Value Co-Creation in Supply Chains through IT Integration: The Role of Collaborative Network Structure

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Abstract

Firms today are increasingly dependent on external resources, and the need for collaboration across organizational boundaries continues to grow. Therefore, research has highlighted the importance of IT capabilities that integrate an organization with its network of partner organizations. However, antecedents of IT integration have been primarily derived from technology-driven contexts. In contrast, the role of organizational attributes remains largely unexplored. We therefore develop and test a theoretical model to examine collaborative network structure as an antecedent to IT integration. Based on this particular form of supply chain governance, we go on to explore how IT integration in conjunction with other capabilities leads to supply chain integration, thereby enabling the creation of value. Based on data gathered from 150 supply chain executives, the study provides evidence on the important role of organizational attributes and contributes to the stream of research that examines the role of interorganizational IT capabilities in co-creating value.

Keywords

IT value co-creation, supply chain performance, interorganizational IT integration.

Introduction

Firms are becoming increasingly dependent on external resources and the need for collaboration across organizational boundaries continues to grow. Due to this research on interorganizational relationships has attracted significant attention in both business and the information systems (IS) discipline. The potential benefits of interorganizational collaboration among supply chain partners are manifold and have been unanimously attested in the literature. These advantages include the creation of relational value by combining resources, sharing information and knowledge, increasing speed to market, and gaining access to foreign markets and competitive advantages (e.g., Rai and Tang 2010). In this context, information and communication technologies play a decisive role: the integration of information technology (IT) has become the backbone of collaboration in supply chains as it enhances organizational flexibility and responsiveness while reducing risks and inventory costs (Rajaguru and Matanda 2013).

As a result, the prevailing research highlights the importance of developing interorganizational IT capabilities that integrate an organization with its network of suppliers, customers, or channel partners. Despite some controversial findings on the relationship between investments in IT and economic outcomes, there is growing evidence that IT creates value under certain conditions in general (e.g., Melville et al. 2004) and in terms of supply chain performance (SCP) in particular (e.g., Klein and Rai 2009). Furthermore, best-practice examples of firms, such as United Parcel Service, Cisco Systems, or Dell Computers, demonstrate how the exploitation of integrated IT leads to superior performance (e.g., Rai et al. 2006). However, the integration of boundary-spanning IT in such networks is challenging and...
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inherently complex because it involves multiple partners with different associated characteristics, interests, cultures, and strategic intentions. The integration of interorganizational IT is therefore problematic and requires significant effort (Rajaguru and Matanda 2013). In this context, several studies have already highlighted the importance of organizational attributes (e.g., Mandrella et al. 2015; Rajaguru and Matanda 2013).

However, antecedents of interorganizational IT integration have been primarily derived from highly technology-driven contexts and thus refer mostly to IT-related factors of integration, such as technical compatibility (Rajaguru and Matanda 2013), IT infrastructure (Benítez-Amado and Ray 2012), or IS flexibility and standardization (Saraf et al. 2007). In contrast, research that incorporates and examines network-related characteristics as antecedents of interorganizational IT integration is limited. As a result, the role of organizational attributes in the context of IT Integration remains largely unexplored.

To address this gap in the current literature, we draw on the relational view and the distinction between lower- and higher-order capabilities, examining collaborative network structure as a primary antecedent to interorganizational IT integration. Based on this particular form of supply chain governance (Chen and Paulraj 2004), we go on to explore the interdependencies and mechanisms of how interorganizational IT integration within a nomological network with other lower-order capabilities leads to supply chain integration, thereby enabling the creation of value and helping organizations obtain a competitive advantage.

The remainder of this paper is structured as follows. In the next section, we provide background on the relational view as well as the concept of lower- and higher-order capabilities in the context of IT integration. We then present our theoretical framework and derive hypotheses. Afterwards, the design and procedure of the empirical investigation is outlined. Finally, we reflect and discuss the implications of this study and conclude with limitations and directions for future research.

Theoretical Background and Research Model

Collaboration through IT-supported interorganizational processes can have a huge impact on co-creating value (Saraf et al. 2007). Building on the resource-based view (RBV), researchers have argued that firms should develop unique capabilities to use their IT resources more efficiently and effectively than their competitors in order to create competitive advantage (Bharadwaj 2000; Wade and Hulland 2004). Furthermore, researchers suggest that capabilities can be conceptualized as a hierarchy, with a set of lower-order capabilities being leveraged to develop a higher-order capability that in turn leads to sustained performance gains (Barua et al. 2004; Rai et al. 2006). Interorganizational higher-order capabilities blend interorganizational resources with interorganizational processes and are embedded in the social, structural, and cultural contexts of networked firms (Rai et al. 2006). Lower-order capabilities shape the development of higher-order capabilities, such as supply chain process integration and agility capabilities, which then lead to performance gains for supply chains. In this context, IT capabilities, such as IT integration, are widely defined as lower-order capabilities (e.g., Liu et al. 2013; Rai et al. 2006).

The relational view by Dyer and Singh (1998) argues that a firm’s resources and capabilities may span its boundaries and that firms have to create idiosyncratic inter-firm linkages, combining their resources and capabilities in a unique way to create a competitive advantage that they would be unable to attain on their own. According to the relational view, interfirm relationships must be rare or difficult to imitate and therefore differ substantially from arm’s length market relationships in order to generate relational value. On this assumption, Dyer and Singh (1998) assume four main sources of relational value: (1) Relation-specific assets refer to investments in assets that are specific to the interfirm relationship, such as closely located sites, customized tools or machineries, and human resources for the relationship. Another important source for relational value is (2) knowledge sharing routines, as partner firms can provide new ideas and knowledge that lead to innovations. Firms can also create relational value by (3) combining their complementary resources and capabilities. This combination can result in synergetic effects, thus generating greater value than the sum of the individual resources and capabilities of each network partner. Finally, (4) effective governance mechanisms enable a synergistic combination of resources, capabilities, and knowledge and are therefore a valuable source of relational value. Dyer and Singh (1998) distinguish between third-party enforcement of agreements, such as legal contracts, and self-enforcing safeguards, which they classify into formal safeguards, such as financial hostages, and informal
safeguards, for example, trust. They argue that informal safeguards are the most effective governance mechanisms, as they minimize transaction costs.

**Figure 1. Research Model**

The proposed research model builds on the two theoretical lenses described above and is presented in Figure 1. First, building on the distinction between lower- and higher-order capabilities, we interpret supply chain integration as a higher-order capability and therefore as a primary source of SCP. Interorganizational IT integration is conceptualized as a lower-order capability, which shapes the development of supply chain integration capabilities, in turn leading to performance gains for supply chain members. Second, building on the relational view, we place IT integration in a nomological network with other lower-order capabilities that match the sources of relational value proposed by Dyer and Singh (1998). Following this view, IT integration can be interpreted as a relation-specific asset as well as a complementary capability (Chen et al. 2013; Saraf et al. 2007). The knowledge-sharing layer is represented by interorganizational communication, whereas collaborative network structure represents an effective governance mechanism that also shapes communication and IT integration. Given that we assume a hierarchy of capabilities, a direct effect between lower-order capabilities and SCP is not proposed (Rai et al. 2006).

**Supply Chain Integration as a Higher-Order Capability**

Supply chain integration is defined as the extent to which supply chain partners have integrated their business process – in particular, the information, material, and financial flows (Ngai et al. 2011; Rai et al. 2006). In this study, we hypothesize that supply chain integration is a primary source of SCP. We investigate the impact on operational performance because first-order benefits of integration are expected to be realized at an operational level, which in turn leads to ultimate business outcomes, such as customer satisfaction and sales growth (Devaraj et al. 2007). Operational performance is conceptualized by the speed, quality, cost, and flexibility of the supply chain order-fulfillment process (Hult et al. 2006).

Integrated information flows in a supply chain lead to economies of scale and reduced inventory costs, improved cycle times, improved forecasting, as well as synchronized delivery and production processes (Rai et al. 2006). It has also been shown to eliminate the bullwhip effect (Lee et al. 1997). Furthermore, integrated processes enable supply chain partners to respond more quickly and cost-efficiently to market changes (Ngai et al. 2011) and react more flexibly to individual customer demand (Li et al. 2009). Moreover, the efficiency of financial flows can be enhanced by integration through, for example, more efficient payment processes, shorter invoicing cycle times, and better cash flow management (Rai et al. 2006). As various studies have demonstrated a positive effect of supply chain integration on SCP measures (e.g., Chen et al. 2013; Rai et al. 2006), we propose a first hypothesis:

**H 1: Supply chain integration is positively related to supply chain performance.**

**Lower-Order Capabilities**

Interorganizational communication is defined as the exchange of ideas, knowledge, and opinions among senior executives in the supply chain relationship (Chen and Paulraj 2004; Rai et al. 2012). In contrast to information flows related to supply chain integration, which are operational, standardized,
and support routine processes, interorganizational communication focuses on a better understanding between supply chain partners, building a consensus, and involves personal contacts between personnel.

Communication between supply chain partners enhances coordination and the management of dependencies in a supply chain, thus reducing the complexity of supply chain activities (Rai et al. 2012). Supply chain partners must also understand each other’s processes to successfully integrate them, which is facilitated by frequent communication, resulting in synchronized and harmonized processes and resource allocation (Klein and Rai 2009; Rai et al. 2012). Moreover, communication between supply chain partners leads to interorganizational learning (Paulraj et al. 2008), which is important for building interorganizational capabilities (Dyer and Singh 1998), such as supply chain integration. Furthermore, interorganizational communication increases the transparency between supply chain partners, thus reducing uncertainty and opportunistic behavior (Chi and Holsapple 2005). Previous studies have found a positive relationship between communication and logistics integration (Prajogo and Olhager 2012) and relational value (Paulraj et al. 2008; Rai et al. 2012). Therefore, we propose the following hypothesis:

**H 2: Interorganizational communication is positively related to supply chain integration.**

**Interorganizational IT integration** refers to “the extent to which the IS applications of a focal firm work as a functional whole in conjunction with the IS applications of its business partners” (Saraf et al. 2007). It encompasses integrated IT infrastructure, data, and applications and is conceptualized by the use of electronic communication and transactions between supply chain partners (Chen and Paulraj 2004; Rai et al. 2006; Saraf et al. 2007).

In combination with interorganizational IT processes, IT integration enables the development of higher-order capabilities, including supply chain integration (Rai et al. 2006). According to the relational view, IT integration can be seen as a relation-specific investment (Chen et al. 2013). Such investments increase the willingness of supply chain partners to engage in further value-adding initiatives. This applies particularly to IT integration because it is specific to the supply chain (Saraf et al. 2007). Furthermore, IT integration strengthens the synthesis and coordination of collaborative activities (Kim et al. 2006), including information, material, and financial flows, for the following reasons. First, integrated functions of IS, such as consistent data and seamless access to data, enable improved visibility and information flow of supply chain processes (Bharadwaj et al. 2007). Second, through better access to data, such as inventory status, integrated IT improves the coordination and integration of supply chain resources, leading to a smooth flow of financial and physical resources (Ngai et al. 2011). Third, IT integration leads to improved decision making and interactions because supply chain partners have more accurate information about each other’s plans and operations (Bharadwaj et al. 2007). IT integration has already been found to be an important antecedent to interorganizational higher-order capabilities, such as supply chain capabilities (Rajaguru and Matanda, 2013) and supply chain integration (Chen et al. 2013; Rai et al. 2006). Therefore, we propose a third hypothesis:

**H 3: Interorganizational IT integration is positively related to supply chain integration.**

Interorganizational IT integration also contributes to communication between supply chain partners. The resulting reduction of technical barriers and seamless access to data leads to more effective communication in a supply chain (Kim et al. 2006). This facilitates richer and higher-value knowledge exchange by making it easier to assimilate and acquire the knowledge of supply chain members (Malhotra et al. 2005). Moreover, supply chain partners can create knowledge repositories or common databases through integration, which enhance the transfer of knowledge (Santhanam and Hartono 2003). Furthermore, integrated systems offer the possibility of monitoring and more effective communication through standardized systems, thus leading to feedback and learning effects (Scott 2000). Paulraj et al. (2008) and Rai et al. (2012) examine the positive impact of IT capabilities on interorganizational communication. Therefore, we propose the following hypothesis:

**H 4: Interorganizational IT integration is positively related to interorganizational communication.**

**Collaborative network structure** is defined as the coordination between supply chain partners that is build on informal social systems in contrast to hierarchical authority (Paulraj et al. 2008). It is characterized by strong interdependencies between supply chain partners, a lack of power and influence, and limited vertical integration (Chen and Paulraj 2004), thus matching the idea of informal safeguards proposed by Dyer and Singh (1998).
The development of integrated IS requires capital and effort, but such investments have less value outside the supply chain relationship (Chen et al. 2013). Because of strong interdependencies resulting from a collaborative network structure, supply chain partners accept short-term losses resulting from large investments in relation-specific technologies; in return they expect long-term benefits from the relationship (e.g., Seggie et al. 2006). Moreover, the shared responsibility and accountability enhances the willingness and motivation of supply chain partners to engage in value-adding initiatives (Prasad et al. 2013), such as developing common IT integration capabilities. Further, when managing interorganizational resources, such as integrated IS, opportunistic behavior can occur, fueled by conflicts and distrust between firms (Chi and Holsapple 2005). In this context, informal and collaborative governance structures are very effective because they prevent these problems in a cost-effective manner (Dyer and Singh 1998). Seggie et al. (2006) find that supply chain partner dependence leads to a higher degree of interfirm system integration. Therefore, we propose the following hypothesis:

H 5: Collaborative network structure is positively related to interorganizational IT integration.

As discussed above, a collaborative network structure prevents problems related to the opportunistic behavior of supply chain partners, which is also relevant for interorganizational communication. Firms might fear that their partners would use shared proprietary knowledge to their detriment as a possible future competitor (Dyer and Singh 1998). A collaborative network structure prevents these problems by increasing the visibility of supply chain partners and their willingness to engage in common activities, thus facilitating communication (Prasad et al. 2013). In addition, informal mechanisms based on equality intensify contact between partners and therefore lead to increased knowledge exchange and communication (Kale et al. 2000). Paulraj et al. (2008) reveal a positive relationship between a collaborative network structure and interorganizational communication. Therefore, we propose:

H 6: A collaborative network structure is positively related to interorganizational communication.

Research Design

Measurement of Constructs

All scales were adapted from validated measures used in corresponding research and were measured using multi-item scales with seven-point Likert rating systems. The literature on competitive priorities provides the basis for the performance variable included in this study. It suggests that four priorities are directly tied to supply chain performance, namely speed, quality, cost, and flexibility. Speed refers to the ability to deliver on time, according to a set schedule. Quality focuses the continuous improvement of supply chain processes to increase product reliability and customer satisfaction. Cost reflects an organization’s effort to reduce costs. Lastly, flexibility refers to supply chain agility, adaptability and responsiveness (Hult et al. 2006). To capture the broad scope and in accordance with previous research, SCP was modeled as a multidimensional second-order construct reflecting the different dimensions (Chen et al. 2013; Hult et al. 2006). Supply chain integration covers the important flows across the supply chain, encompassing materials, information, and finances. As the construct was adopted from Rai et al. (2006), it is conceptualized as a formative second-order construct with three different sub-constructs: information flow integration, physical flow integration, and financial flow integration. The constructs of interorganizational IT integration and interorganizational communication were adapted from the study of Chen and Paulraj (2004). While the former conceptualizes the technical aspects of electronic transactions and communication in supply chains in various forms, the latter denotes the intensity of communication and interaction between supply chain partners. The measures for the independent variable also follow existing scales from previous research and characterize collaborative and non-power-based relationships as well as interfim cooperation (Chen and Paulraj 2004). Lastly, as larger firms tend to enjoy scale efficiencies, organizational size plays a critical role for the integration of interorganizational IT and supply chains (Zhu and Kraemer 2005). In order to account for the differences among organizations we included this measure as a control variable in terms of the number of employees.

Data-Collection Procedure and Sample Characteristics

Data was collected between July and September 2015 from organizations in the German wood industry, which accounts for the largest share of employees and the second largest annual turnover in Germany and
is thus one of the most significant sectors of the German economy. The industry was chosen as the unit of analysis for three primary reasons: First, the wood industry exhibits a low-to-medium rate of diffusion of IT in general and interorganizational IT in particular (Trang et al. 2014). Hence, compared to more mature industries, we expect to see a high degree of variance in interorganizational IT integration. Second, despite the relatively low diffusion of IT, previous studies have demonstrated the importance of IT integration within this industry context (Zander et al. 2015). Third, due to product and process characteristics, collaboration and coordination across organizational boundaries is highly beneficial within this particular sector. As a result, members of the wood industry are often organized in interorganizational networks (Trang et al. 2016). Given the reasons discussed above, we argue that the wood industry is a suitable starting point for our study.

The sampling frame for the study was provided by Fordaq database, which is a sector-specific network that provides a business database with contact information. Respondents were gathered using an online survey method. Personalized survey invitations were distributed among organizations involved in woodworking, wood processing, wood building, or the timber trade. Target respondents for the survey were considered to be executive or senior managers with direct responsibility for IT or supply chain functions. Of the 203 questionnaires returned, 53 were excluded due to quality criteria, such as missing values, implausibility of firm characteristics, or IT usage behaviors. Overall, 150 cases that fulfilled all quality criteria were collected. Small- and medium-sized enterprises (SMEs) represent the largest share within our sample: 50.6 % have fewer than 50 employees, 32.7 % have between 50 and 250 employees, and 16.7 % are large-scale organizations with more than 250 employees. The respondent pool is made up of CEOs (38.8 %) and senior IT managers (12.7 %) as well as senior managers from different functions, including purchasing and supply (10.6 %), production and logistics (24.4 %), and marketing and sales (13.5 %). Further, the various sub-sectors of the wood industry are represented as follows: woodworking (32.9 %), wood processing (28.8 %), wood building (13.0 %), timber trade (16.4 %), other (8.9 %).

## Data Analysis and Results

Before analyzing the theoretical model, we tested the underlying data for the threat of non-response and common method bias. We then used a structural equation modeling (SEM) approach to evaluate the proposed hypotheses. We argue for a variance-based model estimation since it has fewer demands on sample size and excels at prediction (Ringle et al. 2012). Our data analysis follows the widely adopted two-step approach for SEM: We first assess the quality of the measurement model to ensure validity and reliability and then analyze the structural model.

### Non-Response Bias and Common Method Bias

To account for the threat of non-response, we checked for mean differences between the construct items in the first third and the last third of the sample (Preston and Karahanna 2009). A t-test revealed non-significant differences (p<0.1), indicating that non-response is not a major threat for this study (Armstrong and Overton 1977). A single informant assessed both the dependent and independent variables of our study. Accordingly, common method variance (CMV) poses a potential threat to the validity of the results. Therefore, following the approach of Podsakoff and MacKenzie (2003), we used Harman’s single-factor test and ran an exploratory factor analysis. The results reveal that no single factor emerges from the data and that a general factor does not account for the majority of the covariance among the measures. Hence, CMV should not be a concern for this analysis.

### Measurement Model Assessment

The reflective constructs, were tested for content, convergent, and discriminant validity. We ensured content validity by drawing on established theories and existing scales from related research. Three measures were used to offer evidence of convergent validity: individual item reliability, composite construct reliability (CR), and average variance extracted (AVE). As depicted in Table 1, all items load on their assigned construct at .70 or above, indicating item reliability (Gefen and Straub 2005). The CR ranges between .874 and .956, which is also above the acceptable limit of .70 (Hulland 1999).
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<table>
<thead>
<tr>
<th>Construct</th>
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<th>AVE</th>
<th>CR</th>
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<tbody>
<tr>
<td>1. Collaborative structure</td>
<td>.825**</td>
<td>.716</td>
<td>.938</td>
<td>.846</td>
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<td>2. Interorg. IT integration</td>
<td>.787**</td>
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<td>.713</td>
<td>.803</td>
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<td>3. Interorg. communication</td>
<td>.806**</td>
<td>.689</td>
<td>.917</td>
<td>.747</td>
<td>.652</td>
<td>.830</td>
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<td>4. Physical integration</td>
<td>.835**</td>
<td>.730</td>
<td>.905</td>
<td>.741</td>
<td>.764</td>
<td>.773</td>
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<td>5. Financial integration</td>
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<td>.776</td>
<td>.874</td>
<td>.689</td>
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<td>.760</td>
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<td>6. Information integration</td>
<td>.822**</td>
<td>.795</td>
<td>.919</td>
<td>.713</td>
<td>.691</td>
<td>.720</td>
<td>.834</td>
<td>.760</td>
<td>.892</td>
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<td>8. Speed</td>
<td>.880**</td>
<td>.804</td>
<td>.953</td>
<td>.590</td>
<td>.587</td>
<td>.585</td>
<td>.609</td>
<td>.532</td>
<td>.680</td>
<td>.884</td>
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<td>9. Flexibility</td>
<td>.887**</td>
<td>.812</td>
<td>.956</td>
<td>.585</td>
<td>.616</td>
<td>.655</td>
<td>.547</td>
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<td>.815</td>
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**FL**: factor loadings; **AVE**: average variance extracted; **CR**: composite reliability; **Bolded numbers**: square root of AVE.

Table 1. FL, AVE, and inter-construct correlations

In addition, the AVE of all constructs exceeds the minimum threshold of .50 (Bhattacharjee and Premkumar 2004). The AVE is also applied to evaluate the distinctiveness of constructs (Chin 1998; Fornell and Larcker 1981). As the square root of AVE for each construct is greater than the variance shared with other constructs, discriminant validity can be confirmed. Furthermore, we checked the cross-loadings; all items display higher loadings on their assigned factor than on any other construct within the model (Chin 1998). Lastly, the formative construct was evaluated for both the relevance of the factors and the threat of multicollinearity. The results indicate that all factor weights significantly (p < .01) account for a relevant share (w > .10) of the construct. To account for the threat of multicolinearity, we evaluated the variance inflation factor (VIF). The VIFs range between 2.933 and 4.076 and do not exceed the threshold of 5 (Hair et al. 2011). Hence, we argue that our model is both acceptable and reliable.

**Structural Model Assessment**

To evaluate the structural model we used a bootstrapping procedure with 3000 samples. The central criterion for the assessment of the PLS structural model is the explained variance of the endogenous variables, which lies on a satisfactory level compared to other studies on IT integration in interorganizational contexts (e.g., Mandrella et al. 2015; Rai et al. 2006; Rajaguru and Matanda 2013). The estimates of the path coefficients (b) and the significance levels are depicted in Figure 2.

![Figure 2. PLS Results of the Structural Model](image)

The structural model supports our hypothesis and demonstrates that supply chain integration significantly influences SCP (b = .632; p ≤ .01). Furthermore, both interorganizational communication (b = .482; p ≤ .01) and IT integration (b = .363; p ≤ .05) are positively associated with supply chain integration, offering support for Hypotheses 2 and 3. Further, IT integration also significantly influences interorganizational communication (b = .650; p ≤ .01). Turning to Hypotheses 5 and 6, the results show that collaborative network structures significantly affect the degree of IT integration (b = .713; p ≤ .01) and communication (b = .283; p ≤ .05). Lastly, we found no significant effect of the control variable (b = -.030; p ≥ .10).
Discussion and Conclusion

This study aims to contribute to the growing stream of research that examines the role of interorganizational IT capabilities in co-creating relational value. Therefore, we developed and tested a theoretical model that integrates collaborative network structures as a lower-order capability and an antecedent of IT integration. By drawing on the relational view and the concept of lower- and higher-order capabilities, the study provides empirical evidence on the important role of collaborative network structures in the context of interorganizational IT integration.

Consistent with the prevailing literature (e.g., Rai et al. 2006), the study highlights the importance of integrating supply chain processes to improve operational SCP. The results show that relation-specific investments in IT, enable the development of higher-order capabilities and substantially affect supply chain integration. We also examined the interdependencies between IT integration and other lower-order capabilities. The data indicates that the reduction of technical barriers as well as seamless access to data through interorganizational IT integration also facilitate interorganizational communication, which in turn leads to supply chain integration as a higher-order capability. Moreover, the analysis supports our argumentation that organizational attributes and network characteristics are as relevant as the IT-related antecedents of IT integration highlighted in previous research (e.g., Rajaguru and Matanda 2013; Saraf et al. 2007). In particular, the data suggests that collaborative network structure, as a particular form of supply chain governance, is an important lower-order capability and prerequisite for both interorganizational IT integration and interorganizational communication. This is largely consistent with findings from previous research on IT integration. For example, Rajaguru and Matanda (2013) demonstrate the facilitative role of organizational compatibility in terms of shared values, principles, and strategies for interorganizational IT integration and the development of supply chain capabilities. In addition, Mandrella et al. (2015) emphasize that commitment and trust between partner organizations are important organizational characteristics and necessary antecedents of boundary-spanning IT integration. However, the study’s findings also contrast with results from previous research maintaining that centralized, hierarchical, and more formalized network structures can lead to higher levels of IT-based value co-creation and collaboration success (e.g., Samaddar et al. 2006; Trang et al. 2015). As a result of these contradictory findings, future research in the context of IT value co-creation should consider both technical as well as organizational aspects of lower-order capabilities in order to explore and fully understand their interactions and interdependencies as well as their influence on interorganizational IT integration and related performance outcomes.

For practitioners, the results show that interorganizational relationships with supply chain partners and IT should not be managed independently from one another. In fact, collaborative structures are highly relevant for successfully integrating IT across organizational boundaries. Therefore, organizations within a supply chain should pay close attention when selecting new network partners in order to foster and maintain collaborative relationships that enable interorganizational integration. Hence, integration decisions should not be based solely on technical compatibility but also on organizational characteristics.

We acknowledge that there are several limitations of this study, which can be remedied by extending this research in a number of directions. First, a portion of the variance remains unexplained. Hence, future research should incorporate further determinants that might affect interorganizational IT integration and performance. Second, the specific context limits generalizability. Thus, future research should expand our study to cross-sectional and cross-cultural contexts. Third, the study relies on a single-informant approach and uses self-reported perceptions. Therefore, we encourage future researchers to gather data from multiple sources. Fourth, because we collect measures of IT capabilities and IT success at a single point in time, the results may be time shifted. Therefore, future studies should confirm findings by using longitudinal data. Fifth, there may also be circumstances in which a certain level of conflict and control between partnering organizations is desired. Thus, future research should identify and examine efficient mechanisms for fostering IT integration under such conditions.

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