 1965; Katz & Kahn, 1966). In order to be successful, firms should consider the impact and relevance of such environmental forces in formulating strategic and operational goals, priorities and tactics. Open systems theory helps explain the impetus for firms to engage in supply chain collaboration. Globalization, outsourcing and electronic connectivity are all environmental forces that changed the nature of the value-add process of products and services from one of vertical integration within a small number of firms to that of a globally dispersed supply chain where oft times the final product manufacturer is not even aware of where its components originate (New, 2010). Supply chain collaboration within such a complex context is necessary to effectively bring together the signals of supply and demand across the value chain in a way that firms can make the most efficient use of their resources to satisfy customer demand profitably. Thus, open systems theory combined with the global sourcing and technological dynamism of the past few decades help explain why supply chain collaboration is an important and relevant topic to understand.

Collaboration is defined as “...a process of decision making among interdependent parties...involves joint ownership of decisions and collective responsibility for outcomes” (Stank, Keller, & Daugherty, 2001). Supply chain collaboration can take place within the four walls of a single firm (intrafirm collaboration) or across firm boundaries (interfirm collaboration). Intrafirm supply chain collaboration involves coordinating functional groups (e.g. marketing, logistics, manufacturing and purchasing) within a single firm to share relevant information so that the groups can align goals and processes to achieve a common supply chain objective. Interfirm supply chain collaboration takes place when a firm reaches across firm boundaries to similarly involve supply chain partners in the sharing of information, process and goal harmonization. Recent studies have shown empirical support for the hypothesis that internal integration capabilities precede external integration capabilities (Zhao, Huo,

Selen, & Yeung, 2011; Huo, 2012; Schoenherr & Swink, 2012; Stevens & Johnson, 2016). Aligned with these findings, we assume collaboration to be a journey that begins first with developing internal collaborative capabilities and then extends to developing external collaborative skills. As such, we recognized among the 12 firms studied that some firms were farther along the journey as compared to others. While some firms were preoccupied with how to improve collaboration with suppliers and customers, others were still trying to figure out how to collaborate with other internal functions of the focal firm. Since both types of collaboration involve different stages of the same journey, we did not force the firms studied to focus on one type of collaboration or the other; rather we generalized both types as simply “supply chain collaboration”.

A collaborative organization is not a natural state that firms find themselves in. Studies in change management from the organizational behavior and general management literature have explored how firms embrace new paradigms and adjust to changing environments. We therefore integrate some of these concepts into supply chain management to enrich our understanding and to develop theory as to how firms can change from a natural state of non-collaboration to that of collaboration. One framework that is used to understand how firms can drive lasting change is field theory (Lewin, 1951). This theory highlights three key steps that organizations undergo in such a transformation: unfreeze, change and freeze. A company must first unfreeze from the status quo. This event is often characterized by an awareness of those in the organization that change is needed and typically coincides with a significant event that causes leadership and employees to question the assumptions of business previously held (Drucker, 1994). This critical step sets the stage for change to actually occur, which is our second step. Cultural and/or structural initiatives are then implemented to execute the needed change and place the firm into the changed, desired state based on the awareness that took place in step one. Once the firm has achieved the desired change it must then freeze itself in the new desired state in such a way as to avoid

regressing back to the original current state. Our research includes companies that have already decided to “unfreeze” and are in the process of “change” - the second step of Lewin’s field theory. We therefore focus our study on this aspect of the change management process.

An important dynamic that is critical to the successful implementation of the steps discussed above is the interplay between the forces driving change and the forces resisting the change. If the forces resisting change are greater than forces driving change, then successful movement between any of the three steps above will be undermined and the firm will find itself not only regressing back to its original state, but potentially may find itself in a worse state given the potential increase in cynicism in the workforce that can arise when change management goes awry. In this study, the forces that act for change are defined as structural and cultural initiatives to increase supply chain collaboration; the forces that act against change are the structural and cultural barriers that management identifies as impeding the firm’s journey to improving supply chain collaboration.

RESEARCH METHODS

As we launched the initial study, the importance of supply chain collaboration as a differentiating competency had emerged as a topic of interest. It was evident, however, that the enablers of collaboration and their interactions were not well understood. The following steps were therefore taken to ground the research in existing literature and in managerial relevance. First, we conducted a literature review going back to the early 1980s using the *ABI Inform* and *ProQuest* databases. This review identified over 150 relevant articles that were subsequently used to design our interview guide. Second, we conducted six informal pilot interviews with supply chain managers to refine the questions and ensure managerial relevance. Third, we assembled an advisory board including managers and academicians, who provide us feedback on the research content and process.

This three-step approach led to an open-ended, semi-structured interview guide that converged on five central themes that permeate the design of collaborative systems (Fawcett, Fawcett, Watson & Magnan, 2012).

1. Why should managers be motivated to adopt collaborative practices that are difficult, demand new skills, require technology investment, and expose the organization to new risks?
2. What are the enablers of a collaborative capability?
3. What process factors make it difficult to develop collaborative capabilities?
4. Given the paucity of successful collaborative programs, what is the nature of the resistors that make the transformation to collaborative management so difficult?
5. Given the high transformation costs/risks, can collaboration lead to sustained competitive success? Simply stated, is it worth it to invest in a collaborative inventory capability?

Table 1 links these research themes to the core elements of systems design.

Sample and Context

The pre-field work also instilled context to interpret our findings about the construction of a collaborative

supply chain capability. To build theory related to the interactions among the cultural and structural barriers and initiatives within an organization that is seeking to embrace supply chain collaboration, we sought a context that could serve as an “extreme case” (Eisenhardt, 1989; Pettigrew, 1990). Extreme cases are useful in theory building since the dynamics under investigation are often better defined and more easily documented than in other scenarios (Pratt, Rockmann, & Kaufmann, 2006). We therefore selected companies largely on the basis of their reputation for supply chain collaborative excellence. Participants were active industry leaders in supply chain education.

In order to control for environmental variables while still maximizing the variation in the studied variables of interest, we narrowed our analysis to 12 European cases studies where the firms analyzed operate in a similar cultural environment and context. Each company was involved in one or more collaborative initiatives with customers, suppliers, or both at the time of the interviews. Table 2 shows the demographic statistics for the interview companies.

Case Study Process

We employed a multi-case, interview-driven methodology to explore the intricate what, why, and how questions associated with collaboration

**TABLE 1
THE LINKAGE BETWEEN SYSTEMS THEORY, THE LITERATURE, AND FACETS OF THE DESIGN PROCESS**

Elements of Systems Theory	Literature-Driven Research Themes	Facets of Systems Design Process
Relation between Organization and its Environment	Why should managers be motivated to adopt collaborative practices?	Motives
Nature of Systems Design Process	Why have so few companies developed effective collaborative practices?	Resistors
	What is the nature of the resistors that impede the collaborative transformation?	
	What are the enablers of a collaborative capability?	Enablers
Organizational Goals	Can collaboration lead to sustained competitive success?	Outcomes

**TABLE 2
COMPANY DEMOGRAPHICS**

Type of Company	Headquartered	# of Employees	# of Suppliers/ Customers	Global Presence	Interviewees	Established
Financial Services	Switzerland	64,617	N/A	Europe US & Canada Asia Pacific Middle East & Africa Latin America & Caribbean	Director, IT Global Technology Sourcing Directory, IT Operating Systems	1854
Logistics Provider	United States	40,000	N/A	United States Latin America Canada	Member of the Executive Board	1985
Manufacturer	Switzerland	12,908	2000 Suppliers	Europe Asia Middle East US Australia	Head of Strategic Sourcing	1802
Manufacturer	Switzerland	281,000	N/A	Europe Americas Asia Oceania & Africa	Co-Manufacturing Manager	1866
Manufacturer	Switzerland	1,200	N/A	Europe US Asia	Head of Purchasing	1857
Pharmaceutical Distributor	Switzerland	800	3,900 Customers	Switzerland	Director, Sourcing	1927
Retailer	Switzerland	11,000	6000 Suppliers	Switzerland China	Supply Chain Manager	1902
Retailer	Switzerland	83,000	N/A	Europe	Supply Chain Manager	1925
Sourcing and Packaging	Switzerland	565	300 Customers 10 "A"	Europe	CEO Procurement and Logistics Manager	1945
Sourcing	Germany	4,400	N/A	Europe Middle East Africa North, Central and South America Asia	Supply Chain Manager	1830
Tele-communications	Switzerland	19,664	10,200 Suppliers 250 "A"	Switzerland	Head of Procurement—Retailer	1998
Tele-communications	Switzerland	19,664	10,200 Suppliers 250 "A"	Switzerland	Head of Procurement—Retailer	1998

(McCutcheon & Meredith, 1993; Meredith, Raturi, Amoako-Gyampah, & Kaplan, 1989; Yin, 1981). Interviews provide a robust opportunity to explore collaboration since they enable managers to elaborate on the challenges they encounter—as well as the solutions they employ—as they seek to create deep functional skills while simultaneously fostering collaboration capabilities (Dyer & Wilkins, 1991; Eisenhardt, 1991). Multiple cases enable a replication logic, allowing researchers to confirm or disconfirm inferences drawn from each case and yielding more generalizable results (Spradley, 1979; Yin, 1981).

Once a company agreed to participate, a brief overview of the research objectives and a copy of the interview protocol were provided (Spradley, 1979). A semi-structured interview guide populated with open-ended questions was used to 1) allow managers to describe events and processes, 2) assure comparability of findings, and 3) provide flexibility in pursuing insight into unique practices and programs that became evident during the interview. The typical interview lasted 2 to 4 hours and involved senior managers who had responsibility for their company's collaborative supply chain initiatives.

During each interview, extensive notes were made for later reflection. In addition, secondary sources such as company presentations, new releases, process documentation, program descriptions, and performance scorecards were used to supplement interview findings. Together, the interview notes and background materials were used to 1) create rich and reliable structured case write-ups (Graebner & Eisenhardt, 2004) and 2) avoid “data asphyxiation” from the large amounts of data (Pettigrew, 1990). As the interview process continued, the researchers spoke often to compare notes regarding both the process and the content. This iterative discussion-based process was used to improve research reliability and validity as well as derive a consensus regarding their meaning (Eisenhardt, 1989).

Data Analysis Process

Each case write-up was used for two analyses: within-case and cross-case (Eisenhardt, 1989;

Ellram, 1996; Yin, 1981) First, each case was viewed as a “stand-alone entity” to help describe the process and identify the issues encountered by each firm as it pursued a collaboration capability. Importantly, following the inductive process, we allowed ideas and themes to emerge from the data. Although we noticed similarities and differences among the cases, we refrained from further analysis until we had completed the interview process so that we could maintain the independence of the replication logic.

Second, only after we completed all of the write-ups did we begin the cross-case analysis. Our goal was to identify and match patterns in order to develop a more robust and complete theoretical picture (Eisenhardt, 1991). Because of the varied and nuanced answers as well as the diversity of language and terms used by the interview managers, we determined that a careful manual evaluation process would provide the best interpretation of the interviews. This analysis consisted of three major steps.

1. Using the literature as background, we pursued an iterative, open-coding process—i.e., we traveled back and forth among the case write-ups and emerging constructs. As we began to identify common statements, we formed provisional categories and first-order codes. We used NVivo 8.0 for coding and analysis.
2. The two-person analysis team used a process of individual coding, collaborative discussion, and concurring to derive theoretical meaning from the cases. The team consisted of one of the original interviewers as well as one new researcher. The new researcher was brought in to avoid data processing bias (Pagell and Wu 2009). We repeated this process for every case until all of the cases were coded. As new concepts were discovered, the researchers returned to the previously coded cases to look for evidence of the newly identified phenomena. This process forced 100 percent inter-rater reliability among the researchers.
3. To focus our findings on the most critical issues, we employed two decision rules as part

of the axial coding process. First, phenomena that were infrequently encountered deleted. Second, we consolidated specific, but related codes into broader, more theoretical categories.

From this process, we gained greater insight into key facets of system design identified in Table 1. Ultimately, a systems model emerged describing the dynamic tension involved in building a collaboration capability. We found that the balance between the desire to establish a collaborative capability and the forces resisting organizational change is influenced by management's ability to identify and employ the correct enabling mechanisms. We continue with a brief overview of our findings, which are organized using the four facets of systems design operationalized in Figure 1. We follow this discussion by proposing a more general theoretical model of collaboration capability construction.

CROSS CASE ANALYSIS AND PROPOSITIONS

Edgar Schein (1985) defines cultures as: "... a pattern of basic assumptions – invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration – that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problems (Schein, 1985 pg.9). Accordingly, we coded comments related to basic assumptions such as vision and commitment as *cultural* elements. Other comments related to metrics, organizational structure, processes and procedures and technological tools were coded as *structural* elements. Tables 3 and 4 give an overview for the number of comments made in the interview for each company related to both cultural and structural barriers and initiatives. Tables 5 and 6 are proof quotes from the coded data.

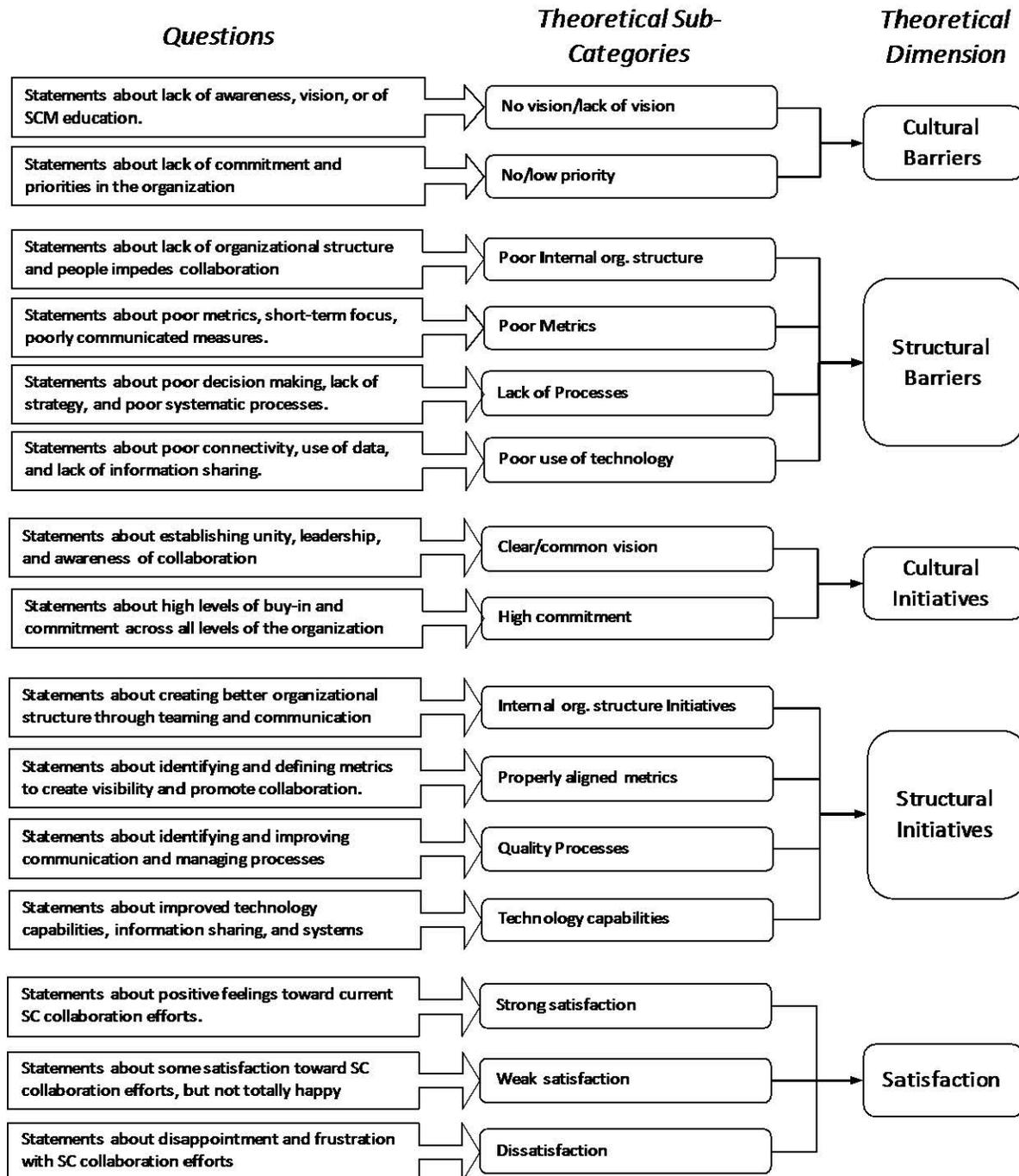
Company 2, for example, expressed two unique comments regarding barriers to supply chain organization; of these two barriers, one was cultural in nature and the other was structural in nature. The cultural barrier encountered was related to trust. In expressing frustration for the lack of collaboration

with a customer, the CEO of Company 2 explained, "... Trust is critical both ways; they must trust us to come up with solutions that can help them win. You can't enter a building if you don't have a door!" Later this CEO discussed the drawbacks of what he termed "the reverse auction game". Regarding participation in reverse auctions, he stated, "We refuse to seriously participate in many reverse auctions. We join a few just to see what is going on." In the first example, lack of trust is categorized as a cultural barrier to collaboration while the second example, reverse auctions, is an example of a structural (process) barrier to collaboration.

Inspection of the data reveals an interesting insight. The largest preponderance of barriers is cultural in nature (Table 3) while the largest preponderance of initiatives is structural in nature (Table 4). There are a few possible explanations for this phenomenon: one is that structural initiatives are effective tools to overcome cultural barriers thus being the instrument of choice for firms, while another explanation is that firms are engaged in a mismatched effort to overcome the barriers of supply chain collaboration. Supply chain research has shed enough light on this topic such as to cast doubt on the first explanation (Beth et al., 2003; Fawcett & Magnan, 2002), therefore guiding us to explore more deeply the second alternative. This leads us to a new research question that was not anticipated previously: *can a firm overcome cultural barriers to supply chain collaboration using only structural initiatives?*

While the data from this study show that there is a preponderance of mismatched effort between types of barriers and initiatives, limited evidence also from the study suggest that a mismatched effort does not actually lead to success in achieving improved supply chain collaboration. A supply chain executive of Company 12 opined, "Collaboration is a cultural phenomenon and we have spent the last year emphasizing soft issues in a cultural transformation". Speaking regarding his firm's attempt to improve their supply chain collaboration capability, an executive from Company 10 explained, "This is a two-step process: first, change mindsets and second, provide skills". In addition to these comments, responses from those firms not engaged

**FIGURE 1
OVERVIEW OF THE DATA STRUCTURE**



**TABLE 3
BARRIERS TO SUPPLY CHAIN COLLABORATION**

Company	Cultural Barriers		Structural Barriers				Total	
	No vision/lack of vision	No/low priority	Poor internal org. structure	Poor metrics	Lack of Processes	Poor use of technology	Cultural Barriers	Structural Barriers
1	1	1	1	0	0	0	2	1
2	1	0	0	0	1	0	1	1
3	1	1	0	1	0	0	2	1
4	2	1	0	1	1	0	3	2
5	2	2	1	0	1	1	4	2
6	3	1	1	1	2	1	4	5
7	3	1	1	0	1	0	4	2
8	5	2	1	1	0	0	7	2
9	2	0	2	0	1	0	2	3
10	4	1	2	1	0	0	5	2
11	1	1	1	0	0	1	2	2
12	2	1	0	1	0	0	3	1
Total	27	12	10	6	7	3	39	26

**TABLE 4
INITIATIVES TO OVERCOME SC COLLABORATION BARRIERS**

Company	Cultural Initiatives		Structural Initiatives				Total	
	Clear/common vision	High commitment	Internal org. structure initiatives	Properly aligned metrics	Quality processes	Technology capabilities	Cultural Initiatives	Structural Initiatives
1	1	0	1	1	1	1	1	4
2	0	0	2	0	0	1	0	3
3	0	0	3	0	2	1	0	6
4	1	1	1	0	2	0	2	3
5	0	0	0	0	1	0	0	1
6	2	0	1	0	5	0	2	6
7	1	0	3	0	1	0	1	4
8	0	0	0	0	1	0	0	1
9	2	1	2	1	3	0	3	6
10	1	0	0	0	2	0	1	2
11	0	0	0	0	2	1	0	3
12	1	0	0	0	1	0	1	1
Total	9	2	13	2	21	4	11	40

TABLE 5
PROOF QUOTES: CULTURAL AND STRUCTURAL BARRIERS

Theoretical Dimension	Sub-Categories	Proof Quotes
Cultural Barriers	No vision/lack of vision	"People do not think in process or quality terms" "Lack of awareness os systematic working in areas like forecasting" "...we have to convince people by showing them how..." "we are establishing... a unified doctrine"
	No/low priority	"Lack of priority to explore electronic linkages for invoicing, dispatch advice, etc" "Each one of the cooperatives focuses on its own little area (or "garden") and forgets that there are other gardens that make up the whole." "lack of managerial commitment to collaboration is a major barrier"
Structural Barriers	Poorly formed Internal Org Structure	"Lack of collaboration channels (across functions)" "Worker turnover and loss of talent." "we have good people that do not accept that others do great work."
	Poor Metrics	"reward mechanisms are short term, functional, cost-oriented" "we don't have the luxury to spend time with the metrics" "People probably don't understand the metrics that drive the business "
	Lack of Processes	"We are not very disciplined...decision making comes from the gut" "People spend too much time putting out fires and not managing strategically" "Lack of awareness of systematic working in areas like forecasting"
	Technology	"Lack of priority to explore electronic linkages for invoicing, dispatch advice, etc" "We have plenty of data but we can't get it to decision makers sp they can use it." "They lack the interfaces to make great things happen"

TABLE 6
PROOF QUOTES: CULTURAL AND STRUCTURAL INITIATIVES

Theoretical Dimension	Sub-Categories	Proof Quotes
Cultural Initiatives	Vision	"establishing the unified doctrine" "...we have to convince people by showing them how..." "launched an SCM awareness campaign"
	Commitment	"Buy-in and managerial commitment from the highest levels." "Needed to build a critical mass of interest and support to get commitment to the VISION" "Only advantage comes from his passion and commitment to customer service" "There is a greater degree of commitment across functional areas"
Structural Initiatives	Organizational structure	"established account management teams to manage internal accounts in other divisions." "Established a senior management team to smooth out the wrinkles." "Establish targets and put teams together to resolve open points" "Key outputs were the building of new relationships and better cross-divisional communication"
	Metrics	"trying to establish common KPIs" "driving suppliers to higher-level metrics" "Performance metrics are getting much more specific, drilling down to the activity level and the hour cycle "
	Processes	"Frequent meetings (weekly) to go over jointly (retail and ops) defined metrics" "We are taking a TQM approach to managing processes, communicating successes and training..." "we are establishing standard processes..."
	Technology	"Technology is making a different level of process management possible" "Implemented a SAP information system" "Information system allows suppliers access to forecasts and MRP updates (weekly)"

in cultural initiatives showed a lower level of satisfaction with supply chain collaboration efforts as opposed to those firms that did engage in at least one cultural initiative. Table 7 summarizes the responses of each company with respect to their level of satisfaction and compares these responses side-by-side with the summarized number of cultural and structural initiatives that the firms has engaged in. Table 8 identifies some proof quotes on satisfaction.

In only one instance (Company 10) did a firm engaged in a cultural initiative express any level of dissatisfaction with supply chain collaboration efforts. The same executive who discussed his firm’s two-step process quoted above also explained, “While we have made progress, I’m not sure that everyone understands that we are a supply chain or that we participate in a SC environment.” While this firm was coded as being dissatisfied with their supply chain collaboration efforts, it is more a reflection of an executive’s frustration with the pace of progress rather than the direction of progress. We also observe in Table 7 that of the six companies engaged in at least one cultural initiative, three reported strong levels of satisfaction in their

supply chain collaboration efforts while of the six not engaged in any cultural initiatives, four reported indifference or dissatisfaction all together. Additionally, we also observed that no company engaged in only cultural initiatives; in fact, all companies are engaged in at least one structural initiative. While we are not claiming statistical power in these findings, the results from this multi-case research initiative suggest a potentially symbiotic relationship between cultural and structural supply chain initiatives. This leads us to the following three propositions:

Proposition 1: When combined and aligned, cultural and structural supply chain initiatives work in a symbiotic relationship that supports lasting change regarding implementation of supply chain collaboration initiatives.

Proposition 2: Structural initiatives are sufficient to overcome structural barriers to supply chain initiatives only when there is an absence of cultural barriers.

Proposition 3: In the presence of cultural barriers to collaborative supply chain initiatives, structural initiatives alone are insufficient to overcome the cultural barriers.

TABLE 7
SATISFACTION WITH SUPPLY CHAIN COLLABORATION EFFORTS

Company	Satisfaction			Total	Total	
	Satisfied	Somewhat satisfied	Dissatisfied		Cultural Initiatives	Structural Initiatives
1	1	0	0	1	1	4
2	0	0	1	-1	0	3
3	0	1	0	0	0	6
4	1	0	0	1	2	3
5	0	1	0	0	0	1
6	1	0	0	1	2	6
7	1	0	0	1	1	4
8	0	0	0	0	0	1
9	0	1	0	0	3	6
10	0	0	1	-1	1	2
11	1	0	0	1	0	3
12	0	1	0	0	1	1
Total					11	40

TABLE 8
PROOF QUOTES: SATISFACTION WITH SUPPLY CHAIN COLLABORATION EFFORTS

Theoretical Dimension	Sub-Categories	Proof Quotes
Satisfaction	Strong satisfaction	"Other companies come to ... to benchmark [our] practices in the areas of automatic assortment, daily fulfillment, ABC costing, forwarder integration, performance management SCM cockpit" "Satisfied but not by any means finished." "In the high-90s."
	Weak satisfaction	"We are doing OK. Are we where we need to be? No! But we are getting ourselves ready." "We are doing much better, especially in standardizing processes across the stores; however, we know that we have a long way to go" "We could take at least another 20 percent of the costs out of the supply chain."
	Dissatisfaction	"We have to be better in process discipline and operational excellence" "[We do] not have the money to invest in the initiatives to take SCM to the next level!!! " "We are crawling!"

Much research over the past few decades has addressed the role that metrics, processes and technology play in supporting supply chain initiatives such as cross-functional and inter-firm collaboration. Terms related to these initiatives include metrics alignment, business process re-engineering and ERP technological investments. Organizational structure is another structural initiative that has also garnered attention and support over the past few decades. The emergence of the matrix organization has been the most prominent of these in its attempt to drive organizations to think and act cross-functionally for the good of the entire firm rather than with a myopic silo mentality. Firms have struggled, however, to leverage these structural initiatives to drive meaningful change (Beth et al., 2003). Not that structural changes in and of themselves are difficult to implement, but the negative impact of cultural barriers has acted in a dysfunctional manner with the structural barriers thus impeding the ability of structural initiatives to achieve their desired means. A non-supportive supply chain culture within a firm thus acts as an undertow that impedes and pulls back on any forward progress that pro-supply chain structural initiatives may provide. The supply chain manager interviewed at Company 7 recognizes the interdependent nature of these concepts and explained how his firm focuses first on training his people: "We now bring together all of our people together for training. This also helps everyone see the big picture and get to know each other so that we can better work together in the future."

When a firm's leadership decides to make the paradigm shift towards developing a more collaborative supply chain, it may find that the existing cultural and structural elements in the firm are in conflict with those cultural ideals that it has just decided to embrace. A firm, for example, that decides to engage in strengthening supplier relations may find that current business practices such as engaging in reverse auctions do not serve the new vision and have thus become obsolete. As was articulated by Schein (1985), culture is the result of a certain assumption or belief that has generated repeated success in the past. Therefore, asking an organization to abandon a paradigm that has been repeatedly used to a certain degree of success in the past becomes a difficult proposition. Not until the new paradigm has proven itself repeatedly will the new culture take hold. When initiatives that require cultural paradigm shifts yield long-term versus short-term benefits, the cultural transition becomes that more difficult. Investments in time, people and cash are often then needed to align the structural elements of the firm with its new cultural paradigm. This can become particularly challenging if the skill sets and cultural paradigms of the workers of the firm are so entrenched that implementation becomes resisted and sabotaged despite appropriate training. In such cases, firms must invest further in acquiring the necessary human resources to achieve the transformation implementation needed to succeed. One CEO of the companies interviewed acknowledge that not everyone in the company is willing to give up the control required to collaborate

and in these instances personnel changes may be necessary. “Sometimes you have to say, ‘If you don’t join us, you are going to have to leave us.’”

If cultural initiatives are indeed required as an antecedent to lasting cultural and structural changes in a firm, why do we still witness a propensity for firms to engage in structural initiatives to improve supply chain collaboration? The answer to this question may be a function of the degree of empowerment of middle management, which has the authority to drive structural initiatives within its sphere of influence while meaningful cultural initiatives are left at the purview of top executive leadership. Middle managers who see the benefits of supply chain collaboration may attempt to implement structural elements to achieve their vision. It is even probable that if successfully executed positive benefits may result. However, unless the changes become embedded in the corporate culture of the firm, the undertow of a non-supportive executive leadership will hinder the initiative from growing further and will deem those initiatives a temporary aberration.

This leads to the next proposition:

Proposition 4: In the absence of top leadership commitment to engage in meaningful cultural initiatives, supply chain managers will still engage in those structural initiatives that are actionable, despite the lack of probable longevity of those initiatives.

It appears that lasting change for those firms desiring to embrace supply chain collaboration requires a true and lasting change in culture; this change can only be lasting if it comes from top leadership (Felton, 1959; Hambrick & Mason, 1984). Those companies in our data set that engaged in cultural initiatives exuded more confidence that their structural initiatives would take hold as compared to those companies that were not engaged in cultural transformation initiatives. One company, for example, spent an entire year executing a carefully planned vision and strategy development initiative calculated to prepare the organization for further structural initiatives related to supply chain

collaboration. In the words of this company’s chief procurement officer,

While the process took over a year, it identified needs and critical performance gaps. It prioritized those gaps and developed a strategy to collaboratively resolve them. It developed critical relationships and generated buy-in not only from sourcing, but across functions and at higher levels of the organization. Ultimately, it created a vision of how and why the different groups should work collaboratively together. The process was arduous and cumbersome, but it demonstrates the idea that ‘People support what they help create.’ It has set in place the foundation for successful strategy execution.

CONCLUSIONS

Supply chain collaboration remains elusive for many firms. To the best of our knowledge, no one has yet studied how the interactions of structural and cultural forces (barriers and initiatives) impact a firm’s journey toward developing a collaborative supply chain. This exploratory study of 12 European firms revealed some interesting patterns in this regard. First, while firms experienced more cultural barriers than structural barriers to supply chain collaboration, initiatives taken to overcome those barriers were overwhelmingly structural in nature and outnumbered cultural initiatives four to one. Second, those firms that combined cultural and structural initiatives generally experienced higher levels of satisfaction in their collaboration efforts than did those that pursued solely structural initiatives.

A further line of research that can extend this current study could explore what bundles of structural and cultural initiatives best contribute to the implementation of lasting change regarding improving collaboration with supply chain partners. It may be that certain bundles are more effective than others. For example, it may be that the cultural

initiative of achieving a higher level of cross functional commitment may be best achieved when bundled with the structural initiative of increasing metrics alignment as opposed to bundling it with improving technological capabilities. Discovering what bundles are most effective would be a valuable contribution to both theory and practice.

Another research extension could explore how such bundles may change according to how far along a firm is in their collaboration journey. In other words, what bundles apply to the stage when a firm is developing an intrafirm collaboration capability versus when a firm is seeking to develop an interfirm collaboration capability. Do the same bundles apply to the entire journey or are some more relevant at different stages? While interfirm and intrafirm collaboration both require similar aspects of collective action, the cultural and structural initiatives most effective in one may not be the same as that of the other; this may be due to differences in the cultural and structural barriers encountered in the two scenarios.

One limitation to this research is that while we were able to identify the presence of different barriers and initiatives across the twelve companies, a more in-depth exploration of why specific bundles worked better than others was not captured in the interviews. In order to capture this data, researchers may consider first conducting a large sample analysis to identify the most effective practice bundles and then conduct one or two deep dive case studies that can shed light to how and why the interactions of these practice bundles lead to improved performance.

The awareness of the ineffectiveness of stand-alone structural initiatives identified in this paper is an important contribution to practice and can help managers avoid unfruitful investments in collaboration. Cultural initiatives start at the top and require top leadership support in order to be implemented successfully and maintained over time. When structural investments for improved collaboration are coupled with leadership-led cultural initiatives, firms are able to better progress in the journey towards effective collaboration. These

findings provide a better understanding of the influencing factors at play related to the force field change management framework cited earlier in this paper (Lewin, 1951). Further research that builds on the findings of this study will provide further insight into the mechanics of how supply chain managers can successfully lead their organizations down the path towards successful collaborative initiatives that benefit both the firm and the overall supply chain.

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