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Antecedents and Outcomes of Supply Chain Effectiveness: An Exploratory Investigation*

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Supply chains are groups of organizations that collectively process raw materials into finished goods (Hult *et al.*, 2002). Such collaborative relationships have garnered increased attention in management research over the last several years (e.g., Artz and Norman, 2002; Cool and Henderson, 1998; Glisby and Holden, 2005). This increased attention appears merited for at least two reasons. First, purchased inputs can account for up to 75 percent of a firm's operating budget (Quinn, 1997). And second, firms that find ways to lower input costs or increase input quality gain

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advantages over competitors (Barney, 1991). One way that firms manage reoccurring purchases is referred to as supply chain management (SCM), which is the integration and management of supply chain organizations and activities through cooperative inter-organizational relationships, effective business processes, and high levels of information sharing (Handfield and Nichols, 2002).

The implementation of SCM can increase communication and cooperation among firms at successive stages of production. The benefits include decreased costs through reduced inventory and shorter order times, improved quality through better product design, and enhanced innovation through more diverse design process inputs (Elmuti, 2002; Tan, 2002). The benefits of SCM can be large; one estimate posits that SCM can increase value and/or reduce costs by up to 25 percent along a chain (Hughes, 2005). Although there is growing consensus that effective SCM decreases costs and enhances value, scant attention has been paid to the key antecedents of supply chain effectiveness and how effective SCM shapes focal firms' performance. Thus, our central aim is to provide greater clarification into some key antecedents of supply chain effectiveness, and to elaborate on how supply chain effectiveness, in turn, shapes firm performance.

Over the last decade, the knowledge-based view (KBV) has emerged as an important perspective informing how firms leverage knowledge to attain higher performance (Acedo *et al.*, 2006). The KBV contends that knowledge is the most critical firm resource (Grant, 1996). Accordingly, a firm's ability to explore and exploit this knowledge through knowledge sharing and knowledge integration is a key source of sustained competitive advantage (Cohen and Levinthal, 1990; Kogut and Zander, 1992). Conceptual and empirical KBV research has emphasized both internal and external knowledge sharing. While research on internal knowledge sharing addresses the exploitation of existing know-how, expertise, and best practices within a firm's network of organizational members (Szulanski, 1996), research on external knowledge sharing focuses on knowledge integration across firms (Lane and Lubatkin, 1998). This latter stream of research emphasizes several factors that facilitate or impede knowledge sharing in the context of joint ventures (Inkpen and Dinur, 1998), franchise systems (Darr *et al.*, 1995), and inter-organizational relationships in general (Dyer and Singh, 1998).

All organizations face the fundamental decision to obtain products and services through markets (buy) or hierarchies (make) (Williamson, 1985). Hierarchies (making) enhance predictability and assurance of supply but require large investments and thus limit flexibility. Alternatively, markets (buying) permit flexibility and reduce investment, but increase uncertainty and the risk of a supplier acting opportunistically. Supply chains are inter-organizational relationships that represent a middle ground between markets and hierarchies (Ketchen and Giunipero, 2004). Such relationships create unique knowledge-sharing contexts that blur internal and external knowledge sharing, and as such they form a unique context to study the tenets put forth by the KBV.

Researchers have shown an increased interest in knowledge as an important resource in the context of

supply chains. Indeed, the role of SCM skills and knowledge (e.g., Giunipero and Pearcy, 2000) is critical in "obtaining the product at the right cost in the right quantity with the right quality at the right time from the right source" (Sarkis and Talluri, 2002: 18). Beyond the identification and possession of skills and knowledge as key SCM resources, the KBV also asserts that it is critical to identify activities facilitating the transfer of such resources.

Although the central focus of strategic management research is identifying the determinants of firm performance (Rumelt *et al.*, 1994), historically, most research has relied on firm- and industry-level determinants (Rumelt, 1991). In the 1990s, strategy researchers focused more on the performance implications of inter-organizational relationships, such as alliances and joint ventures (Barringer and Harrison, 2000). More recently, researchers have tackled the question of whether supply chain participation can shape firm performance (Hult *et al.*, 2002, 2004). Yet these studies have principally examined how supply chain participation and SCM can reduce cycle times, which is the amount of time the purchasing process takes from start to finish (e.g., Hult *et al.*, 2002). While increasing our awareness of the determinants of reduced cycle times, these studies offer limited insights into how supply chains shape other dimensions of firm performance, as well as identifying key enablers of supply chain effectiveness.

Because of the increasing importance of SCM and supply chains in general, a study exploring the antecedents (i.e., enablers) and outcomes of effective SCM seems both timely and warranted. Our overriding objective is thus to improve our understanding of supply chains and how effective SCM contributes to focal firm performance. Considering the nascent stage of this research stream, we used an inductive exploratory approach by interviewing 46 experienced supply chain executives in four focus groups. The executives placed an extraordinary weight on knowledge-related topics, which led us to triangulate findings with extant research on the KBV. The focus group findings reveal the importance of several enabling factors as well as important outcomes of SCM. Drawing on these findings and extant research, we develop propositions and a testable model outlining several antecedents and outcomes of effective SCM. This research should equip those interested in supply chains with several practical implications and offer guidance regarding how to improve supply chain effectiveness.

In the subsequent sections, we describe the research method used for this study and the characteristics of our sample. Second, we report the key findings from executives regarding activities that enable effective SCM as well as the outcomes of effective SCM. We blend these findings with extant research to propose a testable model. The final section outlines implications, limitations, and future research directions.

RESEARCH METHOD AND SAMPLE

When a research area is entering uncharted territory, the understanding of complex relationships is aided by exploratory research grounded in theory (Simmonds *et al.*, 2001; Weisinger *et al.*, 2006; Weitz and Jap, 1995). Because most existing work on

supply chains is conceptual or relies on only two supply chain nodes (e.g., supplier and customer), we used exploratory methods to better understand the antecedents and outcomes of supply chain effectiveness. More specifically, we sought to understand (1) what constitutes supply chain effectiveness, (2) how supply chain effectiveness shapes firm performance (i.e., firm-level outcomes), and (3) what mechanisms enable chain members to collaborate and share knowledge more effectively (i.e., antecedents or enablers).

To aid our efforts, we conducted semi-structured focus group interviews with 46 supply chain executives in four cities across the United States. Although the nature of executives' employers is to be kept confidential, executives were employed in a wide range of industries, such as computer hardware manufacturing, biotechnology, telecommunications, and airlines, among others. Executives were identified via the Institute for Supply Management (ISM) and were interviewed by two of the study's co-authors. The interviewers approached the focus groups with two main objectives: (1) to understand key ways that effective SCM helps firms compete in today's fast paced global economy and (2) to identify key SCM skills and enabling factors. In particular, the interviewers began the focus group sessions by making the following statement: "We would like to understand the major changes and trends that are occurring in the supply chain environment today and in the future, and what these changes mean for the knowledge and skills sets that your managers need today and in the future." The responses from focus group participants were recorded and transcribed into notes.

To better understand the antecedents and outcomes, we content-analyzed the notes based on the approach suggested by Miles and Huberman (1984). The first step was to analyze the text from the notes to identify potentially important concepts (Suddaby, 2006). In particular, we culled the notes to identify concepts that respondents attached to supply chain effectiveness. If, for example, 16 respondents highlighted the importance of negotiation skills to supply chain effectiveness, we recorded that respondents highlighted negotiating skills 16 times. In short, the first step involved analyzing the text to identify important concepts, and then recording the number of times a concept was discussed.

The second step was to classify concepts into latent variables (Isabella, 1990). In particular, distinct variables began to emerge as our analysis unfolded. For example, many respondents asserted that communication (22) and computer skills and knowledge (24) would aid in supply chain functioning. Thus, we created two variables to account for these skill types. After settling on latent variable classifications, we created larger factor categories. For example, we considered communication and computer skills as broad knowledge and skills (i.e., not specific to SCM) and, thus, created the factor category "Broad Skills and Knowledge." We similarly developed factor categories for other supply chain concepts.

The third step involved investigating patterns and relationships among the factor categories (Miles and Huberman, 1984). For example, we examined the notes for links, such as how skills and knowledge enable knowledge sharing or how knowledge sharing enables improved supply

chain performance. The fourth step was to develop a model based on the factor categorizations and linkages, taking into account current research on the topic areas (Hale *et al.*, 2006).

FINDINGS AND DISCUSSION

Based on executives' responses, we identified several antecedents and outcomes of effective SCM. Table 1 lists the antecedents and outcomes we identified via content analysis, and provides the overall number of executive comments (i.e., comment frequency) as well as the number of unique executives (i.e., participant frequency) who commented on a respective antecedent or outcome. Drawing on the frequencies, but guided by extant research, Figure I depicts our overarching model. The model highlights the role of skills and knowledge, technology, and trust, and how these factors relate to knowledge sharing, supply chain effectiveness, and focal firm performance.

Antecedents of Supply Chain Effectiveness

Skills and Knowledge. Sir Francis Bacon once said that "knowledge is power." Our focus groups revealed that supply management executives believe not only that knowledge is power, but that knowledge is also a core antecedent of supply chain effectiveness. In particular, our analysis of executive responses yielded two distinct skills and knowledge dimensions—(1) broad business skills and knowledge as well as (2) specialized supply chain management skills and knowledge—that are central to a chain's functioning.

Regarding broad skills and knowledge, executives discussed the importance of interpersonal communication, computer/Internet, customer, project management, leadership, and negotiation skills as well as the expectation that supply chain professionals carry out tasks ethically. Regarding specialized skills and knowledge, executives highlighted the need for supplier relationship management and coordination, materials management, quantitative measurement (i.e., supplier performance metrics), market analysis, legal and risk management skills and knowledge. As shown by the 95 comments by 36 executives, a dominant theme that emerged was the increasing importance of skills related to managing and coordinating supply chain relationships.

In addition, numerous participants believed that supply chain professionals should possess broad business skills and knowledge, stating that professionals need to possess "economic literacy and industry knowledge" and also be capable of "specifying materials and qualifying the right suppliers." Thus, not only must these professionals be business generalists, but they must also possess specialized supply chain skills and knowledge that can help their firm strategically manage its supply base. Indeed, one respondent asserted: "Our purchasers need to be able to connect the dots. It's that understanding of the entire supply chain. They really need to understand our business and our internal and external customers. When they understand this, they are better prepared to write supply agreements" and, thus, leverage the supply chain. This statement highlights that supply chain professionals need to possess the requisite broad "big picture" business skills and knowledge as well as specific supply chain skills

and knowledge to help firms achieve maximum supply chain effectiveness. As one participant put succinctly, supply chain professionals need to "think through the whole life cycle of designing for manufacturability, new product introduction, look at the life cycle management, obsolescence risk and implications, whether to deploy and how to position inventory, and how to use logistics to good advantage."

Such skills and knowledge seem to be increasingly important today, especially since one of the most substantial business trends is the move from adversarial to collaborative buyer/supplier relations (Bowersox *et al.*, 2000). Today, supply chain professionals possessing high levels of

Table 1
Executive Responses for Each Factor

	Comment Frequency[a]	Participant Frequency[b]
Broad Skills and Knowledge		
Communication	48	22
Computer	42	24
Understanding End Customer	41	22
Project Management	32	21
Leadership	25	16
Negotiation	22	16
Ethics	7	4
Specialized Supply Chain Skills and Knowledge		
Supplier Relationship Management and Coordination	95	36
Materials Management	78	33
Metrics	53	40
Market Knowledge	38	26
Legal Issues	37	30
Risk Management	22	15
Technology		
Electronic Research	13	9
Translation Software	2	2
Integrated Systems for E-business Scheduling	2	2
Trust		
Risk-sharing	19	16
Sharing Lead-time Information	2	2
Supplier Consolidation	2	2
Sharing Cost Information	1	1
Co-location	1	1
Gain Sharing	1	1

[a]The overall number of executive comments about a variable.
[b]The overall number of unique executives who commented about a variable.

Table 1 (Continued)
Executive Responses for Each Factor

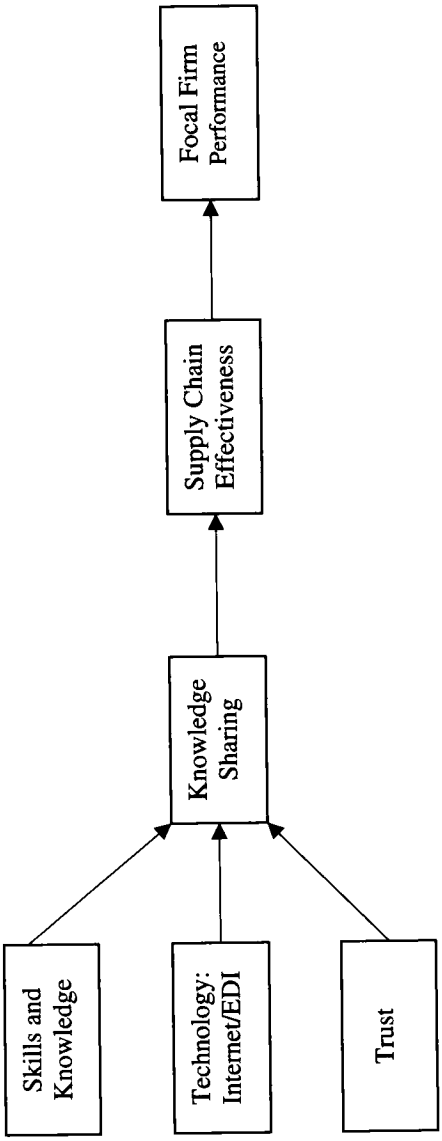
	Comment Frequency[a]	Participant Frequency[b]
Knowledge Sharing		
Cross Functional Product Development Teams	27	22
Virtual Teams and Net Meetings	13	11
Customer Meetings	4	3
Supply Chain Effectiveness		
Remove Unnecessary Parts and Processes	42	27
Lower Inventories	19	14
Improved Productivity	9	8
Cycle Time Reductions	4	4
Enhanced Responsiveness	4	4
Enhanced Product Development	1	1
Focal Firm Performance		
Higher Profits via:		
Lower Costs	58	31
Increased Product Value	1	1

[a]The overall number of executive comments about a variable.
[b]The overall number of unique executives who commented about a variable.

both broad and specific supply chain skills and knowledge can help leverage their firms' supply chains (Das and Narasimhan, 2000), knowing that selecting and collaborating with strong supply chain partners can benefit their firm, especially when knowledge is shared.

Since the supply chain management function is at the center of these efforts, it is perhaps not surprising that one supply chain executive stated that the function is no longer "viewed as a tactical department where purchase orders are just rubber stamped and other employees offer no respect. That has changed." Instead, supply chain professionals possessing specialized knowledge who are capable of implementing successful sourcing and knowledge-sharing tactics are recognized as strategic assets, which can ultimately improve their firm's performance. As such, the executives pointed to what Cook and Brown (1999) have called the generative dance between organizational knowledge and organizational knowing. Executives look for the knowledge possessed by themselves and supply chain partners and the way in which together they can contribute to the supply chain. But perhaps more important is the emphasis on supply chain members' skills to work together in the chain. This could be referred to as supply chain knowing, as the members together learn how to use the knowledge they hold collectively. The result of increased skills and knowledge is that the supply chain collectively can better share this knowledge. Thus, SCM involves the development of skills and knowledge of the various supply chain members in order to enable knowledge sharing across the chain.

Figure I
How Supply Chain Effectiveness Shapes Focal Firm Performance



Proposition 1: Skills and knowledge of supply chain members enable knowledge sharing along supply chains.

Technology. While knowledge provides the foundation for SCM competitiveness, technology facilitates the diffusion of this knowledge throughout the chain. Recent technological changes have dramatically increased the speed of communication and reduced its costs. This has had a considerable impact on the introduction of new organizational forms such as interactive and virtual team structures (Fulk and DeSanctis, 1995). The executives expressed that this evolution

also has enabled SCM effectiveness. The operating speed of technology enables interfirm collaboration, which allows for improved information and knowledge sharing. As highlighted in Table 1, participants identified three key technological factors that aid in such efforts, including electronic research, translation software, and integrated systems for scheduling and payments. Whereas translation software and electronic research capabilities aid in the search for prospective supply chain partners, systems integration aids in information sharing. One participant believed that systems integration was critical to managing the chain because other supply chain participants become "extensions of the company." Thus, appropriate links need to be established to facilitate information sharing via technologies such as enterprise resource planning systems (ERP) and collaborative forecasting systems. Such systems affect both how and the extent to which information and knowledge is shared. As one participant put it, integrated systems "enable us [our firm] to respond immediately. We can also see all the way back into not only our existing supply, but all our other supply chain participants. As our environment becomes more dynamic, which seems to be where we're headed, this becomes more critical."

Extant research supports the notion that technology is a key ingredient to supply chain effectiveness. Since technology is becoming a popular way to coordinate activities within and between firms (Beal and Thomas, 2004; Kumar and van Dissel, 1996), it has enabled more effective interfirm collaboration by improving information timeliness and accuracy as well as just-in-time purchasing techniques (Dyer and Singh, 1998; Kaynak, 2005). The Internet and electronic data interchange (EDI), for example, have proven to be effective knowledge-sharing methods that enable cost improvements by simplifying tasks (Croom, 2000). In addition, electronic Collaborative Planning Forecasting and Replenishment (CPFR) systems have proven to save firms along the supply chain inventory while still maintaining or improving customer service (Antonnette *et al.*, 2002). Firms lacking such technology may, thus, be at a competitive disadvantage. Given this, technology is a key requirement to improving information and knowledge flows that enable enhanced supply chain effectiveness.

Proposition 2: Technology enables knowledge sharing along supply chains.

Trust. Trust is the willingness to be vulnerable in a relationship; it lubricates interactions between firms (Ring and Van de Ven, 1992). Our focus groups revealed that trust does indeed lubricate the supply chain; without it, knowledge that can lead to improved supply chain effectiveness will not be shared. As shown in Table 1, the trust variables that emerged from our focus group interviews included: collaborative risk-sharing (e.g., joint product development), sharing lead-time and cost information, co-location (i.e., when a supplier or supply chain partner is located in a buyer's or customer's facility, such as a Proctor and Gamble representative located at Wal-Mart headquarters), and collectively sharing economic gains. Trust was also built by working with a limited number of chain participants (i.e., supplier consolidation). Regarding the sharing of cost information, one participant said

that "when you have a basic understanding of what the profit margins are with suppliers, you can negotiate around them rather than just guessing." Another trust factor was co-locating with other chain participants. As one participant put it, "co-location creates intimacy," which enables information and knowledge to be transferred more readily. In addition, the most important trust factor was sharing risk along the chain, such as in joint investments.

Research also supports the notion that trust is important in collaborative exchange. Downey and Cannon (1997) view trust as a two dimensional construct. The first dimension involves perceived credibility and benevolence (i.e., that the exchange partner is credible and that their word or written statement can be relied upon). The second dimension involves the extent to which one partner is genuinely interested in the other party's welfare and motivated to seek joint gain. The knowledge-based view emphasizes that trust is key to developing an atmosphere conducive of sharing knowledge (Dhanaraj *et al.*, 2004; Kogut and Zander, 1992). While the availability of knowledge and skills foster the ability to share knowledge, and technology creates the opportunity to share knowledge through supply chain links, trust is key for developing a motivation to share knowledge among supply chain members (cf. Adler and Kwon, 2002). Trust is, thus, a key antecedent to information and knowledge sharing (Handfield and Bechtel, 2002), especially since sensitive information is not shared with firms or individuals lacking trust (Williamson, 1985). Accordingly, we contend that trust ultimately paves the way for collaborative supply chain relationships and, consequently, shapes the extent of knowledge sharing across a chain.

Proposition 3: Trust enables knowledge sharing along supply chains.

Knowledge Sharing. When exchange partners nurture close, collaborative ties, they can learn innovative new practices from one another (e.g., Dyer and Nobeoka, 2000; Hamel, 1991; Powell *et al.*, 1996). At the core of the KBV is that a key source of competitive advantage is knowledge sharing because it allows for the effective combination of knowledge that makes the creation of new knowledge possible (Kogut and Zander, 1992). Similarly, knowledge sharing improves supply chain effectiveness. As revealed by focus group interviews and highlighted in Table 1, there are several available methods to implement knowledge sharing. These techniques include cross-functional product development teams, virtual teams and net meetings, as well as regular meetings with other chain participants (particularly customers).

Assembling product development teams that contain people not just from different departments within the same firm, but also from key functions of other firms, can be an important knowledge-sharing and learning mechanism for a chain. One participant said that "we need to bring our partners into the design process early enough so they can see what the parameters of a particular piece of equipment are, understand what the cost issues are, understand what our target pricing is, and what we have to do to get to that target cost." Doing so "can free up a great deal of creative energy where our partners can contribute to solutions that can reduce costs." Some participants go so far as to

bring in supply partners to meet with customers. One participant said their firm "goes to the highest level and gives them the name and face of a patient just to prove what happens if their needs are not met." Virtual teams and net meetings enable increased knowledge sharing in that conducting regular meetings allows chain participants to share knowledge about innovations and product deficiencies so that the chain can become more efficient and/or end-product quality can consistently improve.

Research supports the notion that such knowledge sharing across firms' boundaries can improve focal firm performance. Uzzi (1996), for example, found that close partners exchange proprietary and tacit information, which improves performance through enhanced transaction efficiency and environmental responsiveness. In the biotechnology industry, Powell *et al.* (1996) showed that close ties with small partners can improve larger firms' knowledge development and application abilities. These newly acquired abilities enable exchange partners to improve their rate and quality of innovations. Studying a large, integrated supply chain, Hult and colleagues (2002) found that "cultural competitiveness" within supply chains reduces cycle times. Cultural competitiveness is an intangible resource derived from the spirit and extent of learning, entrepreneurship, and innovativeness (Hult *et al.*, 2002). It was also found that culturally competitive supply chains fill market gaps by creating environments that embrace innovation, learning, and entrepreneurship driven by knowledge-sharing efforts. Finally, Dyer and Hatch (2006) recently showed that when compared to U.S. automakers using the same supplier, Toyota shared more knowledge and learned more, thereby producing lower defect rates. Taken together, this suggests that chain participants can share knowledge and learn from other supply chain participants, which can be leveraged to improve the overall chain's performance.

Proposition 4: Knowledge sharing along supply chains enables supply chain effectiveness.

Supply Chain Effectiveness and Focal Firm Performance

Our focus group participants asserted that supply chain effectiveness encompasses numerous outcomes, including the reduction of unnecessary activities, lower inventories, productivity improvements, cycle time reductions, as well as enhanced responsiveness and product development capabilities. Unlike the previous sections, however, where we relied heavily on participants' responses, this section mainly relies on the supply chain and management literatures to link how knowledge sharing shapes both supply chain effectiveness and firm performance. Broadly speaking, the supply chain literature highlights several important SCM goals; these goals can be categorized as both short term and long term. These goals corroborate focus group findings.

In the short term, for example, supply chain goals include reducing cycle times, increasing productivity, and lowering inventories (Wisner and Tan, 2000). In the long term, on the other hand, supply chain goals include enhancing product development and removing unnecessary costs, which either increase customer value or reduce costs—key sources of sustained competitive advantages

(Barney, 1991; Porter, 1980; Tan, 2002). The ultimate measure of an effective supply chain is the firm's performance. These SCM executives realized that reduced costs was one of their most important goals. Indeed, reduced costs was a major goal toward improved firm performance as indicated by the 58 responses by 31 executives. This indicates that these executives operate under a continuous mandate from their top management teams to continually reduce costs. The increased competitiveness gained through reduced costs enables increased market share and improved customer satisfaction. The ultimate result of these improvements is typically increased profits for all chain members (Tan, 2002).

Reducing costs and increasing profits along the supply chain has created new market opportunities. In fact, some have argued that competition is now "chain-to-chain" rather than between individual firms (Vickery *et al.*, 1999). Providing evidence for this assertion, our focus groups revealed that the majority of firms in our study now view the world differently, and participants mainly view supplier relations as "win/win" through "co-development and design, resource sharing, and risk and reward sharing." Through knowledge sharing, supply chain members can more effectively manage their chains and, as a result, reduce costs for focal firms and increase the value they can deliver to their partners upstream in the chain.

Proposition 5: Supply chain effectiveness enables improved focal firm performance.

IMPLICATIONS AND CONCLUSION

Before outlining the implications of our study's findings, two main limitations merit attention. First, although the 46 focus group interviews provided exposure to diverse organizations from several industries, the antecedents and outcomes of supply chain effectiveness could be studied in a larger sample. Such efforts would likely identify additional antecedents and outcomes as well as increase some aspects of our study's generalizability. Second, our study simply offers propositions and a testable model. If we had empirically tested the model, then we could have made stronger assertions about the findings. This, however, opens up a potentially fruitful avenue for future research.

In spite of these limitations, we believe this study provides several important contributions. The study's core implication supports extant research—when independent firms collaborate and share knowledge with others, they can achieve advantages beyond what could be achieved in arm's length exchange (Dyer and Singh, 1998; Dyer and Hatch, 2006). In many supply chains, the advantages accrued by the entire chain translate into higher profits for all chain participants (Crook and Combs, 2007). But, what is required to increase supply chain effectiveness and, thus, obtain higher profits from the chain? Our results suggest that the answer lies, in part, within the chain participants' specialized knowledge, aided by technology and trust. If this is the case, a key managerial implication is that organizations must be willing to make investments in training and development geared towards creating a more diverse and knowledgeable workforce (Huselid, 1995; Richard and Johnson, 2001). A related implication is that organizations should also be willing to make

the requisite investments in systems integration efforts and find ways to improve trust and collaboration through means such as co-location.

Other implications include that the supply chain can function as an effective knowledge-sharing mechanism and that supply chain professionals can act as critical knowledge-integration mechanisms. Indeed, the executives in our sample made important knowledge-based considerations in their efforts to improve supply chain effectiveness. As such, a KBV on supply chains emerged as a dominant perspective. Future research can further develop this theory. For example, future inquiry can more closely examine contextual factors, such as absorptive capacity of supply chain members (Cohen and Levinthal, 1990), as well as procedural factors, such as the partners' motivation to share knowledge, as enablers of knowledge sharing across the supply chain. More generally, a key area for this emerging research stream is to explore how supply chain partners become a source of new knowledge.

Although our study reveals some key antecedents (i.e., knowledge, technology, and trust) to knowledge sharing and supply chain effectiveness, more research is needed to gain insight into other key success factors. One potentially fruitful line of inquiry would be to differentiate between supply chains that share a common culture and those that do not (Hult *et al.*, 2002). Another area of inquiry would be to assess not just compatible exchange partners, but also to examine how chain members negotiate contracts in ways that lower exchange costs over the long term (Artz and Norman, 2002) and how this negotiation process affects subsequent knowledge sharing. And finally, more research into the appropriate application of technology enabling supply chain success appears warranted (Kaynak, 2005).

In conclusion, this study sought to improve our understanding of the sources of effective SCM and how effective SCM shapes focal firm performance. By interviewing 46 supply management executives and blending findings with extant research, we take a step toward achieving these goals. In particular, we found that the supply chain appears to be a potentially important source of improved performance. Such improvements are increasingly possible if firms possess skillful supply chain management professionals who leverage technology to enable change and nurture trust. For researchers, our study suggests that more efforts should be directed towards understanding key antecedents of supply chain effectiveness. For managers, our study suggests an increased need for emphasis on managing the supply chain and the key role that knowledge sharing plays in effective supply chains. More broadly, collaborative inter-organizational relationships, such as supply chains, can be strategic weapons geared towards improving focal firm performance.

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Antecedents and Outcomes of Supply Chain Effectiveness: An Exploratory Investigation 161
T. Russell Crook, Larry Giunipero, Taco H. Reus, Robert Handfield and Susan K. Williams

A growing body of research suggests that firms who effectively manage their supply chains can realize improved performance. To provide more specific insights into the key antecedents and outcomes of supply chain effectiveness, we report findings from focus groups involving 46 supply chain executives in four cities across the United States. We integrate the findings with extant research to derive a testable model proposing that firm performance is shaped, in part, by how firms manage their supply chain. The proposed supply chain model asserts that a firm's skill and knowledge base, technology, and trust in supply chain partners are key enablers of knowledge sharing along the chain, and that the application of this knowledge has important implications for the performance of both the supply chain and the focal firm.

In the Shadow of Failure: Asset Preferences and Competing Interests in Distressed Firms 178
William J. Donoher

The question of how creditors influence firm investment decisions, and how shareholders compare to creditors in that regard, has received little attention in the literature. The agency costs of debt are examined, and a framework is proposed in which creditors and shareholders differ with respect to the types of asset holdings each prefers. Results reflect these distinctions, but also show that creditors exhibit asset preference distinctions depending upon the type of debt contract held. Implications of the research are discussed and directions for future research are suggested.