ABSTRACT

Collaborative supply chain design has been called the “enabler of winning business models” and “the most disappointing strategy that has come along to date.” The disparate views emerge from the dual facts that although some firms are leveraging collaboration to reap valuable competitive advantage, most firms continue to struggle to realign relationships and reconfigure resources to collaborate effectively. We contribute to the study of collaboration by 1) describing collaborative architecture in terms of process and elements, 2) presenting a maturity framework that characterizes the evolution of collaborative strategies, and 3) discussing core architectural deficiencies that delay maturation and deny relational rents.

KEYWORDS: Collaboration, Supply Chain Management, Relational View, Organizational Architecture, Change Management, Leadership

INTRODUCTION

Collaborative supply chain design has been called the “enabler of winning business models” (Lyons, 2003) and the “ultimate core capability.” (Fine, 1998) For over a decade, analysts like BCG’s Harold Sirkin have warned that competition is no longer “company vs. company but supply chain vs. supply chain.” (Henkoff, 1996) These pundits contend that for a firm to win in today’s chaotic marketplace, managers must design and build value-added networks capable of using worldwide resources to meet global consumers’ needs. Recognizing this, Dyer and Singh (1998) articulated the relational view (RV), which emphasizes that vital resources often reside outside a firm’s boundaries and that cooperative strategies are a competitive imperative. The RV argues that effective governance of supply chain relationships enables a firm to invest in relationship-specific assets, establish knowledge-sharing routines, and integrate complementary competencies to attain supernormal relational rents.

Few firms, however, have learned how to realign relationships and reconfigure network resources to reliably achieve interorganizational competitive advantage (Ellinger, Keller, & Hansen, 2006, Fawcett, Magnan, and Ogden, 2007). Twelve years after Dyer and Singh explicated the relational view, anecdotes regarding collaborative leaders still focus on tried-and-true relational exemplars like Honda and Toyota. The fact that so few firms have developed
value co-creation capabilities and attained promised relational benefits prompted Sabbath and Fontanella (2002) to describe supply chain collaboration as “the most popular—and the most disappointing—strategy that has come along to date.” The gap between collaboration’s expected benefits and realized relational rents led Daugherty et al. (2006) to inquire, “Is collaboration paying off for firms?”

Despite its intuitive appeal, the reality is that collaboration is difficult. Cousins and Menguc (2006: 617) aptly note, “the process of integration is not a simple one.” Reasons why collaborative strategies fail to behave as desired and deliver expected benefits are many and diverse. Beth et al. (2003) implied that the difficulty is rooted within the culture and structure of modern organizations. Indeed, functional orientations and conflicting objectives magnify resource scarcity to reduce decision makers’ commitment to collaboration and their desire to work together (Anderson, 1982; Bowersox, Closs, & Stank, 1999; Min, Mentzer, & Ladd, 2007; Wong & Wong, 2008). Power differentials across relationships enable opportunistic behavior, erode trust, and exacerbate perceptions of vulnerability (McCarter and Northcraft, 2007). Such structural and sociological issues lead to poor communication, competitive rivalry, and excessive complexity—each of which diminishes managers’ willingness and ability to build collaborative business models.

Of course, if the news regarding collaboration were entirely disheartening, collaborative business models would no longer be on many C-suite to-do lists. Some firms are leveraging collaboration to reap valuable competitive rewards—putting pressure on rivals to learn how to collaborate. Recent studies have documented collaboration’s performance benefits. For instance, higher levels of collaboration increase process visibility (Barratt and Oke, 2007), which helps firms reduce forecast error (Williams and Waller, 2011) and lower inventory costs (Acharya, Kagan, and Manfredo, 2009). Additional benefits include superior agility, shorter order fulfillment lead times, faster product development, and lower inventory costs (Cachon and Fisher 2000; Frohlich 2002; Hult, Ketchen, and Slater 2004). Collaboration can also improve customer service and spur innovation (Fawcett, Jones, and Fawcett, 2012). Such collaboration-enabled benefits energize market growth and profitability (Allred, Fawcett & Wallin, 2011).

The question thus arises, “What determines whether or not collaboration pays off for a firm?” Our research, which is based on 106 interviews with supply chain leaders, reveals that the key differentiator is managers’ ability to anticipate and mitigate the resisting forces they encounter as they seek to strengthen collaborative relationships and build a winning team. Successful collaborators build appropriate cultural and structural bridges to promote open communication, facilitate knowledge sharing, and create a trusting exchange environment (Lorenzoni and Lipparini, 1999; Madhok, 2002; Lavie, 2006). They invest in the architecture—that is, the processes and systems—that grant them access to the uniquely complementary resources that reside among trading partners (Gulati, 1998; Holcomb and Hitt, 2007; Lavie, Stettner, & Tushman, 2010). Our purpose in this article is to provide decision-makers a blueprint for building more effective collaborative business models. We contribute to the study of collaboration in several ways. First, in accordance with the notion that organizational form should promote desired function, we describe collaborative architecture—both in terms of process and elements. We then present a maturity framework that characterizes the evolution of collaborative strategies and serves as a basis for comparative benchmarking. Finally, we identify and discuss core architectural deficiencies that delay maturation and deny relational rents.
METHODOLOGY

Since our goal was to understand more fully the why and how phenomena associated with the design and execution of a collaborative business model, we adopted an inductive longitudinal approach. To ground our efforts, we conducted a key-word search of the extant literature. As we 1) sought insight into the allure of collaborative strategies and 2) desired to assess progress toward effective collaboration, we searched “supply chain” in conjunction with “integration,” “coordination,” and “collaboration” using ProQuest and ABI Inform databases. The results of this literature review guided the development of our interview guide and provided context to interpret our results.

Decision-making dynamics are better understood when examined over time. They are also better defined and more easily discerned via examination of extreme cases (Eisenhardt, 1989a; Pratt, Rockmann, & Kaufmann, 2006). Therefore, we chose a replication approach that took us to the field twice—six years apart—to interview companies that had publically stated their desire to compete through supply chain collaboration. In Period 1, we conducted 49 interviews across four supply chain positions: retailers, finished-goods providers, suppliers, and service providers. In Period 2, we interviewed managers at 57 firms across the same four channel positions. Fifteen firms participated in both interview rounds, providing a control such that their approach to design and execution could be compared to other companies in each time period. Intentionally, the companies in each panel possess similar demographic characteristics (see Table 1).

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<th>Table 1: Company Demographics by Channel, Sales, Profits, &amp; Employees</th>
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To assure comparability of results, we used a semi-structured interview protocol, which guided our interviews while allowing us to pursue distinct practices and emerging themes as the interviews progressed. We shared the protocol with managers before our company visits (Spradley 1979). Throughout the interview process, each company was treated as a “stand-alone entity” to help identify distinct patterns and to substantiate generalized theory in cross-case comparisons (Eisenhardt and Graebner, 2007). Extensive notes, used for later reflection, were taken during each interview (Pettigrew 1990). The researchers used an iterative discussion-based process as part of a rigorous qualitative analysis to scrutinize the results and establish a consensus regarding their meaning (Eisenhardt 1989a; 1989b; Seidel, 1998). Using the literature as context, we employed an open-coding approach, traveling back and forth
among the case notes and emerging patterns (Eisenhardt and Graebner, 2007). Finally, as we identified common statements, we formed provisional categories to define the process and elements of relational architecture (Corbin and Strauss, 1990).

**DISCERNING RELATIONAL ARCHITECTURE: A BLUEPRINT FOR COLLABORATION**

Nadler, Gerstein, and Shaw (1992) ascribed the principles of architecture—i.e., purpose, fit, materials, and technologies—to organizational design, defining architecture as the “art of shaping organizational space to meet human needs and aspirations.” Liedtka (1996, p. 31) further described architecture as, “all of the elements of design of the social and work systems, including formal structure, the design of work practices, operating styles, and processes for selection, socialization, development and reward.” Other researchers have added such boundary-defining and boundary-spanning elements as culture, division of labor, interdepartmental coordination, people, processes, metrics, resource allocation mechanisms, strategy, structure, and technology (Nadler and Tushman, 1997; Jacobides, 2006; Sawhney and Zabin, 2002; Teece, 2007). Through organizational architecture, managers integrate and reconfigure these elements to form and grow the capabilities firms need to win competitive battles. Referring to the process of fitting these elements together to create distinctive value, Jacobides (2006: 159) asked, “How does . . . architecture affect our ability to ‘find new recipes,’ go into ‘the great unknown’?”

As we evaluated and synthesized all that we learned from the hundreds of managers who participated in the interviews, a pattern for relational architecture emerged. The design of relational business models begins as managers articulate desired function and assess their firms’ collaborative capability. From this foundation, managers design a “buildable” plan as they define context, identify complementary resources, and choose among the tradeoffs inherent in resource configuration. Once objectives and tradeoffs are understood, managers must integrate resources to build a cohesive team of companies that work together to co-create value. The following discussion decomposes each of these architectural phases into their essential features, describing how they fit together to shape and evolve a network’s collaborative ability.

**Articulating Form**

Modern architecture’s aesthetic credo, “Form follows function,” underlies Nadler et al.’s (1992) expression of organizational architecture. Building on this principle, a business model’s form should be based on and enable its intended function. Throughout the interviews, managers stressed that efforts to articulate a firms’ function; i.e., value proposition, depend on insight into customer needs and their companies’ strategic orientation. Managers specifically identified two influencers of strategic function: customer fulfillment and systems thinking.

**Customer Fulfillment as an Influencer**

Managers shared the view that success depends on their firms’ ability to fulfill customers’ real needs. Even so, they acknowledged that they often take customers for granted. A.G. Lafley, then CEO of Procter & Gamble, explained this paradox, saying,

> Over the last half of the 1990s, we were all a little bit too shareholder focused, too growth-at-any-cost focused. I tried to get people to flip that around. If we create brands that make a difference to our customers and focus on the fundamentals, ultimately shareholder growth will take care of itself. (Stein, 2003)
To avoid losing sight of customer needs, collaborative leaders invest in a fulfillment infrastructure that 1) focuses the entire network on the end customer, 2) emphasizes customer success over satisfaction, and 3) defines relationship intensity based on value creation potential. These firms recognize that the only entity that puts money into a supply chain is the end customer. Everyone else recycles it. To become preferred suppliers to their best customers, these firms help customers win their own competitive battles. One manufacturer gave life to its customer-success philosophy through the motto, “Pride in helping customers compete!” Finally, leading collaborators work intensely with their most profitable customers to co-create value. Unfortunately, few firms know who their most profitable customers really are. Equally few possess the supply chain visibility to intimately understand downstream customer needs. Opportunities to shape collaborative business models remain undetected.

**Systems Thinking as an Influencer**

As firms develop their value proposition, most stress the outstanding products and services they offer. Collaborative leaders, by contrast, highlight their capability to work across boundaries to tailor distinctive offerings. They emphasize how over what. By focusing on “how,” managers mitigate the constraints—such as divergent goals, non-aligned measures, and turf protection—engendered by functional organizational structures. Collaborative leaders strive to learn how to organize to co-create value within the firm and across the supply network.

Our interviews reveal that typical organizational structures do not support the systems thinking needed to develop collaborative value propositions. Collaborative leaders, however, rigorously evaluate decisions based on immediate outcomes as well as longer-term, system-wide ramifications. Systems thinking encourages everyone to exert effort to achieve a common objective. Imagine a tug-of-war between two competing supply networks. One network is organized to collaborate. Members share a common, customer-focused vision. They also share 1) metrics, 2) information, and 3) resources. The result: efforts are aligned so that everyone is pulling in the same direction. Members of the network act as a true team. The members of the other supply network, by contrast, pursue individual goals, pulling in the direction dictated by self-interest. Who wins? The answer: the high-collaboration team will win every time. Yet, managers too often describe scenarios where their firm is pulling with all its might, but other “team” members are pulling in different directions. Unable to overturn the laws of physics, even determined efforts cannot win—unless competing networks have also failed to understand the physics of collaboration.

In summary, customer fulfillment defines the “what” and system thinking informs the “how” that determine an organization’s desired function and thus the extent to which a collaborative form is appropriate.

**Designing Fit**

A functioning blueprint emerges only as critical design elements are identified and their proper fit determined. Likewise, a viable supply network materializes only as managers define competitive rules and recognize the right complementary resources to deliver customer value. During the interviews, managers described five analytical approaches they use in the architectural design process: environmental scanning, supply chain mapping, strategic costing, competency management, and rationalization. These analytical approaches create the visibility
required to identify vital competencies and evaluate how they can be best configured for value co-creation and competitive advantage.

Environmental Scanning

Managers describe today’s marketplace as cutthroat and tumultuous. Globalization, information-empowered customers, and technological innovation are driving relentless change. Increasing reliance on lean, global supply chains is similarly exposing firms to the threat of disruption. As such, strategic and tactical decisions are fraught with risk, requiring managers to better understand the world in which their firms compete. To help them improve their ability to anticipate and/or respond to emerging threats, collaboration leaders are becoming avid scanners and continuity planners.

Scanning and planning enable managers to identify inflection points and mitigate risk. Inflection points occur when factors in the external environment converge to change the competitive landscape. Pursued appropriately, scanning helps managers spot market shifts before they occur, enabling them to reconfigure supply chain resources to exploit new market dynamics—often before the competition is aware a change is taking place. Similarly, rigorous continuity planning increases awareness of risks and enables managers to put in place plans to either avoid disruptions or minimize their negative impact. Collaborative leaders use scanning to design agile and adaptable supply networks; however, our research reveals that rigorous scanning is a weak link in modern supply chains. Many firms do not invest the time and resources to become fully situationally aware. Unable to exploit first-mover advantages or respond adeptly to unexpected disruptions, these firms disadvantage their collaborative partners. Because scanning delineates the rules of the competitive game, it is a vital early element of relational architecture.

Supply Chain Mapping

One challenge managers consistently talked about is that they really do not know what their supply networks look like—especially beyond the first tier up or down. The typical supply network is simply too complex for managers to really know who is presently on the team, what skills each team member possesses, or what roles specific team members truly fulfill. Lacking network visibility, managers cannot realistically hope to design a winning team. Thus, a common interview storyline was that a lack of transparency hinders effective business model design.

Collaborative leaders, by contrast, are conspicuous for their investments in mapping skills. For instance, they map their own processes and invite partners to value-stream mapping seminars, expecting partners to use the newly acquired skills to make their own processes visible. Some firms go beyond value-stream mapping to set up “war rooms” that depict vital aspects of the entire network. They track key metrics including inventory levels and lead times. They also investigate network capabilities and dynamics. An accurate map helps managers 1) align value expectations and value propositions, 2) define value-added roles, 3) gauge channel power—and its source, 4) identify complementary competencies, and 5) evaluate opportunities to shift roles or disintermediate non-value-adding members of the team. Because maps make reality visible, fact-based conversations replace emotional debates. Mapping-enabled blameless autopsies allow the firm and its partners to ideate improvements, pursue disruptive strategies, change customer expectations, and make competitors’ offerings obsolete.
Strategic Costing

Another persistent challenge identified by managers is the lack of good costing information. Strategic costing is needed to select the right suppliers, segment customers based on profitability, evaluate value-added capabilities, and allocate scarce resources. Absent refined costing practices, managers lack crucial insight into the tradeoffs that distort process management and confound collaboration.

Strategic costing naturally depends on accurate mapping. Mapping provides the visibility needed to link costs to the activities that drive them. The resultant understanding antecedes all of the strategic costing activities identified by interview managers including “should” costing, target costing, total costing, and activity-based costing. A further impediment to advanced costing identified by managers is that existing measures support neither the development of these costing skills nor their day-to-day use. Not surprisingly, collaboration leaders are several steps ahead of their counterparts in their use of strategic costing tools. Not only have they invested in the scanning and mapping processes that justify and enable strategic costing but they also possess the conviction that accurate costing leads to better decision-making and more effective collaboration.

Competency Management

One of the benefits of collaboration is that it allows a firm to invest in building a core competence while relying on partners to provide complementary competencies. Yet, throughout the interviews, managers revealed that they often do not fully grasp the nature of their firms' competencies. Not realizing that simply being good at something does not constitute possession of a core competence, managers described the firm's primary role in the value-added process as a core competency. Upon closer scrutiny, many managers admit that their firms have not developed a true core competency—at least not the hard-to-replicate competency that makes a firm indispensable. As a result, many firms are more exposed to technological disruption or disintermediation than they suppose. Further, managers risk outsourcing the wrong activities—those that play a tangential, but pivotal enabling role in their most-important competencies—and may jeopardize their firm's viability.

Collaboration leaders manage competency development and the outsourcing process differently. They rely on the insight that comes from their scanning, mapping, and costing processes to develop high-level understanding into market imperatives, competitor abilities, and their own strengths and weaknesses. They use this insight to uniquely fit together the diverse competencies dispersed throughout the supply network. This skill is the essence of architecture and leads to higher levels of collaboration and creativity and is itself an inimitable competency.

Rationalization

To manage a supply network for value co-creation, literally millions of daily decisions must be made. Supply networks are incredibly complex, consisting of myriads of suppliers, customers, products, processes, and locations. The complex web of interactions that results creates confusion, increases costs, complicates constraint and tradeoff analysis, and contributes to many counterproductive architectural design decisions. To deal with this complexity, managers are aggressively rationalizing their networks. However, managers at collaboration leaders report two challenges inherent in rationalization they are learning to cope with.
1. Managers often assume complexity is bad. The goal becomes to simply operations by X%, regardless of broader or longer-term systems effects. The reality is that some complexity is beneficial. For example, an additional stocking point, a backup supplier, or another SKU might deliver value customers desire that the competition cannot match. Many companies, however, struggle to analyze complexity with the granularity needed to differentiate good from bad complexity. They cannot determine when added value warrants higher costs.

2. Managers often begin rationalization initiatives prematurely. They view simplification efforts as an area where they can garner quick wins. Thus, they seek to simplify too early in the design process—before requisite understanding of network dynamics is developed. Managers are beginning to realize they do not possess the insight needed to distinguish between good and bad complexity until they have scanned the environment, mapped the network, calculated costs, and understood competencies.

To summarize, architecture’s design process provides the insight required to combine the right players in the right roles so that unmatched value is created. However, architecture requires holistic vision, deep analysis, and meticulous effort in order to find and fit the right elements together to assemble a winning team. Our research suggests that firms often fail to approach architecture systematically and with purpose, undermining the aesthetic of collaboration.

**BUILDING THE COLLABORATIVE TEAM**

Managing the transition from blueprint—the theoretical “to-be” design—to a winning collaborative business model is daunting. Managers must do more than communicate a shared vision and articulate a compelling migration plan. They must cultivate cohesion—a trait commonly referred to as chemistry in the sporting world. Unfortunately, just as many truly talented sporting teams never develop championship-level chemistry, many supply networks never learn to compete together. Supply networks are not organized nor are managers incented to compete collaboratively. Fortunately, the interview process brought to light five behaviors collaborative leaders are infusing to bridge the cohesion gap: defining relationship intensity, sharing information, measuring value co-creation, empowering people, and learning collaboratively.

**Defining Relationship Intensity**

Decision makers at every company we interviewed pointed out that they manage hundreds to thousands of relationships. They noted that they do not have the resources to work closely with each potential partner or to manage every relationship for optimal value creation. However, this implicit understanding has yet to become the guiding force behind alliance development. That is, very few relationships—often between 2-20% of all supply network relationships—merit the investments of time and effort needed to cultivate meaningful collaboration. However, since few firms know how to evaluate value co-creation potential, they find it difficult to define how close specific relationships should be. Fewer than 10% of firms explicitly measure non-traditional criteria like collaboration capability and idea generation as part of the supplier-selection or scorecarding processes. Further, only rarely do firms quantify collaboration’s contribution to operational and firm performance.

Collaboration leaders realize that not all relationships are created equal and they are adept at using value co-creation potential to define relationship intensity. They no longer manage alliances based primarily on scale/volume economies and cost-reduction opportunities. They are willing to “leave money on the table” in order to find partners who can work creatively and
collaboratively to bring unique value to customers. They also invest more, and more consistently, in trust-based relationships and partner capabilities. Unfortunately, our interview experience suggests that even collaboration leaders sometimes resort to power and short-term cost-cutting tactics when the market turns downward. Managing relationship intensity for value co-creation is still gaining traction as a strategic behavior.

**Sharing Information**

Managers openly acknowledge that advances in information technology have enabled modern supply chain management. They are equally quick to point out that they are often disappointed in the return they obtain from their IT investments. The firms that struggle the most are those that view IT as the answer rather than as an enabler. Specifically, used appropriately, information substitutes for inventory, shortens order fulfillment, speeds product development, drives process re-engineering, and make collaboration possible. However, the higher-order benefits (those beyond reduced inventories and fulfillment cycles) only accrue when IT capabilities are unleashed via a culture of open information sharing. Unfortunately, many managers perceive information as a source of power and prefer to avoid the vulnerability that comes with open information sharing. Yet, the full benefit of IT accrues only when an organizational predisposition to share information prevails. Managers are learning that establishing this disposition to share requires a different skill set than investing in technology.

Collaboration champions recognize the dual technological/cultural nature that characterizes meaningful information sharing. They invest in IT to facilitate connectivity and reduce the costs of data collection, analysis, and exchange. They also promote a culture that is disposed to information sharing, which emerges from and reinforces trust. As a willingness to share becomes embedded in an organization’s culture, managers can safely share the sensitive cost, market, and technology information that facilitates collaborative innovation and distinctive value creation. Ultimately, collaboration leaders invest as seriously in the cultural predisposition to share as they do in technology.

**Measuring Value Co-creation**

Because measurement enhances understanding even as it motivates behavior, it either promotes or undermines collaboration—it is never neutral. Indeed, managers warned that classic metrics encourage many of their most persistent challenges. Overly oriented to near-term financial targets, cost cutting, and local (functional or firm-based) outcomes, traditional measurement practice impedes effective collaboration and undermines relationship development. Although managers argue that they are aware of these challenges, they indicate that they are struggling to find and adopt measures that are able to provide supply chain-wide visibility.

Three characteristics differentiate collaboration leaders from their counterparts. First, they are obsessed with measurement. They track everything and because they understand the need for alignment, they are prone to employ more measures that are customer and process focused. Second, they use scorecards to accelerate communication and collaboration. The scorecarding process sets expectations and communicates measurement methodology. Since suppliers know what is being measured and how it is being measured, they can better align their metrics and value-added activities to key customers’ demands. Frequently reported results also promote open and candid discussions regarding performance as well as improvement opportunities. Scorecards can also be used to spot and share best practices across the supply network. Third,
since co-creation of value tends to be idiosyncratic, collaboration leaders tend to develop and employ customized metrics more frequently than their competitors. Each of these efforts promotes the alignment that helps team members pull in the same direction.

**Empowering People**

Managers intuitively understand that collaboration is first and foremost a people process. At one firm, a banner declared as much, saying, “People are either the bridge or the barrier.” Strikingly, managers stressed that a serious skill deficit exists. They note that the lack of holistic thinking and teaming skills among today’s workforce is a serious roadblock to winning collaboration. Similarly, they depict the ideal collaborator as someone who possesses deep functional skills but sees the big picture, who executes with discipline while thinking creatively, who is equally adept at exemplifying leadership or providing needed support, and who knows when to promote continuity or embrace change. Managers not only note that this prototypical collaborator is hard to find but lament that business schools’ curriculums are failing to deliver the education needed to close the gap.

To overcome the skill deficit, collaboration leaders are modifying their hiring and training practices. For instance, more firms are emphasizing EQ (emotional quotient) as they screen potential employees. The goal is to find more right-brain thinkers who possess empathy, can work effectively out of the box, and are inclined toward collaboration. Such individuals play an important orchestrating role in the teaming process. Further, new hires are placed in leadership-training rotation programs that expose them to a variety of different value-added activities. Of course, these investments in training only provide the desired return if people are empowered to use their emerging skills. Collaboration leaders therefore cultivate a workplace that values people and encourages them to bring passion—as exemplified by great thinking and innovative ideas—to work with them daily. Ultimately, these capable, empowered decision makers are the engine that powers the cross-functional and inter-organization teams that drive collaborative processes and projects.

**Learning Collaboratively**

In the late 1990s, Charles Fine asserted that all advantage is temporary. Our replication approach confirmed his assertion. Managers at every company involved in both rounds of interviews stated emphatically that competition is now tougher than perhaps at any time in history. The creative destruction of the entrepreneurial spirit is accelerated by technological innovation and economic globalization. Managers therefore conveyed a vital point: it is no longer sufficient to learn how to collaborate; companies today must learn how to learn collaboratively. Even so, they shared stories that suggest few companies are genetically endowed to pursue collaborative learning. Managers intimated that accomplishment often hinders improvement and suggested that success breeds complacency at a startling pace.

The experience of collaboration leaders impels managers to avoid the perils of complacency by cultivating a culture of collaborative learning. The source of collaborative innovation is twofold. First, collaboration leaders are driven, possessing a mindset and culture that never permits decision makers to be satisfied with past achievements. Moreover, the learning culture seems to attract partners of like mindset, which amplifies opportunities for learning. Indeed, these firms expect—and typically help—members of their supply network to improve their own skills. Second, because collaboration leaders have inculcated the previous behaviors, they have built the relationships and invested in the infrastructure needed to support and sustain a learning
ecosystem. In such an ecosystem, the best ideas are captured and shared across the network, creating a flywheel effect that motivates constant collaborative improvement.

To recap, motivating the group of “right” players identified in the architectural design phase to work cohesively to co-create value is difficult. Game-changing collaboration is seldom easy or cost free, especially in the early stages. Further, since managers are rewarded on their firm’s stock price rather than on an abstract measure of network collaboration, the rational to collaborate is seldom tangibly felt. To inspire momentum, managers must instill collaboration’s enabling behaviors—and they must be patient and persistent, earning early successes and trumpeting small victories. As they do, collaboration’s power becomes both visible and addictive. Regrettably, our findings reveal that many managers have yet to grasp how to use architecture behaviors to build a competitive team through selecting the right players, placing them in the right roles and responsibilities, and establishing the right relationships.

THE MATURITY OF RELATIONAL ARCHITECTURE

Given sustained interest in relational strategies, we might ask, “How mature is collaborative practice?” The concept of maturity is critical. Assessing maturity invites us to answer two questions:

- Are we getting better?
- Is collaboration a fad—something to talk about, but out of reach for the typical company?

Developing a maturity framework also provides a benchmark for managers to evaluate 1) their firms’ current status and 2) strategies for future investment and improvement.

Figure 1 portrays a maturity framework that delineates relational maturity based on four essential organizational characteristics: competitive strategy/value proposition, goals, resource dedication/sharing, and measurement. Our findings reveal that different levels of maturity—as evidenced via mindset and capability—are evidenced. In Stage 1, Functional Focus, managers may talk about collaboration, but they still live in a functional world. In Stage 2, Process Integration, managers recognize that people across the firm must work as a team to build the dynamic capabilities needed to promise and consistently deliver customer value. Managers view their decision-making world in terms of processes. In Stage 3, External Collaboration, managers across the firm are enthusiastic collaborators. They realize that their firm’s success (if not survival) hinges on the strength of other members of the supply network. Only by getting the right companies to work together in the right ways can a winning advantage be achieved. Collaboration leaders typically find themselves here. Interestingly, Stage 4, Collaborative Innovation, remains more a theoretical goal than reality. Managers at firms in both Stage 2 and Stage 3 describe a fiercely competitive world where only the adaptable survive. They talk about a world where innovation is the only source of sustained success and claim that over the long haul, innovation must come from ever nook and cranny of the supply network. None of the firms we visited is rooted in Stage 4. Nor could managers readily identify companies that have clearly achieved this collaborative status. Nonetheless, managers at a few firms seem to possess the vision, energy, and determination to attain this level of relational maturity.

Returning to the notion of relational architecture, which provided insight into the process of articulating, designing, and building an organizational space that is conducive to collaboration, we can assess relational maturity with a degree of granularity. The question is, “How well do companies manage the three phases of relational architecture?” The first phase, Articulating Form, emphasizes the function a company must fulfill to achieve success and consists of two
Figure 1: A Relational Maturity Framework

Stage 1: Functional Focus
- Value Proposition is based on functional excellence.
- Operating goals are locally set and pursued.
- Resources managed at the functional level.
- Performance measured at functional level.

Stage 2: Process Integration
- Value Proposition is capability driven.
- Competitive goals are capability driven and focus on process excellence.
- Resources managed at process level. Teams drive decision making. IT systems are linked internally.
- Performance measured at process and company levels.

Stage 3: External Collaboration
- Business model and value proposition is focus on customer-responsive collaboration.
- Collaborative goals bring strategic partners' core capabilities together.
- Resources--information, people, and technology--are selectively shared. Cross-enterprise teams are common. IT systems are linked among strategic partners.
- Performance measures are aligned to collaborative goals and among key partners.

Stage 4: Collaboration Innovation
- Business model and value proposition are driven by collaboration innovation.
- Collaborative goals blur organizational borders to leverage and continuously improve complementary capabilities.
- Resources--information, people, and technology--are proactively shared. E-commerce solutions are in place. Risks and rewards are shared. Real-time decision making leads to disciplined SC execution.
- Performance measures promote collaboration and continuous innovation throughout the network.

Time, Experience, & Collaboration Capability

influencers: customer fulfillment and systems thinking. The second phase, Designing Fit, consists of five analytical approaches: scanning, mapping, costing, competency management, and rationalization. The third phase, Building the Team, takes the elements identified in design and molds them into a cohesive team capable of achieving collaborative success. Five behaviors promote this transformation: defining relationship alignment, sharing information, measuring value co-creation, empowering people, and learning collaboratively. Figure 2 maps dominant and leading practice for the two periods of the study, allowing us to consider the state and evolution of collaborative business models. Several implications merit brief discussion.

First, relational strategies are maturing. Both dominant and leading practice are advancing toward more mature collaboration. However, dominant practice remains rooted in Stage 1. Improvements in leading practice were more broadly based, placing collaboration leaders firmly in Stage 3 and suggesting that some companies are learning to collaborate for competitive advantage. Second, the gap between dominant and leading practice has grown. Collaboration leaders are relentlessly investing and experimenting in their efforts to enhance collaborate capabilities. Third, advances in the soft side of collaboration—systems thinking, relationships, measurement, empowerment, and learning—lag behind improvements in the analytical side. This “right-brain” lag persists for both dominant and leading practice, but it is particularly pronounced for firms mired in dominant practice. Fourth, as noted above, Stage 4 maturity is elusive. As select firms enter Stage 4, their biggest challenge may be to find partners with the same vision and determination that they have. By definition, the nature of collaborative innovation means that no firm can truly achieve a Stage 4 capability alone.
Figure 2: Mapping Architectural Elements to Relational Maturity

Panel A: Period 1

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<tr>
<th>Articulating Form</th>
<th>Stage 1 Functional Focus</th>
<th>Stage 2 Process Integration</th>
<th>Stage 3 External Collaboration</th>
<th>Stage 4 Collaborative Innovation</th>
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Period 1: Dominant Practice  Leading Practice

Panel B: Period 2

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<th>Stage 2 Process Integration</th>
<th>Stage 3 External Collaboration</th>
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Period 2: Dominant Practice  Leading Practice
UNDERSTANDING ARCHITECTURAL DEFICIENCIES

Our assessment of relational maturity reveals that most firms continue to struggle to instill the behaviors and implement the practices that lead to collaborative advantage. The good news: The maturity assessment points to two architectural deficiencies managers can remedy to accelerate maturation. Specifically, the fact that dominant practice remains caught in the inertia of Stage 1 even as leading-edge firms are breaking new ground identifies a need to better understand and more proactively address change management issues. Similarly, the prevailing “right-brain” lag highlights the central role of managerial commitment to collaboration and reiterates a need to reassess the leadership attributes required for effective collaboration.

Understanding Effective Change Management

Figure 3 uses force field analysis (Lewin, 1951) to depict the maturation dynamics managers described at their firms. Essentially, firms tend to persist in a steady, non-collaborative state until something happens, typically in the external environment, to dictate change. As driving forces such as a more dynamic and threatening marketplace materialize, managers seek to build a relational capability. They develop a migration plan and begin to make investments. However, collaboration requires a different set of individual skills and organizational routines than most firms possess. This reality engenders a sense of vulnerability and fear among decision makers. Not prepared to compete collaboratively, they resist collaboration. This resistance acts as a counterbalance to change. Importantly, resisting forces may exist anywhere in the firm or supply network and may emerge from people, policies, or processes (Dent and Goldberg, 1999; Kotter, 1995). For example, threat-rigidity theory argues that people’s instinctive reaction to change produces a rigid, maladaptive response that undermines collaboration. By contrast, structural-inertia theory maintains that organizational structure keeps people from adapting in a productive, collaborative manner.

Ultimately, how the clash between driving forces and resisting forces plays out determines whether or not a firm matures to a new, more-collaborative equilibrium. If the resisting forces are more prevalent or stronger than the driving forces, the collaboration initiative will stall and the firm will revert to its previous state (see Route 1 in Figure 3). Importantly, as the firm re-freezes in its non-collaborative state, future collaboration is made more difficult. That is, failed initiatives elevate cynicism, which in turn hinders hinder maturation. This finding stresses the need to carefully measure a firm’s capability and determination before initiating the design and building processes associated with relational architecture. If driving forces overcome resisting forces, collaboration capabilities will begin to emerge (see Route 2 in Figure 3). The firm matures from one stage to the next.

Interview managers noted that a vital, and often overlooked, element in the change management process involves leadership commitment to collaboration. As firms enter Phase 2, Tension and Potential Change, shown in Figure 3, proactive leaders mobilize resources that amplify the strength of driving forces and/or attenuate the negative influence of resisting forces. The success of these investments depends on how intimately managers understand both driving and resisting forces as well as how committed they are to building a collaborative business model. Only as managers show the aptitude to make the right investments and the emotional fortitude to stick with the architecture, even when it is hard to keep pressing forward, can they expect a relational capability to materialize and gain momentum. This dynamic, which is the essence of maturation, is missing at many firms.
Figure 3
The Change Management Process

Understanding the Leadership Deficit

The reality that only a firm’s senior leadership can set the tone, mobilize the resources, and establish the risk-acceptant environment needed to promote collaborative change raises serious concerns regarding what managers describe as a pervasive leadership deficit. Managers identified a lack of leadership as a barrier to collaboration twice as often in Period 2 as in the first round of interviews. For example, one manager reported, “Our last CEO was not interested [in collaboration], we could not do anything, we could not succeed.” Another manager shared a common refrain, “We need commitment at the top management level.” This leadership emphasis is consistent with Jim Collin’s claim that firms only make the leap from good to great when a “Level 5” leader is at the helm (Collins, 2002). Our interviews offer strong support for leadership commitment in transformative initiatives such as establishing a collaborative business model.

Leadership’s role in relational architecture is multi-faceted. Effective leadership articulates the rationale and provides the motivation to collaborate. One manager stressed that leaders must use persuasion rather than a command-and-control style, saying: “You need to remember that you cannot dictate or command change.” Unfortunately, persuasion begins with example—a key trait managers often noted was missing. For instance, one manager said, “Our leadership team is not modeling correct behaviors.” The primary failing here is a constant drive to cut short-term costs. Managers explain that collaborative initiatives typically require upfront investments, but deliver delayed returns. They also note that benefits accrue across boundaries. Without holistic measures, potentially game-changing collaborative initiatives are taken off the table since no one can justify their competitive contribution using only local outcomes.

Another facet of leadership’s role is skill development. One manager shared a common lament, saying, “We lack the supply chain mindset, the understanding, and know-how. We are still stuck in the old school.” A lack of collaborative vision almost always translates into a lack of
investment in the routines needed to recruit and develop collaborative managers. The skill-development deficit is particularly acute since managers noted that, “Perhaps the most difficult issue is to find people with the right skills.” One executive at a global technology firm described the challenge in detail. He drew a picture depicting functional managers as “spokes on a wheel.” He explained, “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.” He elaborated, “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.” He further noted that given the nature of work structures and training programs, most “spoke” managers never develop the skills to become “hub” managers on the job.

Finally, collaborative leaders work diligently to create a decision-making environment that encourages managers to make fresh, innovative decisions in the face of risk and uncertainty. Specifically, managers will not collaborate if they are penalized for getting out of the box and testing new ideas such as accepting local cost increases that lower total costs. In every instance where we discovered a pocket of collaborative change, we found a leadership team that cultivated a culture that “encourages” failure as it demanded excellence. One manager explained this philosophy, saying, “If my best people are not failing from time to time, they are not trying enough new things!” Unfortunately, few leaders have adopted this attitude. As a result, many managers continue to resist collaborative change, undermining their firms’ efforts to mature their relational capabilities.

CONCLUSIONS

Used appropriately, architecture brings diverse, but potentially complementary elements together to create a whole that is greater—that is, more functionally relevant—than the sum of its parts. As such, the precepts of architecture provide keen insight into the design of collaborative competitive models. Inasmuch as athletic teams are often used as a metaphor for collaborative supply networks, we illustrate the power of architecture with a final sporting story. In 2002, the U.S. men’s basketball team, composed of some of the finest athletes in the world, placed sixth in the FIBA World Championships. The U.S. team provided a disappointing encore in the 2004 Olympics as it lost three games on its way to a bronze-medal finish. The three losses were more than U.S. teams had lost in all previous Olympic tournaments combined. USA Basketball had seen enough and was ready to completely revamp its approach to building a competitive team.

Jerry Colangelo was tasked with the overhaul. After carefully assessing the factors that had contributed to the team’s sub-par performance, Colangelo articulated the function of the new process and infrastructure he was about to put into place as follows.

Look, I was appalled by the status of USA Basketball. It needed a new infrastructure. In the past, teams were thrown together for a couple of weeks, and that was OK since the gap with the rest of the world was big enough it didn't matter. But if you look at the successful international teams, they've been together for five or 10 years, so you get that continuity and teamwork. The first thing I wanted to establish was a real national team, not just an all-star team. (Rhoads, 2008)

This statement of purpose coupled with the insights gained during the assessment process led Colangelo to approach team design differently. He sought a coach who believed in the team-first concept. Mike Krzyzewski, the head coach at Duke University, was hired. Next Colangelo
and Krzyzewski defined job descriptions (i.e., roles and responsibilities) for each position. One-on-one interviews were held to assess each player’s commitment to the team and to the mission of restoring USA’s position of dominance in international basketball. Athletic ability and talent were less important than fit in the player selection process. Bringing different components—coach and players—was just the first change. To build a true team, Colangelo also insisted that each player commit to playing for Team USA for three years. Krzyzewski explained, “You do not select a team, you select a group of people and then work together to develop into a team. In other words, teams don’t immediately become, they evolve. To do so, you need time, goals, and competition.” (Krzyzewski, 2009) The newly designed process, and the team it built, produced gold in the 2008 Olympics.

Our longitudinal research identified a similar design-and-build role for architecture. However, our findings might lead one to a glass-half-full, glass-half-empty premise. Pessimists might argue that many companies pursue collaboration without success and that dominant practice remains immature. They might even claim that collaborative business models are just a fad and deserve to be discarded—to be discarded—to be discarded into the landfill of failed fads alongside other practices with unfulfilled promise. Optimists, by contrast, would argue that collaboration only yields gold-medal results after the investment inherent in articulating, designing, and building a team. They would point to impressive performance of leading-edge firms that have reached Stage 3 of the maturity framework. The fact that some firms are mastering the maturation process makes it difficult for rivals to cede the potential benefits of collaboration. So, who is right? Realists smile at the question. They know the secret: diligently apply the principles of relational architecture and collaborative business models can deliver elusive relational rents.

REFERENCES


