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Overcoming the Wall of Resistance: A Socio-Structural View of Supply Chain Collaboration

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# OVERCOMING THE WALL OF RESISTANCE: A SOCIO-STRUCTURAL VIEW OF SUPPLY CHAIN COLLABORATION

## **Abstract**

Supply chain collaboration is a vital dynamic capability that can deliver differential performance when properly understood. Unfortunately, few managers comprehend the nuanced complexities involved in accessing heterogeneously dispersed resources and bringing complimentary competencies together up and down the supply chain. Moreover, the literature is replete with evaluations of the resistors to SC collaboration. Three resistant forces are particularly common: 1) functional organizations create turf conflict, 2) non-aligned goals and incentives lead to conflicting decision-making and counterproductive behavior, and 3) an inability or unwillingness to share information undermines collaborative intent. Despite their prevalence, most companies have yet to learn how to mitigate core resistors. As a result, gains from collaborative initiatives are often disappointing.

From a theoretical standpoint, many theories describe locally observed phenomenon, but are limited in their ability to provide deep understanding of the dynamics of and deterrents to collaborative behavior. Therefore, we explore the environmental conditions and managerial processes that hinder collaboration from a variety of theoretical lenses to provide a more holistic paradigmatic lens through which the intransigence of collaboration resistors can be accurately explicated. Specifically, we conducted structured interviews with managers at over 50 companies at each of two points in time. A rigorous content analysis revealed that when most organizations encounter exiting structural and cultural resistors, a sense of vulnerability to opportunistic behavior exacerbates an unwillingness to adopt change, hindering breakthrough collaboration. In essence, socio-structural resistors reinforce each other, creating a wall of resistance that few organizations have been able to breach.

## **Introduction**

At a few leading companies, supply chain management (SCM) enables a collaborative business model that creates sustained competitive advantage (Fine 1998; Lyons 2003; Newbert 2007). SCM's influence on competitiveness derives from its ability to help companies exploit rare and inimitable resources that reside among various supply chain (SC) partners (Dyer and Singh 1998). In essence, effective SC strategy brings complimentary competencies in diverse companies together to create exceptional customer value.

Sharing capital, information, material, and technology across organizational boundaries can provide hard-to-replicate advantages through the development of better processes and products (Fawcett, Magnan, and McCarter 2008; Mentzer, Stank, and Esper 2008). Specific performance improvements linked to appropriate and innovative collaboration include faster new product development, better product quality, lower costs, shorter cycle times, improved customer service, and more effective integration into customers' networks (Cachon and Fisher 2000; Frohlich 2002; Hult, Ketchen, and Slater 2004; Ketchen, Hult, and Slater 2007; Rinehart, Lee and Page, 2008). For example, Honda invests in suppliers' capabilities and then relies on them for 85 percent of its cars' value (Nelson, Mayo and Moody 1998). As a result, Honda is consistently ranked among the most profitable automobile manufacturers (Dyer 1996; Liker and Choi 2004).

Although most companies recognize SC collaboration can deliver substantial benefits, they struggle to develop this strategic capability (Boddy, Cahill, Fraser-Kraus and Macbeth 1998; Ellinger, Keller, and Hansen 2006; Fawcett, Magnan, and Ogden 2007). Boeing's adoption of a collaborative business model to design and manufacture the Boeing 787 exemplifies the challenge. Governance issues—the inability to communicate and manage across organizational boundaries—caused supply chain breakdowns and product launch delays that severely damaged Boeing's credibility and financial performance (Lunsford 2008a; 2008b; Sanders 2009). Extant research reveals that the majority of firms that have pursued intense collaboration have found that integrating complementary competencies across the supply chain is very difficult. The literature suggests three common reasons that companies fail to collaborate effectively:

1. Functional, stove-piped organizations create turf conflict (Barratt 2004; Ellinger, Keller, and Hansen 2006; Moberg, Speh and Freese 2003)
2. Non-aligned goals and incentives lead to conflicting decision-making and counterproductive behavior (McCarter and Northcraft 2007)

3. An inability or unwillingness to share information undermines collaborative intent (Kampstra, Ashayeri, & Gattorna 2006; Fawcett, Wallin, Allred and Magnan 2009a).

The literature argues persuasively that superior value creation through SC collaboration is best realized when companies are able to mitigate these and other common barriers.

Thus, an organization's barrier-mitigation capability is instrumental in determining whether SCM can transform a vicious cycle of functional conflict and counterproductive decision making into a virtuous cycle of unique value creation (see Figure 1)(Senge 2006). Specifically, collaboration initiatives emerge when external forces such as intense competitive pressure and rising customer expectations drive companies to evaluate virtual integration opportunities. In theory, collaborative interactions between internal functions and interactions with external SC partners have the potential to increase value, reduce transaction costs, and generate collaborative momentum (Dyer and Singh 1998; Williamson 1985). However, the failure to mitigate resistant forces diminishes value creation and raises costs, further entrenching cross-functional and inter-organizational friction. If SC managers successfully overcome resistance, a virtuous cycle of momentum emerges and collaboration capability grows. If resistance cannot be countered, collaboration fails and a vicious cycle of resisting a collaborative business model is entrenched. When this happens, companies tend to return to vertical integration to achieve competitive goals (Worthen, Tuna and Scheck 2009).

*Figure 1*  
*A Systems Diagram: The Influence of Collaboration Resistors*

Importantly, the literature is replete with descriptions and evaluations of the barriers to SC collaboration. Even so, most companies have yet to learn how to mitigate them so that they can achieve higher levels of meaningful collaboration. A closer look at the dynamics of the resisting forces is therefore needed to comprehend better why they are so intractable. Such an

understanding should lead to the insight needed to effectively transform collaborative intent into a real collaborative capability. To this end, we employ a theory-driven literature review and an extensive, rigorous case study methodology to develop an integrated, socio-structural theory that explicates the intransigent nature of the fundamental barriers.

### **A Socio-Structural View of Resistance to SC Collaboration**

The tension created by 1) the need to improve collaboration to adapt to evolving competitive imperatives and 2) the resistance to collaborative behaviors suggests a need to explore existing theory to explain the collaborative challenge and seek a prescriptive remedy. The literature regarding collaboration's resistant forces identifies the central role of both structural and cultural resistors to SC collaboration. However, the literature also suggests that grasping the nuances related to mitigating these forces is complicated by the complex and dynamic context within which collaboration's strategic significance emerged. The following discussion draws from several management theories to develop an integrative paradigm of SC collaboration.

#### **Structure, Dynamism, and Adaptability**

The need for SC collaboration is rooted in contingency and industrial organization theories, which emphasize a sequential relationship between competitive environment and structure, managerial conduct and strategy, and organizational performance (Birkinshaw, Nobel and Ridderstrale 2002; Moffett, Anderson-Gillespie and McAdam 2008; Nasrallah, Levitt and Glynn 2003; Scott and Davis 2006; Wathne and Heide 2004). Because companies are open systems affected by their external environment and industry structure, they must develop an adaptive ability not just to achieve differential performance but also to survive (Lawrence and

Lorsch 1967; Luthans and Stewart 1977; Stonebraker and Afifi 2004; Wong & Wong 2008).

With respect to SC design, Fine (1998) argued that vertical industry structures are incapable of the rapid response and value creation required to sustain competitive advantage in today's fast clockspeed environment. Cultivating a SC collaboration capability to virtually integrate complementary capabilities is vital to coping with faster technology cycles, an information-integrated marketplace, and a dynamic global economy (Dyer and Singh 1998). Because the environment has changed, a contingent response in strategy and structure is needed.

Figure 2 illustrates the linkage between environmental forces and managerial strategy. Viewed through this paradigmatic lens, sustained success depends on management's ability to 1) recognize that the environment is changing, 2) correctly identify the forces driving change, 3) reevaluate and reposition the organization's strategy, and 4) promote an industry structure capable of rapid adaptation and unique value creation via collaboration. To succeed, this organizational transformation must account for and overcome the forces that resist adaptation.

*Figure 2*  
*A Socio-Structural View of Resistance to Supply Chain Collaboration*

### **Collaboration as a Strategic Contingent Response**

Because the competitive environment is both dynamic and idiosyncratic, there is no one best way to organize a corporation, lead a company, or make decisions (Lawrence and Lorsch 1967; Luthans and Stewart 1977). Rather, managers must evaluate their organizations' internal and external situation to develop an appropriate contingent response (Birkinshaw, Nobel and Ridderstrale 2002; Moffett, Anderson-Gillespie and McAdam 2008; Nasrallah, Levitt and Glynn 2003; Scott and Davis 2006). In the current context, two strategic management theories inform

the development of a viable contingent response: the resource-based view of the firm and the relational view of the firm.

1. ***The Resource-Based View.*** The RBV posits that resources are heterogeneously distributed among firms and that advantage emerges as resources are used to cultivate rare, valuable, inimitable, and non-substitutable competencies (Barney 1991; Hoopes, Madsen and Walker 2003; Peteraf 1993; Wernerfelt 1984). As important as a firm's resources are, how it configures them is more important to sustained success (Eisenhardt and Martin 2000; Teece, Pisano, and Shuen 1997). RBV thus encourages managers to pursue a contingent response that combines and structures resources in a way that creates a valued, dynamic capability; that is, a capability that is both adaptive and hard to replicate (Newbert 2007; Zhu and Kraemer 2002).
2. ***The Relational View.*** The relational view argues that the most powerful sources of advantage are often embedded in inter-firm resources and routines (Dyer and Singh 1998). Indeed, companies now source up to 80% of their value-added from suppliers (Monczka, Handfield, Giunipero and Patterson 2008) and are thus highly dependent on their supply base for advantage. Collaboration can help firms bring these resources and routines together to reduce costs and increase satisfaction (Fawcett Magnan, and McCarter 2008; Fine 1998). Yet, few firms effectively do so, suggesting that a collaboration capability is rare, valuable, and hard to replicate (Frohlich and Westbrook 2001; Fawcett, Ogden, Magnan and Cooper 2006). The relational view thus encourages managers to make collaboration part of their contingent response.

Ultimately, to achieve superior performance in a dynamic marketplace, managers must develop an adaptable and appropriate contingent response. A dynamic collaboration capability that looks beyond a firm's boundaries to consider how customer and supplier resources can be comingled with the firm's own resources to achieve a sustainable competitive advantage is such a contingent response (Guide, Jayaraman and Linton 2003; Johnson, Klassen, Leenders and Fearon 2002).

### **Resistant Forces and The Strategy-Execution Gap**

Unfortunately, the empirical evidence strongly indicates that an intractable gap exists between the ideation of a collaboration-based differentiation strategy and the ability to execute it successfully. The intransigence of the gap is a manifestation of the pervasiveness and strength of the existent resistant forces.

Force field analysis provides insight into the dynamics underlying this strategy-execution gap, bringing the interaction between the drive for change and the barriers to change into focus (Lewin 1951). In essence, resisting forces may exist anywhere within a dynamic system and vary in their individual strength and influence. If they are more prevalent or stronger than driving forces, they inhibit change, essentially freezing an organization in customary behavior (Dent and Goldberg 1999; Kotter 1995). Thus, even when powerful driving forces such as demanding customers dictate a need to tap into the strengths of other SC members via collaboration, the collision with well-entrenched resisting forces such as a lack of executive support, misaligned measures, or functional orientations may derail or forestall collaborative change. “Frozen” companies that compete in a dynamic market risk irrelevance if they cannot mitigate resistant forces and thereby change faster than the external environment or collaborate more effectively than agile rivals (Grove 1996; Lee 2004). As noted previously, cultural and structural resisters predominate, meriting a closer theoretical examination (see Table 1).

*Table 1*  
*A Theoretical Perspective of Cultural and Structural Resisters*

**Cultural Resisters.** Collaboration is inherently a behavioral phenomenon. Therefore, an effort to comprehend why collaboration seldom emerges as a competitive differentiator should focus on the phenomenology of organizational culture. For instance, McCarter and Northcraft (2007) view SC collaboration through the lens of social dilemma theory and suggest that the fear of opportunistic behavior by other members of a supply chain limits managers’ willingness to engage in collaboration. Indeed, although social dilemma theory argues that collaboration can enhance total societal value, uncertainty and risk regarding value appropriation creates both a reticence to contribute to the collaborative whole and competition among potential collaborators for scarce resources (Kollock 1998; Komorita and Parks 1996; Murnighan, Kim and Metzger

199; Zeng and Chen 2003). Asymmetrical power exacerbated by uncertainty impedes collaboration. Members of a SC alliance have no incentive to collaborate if another member of the chain is likely to use its power to expropriate any collaborative gains (Cassivi 2006; Celly, Spekman and Kamauff 1999; Dawes 1980; Diekmann 1985; Luo 2007; Olson 1965).

Thus, whenever the threat of opportunism is high, the propensity to collaborate will be diminished. Unfortunately, the threat of opportunism pervades SC collaboration for two central reasons. First, agency theory, which highlights the role of self-interested behavior in relationship management, warns that in imperfectly governed relationships, managers will seek to maximize their own utility at the expense of SC partners. This phenomenon creates uncertainty regarding the collaborative intent of SC partners. Absent high levels of trust among SC partners, assessments of risk and vulnerability associated with collaboration will be elevated.

Second, because collaboration intrinsically involves tacit, socially complex, knowledge-based resources, perceived vulnerability to opportunistic behavior is ever present. The gravity of the threat is particularly high among those who consider knowledge to be a strategically significant resource (Grant 1996; Kogut 2000). Collaboration places a proprietary source of advantage at risk. Whereas agency theory speaks to the probability of opportunism, the knowledge-based view of the firm emphasizes the potential cost of opportunism.

Of import, the information-processing literature emphasizes the role of information in the assessment process. Without perfect information, managers are likely to apply logical rules to help them process information regarding the risks and rewards of potential collaborative initiatives. Past experience with opportunistic behavior leads most managers to weight risks more heavily than rewards—especially in scenarios where the downside costs are high. Thus, in an uncertain environment, managers are likely to satisfice and pursue simple, short-term utility

functions. As Figure 3 illustrates, such a course of action precludes most high-level collaboration.

*Figure 3*  
*Sources of Cultural Resistance to Collaboration*

***Structural Resistors.*** Structure's prevalence as an impediment to collaboration stems from the fact that firms exist as bounded entities (Coase 1937). The theory of the firm argues that firms are organized to reduce inefficiencies that typically pervade the transaction mechanisms of a pure market system. By bringing resources and competencies together within an organizational structure, "entrepreneurs" can direct value creation and obtain economies of resource certainty and scale that reduce overall costs. Unfortunately, the creation of the efficiency-enhancing boundaries of the firm is not without cost.

Transaction cost economics (TCE) (Williamson 1993) and systems theory (Forrester 1958; Senge 2006) explicate some of the costs associated with organizational structures. For instance, TCE notes that organizational boundaries create transaction uncertainty via asymmetric information, which coupled with asset specificity, inculcates self-interested and potentially counterproductive decision-making. Systems thinking emphasizes that a lack of understanding regarding the nature of complex systems, the inability to process information regarding the interrelationships among elements of the system, inconsistent metrics, and sub-unit loyalties promote a quest for local optimization—despite the potential for sub-optimizing the overall system. In effect, although organization boundaries improve scale efficiencies, they invariably create bureaucracy and opportunism costs, which impede collaboration.

Constituency based theory (CBT) raises similar issues at the functional level within a firm, informing our understanding of why functional structures are so common and so resistant

to change (Anderson 1982). CBT argues that companies organize along functional lines to take advantage of in-depth knowledge that arises from specialization. The goal is to create deep functional skills. However, CBT also warns that “specialists” tend to pursue their own goals. Rewarded on disparate metrics and operating with distinct lines of authority, functionalists possess strong incentives to protect their own domain (Ellinger, Keller and Hansen 2006). As functional silos are built and fortified, incentives to collaborate are minimized.

Finally, the propensity to invest primarily in structure in the effort to increase collaboration may actually hinder high-level collaboration. For example, inadequate technology has often been blamed for impeding collaborative initiatives (Barratt 2004; Moberg, Speh and Freese 2003; Tyndall and Kamauff 1998; Cassivi 2006). However, despite massive investments in information and process technologies, collaborative capabilities have not dramatically improved (Beth et al. 2003). This reality suggests that structure in the form of organization, systems and policy is necessary but not sufficient to create collaboration. That is, structure establishes the basis for collaboration, but it does not necessarily create collaboration.

To summarize, the nexus between cultural and structural resistors exacerbates the observed intractability of collaboration resistors. Interestingly, the Socio-Technical Systems theory (STS), which suggests that difficulties implementing technology are largely caused by social issues within the company (Cherns 1976), presents a parallel to the challenge facing collaboration initiatives. Specifically, STS argues that a disconnect between social and technical systems within an organization inhibits technology implementation. Analogously, a company may intend to cultivate a collaborative capability via investments in structural enablers like shared equipment or enterprise information systems. However, cultural factors such as sub-unit loyalties may sabotage individuals’ willingness to collaborate. When this occurs, an expensive

investment (money, time, and emotion) is almost guaranteed to provide a disappointing return on investment. Conversely, firms may foster a culture of collaboration, but if the organizational or the information structure is not conducive to sharing, collaboration will not emerge. Supportive structural and cultural enablers must be established to promote effective SC collaboration.

### **Research Methods**

As we began the study, SCM was emerging as an interdisciplinary domain, encompassing aspects of logistics, marketing, operations, purchasing, and strategic management. Information technology was viewed as a core enabler of SC strategies. Organizational behavior was seen as a valued contributor. In effect, the need to bring the value creation capabilities of these diverse disciplines together meant that collaboration was emerging as a central, although not fully explored, theme in the literature. It was, however, evident that issues surrounding collaboration were complex, dynamic, and not well understood. Three preliminary steps were therefore undertaken to firmly ground the research:

1. A comprehensive literature search going back to the early 1980s was conducted. This review provided key insight needed to design a meaningful interview guide.
2. A series of half a dozen preliminary, informal managerial interviews were conducted to ensure managerial relevance.
3. An advisory board consisting of managers and academics was assembled to provide feedback on the research content and process.

These efforts provided a context from which to interpret our findings regarding the resistors to effective SC collaboration. As the research progressed, we noted that scant research empirically evaluated the competitive learning effects of collaborative SC strategies. We thus determined to replicate the study. A six-year interval between the initial data gathering (Period 1)

and the study replication (Period 2) provided sufficient time to evaluate the organization's progress in mitigating resistance to SC collaboration.

### **Case Study Interview Process**

Although survey methods are an efficient approach to gathering data, they suffer from many weaknesses (Pinsonneault and Kraemer 1993). For example, surveys provide an imperfect view of complex, multifaceted issues. Therefore, we employed an interview-driven, case study methodology to explore the intricate what, why, and how questions associated with SC collaboration (McCutcheon and Meredith 1993; Meredith, Raturi, Amoako-Gyampah, and Kaplan 1989; Yin 1981). Interviews provide a robust opportunity to explore collaboration resistors since they enable managers to elaborate on the challenges they encounter as they seek to create deep functional skills while simultaneously fostering cross-functional and inter-organizational collaboration capabilities (Eisenhardt 1991; Dyer and Wilkins 1991).

To gain a comprehensive view of how managers are coping with resistant forces as they seek to create value through collaboration, we conducted interviews across four core channel positions—retailers, finished-goods assemblers, direct materials suppliers, and service providers. Managers at a total of 51 companies were interviewed in Period 1. For Period 2, managers at 57 were interviewed. Fifteen companies participated in both rounds of interviews. Table 2 shows the breakdown by channel position as well as the overall demographic statistics for the interview companies. Of note, enough interviews were conducted for each channel position in each time period that later respondents provided minimal novel information. This suggests that theoretical saturation was achieved (Eisenhart 1991; Closs et al 2008). By design, the participants in the two interview panels possess similar characteristics. However, given the findings from the Period 1

interviews, an effort was made to include a few smaller suppliers and service providers in the Period 2 panel.

*Table 2*  
*Qualitative Sample: Channel, Ownership, Sales, Profits, and Employee Levels*

Companies were selected largely on the basis of their reputation for SC excellence; that is, they were often mentioned in the trade press or included on the programs of professional associations' annual meetings. 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 was used to assure comparability of findings while allowing for flexibility in pursuing insight into unique practices and/or challenges that became evident during the interviews. The typical company case study involved multiple interviews that lasted 2 to 4 hours (the longest interviewed lasted 16 hours; the shortest interview lasted one hour) and involved senior managers who had responsibility for their company's SC initiatives. Because of the cross-functional, collaborative nature of the research, the contact manager often invited other managers to participate in the interviews. For example, IT managers, logisticians, new product managers, purchasers, and project leaders were often involved in the interviews. Facility tours were also a frequent part of a company case study. Company literature and documentation was also collected whenever pertinent.

During each interview, extensive notes were made for later reflection. These notes were then translated into structured case write-ups to avoid "data asphyxiation" from the large amounts of data (Eisenhardt and Graebner 2007; Pettigrew 1990). The typical write-up was over 4 pages and 2,000 words long. The notes from the Period 2 interviews alone consisted of almost 340 pages and 145,000 words. Importantly, each case was viewed as a "stand-alone entity" to

help identify unique patterns. However, via pattern matching across case study companies—that is, “piecing together the individual patterns”—we were able to “draw a more complete theoretical picture” regarding the nature of collaboration resisters (Eisenhardt 1991: 620) 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 to dissect the results and derive a consensus regarding their meaning (Eisenhardt 1989a; 1989b; Seidel 1998; Spreng 1994).

### **Coding and Analysis**

After the interviews were concluded, a rigorous content analysis was performed to glean the insight underlying each proposition. Because of the nuanced answers as well as the diversity of language and terms used by the interview managers, we determined that a careful manual coding and evaluation process would provide the best contextualization of the interview findings. The content analysis consisted of the following three steps (Eisenhardt 1989a; Ellram 1996):

1. Based on the literature and the iterative discussions described above, an initial categorization schema was developed.
2. Each interview was carefully read to identify key words, phrases, and interrelationships. Each survey was coded and the results entered into a spreadsheet.
3. The findings from the coding process were tabulated and frequency diagrams created.

The initial categorization schema identified ten resisters frequently mentioned in the literature. As noted in the literature review, the most intransigent barriers are rooted in organizational structure and culture (Fawcett, et al. 2008). Other oft-observed barriers emerge from insufficient or incompatible technologies as well as inconsistent goals, metrics, and training (Barrat, 2004; Moberg et al. 2003; Tyndall and Kamauff 1998).

The three-person coding team consisted of one of the original interviewers as well as two new researchers. The new researchers were brought in to avoid data-processing bias (Pagell and Wu 2009). The team used an iterative, multistep process. Specifically, the researchers met to review definitions for each of the categories and identify terms or phrases associated with each category. They then coded two of the interviews together. The researchers then read through the next 5 interviews and coded them individually. They then came back together to compare their findings and discuss any discrepancies. Discrepancies emerged for three primary reasons:

1. Individual company experience and practice occasionally suggested the creation of a new category.
2. The way managers answered specific questions regarding resistant barriers—that is, how they described a specific experience or practice—required the researchers to evaluate the answer within the broader context of the complete case study.
3. The researchers possessed distinct backgrounds that led to different perspectives and unique coding of nuanced answers.

Each discrepancy was discussed until the coders reached consensus. As new categories were added, the researchers returned to the previously coded cases to look for evidence of the newly identified phenomena. This iterative process—individual coding, collaborative discussing, and concurring—was repeated for every ten cases until all of the cases were coded. This process forced 100 percent inter-rater reliability among the researchers.

After the coding was completed and the results entered into a spreadsheet, the findings were tabulated to create a frequency distribution. Because each category was tightly defined and specified, the original 10 categories had expanded to include over 20 resistant barriers. Because the human mind best processes a limited number of ideas—typically seven to ten—an effort was made to collapse the findings so we could focus on the most pervasive resistors. Two decision rules were employed. First, phenomena that were infrequently encountered (typically in under ten percent of the companies) were deleted from the frequency tabulation. Second, the

researchers combined specific, but related phenomena into broader categories. These remaining categories provide the basis for the following discussion.

### **Findings and Discussion: Understanding the Wall of Resistance**

A persistent theme that emerged in the Period 1 interviews was that managers perceived the challenge of removing the resistors to SC collaboration as daunting. The Period 2 interviews confirmed this finding, revealing that most companies had made only meager progress in knocking down the resistant barriers that block breakthrough collaboration. This reality raises a key question, “Why is it so difficult to isolate and remove the resistors?” The following discussion begins to answer this question by 1) identifying and discussing the most pervasive resistors as well as changes in their prevalence over time and 2) evaluating the practical and theoretical dynamics that have made resistor mitigation so challenging.

Figure 4 identifies the Top Ten resistors from Period 2 and shows how their relative position has changed over time. Companies appear to encounter two distinct types of resistant barriers.

1. Organizational structure, misaligned goals and metrics, an inability to proactively manage change, insufficient trust, and limited information sharing were identified as *entrenched resistors*. That is, managers at approximately half or more of the interview companies across both time periods expressed frustration regarding the pervasive nature of these barriers.
2. Other barriers including a lack of leadership, inadequate alliance practices, complexity, poorly defined roles and responsibilities, and a lack of employees with key skills were identified as *emergent resistors*. That is, these resistors were infrequently mentioned—barely on managers’ radar screens—in Period 1, but identified by 30% or more of the interview companies in Period 2.

Together, these entrenched and emergent resistors have essentially frozen companies in non-collaborative behaviors and business models. One positive point, however, can be derived from Period 2’s newly emphasized barriers. Emergent barriers—i.e., the lack of leadership, missing

alliance skills, poorly defined roles, and the dearth of managers with vital SC skills—tend to be skill based rather than being imbedded in the cultural and structural fabric of the organization. Managers increasingly recognize that they need a new approach and new skills to remove long-standing, deeply entrenched resistors. The entrenched and emergent resistors are discussed in greater detail below.

*Figure 4*  
*Resistant Barriers to SC Collaboration: Period 1 versus Period 2*

### **The Nature and Influence of Entrenched Resistors**

**Organizational Structure.** Organizational structure and the turf conflicts it engenders are the most common and intractable barriers to effective intra- and inter-firm collaboration. Managers at 75% (73% in Period 1) of the interview companies underscored the intransigence of the counterproductive behavior engendered by modern organizational structures. For example, one manager, whose comments were typical, noted that, “too many managers are functionally obsessed.” Unfortunately, functionally obsessed managers become possessive of their ideas and roles. As another manager related, these individuals begin to say, “That’s my baby, I don’t want to give it up.” Such behavior impedes proactive collaboration. Exacerbating the unwillingness to share is the fact that functionally obsessed managers begin to perceive their decision-making environment through their own functional lens. As this happens, they overlook others’ contributions—a fact emphasized by another manager, who said, “We have good people who do not accept that others do great work.” When manager’s contributions are overlooked, they too become less likely to seek out collaboration opportunities.

Traditional organizational structures thus lead to an excessive focus on local optimums and an unwillingness to expend resources or make sacrifices to achieve collaborative successes.

This result occurs both within and across organizations. One manager summarized this occurrence, noting, “People are more concerned about who will get the glory or the blame rather than evaluate whether or not a decision will benefit the entire company.” This phenomenon was widely observed across all four channels with functional conflicts being the number one barrier for service providers, suppliers, and retailers and the third-ranked barrier for finished goods assemblers (see Table 3).

*Table 3*  
*Resistant Barriers to SC Collaboration: A Channel Perspective*

As managers discussed the nature of the counterproductive decisions they encounter, they noted that dealing with turf has always been part of the job, suggesting that this structural barrier is systemic. One manager emphasized the pervasive and persistent power of turf, warning, “Once you create turf, it is tough to take it away.” Several managers noted that the problem extends beyond corporate structures. They identified the business school atmosphere as a contributor to bounded or “silo” thinking. One vice president at a global high-tech firm provided a meta-description of the challenge. He spent half an hour relating that he can find great functional experts, which he hires, but that he cannot find graduates who understand systems thinking. He drew a picture showing how functional managers are “spokes on a wheel.” He noted that, “Although the spokes are needed for the wheel to roll forward, the wheel falls apart without the hub. Hub managers possess a holistic vision and collaborative skills, but they are rare.”

Regrettably, most “spoke” managers fail to evolve into “hub” managers on the job. Not only do corporate training programs stress functional skills but also as managers are pressed to put out the “day-to-day fires” and shielded from the “outcomes” of their decisions by organizational boundaries and time delays, they fail to see the connection between the decisions they make and the problems they face. Because it is easier for managers to blame someone else

than for them to introspect and begin to understand and change their own behavior, few managers develop the vision needed to see over existing structural walls. Overall, interview managers expressed the concern that high-level collaboration will remain rare until managers are compelled to examine how their decisions and behavior fit within and influence the larger company and supply chain systems. Current organizational design too often inhibits such introspection. The primacy of structure as a barrier to collaboration leads to our first proposition.

***Proposition 1:*** *Organizations will be more likely to develop a collaborative capability if they invest in structure-bending mechanisms (i.e., cross-functional training, job rotation, joint problem solving, and teaming) that expand experience and mitigate the silo thinking perpetuated by traditional functional structures.*

**Conflicting Goals and Measures.** Conflicting goals and metrics were the second most cited resistor (68%; 73%) and were mentioned most frequently in conjunction with dysfunctional structure. That is, managers consistently noted that existing functional goals and metrics reinforce silo thinking. Although a top three resistor among all channel positions, multi-national finished goods assemblers reported the highest frequency (79%) and greatest frustration with poor goal and metric alignment (see Table 2). The size, scope, and complexity of operations at these companies make it extremely difficult to design and implement measures that promote cross-functional and inter-organizational collaboration. Bureaucracy and geographic dispersion exacerbate the reinforcing nature of functional organization and misaligned metrics.

Interview managers were most vocal regarding the fact that traditional measures are excessively cost-focused and often inconsistent across organizational boundaries. Several managers noted that they are constantly asked how what they are doing will impact the profit-and-loss statement. The following is typical of these comments, “If we want support, we need to show an immediate and direct P&L impact. For much of what we would like to do, that’s

impossible.” Today’s cost-is-everything environment is not conducive to collaboration. In fact, as the following quote indicates, it freezes counterproductive, power-based negotiation in place.

It is my understanding that supply chain integration (SCI) and supply chain management (SCM) extend well beyond vendor certification and get into partnering, information sharing, and innovative exchanges. I am not a proponent of that type of interaction with a supplier and, fortunately for me, my company has not tried to push me in that direction. It is my contention, and 20 years of purchasing experience bear me out, that upper management is most interested in the cost of the item purchased. There is little to no interest in “total cost” or innovative ways to get extra service or quality. I have worked at some large companies such as 16 years with . . . and three years with . . . . Currently, I am into my sixth year with a medium sized company. I have also worked for smaller companies such as five years at . . . . While the buzzwords flew, when it came down to the final analysis, I was punished if I wasn’t buying at the lowest price. Many times management would “assist” me in finding a lower cost supplier. I learned early on that buzzwords were just buzzwords and innovative procurement techniques were only welcome if they lowered the purchase price.

Another manager summarized measurement’s role in the collaboration conundrum, “You’ve got to measure what you want to happen. You can’t change without measurement.”

Besides influencing behavior, measurement systems designed to support functional structures often fail to provide the transparency needed to identify collaboration opportunities. As one manager noted, “We get awards for putting out fires and unfortunately, that is a recipe for mediocrity.” Without process understanding and visibility, managers cannot design and manage processes for collaborative success. For example, as the quote above points out, better costing is needed to evaluate performance tradeoffs as well as role-shifting opportunities with key members of the supply chain. Such analysis is needed to 1) identify the resources and routines that reside across members of the supply chain and 2) evaluate the opportunities to bring them together in unique, inimitable ways. Most of the interview managers acknowledged that they need new measures that reveal what is transpiring at different points in key processes up and down the chain. These measures must also motivate the risk taking inherent in new forms of collaboration. However, they admitted they are powerless to proceed since they do not “own” the

activities that would be affected by boundary-spanning supply chain measures. Managers' emphatic desire for measures that support collaboration is the basis for our second proposition.

**Proposition 2:** *Organizations will be more likely to develop a collaborative capability if they supplement localized measures with systemic measures (i.e., measures that provide visibility across boundaries, align efforts, and improve tradeoff analysis) that reward the pursuit of inimitable capabilities that can only be developed via cross-functional and inter-organizational collaboration.*

**Opposition to Change.** Managers at 61% of interview companies (a modest increase from 53%) reiterated repeatedly that one of the fundamental challenges they face is that people resist change. Interestingly, at 50%, suppliers reported resistance to change as a major challenge less frequently than their other channel counterparts. Two issues influenced this finding. First, suppliers possess minimal channel power and they know it. Since they face greater, and more perilous, pressure to change, they tend to be a little less frozen in place. Second, the smallest companies in the study were suppliers. The small-business work environment—which is typically resource constrained—is often both flexible and cross functional by necessity. Small firms are thus a little more open to collaboration (of course, as a couple of small-firm executives pointed out, it is often collaboration by dictum).

Not surprisingly, interview managers stressed that collaboration is perceived by many of their colleagues as threatening, especially among those who lack needed skills. Past success also leads to a strong resistance to change. Managers repeated phrases they often hear, saying, “It’s worked! Why should we change now?” or “That’s the way we’ve always done it.” The following quotes exemplify the sense of frustration many managers feel regarding resistance to change:

1. Top management really does not understand the need for change and collaboration.
2. Some people need to get their butts kicked by the competition before they will make the needed changes.
3. You can’t change 90 years of history in only eight years.

4. We need to change our culture. This means we need to develop the ability to change.

At some companies, aggravation feels more like despair as managers lament that resistance to change negatively impacts the organization's culture over time. For example, managers noted,

1. The old mindsets convert the new people to their way of thinking
2. Some managers are tired of making suggestions only to be ignored. They express frustration—almost a loss of hope that they will be able to really make a difference.
3. Truly committed people don't shut up; they just leave.

A culture of change is necessary to create a dynamic collaborative capability; yet, few companies have harnessed a change culture to promote collaboration. The failure to support change can quickly extinguish momentum for collaboration. This relationship suggests the following:

**Proposition 3:** *Organizations will be more likely to develop a collaborative capability if they are change acceptant and have instituted change-promoting practices (e.g., best-in-class benchmarking, pilot projects, and success-story dissemination).*

**A Lack of Trust.** Trust was the most commonly identified key to effective strategic-alliance development. Interview managers argued that trust underlies the unique collaboration required to achieve supernormal relational rents. Yet, managers at over half of the interview companies (up slightly from 47%) specifically noted that trust is missing from important SC relationships. The data in Table 2 show that retailers and finished goods assemblers most often identified low levels of trust. Explanations are twofold. First, firms at these two channel positions typically perform the role of channel captain, driving high-level collaboration initiatives. Thus, they are most sensitive to failures of trust. Second, these managers complained vociferously that suppliers, especially technology and consulting service suppliers, consistently “over promise and under deliver.” They seemed reluctant to acknowledge that the supplier selection process promotes acquiescent promises by suppliers as they hope to win contracts.

Fundamentally, the question raised by managers throughout the interviews was, “Can we really trust someone outside our organization to do what is best for our company?” Managers often expressed reservations not just about the existence of trust but also regarding the behaviors that build it. For example, when asked how his company shared rewards from joint collaborative efforts, one executive replied, “We don’t do that. Why should we? They need us.” Many managers discussed how the prevalence of a “what-have-you-done-for-me-lately” mindset impedes teamwork—especially when one company possesses asymmetrical power. The following two stories exemplify this sentiment.

1. A long-time customer invited several suppliers to a negotiation. Each supplier was assigned to a room where the negotiations occurred. The buying organization’s people proceeded to go from room to room sharing details of the concessions extracted from the other suppliers until its “target cost” was met.
2. We have an important customer who is very good at sharing risks and rewards. They keep all of the rewards and pass all of the risks on to us.

The underlying message was that asymmetrical power enables opportunistic behavior and magnifies feelings of vulnerability. As a result, when a buyer says, “We need to squeeze costs out of the process,” the supplier is likely to hear, “They plan to squeeze the margin out of us.” This fear undermines collaboration. Absent trust, people invest in protective walls as they seek to avoid becoming vulnerable to others misuse of power. They are thus unwilling to share their best, most creative ideas—a particularly debilitating behavior in today’s knowledge economy. This finding underlies our fourth proposition.

**Proposition 4:** *Organizations will be more likely to develop a collaborative capability if they cultivate behaviors (e.g., performing to promise, avoiding abuse of power, sharing information, and demonstrating empathy) that instill confidence in both performance and commitment to the relationship.*

**Inadequate Information Sharing.** The inability to share accurate and relevant decision-making information in a timely manner was identified as a serious barrier to collaboration by just

over half of the Period 2 managers (53%—down slightly from 59% in Period 1). One of the unique characteristics of this resistor is that managers often complained the problem was greater within the walls of their organization than with external SC partners. For example, one manager stated bluntly, “It is easier to get information from suppliers than from other groups within our firm.” This reality partially explains the finding that suppliers identified information deficiencies as a collaboration resistor far less often than their counterparts (see Table 2). Not only are more finished goods assemblers sharing both historic order and forecast information electronically but also many suppliers were smaller organizations that possessed cross-experienced managers who were much more likely to share sensitive information with colleagues they knew and trusted.

Insufficient information sharing as a resistor is one of only two barriers where notable progress was achieved between Period 1 and Period 2. Given the focal attention and financial investment directed toward technology investments, this finding is not surprising. More intriguing, and disappointing, is that relatively little progress has been made. The minimal gains in information-sharing capability result partly from the fact that companies tend to emphasize only one of two distinct dimensions of the information-sharing resistor that were described throughout the interviews. That is, structural connectivity is in the spotlight while cultural willingness remains in the shadows of managerial decision-making.

The interplay between connectivity and willingness over time is instructive. In Period 1, we found two companies that had developed the “Web-MRP” or Internet interfaces needed to share information regarding historical sales, real-time inventory status, and rolling production forecasts. However, in the following six years, such capabilities had become widespread. Thus, by period 2, IT investments had become defensive. Several managers explained that since competitors were implementing the latest technologies, IT investments were needed to “stay in

the game.” As a result, managers who reported connectivity as a barrier to information sharing and collaboration had dropped from 58% to 25%--the type of dramatic improvement that would be expected given the dollars spent.

However, as connectivity capabilities increased, managers realized more fully that technology is a necessary but not sufficient condition to achieve information-enabled collaboration. Managers consistently noted that being connected is not the same as collaborating. Specifically, in Period 1, Managers at 34% of the companies identified willingness as a challenge equal to connectivity. By Period 2, this percentage had increased to 40%. Managerial angst riveted on the fact that although more partners shared tactical, order-related information, most SC partners were not willing to share strategic information regarding market entry, product development, and technology roadmaps. Managers argued that they need this information to make the investments required to support key customers strategic initiatives. The ability to understand future needs early is critical to developing capabilities as well as investing in capacity over time rather than as a last-minute response. Informed investment is central to reducing costs, improving response times, and revealing new opportunities for collaboration. The interdependence between connectivity and willingness establishes the foundation for our fifth proposition.

***Proposition 5:*** *Organizations will be more likely to develop a collaborative capability if they invest appropriately and simultaneously in both dimensions of an information-sharing capability—connectivity and willingness. Investments in technology will likely lead to disappointing returns if a culture that promotes open information sharing is not cultivated.*

Previously, we have discussed the nature and nuances of five entrenched resistors described by our key informants. The related propositions formally communicate remedies regarding these resistors. However, although each entrenched resistor is formidable, these

resistors do not exist in isolation. Rather, they disguise and reinforce one another, building an intimidating wall that companies must knock down to collaborate effectively. For example, managers in both time periods pointed out that the willingness to share information—especially sensitive, strategic information—depends on relationship trust. Counterparts do not want to give away the power or be exposed to the vulnerability that sharing information implies. Without trust, people are unwilling to change patterned behaviors and share the sensitive information. Importantly, structural boundaries within and across firms reduce positive interaction, diminishing the opportunity to enhance trust. Myopic measures magnify resistance to change, trust, and ultimately to sharing strategic information. In such an environment, the unique, inimitable collaboration encouraged by the relational and resource-based views will not emerge. The interconnected, socio-structural nature of the various resistors suggests a sixth proposition.

*Proposition 6: Organizations will be more likely to develop a collaborative capability if they recognize the embedded, reinforcing nature of the collaboration resistors and simultaneously invest in collaborative structure via shared governance, personnel, resources, and technology and cultivate a supportive culture via aligned measures and enhanced trust.*

## **The Nature and Influence of Emerging Resistors**

**Lack of SC Leadership.** Among the emergent resistors, the lack of leadership is the paramount constraint to collaboration. Leadership deficiencies were identified twice as often in Period 2 as in Period 1 (63%; 29%), becoming the third most prevalent resistor. Managers explained that only top management has the authority to redress the socio-structural resistors discussed above. Collaboration cannot emerge if senior leadership is not willing to set the tone, direct the resources, and provide the safe harbor needed to remove these resistors. That so many managers now recognize this reality is a positive sign.

This resistor was less frequently observed among service providers and finished goods assemblers (see Table 2). Service providers have an inherent advantage—as supply chain enablers, their scope of operations is more tightly defined and includes providing collaborative vision. The failure to do so limits sales effectiveness. The finished goods assemblers interviewed also possess an important advantage—these large, progressive companies have long played the role of channel captain and were among the first to pursue SC collaboration as a strategic initiative. By contrast, the typical retailer has less experience as a collaboration choreographer. Similarly, suppliers find it difficult to cultivate leaders who know how to promote collaboration from the disadvantaged side of the power equation.

Unfortunately, without the vision instilled by effective leadership, the rationale and motivation to change seldom permeate the organization. Even if a few managers perceive the value of collaboration, the sentiment is not held widely enough across value-creating positions to engender inimitable collaborative behavior. Interview managers criticized their companies' constant drive to cut costs as particularly debilitating. One manager captured this attitude, saying,

Everything is price driven, but at what overall cost. How often does a plant get shut down because of late, low-cost shipments? How much extra inventory is held to compensate for late shipments? How much airfreight is used to compensate for late shipments? How much demurrage is paid? Most managers don't know what the overall impact of their "low-price" decisions is! We are constantly bombarded by mandates from top management to "CUT COSTS!" It is easier to take short-term costs out while increasing longer-term costs.

Because collaboration requires the upfront dedication of scarce resources while promising delayed, and sometimes uncertain, returns, an unrelenting drive to lower costs chases collaboration out of many strategic discussions. Managers caught in a cost-cutting culture have neither the time nor the incentive to identify and promote difficult collaboration initiatives. They thus speak as if they are helpless to overcome the negative influence of dysfunctional leadership.

This emotive response points to our seventh proposition.

*Proposition 7: Organizations will be more likely to develop a collaborative capability if senior executives clearly communicate the need for high-value collaboration, setting the tone, dedicating the resources, rewarding the behaviors, and holding people accountable for collaborative results.*

**Inadequate Alliance Practice.** A core principle that emerged from the Period 1 interviews was that “all relationships are not created equal.” By Period 2, managers at over a third of the interview companies had realized they lacked the skills and formalized processes needed to appropriately define relationship intensity and develop corresponding relationships. This realization was most pronounced among suppliers (50%) and finished goods assemblers (42%). Part of the challenge is that companies in these channel positions manage hundreds to thousands of up and downstream relationships. Further, each relationship offers unique opportunities to create differential value depending on the existence of complementary competencies and collaborative mindset. Lacking the right alliance skills, managers noted,

1. that their companies, “wasted time trying to collaborate where little value could be created.”
2. “It doesn’t make sense to try to collaborate with someone who doesn’t want to collaborate.”

As a result, few companies had learned how to identify, cultivate, and leverage one-of-a-kind relationships, missing the opportunity to change the competitive rules and create distinctive advantage. For instance, very few companies formally evaluated non-traditional criteria as part of the partner selection process. The following question was often overlooked, “Could intense collaboration improve operating and strategic performance?” Since they had neither developed a measure of collaboration capability nor begun to quantify collaboration’s actual contribution to competitiveness, managers could not easily answer this question. Managers pointed out that most so-called strategic alliances emerged from a desire to manage volume rather than from the

recognition that a closer relationship could drive strategic growth. The dearth of strategic alliance practice founded our eighth proposition.

*Proposition 8: Organizations will be more likely to develop a collaborative capability if they establish the skills and processes needed to define relationship intensity and quantify the collaborative contribution of specific relationships.*

**Inability to Manage Complexity.** As companies have progressed in their efforts to coordinate value-added activities across the supply chain, the costs, confusion, and counterproductive decisions caused by excess complexity have come into view. Some managers view complexity as the 21<sup>st</sup>-century SC challenge. The percent of managers who discussed the challenge of complexity almost doubled from Period 1 to Period 2, going from 18% to 33%. Managers at finished goods assemblers expressed the greatest concern with managing complex SC networks (see Table 2). These managers must manage both up and down stream and they often deal with expansive networks (theirs as well as those of SC partners). These managers described networks that consist of 1) scores of manufacturing facilities and distribution centers geographically dispersed across the globe, 2) thousands of stock-keeping units, 3) thousands of direct materials suppliers and tens of thousands second- or third-tier suppliers, 4) hundreds of valued customer relationships, and 5) tangled logistics systems. These same sources of complexity are inherent to each of the four channel positions explored. Interview managers highlighted four principle issues that make managing complexity difficult.

1. One person's needs are another person's costs. Complexity is often driven across boundaries. For example, marketing's desire for added SKUs creates manufacturing disruptions and increases inventory costs. A customer's request for more responsive delivery may necessitate dispersed inventories. Because managers do not own the costs associated with complexity, they make decisions that increase it—and are reluctant to rethink their requests.
2. Not all complexity is bad. Some complexity like a minimum number of SKUs, a backup supplier, or another stocking point is necessary to provide the value customers demand and no one else provides. The fact that consequences, good and bad, occur across geography and over time complicates efforts to differentiate between good and bad complexity.

3. Today's supply chains are increasingly global. Managing a global network capable of turning worldwide resources into products and services capable of satisfying global customers is complicated by culture, language, regulatory, political, and infrastructure challenges.
4. SC rationalization efforts are initiated prematurely. The pressure to reduce costs via simplification leads companies to try to rationalize before they understand SC dynamics. Tradeoffs remain uncertain and unclear and efforts to reduce complexity often lead to unintended costs and/or service disruptions.

SC complexity represents a confounding mix of external stimulus and internal sub-optimization. Although better collaboration could mitigate complexity's challenge, entrenched barriers makes it difficult to address complexity's root causes. This reality leads to our ninth proposition.

*Proposition 9: Organizations will be more likely to develop a collaborative capability if they use the need to reduce complexity to motivate the mitigation of entrenched resistors. As they remove these resistors, their ability to strategically manage complexity will improve, leading to more fruitful collaboration opportunities.*

**Poorly Defined Roles and Responsibilities.** The transformation to collaborative business models places great emphasis on effective process management. For complementary competencies to come together meaningfully, each organization (and each individual) must perform its assigned value-added role well. In Period 1, most companies were just beginning to experiment with "re-imagined" roles and responsibilities. Only a few managers (12%) talked about the challenges inherent in redefining responsibilities and executing to promise. However, by Period 2, the level of role redefinition and experimentation had increased. Managers were asking "What if?" more frequently. They had also recognized that outsourcing and role shifting primarily to reduce costs rather than improve performance often 1) leads to costly governance and compliance issues and 2) leaves untapped novel approaches to value creation. As a result, managers at about one in three companies highlighted the challenges they encountered in the role-redefinition process. They noted that their companies had yet to establish a formal process

for identifying role-shifting opportunities or the formal guidelines to define, communicate, and evaluate these efforts when they were pursued. This finding indicates that many companies have yet to develop the discipline and maturity needed to use collaboration to build unique capabilities across organizational boundaries and introduces our tenth proposition.

*Proposition 10: Organizations will be more likely to develop a collaborative capability if they inculcate mindsets and practices (e.g., benchmarking, brainstorming, and re-imagination) that seek to identify role-shifting opportunities and then institute governance mechanisms to guide and evaluate the redefined roles.*

**Gap in Education and SC Skills.** In Period 1, a banner flying in the atrium of an acclaimed SC leader appropriately captured an emerging sentiment from Period 2. The banner read, “People are either the bridge or the barrier to supply chain management.” By Period 2, one in three companies reported that they are unable find the right type of manager to build a collaborative culture. Managers describe the ideal SC manager as someone who possesses strong functional skills, sees the big picture, analyzes tradeoffs rigorously, builds collaborative relationships, executes with discipline, leads by example, and embraces change. Unfortunately, few of the many managers from engineering to marketing who touch critical SC processes possess this skill set.

As noted previously, many managers blamed today’s university business and engineering programs for being neither oriented nor organized to deliver a holistic education. The high-tech executive who drew the analogy between a company and a wheel with many functional spokes, underscored this point, saying, “We can find great entry-level people, the ones with strong functional skills. But, finding people who can bring everyone together to work as a cohesive team is a real challenge. They’re just not out there. . . . This person in the middle (the hub) is

missing.” The scarcity of the “holistic thinker with collaboration skills” raises our final proposition.

*Proposition 11: Organizations will be more likely to develop a collaborative capability if they connect hiring and personnel enhancement activities (e.g., education, training incentives, and career progression) to the development and actuation of both creativity and collaboration skills.*

To summarize, the influence of the entrenched resisters extends beyond building a wall of resistance to collaboration. The pervasive nature of functional organizations, goals, and metrics hinders the managerial growth and skill development needed to design and cultivate collaborative initiatives and relationships. Until they acquire key collaborative skills, companies will continue to struggle to achieve collaborative advantage. Fortunately, the need to invest in these skills is becoming increasingly visible. As success stories regarding breakthrough collaboration are disseminated, investment will increase, creating an opportunity to build a skill-driven virtuous cycle of collaboration.

### **Conclusions and Implications**

The relational view posits that firms can achieve differential performance via supply chain collaboration—that is, by uniquely combining valuable resources and routines that reside among various members of the supply chain. Yet, despite decades of observing and seeking to emulate the collaborative advantage of companies like Honda, Toyota, and Wal-Mart, few companies have been able to replicate their collaborative success. The socio-structural view of resistance to supply chain collaboration helps answer the question, “Why?” Simply stated, most firms fail to recognize and remove the resisters to collaboration. As discussed above and as illustrated in Figure 5, the socio-structural view highlights two points that underlie the intractability of collaboration resisters:

1. Many self-reinforcing cultural and social resistors are deeply entrenched within the makeup of the firm. Barriers like organizational structure, poor goal alignment, and inadequate connectivity create a bounded mindset that drives non-collaborative behavior. “Silo” thinking is then reinforced by local metrics, a lack of trust, and an unwillingness to share information. Seeking to avoid vulnerability, managers build the resistant wall higher and more formidable. An ever-present resistance to change magnifies the collaboration challenge.
2. Companies that progress beyond the initial resistors typically discover that they do not possess the skills required to identify and cultivate distinctive collaboration capabilities. The pervasive nature of the wall of resistance built by the entrenched resistors blocks the vision and deflects the resources needed to collaborate. Without visionary and determined leadership—supported by alliance, complexity, and role redefinition skills—to drive efforts to tear down the wall of resistance, a vicious cycle of entrenchment stalls efforts to migrate toward collaborative business models.

*Figure 5*  
*A Systems Diagram: A Socio-Structural View of Resistors to SC Collaboration*

A third point also emerges from the case study analysis. Since no single, predominant force such as inadequate technology impedes progress toward breakthrough collaboration, there is no simple, off-the-shelf response to resistor mitigation. Corporate favorites such as hiring consultants or investing in technology are ill suited to the challenge posed by socio-structural resistors. Indeed, managers need to comprehend that the mitigation challenge is one of accrual. Diverse in nature, the plethora of resistors often surrounds and overwhelms managers. One manager summarized this point, saying, “You have to understand what you are up against. You need to understand all the different things that can kill you!” Piecemeal mitigation strategies can change neither organizational structure nor culture and are thus bound to fail, diluting resources and discouraging managers. The interviews clearly indicate that a comprehensive and holistic mitigation strategy is needed.

Future research it is needed to explore in greater detail the structural and cultural resistors to collaboration identified in this research as well as their interconnected nature. Future research should also evaluate the efficacy of diverse collaboration enablers, especially those suggested by

the propositions generated by this research. The goal of these two streams of research should be to develop a comprehensive, integrative theory of supply chain collaboration that links resistors and enablers to guide development of a proven path to distinctive collaboration. Research that yields such insight would help assure that more companies migrate from the vicious to the virtuous cycle of collaboration.

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*Figure 1*  
*A Systems Diagram: The Influence of Collaboration Resistors*

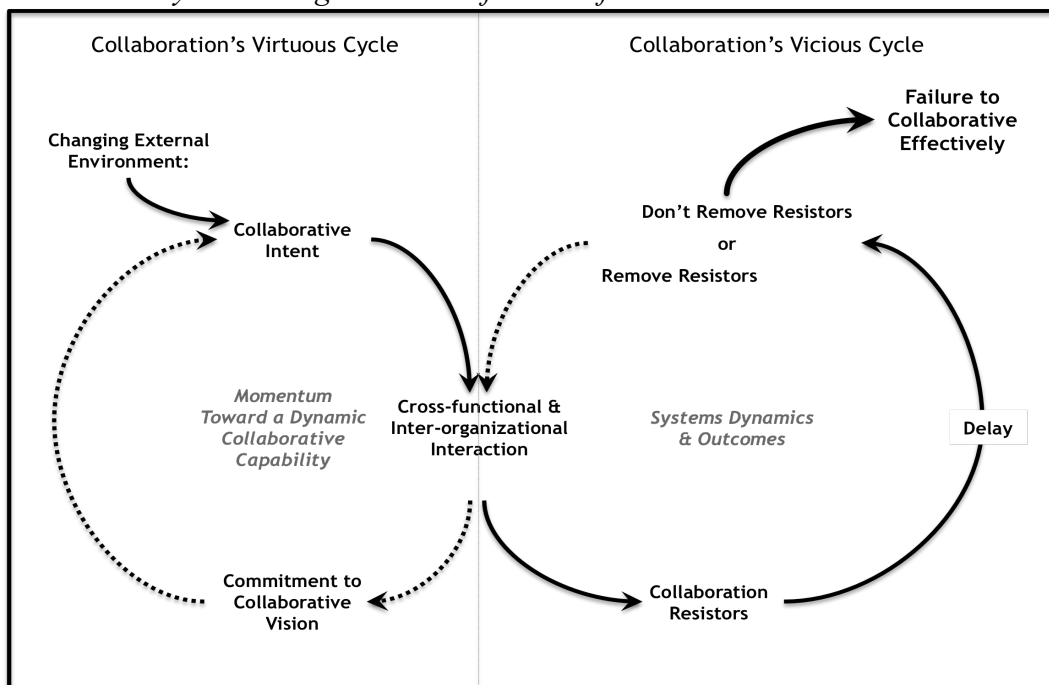


Figure 2  
A Socio-Structural View of Resistance to Supply Chain Collaboration

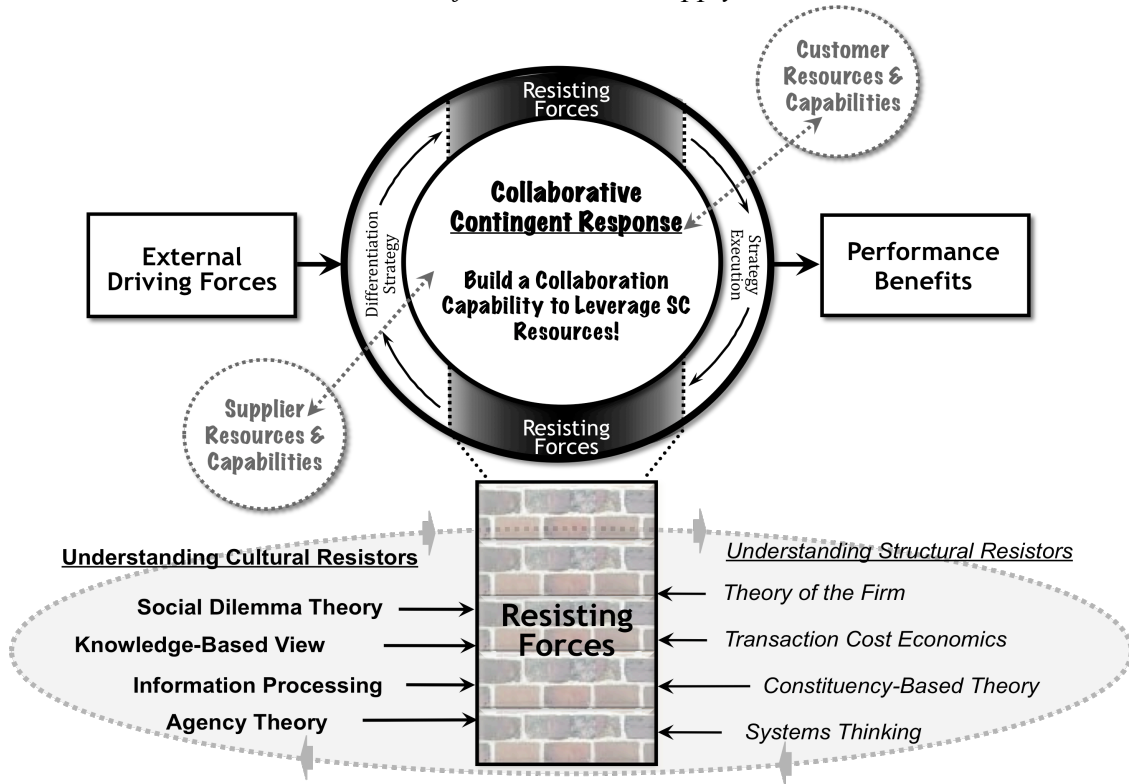


Figure 3  
Sources of Cultural Resistance to Collaboration

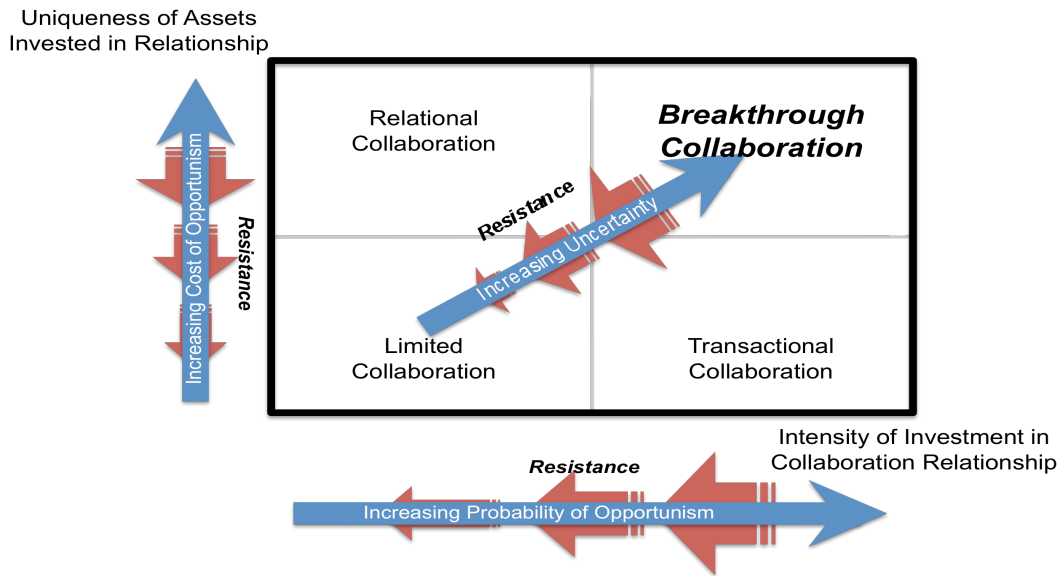


Figure 4  
 Resistant Barriers to SC Collaboration: Period 1 versus Period 2

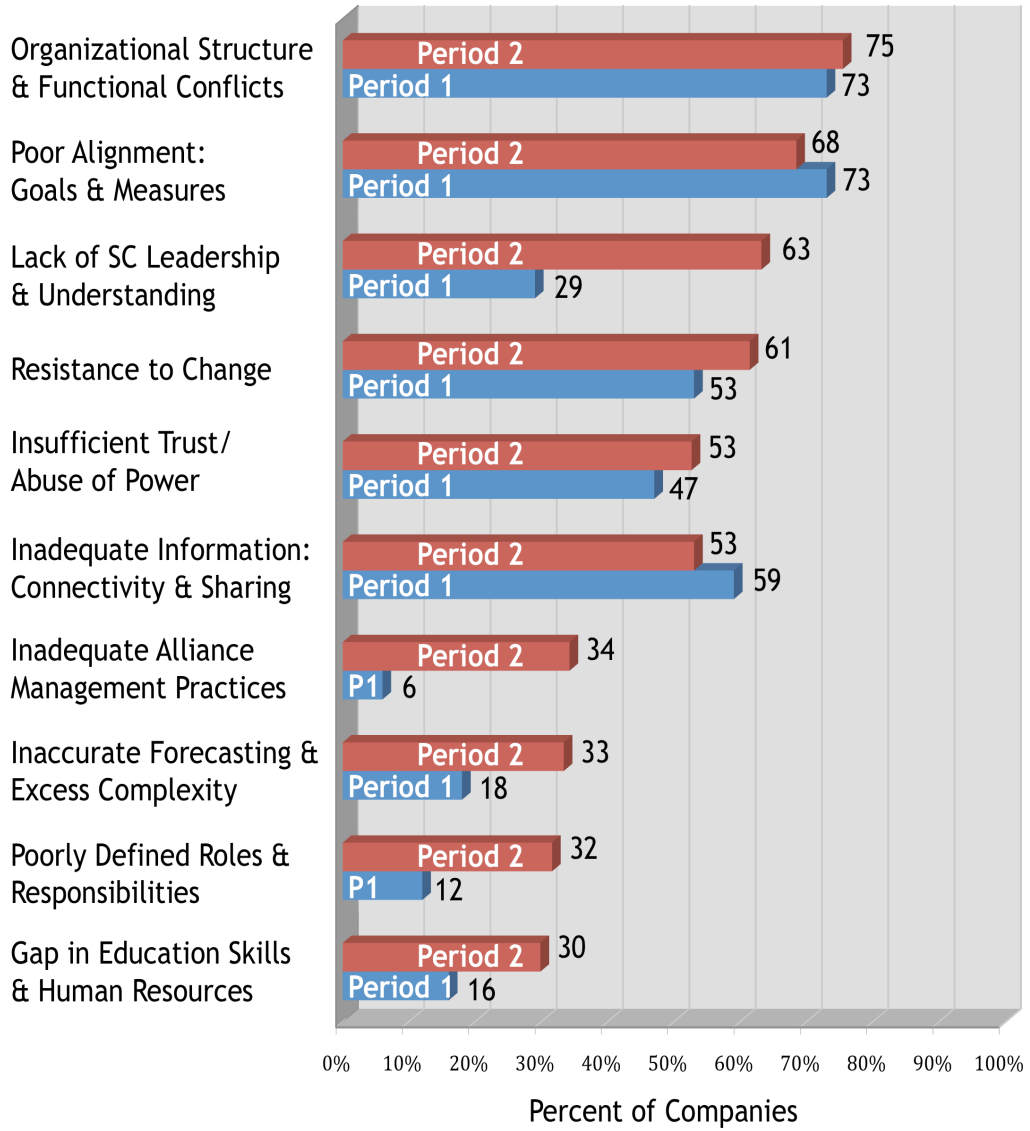
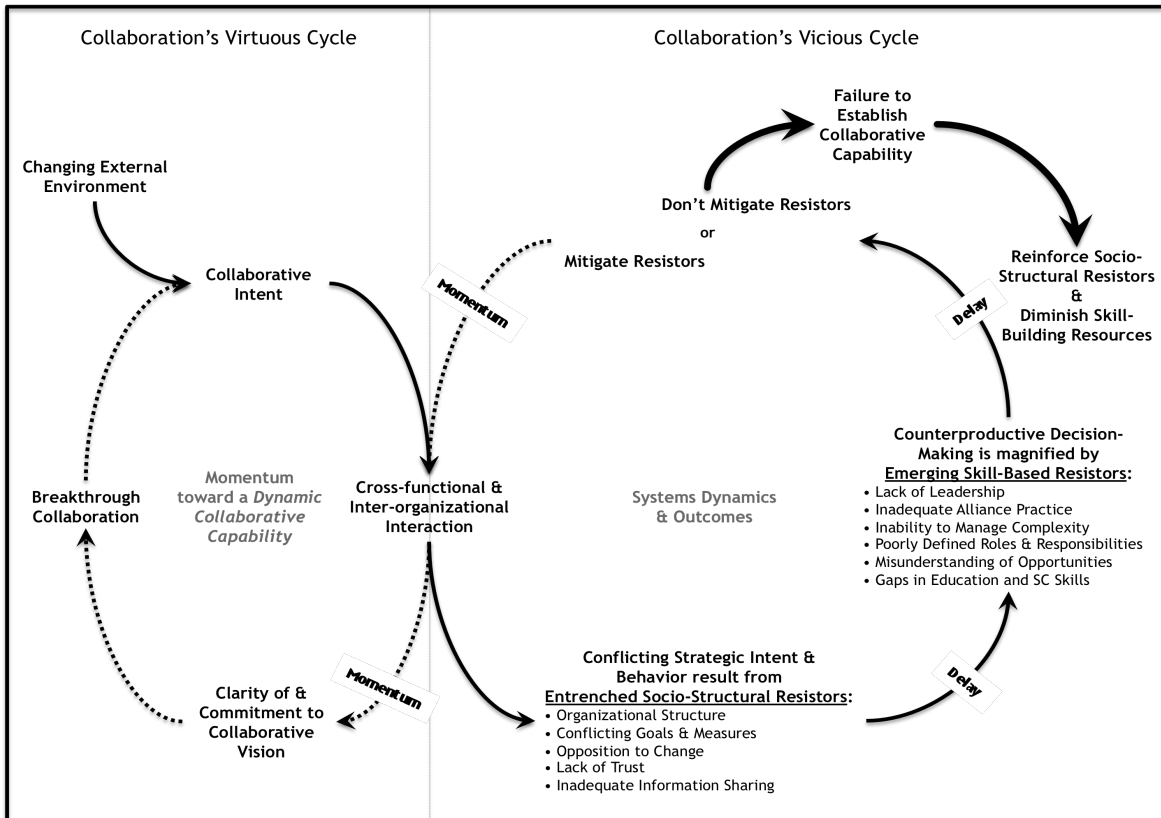


Figure 5  
 A Systems Diagram: A Socio-Structural View of Resistors to SC Collaboration



*Table 1*  
*A theoretical Perspective of Cultural and Structural Resistors*

<b>Social Resistors</b>	<b>Key Citations</b>	<b>Theory Description</b>	<b>Implications for Collaboration</b>
<b>Agency Theory</b>	Eisenhardt (1989c) Bensaou & Anderson (1999) Santos & Eisenhardt (2005) Sundaramurthy & Lewis (2003) Zollo, Reuer & Singh (2002)	Agency Theory concerns the difficulties that arise under conditions of incomplete and asymmetric information when a principal hires an agent. Self interest motivates the principle and the agent towards differing goals. (Jensen and Meckling 1976)	Individual motivation differs by a players position in the game. Social systems must be in place to govern differing self-interests.
<b>Knowledge Creation</b>	Nonaka (1994) Larsson, Bengtsson, Henriksson, & Sparks (1998) Karlsen, Silseth, Benito, & Welch (2003) Ferdows (2006) Tsoukas (2009)	Knowledge sharing and creation creates firm advantage. Knowledge creation is cyclic phenomenea that moves from tacit to explicit. As knowledge is shared it creates greater knowledge. (Nonaka 1994)	Social systems that share knowledge, create new knowledge that creates competitive advantage. Gaming reduces knowledge creation because knowledge is reserved for self-interested reasons.
<b>Information Processing</b>	Simon (1995) Carliie (2004) Barry & Crant (2000) Schu, Mayo, & Burnstein (2008) Miller & Lin (2010)	The inability of the human mind to comprehend all informaton constrains human rationality. (Simon 1991) Social interactions depend the relative influence of the actors.	Bounded rationality in a relationship infers that partners will not act in a strictly rationale manner. This suggests that even though collaborative structure and governance is in place, human constraints may limit collaboration.
<b>Social Dilemma</b>	Dawes (1980) Park & Ungson (2001) McCarter & Northcraft (2007) Poppo, Zhou, & Sungmin (2008) Lado, Dant, & Tekleab (2008)	Private interests compete with collective interests and may produce suboptimal outcomes. (Dawes 1980)	Social systems must realize the utilities and payoffs of various games in order to align collaborative incentives.
<b>Structural Resistors</b>	<b>Key Citations</b>	<b>Theory Description</b>	<b>Implications for Collaboration</b>
<b>Theory of the Firm</b>	Coase (1937) Madhok & Tallman (1998) Sachwald (1998) Das & Bing-Sheng (2000) Jacobides & Billinger (2006)	Firms structure themselves as an alternative institution to markets. The goal of the firm is to create the deep skills and institutions that the market cannot mediate. (Coase 1937)	Sharing deep skills creates an institution not realized by a single firm alone. The sharing of deep skills motivates collaborative behaviors.
<b>Transaction Cost Economics</b>	Williamson (1979) Dyer (1997) Park & Ungson (2001) Dyer & Chu (2003) Poppo, Zhou & Ryu (2008)	Firms seek structures based on minimizing external transaction costs. Five deterring factors influence the structure of the relationship - frequency, asset specificity, uncertainty, bounded rationality, and opportunism. (Williamson 1979)	A firms relational structure is determined by transaction costs. However, social systems mitigate or amplify asset specificity, uncertainty, bounded rationality, and opportunism.
<b>Constituency or Stakeholder Theory</b>	Freeman (1984) Wolfe & Putler (2002) Schneider (2002) Co & Barro (2009) Mooi & Frambach (2009)	Firms must consider the demands not only of their shareholders but also those of a wide range of other external constituencies. Stakeholders create a structure of expected outcomes. (Freeman, 1984)	As relationships increase the external constituencies also increase. Collaborative relationships and social systems ensure that most constituent demands are met.
<b>Systems Thinking</b>	Checkland (1981) Senge (2006) Sinha & Van de Ven (2005) Senge, Lichtenstein, Kaeufer, Bradbury, & Carroll (2007) Ethiraj & Levinthal (2009)	The component parts of a system can best be understood in the context of relationships with each other and with other systems, rather than in isolation. (Senge 2006)	The structure of a collaborative system is a system of systems. Understanding the systemic nature of the firm motivates and governs social collaborative systems.

*Table 2*  
*Qualitative Sample: Channel, Ownership, Sales, Profits, and Employee Levels*

	Period 1			Period 2		
Channel Position	Number			Number		
Retailer	14			15		
Finished-goods Assembler	13			19		
Direct-materials Supplier	15			12		
Service Provider	9			11		
Public vs. Private						
Public Company	34			35		
Private Company	17			22		
Descriptive Statistics	Sales (\$M)	Profits (\$M)	Employees	Sales (\$M)	Profits (\$M)	Employees
Mean	\$28,751	\$1,704	124,706	\$24,077	\$2,168	94,408
Median	\$9,045	\$589	44,750	\$4,954	\$679	16,300
Minimum	\$103	-\$705	2,701	\$3	-\$4,183	35
Maximum	\$285,222	\$10,267	1,700,000	\$378,799	\$12,731	2,100,000

*Table 3*  
*Resistant Barriers to SC Collaboration: A Channel Perspective*

	Service Provider		Supplier		Finished Goods		Retailer	
	Percent	Rank	Percent	Rank	Percent	Rank	Percent	Rank
<b>Organizational Structure &amp; Functional Conflicts</b>	73%	1	75%	1	63%	3	93%	1
<b>Poor Alignment: Goals and Measures</b>	64%	2	58%	3	79%	1	67%	3
<b>Lack of SC Leadership &amp; Vision</b>	36%	5	67%	2	47%	7	73%	2
<b>Inability to Proactively Change</b>	64%	2	50%	4	68%	2	60%	5
<b>Insufficient Trust/ Abuse of Power</b>	36%	5	42%	6	58%	4	67%	3
<b>Inadequate Information: Connectivity &amp; Sharing</b>	64%	2	33%	8	58%	4	53%	6
<b>Inadequate Alliance Management Practice</b>	18%	7	50%	4	42%	8	23%	10
<b>Inadequate Forecasting &amp; Excess Complexity</b>	18%	7	17%	10	53%	6	33%	8
<b>Poorly Defined Roles and Responsibilities</b>	9%	10	42%	6	37%	9	33%	8
<b>Gap in Education, Skills, and Human Resources</b>	18%	7	25%	9	32%	10	40%	7