

PRIMARY RESEARCH

Developing relationship management strategies in a network context

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Abstract

In today's turbulent business environment, firms are becoming increasingly interdependent and are no longer expected to compete simply as an isolated business entity. The firm's boundaries continue to extend as they outsource to reach out to one another's resources across the Supply Chain (SC). The SCs have often been considered as a series of independent organizations which are connected through dyadic ties, often conceptualized as a simple linear system. Although this linear perception of dyadic interactions is worthy of investigation, it does not represent the realities of today's complex SCs. A firm is a part of the overall network, and its business strategies depend on its embeddedness in the network structure and how it interacts with other participants. Accordingly, in analyzing the firms' business environment, firms should not be considered in isolation but as being embedded in the network context. As a result, to effectively implement strategies, firms need to address issues in their Supply Chain Network (SCN) and develop effective relationships with different SCN actors to gain necessary resources that are not possessed by themselves. Therefore, the purpose of this paper is to investigate and analyze the current Relationship Management Strategies (RMS) that firms apply to govern the whole SCN. The paper conducts a comprehensive review of Industrial Marketing and Purchasing (IMP) and SCN literature to explore how firms develop relationships with various actors with the SCN. The findings reveal that the linear perspective is not enough to truly understand the SC and emphasize that firms need to consider a network perspective to analyze their SC, which paves the way to shift from the SC towards an SCN context. By providing the main distinctions between an SCN and an SC, this paper also clarifies the actor's characteristics of the SCN and enhances the understanding of the SCN actor. It furthermore identifies different existing RMS models that firms apply to manage their SCN, synthesizing knowledge involving the RMS and SCN. Finally, by outlining further research directions this paper alerts researchers, for example, to investigate RMS in the network context while considering various contingency variables in their future research.

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INTRODUCTION

In today's turbulent business environment, firms are increasingly dependent on each other and are no longer expected to compete simply as an isolated business entity (Brouthers, Geisser, & Rothlauf, 2016). Improving business processes, both intra- and inter-organizational, is important which includes wider cooperation and stakeholder management to achieve competitive advantage (Vom, Zelt, & Schmiedel, 2016). At the same time, the organization's boundaries continue to extend as they are outsourcing the functions that are not attached to their core competencies

and thus reach out to one another's resources across the SC (Lacity & Willcocks, 2014; Tachizawa & Yew, 2014). The introduction of the concept of Supply Chain Management (SCM) in the early 1980s, resulted in a substantial body of knowledge in academic and commercial circles to help firms manage their businesses, from extracting raw materials to producing the final product and delivering to the end customer (Sweeney, Grant, & Mangan, 2015). This means competition has shifted from firms versus firms to SCs versus SC's (Krisnawati, Perangin-Angin, Zainal, & Suardi, 2016; Soosay & Hyland, 2015).

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SCs have often been considered as a series of independent organizations which are connected through dyadic ties, conceptualized as a simple linear system (Hearnshaw & Wilson, 2013). Although, this linear perception of dyadic interactions is worthy of investigation, it does not represent the realities of today's complex SCs as it fails to consider the interdependence between an array of both firm and non-firm actors, including suppliers, manufacturers, Non-Governmental Organisation (NGOs) and government agencies (Brouthers et al., 2016; Hearnshaw & Wilson, 2013; Kurniawan, 2018). This means SCM goes beyond the closest actors and considers the SC relationships from the multi-tier perspective.

A firm is part of the overall network, and its business strategies depend on its embeddedness in the network structure and how it interacts with other participants (C. Cheng & Holmen, 2015). Accordingly, in analyzing the firms' business environment, they should not be considered in isolation, but as being embedded within networks (Ritter, Wilkinson, & Johnston, 2004; Soosay & Hyland, 2015; Wu & Birge, 2014). Also, it is not viable for firms to own and control every step of the production process, and they need to build relationships in their SCN to remain competitive in the fast-changing markets (Jin & Edmunds, 2015). Lambert (2008), for example, argues that SCM is "the management of relationships in the network of organizations, from the end customers through the original suppliers, using key cross-functional business processes to create value for customers and other stakeholders". In brief, SCM reverberates the management of business relationships across various actors in an SCN, and it cannot be confined to a single firm (Hingley, Lindgreen, & Grant, 2015; Hearnshaw & Wilson, 2013; Silahatoglu & Vardarler, 2016).

To effectively implement strategies, firms need to address issues in their SCN and develop effective relationships with different SCN actors to gain required resources that are not possessed by themselves (Gold, Seuring, & Beske, 2010; Roberts, 2003). In this regard, eight sections are provided in this paper to discuss the various perspectives of the relationship functions in the SCN. First, a brief of research methodology has been demonstrated in section two. Then, the rationale for developing various types of relationships with different actors in the SCN will be provided. Then in section four, several levels of relationship management analysis are explained to show the differences between the basic concepts in SC relationship management and the more sophisticated network concept. The SCN will be introduced in section five and will be analyzed by providing their struc-

ture (section six) and various types of relationships (section seven) that have been used by firms to manage their SCN. In section eight the discussion will be summarised, and directions for future research will be provided in section nine.

RESEARCH METHODOLOGY

The literature review was conducted through the content analysis, which helps researchers to perform an in-depth qualitative analysis and identify the key constructs and research trends within the related topics (Bellamy & Basole, 2013). The content analysis has important implications for researchers as it reveals the underlying factors and concepts in the literature (Wilhelm, 2011).

For the content analysis, top-cited articles were collected from various authentic databases such as Emerald (www.emeraldinsight.com), Scopus (www.scopus.com), Since Direct (www.sciencedirect.com), Taylor & Francis (taylorandfrancis.com), and ProQuest (www.proquest.com). The analysis is followed by using keywords such as "Supply chain network", "Network structure", "Relationship management strategies," which have been applied to title, abstract, and keywords. By reviewing the references of the identified articles, new articles also are added to our databases. In total 118 articles have been found from various journals mainly "Supply Chain Management: An International Journal", "Journal of Cleaner Production", "International Journal of Operations & Production Management", "International Journal of Production Research", "International Journal of Physical Distribution & Logistics Management" from the literature. The next sections will shed light on the findings of this literature review.

RATIONALE FOR DEVELOPING RELATIONSHIPS

The role of a relationship in today's complex business environment to acquire and create value between two or more parties is unquestionable (Gold et al., 2010; Pellicano, Perano, & Casali, 2016). A relationship in the business context can be defined as a process of forming technical, economic, and social ties among two firms or other types of organizations to achieve mutual benefits (Anderson & Narus, 1991). Since businesses consist of both firm and non-firm (institutions, government regulators, NGOs) actors, this research uses the term 'organization' to refer to both types of actors. Firms may develop various types of relationships with different types of organizations in their SCN as their performance is either directly or indirectly influenced by them (Jammernegg & Kischka, 2005; Ritter et al., 2004). Each relationship can be considered as being significant capabilities that the firm owns since it carries various profit op-

opportunities (T.-P. Lu, Trappey, Chen, & Chang, 2013). Having relationships with other firms provides various benefits for firms through granting access to the valuable resources and competencies in other firms within a network (Daugherty, 2011). For example, some firms may cooperate to increase their power against rivals (Ritter et al., 2004), collaborate with competitors to reach the source of complementary resources (Momeni & Vandchali, 2017), and jointly work on innovation initiatives (Govindan, Seuring, Zhu, & Azevedo, 2016) such as new product development projects (Ebers, 2004). In addition, they may seize the opportunity of creating relationships to gain access to valuable and rare expertise to boost their competitive position by improving their performance (Maina, Marwa, Waiguchu, & Riro, 2016). Thus, the competitiveness of the firm is connected to the ability to acquire valuable resources by creating various relationships (Pellicano et al., 2016).

The ability of the firm to manage relationships with other firms can be considered as a core competency and is one of the prominent sources of competitive advantage (Agarwal & Sharma, 2016; Blome, Paulraj, & Schuetz, 2014; T.-P. Lu et al., 2013; Tachizawa & Yew, 2014). Many of a firm's relationships with its customers and suppliers are crucial to guarantee its competitive survival, and each relationship may involve a substantial amount of time and cost (Ritter et al., 2004). A firm's decision to understand which types of relationships should be developed, maintained, or discarded is of great importance to its competitive success (Alvarez, Pilebeam, & Wilding, 2010; Crespín-Mazet & Döntenwill, 2012; Emmett & Crocker, 2016; Ritter et al., 2004). Thus, relationship management is a significant capability within a firm when creating a connection with various business entities (Plambeck, 2012). Walters and Walters and Adams (2001) define relationship management as:

The managerial activity that identifies establishes, maintains, and reinforces economic relationships with customers, suppliers, and other actors with complementary (and supplementary) capabilities and capacities so that the objectives of the firm and all other actors may be met by agreeing and implementing mutually acceptable strategies. RMS has been applied in various situations, such as strategic alliances, joint ventures, partnership sourcing, and procurement (Crespín-Mazet & Döntenwill, 2012). This wide application of the relationship concept is increased for several reasons. Issues such as hyper-competitive rivalries, globalization and the need to have access to competencies in other organizations have been motivating firms to move towards relationship management and examine how the understanding of the relationship with different actors can be

connected to firms' strategies (Crespín-Mazet & Döntenwill, 2012; Maina et al., 2016).

MANAGEMENT LEVEL OF ANALYSIS

Over the years, SCM research has shifted from a single firm towards a network of firms (Frostenson & Prenkert, 2015). Currently, there is a substantial body of literature referring to SC as being a network (Arnold, 2017; Soosay & Hyland, 2015). The main reason to incorporate such a wider context into SCM is due to connectedness, which supports that relationships do not exist in isolation or are independent of each other (Ritter & Gemünden, 2003). A relationship could be influenced by another relationship in a network environment.

An example is a relationship between Volvo and its two suppliers (JCI and Lear) to source car seats as a part of its outsourcing activities (Dubois & Fredriksson, 2008). The close relationship and sharing of information between JCI and Lear may, for example, counter the bargaining power of Volvo and make Volvo consider both suppliers simultaneously in the sourcing of the seats (Hearnshaw & Wilson, 2013). This example shows that to make an informed decision, a firm needs to have a larger perspective rather than just the dyadic one. Håkansson, Ford, Gadde, Snehot, and Waluszewski (2009) argue that "generalized connectedness of business relationships implies the existence of an aggregate structure, a form of organization we have chosen to qualify as a network". Figure 1 depicts the evolution in the interconnectedness and complexity of SC relationships and presents a direction towards the network paradigm. Each dot indicates an SCN actor such as a supplier, customer, government body and each line represents a relationship between them (Bellamy & Basole, 2013). In the following sub-sections, the evolution from the dyadic perspective towards the network perspective in SCM is discussed.

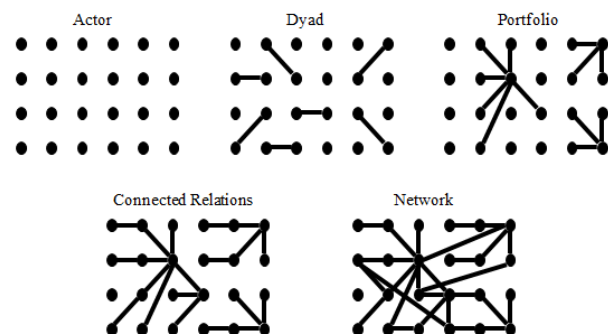


FIGURE 1. From a supply chain to a supply chain network paradigm (Source: (Ritter et al., 2004))

Dyads

The first level of analysis is the individual dyad, which has been the focus of the SCM literature (Choi & Hong, 2002). Dyads are concerned with relationships between only two parties (Wu & Birge, 2014). Rowley (1997) argues that the focus of dyadic relationships is on the individual stakeholder's influences. This type of relationship views a firm as being the center of its stakeholders and analyses the influences that various stakeholders (such as suppliers and customers) exert on the firm in a dyadic interaction (Momeni & Vandchali, 2017). For example, in the purchasing process, the typical concern is about the buyer-direct supplier relationships (Soinio, Tanskanen, & Finne, 2012), including product design, supplier evaluation, supplier selection, and order management process (Momeni & Vandchali, 2017; Van Weele, 2009). In addition, Harland (1996) identifies that dyadic relationships related to the downstream actor, typically have focused on immediate customers' issues such as consumer behavior analysis and customer service management.

Incorporating more reality into SCM issues provides an opportunity to analyze SCM in a wider system and better understand the real and complex issues that SC managers face every day (Choi & Hong, 2002; C.-Y. Cheng, Chen, & Chen, 2014). Relationships are not separated from each other and are interconnected. Thus, the dyadic relationship turns a blind eye to the embeddedness of a firm in a wider context and is not sufficient to identify all the necessary aspects related to the interactions among firms (Choi & Hong, 2002; Ritter et al., 2004). Within a dyadic relationship, it can be analyzed how an organization influences another organiza-

tion in the two sides' interaction. However, how an interaction influences another interaction between the other two organizations cannot be captured in this type of relationship (Choi & Hong, 2002). In this regard, firms need to extend their view to a wider context to create a complete understanding of their business environment.

Connected Relations

The second level of analysis refers to the relationships that a firm has with both its upstream and downstream actors. It also includes the type of relationship that a firm indirectly develops through another firm, such as the indirect relationships between a firm and its second or more tier customers/suppliers (Anderson, Håkansson, & Johanson, 1994). The relationship at the connected relations level can be considered as being multiple customer-supplier relationships, starting from extracting raw material to delivering final goods (Olga, 2012). From the connected relations' perspective, the structure of the flows in SCM is viewed as a linear system in which managers usually focus on managing goods and materials that are vertically delivered between various organizations (Zuo, Kajikawa, & Mori, 2016). Lacity and Willcocks (2014) use the term "serial structure" to reflect a linear structure in SCM, which consists of serial actors who play a role in delivering the final product to the end-customer (Figure 2). In support, Crespin-Mazet and Dontenwill (2012) also refer to this level of analysis as "the supply chain level" and argue that the main objective of relationships at this level is concerned with the provision of final goods where firms' involvement in various stages are examined to transform resources into these offerings.



FIGURE 2. A linear supply chain

To respond effectively to exigencies, firms need to have a deep understanding of the underlying structure of their systems and how various actors are related to their systems (Hearnshaw & Wilson, 2013). If firms seek to adapt to the necessary changes, they need to re-conceptualize their SCs from simple linear systems towards more complex systems (Hearnshaw & Wilson, 2013; Kaneberg, Hertz, & Jensen, 2016; Touboulic, Chicksand, & Walker, 2014). Hearnshaw and Wilson (2013) argue that this re-conceptualization is important as a complex system can be modeled by numerous actors and interactions among them, not in the simple pattern of a few directed relations. In order to apply this

re-conceptualization and neither oversimplify the SC systems, firms have attempted to incorporate the network perspective into their SCM (Choi & Hong, 2002; Hearnshaw & Wilson, 2013; Kim, Choi, Yan, & Dooley, 2011; H. E. Lu, Potter, Sanchez Rodrigues, & Walker, 2018; Roscoe, Cousins, & Lamming, 2016; Wilhelm, 2011).

Networks

The final level of analysis is related to the network, which is the most complex level. Firms produce and deliver goods and services through a complex SC (Chan, Shen, & Cai, 2018). The intense competition in today's business en-

environment needs firms to incessantly find ways to reduce their operational cost, improve customer satisfaction, and minimize disruption risks through the effective and efficient management of the SCs (Bellamy & Basole, 2013). By considering an SC as a complex system, firms can better analyze the function and interactions of various elements, which can affect the system performance, behavior, and characteristics (Cloutier et al., 2010). This means that a comprehensive understanding of the SCs' behaviours needs consideration of related issues in a wider context, which can be added through the network perspective in a traditional SC (Bellamy & Basole, 2013).

Incorporating the term 'network' into SCM indicates an attempt to provide a wider and strategic view of the concept by utilizing various potential resources of network actors in a more effective manner (Jin & Edmunds, 2015; Lamming, Johnsen, Zheng, & Harland, 2000). The network perspective questions the notion of applying the linear and the one-dimensional approach to the SC by arguing the issues of relational aspects from a distinctive fixed position in the SC (Frostenson & Prenekert, 2015). For example, critical decisions such as make versus buy or acquisition really depend on the strategic position of the firms in the network (Mills, Schmitz, & Frizelle, 2004). Furthermore, due to the varying complexity and diversity of the relations between various actors (Van & Harrie, 2011), the business interactions and relationships between these actors are better recognized from the network perspective (Frostenson & Prenekert, 2015). This relational viewpoint emanates from the notion that resources are distributed to the various entities within the business context. To create value for the customers, firms need to interact with other firms to have access to various resources that are out of their immediate control (Frostenson & Prenekert, 2015). Therefore, understanding the firms' position and their relationship with various actors from the network perspective is a crucial step in developing appropriate types of many strategic decisions (C. Cheng & Holmen, 2015; Mills et al., 2004).

To have a comprehensive understanding of the SC issues,

firms need to look at their SCs from a network perspective rather than the simple aggregation of customer/supplier relationships (Galaskiewicz, 2011), since small changes in one part of the SC often result in an SC reaction (C.-Y. Cheng et al., 2014). For example, placing orders from big firms like Walmart can be echoed throughout multiple SCs around the world. In another case, when some issues related to human rights or environmental degradation happens with the upstream actors, downstream actors need to react as soon as possible to cover social movements in the street (Bartley, 2007). Therefore, "there is growing recognition by the SC community of the significant benefits a network analytic lens can provide to understand, design, and manage SCs" (Bellamy & Basole, 2013).

SUPPLY CHAIN NETWORK

SCM has been concentrating on the investigation of SC relationships beyond the traditional buyer-seller dyad, focusing instead on the SCN (S. Borgatti, Everett, & Johnson, 2015). SCNs include interrelated actors involved in the process of procurement, production, and delivering the final goods or services to the end-customers (Kim et al., 2011; Razavi, Safari, Shafie, & Rezaei Vandchali, 2012). An SCN is a network of actors (both firms and non-firms) that consists of several connections between these actors, which seems the shift towards considering the network perspective "natural" Wichmann and Kaufmann (2016). The SCM literature also uses the term Supply Network (SN) as an alternative term for the SCN, which frequently has a similar meaning in the application of the network perspective within SCM (Anning, Okyere, & Annan, 2013; Mizgier, Jüttner, & Wagner, 2013). To find the differences between an SC (shaded) and an SCN, Figure 3 provides a typical SC within an SCN. Each actor in the SCN belongs to at least one SC (Van Der Zee & Van Der Vorst, 2005). However, there are various actors in each tier, which can affect the shaded SC. "An SCN looks more like an uprooted tree than a pipeline or chain; its branches and roots are the extensive network of customers and suppliers" (Van Der Zee & Van Der Vorst, 2005).

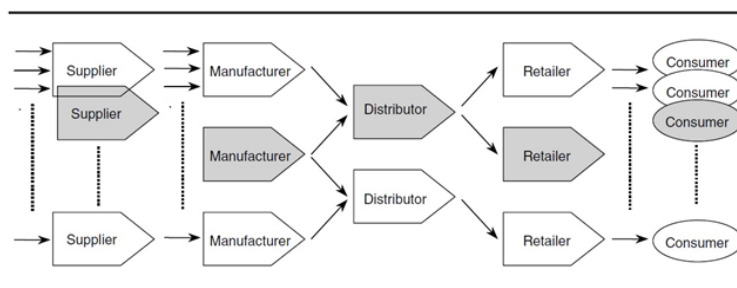


FIGURE 3. A typical supply chain within a supply chain network (Source: (Van Der Zee & Van Der Vorst, 2005))

Differences between Supply Chains and Supply Chain Networks

Pan and Nagi (2013) define an SC as “a set of primarily collaborative activities and relationships that link firms in the value-creation process, to provide the final customer with the appropriate value mix of products and/or services”. They also define an SCN as “a set of active actors within an organization’s SCs, as well as inactive actors to which an organization relates, that can be called upon to actively contribute to an SC if a need arises”. Based on the definitions, some of the SCN actors are active, and some of them are inactive. Inactive actors are not directly involved in the process of producing final goods, but they play a significant role in enhancing SC resilience, particularly during a supply crisis by providing the support resources (Pan & Nagi, 2013). Furthermore, from a network perspective, the reason that a relationship varies in two distinctive dyadic relationships may originate beyond the dyadic interaction (Frostenson & Prenkert, 2015; Jin & Edmunds, 2015). Accordingly, investigating the interrelatedness between actors and analyzing their power and influence on each other are seen as one of the significant contributions of applying the network perspective to SCM, which is not included in dyadic and linear perspective (Crespin-Mazet & Dontenwill, 2012).

Another main distinction between a SCN and a SC is that, issues addressed in the SC usually refer to the operational areas as well as improving efficiency through developing better systems across the SC, including material sourcing, the product design, production, delivery, and recycling processes (Crespin-Mazet & Dontenwill, 2012; Kim et al., 2011; Morgan, 2007). However, firms develop appropriate types of relationships with various SCN actors to have access to their valuable resources to implement their strategies effectively (Arnold, 2017; Kim et al., 2011).

In addition, in the case of modeling the whole SCM, traditional approaches have typically focused on the technical issues and have not paid enough attention to capturing the various complexities in the structural and behavioral aspects of SCM systems (Bellamy & Basole, 2013). However, firms need to examine interrelatedness and influences among SCN actors to find the appropriate strategies to meet stakeholder’s expectations (Gimenez & Tachizawa, 2012). Mizgier et al. (2013) provide the main distinctions between the SCs and the SCNs. They argue that SCs are typically operating in a structured way, while SCNs are more dynamic and complex. This development is inspired by the work of the industrial marketing and purchasing (IMP) group (Håkansson et al., 2009; Lee, Padmanabhan, & Whang, 1997; Mills et al., 2004; Ritter et al., 2004), which

differentiated the notion of the network by emphasizing the relationship and complexity (Mizgier et al., 2013).

SUPPLY CHAIN NETWORK STRUCTURE

One of the important elements of analyzing the relationships in the SCN is understanding the configuration of the SCN structure (Kim et al., 2011; Singh & Gregory, 2008). The SCN structure indicates how various firms are configured with their linkages to each other to provide a particular value (Lambert, 2008), including various types and magnitudes of relationships among actors (Winter & Knemeyer, 2013). Such a deep understanding of the SCN structure is crucial for firms because the formation of linkages between different actors in the SCN can affect the implementation of the SCM practices (Winter & Knemeyer, 2013; Wu & Birge, 2014). Furthermore, within an SCN, a firm’s relative position among its business actors can affect its behaviors and strategies (S. P. Borgatti & Li, 2009).

The network structure can be defined as the patterns of interactions among various actors (Hoang & Antoncic, 2003). In SCM, this pattern can consist of various types of business activities that occur between different types of organizations (such as customers, suppliers, competitors, complementors) (Ritter et al., 2004). The structure of SCN can be examined by referring to the horizontal and vertical dimensions of the SC which various firms might employ particular relationships to achieve their objectives (Otto, 2003). Some researchers present the SCN structure as a directed graph network $G = (N, A)$, where ‘ N ’ refers to the sets of nodes, representing the SCN actors such as suppliers, manufacturers, and customers, and ‘ A ’ refers to the sets of arcs, representing the connection between the actors such as purchasing interactions between buyers and suppliers (Mizgier et al., 2013; Pan & Nagi, 2013).

Furthermore, the actors of the SCN can be positioned at the three levels: the upstream network level which is concerned with the interactions regarding the supply side, the focal firm level and the downstream network level which is related to the interaction on the customer side (Chan et al., 2018). The focal firm is a relative perspective, which means that any firm could be the focal firm as they have the ability to make a strategic decision (Chan et al., 2018). “A focal firm represents the point of entry for the researchers, and it is the upstream and downstream trading partners of the focal firm that comprise the aggregate supply chain” (Spekman, Kamauff Jr, & Myhr, 1998). Also, it can be physically positioned at various stages of the SCM from the raw material to the end customer (Harland, Lamming, Zheng, & Johnsen, 2001), including component suppliers (Lamming

et al., 2000). Regardless of the size (such as small versus large), the focal firms may have various types of relationships with each of their suppliers and customer regarding different objectives and their structural position in the SCN (Chan et al., 2018).

Figure 4 indicates the position of the actors in SCM. The SC actors shown in Figure 4, are the actors who are vertically connected to each other. Also, the SCN actors are the ac-

tors that exist in each layer. The SCN actors also may include non-firm actors (Crespin-Mazet & Dontenwill, 2012; Tanskanen, 2015). Thus, the SCN actors are both the SC actors and the actors who have a relationship with them in each layer (Lazzarini, Chaddad, & Cook, 2001). These types of actors can be identified based on the focal firm's knowledge and recognition of their extended network (Eng, 2008). Also, the focal firm can be positioned at each level.

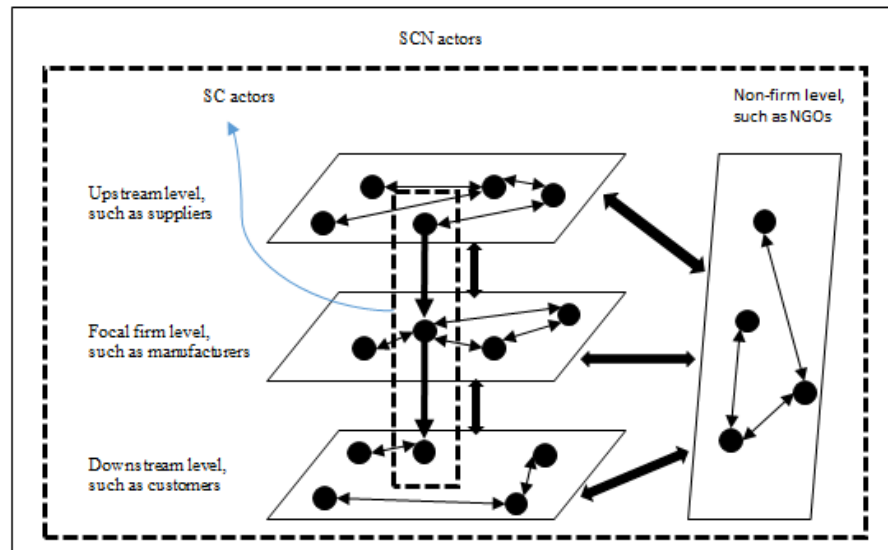


FIGURE 4. A typical SC and SCN actor

Firms have limited knowledge about the boundary of the network in which they are involved (Hearnshaw & Wilson, 2013). This is due to the increasing invisibility of the network relationships and interactions as it expands further without limits via connected relations (Eng, 2008). By accepting the arbitrary nature of the network boundary, the network analysis can be viewed in three levels; network context, network horizon, and network environment (Arnold, 2017). The network context is concerned with the parts of the network that focal firms usually consider relevant and includes all the actors and linkages that can be related to the focal firms' business (Holmen & Pedersen, 2003). This is similar to the combination of actors with their 'managed' and 'monitored' process links. The intermediate level is called a 'network horizon,' which is related to the parts of the network that focal firms are aware of them. This is similar to the 'not managed' and 'non-member' business links and their related actors. The network environment is related to the parts of the network that the focal firms are not aware of them, therefore, where the network horizon finishes, the network environment begins (Holmen & Pedersen, 2003). Firms will have differ-

ent network horizons as their ability to understand and explore their business environment is different (Van Der Zee & Van Der Vorst, 2005). A limited network horizon would prevent firms' ability to identify important trends (Feili, Rezaei Vandchali, Firooze, & Nouri, 2011; Gadde, Huemer, & Håkansson, 2003) such as the existence of new competitors. Thus, the firms' ability to enhance and sustain their network view highly depends on their knowledge of the network relationship and the ability to interpret the relationships (Eng, 2008).

An SCN is made up of nodes (actors) and ties (flows) that connect these nodes (Gold et al., 2010; Kim et al., 2011). Accordingly, the SCN structure can be analyzed based on three distinct levels: node, network, and link (Bellamy & Basole, 2013). At the node level, the analysis is based on how the actors are positioned in the network (S. P. Borgatti & Li, 2009). The actors have characteristics that distinguish them among other actors (S. P. Borgatti & Li, 2009), such as the number of connections that one actor has with the other actors (Hanneman & Riddle, 2011). At the link level, the analysis is concerned with the types of flows among actors and their strength. The flows between various actors

also have characteristics such as the dollar volume of trade between two actors (S. P. Borgatti & Li, 2009). At the network level, the analysis refers to the structure of the overall network (Kim et al., 2011). The whole network also has characteristics such as how much the network is well-connected by the number of ties among actors (S. P. Borgatti & Li, 2009). Considering these three levels collectively can assist firms to conceptualize their SCN structure.

The analysis of the SCN structure is important as it can influence the behavior of each actor in the SCN (Roscoe et al., 2016). By using the pattern of interactions among the SCN actors as a unit of analysis, firms can view themselves as a part of an interconnected network. “This, in turn, means there is a wider focus on the relationship management” (Roscoe et al., 2016). As a result, firms need to develop and maintain different types of relationships with the SCN actors based on each actor’s position in the SCN (Byrne & Power, 2014; Chan et al., 2018).

NETWORK RELATIONSHIP MANAGEMENT

Firms are typically surrounded by various external organizations in their business environment, which makes the task of identifying effective RMS more important in terms of gaining access to the valuable resources possessed by them (Maina et al., 2016; Ritter & Gemünden, 2003; Ritter et al., 2004; Wilhelm, 2011). For example, having appropriate types of relationships with various SCN actors is critical for the efficient purchasing management and the effective incorporation of codes of conduct into the supplier network (Harland et al., 2001). Gadde et al. (2003) argue that: Resources always have ‘hidden’ and unexploited dimensions that can be explored and developed in interaction with business partners. This means that a business relationship is not only an important resource in itself; it can also be utilized to change the use and thereby the value of other resources.

This point of view encourages firms to extend their focus from a simple linear SC to the whole network while also taking the network relationships into consideration (Chan et al., 2018). Thus, to exploit the full potential of these valuable resources within the network, the concept of RMS needs to be incorporated into the context of network relations (C. Cheng & Holmen, 2015; Wilkinson & Young, 2002). Various researchers emphasize the important role of building relationships with various actors within the SCN, as it can be seen as a significant source of competitive advantage (C. Cheng & Holmen, 2015; Eng, 2008; T.-P. Lu et al., 2013; Roscoe et al., 2016; Westerlund & Svahn, 2008). For example, recent studies show that SMEs are highly depen-

dent on the various actors within the SCN for their business development (Lin & Lin, 2016; Maina et al., 2016). At the same time, building and maintaining relationships (such as partnerships) with each actor can be costly and risky (Olga, 2012; Wichmann & Kaufmann, 2016). For example, close relationships are not always an appropriate type of relationship (Daugherty, 2011). In support, Roscoe et al. (2016) argue that to develop eco-innovation in the SCN, firms need to create strong ties with strategic suppliers, create weak ties with multiple small suppliers, and create weak ties with suppliers that bridge the structural holes (the structural hole happens when there is no relationship between two actors (Burt, 2004). This means that to manage the material, information, and financial flows across the SCN; firms need to develop different types of RMS (Prenekert & Følgesvold, 2014) since treating the same approach with each SCN actor may not be effective. For example, Crum, Poist, and Daugherty (2011) identify that firms do not need to create a close relationship with all the suppliers.

Finding an appropriate type of relationship in the SCN is important for firms, as it affects the types of activities that need to be undertaken by the firms (De Lurdes Veludo, Macbeth, & Purchase, 2006). For example, it can influence the level of information sharing between two firms (De Lurdes Veludo et al., 2006; Roscoe et al., 2016). Also, by considering business relationships as a channel to influence other actors, firms can determine and exert the level of influence on the various SCN actors (Prenekert & Følgesvold, 2014). These exchange relations can occur between the focal firm and various types of stakeholders within the network, including suppliers, manufacturers, distributors, customers, and government bodies (Wilkinson & Young, 2002). For example, they can be categorized into three types of relationships; customer relationships, supplier relationships, and indirect relationships (such as suppliers’ suppliers, competitors, and government bodies) (Min & Zhou, 2002). Thus, to develop effective RMS with these actors, the focal firms may need to identify the relationships between and within these three groups’ portfolios (Min & Zhou, 2002). Some researchers use the term ‘network governance’ to indicate the mechanisms that firms employ to govern the relationships among various actors (Arnold, 2017; Hoang & Antoncic, 2003; Pilbeam, Alvarez, & Wilson, 2012), which similarly convey the message that RMS provides in the SCM literature. For example, Gimenez and Tachizawa (2012) divide the SCN governance mechanisms into two approaches. The ‘hands-on’ approach which refers to the types of SCM practices that focal firms directly involved in implementing them. The ‘hands-off’ approach is concerned with the

types of practices that focal firms indirectly engage by, for example, using the related standards to manage them. The SCN governance mechanism can also be divided into formal and informal governance mechanisms, incorporating into the relationships to provide the level of clarity (such the responsibility for each actor involving in a relationship) for all SCN actors (Alvarez et al., 2010). This stream of research can be found in various works (Plambeck, 2012). Table 1 summarise various types of RMS that have been applied in SCM.

By understanding and analyzing network characteristics, firms can better implement their strategies to achieve a specific objective. From the network view, one of the important issues for both managers and researchers is to under-

stand the network's function so that firms can better examine why SCNs create particular outcomes (Momeni & Vandchali, 2017). Managers typically integrate different business process links for different objectives. This means that firms can use network relationships and interactions to achieve a specific outcome (H. E. Lu et al., 2018). Firms also can use particular types of relationships to commercialize various types of innovations (Partanen, Chetty, & Rajala, 2014). As choosing certain types of relationships can affect the strategic outcomes and also each relationship can influence the activities undertaken by the focal firms, it is necessary to clarify a certain context to specify which business process activities need to be emphasized and analyzed.

TABLE 1. Various types of RMS in SCM

Types of RMS	Sources
<ul style="list-style-type: none"> • Strong ties with strategic suppliers • Weak ties with multiple small suppliers • Weak ties with suppliers that bridge the structural holes • Short-term network relationship • Team type network relationship • Project type network relationship • Long-term network relationship • No relationship • Fellowship relationship • Leadership relationship • Mutual relationship • Type 1: low volume operational information • Type 2: high volume operational information • Type 3: low volume strategic information • Type 4: high volume strategic information • Customer relationships • Supplier relationships • Indirect relationships • Compromiser role • Commander role • Subordinate role • Solitarian role • Hands-on approach • Hands-off approach • Hands-on approach • Hands-off approach 	<p>(Roscoe et al., 2016)</p> <p>(Lin & Lin, 2016)</p> <p>(Ritter et al., 2004)</p> <p>(Agarwal & Sharma, 2016)</p> <p>(Min & Zhou, 2002)</p> <p>(Rowley, 1997)</p> <p>(Gimenez & Tachizawa, 2012)</p> <p>(Pellicano et al., 2016)</p>

In sum, “no organization is self-sufficient” (Touboulie et al., 2014), and therefore firms need to create relationships with various organizations to have access to valuable resources. Having these resources is crucial as they can affect a firm's SCM performance. Since demand and supply interactions are not confined to dyadic relationships (Rowley, 1997), it

seems essential to examine the impact of other relationships on the firm's dyadic relationships. This highlights the important role of a network perspective in SCM. However, developing relationships with various SCN actors may turn out to be costly and may not generate the intended outcomes (Daugherty, 2011). In this regard, firms need to de-

velop different types of RMS to maximize their utilization of the resources of SCN actors (Lacity & Willcocks, 2014). In deciding which types of RMS with various SCN actors are appropriate, a firm needs to consider the structure of its SCN. “If a supply chain is viewed as a network of relationships, the structure and configuration of these relationships become an important consideration” (Hingley et al., 2015). This implies that the structure or the pattern of interactions between a firm and its SCN actors (stakeholders) can affect the subsequent behavior of the firm in its SCN (Roscoe et al., 2016). Thus, it seems important to identify the stakeholders’ expectations and analyze how they can be addressed by creating RMS within the SCN.

CONCLUSION

This paper examined the various issues related to relationship management in the supply chain network. At first, the rationale and necessity for developing relationships with the other organizations were discussed. Then the trends from the typical dyadic relationships towards creating the relationships within the network structure were demonstrated. In this regard, the supply chain network structure was scrutinized by examining the supply chain network member. Finally, to govern the whole supply chain

network, this paper presented some fundamental network relationship management models, which help firms to manage their supply chain networks.

DIRECTIONS FOR FUTURE RESEARCH

Future research could consider how focal firms are positioned in their SCN, which can affect the ability of the focal firms to diffuse sustainability practices throughout their SCN. Using theories and methods such as social network analysis would allow researchers to analyze the central position of the focal firms in their SCN and the distribution of the power among SCN actors. In addition, the role of the SCN structure in choosing appropriate types of RMS to implement different policies such as sustainable development objectives can be another future research area. Finally, the interconnections among the SCN actors and the configuration of the SCN can make a significant impact on the focal firms’ decision-making processes, which should be considered. Thus, future directions are suggested to include a variety of SCN actors such as government agencies, logistics companies, distribution companies, and NGOs, and investigate how focal firms treat these actors to manage their relationships within the SCN.

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