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I Do What I Want: Individual Role Enactment and Supply Chain Competitiveness

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Abstract

Supply chain relationships—both within and between firms—can have significant implications on the firm’s ability to successfully compete. Thus, it is increasingly important for supply chain managers to skillfully navigate multiplex relationships to coordinate and manage resources across functions and firms in today’s competitive environment. In this work, we describe, in a supply chain context, how the prevalence of multiplex relationships, which exist when multiple, potentially incongruous relationships are present between firms and among individuals within these firms, is an important basis for individual behaviors that influence firm competitiveness. Drawing on recent advances in the relational multiplexity theoretical perspective, we identify and discuss several research opportunities for enriching our understanding of interpersonal level antecedents of firm competitiveness. Specifically, we present research opportunities related to supply chain behavioral implications of individual differences and socio-structural adaptation, informal relationship capitalization and creation, temporal orientation and transience, contemporary multi-team structures, and cross-level relational valence (a)symmetries. Throughout, we emphasize the importance of the informal, interpersonal relationships that overlay formally specified roles and develop representative research questions to spur further exploration in each area.

Keywords: Behavioral Supply Management; General Management Issues; Human Judgment and Decision-Making; Teams

INTRODUCTION

Firms take competitive actions to retain or enhance their competitive position in their respective markets (Chen, Michel, & Lin, 2021). A key competitive advantage is the superior management of their physical and human supply chain networks, including the employees who manage the flow and access to supply chain resources. Effectively managing these networks is a daunting goal given that supply chains face a severe degree of uncertainty both with respect to how resources are shared across firm boundaries as well as the external context in which firms operate (Burke et al., 2006; Howe, 2019; Manhart, Summers, & Blackhurst, 2020; Niessen & Lang, in-press). Driven by factors such as hastened technology cycles and unforeseen disruptions, including the COVID-19 pandemic, uncertain market conditions have become widespread. An accompanying increase in interfirm rivalry for customers and supply chain resources has intensified the need for firms to nimbly access and acquire innovative technologies and other resources necessary to compete with rival firms (Sirmon et al., 2011). Consequentially, to support a firm's ability to engage in competitive moves against incumbent and new entrant firms (e.g., Connelly et al., 2019; Smith, Ferrier, & Grimm, 2001), we need to move beyond a traditional understanding about unidimensional interfirm relationships (e.g., buyer-supplier dyad) to more complex and dynamic multidimensional intra- and interfirm relationships (Beckman et al., 2014).

Because of issues of hyper-competition, there is an urgent need to better understand how to leverage resources located within supply chains that are characterized by multiplex relationships encompassing multiple bases of interaction (Autry, Williams, & Golicic, 2014; Shipilov et al., 2014). Multiplex interfirm relations such as coopetition (Modi & Cantor, 2020; Wilhelm, 2011) can misalign collaborative goals, impede resource flows, and obstruct process integration between supply chain partners, hindering a firm's competitive behaviors (Cao & Zhang, 2011; Swanson et al., 2017). However, aligned multiplex relationships can enhance the ability to overcome collaborative barriers, allowing firms to more effectively utilize shared supply chain resources for supporting competitive behaviors, such as acquiring

knowledge from suppliers for new product development (Barratt, 2004; Jin et al., 2019; Min et al., 2005). While extant SCM research has initiated inquiry into relational multiplexity at the firm-level (Autry et al., 2014), supply chain relationships are built and maintained by individuals. As Wieland (2021) noted, a more holistic understanding of how supply chains may be better managed requires both extending the unit of analysis and discovering new relationships. Thus, the goal of this paper is to provide new insight into how the collaborative implications of individual-level relational multiplexity in supply chains can ultimately support the firm's goal to engage in improved competitive behavior.

Because interfirm exchange partners often identify more closely with the particular individual in a boundary spanning role than with the represented firm itself (Ferguson, Paulin, & Bergeron, 2005), interpersonal exchange provides a critical microfoundation for understanding firm-level competitive outcomes (Felin & Foss, 2005; Felin, Foss, & Ployhart, 2015). In other words, unpacking the *firm-level* competitive consequences of enhanced relational multiplexity fundamentally requires a deeper consideration of the *individual-level* boundary spanning relationships that form the basis for interfirm interchange (Kilduff, Tsai, & Hanke, 2006). To further advance our understanding of how supply chain management contributes to firm performance, we draw on the organizational behavior literature to explicate how individual attributes and interpersonal relationships combine with interfirm relationships to collectively effect the realized patterns of collaboration across both functional and organizational boundaries.

In so doing, we make several contributions to both the supply chain management and organizational behavior literatures. First, we discuss how multidimensional interorganizational relationships linking individuals and firms can facilitate the leveraging of resources across the supply chain for competitive advantage purposes (Chen & Miller, 2012, 2015; Shipilov et al., 2014). Second, we expand work considering how individuals navigate conflicting relational pressures that characterize contemporary workplaces from an intrafirm context (e.g., Rapp & Mathieu, 2019) to an interfirm context. That is, we expand existing

theories focused on multiplex intrafirm boundary spanning relationships to interfirm boundary spanning, adding considerable theoretical richness to incorporate the unique nature of interfirm, interpersonal interactions. Third, by integrating literatures across the organizational behavior and supply chain management fields, we are able to open a pathway for additional interdisciplinary collaboration, answering calls to further such efforts in order to enhance our understanding of complex supply chain phenomena (Sanders, Zacharia, & Fugate, 2013). To encourage and sustain continued work in this area, we identify and develop several fruitful areas for future research.

THEORETICAL BACKGROUND

Relational Multiplexity in Supply Chain Management

Relational multiplexity is a relatively recent theoretical framework providing explicit recognition that the behavior of entities (e.g., individuals, teams, firms) is strongly influenced by how entities choose to interpret and manage the relationships that they have with others (Shipilov et al., 2014). Further, multiplex relationships, wherein two or more entities possess multiple, potentially incongruous relationships that concurrently serve as bases of exchange, are of particular importance in informing behavioral choices (Beckman et al., 2014). The inherently interpersonal nature of supply chain relationships across both functional and firm boundaries (Fawcett et al., 2012) means that relational multiplexity is especially relevant as a theoretical lens, through which a deeper understanding of how resources flow across a supply chain to enhance firm competitive behavior can be attained. For instance, cooperation at the firm-level is a form of a potentially incongruous multiplex relationship as firms are tasked with reconciling conflicting demands arising from the need to simultaneously collaborate and compete (Modi & Cantor, 2020). At the individual-level, the multiplex nature of workplace friendships can give rise to incongruous demands as formal workplace expectations for discretion and co-worker equality often conflict with friendship-based norms of information sharing and relational prioritization (Methot et al., 2016).

Despite its obvious relevance to supply chain management, as depicted in Table 1, individual-level relational multiplexity research has thus far been largely confined within the organizational behavior literature in an *intrafirm* context. While the strategic management field has examined relational multiplexity at the *interfirm* level, research implications have largely been focused on outcomes associated with alliance formation or market entry/abandonment (Beckman et al., 2014; Han, Shipilov, & Greve, 2017). In the supply chain management literature, the dominant paradigm views supply chain relationships at the interfirm-level as being comprised of both formal, process-based and informal, relationship-based linkages (Autry et al., 2014; Kim & Narasimhan, 2019). Extending this line of reasoning, Slot and colleagues (2020) further distinguished buyer-supplier multiplexity in formal relationships based on the explicit role of the buyer firm, such as instances where a buyer is also a competitor. As Selviaridis and Spring (in-press, p. 20) write, “formal and informal institutions embodied in a buyer organization’s procurement and supply chain strategies, processes, and practices” can directly influence collaborative success.

This stream of work has helped scholars understand how firms engage at both the dyadic and triadic levels to achieve better firm performance (Choi & Wu, 2009; Nyaga et al., 2013; Tuli, Bharadwaj, & Kohli, 2010). Yet, emergent perspectives emphasize the importance of considering both the goal-oriented and affectual dimensions of individual boundary spanners (Engel, Kaandorp, & Elfring, 2017). From this perspective, the key to achieving competitive advantage in both objective (e.g., De Treville, Shapiro, & Hameri, 2004) and affectual (e.g., Benton & Maloni, 2005) outcomes is a better understanding of how relational multiplexity influences the behavior of boundary spanning managers in a supply chain context.

While supply chain scholars have gained significant insight into how collaboration serves as a recombinant process wherein resources are shared across functions and between firms for value co-creation (Barratt, 2004; Jin, Fawcett, & Fawcett, 2013; Swanson et al., 2017), the relationships necessary to carry out such initiatives exist at the interpersonal level

(Thomas, 2014). Indeed, this perspective echoes the organizational behavior literature, which views the social relationships—and even the social institutions themselves—that underly collaborative initiatives as collections of roles that individuals are expected to play (Biddle, 2013; Katz & Kahn, 1978). Sluss and colleagues (2011, p. 505) note, "it seems as though individuals, as well as firms, cannot function without roles." The roles, or "set of expected activities associated with the occupancy of a given position" (Katz & Kahn, 1978, p. 200), that individuals are expected to play have proven to be important for understanding a variety of individual and organizational outcomes such as governance, stress, conflict, performance, and turnover (Biddle, 1986, 2013; Georgakakis et al., in-press; Katz & Kahn, 1978).

Demonstrating nascent awareness of how informal relationships at the individual-level can influence formal supply chain outcomes, Franke and Foerstl (2020) found that collaborative behavior is often impeded by individual-level factors such as self-promoting political behavior that damages informal, interpersonal relationships and hinders the ability of individuals to carry out their formal roles. In other words, congruity between formal and informal role expectations at the individual-level is central for developing interpersonal trust, which enhances collaborative and competitive outcomes across both functional and firm boundaries (Fawcett et al., 2012; Lazar et al., in-press). For instance, when an individual's perceived social standing is threatened by formal supply chain initiatives, they may manifest adverse behavior intended to undermine the success of an initiative, such as impeding interfirm resource flow and imposing usage constraints, that can undermine the firm's competitive position in the industry (Kull, Ellis, & Narasimhan, 2013). Moreover, interorganizational relationships may altogether breakdown when formal outcomes fall short of the informal expectations held by buyer and supplier representatives (Mir, Aloysius, & Eckerd, 2017).

More broadly, examining relational multiplexity in supply chain management is particularly fruitful, as supply chain relationships are unique and particularly challenging to manage (Dahlander & McFarland, 2013). Importantly, many relational multiplexity concerns

are unique to supply chain management, as supply chain managers are tasked with leveraging a combination of their formal and informal relationships to gain access to and utilize external resources. For instance, supply chain managers tasked with facilitating resource flow across firm boundaries must consider the issue of value appropriation, which can be especially contentious and presents a significant source of relational mistrust (Perrone, Zaheer, & McEvily, 2003). When the relationship is multiplex, such efforts may be further subject to either supportive or adverse influence from individual-level relational goals such as maintaining a positive informal relationship (Huang et al., 2016).

This individual-centric yet interfirm context in supply chain management gives rise to important differences compared to the intrafirm context underlying much relational multiplexity scholarship residing in the organizational behavior literature. In order to help highlight these unique differences and spur impactful scholarship, Table 2 describes how these contexts often differ in meaningful ways and introduces potential research implications associated with this variation.

Relational Foundations of Role Expectations

We now describe how resources could flow across the supply chain in support of improving the firm's ability to take competitive actions. As depicted in Figure 1, the individual role expectations that guide boundary spanning behaviors and affect resource flows and other competitive outcomes have two relational foundations. The first is the formal nature of the relationship between entities. For firms, such relationships are generally codified in contracts, memorandum of understanding, and other legal documents (Deng et al., 2022). For individual supply chain managers, formal role expectations are shaped not only by the job title and responsibilities assigned by the organization but also by socialization processes occurring when they work on cross-functional and interorganizational teams. An individual's informal relationships serve as a second foundation for shaping their role expectations. These include previous work associations, extra-work associations (e.g., shared affinity group), friendships, and other idiosyncratic relational bases (Soda & Zaheer, 2012).

Further, an individual's past associations, both formal and informal, can carry forward as "ghost ties" to influence current behavior (Kilduff et al., 2006). Taken together, relational multiplexity attributable to both informal and formal relationships is expected to influence how a supply chain manager behaves in their boundary-spanning roles, as knowledge and experiences gleaned from past roles and relationships affect their perceptions and decision-making in current situations.

Further, because effective interpersonal boundary spanning can result in enhanced supply chain resource flows vital to developing competitive advantages, it is critical to understand the relational antecedents of boundary spanning behavior. For instance, formal work-related roles that ask individuals to collaborate may be enhanced by pre-existing informal social roles such as friendship (Bowler & Brass, 2006), and the presence of concurrent roles can enhance product development, increase job satisfaction, and lower turnover (Maruping & Matook, 2020; Schinoff, Ashforth, & Corley, 2020). In such cases, congruous informal social roles may allow individuals to unlock collaborative pathways that would not otherwise exist (Cross, Rebele, & Grant, 2016; Marrone, Tesluk, & Carson, 2007). However, formal role fulfillment can also be hindered by effectual considerations due to the social norms and expectations established through a worker's informal relations and vice versa (Guo et al., in-press; Mathieu et al., 2017). For instance, informal friendship relationships can mitigate the positive effects of task-focused disagreements that typically enhance formal role execution (Hood, Cruz, & Bachrach, 2017).

While firms have traditionally focused on the formal aspects of boundary spanning roles (Fuhrmans, 2021; Merrill, 2021), they have increasingly begun recognizing the value of informal social relationships that can influence an individual's boundary spanning behavior (Leonardi & Contractor, 2018). For instance, informal, individual-level relationships rooted in previous formal exchanges can affect contemporaneous competitive actions. As demonstrated by Operti and colleagues (2020), even after a formal employee-employer relationship is terminated, former employees can maintain an affiliation with their previous

employer. This informal relationship can undermine the firm-level performance of subsequent employers as individuals may refuse to carry out desirable competitive activities when such actions would be detrimental to their former employer. That is, employee mobility between organizations substantially defuses interfirm conflict between the current and former employer as “the misalignment between the assumption of roles and the fulfillment of expectations associated with them [reduces] the propensity to execute conflict-inducing demands that target a former employer” (p. 86).

The same formal-informal relationship pairings that can facilitate supply chain resource sharing may also expose firms to exploitation by supply chain partners and erode competitive advantage (Borch & Huse, 1993; Zona, Gomez-Mejia, & Withers, 2018). For instance, advertising agencies rely on account managers to build informal relationships to sustain formal business relationships; yet in doing so, agencies also become exposed to clients leaving for a competitor along with the agent (Rogan, 2014). Thus, it can be seen that multiplex relationships can be double-edged, and that competitive outcomes are not just determined by formal roles but by the totality of all roles linking individuals.

In sum, multiplex relationships require individuals tasked with spanning functional and firm boundaries to adroitly navigate amalgamated role expectations arising from either congruous or incongruous formal and informal relationships. In some instances, the behavioral expectations associated with the formal and informal aspects of a multiplex relationship will be aligned, creating synergies that make it relatively easy for individuals working on supply chain teams be effective agents of their home functions/firms. More commonly though, the cooccurring formal and informal aspects of the relationship induce conflicting behavioral demands on individual boundary spanners that make it difficult for a focal firm to coordinate and leverage supply chain resources across firm boundaries and execute desired competitive behaviors. Indeed, “the best-documented organizational correlates of [individual] role conflict are *boundary spanning requirements*” (Van Sell, Brief, & Schuler, 1981 p. 56, emphasis in original). While people are generally fairly adept at

balancing the roles imposed on them in various contexts, the simultaneity imposed by multiplex relationships greatly hinders their ability to do so effectively in many contemporary supply chains. In fact, Crawford et al. (2019) note that "it is only when individuals are forced to simultaneously don multiple hats that their ability to cognitively manage these role related demands breaks down" (p. 308).

RELATIONAL MULTIPLEXITY AS A SUPPLY CHAIN RESEARCH FRAMEWORK

Supply chain research generally supports the notion that organizations can work together by pooling resources to collectively create greater firm value than any single organization can manage alone (e.g., Flynn, Huo, & Zhao, 2010; Paulraj, Lado, & Chen, 2008). Substantial research at the firm-level has identified multiple antecedents, moderating conditions, performance outcomes and potential pitfalls of supply chain integration and collaboration (e.g., Flynn et al., 2010; Paulraj et al., 2008; Villena & Gioia, 2018; Wong, Boon-Itt, & Wong, 2011). Likewise, we are beginning to see an emergence of research at the individual-level. For instance, while individual boundary spanners may be able to capture a disproportionate amount of value for their firms in one instance and create a short-term competitive advantage, such behavior also diminishes counterpart trust and limits access to subsequent supply chain resources with potentially deleterious consequences for long-term competitive success (Thomas et al., 2013).

Within this expansive body of knowledge, a complex picture has emerged: the recombinant processes in which resources are being pooled to enhance firm-level competitive outcomes often reside within functional and organizational boundaries and their execution requires individuals to interact via social processes across multiple organizational levels (Kwon & Suh, 2004; Oliva & Watson, 2011). Thus, to understand how firms are able to successfully undertake competitive actions requires a focus on the boundary spanning behaviors that individuals choose to exhibit. This requires scholars to consider both personal and socio-structural factors that influence how individuals reconcile the myriad demands

placed upon them by their multiplex relationships. We present in Figure 2 an overarching research framework that recognizes the extent to which functions and firms are able to share resources and co-create firm value as a confluence of these factors. Based on this framework, we outline significant areas of research inquiry to encourage scholars to further investigate how to leverage supply chain resources located within multiplex supply chains to advance the supply chain management and organizational behavior literatures.

Individual Differences and Socio-Structural Adaptation

Because supply chain managers operate in cross-functional teams, and employee motivation and behavior have a direct bearing on firm-level outcomes, it behooves scholars to study the connection between an individual's personality and performance outcomes. Indeed, personality is a well-recognized foundation of individual behavior, and an abundance of research in organizational behavior has examined how individual differences in personality affect motivation and behavior in the workplace (Judge & Zapata, 2015). While some research in the supply chain management literature acknowledges the importance of examining individual personality, it has not been extensively studied (Boudreau et al., 2003). As a result, we note that questions regarding how personality traits and other individual differences may influence boundary spanning behavior—including willingness to share resources and knowledge along with other acts of collaboration—are largely unanswered, despite theoretical reasons to believe that individual differences would be highly relevant in the multiplex boundary spanning contexts that characterize contemporary supply chains. That is, when boundary spanning relationships are multiplex due to the confluence of formal and informal bases of association, the inherent situational ambiguity is high and individual differences are likely to exert a particularly strong influence over boundary spanning behavior (Mischel & Shoda, 1995).

Consistent with this perspective, extant supply chain management literature documents that specific social and technical initiatives can foster greater collaborative behavior such as sharing resources and knowledge across functional and firm boundaries

(Fawcett et al., 2012); yet, not all individuals respond homogeneously to these initiatives. In such contexts, we note that individual differences are likely to influence boundary spanning behavior via differences in perceived expectations associated with contemporaneous formal and informal multiplex relationships. In fact, individual differences such as political affiliation and savviness can result in dysfunctional and conflict-inducing behavior on collaborative teams (Franke & Foerstl, 2020; Thornton, Esper, & Autry, 2016; Young-Hyman, 2017). While an individual's trait differences, such as personality, generally predispose them to certain behaviors, the extent to which the behaviors manifest is idiosyncratic to their environment (Tett & Burnett, 2003).

Overall, contemporary supply chain problems offer a unique environment for developing an enriched understanding of how individual differences influence socio-structural adaptation due to the inherently complex and potentially conflicting formal and informal role expectations placed upon supply chain managers. Whereas informal interactions among co-workers may "facilitate friendships among employees" to enhance work-related outcomes (Bowler & Brass, 2006, p. 79), such fraternization among supply chain managers directly working together as representatives of different firms may instead run afoul of organizational policies expressly aimed at maintaining personal-professional separation. As a result, potentially synergistic effects associated with multiplex relationships built on contemporaneous formal and informal connections described in the organizational behavior literature may be compromised in the supply chain context. Thus, exploring individual differences as antecedents of, and organizational policies as (de)activating mechanisms in multiplex relationships on collaborative teams across functions and firms presents an especially under-explored area of research to which supply chain scholars are especially ready to contribute. Some sample research questions along this line of inquiry include:

Research Question 1: How do individual differences (e.g., personality traits) influence boundary spanner willingness to share and ability to gain access to

resources and knowledge under multiplex relations between functions/firms in support of the firm's goal to improve competitive performance?

Research Question 2: To what extent do individual differences influence the behaviors of boundary spanners in response to organizational policies intended to either delineate or intertwine their formal and informal relationships with representatives from other functions/firms?

Relational Implications of Socio-Structural Adaptation

Beyond individual differences, another future research opportunity is to study the extent to which informal relationships can influence collaborative and competitive performance outcomes across both functions and firm boundaries. The modern workplace and overall competitive environment are subject to constant change, with both environmental and technological factors requiring organizations to adaptively restructure both internally and externally to retain their sources of competitive advantage (Baard, Rench, & Kozlowski, 2014; Jundt, Shoss, & Huang, 2015; Wong et al., 2011). Often, external threats to the firm can spotlight specific functional teams and temporarily imbue them and their members with newfound decision-making power (Aime et al., 2014; Stan & Puranam, 2017). While socio-structural changes are present in multiple fields and settings, they are especially prevalent and potentially disruptive in supply chains. For example, supplier integration efforts often result in changes to interorganizational processes and functional responsibilities that may threaten the social standing of supply chain managers and encourage them to induce self-preservation behavior at the expense of constricted resource and information flow (Kull et al., 2013). Consequently, the ability of firms to obtain and maintain alignment between individual-level interpersonal social processes and firm-level competitive goals is paramount to enabling supply chain resource flows, adopting new supply chain technologies, and enhancing supply chain collaborative processes (Sodero, Jin, & Barratt, 2019).

Maintaining this balance may be particularly challenging when the formal power structure in supply chain teams shifts as a result of competitive initiatives. To support advantageous competitive actions, such as product innovation and new product development,

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firms must often shift resources away from other aspects of their business. As a result, the formal power structure governing individuals within a supply chain can undergo either increased centralization via the reinforcement of a previously dominant constituent with enhanced unilateral influence or decentralization via the ascension of previously subordinate constituent that diminishes the influence of the collaborative team's previous power center. Despite the intuitive appeal of the notion that centralizing the power structure by reinforcing existing supply chain strengths would support successful competitive actions, such shifts often undermine informal interpersonal relationships that underlie effective collaboration, resulting in inferior team outcomes relative to structural changes that result in more decentralized power structures (Hollenbeck et al., 2011).

Further, any formal solutions obtained by leveraging informal relationships are not likely to last as power dynamics among individuals and business partners rarely remain static (Aime et al., 2014; Pfeffer & Salancik, 2003). As both informal and formal relationships are intertwined in a multiplex boundary spanning relationship, decisions made in either arena inevitably affect the other (Shipilov et al., 2014). To socio-structurally adapt to a new power dynamic, both formal and informal roles need to be regularly re-negotiated (Katz & Kahn, 1978). For instance, acts of self-preservation during power shifts may be interpreted as selfishness, which erodes workplace friendship (Sias et al., 2004). In other words, behaviors perceived to reflect a self-serving pursuit of resources in the formal relationship may erode social capital in the informal relationship (Katz & Kahn, 1978; Simmel, 1950; Thomas et al., 2013). Yet, social capital embedded in individual-level informal relationships can serve as a bulwark against firm-level competitive exploitation (Borch & Huse, 1993; Zona et al., 2018). Thus, it is important to recognize that understanding firm-level competitive and collaborative outcomes necessitates consideration of socio-structural adaptive behavior at the individual-level.

Based on the above, it is clear that relational adaptation to socio-structural changes requires a greater understanding of how individuals navigate the complex interaction between

formal and informal aspects of their multiplex relationships in various supply chain contexts. Friendships can unlock powerful collaborative benefits such as information, knowledge, and resource-sharing across functions and firms (Ingram & Roberts, 2000; Tröester et al., 2019). Alternatively, negatively valenced informal relationships can have the opposite effect on formal relationships as "an enduring, recurring set of negative judgments, feelings, and behavioral intentions toward another person" infects formal relationships with a similar characterization (Labianca & Brass, 2006, p. 597). Thus, optimal collaborative outcomes across functions and firms require an improved understanding of how organizations can cultivate and leverage positive, informal relationships at the individual-level to positively reinforce formal relationships, as sampled below:

Research Question 3: How do boundary spanners respond to socio-structural changes as they determine when and how to leverage their informal relationships to obtain or maintain access to intra- and interorganizational resources for competitive advantage purposes?

Research Question 4: How can organizations cultivate and leverage multiplex relationships among boundary spanners on collaborative teams across functions/firms to obtain or maintain resources and knowledge and increase their use for enhanced firm value co-creation?

Interpersonal-Interfirm Multiplex Relationship Congruity and Supply Chain Outcomes

Up to this point, we have elucidated relational multiplexity as a potential research framework for both cross-functional and interfirm supply chain processes. However, an important delineation between the two contexts is that interfirm relationships are subject to increased dissolution risk, such as when a buyer switches to an alternative supplier, making these types of relationships particularly difficult to manage (Dahlander & McFarland, 2013). Despite the importance of these types of ties for organizational competitive outcomes, there has been relatively limited theorizing about individuals engaged in managing *interfirm* relationships relative to the *intrafirm* relationships that have been regularly considered in the organizational behavior literature. Because these types of relationships fundamentally differ

in important ways, including dissolution risk and the prevalence of primary objective misalignment, applying and refining the relational multiplexity perspective in a supply chain context presents a unique opportunity to not only enhance our understanding of the microfoundations of competitive advantage but also to contribute to our broader understanding of relational multiplexity.

Individuals on interorganizational teams interact in part based on the character of the parties' interfirm relationships. While the nature of pre-existing informal individual relationships exerts a substantial influence, the individuals' formal role expectations associated with the firm-level relationship also play a meaningful part (Katz & Kahn, 1978). Yet, there is a paucity of research that examine their concurrence. For instance, studies on competition generally adopt an isomorphic view in which individuals behave in expected ways based on relationships between firms (Modi & Cantor, 2020). In contrast, the stream of literature on buyer-supplier psychological contracts recognizes that individual behaviors may not always reflect contractual obligations, and that informal psychological contract violations may lead to changes in formal interfirm relationships (Deng et al., 2022). Thus, individuals on interfirm teams must strike a delicate balance between achieving explicit firm performance goals and implicit relational goals such as maintaining a positive informal relationship (Huang et al., 2016). Divergence between formal and informal goals may substantially influence individual behavior.

When two supply chain partners intend to collaborate, they generally desire not only fulfillment of contractual obligations but also relationship commitment behaviors, which include information sharing, co-investing, and intangible benefits such as contingent flexibility and empathy (Fawcett et al., 2012). Because members on the same team generally collaborate more effectively when they maintain positive relationships (Huang et al., 2016), it stands to reason that this benefit extends to interorganizational teams as well when there is positive-positive congruence between the interfirm and interpersonal relationships. On the other hand, negative informal relationships may spillover to formal collaborative processes as

individuals engage in exploitative actions, such as withholding useful information, that compromise formal organizational collaborative goals (Labianca & Brass, 2006).

In contrast, many interfirm relationships exist that are contentious if not altogether adversarial (Humphreys, Matthews, & Kumaraswamy, 2003; Ülkü & Schmidt, 2011). With adverse formal interfirm relationships, individuals on interorganizational teams are often tasked with reconciling conflicting formal and informal roles (Engel et al., 2017). In turn, the qualities of their informal interpersonal relationships may positively influence achievement of their formal interfirm goals in terms of maintaining an ongoing and viable interfirm relationship. More importantly, individuals who have a positive interpersonal relationship are likely to look for ways to diffuse interfirm hostility to overcome the general propensity for firms to withdraw from others who exhibit goal-incompatibility (Trapido, 2013). Indeed, interpersonal trust is positively correlated with interfirm trust (Zhong et al., 2017). In this instance, we propose that negative-positive interorganizational-interpersonal relational incongruity can actually serve as the spark for rekindling future collaborative processes.

Beyond the effects of the degree of congruity between the formal, interorganizational and informal, interpersonal aspects of multiplex relationships, questions also arise whether these effects are strictly linear. While positive informal relationships can be considered beneficial for competitive outcomes under both congruous and incongruous formal relationships, extant research also indicates that exceedingly close relationships along either dimension can impede value co-creation between firms and productivity among individuals on the same team (Guo et al., in-press; Methot et al., 2016; Villena, Revilla, & Choi, 2011). When individuals on interfirm teams place greater emphasis on their informal relationships, behavior may be more motivated by personal and affective benefits that subsume work-relevant benefits (Grayson, 2007). For instance, an individual may not be willing to negotiate more favorable terms on behalf of their employer to minimize risk of damaging or dissolving a close friendship (Simmel, 1950). As extant supply chain research also shows, informal psychological contract violations between individuals can erode interfirm trust and goodwill,

leading to the dissipation of value co-creation potential and even interorganizational relationship dissolution (Hill et al., 2009; Mir et al., 2017). Thus, the multiplex relationships in supply chain management present an especially promising context for considering interpersonal-interfirm (i.e., informal-formal) relational incongruity. We provide some sample research questions below:

Research Question 5: How do the positive/negative interpersonal relationships of boundary spanners benefit or harm collaborative outcomes and the firm's competitive behavior (e.g., resource-sharing and value co-creation) between supply chain partners when interorganizational relationships are characterized as either collaborative or adversarial?

Research Question 6: What is the nature of boundary spanners' interpersonal-interfirm relational congruity as it pertains to collaborative outcomes and the firm's competitive behavior (e.g., resource-sharing and value co-creation) between supply chain partners? Under what conditions do curvilinear effects manifest?

Temporal Orientation and Relational Multiplexity in Supply Chains

Extant strategy and supply chain management research implicitly acknowledges that there is a temporal element that links current formal role expectations and firm-level competitive action outcomes (Andrevski & Miller, in-press; Bridoux, Smith, & Grimm, 2013; Ferrier, 2001; Smith & Grimm, 1991). In particular, the competitive dynamics literature suggests that the temporal effects of actions have a bearing on competitive behavior (Bridoux et al., 2013; Ferrier, 2001). Logically it follows that it is important to understand how temporal elements of relationship multiplexity arising from informal relationships could impact individual behavioral and firm-level competitive outcomes. Because the nature of interfirm relationships tends to differ depending on the strategic intent of the collaborating organizations and the informal motivations of supply chain managers, supply chains present a unique setting to explore the temporal foundations of relational multiplexity and their impact on competitive outcomes. We will focus on describing why temporal orientation and informal future aspirations of the individual tasked with collaborating across functional and firm

boundaries represent important research areas that have nonetheless received limited theoretical attention in the existent literature.

First, the temporal orientation of decision-makers has been increasingly recognized in the organizational behavior and strategy literatures as an important guiding factor in managerial decision-making (Chen & Nadkarni, 2017). Accordingly, multiplex relationships comprised of formal “home” functional/organizational roles and informal relational roles with the team members themselves require juggling of potentially conflicting temporal orientations. For instance, at the formal level, a buyer is more likely to collaborate when they expect a long-term relationship with a supplier, and vice versa (Dirks & Ferrin, 2001; Wagner, Coley, & Lindemann, 2011). However, this potential may not come to fruition if at the informal level, either of the individuals representing the two firms expects their counterpart to leave their current role in the near future. Because relationships transcending firm boundaries "require greater efforts of coordination and communications" (Dahlander & McFarland, 2013, p. 101), the extent to which an individual exerts effort to gain access to new resources and co-create value for their firm is particularly affected by their temporal expectations for both the formal and informal dimensions underlying multiplex relationships.

In addition to an individual’s behavior in response to temporal expectations of exchange partners in supply chains, another aspect that warrants investigation is the individual's own motivation as it relates to their temporal orientation. Driven by a dearth of internal career advancement opportunities, individuals are increasingly opting for self-directed, protean careers built around embracing an external perspective to professional advancement (Cappelli, 2019). Simply put, employees personally motivated to change jobs may be more incentivized "to spend time and energy positioning themselves for jobs elsewhere" (Cappelli, 2019, p. 51), introjecting incongruity into their multiplex relationships. Particularly for resource-intensive formal roles where individuals are tasked with boundary spanning in order to collaboratively co-create value, resource sharing and utilization may be suboptimal when individual personal interest in career development supersedes formal role

expectations supporting the competitive goals of the firm (Gubler, Arnold, & Coombs, 2014; Nielsen et al., 2012; Pillemer & Prothbard, 2018). Thus, as depicted in Figure 3, the boundary spanning behavior of individuals is based on an amalgamation of both formal and informal role temporality expectations.

Beyond adverse informal motivations, how organizations establish temporal expectations through the design of formal roles may also hinder value co-creation potential. For instance, organizations have recently sought labor flexibility through the increased use of “gig workers,” who are not considered formal employees with steady pay but instead receive piecemeal compensation for completing short-term work tasks (Campion, Caza, & Moss, 2020). Unfortunately, the resultant service triad is transactional in nature (Li & Choi, 2009; Ta, Esper, & Hofer, 2018). The temporal transience of such formal relationships results in these workers prioritizing informal relationships that can be parlayed into new employment opportunities, rather than maximizing value co-creation between transacting parties on behalf of their current employer (Ashford, Caza, & Reid, 2018). Even worse, unsanctioned informal relationships can result in unintended information leakage from one organization to a direct competitor (Godart, Shipilov, & Claes, 2014).

In sum, temporal considerations of relational multiplexity need to extend beyond contexts such as past reputations and contemporaneous formal and informal expectations. The nature and aim of supply chain relationships offer a unique setting to build theory toward a more robust understanding of the temporal foundations of relational multiplexity. We believe that there is a rich opportunity to contribute to both relational multiplexity and supply chain research by examining individual-focused factors, such as temporal orientation of the individual both formally (e.g., task-related) and informally (e.g., career-related), relative to those espoused at the organizational level. Below are some research questions as examples:

Research Question 7: How do supply chain boundary spanners differ in their dispensary/acquisition of resources in support of the firm's competitive performance goals based on their temporal expectations of their function/organization's current collaboration projects and their informal temporal orientation?

Research Question 8: How can organizations set formal and influence informal temporal expectations to encourage supply chain boundary spanners to enhance their vested interest and effort in collaboration across functions/organizations in support of the firm's competitive performance goals?

Relational Multiplexity Under Multi-Team Structures in Supply Chains

Multi-team systems are becoming an integral part of modern supply chains. Multi-team systems (MTS) are defined as "two or more [component] teams that interface directly and interdependently in response to environmental contingencies toward the accomplishment of collective goals" (Mathieu, Marks, & Zaccaro, 2001, p. 290). Firms are increasingly reliant upon multi-team systems to manage and coordinate resources across supply chains to sustain their competitive advantage. MTS can impart significant flexibility and adaptability advantages in this regard through ambiguously defined roles (Rapp & Mathieu, 2019; Shuffler & Carter, 2018), including "building boundary spanning into the responsibilities of all team members" (Marrone et al., 2007, p. 1436). While the organizational behavior literature has begun to examine MTS with an emphasis on general workplace dynamics, supply chain management offers an especially unique context that would allow scholars to significantly contribute to improved theoretical understanding of relational multiplexity in this context. For instance, sales and operations planning requires three or more functional teams within an organization to collaboratively synchronize their forecast and material flow to meet consumer demand (Oliva & Watson, 2011). Such dynamics are also prevalent among industry consortiums, where competitors often collaborate to exchange ideas and best practices in pursuit of a greater common goal, such as enhanced sustainability (Villena & Gioia, 2018).

When properly managed, MTS can become an effective facilitator of supply chain resources that enhance the firm's competitive actions (Marks et al., 2005). Indeed, research has consistently demonstrated that successful MTS performance requires both intra- and inter-team coordination, which has particular impact on resource allocation decisions (Marks et al., 2005). Key to unlocking the benefits of MTS is helping employees successfully

navigate competing role expectations and achieve a proper balance between satisfying demands associated with internal relationships within their component team and contributing to the bigger MTS (Matusik et al., in-press). Yet, despite these promising findings, MTS theorizing has yet to extend beyond the formal boundaries of a single firm. This unexplored boundary condition currently limits the applicability of the MTS perspective given that contemporary firms often rely extensively on other organizations to deliver their focal products and services (e.g., Villena & Gioia, 2018). Drawing on the relational multiplexity perspective, we consider how the use of MTS in contemporary supply chains affects competitive actions, extending the MTS perspective in a theoretically and practically relevant manner.

While role ambiguity can provide opportunities for volitional collaboration (Cantor & Jin, 2019), it can be equally detrimental to the performance of multiplex team structures if not proactively managed (Davison et al., 2012). Individuals serving on multiple teams both within and across organizations must reconcile the demands on their finite time and cognitive capacity imposed by a complex set of multiplex relationships (Crawford et al., 2019). For instance, a supplier representative serving on a corporate-sponsored sustainable product development consortium at the behest of a buying organization must simultaneously satisfy demands from the focal buying firm, their “home” organization, the consortium, and potential consortium representatives from other direct/indirect competitors. Consequently, “actively managing a variety of internal and environmental contingencies” (Marrone et al., 2007, p. 1427) can directly interfere with an MTS participant’s ability to satisfactorily fulfill the core aspects of their work roles with their “home” function/organization. Accordingly, Davison and colleagues (2012) found that boundary spanning responsibilities should be concentrated within only a few individuals among collaborating teams. A mismanaged multiplex relationship in an MTS can spread conflict among all teams connected by the afflicted individual as role overload compromises the individual's ability to fully satisfy any team within the MTS (Pluut, Flestea, & Curşeu, 2014). Unfortunately, the significant body of

knowledge in extant supply chain research primarily focuses on how firms and individuals interact rather than how organizations can define roles to enable MTS success in alignment with the firm's overall competitive objectives.

In sum, emerging research on MTS highlights the considerable coordination challenges that are inherent to supply chain processes as boundary spanning individuals are asked to operate as members of multiple teams. In particular, these individuals must make resource allocation decisions—both their own and their home function's/organization's—while dynamically prioritizing roles and relationships. To better understand these dynamics, we offer the following example research questions:

Research Question 9: How do boundary spanning individuals in supply chain MTS reconcile potentially conflicting demands regarding supply chain resource allocation decisions in terms of both their personal resources as well as those of their “home” functions/organizations relative to the larger team collective?

Research Question 10: How can organizations find a balance between role expansion and role ambiguity to empower boundary spanning individuals to effectively collaborate with other functions/organizations without sabotaging component team functioning within the supply chain MTS?

Symmetries in Relational Multiplexity: The Role of Relational Valence

Extant supply chain research generally recognizes the dyadic nature of interorganizational and interpersonal exchanges (Mir et al., 2017; Nyaga et al., 2013). A prominent factor in these exchanges is the concept of relational symmetry, often discussed as interdependencies between companies that may influence both individual and firm behavior (Elking et al., 2017; Thomas et al., 2013; Whipple, Wiedmer, & Boyer, 2015). The symmetries of relational interdependence in buyer-supplier collaboration research tend to be operationalized as the extent to which either firm may exert unilateral influence over specific financial, relational or operational outcomes (Elking et al., 2017; Thomas et al., 2013; Whipple et al., 2015). We contend that there is a ripe opportunity to also examine how relational interdependence in buyer-supplier collaborations impact competitive action outcomes.

Linking relational symmetries and interdependencies to relational multiplexity, the actions and behaviors of individuals working in cross-functional and interorganizational teams are based on both formal and informal goals (Shipilov et al., 2014). Whereas extant supply chain research robustly examines the former, the latter remains underdeveloped. To begin addressing this shortcoming, we consider the importance of interpersonal relational valence, or the overall degree of liking (positive valence) or disliking (negative valence) among individuals (Labianca & Brass, 2006). Specifically, we focus on how (a)symmetries in relational valence affect behavior in multiplex boundary spanning relationships with an emphasis on understanding competitive behaviors and outcomes, such as willingness to seek help from colleagues, formation of network alliances, and new product development (Beckman et al., 2014; Brennecke, 2020; Davis, 2016). When considered in cross-functional and interorganizational settings, we note that relational (a)symmetries and interdependencies among individuals are further intertwined with those among the respective “home” functions and firms of the individuals. For instance, Han and colleagues (2017) showed that changes in competitive behavior among family-held industrial conglomerates in Korea, known as *chaebols*, often depend on the degree of deference between marital partners of unequal status. Thus, the resultant resource flows, such as information exchange and knowledge sharing, reflect complex relational valence configurations inherent in the multiplex interpersonal-interfirm relationships embodied by typical supply chain teams.

We believe that further investigation of relational valence (a)symmetries at the individual-level alongside equivalent functional/firm-level considerations would yield fruitful insights on how these structures could improve the competitive behavior of the firm. Much as interfirm opportunism can arise from firm-level relational asymmetries regarding the expected duration of the relationship (Das & Rahman, 2010), asymmetries in desired valence between formal and informal relationships presents another important influence on value co-creation efforts. For instance, when individual boundary spanners desire a positive informal relationship with their counterpart, this informal desire may influence the discharge of their

formal responsibilities, especially in contexts where the formal relationships are not overly collaborative.

Beyond potential behavioral divergence from formal role expectations, supply chain resource flows are also likely to become unbalanced when exchange partners espouse varying levels of desire for building positive informal relationships. Whether via explicit efforts at ingratiation on the part of the individual desiring an informal relationship or intentionally feigned interest on the part of their counterpart, asymmetries in the entities' concern for the other—relative to their own interests—are likely to occur, with the relationship-desiring entity possessing higher levels of concern for their exchange partner than vice versa. In such contexts, the individual with the higher level of concern for the other tends to provide proportionally more resources than they receive (DeRue et al., 2009), which may directly conflict with the formal expectations based on the interfirm relationship. Some specific research questions are offered below:

Research Question 11: How do individual-level formal and informal relational asymmetries among boundary spanners influence resource flow among supply chain partners with varying levels of interdependencies?

Research Question 12: Under what conditions do informal relational asymmetries between boundary spanners exert greater influence on resource flow than formal relational asymmetries among supply chain partners and vice versa?

DISCUSSION AND CONCLUSION

To maintain and improve the flow and access to critical resources for competitive advantage purposes, it is critical for a firm to proactively manage the human resources in its supply chain networks. This article seeks to improve our understanding of how individuals work together across functions and organizations to share supply chain resources for the purpose of co-creating value and gaining competitive advantage. By doing so, we provide an in-depth discussion about intra-individual attributes, formal and informal inter-individual relationships, and socio-structural factors in support of this goal. Based on relational multiplexity (Shipilov et al., 2014), we have presented several broad areas of inquiry with

relevance to firm competitive outcomes (see Figures 2 and 3) and proposed more specific research questions to help spur future inquiries. To further position our specific research questions, Table 3 summarizes the specific areas of inquiry we propose and integrates them within the broader contexts depicted in Figures 2 and 3. We hope to help supply chain, organizational behavior, and strategy scholars move beyond the consideration of the formal relationships at both the firm and individual-level toward the development of a more complete and nuanced understanding of how multiplex relationships influence resource flow and utilization to support the firm's ability to take competitive actions against rival firms.

By incorporating these often overlooked interpersonal relationships, our framework provides a conceptual foundation to advance understanding of how supply chain resources may be shared across functions and firms for competitive purposes in several ways. For example, organizations seeking to build better cross-functional or interorganizational teams need to cultivate better relational ties in both the formal and informal domains. Better informal ties not only provide social and emotional support to enhance collaborative outcomes (Kiazad et al., 2015; Tröester et al., 2019) but are also likely reduce information leakage via reduced employee turnover (Jiang et al., 2012; Lee et al., 2004; Mitchell et al., 2001). Thus, relational congruity and valence must be considered at multiple levels to better understand how resources are shared and used for creating competitive advantages for both specific members and across all members of the supply chain.

Another often neglected aspect our research framework draws attention to is the temporal nuances of formal and informal relational bases. Whereas the line of research based on the institutional knowledge framework considers the formal relational past of supply chain linkages, our research framework calls for greater attention to be paid to both past informal relationships as well as future formal and informal expectations. For example, the leadership style embodied by a previous leader plays a substantial part in determining the role expectations that work groups hold for the successor, which in turn has a substantial bearing on resource flows and the overall internal functioning of the team (Hollenbeck, DeRue, &

Nahrgang, 2014). Further, these temporal elements are not only qualitative in nature but also require consideration of both anticipated duration as well as individual temporal orientation.

The research questions proposed in this article can be investigated using both traditional and emergent research methods. Behavioral experiments, especially those following traditions from the social psychology field, offer researchers the opportunity to craft unique relational settings for vignette-based studies (e.g., Mir et al., 2017). For instance, Ta and colleagues (2018) tested the influence of ethnic disclosure and similarity, both of which are likely to affect informal relationships, on formal service outcomes. For complex, multi-level inquiries, we encourage scholars to apply experiments beyond the now-ubiquitous online data panel services (e.g., Amazon mTurk, Prolific). For example, Cantor and Jin (2019) assessed past relationships among teammates in their laboratory experiment, albeit as a control variable. Further probing the nature of past associations may unveil an enriched understanding of how role ambiguity can be clarified among teammates for enhanced performance outcomes. In addition, given that human behavior is inherently influenced by the confluence of personality, motivational, and environmental factors, field studies and interviews may allow researchers to better understand exactly how and why relational multiplexity can help—or hinder—supply chain managers unlock resources and gain competitive advantages on behalf of their organizations. For research related to high level executives, archival data in combination with web scraping offers considerable research potential (George et al., 2016). For instance, Compustat Execucomp offers individual-level data on top managers of publicly-traded firms; these formal data may be combined with informal relationships archived by websites such as OpenSecrets.org and Littlesis.org to investigate both individual-level behavioral and firm-level competitive outcomes.

Beyond traditional research methodologies, there are emergent advances that may also offer opportunities for researchers in this domain. For example, the prevalence of video-calling technology in organizations employing virtual workforces may provide an avenue for unobtrusively collecting individual personality measures (Hill et al., 2019). Similarly, recent

advances in machine learning and textual analysis provide an avenue to estimate personality from a body of spoken or written communication likely to be generated in the course of business interactions (Harrison et al., 2019). Social media sites—and professional networking sites in general—may be particularly relevant for identifying both current informal relationships as well as previously held formal positions. In order to further explicate patterns in interpersonal interaction and gain insight into how individuals choose to allocate their time interacting with peers from various component teams inside an MTS-structured supply chain, wearable sociometric sensors can be used to passively collect data on interpersonal interactions, avoiding potential issues associated with traditional social network surveys (Matusik et al., 2019). Finally, while these techniques provide many exciting opportunities to advance inquiry in this domain, they may also raise substantial and unique issues related to informed consent and other human subject considerations that should be carefully considered before embarking on a particular course of investigation.

Collectively, we believe that this framework is critical to understanding how firms can capitalize on resources in the supply chain to enhance their competitive behavior. Drawing on the relational multiplexity theoretical framework (Shipilov et al., 2014), we have described how these perspectives can inform future supply chain and organizational behavior scholarship aimed at understanding collaborative outcomes such as resource flow and value co-creation that undergird supply chain competitiveness. In particular, we explore how individual formal and informal roles arising from multiplex relationships provide the microfoundations for both the intra- and interorganizational resource flows that underly critical supply chain processes.

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TABLE 1 – Illustrative Representation of Relational Multiplexity Literature

Study	Data	Constructs	Context
<i>Individual-level of Analysis</i>			
Brennecke (2020)	Survey, interview	Help-seeking behavior, difficulty to work with	Intraorganizational relationships
White, Currie, and Lockett (2016)	Survey, interview	Relational plurality, reciprocity, density, transitivity	Leadership plurality
Engel et al. (2017)	Conceptual	Goal-directed vs. effectual (business and social) relationships	Entrepreneurial network relationships
Raffiee (2017)	Archival	Client relationship, relational multiplexity	Interfirm knowledge and relationship transfer
Liu et al. (2019)	Conceptual	Multidimensionality	Literature review
Maruping and Matook (2020)	Interview, observation	Role multiplexity, organizational and interpersonal factors	Frontline worker's role in product development
Jonczyk et al. (2016)	Longitudinal surveys	Relational multiplexity, gains, losses, trust	Gains and losses in relational ties due to promotions
Schinoff et al. (2020)	Longitudinal interviews	Relational cadence, friendship formation, remote co-workers	Grounded theory case study of workers in a large tech firm
<i>Firm-level of Analysis</i>			
Autry et al. (2014)	Survey	Relational multiplexity, process multiplexity	Restaurant supply chain
Beckman et al. (2014)	Archival	Relational pluralism comprising heterogeneity, multiplexity, and asymmetry	Semiconductors network alliance
Hoffmann et al. (2018)	Conceptual	Coopetition	Editorial for special topics issue
Davis (2016)	Interviews, archival	Collaboration, structural ties	Developing complex new products
Cozzolino and Rothaermel (2018)	Conceptual	Core-knowledge, complementary assets, appropriability	Discontinuous technological changes
Zhang et al. (2019)	Archival	Network strength, political connections, technological capability	Knowledge sharing in R&D alliance network
Han et al. (2017)	Archival	Marriage, competition, chaebol activity	Chaebol business groups in Korea
Howard, Withers, and Tihanyi (2017)	Archival	Network structural effects, core technology	Director interlocks and knowledge transfer

Kim et al. (2016)	Archival	Structural and relational effects	Board interlock formation among Fortune 100 firms
Kim and Narasimhan (2019)	Archival	Contractual, transactional, professional, personal	Korean automotive supply network
Lomi and Pattison (2006)	Archival	Relational dependence, network expanse	Italian automotive supply network
Rogan (2014)	Archival	Client relationship, relational multiplexity, structure/economic multiplexity	North American advertising agency client retention
Saboo et al. (2017)	Archival	Innovation and relational multiplexity	Biopharmaceutical and acquisition performance
Shipilov and Li (2012)	Archival	Vertical ties and horizontal ties	Public offerings of company securities
Slot et al. (2020)	Archival, survey	Buyer-supplier multiplexity relationships	Buyer participation in outsourced new product development
Tuli et al. (2010)	Archival	Buyer-supplier relational ties	Relational multiplexity's impact on buyer-supplier sales growth
<i>Not Specified</i>			
Shipilov et al. (2014)	Conceptual	Relational ties, identities	Editorial for special topics issue

TABLE 2 – Illustrative Relational Multiplexity Differences in Organizational Behavior and Supply Chain Management

	Typical Organizational Behavior		Typical Supply Chain Management	
	Consideration	Research Implications	Consideration	Research Implications
<i>Relational Context</i>	Between supervisors and employees	Formal power hierarchy	Among functional representatives	Ambiguous power hierarchy
	Among intra- and inter-functional employees	Established interaction norms and technologies	Among supply chain partner representatives	Emergent interaction norms and divergent technologies
<i>Formal Context</i>	Formal expectations generally aligned among individuals from the same company but their informal expectations may be misaligned	Uniform formal role expectations at organizational level	Both formal and informal expectations among individuals from different functions or organizations may be misaligned	Varied formal role expectations at organizational level
	Little consideration for interorganizational dynamics	Singular set of organizational objectives	Interorganizational context highly prominent	Multiple sets of organizational objectives (across partner organizations)
	Individuals may work on multiple teams within an organization.	Spanning intrafirm team boundaries	Individuals may work on multiple teams across both functions and organizations.	Spanning intra and interfirm team boundaries
	Relational asymmetries only considered among individuals (both formal and informal contexts).	Interteam resource appropriation	Relational asymmetries may exist between supply chain partners, across functions, and among individuals (both formal and informal contexts).	Interfirm value appropriation
<i>Temporal Focus</i>	Differences among individuals (e.g., protean career motivations)	Individual-level relationship dissolution risk	Differences between supply chain partner organizations and their representatives, respectively.	Firm-level relationship dissolution risk
<i>Outcome Focus</i>	Employee well-being and performance; Team performance and viability	Internally controlled resources; knowledge management focused on accessibility	Access to new resources across functional and organizational boundaries; Develop new capabilities and competitive advantages	Externally controlled resources; knowledge management focused on balancing value co-creation and discretionary control

TABLE 3 – Conceptual Positioning of Research Questions Relative to Figures 2 and 3

Research Question	Summary of Focus Area	Integrative Figure Conceptual Positioning
RQ 1	Effects of individual differences in contexts characterized by multiplex relationships	Figure 2: Supply Chain Managerial Context Figure 3: Past Training and Personal History
RQ 2	Effects of individual differences on organizational policies regarding multiplexity	Figure 2: Supply Chain Managerial Context
RQ 3	Effects of using informal relationships to respond to socio-structural change	Figure 2: Supply Chain Managerial Context Figure 3: Social Context
RQ 4	Effects of strategic multiplex relationship cultivation and utilization	Figure 2: Supply Chain Managerial Role-Set Figure 3: Social Context
RQ 5	Joint effects of interpersonal and interfirm relationship valence	Figure 2: Joint effects of Supply Chain Managerial Context and Supply Chain Managerial Role-Set
RQ 6	Effects of interpersonal and interfirm relationship congruity	Figure 2: Joint effects of Supply Chain Managerial Context and Supply Chain Managerial Role-Set
RQ 7	Effects of internal and external temporal expectations	Figure 3: Temporal Expectations
RQ 8	Effects of strategic internal and external temporal expectation setting	Figure 3: Temporal Expectations
RQ 9	Effects of resource allocation decisions among component teams within MTS	Figure 3: Resource Allocation
RQ 10	Effects of strategic MTS role expansion and ambiguity	Figure 3: Resource Allocation
RQ 11	Effects of individual-level formal and informal relational asymmetries	Figure 2: Joint effects of Supply Chain Managerial Context and Supply Chain Managerial Role-Set
RQ 12	Joint effects of individual-level and firm-level relational asymmetries	Figure 2: Joint effects of Supply Chain Managerial Context and Supply Chain Managerial Role-Set

FIGURE 1 – Formal and Informal Drivers of Supply Chain Management Role Expectations

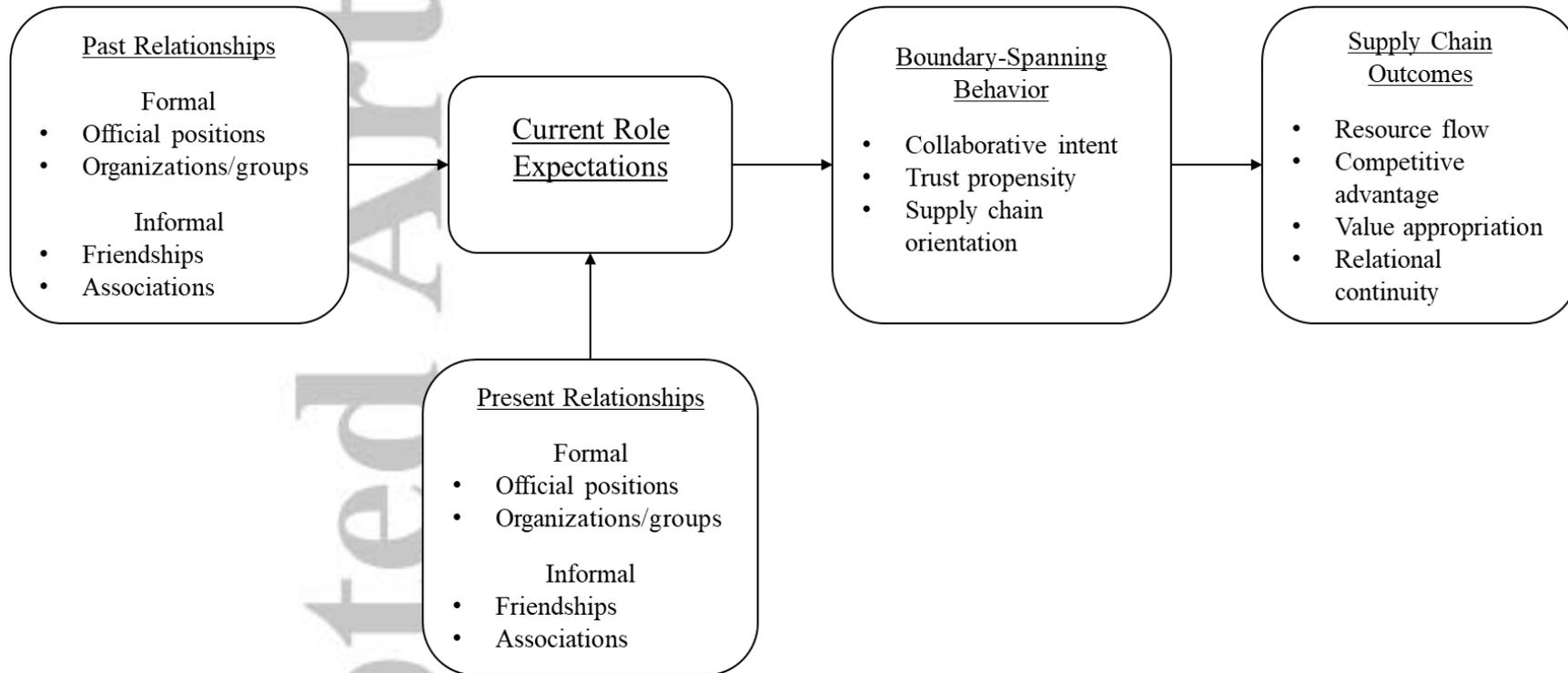


FIGURE 2 – Relational Multiplexity in Supply Chains: An Individual-level View

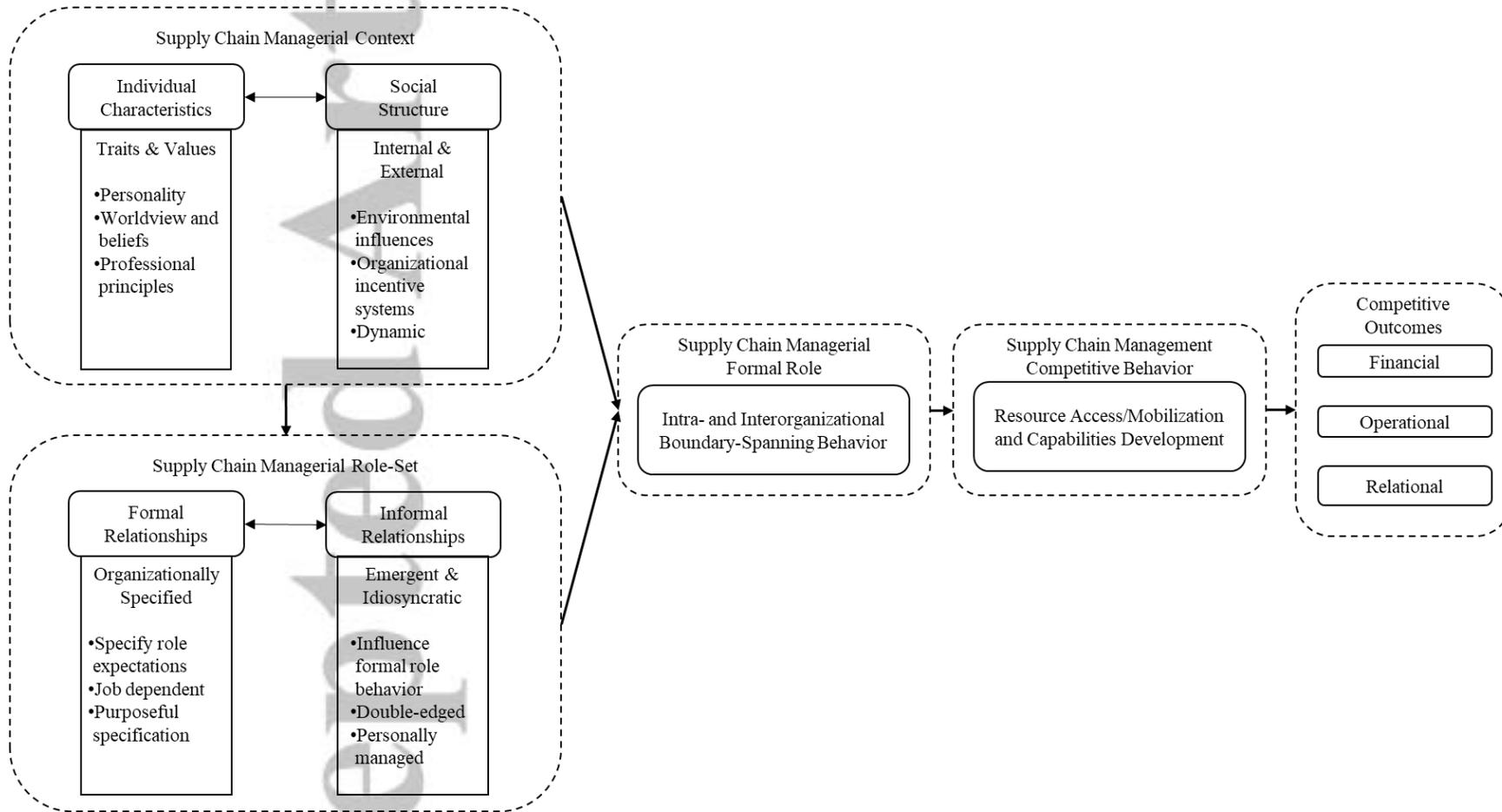


FIGURE 3 – Temporal Considerations of Relational Multiplexity in Supply Chains

