

# Is relationship evolution good or bad? It depends! A qualitative and quantitative examination of the relational behaviors and the stimulants of supply chain integration

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## Abstract

Buyer–supplier (B–S) relationships are dynamic. Nevertheless, research on external supply chain integration (SCI) has largely adopted a static-snapshot perspective and has failed to grasp SCI's dynamic reality. The scant research devoted to SCI's dynamic perspectives suggests that the strength and scope of ties between buyers and suppliers differ based on integration levels. However, ambiguity persists regarding the relational behaviors exhibited across integration levels, as well as the stimulants that motivate firms to evolve their relationships. With buyers increasingly relying upon suppliers (and vice-versa) and compounded by the knowledge that nearly half of SCI initiatives end up as failures, the need for a holistic framework that takes into account the underlying dynamics of relational behaviors and stimulants cannot be overstated. Using a mixed-methods approach, six relational behaviors that differ in their saliency across SCI levels are identified, and eight stimulants that motivate B–S relationships to evolve are extracted. Specifically, we note that once a stimulant is activated, it remains influential across SCI levels, though its potency may vary. Our research significantly extends the contemporary understanding of SCI by (i) providing a holistic framework to comprehend SCI from a behavioral perspective, and (ii) noting that the highest integration levels do not necessarily typify successful B–S relationships. In doing so, we combine an evolutionary perspective with a relationship portfolio perspective for examining B–S relationship dynamics, thereby offering a comprehensive view to yield finer-grained insights into B–S relationship dynamics.

## KEYWORDS

buyer–supplier relationships, holistic framework, mixed-methods, relational behaviors, supply chain integration

## 1 | INTRODUCTION

Buyer–supplier (B–S) relationships are dynamic, with the ties between the entities varying in strength and scope (Dwyer, Schurr, & Oh, 1987; Ring & Van de Ven, 1994; Vanpoucke, Vereecke, & Boyer, 2014). The term of (external) supply chain integration (SCI) (SCI, *henceforth*) is commonly used to denote the strength and scope of ties between a focal firm and its buyers or its suppliers (Lee, 2000; Leuschner, Rogers, & Charvet, 2013), which practically reflects the different levels of intimacy among the entities. Stevens (1989) published one of the seminal studies on SCI, and over the last three

decades, scholars have widely examined SCI. However, as noted by Grayson and Ambler (1999), and more recently by Zhang, Gunasekaran, and Wang (2015), there is still ambiguity and a lack of understanding about the fundamental elements that explain the dynamic reality of SCI. As such, there is a quandary regarding the specific relational behaviors that may be exhibited at each SCI level and an impasse concerning the distinctive stimulants that motivate a firm to shift to another SCI level.

In addition to these noted shortcomings in extant literature, our research was also motivated by our direct interactions with executives from several Fortune 1000 firms and their

respective dilemmas. On the one hand, for instance, five corporate sourcing directors of a \$3 billion oil and gas company were in a quandary whether they were doing something wrong by not pursuing the highest level of integration with their suppliers. While the company, the largest in North America for their market segment, was rather profitable at the time, they were contemplating whether pursuing more intimate relationships with suppliers, akin to those of Toyota, is something they should aspire to, given that public media and academic research tout the benefits that accrue from having a high SCI level. On the other hand, two supply chain directors of a \$16 billion high-tech company noted that they had invested heavily in building supplier relationships, albeit some of those suppliers were not inclined to reciprocate with similar relationship investments. In yet another instance, a corporate vice-president of supply chain management at a large oil and gas service company (with \$25 billion in revenue) adopted a portfolio perspective, in which suppliers are classified into four classes based on the Kraljic matrix (Kraljic, 1983). Although the vice president could ascertain the potential for supply risk and profit across the four classes, he was uncertain about which type of relational behaviors would be the best fitting for each class; furthermore, he was not sure what specific drivers or stimulants would warrant a shift from one class to another. These observations signify that while the concept of SCI surfaced decades ago, there is no shortage of quandary.

Obtaining insights into the dynamics of SCI has been deemed as paramount because it can “provide managers with valuable information on when to start up new integration initiatives” (Vanpoucke et al., 2014, p. 15). SCI, and the ensuing leveraging of capabilities that can be engendered, has become essential for competitive differentiation and success (Srinivasan & Swink, 2015; Wei, Ke, Liu, & Wei, 2019). In addition, supply chain scholars have argued for a better understanding of B–S relationship dynamics, as much of the extant literature still examines SCI from a static snapshot perspective (Makkonen, Vuori, & Puranen, 2016; Vanpoucke et al., 2014). The observation that 47% of SCI-related initiatives fail (Webb, 2017) also highlights the need to better understand the dynamics of SCI.

The few studies on SCI that adopt a dynamic perspective gravitate toward three levels of SCI—coordination, collaboration, and integration—characterized by increasing intimacy levels in B–S relationships (Leuschner et al., 2013; Vanpoucke et al., 2014). The seminal contributions on B–S relationship evolution by Dwyer et al. (1987), Ring and Van de Ven (1994), and Vanpoucke et al. (2014) appear to suggest that the highest level of intimacy typifies successful B–S relationships. However, ambiguity still exists as to whether the highest level of intimacy, and thereby SCI, is necessary to define a successful relationship and whether all firms should strive toward attaining the highest SCI level. For instance, is it well advised for Wal-Mart to pursue the highest level of SCI with every supplier? If “No,” why? Likewise, should Ford or Boeing seek the highest level of SCI with all their suppliers? If “Yes,” why? Although a significant body of literature

provides meaningful insights into this inquiry, scholars argue that the current body of knowledge is incomplete and thus inadequate (Zhang et al., 2015).

In addition, despite the tautological differences of the three SCI levels, they share a familial resemblance to the different B–S relationship levels described by Dwyer et al. (1987) and Vanpoucke et al. (2014). However, there is no consistent operationalization of the three SCI levels, and discrepancies have been noted (Leuschner et al., 2013; Van der Vaart & Van Donk, 2008). SCI’s operationalization is often muddled with terms such as coordination and collaboration (Mackelprang, Robinson, Bernardes, & Webb, 2014). While several studies suggest differences among coordination, collaboration, and SCI, based on the relational behaviors exhibited at each level (Barratt, 2004; Cao & Zhang, 2011; Lee, 2000), these differences remain ambiguous. This inconsistency contributes toward confounding results regarding the impact of SCI on various aspects of firm performance, such as new product development (Cousins & Menguc, 2006; Koufteros, Edwin-Cheng, & Lai, 2007; Peng, Verghese, Shah, & Schroeder, 2013; Rosenzweig, Roth, & Dean, 2003), questioning the efficacy of SCI and posing a significant threat to building and testing theories (Mackelprang et al., 2014; Mohr, 1982), because what cannot be measured cannot be managed and improved (Kaplan & Norton, 2008).

While the literature on relationship dynamics (e.g., Dwyer et al., 1987; Jap & Anderson, 2007; Ring & Van de Ven, 1994) focuses on how relationships evolve through relational exchanges over time, we believe a more comprehensive perspective is required. Specifically, we combine this evolutionary perspective with a relationship portfolio perspective, in which buyers deliberately decide on the level of integration, offering a more holistic view to yield finer-grained insights into relationship dynamics. As such, while the evolutionary perspective (i.e., Dwyer et al., 1987; Jap & Anderson, 2007; Ring & Van de Ven, 1994) focuses on how relationship characteristics (such as interdependence and trust) evolve and serve as stimulants over the relationship lifecycle, the relationship portfolio view focuses on relational behaviors (such as information exchanges and investing in relationship-specific assets), whose saliency varies across SCI levels.

Furthermore, Chen, Daugherty, and Landry (2009) note that studies persistently fail to account for the stimulants of B–S relationships. As such, we only have a curbed understanding of which stimulants might prompt B–S relationship dynamics across different SCI levels (Villena, Revilla, & Choi, 2011; Zaefarian, Thiesbrummel, Henneberg, & Naudé, 2017). However, comprehending whether all successful relationships in the buying company’s relationship portfolio evolve in a similar pattern is critical to resolving some of the mixed findings associated with the purported SCI benefits. On the one hand, ascertaining the role of stimulants is crucial in understanding if and how B–S relationships evolve into higher levels of intimacy (Palmatier, Houston, Dant, & Grewal, 2013). On the other hand, successful B–S relationships can also spiral downward by failing to comprehend the factors that stimulate the relationship evolution.

Developing further insight into this domain is, therefore, essential.

Within this broader context of relationship dynamics, the objectives of this study are three-fold. The first objective is to decipher appropriate relational behaviors associated with SCI levels. Second, it is our objective to identify the most salient stimulants for transiting across SCI levels. The third objective is to empirically test the relevance of the relational behaviors across the three SCI levels, as well as the efficacy of stimulants to effectuate shifts among SCI levels. We aim to accomplish our objectives utilizing a three-pronged approach. First, by building on the relevant literature that subscribes to a dynamic perspective of SCI; second, by employing an in-depth qualitative approach (Study 1); and, finally, by triangulating our findings using a quantitative survey approach (Study 2). Examining supply chain issues using a mixed-methods approach, which is relatively rare in this domain, can yield robust results (Craighead, Hanna, Gibson, & Meredith, 2007). Overall, through our analyses, we document that not all relationships evolve to the highest SCI level to warrant success—it depends on the specific stimulants at play. In essence, while stimulants, once activated, have the potential to propel the relationship to the next level, their absence can render the relationship immobile. In the next section, we lay out the theoretical basis of our research inquiry.

## 2 | THEORETICAL DEVELOPMENT

SCI has been conceptualized in different ways. For instance, Frohlich and Westbrook (2001) operationalize SCI using measures encompassing access to information systems and sharing of logistical capabilities, while Vickery, Jayaram, Droge, and Calantone (2003) conceptualize SCI using measures reflecting supplier partnering, closer customer relationships, and cross-functional teams. Subsequent works cautioned that SCI cannot be captured from a monolithic perspective (Fawcett & Magnan, 2002; Mackelprang et al., 2014; Van der Vaart & Van Donk, 2008), rendering SCI as dynamic, evolving across different B–S relationship levels.

The meta-analytic review of the SCI literature by Leuschner et al. (2013) proposes three different SCI dimensions, which essentially depict three different levels of integration—information, operational, and relational integration—reflecting the progression of B–S relationships. The authors suggest that firms first engage in *information integration* that encompasses information coordination and communication via supporting technologies, progress toward *operational integration* that involves joint activities and decision making, and culminate in *relational integration* that invokes the adoption of strategic connections between organizations. Similarly, resting upon the tenet of an evolution over time, Vanpoucke et al. (2014) propose three levels of integration: exploration, expansion, and commitment. While the *exploration* level is characterized by an evaluation period, the *expansion* level is characterized by an increased mutual dependence, collaborative projects, knowledge sharing, and

goal compatibility. The *commitment* level is characterized by a long-term orientation, with firms being open to making changes required for the long-term relationship. Vanpoucke et al.'s (2014) characterization of integration levels parallels Holweg, Disney, Holmström, and Småros (2005), who describe SCI as a continuum from simply sharing information to fully synchronized supply chains.

Multiple SCI levels are also intimated by Mackelprang et al. (2014), embracing constructs such as coordination and collaboration, noting however that the differences between these levels are still unclear. In addition, while a report by the Boston Consulting Group and Wharton (2006) notes that having supply chain coordination and collaboration among parties may not be sufficient for successful supply chain management, it does not differentiate between the two terms. Further, Lee (2000) suggests that there is sufficient variance between coordination and integration; on the one hand, coordination reflects information sharing, exchanging decision rights, work realignment, and resource sharing—on the other hand, integration encompasses coordination and additional organizational linkages that facilitate the sharing of risks, costs, and gains. While this differentiation is significant, the term collaboration is lost in the expressions of coordination and integration. Several scholars, however, illustrate that collaboration is different from coordination (Bowersox, Closs, & Stank, 2003; Zaheer, McEvily, & Perrone, 1998). In her seminal study, Jap (1999) suggests that collaboration is a combination of coordination efforts and joint investments in idiosyncratic resources.

Kraljic's formative paper (1983), on purchasing portfolio management, also inspires managers to think more dynamically about relationships. The framework urges managers not to look at evolving relationship dynamics over time, but to develop a portfolio of buyer–supplier relationships based on (1) profit impact and (2) supply risks (Kraljic, 1983; Padhi, Wagner, & Aggarwal, 2012). The framework also advocates that changes in one dimension triggered by the evolution of the product life cycle (Fisher, 1997), shifts in the product's importance (Caniëls & Gelderman, 2007), or changes in the power-balance between the buyer and the supplier (Caniëls & Gelderman, 2007) can impact relationship dynamics. While Kraljic (1983) focuses on purchasing strategies for strategic items, other researchers (e.g., Gelderman & Van Weele, 2002; Olsen & Ellram, 1997) elaborate on practices and strategic approaches for bottleneck, noncritical, and leverage items. Effectively, a portfolio perspective describes how relationship dynamics, in addition to their general evolution over time, should shift in accordance with structural changes (e.g., profit impact, supply risks, product type) in B–S relationships.

Based on the literature review above, we conclude that there are two primary perspectives for examining B–S relationship dynamics: an evolutionary perspective (Dwyer et al., 1987; Jap & Anderson, 2007; Ring & Van de Ven, 1994) and a portfolio perspective (Caniëls & Gelderman, 2007; Kraljic, 1983). This paper aims to merge these perspectives by investigating multiple levels of B–S relationships in a portfolio

perspective while also focusing on how such relationships advance over time.

To address our objective, we consider SCI as an overarching term that encompasses three different levels of B–S relationships: coordination, collaboration, and internalization. On the one hand, we opt to use the terms *coordination* and *collaboration* to describe the first two levels, which is consistent with the terms used most often in extant SCI literature. On the other hand, we coin the term *internalization* to describe the highest level of SCI; as such, we avoid using the term integration, as integration appears to be an “umbrella term” in the literature. Our classification is in line with the evolutionary perspective of B–S relationships described by Vanpoucke et al. (2014), but it is different in several meaningful ways. While Vanpoucke et al. (2014) provide first insights into linking these relationship stimulants and relational behaviors together from an evolutionary perspective, there is still more to investigate. For instance, Vanpoucke et al. (2014) only focus on highly committed B–S relationships; however, not all relationships benefit from such a committed approach—or, in other words, should develop into high levels of what we call “intimacy.” Our study also provides a more elaborate examination of the relational behaviors exhibited at different SCI levels. While the study by Vanpoucke et al. (2014), which relies on Frohlich and Westbrook (2001), provides interesting insights into the evolution of three relational behaviors, that is, logistics responsiveness, knowledge exchange and using common resources, we examine a broader scope of relational behaviors, including practices such as monitoring and sharing a vision, but we also probe their saliency at various SCI levels. Similarly, we further the list of stimulants identified by Vanpoucke et al. (2014) and highlight their importance for transitioning between SCI levels. Overall, our study furnishes a more thorough understanding of B–S relationship dynamics.

Relying on our extensive interviews with high-level supply chain management executives and synthesizing those findings (Study 1), we commence by identifying the most relevant relational behaviors that can potentially describe each level of integration. Furthermore, we provide qualitative evidence that supports the existence of these relational behaviors and describe them in detail. We rely on these relational behaviors to delineate the differences among SCI levels, and subsequently identify the stimulants needed for B–S relationships’ evolution. We then corroborate our findings by employing a quantitative survey study (Study 2).

### 3 | STUDY 1: SAMPLE AND RESEARCH METHODS

A purposive sampling approach was employed when selecting our subject firms. Specifically, we adopted the Maximum Variation Sampling (MVS) method as outlined by Etikan, Musa, and Alkassim (2016), with an emphasis on generating significant variance in responses regarding ongoing dynam-

ics with supply chain members. To assure that our work has relevance and face validity, we first sought participation from some of the most visible global firms that serve as “exemplars” of SCI across industries. In addition, to generate contrast, we invoked firms that are not widely known for their high SCI levels (Rivera, 2019). The participating firms had total annual revenues of over three billion dollars, employed an average of over 10,000 employees, and were spread out across four major cities in the United States. The firms identified using the MVS method serve as information-rich cases to study a variety of relationships with supply chain members. After interviews with 14 participants from seven companies (see online Appendix A for an overview of company profiles and the respondents’ job titles), recurring themes became apparent and theoretical saturation occurred (cf. Vanpoucke et al., 2014).

Study 1 interviewees included individuals at the corporate level of vice-president/director or senior manager, working in the functional areas of operations, purchasing/procurement, and supply chain management. As with much of the extant SCI literature (Ataseven & Nair, 2017; Van der Vaart & Van Donk, 2008), we too largely adopt a buyer’s perspective while studying the relational behaviors and stimulants associated with SCI. However, we find that the relational behaviors and stimulants overlap with those experienced by suppliers. The participants’ work experience with their current firm ranged from 5 to 28 years. After ensuring that these individuals had significant experience in building and maintaining relationships with exchange members, data were collected with a semistructured interview protocol using inductive reasoning (see online Appendix B) (Gioia & Chittipeddi, 1991); the protocol was designed to derive narratives on the levels, relational behaviors, and stimulants of SCI. Interviews with each subject typically lasted about 2 hours but ranged from 60 to 180 minutes.

In general, Study 1 engages in a theory-elaboration approach (Ketokivi & Choi, 2014) as we build on the extant evolutionary and portfolio perspectives of B–S relationships (Lee, Mitchell, & Sablinski, 1999). This approach utilizes an abductive reasoning of the qualitative data collected (Ketokivi, 2006), with the objective to identify relational behaviors and stimulants of SCI while at the same time explaining their inter-relationships within the realm of SCI. With such a theory-elaboration approach we can respond to the relevant questions of “what,” “why,” and “how” pertaining to our research objectives (Barratt, Choi, & Li, 2011).

Using NVivo 10, the data were analyzed using open, axial, and selective coding (Birks & Mills, 2011; Strauss & Corbin, 1994). Specifically, open coding was used for relational behaviors and stimulants. Open coding was performed via thought-unit-by-thought-unit because it results in more meaningful codes (Birks & Mills, 2011). After transcribing our interviews, 250 pages of single-spaced text emerged, yielding approximately 1082 open codes (see online Appendix C for brief within-firm narratives). We assayed whether the codes generated from one interview also appeared in other interviews during the axial coding



process, and then aggregated related codes by ascertaining their relationships. The axial coding process was carried out iteratively as we progressively obtained more data via additional interviews. Through the axial coding process, the 1082 open codes were reduced to an initial set of 145 axial codes, which were then further reduced and used to develop overarching categories that were explicitly integrated to form a conceptual SCI framework using selective coding. In order to attain a more robust framework, we staged constant comparisons while the axial and selective coding processes were proceeding (cf. Taylor & Bogdan, 1984). This approach to data collection and data analysis, derived from the grounded theory design (Birks & Mills, 2011; Suddaby, 2006), is also applicable for theory-elaboration (cf. Fisher & Aguinis, 2017).

To ensure rigor, data coding was carried out by two skilled researchers, with the inter-coder agreement being over 90% during the entire coding process. All disagreements in coding were resolved through discussions and arriving at a consensus. Subsequently, rigor was also established by sharing our results with hundreds of practitioners during a webinar (sponsored by a well-known benchmarking organization) and ensuring that the identified themes and interpretations reflected their experiences via an interactive portion of the webinar (cf. Kaufmann & Denk, 2011; Lincoln & Guba, 1990).

## 4 | STUDY 1: RESULTS

### 4.1 | Relational behaviors for SCI dynamics

The data analyses resulted in identifying six overarching categories of relational behaviors: monitoring, investing in relationship-specific assets, sharing information and knowledge, working jointly on initiatives, sharing a vision, and adapting to a relationship. All relational behaviors were consistently mentioned across buyer firms, in addition to being corroborated from a supplier perspective (via Net\_1 and Electronics\_1, see online Appendix C), rendering reliability (Table 1). Although these relational behaviors are fairly consistent with the findings of extant empirical literature on B–S relationships (e.g., Cao & Zhang, 2011), which primarily relies on survey-based methodology, our study provides a holistic and more in-depth perspective of the relevant relational behaviors and describes their importance across different SCI levels, as will be elaborated below.

#### 4.1.1 | Monitoring

Many firms deploy monitoring programs while managing B–S relationships (Heide, Wathne, & Rokkan, 2007). *Monitoring* reflects tasks carried out by supply chain members to ensure that they are not subject to other supply chain

members' opportunistic behaviors. Firms engage in monitoring activities to ensure they have sufficient control over their exchange partners' processes and outputs (Anderson & Oliver, 1987), which ultimately increases the firms' confidence in them (Das & Teng, 1998). In our study, monitoring involved six different axial codes: setting a framework for operations, checking for deviations, enforcing contracts, seeking control, estimating cost structures, and hard bargaining (Table 1).

Firms employ contracts to set a framework for operations, which is subsequently used to check for deviations from the prescribed rules and standards by exchange partners. For example, the Director of Sourcing at Oil\_2 confided, "We do have several key contracts in place. We try to set some framework agreement based on pricing with some baseline options," while the VP of Supply Chain Management at Oil\_1 noted that "all contracts have performance expectations for providers by which they are assessed."

Firms also exhibit monitoring behavior by seeking control over pricing via estimations of product cost structures, using this information to engage in hard bargaining. The VP of Worldwide Procurement at a computer manufacturer (Comp\_1) stated that control is exerted to ensure that the desired goal can be achieved in a predictable manner. Specifically, he noted that Comp\_1 reconstructs the bill of materials of a subassembly by relying on the design submitted by a supplier, and then estimates component and subassembly costs based on global pricing information. Variances between the supplier's proposal and independent cost estimates are leveraged for discussions, and if the supplier does not acquiesce, Comp\_1 will identify component supplier(s) that can furnish the part at a lower cost, buy the component, and then sell it to the subassembly supplier. High monitoring was justified in this industry as the computer market is ultra-competitive and characterized by thin margins, as well as component costs that decline over time.

During our interviews, it became obvious that monitoring behaviors were not equally exhibited across supply partners and respective relationships; monitoring behaviors were quite prevalent only for relationships characterized by low levels of intimacy (Table 1). For instance, a materials planning manager at Electronics\_1 suggested that firms need to be continuously monitored early on in relationships, primarily to synchronize the product flow. Relationships at this level tend to be very rigid, and firms are more willing to switch partners based on cost. In contrast, relationships described by higher levels of intimacy are laden with trust, as firms at this level have worked constructively together for a significant amount of time, though the length of time varies by industry. This level entails less monitoring. Finally, the highest level of intimacy is typified by low levels of monitoring, as the fear of opportunistic behavior is scant. We found that firms at this level do not necessarily employ formal contracts, and when they do, they are not enforced. As a participant from Ret\_1 noted, "For the vast majority of our strategic relationships, we do not have to enforce contracts." In essence, the

**TABLE 1** Relational behaviors exhibited by firms engaging in SCI and quotes representing relational behaviors at different levels of intimacy

Construct	Definition	Axial codes	Freq. % <sup>1</sup>	Intimacy level <sup>2</sup>	Representative quotes
Monitoring	Monitoring represents those activities carried out by supply chain partners to ensure that they are not subject to the opportunistic behaviors of others. It involves surveillance and sanction activities to assure the control of partners.	<ul style="list-style-type: none"> <li>Setting a framework for operations</li> <li>Checking for deviations</li> <li>Enforcing contracts</li> <li>Seeking control</li> <li>Estimating cost structures</li> <li>Hard bargaining</li> </ul>	100%	Low intimacy	<p>"The new customer is where we (Electronics_1) have to have all our attention."</p> <p>"We (Oil_2) have several key contracts in place with our big suppliers."</p>
Investing in relationship-specific assets	Investments in relationship-specific assets are those that are made to specifically enhance the value of a particular relationship.	<ul style="list-style-type: none"> <li>Site specific investments</li> <li>Physical asset specificity</li> <li>Human asset specific investments</li> </ul>	86%	<p>Moderate intimacy</p> <p>High intimacy</p> <p>Low intimacy</p>	<p>"Once in a while, we (Ser_1) do send people to visit our customers and ensure they are okay."</p> <p>"Contracts! We (Ser_1) don't use them."</p> <p>"The vast majority of our (Ret_1) strategic relationship we don't have to enforce contracts."</p> <p>"We (Com_1) don't have penalty laden contract."</p> <p>"Our (Net_1) customer does not feel it is necessary to put resources in our relationship."</p> <p>"Our (Oil_1) supplier was not making investments in technology."</p> <p>"With short term suppliers, our (Oil_1) investment and commitment are much more reduced."</p>
Sharing information and knowledge	Sharing information and knowledge refers to the transfer of codified material and tacit know-how among supply chain partners in a relevant, accurate, and complete manner.	<ul style="list-style-type: none"> <li>Transfer of codified material</li> <li>Transfer of tacit know-hows</li> <li>Frequency of reporting</li> <li>Obtaining input from multiple sources</li> </ul>	100%	<p>Moderate intimacy</p> <p>High intimacy</p> <p>Low intimacy</p>	<p>"I (Electronics_1) have to go out and build tooling for it. I have to make a huge investment...it is not a transactional cost."</p> <p>"Our (Ret_1) supplier made their decision that they want to build a factory in the United States to serve us better."</p> <p>"Before it used to be that our (Net_1) customer would have just had some matrix that we would report on."</p> <p>"Traditionally we (Oil_2) would say, we want this and they would go build it for me. There is hardly any knowledge sharing."</p> <p>"Our (Electronics_1) customer is entrenched in a lot of our data."</p> <p>"Our (Net_1) customer now wants to have a bi-weekly call or once a month calls where we go through, we talk in detail about the matrix."</p> <p>"Because we (Oil_1) have a good relationship with them and this was something they shared with us."</p> <p>"We have a university for suppliers, and we (Ret_1) teach them good supplier practices and we (Ret_1) teach them global food safety initiatives."</p> <p>"We (Ser_1) use some of the things we learned and share it with them."</p>

(Continues)

TABLE 1 (Continued)

Construct	Definition	Axial codes	Freq. % <sup>1</sup>	Intimacy level <sup>2</sup>	Representative quotes
Working jointly	Working jointly represents collective initiatives among supply chain members aimed at improving the overall value of the relationship.	<ul style="list-style-type: none"> <li>Joint new product development activities</li> <li>Sharing human resources and technological capabilities</li> <li>Joint problem solving</li> <li>Collaborative forecasting</li> </ul>	100%	Low intimacy	"Our (Net_1) transactional customer believes that it is our problem, and we need to go work it out."
Sharing a vision	Sharing a vision pertains to having goal congruence, which provides a sense of direction, and subsequently ensures the alignment of priorities.	<ul style="list-style-type: none"> <li>Goal congruence</li> <li>Providing direction</li> <li>Stating and articulating priorities clearly</li> <li>Values' alignment</li> </ul>	86%	Moderate intimacy	"The forecast is bad the minute after we (Ser_1) printed it, we can be of assistance to our suppliers, and they can respond back to us and provide valuable information based on what they see going on in the market."
				High Intimacy	<p>"We (Oil_1) do pilots and testing and so forth with them."</p> <p>"Like if our (Comp_1) suppliers don't have the resources, say we (Comp_1) are going to go and design a product with them."</p> <p>"I (Ser_1) will take an expert there to assist our supplier with scheduling, and with actual industrial processes they are doing."</p>
				Low intimacy	<p>"Even though I (Oil_2) manage them, they are not in my radar. I don't pay much attention to them."</p> <p>"Some of our (Ret_1) suppliers don't share their vision."</p>
Adapting to a relationship	Adapting to a relationship is the adjustment to unexpected circumstances by a firm to sustain the relationship.	<ul style="list-style-type: none"> <li>Demonstrating commitment during need</li> <li>Flexibility to adapt to changes in the environment</li> <li>Foregoing profit</li> <li>Undertaking more risk</li> </ul>	100%	Moderate intimacy	"Our (Net_1) customers have a vision of what they want and how they want...they say to us, 'this is the plan, we will want a product to go do this,' and we come up with products to be able to go and match those desires."
				High intimacy	"We (Oil_1) sit down with our strategic partners, we lay out what we are trying to do on a business plan, we generally share what our plan looks like this year, and we will give them insight into where we are going in three to five years."
				Low intimacy	<p>"Competition is the name of our (Net_1) game, and so everybody has to remain competitive."</p> <p>"We (Oil_2) select vendors based on pricing."</p>
				Moderate intimacy	"Relationships are very important for us (Net_1), but profitability also has a part to play in the competition."
				High intimacy	<p>"The knee-jerk reaction would have been to throw most of that relationship away because these other guys would do the work for 30% less, we (Oil_1) did not do that."</p> <p>"We (Ret_1) have introduced our suppliers to other regional supermarket chains."</p>

<sup>1</sup> Frequency percentage indicates the percentage of companies that mentioned the relational behavior.<sup>2</sup> Represents the analogy used to characterize relationship levels.

mutual and tacit understanding is a substitute for monitoring behavior.

#### 4.1.2 | Investing in relationship-specific assets

Jap (1999) notes that firms can improve their collective benefits by *investing in relationship-specific assets*, which are defined as those investments that are made to distinctively enhance the value of a particular relationship. Williamson (1985) notes that there are three types of relationship-specific assets: site-, physical-, and human-specific assets. The results presented in Table 1 confirm that firms engage in all three types of relational investments. The Director of Global Sourcing at Ret\_1 noted that one of their foreign strategic suppliers “is building its factory nearby to serve us better.” This large site-specific investment is made to meet the buyer’s specific requirements, but it may engender substantial losses if the relationship ends prior to the costs being recouped. One of the managers at Electronics\_1 refers to physical-specific assets by providing an analogy for their investment in equipment and machinery, stating, “when you get awarded a part for a car, that is a platform that is going to last for about five years, you are going to make multi-million dollar investments to produce it. Let’s say you are going to award me the car body; I have to go out and build all the tooling for it, I have to make a huge investment... it is not a transactional cost.” Finally, the VP of Worldwide Procurement at Comp\_1 refers to human-specific assets by saying that “We have a ‘Technology Division’ where individuals with specific skills focus on the technology advanced by specific suppliers.”

While Table 1 shows that these relationship-specific assets are prevalent among all firms in our sample, the representative quotes reflecting this in Table 1 demonstrate that these investments vary across intimacy levels. The table also shows that, at low levels of intimacy, partners refrain from investing in relationship-specific assets. This can be explained by their fear to oblige themselves to a relationship. Under these circumstances, firms are looking for transactional relationships and are ready to switch suppliers based on cost and/or quality. The VP of Supply Chain Management at Oil\_1 noted, for instance, that they refrain from making significant investments with transactional suppliers. However, Table 1 also shows that partners invest more in relationship-specific assets as relationships become more intimate, and firms become less fearful of opportunistic behaviors. These findings are in line with Jap (1999) proposing that the primary difference between coordinative and collaborative efforts is the investment in relationship-specific assets. This is also consistent with the evolutionary perspective (Vanpoucke et al., 2014) that posits that these relationship-specific assets characterize the evolution to the commitment level, with the expectation that investments in relationship-specific assets can be recovered over the course of the relationship.

#### 4.1.3 | Sharing information and knowledge

The sharing of information and knowledge amongst buyers and suppliers has both short- and long-term benefits (Cannon & Homburg, 2001; Preston, Chen, Swink, & Meade, 2017) and has been considered an essential ingredient for effective B–S relationships (Min et al., 2005). Consistent with extant literature (Thomas, Fugate, & Koukova, 2011), we define *sharing information and knowledge* as the transfer of codified material and tacit know-how among supply chain partners in a relevant, accurate, and complete manner. The four axial codes derived from our data on sharing information and knowledge include the transfer of codified material, the transfer of tacit know-hows, the frequency of reporting, and obtaining input from multiple sources.

The transfer of codified material refers to the exchange of “tactical data such as inventory levels, forecast information, sales promotion, strategies, and marketing strategies” (Cao & Zhang, 2011, p. 166). From our results, we find that firms transfer codified material to their exchange partners to enable the synchronization of the flow of goods between them. For instance, the VP of Operations at Net\_1 stated the following regarding one of their major customers: “It used to be that our customer would have just some matrix that we would report on to coordinate.” The matrix communicated tactical data that helped synchronize the flow of goods. Besides transferring codified material, firms also transfer tacit know-hows. As an example, the Director of Supply Chain Management at Ser\_1 noted, “We [Ser\_1] have various machining activities going on, and we have had vendors that, as we increase the volume of work to them, may accept it until they crash; they lose control of their business process when they overextend themselves, so at that point if we see that happening, I will take one of our experts in there to assist them with scheduling and with the actual industrial processes that they are doing, be it welding, be it machining, so they do not have to go out and hire the level of industrial engineers and mechanical engineers that we have on our staff here. We use some of the things we learned, we share it with them.”

The frequency and reporting of (ideally multiple) input sources from where information and knowledge are obtained also play a significant role in the exchange of information among firms. The VP of Operations at Net\_1 noted, “Our customer was seeing the benefit of having communication with our company at different levels on a frequent basis.” Our interviews, however, also reveal that sharing information and knowledge varied by intimacy level (Table 1). Firms with low levels of intimacy in a specific relationship do not typically share their knowledge, but rather communicate codified material that is merely sufficient to conduct business—in essence, transactional type of data. Because firms are cognizant of the potential opportunistic behavioral tendencies at this level, it dampens knowledge sharing. However, as firms evolve into a higher level of intimacy, repeated positive interactions promote the sharing of knowledge, which occurs through more telephonic and internet-enabled



conversations, as well as face-to-face interactions, fostering personal relationships. Relationships at the highest level of intimacy are characterized by high levels of knowledge sharing. This comports well with Dwyer et al. (1987), who propose that when firms share high levels of commitment, they are willing to share their knowledge.

#### 4.1.4 | Working jointly

Several studies have cited the benefits of working jointly with supply chain partners (e.g., Preston et al., 2017). For instance, it can reduce new product development lead time (Primo & Amundson, 2002), and improve product innovation and performance (Lau, Tang, & Yam, 2010). *Working jointly* represents collective initiatives among supply chain members aimed at improving the overall value of the relationship (Cannon & Homburg, 2001; Jap, 1999; McCarthy & Golicic, 2002), via, for instance, joint new product development activities, sharing of human resources and technological capabilities, joint problem-solving, and collaborative forecasting—these dimensions represent the axial codes derived from our data (Table 1).

Working jointly is a relational behavior that engenders opportunities for growing the business while buttressing profits. The Director of Global Sourcing at Ret\_1 commented, “This supplier was innovative, cutting edge, very creative, and very flexible. ... as both [Ret\_1 and the Supplier] were looking for a long-term relationship, we began to extend to cookies, pastries, and now they also do other products.” The potential to grow their business together urged Ret\_1 and its supplier to work jointly on new product development activities. At times, firms also share human resources and technological capabilities to assist their exchange partners in developing new products. The VP of Worldwide Procurement at Comp\_1 commented, “If our suppliers do not have the human resources, we are going to go and design a product with them.” In a similar vein, the VP of Supply Chain Management at Oil\_1 stated, “We will work with them in the lab and their technology, we will also do pilots and testing, and so forth with them.” Moreover, we observed that as firms recognize their bounded rationality, they engage other firms with the anticipation of gaining insights through joint problem-solving. Partners often serve as a source of ideas that can aid firms to overcome challenges (Flint, Larsson, Gammelgaard, & Mentzer, 2005). The VP of Operations at Net\_1 suggested, “Our customers understand that our problem is their problem, so they work with us on resolving it.” Finally, firms also work jointly on forecasts and their improvement based on the inputs of exchange partners. For instance, the Director of Supply Chain Management at Ser\_1 stated, “Forecasts are bad the minute they are printed; we can be of assistance to our suppliers, and they can respond back to us, and provide valuable information based on what they see going on in the market.”

Based on our interviews, we conclude that the intensity level of working jointly varies by intimacy level (Table 1). At

low levels of intimacy, firms do not necessarily work jointly with their supply chain partners as they do not envision an enduring relationship. However, as firms appreciate the bilateral value proposition, they begin collaborating. Along these lines, Cao and Zhang (2011) suggest that firms work jointly when they anticipate a more strategic relationship, which was reflected in our sample by activities such as collaborative forecasting. As an example, Ser\_1 engages in collaborative forecasting with some suppliers (Table 1).

Working jointly blooms at the highest level of intimacy. The VP of Worldwide Procurement at Comp\_1 suggested that they work with their suppliers at this level to develop, test, and design new products by providing suppliers with the necessary resources. However, there is very little motivation to engage in these behaviors with suppliers with whom they share lower levels of intimacy.

#### 4.1.5 | Sharing a vision

Supply chain scholars suggest that there needs to be concurrence or some level of compatibility regarding the vision (Lambert, Stock, & Ellram, 1998) for relationships to flourish. *Sharing a vision* with partners provides “specific goals and strategies on how they plan to identify and realize the opportunities they expect” (Mentzer et al., 2001, p. 13). In line with extant literature, we suggest that sharing a vision pertains to ensuring goal congruence that provides a sense of direction and subsequently ensures the alignment of priorities. Axial codes derived to indicate this relational behavior include goal congruence, providing direction, clearly stating and articulating priorities, and alignment of values.

Goals provide a sense of objectivity in relationships and are necessary to ensure success. Evidence for the power of goal congruence was, for instance, provided by the VP of Supply Chain Management at Oil\_1, who suggested, “Looking at our goals and their goals, one thing I can say is our relationship has been extremely accruable.” Goals also help firms create a strategic plan that provides direction and ensures that all constituents are aware of appropriate steps necessary to achieve these goals. In addition, clearly stating and articulating priorities enables firms to focus on specific tasks, and safeguards that the firms are working coherently toward a shared vision. For example, the VP of Supply Chain Management at Oil\_1 noted that it is imperative to prioritize tasks and make sure they are completed by supply chain partners to ensure successful long-term relationships: “Our [Oil\_1 and their supply chain members’] job is to figure out what is right for the business and push the agenda for it.” What is particularly impactful is when there is alignment on values.

It was evident from our interviews that sharing a vision is a relational behavior that primarily occurs when firms possess a high level of intimacy (Table 1). We find that at low levels of intimacy, firms are rather reserved in their orientation and thus do not necessarily share their vision with their partners, as they are not committed to a long-term relationship. However, as the degree of interdependence increases over

repeated interactions, firms begin developing a long-term orientation with their exchange partners, which motivates firms to grant the counterpart visibility into their strategic planning. This is in line with extant literature, which notes that long-term strategic planning and a collective shaping of goals only occur when firms are highly committed toward each other and share a high degree of trust (Cao & Zhang, 2011; Morgan & Hunt, 1994; Ring & Van de Ven, 1994). Firms that reach the highest level of intimacy implicitly and explicitly pledge toward relationship continuity and have a better understanding of their supply chain partners' long-term objectives.

#### 4.1.6 | Adapting to a relationship

Lee et al. (2004) refer to adaptability as the willingness by firms to reshape supply chains based on unexpected changes in the environment, with Dwyer et al. (1987) suggesting that firms adapting to unforeseen changes are likely to engender durable relationships. Along similar lines, we define *adapting to a relationship* as a firm's adjustment to unexpected circumstances to sustain relationships, a behavior that is characterized by the commitment during need, the flexibility to adapt to unexpected changes in the environment, and the foregoing of profit and the undertaking of more risk—these were the derived axial codes.

Adapting to a relationship inherently reflects commitment during need. The VP of Supply Chain Management at Oil\_1 provided an example of their commitment to a supplier in need: "The knee-jerk reaction would have been to throw most of that relationship away because other guys would do the work for 30% less, we did not do that." Furthermore, adapting to a relationship is based on the flexibility to adjust to unexpected changes in the environment. Our findings suggest that firms behave more flexibly, sometimes in contrast to the terms and conditions that were laid out on the outset, as environmental changes emerge. The VP of Supply Chain at Oil\_1 noted, "We generally look at situations..., so contracts become more of guidelines as opposed to hard and fast rules." Overall, we find that a firm's commitment during need and the flexibility to adapt to unexpected changes in the environment may be exhibited even at the expense of foregoing profits or by undertaking greater risks.

Our research further suggests that the intensity of adapting behaviors varies by the level of intimacy shared between partners (Table 1). Firms that share low levels of intimacy try to maximize their profits and have little or no consideration for their partners. Due to the transactional nature of these relationships, firms' actions may go against the interests of their supply chain partners. Even at moderate levels of intimacy, we find that firms are concerned about the profit potential that resides in the relationship, and thus are willing to exit the relationship when performance expectations are not met. As such, they are somewhat reluctant to sacrifice profit or other opportunities to sustain the relationship. However, when partners share high levels of intimacy, firms are willing to endure short-term losses to preserve their long-

term relationships. Such behavior is enabled by the increased commitment toward their partners (Dwyer et al., 1987; Noordewier, John, & Nevin, 1990), which is consistent with Lawson, Petersen, Cousins, and Handfield (2009), who argue that relationships become more adaptable as they evolve due to their increased embeddedness. Furthermore, these firms that share high levels of intimacy are not only willing to take losses, but also work with their supply chain partners to improve their current predicament. For instance, the Director of Supply Chain Management at Ser\_1 suggested that they try to uphold their relationships even during a crisis in order to overcome challenges (see online Appendix C).

#### 4.1.7 | Overlaying relational behaviors with levels of intimacy

From Table 1, we find that the lowest level of intimacy is described primarily by coordinative behaviors, and we thus label this level of SCI as coordination, which is consistent with extant literature. Coordination can be defined as the process of managing dependencies between firms (Malone & Crowston, 1994) and is primarily achieved through contracts (Leuschner et al., 2013; Vanpoucke et al., 2014). When partners share a low level of intimacy and materially exhibit coordinative behaviors, they are solely complying with the tenets of the contract and will confine their behaviors to what is prescribed in them. Also, Table 1 illustrates that the next level of intimacy can be characterized by collaborative relational behaviors. Collaboration occurs when a firm identifies with another firm, especially under conditions of saliency. Finally, the highest level of intimacy is described by relational behaviors that reflect internalization (Table 1). Internalization is attained when constituent firms espouse each other's values and perform desired activities regardless of surveillance or saliency. Based on our interviews, it emerged that relationships at the internalization level rely less on monitoring, but expend more heavily on relationship-specific assets, sharing of information and knowledge, working jointly, and sharing a vision while adapting to a relationship. Thus, these firms have lower safeguards that make them more vulnerable to opportunism while investing heavily and over time in activities that are sometimes irreversible or specific to one partner. Subsequently, based on these findings, we categorize the intensity levels for each of the six behavioral nuances associated with a specific level of SCI between firms as outlined in Table 2.

### 4.2 | Stimulants for SCI dynamics

Our data analysis reveals that all relationships start at the coordination level; however, while some evolve to the collaboration and ultimately the internalization levels, others never progress to higher levels. Based on interviewing fourteen high-level individuals across seven firms, several overarching categories of variables emerged as stimulants that explain the motivation to evolve from a lower level to a higher level.

**TABLE 2** Relational behaviors across integration levels

Behavioral patterns of SCI	Coordination	Collaboration	Internalization
Monitoring	High	Moderate	Low
Investing in relationship-specific assets	None	Moderate	High
Sharing information and knowledge	Low	Moderate	High
Working jointly	Low	Moderate	High
Sharing a vision	Low	Moderate	High
Adapting to a relationship	Low	Low	High

**TABLE 3** Stimulants for SCI evolution

Construct	Definition	Axial codes	Freq. % <sup>1</sup>
Cost	Reasonable/justified or unreasonable/unjustified cost over the length of the relationship.	<ul style="list-style-type: none"> <li>Sales cost</li> <li>Cost negotiation</li> <li>Cost structure</li> </ul>	86%
Quality	High quality or low quality across dimensions such as durability, reliability, adherence to specifications, or performance over the length of the relationship.	<ul style="list-style-type: none"> <li>Differentiator</li> <li>Cost of failure</li> </ul>	57%
Bilateral value proposition	Represents the value for the members in a supply chain relationship.	<ul style="list-style-type: none"> <li>Interdependence</li> <li>Capabilities</li> <li>Product expansion</li> <li>Leverage</li> </ul>	57%
Product type	Commodity vs. special/custom products. Is the exchange pertaining to commodity type of products that are readily available in the market or with products that are customized?	<ul style="list-style-type: none"> <li>Engineered product</li> <li>Product significance</li> <li>Customized product</li> <li>Product diversification</li> <li>Market commodities</li> </ul>	57%
Supplier concentration	Number of potential competent sources of supply in a given market; low or high concentration.	<ul style="list-style-type: none"> <li>Alternate suppliers</li> <li>Multiple suppliers</li> <li>Strategic suppliers</li> <li>Supplier selection</li> </ul>	57%
Trust	Level of trust over the length of the relationship; there can be two types of trust that partners consider: competency trust (possessing technical and production competencies) and relationship trust (reflecting reliability, truthfulness, and fairness).	<ul style="list-style-type: none"> <li>Trust but verify</li> <li>Trustworthy</li> <li>Confidence</li> </ul>	71%
Management acumen	Whether partners have similar levels of management capabilities. Planning, management, and communication may be facilitated or hindered based on the compatibility of management acumen.	<ul style="list-style-type: none"> <li>Management acumen</li> <li>Management efficiency</li> <li>Management style</li> </ul>	29%
Cultural fit	Do the partners share the same values? For instance, one organization may be very proactive, while the other is very reactive in its orientation.	<ul style="list-style-type: none"> <li>Cultural ties</li> <li>Importance of cultural fit</li> <li>Time to change culture</li> <li>Organizational culture</li> </ul>	57%

<sup>1</sup>Frequency percentage indicates the percentage of companies that mentioned the stimulant.

Table 3 lists the identified stimulants, whereas Table 4 highlights the stimulants via specific quotes. While Vanpoucke et al. (2014) described two specific triggers (i.e., trust for level 1 to level 2, and interdependence for level 2 to level 3), which are analogous to what we coin as stimulants, we identified eight stimulants that explain SCI dynamics.

The organizational buying literature suggests that the product/service *cost* is a key factor that firms consider when initially engaging in a relationship and subsequently pursuing it (Doney & Cannon, 1997; Wilson, 1994). As with cost, prior

research advocates that the *quality* of a product/service that is furnished can serve as an order qualifier, further initiating and consequently asserting buyer–supplier relationships (Cannon, Doney, Mullen, & Petersen, 2010; Hill, 1990). These notions are evident in our data, which indicate that firms enter the coordination level based on the cost and quality of products/services offered by their exchange partners, and, subsequently, evolve from coordination to collaboration. One of the Purchasing Managers at Oil\_2 stated the following, while brainstorming the salient factors considered prior to

**TABLE 4** Supporting quotations for stimulants at different levels of SCI transition

Themes	No relationship → Coordination <sup>a</sup>	Coordination → Collaboration <sup>a</sup>	Collaboration → Internalization <sup>a</sup>
Cost <sup>b</sup>	We need suppliers to get some good cost-effective product that get us business. (Oil_2)	So, you want to go to the area of highest profitability, so given that scenario, yes we would want to go and pursue customer C than versus customer B. (Net_1)	We have buyers and senior buyers that understand the process of their buying and they go out and get competitive cost just to keep everybody honest. (Ser_1)
Quality <sup>b</sup>	Price and Quality-Safety also comes into picture in selecting suppliers, but if it is a quality product, we see safety as an inbuilt one. (Oil_2)	I would say that if you have a supplier who has variable quality, you need develop a second source in case they have an increase. (Electronics_1)	It was about who is going to be able to build this product and provide the best quality. (Comp_1)
Product type <sup>b</sup>		Consider the difference between Procter & Gamble products and Toyota. P&G product, say Tide, is a commodity that I bought while Toyota is an engineered product that I co-developed with large investments. If I don't want to sell Tide, I can sell something else. (Electronics_1)	When you are developing a product that is going to take 8 to 12 months to just design, develop, and get ready to run in the market... you just don't change (i.e., the relationship) and you start overlaying development cycles. (Comp_1)
Bilateral value creation <sup>b</sup>		We make poor progress because the customer does not see the value. (Net_1)	Our providers are recognizing our business need and they are recognizing that it will build our business-to-business relationship. (Oil_1)
Supplier concentration <sup>b</sup>		By reducing from six down to two suppliers they say you need to be the technology leader, you need to go do things, and I am counting on you, you will get much better..., so a greater business relationship. (Net_1)	The industry (i.e., supplier numbers) is a major determinant in our relationship with suppliers. As an example, whether you end up in a transactional or strategic relationship depends a lot on the industry that you are dealing with. (Comp_1)
Trust <sup>b</sup>		I have a pretty mature customer in the building, so I am actually left alone quite a bit... it is a very kind of trusting relationship. (Electronics_1)	There is trust, but we verify. We don't want them cheating on us nor do we want to be cheating on them. So, again you cultivate that relationship. (Ret_1)
Management acumen <sup>b</sup>			Our providers' advantage is driven by their management acumen now as opposed to the differential in their equipment. (Oil_1)
Cultural fit <sup>b</sup>			We look at which relationships worked and which relationships have not, culture definitely played a big role. (Oil_1)

<sup>a</sup>Quotes provided from firms identified to have pursued corresponding SCI levels.<sup>b</sup>Stimulants, once triggered, remain activated across all levels of transition.

engaging in a relationship: “Cost and quality; safety also comes into the picture, but if it is a quality product, we see safety as an inbuilt one.” We however note that once a stimulant, like quality, is activated, it remains influential across integration levels, although its saliency or weight may vary. For example, the Director of Global Sourcing at Ret\_1 noted that while compatibility in culture is important to climb to the highest level of SCI, quality still plays a critical role: “We are looking for suppliers locally, domestically, or internationally that are going to share some of the same common cultures that we do, but we cannot compromise on quality, that is non-negotiable.” Previous research also emphasizes the importance of fit between order winners and supply chain integration (Quesada, Rachamadugu, Gonzalez, & Martinez, 2008), in that once order winners are clearly understood, SCI can be implemented accordingly. Overall, we see that meeting the minimum standards on competitive

priorities as set by the buyer is essential to enter the coordination level. However, to move toward higher levels of integration, suppliers need to outperform on other criteria, such as cultural fit, while maintaining minimum performance levels on order qualifiers and winners (Hill, 1994). As such, when a company endures quality issues or recalls attributed to a supplier, the supplier may no longer be perceived as a preferred supplier, even in the presence of high SCI levels (Chen, Rungtusanatham, & Goldstein, 2019). Our cases also suggest that quality is increasingly being “downgraded” as an order qualifier in highly integrated supply chain relationships, while other criteria, such as trust or cultural fit, take over as order winners. This supports the idea that order qualifiers and winners are time-specific and can change over time (Hill, 1994).

Our data analysis further reveals that *product type*, *supplier concentration*, and *trust* are important stimulants that



motivate firms to transition across levels. This is in line with scholarly research on B–S relationships (e.g., Fynes & Voss, 2002; Wagner & Bode, 2014). Specifically, we find that when commoditized products form the basis of a relationship, firms tend to lack the motivation to elevate a relationship beyond coordination. Also, if there are several suppliers available for a given product, firms typically try to exploit these dynamics, unless they see the *bilateral value proposition* of moving to a higher-level with a specific supplier (e.g., Oil\_1). Along with product type, Bensaou and Anderson (1999) demonstrate that supplier concentration can impact the relationships between exchange partners, corroborating our findings. Specifically, having a “thin” supply market tended to increase dependence, which further abetted B–S relationship development. Moreover, we find that trust developed through repeated positive transactions during coordination plays a pivotal role for the transition of relationships. For instance, the VP of World-wide Procurement at Comp\_1 noted the following regarding working with suppliers over time: “They understand what we expect, what we design, they understand the features and functionality that you put into those products, and we don’t need a whole host of people to manage these relationships.” This signals a sense of trust in these relationships, beyond which the VP further noted, “We just need to tell them what we know and what we want...you kind of evolve to that point.”

The transition to the highest SCI level occurs after a significant duration (the length of time may be industry-specific) of working together and once a high degree of trust has been developed among exchange partners. Jap (1999) termed such transitions as “pie-expansion” efforts, where firms believe that working closely will add greater value than merely coordinating, and consequently, firms may transition from coordination to collaboration. Moreover, as in the transition from coordination to collaboration, cost, quality, a bilateral value proposition, supplier concentration, and product type are salient factors for the evolution of a relationship from collaboration to internalization. However, two other important factors may uniquely explain the transition of a relationship from collaboration to internalization: *culture* and *management acumen*. Compatibility in organizational culture motivates partners to progress to the highest SCI level. In contrast, dissimilarities in culture can often be a source of conflict and detract from reaching the internalization level (Dyer & Chu, 2003; Villena et al., 2011).

Management acumen in our study reflects the ability of exchange partners to understand business situations and respond quickly and effectively. We found that partners at the internalization level have very compatible management acumen. As an analogy, studies have demonstrated that individuals having similar intelligence are likely to be married (McKenzie & Tullock, 2012; Tucker & O’Grady, 1991), assuming that marriage is a culmination of dating and engagement, which are analogous to coordination and collaboration (Ring & Van de Ven, 1994).

### 4.3 | SCI dynamics

The results from our between-firm analyses are summarized in Table 5 and indicate that firms share some combinations of behavioral patterns. For instance, firms such as Oil\_1, Ret\_1, Comp\_1, and Ser\_1 appear to share some very intimate relationships with some of their supply chain partners; these relationships are characterized by low levels of monitoring but high levels of investing in relationship-specific initiatives, sharing information and knowledge, working jointly, sharing a vision, and adapting. In contrast, Oil\_2 mostly engages in high levels of monitoring and exhibits hardly any relational behaviors associated with higher levels of SCI. Furthermore, Electronics\_1 and Net\_1 tend to exhibit mostly moderate levels of relational behaviors, except for adapting to a relationship (which is rarely evidenced).

Our within-firm analysis (see online Appendix C) attests that firms pursue or realize the highest level of SCI, which we coin *internalization*, not in all relationships. Specifically, we find that Electronics\_1 and Net\_1 developed many relationships that evolved to the *collaboration* level, while all of Oil\_2’s relationships never veered away from *coordinative* behaviors. All other firms had a few relationships that evolved to the internalization level at least with some supply chain partners. It was also apparent that all relationships began at the coordination level; there was never a situation where a relationship commenced at the collaboration or internalization level.

It is vital to note that it is not necessarily advisable for all relationships within a firm to pursue collaboration or internalization; for some relationships, this might be the incorrect approach, and a more transactional approach may be more apposite. It all depends on the relationship the firm wants to pursue based on the stimulants at work with the supply chain partner. For instance, Oil\_2 does not feel that it is worthwhile to invest in relationships with its suppliers because of the specific product type they purchase and the associated low value proposition. Oil\_2 serves a few large buyers in the oil and gas industry, and these buyers typically instruct Oil\_2 to source equipment from a directed source. Directed sources vary by buyer and type of capital equipment and offer very few opportunities for volume purchasing or long-term contracting. Thus, Oil\_2 finds little value in investing in these directed sourcing relationships. Similarly, a customer of Net\_1 did not share the same level of interest for a more intimate relationship because they simply did not see a clear value proposition; the customer was comfortable with the existing level of the relationship. Some of the relationships between Comp\_1 and its suppliers never evolved to the collaboration level; this conscious choice rested on the specific type of the purchased components (i.e., a structural commodity vis-à-vis an engineered component) and supplier concentration. Also, it is critical to note that the decision to evolve or maintain a B–S relationship is not solely decided upon by the buyer; suppliers also play a pivotal role in the evolution of relationships, as one of the Purchasing Managers at Electronics\_1 stated,

**TABLE 5** Prevalent relational behaviors for the highest level of SCI discussed by respective firms

Firms	Monitoring	Investing in Relationship-Specific Assets	Sharing Information and Knowledge	Working Jointly	Sharing a Vision	Adapting	Highest Level of SCI
Oil_1	Low	High	High	High	High	High	Internalization
Net_1	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Collaboration
Ret_1	Low	High	High	High	High	High	Internalization
Comp_1	Low	High	High	High	High	High	Internalization
Ser_1	Low	High	High	High	High	High	Internalization
Oil_2	High	Low	Low	Low	Low	Low	Coordination
Electronics_1	Moderate	Moderate	Moderate	Moderate	Moderate	Low	Collaboration

“I think they understand what we can do, and we appreciate their work as a customer, so we are working together to grow some more business.” Likewise, the VP of Operations at Net\_1, when describing their stance on B–S relationships, stated, “If you find a customer who you are more profitable with, you should do it [business] based on profitability more than based on whom you would like to do business with.”

When product design, quality, and cost are standardized, and there is a significant number of capable suppliers, the market sets the costs/price, and thus investing in relationship-specific assets cannot be justified (Kraljic, 1983). Furthermore, competency trust explains why certain relationships at Comp\_1 do not evolve to the internalization level. As the VP of Worldwide Procurement noted, relationships get to the “marriage level” (see online Appendix C) when the supplier demonstrates competency over time. As such, trust is fostered as the partner’s competency increases.

While the SCI literature implicitly suggests that B–S relationships can only be successful when the highest level of intimacy is reached, or in other words, the internalization level of integration, our data shows that managers can also concede less intimate relationships as fitting and successful. As such, higher levels of integration might not be essential to attain a satisfactory relationship.

## 5 | STUDY 2: RESEARCH METHODS, SAMPLE, AND MEASURES

Study 2, which employed a quantitative survey, was conducted to bolster external validity and improve the generalizability of our findings derived in Study 1. Survey data for this study is attained from two sources: an alumni network, which was accessed through a large university (>50,000 students) in the United States, and a member panel of the American Productivity and Quality Center (APQC). The APQC, headquartered in the United States, is considered an industry leader in benchmarking best practices with over 500 member organizations. Similar approaches of using alumni networks and the services of external firms were used in prior studies (Ambulkar, Blackhurst, & Grawe, 2015).

As a requirement for participation, informants had to work at firms with over 100 employees, have active and ongoing

experience in inter-firm relationships, and have significantly and personally interacted with buyers and/or suppliers in a business-to-business setting for a minimum of 3 years. A total of 123 emails were sent to identified individuals from the alumni network database along with a \$5 Starbucks gift card. This yielded a total of 68 responses, of which four were discarded due to high levels of missing data, resulting in a response rate of 52%. Using the same screening criteria as deployed for the first sample—thus ensuring sample comparability and procedural equivalence (Hult et al., 2008; cf. Montabon, Daugherty, & Chen, 2018)—a total of 102 emails were sent to APQC members. Of the obtained 56 responses, 5 were discarded due to high levels of missing data, resulting in an effective response rate of 50%. As an incentive for participation, respondents were promised an industry report accessible through the APQC’s website and a webinar discussing the study’s findings. We note that consistent with our findings, the webinar, which attracted hundreds of participants, corroborated a shared understanding among participants regarding the SCI levels, the relational behaviors at each level, and the stimulants that motivate firms to progress from one level to the next.

Rungtusanatham, Ng, Zhao, and Lee (2008) and van de Vijver and Poortinga, (1997) caution researchers to be vigilant when merging data across culturally different groups due to potential item level bias that may reside in responses. Although this study does not invoke culturally different groups, in the interest of being extra cautious, we tested for differential item functioning (DIF) between the responses of the two sources to assess whether there is any item bias. Our analysis rests on the procedure advocated by van de Vijver and Poortinga (1997) to detect item bias (Clauser & Mazor, 1998); we note that equivalence testing via multigroup analysis is not applicable here as we are not specifying a measurement model, nor do we have composite scales, nor do we claim a reflective item orientation.

DIF is evident when respondents from the two groups with a similar *total score* for the instrument do not have a similar score on the item. The DIF test procedure involves performing an analysis of variance (ANOVA) per item, with the item score posited as the dependent variable, while the *total score* and the data collection group are specified as independent variables. Statistically significant effects for the data

collection group and the interaction term of the data collection group with the *total score* can indicate DIF. In the realm of our inquiry, conducting this test suggests that there is no statistically significant evidence ( $p > .05$ ) to support DIF among our data. Therefore, we conclude that item bias does not present a concern when merging the two data sources.

As described, the data consisted of responses from single, key respondents. Although the single-respondent survey approach has received criticism, it is widely deployed in several fields of study, including supply chain management (Krause, Luzzini, & Lawson, 2018). Given the practical difficulties of obtaining multiple responses from the same firm, a single-respondent approach is helpful to expand participation across industries, which improves generalizability and statistical power. Attention must however be paid to ensure the quality of single-respondent survey research by selecting suitable individuals and offering transparent documentation (Montabon et al., 2018). As Krause et al. (2018) attest, having the right respondent, which we ascertained via the approach described above, is more important than having multiple respondents. Specifically, we commissioned a screening criterion as advocated by Kumar, Stern, and Anderson (1993) and worked with APQC to ensure that we targeted an apposite pool of respondents.

Among our respondent sample, two-thirds held positions at the *managerial level and above* (66%), and most had spent more than 5 years in the current organization (63.4%). Specifically, respondents worked for their current employer for an average of 13 years. Over 69.5% of the individuals spent more than 5 years of their career working either directly or indirectly with supply chain partners. Participants had an average of over 20.7 years of experience directly working with supply chain partners, and an average of over 28.1 years of total work experience. Our sample includes individuals from diverse industries such as aerospace, automotive, and energy (see online Appendix D). Most respondents came from firms with over 500 employees (approximately 62%), affording some level of generalizability.

## 5.1 | Measures

### 5.1.1 | Relevance of relational behaviors and stimulants

To demonstrate the relevance of the behaviors established through Study 1, we asked our survey participants to rate the importance of the six relational behaviors and the eight stimulants at their respective firm using a five-point Likert scale (ranging from 1 [not at all important] to 5 [very important]). We provided survey respondents with the definition of the various relational behaviors and their axial codes (labeled as examples in the survey), as indicated in Table 1. This was done to help respondents better comprehend the meaning of the relational behaviors and establish a common content domain. We specifically asked respondents to reflect on the relationships their firms have with supply chain partners, and

to indicate whether the relational behaviors, based on their respective definition and axial codes, are principal variables on the aggregate. This approach enabled us to guarantee consistency in our conceptualization with Study 1 in our mixed-study research design.

Similarly, we requested that our survey participants indicate the importance of the eight stimulants, after having provided their descriptions (Table 3). While operationalizing our variables with single-item questions enabled us to keep the questionnaire at a reasonable length that likely contributed to a higher response rate, we acknowledge the limitations inherent to single-item measures. Scholars have however also argued that multiple-item measures are not necessarily better than single-item measures. For instance, Bergkvist and Rossiter (2007, p. 176) note that single-item measures are acceptable when “(1) the object of the construct is “concrete singular,” meaning that it consists of one object that is easily and uniformly imagined, and (2) the attribute of the construct is “concrete,” again meaning it is easily and uniformly imagined” (cf. Bozarth, Warsing, Flynn, & Flynn, 2009). Similar conclusions are drawn in a study by Nair, Ataseven, Habermann, and Dreyfus (2016). As such, while we acknowledge the single-item measures as a limitation, we believe that the nature of our single-item measures and the manner in which they were presented enable us to accurately capture the intended aspects.

### 5.1.2 | Saliency of relational behaviors and stimulants

The participants were also asked to indicate the extent to which each of the relational behaviors and stimulants is typically exhibited at the three SCI levels and between SCI transition levels, respectively, as identified in Study 1, based on a five-point scale (ranging from 1 [none] to 5 [very high]). To control for item priming, caution was exercised to ensure that we did not forcefully associate any of the identified relational behaviors or stimulants with a particular integration level (Jap & Anderson, 2007). Toward that goal, no definitions of the three integration levels (or what transpires at each level) were provided, as this might prime participant responses (Jap & Anderson, 2007). Rather, we used Dwyer et al.'s (1987) analogy of human relations (i.e., dating, engagement, and marriage) to relate to the three SCI levels of B–S relationships. A study by Shen, Su, Zheng, and Zhuang (2020) also suggests a similar approach. While our analogy, compared to using actual integration levels, might trigger respondents' thinking in terms of closeness and intimacy, it is less related to behaviors and stimulants, and is certainly not set in a “business” context where sharing asset-specific investments or knowledge sharing may be relevant. Moreover, we did not relate the expected behaviors or stimulants attributed to or expected at each level of human relations, which allowed participants to freely choose the saliency of relational behaviors or stimulants without being biased (Jap & Anderson, 2007).

**TABLE 6** Relevance of behaviors exhibited by firms in B–S relationships

Behaviors exhibited	Mean	SD	Count (important & very important)	Percentage (important & very important)
Monitoring	4.27	0.872	98	85.22
Sharing information and knowledge	4.55	0.665	109	94.78
Investing in relationship-specific assets	3.98	0.888	86	74.78
Working jointly	3.93	0.845	84	73.04
Sharing a vision	4.11	0.925	90	78.26
Adapting to a relationship	4.43	0.715	105	91.30

To further limit any bias in responses due to priming, the analogy was introduced only once and was carefully interspersed within the survey to ensure spatial and temporal distancing from questions on the saliency of relational behaviors and stimulants (Das & Joshi, 2007; Joshi, Das, & Mouri, 2015; Syed, Blome, & Papadopoulos, 2020; Ta, Esper, & Hofer, 2018). Statistically, Podsakoff, MacKenzie, Lee, and Podsakoff (2003) note that people respond to primed items differently; thus, we should find answers to those suspect variables in our study to vary less across SCI levels. Based on Levene’s test for homogeneity of variance, we find that the variances for the saliency measures of relational behaviors did not differ significantly ( $p > .05$ ) across the coordination and internalization levels; similarly, the variances of the stimulants did not differ significantly ( $p > .05$ ) when the first and the last SCI transition levels were contrasted, demonstrating insignificant bias due to priming (Ozer & Zhang, 2015). Moreover, our descriptive statistics show that monitoring is more salient in the “dating phase” vis-a-vis the “marriage phase,” suggesting that priming is curbed (if priming was at play, the respondents would have associated marriage with more monitoring, as marriage denotes more of a contractual obligation when compared to dating or engagement). In a similar vein, not all behaviors follow the same low-medium-high pattern through the different integration levels. Overall, by invoking procedural and statistical methods that rest on extant literature (see online Appendix E), we believe that any bias due to priming is negligible.

## 6 | STUDY 2: RESULTS

### 6.1 | Relational behaviors and stimulants for SCI dynamics

Our results indicate that all behaviors identified in Study 1 are considered salient for B–S relationships (Table 6), with sharing information and knowledge being the most relevant behavior ( $M = 4.55$ ,  $SD = 0.67$ ) and working jointly being the least relevant behavior ( $M = 3.93$ ,  $SD = 0.85$ ). However, working jointly was found to be statistically different from the midpoint ( $M = 3.93$  vs.  $M = 3$ ,  $t = 11.81$ ,  $p < 0.01$ ) of the measurement scale. Furthermore, a paired sample  $t$ -test, comparing the means for sharing information and knowledge

and working jointly, indicates a significant difference (mean difference = 0.62,  $t = 7.29$ ,  $p < 0.01$ ). This suggests that although all relational behaviors are salient, their importance varies. Besides examining previously identified behaviors, we presented respondents with the opportunity to disclose other relational behaviors that they thought were relevant for B–S relationships. Overall, only nine participants (7.8%) noted other relational behaviors, which were however already accounted for by our list of behaviors (respondents were just using different labels), rendering greater credibility to our findings. For instance, one of the participants suggested “being clear on goals to be achieved” (i.e., sharing a vision), and another participant suggested to “carry out capability assessments jointly” (i.e., working jointly).

Furthermore, our results indicate that all stimulants are considered important, and can thus potentially explain shifts (irrespective of the type of shift) among integration levels (Table 7). Quality was the most relevant stimulant ( $M = 4.77$ ,  $SD = 0.46$ ), while management acumen ( $M = 3.62$ ,  $SD = 0.94$ ) and cultural fit ( $M = 3.62$ ,  $SD = 1.04$ ) were considered the least relevant. Management acumen ( $M = 3.62$  vs.  $M = 3$ ,  $t = 6.37$ ,  $p < .01$ ) and cultural fit ( $M = 3.62$  vs.  $M = 3$ ,  $t = 7.03$ ,  $p < 0.01$ ) are however statistically different from the midpoint of the measurement scale, suggesting saliency. Paired sample  $t$ -tests suggest that there are significant differences in the mean values between quality and management acumen (mean difference = 1.15,  $t = 13.16$ ,  $p < .01$ ), and between quality and cultural fit (mean difference = 1.15,  $t = 11.56$ ,  $p < .01$ ). This indicates that although all stimulants are considered important, their saliency levels can differ.

In addition to examining previously identified stimulants, we provided respondents with the opportunity to communicate other stimulants that they thought were relevant for progressing from one level of integration to another level. Seven participants (6.1%) contributed other salient stimulants, with, however, these stimulants being either directly or indirectly captured by our previously identified stimulants. For instance, one of the participants offered two stimulants that include supplier performance (e.g., quality and cost) and dependency on suppliers (i.e., supplier concentration). Another participant suggested that cost discipline (i.e., cost) could serve as a stimulant in the evolution process. These results corroborate our earlier findings regarding the stimulants for the evolution across integration levels.



**TABLE 7** Relevance of stimulants for B–S relationship evolution

Stimulants of B–S relationships	Mean	SD	Count (important & very important)	Percentage (important & very important)
Cost	4.45	0.728	105	91.30
Quality	4.77	0.460	113	98.26
Bilateral value proposition	4.02	0.898	87	75.65
Product type	4.10	0.725	96	83.48
Supplier concentration	3.73	0.776	73	63.48
Trust	4.57	0.650	107	93.04
Management acumen	3.62	0.942	69	60.00
Cultural fit	3.62	1.039	67	58.26

## 6.2 | Saliency of relational behaviors and stimulants across SCI levels

To effectively determine if the mean values of the behaviors varied by integration level, we conducted a one-way repeated measures ANOVA controlling for the source of our data, firm size, and industry. The Wilks Lambda test statistic for respective behaviors suggests that there is a significant difference ( $p < .05$  for each relational behavior) in the mean values of behaviors by integration level, that is, coordination, collaboration, and internalization (Table 8). However, the Mauchly's test indicated that the assumption of sphericity had been violated in all the cases (Table 8), and subsequently, the degrees of freedom were corrected using the Greenhouse-Geisser estimates of sphericity for each case. The corrected results confirmed that saliency varies across SCI levels ( $p \leq .05$ ). Table 8 presents the effect sizes for B–S relational behaviors after a Greenhouse-Geisser correction. The lowest effect size is 0.03 (sharing information and knowledge), while the highest is 0.12 (sharing a vision).

Furthermore, to locate specific significant mean differences in relational behaviors across the three levels of integration, planned contrasts were conducted. Three paired samples  $t$ -tests for each relational behavior were used to compare mean differences in relational behaviors across coordination, collaboration, and internalization levels. The results suggest that most of the relational behavior means differ across integration levels (Table 8). Specifically, we find that all relational behaviors have significantly different means when coordination and collaboration levels, and when coordination and internalization levels, are considered, respectively. Most relational behaviors' means also differed (except for sharing information and knowledge, and adapting to a relationship) when collaboration and internalization levels were contrasted. In addition, the results illustrate that most behaviors become increasingly prominent when shifting from coordination to collaboration, and from collaboration to internalization, with the exception of monitoring, which, as expected from Study 1, decreases at higher SCI levels.

Similarly, to effectively determine if the mean values of the stimulants vary by type of transition, we conducted a one-way repeated measures ANOVA controlling for the

source of our data, firm size, and industry. The Mauchly's test is inconsequential because only two levels of a repeated measures factor are considered, and thus we only report the Wilks Lambda test statistic and its significance (Table 9). This test suggests that cost, quality, product type, supplier concentration, and trust do not exhibit a statistically significant difference across the two transitions, implying that they are equally important to stimulate the evolution of relationships from coordination to collaboration, and from collaboration to internalization. However, a bilateral value proposition, management acumen, and cultural fit exhibit statistically significant differences across the two transitions (Table 9), suggesting that their saliency differs between the two transition levels. A closer examination of the mean differences between the two transition levels indicates that the stimulants that differed were all more efficacious in explaining the transition from collaboration to internalization, than explaining the transition from coordination to collaboration. Table 9 also presents the effect sizes, in which the lowest is  $<0.01$  (cost) while the highest is 0.11 (cultural fit).

## 7 | DISCUSSION

As the majority of the SCI literature has viewed SCI from a static-snapshot viewpoint (Arshinder, Kanda, & Deshmuk, 2008; Leuschner et al., 2013; Van der Vaart & Van Donk, 2008; Zang et al., 2015), a perspective which is increasingly questioned, there has been a growing need to identify and understand B–S relationship dynamics. This dynamic view requires an examination of relational behaviors and stimulants of SCI (Chen et al., 2009; Fabbe-Costes & Jahre, 2007; Zhang et al., 2015), both from an evolutionary perspective as well as a portfolio perspective (i.e., not just focusing on strategic products). In bringing these two perspectives together, we were able to link the relational behaviors, which are mainly discussed in a portfolio perspective, and the stimulants, which are the main focus in an evolutionary perspective. We identified six relevant relational behaviors, and eight stimulants that fuel the desire to advance a relationship from one level to the next. It is important to note, however, that not all organizations in our study pursued to grow their (or

TABLE 8 Repeated measures ANOVA, test of sphericity, and planned contrasts for behaviors by firms in B–S relationships

Behaviors	ANOVA			Test of sphericity					Mean differences										
	Wilks' $\lambda$	F (df1, df2)	p Val.	Mauchly's W	$\chi^2$ (df)	p Val.	$\varepsilon^1$	df <sup>2</sup>	Eff. size	p Val.	$I^a-I^b$			$J^b-K^c$			$I^a-K^c$		
											p Val.	p Val.	p Val.	p Val.	p Val.	p Val.	p Val.		
Monitoring	0.90	5.36 (2101)	.00	0.62	46.93 (2)	.00	0.73	1.46	0.07	.00	0.46	.00	0.28	.01	0.74	.00			
Sharing information and knowledge	0.94	3.33 (2101)	.04	0.56	59.10 (2)	.00	0.69	1.38	0.03	.05	−0.56	.00	−0.16	.34	−0.72	.00			
Investing in relationship-specific assets	0.91	4.78 (2101)	.01	0.60	51.30 (2)	.00	0.72	1.43	0.07	.00	−0.44	.00	−0.42	.00	−0.86	.00			
Working jointly	0.89	5.97 (2101)	.00	0.65	43.28 (2)	.00	0.74	1.48	0.08	.00	−0.56	.00	−0.35	.00	−0.91	.00			
Sharing a vision	0.85	9.19 (2101)	.00	0.69	37.60 (2)	.00	0.76	1.53	0.12	.00	−0.63	.00	−0.41	.00	−1.03	.00			
Adapting to the relationship	0.93	4.08 (2101)	.02	0.57	56.61 (2)	.00	0.70	1.40	0.05	.01	−0.37	.00	−0.17	.27	−0.54	.00			

Note: Controls: sample source, firm size, industry.

<sup>1</sup>Greenhouse-Geisser  $\epsilon$ .

<sup>2</sup>Greenhouse-Geisser corrected df.

<sup>a</sup>Coordination level.

<sup>b</sup>Collaboration.

<sup>c</sup>Internalization.

some of their) respective relationships to the highest level of SCI.

### 7.1 | Relational behaviors across SCI levels

Teddlie and Tashakkori (2011) indicate that a prime reason to use a mixed-methods approach is to use the findings of the first study (e.g., qualitative study) to inform a consequent study (e.g., quantitative survey) in order to further the understanding of the research question. The results across both studies are then compared and tied together in a general discussion of the results (Golicic & Davis, 2012). Specifically, we identify six relational behaviors that describe SCI, but note that their saliency varies by SCI level. In terms of dynamics, both studies indicate that the intensity of monitoring decreases as firms evolve from coordination to collaboration to internalization, while all other relational behaviors gain intensity as relationships shift from coordination to collaboration, and from collaboration to internalization. Study 2 reveals, however, that while sharing information and knowledge, and adapting to a relationship are exhibited more prominently at the internalization level vis-à-vis collaboration, the differences are not statistically significant.

Study 1 demonstrates that relationships at the coordination level are described by a strict enforcement of contracts and holding partners firmly accountable. We further find that coordination is characterized by rigid relationships. This is contrary to earlier perspectives regarding coordination that inferred resources and capabilities sharing (Narus & Anderson, 1996), and working jointly on new product development initiatives (Skjoett-Larsen, 2000). At the coordination level, our qualitative findings suggest that firms are less likely to engage in activities, such as sharing information and knowledge, investing in relationship-specific assets, investing jointly in activities, and sharing a vision, partly because of low levels of trust. Firms fear that partners might engage in opportunistic behaviors and are skeptical whether their partners will act in reliable and predictable ways due to the lack of adequate safeguards (Zaheer et al., 1998). Our analysis reveals that firms are instead likely to monitor activities via formal governance mechanisms (e.g., contracts and codified information sharing). Our conclusions closely resonate with the findings of Arshinder et al.'s (2008) review of the supply chain literature and align with the descriptions furnished by Vanpoucke et al. (2014), indicating that B–S relationships use less formal mechanisms as they move toward higher levels of integration.

Results from Study 1 indicate that collaboration is characterized by a higher level of intimacy vis-à-vis coordination. Exchange partners at this level can relish some level of trust, but still attempt to verify each other's actions via monitoring mechanisms. Monitoring occurs to a lesser degree at the collaboration level when compared to the coordination level. In this vein, Ring and Van de Ven (1994) propose that there is a need for a balance between formal and informal contracts based on trust through the entire B–S relationship process.

**TABLE 9** Repeated measures ANOVA for the stimulants of B–S relationships

Enablers	Mean values		ANOVA				
	$I \rightarrow J^1$	$J \rightarrow k^2$	Wilks' $\lambda$	$F$ (df1, df2)	$p$ Val.	Eff. size	Mean difference
Cost	4.32	4.24	0.99	0.286 (1102)	.59	<0.01	0.08
Quality	4.57	4.70	0.98	1.98 (1102)	.16	0.02	−0.13
Bilateral value proposition	4.01	4.29	0.93	6.86 (1102)	.01	0.06	−0.28
Product type	4.29	4.39	0.97	3.13 (1102)	.08	0.03	−0.10
Supplier concentration	3.40	3.55	0.99	1.28 (1102)	.26	0.01	−0.15
Trust	4.57	4.71	0.99	1.34 (1102)	.25	0.01	−0.14
Management acumen	3.72	4.12	0.93	7.30 (1102)	.01	0.07	−0.40
Cultural fit	3.77	4.21	0.89	12.96 (1102)	.00	0.11	−0.44

<sup>1</sup>From coordination to collaboration.

<sup>2</sup>From collaboration to internalization; controls: sample source, firm size, and industry.

However, our findings suggest differently and are more consistent with Dwyer et al. (1987) and Vanpoucke et al. (2014). The latter studies suggest that a balance can exist between formal and informal contracts early in a B–S relationship, but the trust that develops through prior cooperative activities can stimulate relational bindings, and subsequently help mitigate the risks of incomplete formal contracts. We find that, at the collaboration level, there is a delicate balance between formal and psychological (informal) contracts (i.e., based on trust), and subsequently, monitoring is exhibited at a lower level in collaboration than in coordination.

Moreover, via Study 1, we find that at the collaboration level, firms recognize the benefits of working together and investing in relationship-specific assets, sharing information and knowledge, and imparting their proximal vision with their exchange partners. The collaboration level of SCI echoes the relational behaviors identified by Jap (1999) and Cao and Zhang (2011). In this vein, Jap (1999) highlights that collaboration involves some coordination efforts and investment in relationship-specific assets. Moreover, Cao and Zhang (2011) suggest that collaboration involves the sharing of knowledge and a vision, as well as joint activities (i.e., new product development and market identification). However, we nuance the findings from Vanpoucke et al. (2014) by stating that relational behaviors play a role across all levels of integration, although their saliency varies. For example, investing in relationship-specific assets is a relational behavior that builds up gradually throughout the three levels of integration, instead of just being present at the internalization level. Study 2 also corroborates these findings vis-à-vis coordination (Table 8).

Study 1 reveals that as relationships evolve to the internalization level, contracts do not need to be enforced, with disputes being settled constructively and amicably. Our findings regarding internalization are consistent with Dwyer et al. (1987), who suggest that trust, as a stimulant, encourages buyer–supplier relationships to mature; it further helps hedge against the incompleteness of formal contracts, in addition to serving relationships better during uncertainty. Along similar lines, Cao and Zhang (2011) indicate that firms are more

closely embedded in each other at the highest level of integration. At the internalization level, exchange partners are more willing to invest in relationship-specific assets because they tend to believe that their partners would not engage in opportunistic behaviors. Firms that maintain relationships at the internalization level realize their interdependencies and have relational safeguards in place. Furthermore, exchange partners at this level engage in a high degree of sharing information and knowledge, working jointly, and sharing their vision, as they believe in the continuity of their relationships and do not fear opportunistic behaviors. In addition, we find that these firms retain their supply chain partners when crises emerge and are willing to work with them to overcome their challenges. Based on Study 1, we find that adaptation is primarily exhibited by firms that maintain relationships at the highest level of SCI, which differentiated relationships between the collaboration and internalization levels. Although Study 2 does not produce statistically significant mean differences for sharing information and knowledge, and adapting to a relationship, between the collaboration and internalization levels, an upward trend is evident. Thus, we propose the following:

**Proposition 1.** As firms evolve from coordination to internalization via collaboration, they increasingly invest in relationship-specific assets, engage in sharing information and knowledge, work jointly, share a vision, and adapt relationships, while engaging to a lesser degree in formal monitoring.

## 7.2 | Stimulants for the evolution of B–S relationships

Our mixed-study design produced a set of eight stimulants that can explain the transition of relationships from one level to another. However, both studies indicate that each stimulant's saliency rests on the transition type (i.e., coordination to collaboration, or collaboration to internalization).

Given favorable levels of cost and quality from supply chain partners, firms that engage in repeated positive

interactions over time engender trust and appreciate the value of working together, which stimulates the transition of relationships (Bensaou & Anderson, 1999; Johnston, McCutcheon, Stuart, & Kerwood, 2004; Vanpoucke et al., 2014) from coordination to collaboration. Combined with repeated positive interactions, factors such as product type (e.g., whether it is a commodity product or an engineered product), and supplier concentration (in terms of the number of suppliers available for a particular product or service) are also found to motivate firms to transition from coordination to collaboration. Specifically, dealing with a strategic product, coupled with low supplier concentration, can create interdependence (Kraljic, 1983), which can aid the development of supply chain relationships through repeated exchanges (Gundlach & Cadotte, 1994). Consistent with our findings, Palmatier et al. (2013) examine the drivers of commitment velocity and find that trust and interdependence play a vital role in motivating firms to progress from coordination to a more committed relationship. Study 2 further validates that these are important stimulants for transitions; however, their saliency can differ across transition levels (Tables 7 and 9).

Moreover, the trust acquired due to activities at the collaboration level and the perception of increased value attained from the relationship, and considerations for product type, supplier concentration, cost, and quality, instill a desire to develop an even more integrated relationship among firms over time. Specifically, from Study 2, we find several factors that motivate firms to transition from coordination to collaboration (i.e., cost, quality, product type, supplier concentration, and trust) as being equally important stimulants for firms to transition from collaboration to internalization. Furthermore, Study 2 highlights that while having a bilateral value proposition over time is considered an important stimulant for firms to evolve from coordination to collaboration, it is more striking when transitioning from collaboration to internalization. Study 2 also reveals that as firms transition their relationship from collaboration to internalization, they increasingly examine whether there is cultural fit and compatibility in management acumen with their close supply chain partners (Table 9). Several firms in Study 1 further cited the importance of having cultural fit and compatibility in management acumen while still deeming all the other stimulants as germane. Prior studies on SCI examined the role of cultural fit in developing long-term supply chain relationships (e.g., Cannon et al., 2010), but largely ignored compatibility in management acumen. Hambrick and Mason (1984) argue that organizations are reflections of their top management, and subsequently it is crucial to consider compatibility in management acumen. Based on the findings from our two studies, we propose the following:

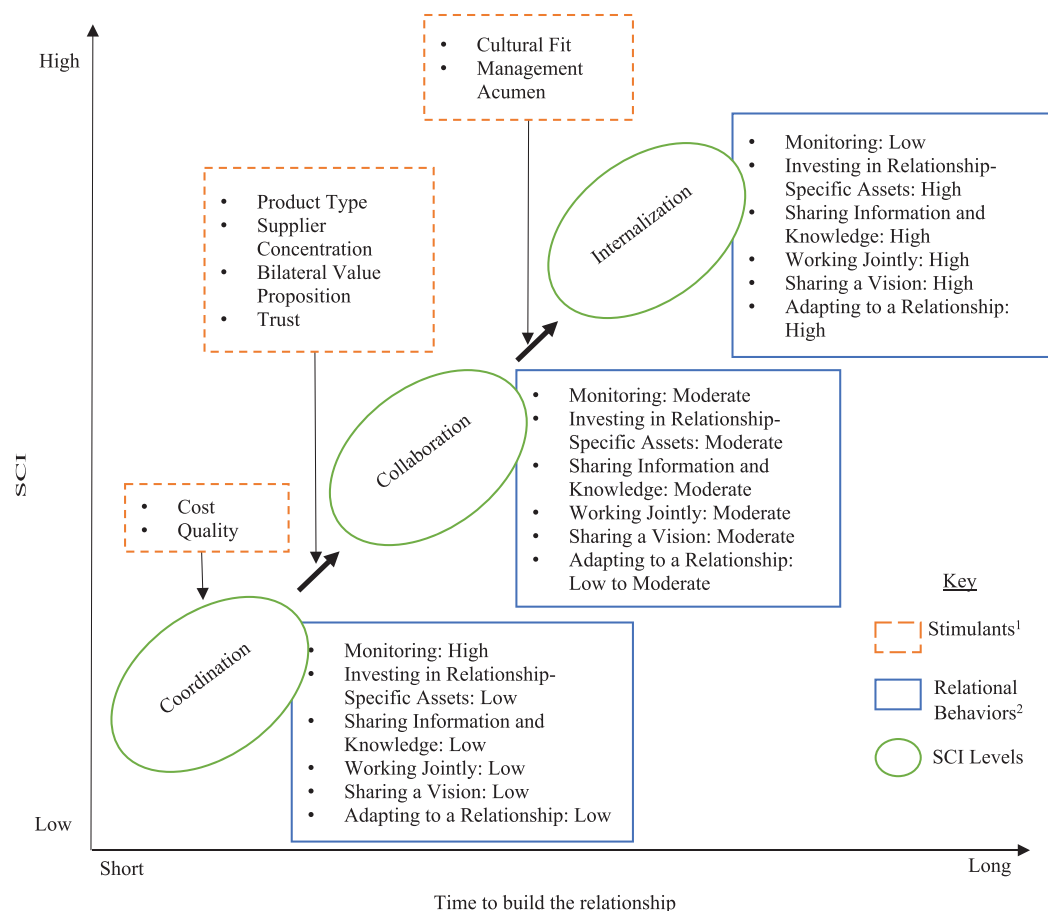
**Proposition 2:** Cost, quality, product type, supplier concentration, a bilateral value proposition, trust, management acumen, and cultural fit serve as stimulants to motivate a transition from one SCI level to a higher level; however, their saliency can differ between transition types.

## 8 | CONCLUSION AND FUTURE RESEARCH

Our research blends two different dynamic perspectives on B–S relationships: an evolutionary perspective (Dwyer et al., 1987; Ring & Van de Ven, 1994; Vanpoucke et al., 2014), which addresses evolutions in B–S relationships over time, and the portfolio view, which defines B–S relationship strategies based on product and risk characteristics. While the evolutionary perspective mainly focuses on the evolution of relational characteristics, such as trust, dependence, and commitment, the portfolio perspective provides guidance on how to link product and supplier characteristics with B–S relationship strategies. Our research unifies these perspectives by linking relational behaviors (such as working jointly, or information and knowledge sharing) and stimulants (such as product characteristics) with the SCI levels. Based on Study 1 and 2, Figure 1 provides a holistic framework that captures relational behaviors and stimulants' underlying dynamics. In summary, we identified a set of six relational behaviors that differ in their saliency across SCI levels, and eight stimulants that are significant for the SCI evolution but their saliency appeared to vary contingent upon the specific transition across SCI levels. Based upon our analysis, we suggest that successful B–S relationships do not always have to progress through all phases of SCI evolution, as identified stimulants play a defining role in the evolution of a relationship (Figure 1). Moreover, our research challenges the conventional wisdom regarding SCI by underscoring that not all firms strive to evolve to the highest SCI level, recognizing the stimulants they experience. Holistically considering the stimulants identified, as done in the present study, can help us better understand when firms can be successful in pursuing coordination, collaboration, or internalization. This suggests that the evolution of B–S relationships is only justified when guided by the stimulants identified in our research. However, it is also worthy to note that individual firms might realize stimulants (e.g., trust, management acumen, or cultural fit) at work during different times, thereby impacting the time spent in the coordination or collaboration phases differentially. Along these lines, research on B–S relationships (e.g., Vanpoucke et al., 2014) suggests that relationship duration is not a good proxy for the strength/stage of B–S relationships. Some relationships can progress very slowly while others can progress very rapidly.

While significant contributions to theory and practice have been made, opportunities for future research have to be noted. Our research suggests that trust is vital as firms seek to transition from one level of SCI to a higher level, furthering the call for future research to develop a robust scale for measuring trust (Fawcett & Waller, 2014) in the realm of supply chain management. While Sako (2006) identifies three types of trust, namely contractual, competence, and goodwill, there is an “intense need” for scale development along the dimensions of trust (Whipple, Griffis, & Daugherty, 2013, p. 127). Such research is important to promote





**FIGURE 1** SCI's evolutionary model

Notes: <sup>1</sup>Stimulants once triggered remain activated across all levels of transition;

<sup>2</sup>Relational behaviors are omni-present, but their saliency varies by SCI level.

relationship-building activities between supply chain members (Read, Jin, & Fawcett, 2014).

In this study, we sought to understand and link the various relational behaviors and stimulants associated with SCI but did not necessarily examine the differences in their intensity and significance when buyer and supplier dyads are considered. Identifying whether an asymmetry exists in relational behaviors' intensity and stimulants' significance between buyer and supplier dyads can be vital to successfully manage SCI, as studies have documented that asymmetric commitment among buyers and suppliers can result in failed B-S relationships (Gundlach, Achrol, & Mentzer, 1995). Also, we recognize that single-item measures can present a limitation; thus, future studies adopting a positivist approach toward our proposed model should aim to utilize multiitem scales.

In addition, the disintegration of supply chain relationships is not considered in this manuscript. Future research should seek to examine the decline of relationships across different levels of SCI. In other words, how does the relationship regress from one level to a lower level? Alternatively, is it possible that the relationship regresses across multiple levels simultaneously, therefore having an abrupt end to a relationship? Moreover, future research could explore

the dynamic relationships among stimulants identified via our research. For example, it is still unclear whether the deterioration of trust in a relationship heading to the internalization level automatically negates other stimulants' positive impact. An examination of the dynamic relationships among stimulants can be particularly useful in providing additional insights into managing supply chain relationships proactively.

Finally, Koufteros et al. (2007) demonstrate that firm size can influence SCI. Smaller firms might not have the resources to enable the achievement of high SCI levels, yet it may be of particular importance for them. Our study, however, did not explicitly account for the role of firm size (i.e., in terms of the number of employees) in building B-S relationships. Hence, it will be interesting to ascertain how our findings might differ based on firm size. We hope that this work serves as the impetus to motivate such future studies.

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## SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

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