GLOBAL VALUE CHAIN GOVERNANCE:

A RELATIONAL PERSPECTIVE

by

Liena Kano*

Associate Professor of Strategy and Global Management
Haskayne School of Business,
University of Calgary,
Calgary, Alberta, Canada, T2N 1N4
Email: liena.kano@haskayne.ucalgary.ca
Tel: (403) 220-2993
Fax: (403) 282-0095
And Alan M. Rugman Visiting Fellow, Henley Business School,
University of Reading, United Kingdom

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ABSTRACT

Global value chain (GVC) governance is an established field within international business research, yet the relational aspects of GVCs have, to date, garnered less scholarly attention than have efficiency considerations. This conceptual study's objective is to explore the relational dynamics of GVC governance by using an internalization theory perspective, and by linking GVC research with insights from the business networks literature. GVCs are argued to be a distinct form of asymmetrical networks, associated with economizing and capability creation features, as well as costs. The orchestrating firm can thus enhance efficiency outcomes of the GVC by using social mechanisms similar to those adopted by core actors in a business network. In the study, six such mechanisms were identified: (1) selectivity, (2) inclusion of non-business intermediaries, (3) joint strategizing, (4) relational capital, (5) multilateral feedback, and (6) rules for equitable value distribution. While safeguarding the GVC's efficiency, the above social mechanisms are associated with challenges and limitations, and therefore do not guarantee international competitive success. However, deployed in an integrative fashion, these social mechanisms facilitate coordination (thus economizing on bounded rationality), reduce the hazards of imperfect effort by partners (thus economizing on bounded reliability), and foster innovation and new capability development.

Keywords: Global Value Chains, Asymmetrical Network, Orchestrating Firm, Internalization Theory, Social Mechanisms, Role of Head Office, Bounded Rationality, Bounded Reliability

INTRODUCTION

The organization of international economic activity has changed significantly over the past several decades, driven by several well-documented factors, including technological advances, the rise of emerging economies, and trade and investment liberalization (Buckley & Strange, 2015; Narula, 2014). Taken together, these factors facilitated easier cross-border coordination of transactions and opened up access to geographically dispersed talent pools. They also enabled production shifts to low-wage countries in Asia and Eastern Europe, and created new opportunities for a flow of intermediate and finished goods across markets (Gereffi, 2001; Gooris & Peeters, 2016; Kinkel, 2012; Manning, Larsen, & Bharati, 2015). What followed was the decoupling of ownership and control and the subsequent disaggregation of multinational enterprises' (MNEs') value chains, with progressively finer-sliced activities carried out in dispersed geographic locations, either internally or through outsourcing and non-equity arrangements (Narula & Driffield, 2012). The increasing international fragmentation of economic activity gave rise to the *global value chain (GVC)* research stream—a conceptual approach that deals with managing disaggregated and geographically dispersed value chains of MNEs (Gereffi, Humphrey, & Sturgeon, 2005; Laplume, Petersen, & Pearce, 2016; Mudambi, 2007, 2008).

While significant work has been done over the past two decades to assess the efficiency of GVCs and explore their various typologies and categories, the actual dynamics of GVC governance remain underemphasized (Dussel Peters, 2008; Yeung & Coe, 2015). Specifically, the mechanisms through which knowledge and innovation transfer among the orchestrating firm and GVC actors are relatively unexplored (Cano-Kollmann, Cantwell, Hannigan, Mudambi, & Song, 2016). To understand the conduits through which knowledge travels in spatially dispersed GVCs, we need to explore actual relationships and connections among individuals who populate MNEs and their networks.

GVC research has not traditionally focused on the relational aspect of global economic activity[1], but two other rich literatures in adjacent disciplines include a significant relational dimension:

- *Relational economic geography.* This literature holds that economic and social realities are fundamentally intertwined (Bathelt & Glücker, 2003). Relational economic geography constitutes

a distinct analytical framework within the broader economic geography field and focuses on relationships and networks as a means to understand economic activity (Sunley, 2008). It recognizes that the ongoing interaction of economic actors shapes the geography of economic processes, and thus informs the theoretical approach of this study.

- *Business networks.* This literature can yield specific insights into both the relational dynamics and the nature of knowledge generation and transfer in multinational networks (Tallman & Chacar, 2011). To date, the study of networks within the mainstream international business literature is somewhat limited,[2] with a few notable exceptions: for example, Håkansson and Johansson's (1988) industrial networks; Holm, Eriksson and Johanson's (1996) cooperative international business networks; and Rugman and D'Cruz's (1997, 2000) flagship networks. Of particular interest to this study is how this literature can illuminate the various roles of orchestrating firms, and strategies employed by these firms to ensure networks function cohesively across borders.

In this paper, the GVC is conceptualized as a distinct, international form of network governance (Dyer, 1997; Jarillo, 1988; Powell, 1990). Insights from *new* internalization theory and from extant business networks literature are applied to investigate the *processes* of connectivity and knowledge flow orchestration in a GVC. The orchestrating firm — generally (although not necessarily) a large established MNE (Mudambi, 2008) — typically relies on a central idiosyncratic knowledge-based capability that forms the vertical core of the network and allows the orchestrating firm claim and sustain its central position in the GVC. Such core capabilities may be present in diverse contexts: R&D (e.g., Corning), manufacturing (e.g., Motorola), design and marketing (e.g., Nike), design and distribution (e.g., Apple), or product management and distribution (e.g., eBay). The presence of an orchestrating firm implies an asymmetrical distribution of activity among members of the network. In the GVC, the orchestrating firm's head office must coordinate a complex structure (Yamin, 2011) to enhance the final value proposition through efficient network functioning. The focus of this study is on *how* the orchestrating firm can enhance knowledge exchange and processing, reduce the hazards of unreliability of partners, and increase innovation/capability development in a GVC.

The paper is organized as following. *First,* a brief overview of new internalization theory is provided, with the focus on the theory's treatment of network-type governance. *Second*, the GVC

construct is discussed from internalization theory perspective. *Third*, literature on inter-organizational networks is reviewed, with an emphasis on the role of the orchestrating firm. *Fourth*, social mechanisms generated by the orchestrating firm to govern the GVC, and limitations of these mechanisms, are identified. A summary and directions for future research conclude the paper.

NEW INTERNALIZATION THEORY AND NETWORK GOVERNANCE

Early internalization theory (Buckley & Casson, 1976; Rugman, 1981; Hennart, 1982) viewed the governance issue as a one-time decision made afresh every time a firm entered a new market. In contrast, new internalization theory has brought forth an expanded focus on the MNE's network capabilities, as exemplified by the work of Benito, Petersen and Welch (2009), Buckley (2009, 2010, 2011, 2012, 2014, 2016), Grøgaard and Verbeke (2012), Hennart (2009), Narula and Verbeke (2015), Rugman and Verbeke (1992, 2001, 2003a,b, 2004), Verbeke (2013) and Verbeke and Kano (2015, 2016). According to the new internalization theory, the main purpose of cross-border economic activity is to develop, transfer, augment, and recombine firm-specific advantages (FSAs), whose nature and strength determine the scope and performance of the MNE. The MNEs' FSAs must be effectively and efficiently matched to the characteristics of dispersed environments through the process of international strategic governance, which encompasses simultaneous consideration of three elements: boundaries of the firm, governance of internal transactions, and governance of external interfaces. The ultimate mix of governance mechanisms must have superior economizing properties compared to other real-world alternatives. In practical terms, this means that that the optimal governance system must allow the MNE to do the following:

1. *Manage bounded rationality of parties involved.* Bounded rationality reflects managers' limited ability to address information complexity and make optimal choices (Simon, 1961). It derives primarily from four sources: (1) necessary incompleteness of all information; (2) economic actors' limited capacity to process and interpret information; (3) multifacetedness of information in a multinational setting; and (4) divergence in judgment of identical information by actors with different backgrounds (Verbeke & Yuan, 2005).
2. *Manage bounded reliability of parties involved.* Bounded reliability reflects actors' scarcity of effort to make good on open-ended promises. In contrast to the conventional assumption of

opportunism (Williamson, 1985, 1996), this line of thinking suggests that economic actors are *intendedly* reliable, but only *boundedly* so (Kano & Verbeke, 2015; Verbeke & Greidanus, 2009). Bounds on reliability of economic actors include: (1) opportunism as intentional deceit; (2) benevolent preference reversal; and (3) identity-based discordance[3].

3. *Create an organizational context conducive to higher-order capability (FSA) generation*. This context must support multiple stages of value creation in an MNE, from FSA inception, development, and transfer, to delivery of the final product/service that embodies the relevant FSA (Grøgaard & Verbeke, 2012; Verbeke & Kenworthy, 2008).

Internalization theory thus helps explain the rise of GVCs. In theory, the orchestrating firm in possession of a supposed superior technological and marketing know-how takes a substantial risk of seeing its FSAs dissipate (Buckley & Casson, 1976). In the absence of technological, institutional, and organizational changes that enable greater coordination and control across countries and entities, one would expect significant transaction costs to accrue to cross-border activities (Williamson, 1985). This explains why, in many cases, the network activities were previously integrated into a single firm. Yet, developments in information and communication technologies, enhanced patent rights, and new management systems such as Total Quality Management have reduced the transaction costs between suppliers and their customers, to the point that management costs associated with the conventional boundaries of large vertically integrated MNEs may no longer be justified.

What results is de-internalization into a complex business network, whereby the orchestrating firm can exploit and/or develop its FSAs by governing different, finely sliced parts of the value chain through different mechanisms: exports, licensing, joint ventures, strategic alliances, and wholly-owned subsidiaries. This network is faced with the increasing challenge of aligning the interests of the different, potentially unrelated units. That is why a GVC can only operate efficiently if its orchestrating firm determines the strategy for the entire network (Rugman & Verbeke, 2003a). Such a network achieves some of the high-powered incentives of the market, since the key partners retain operational autonomy. At the same time, the risk of bounded rationality and bounded reliability is reduced, since the interests of the parties are aligned through the strategic leadership of the

orchestrating firm. The caveat, however, is that dysfunctional information (and power) asymmetries might arise between the orchestrating firm and its partners, as explained below.

GLOBAL VALUE CHAINS AND THE GLOBAL FACTORY

Described as "the world economy's backbone and central nervous system" (Cattaneo, Gereffi, & Staritz, 2010: 7), GVCs have transformed the global marketplace from *trading in goods* to *trading in activities* (Mudambi, 2013). This means that firms use international markets to transact their own knowledge and FSAs and complementary FSAs of other firms (Jacobides & Hitt, 2005; Liesch, Buckley, Simonin, & Knight, 2012), rather than physical goods and services. Here, the greatest value is derived from knowledge-intensive, intangible activities, both in terms of creating and internalizing knowledge within the MNE, and accessing specialized knowledge of GVC partners (Mudambi, 2007, 2008). A modern GVC is a complex governance arrangement that combines, within a single structure, the use of multiple governance types for various, finely sliced and geographically dispersed parts of the value chain. Also referred to as a *global factory* (Buckley, 2009, 2011, 2014; Buckley & Ghauri, 2004; Buckley & Strange, 2015), this type of GVC may operate both within and outside of the boundaries of the orchestrating firm (Yamin, 2011), and is subject to continuous re-evaluation and adjustment. It is argued to achieve a proper balance between integration and responsiveness through least cost-alignment of managerially or technologically linked activities such as innovation, production and distribution (Buckley, 2009, 2014).

As an example of a global factory-style GVC, consider the much-cited case of Apple Inc. Originally a quintessential vertically integrated firm, Apple began disintegrating its value chain in the late 1990s (Denicolai, Strange, & Zucchella, 2015). Presently, Apple's value chain represents a complex portfolio of fine-sliced activities, both internalized and outsourced, inshored and offshored, dispersed through a range of locations both in developed and emerging economies. Looking at iPhone/iPod manufacturing alone, core parts (e.g., A6 chip, audio chip, and radio frequency parts) are manufactured in the U.S.; rare earth components (speakers, glass screens, and vibration units) are sourced from Mongolia; memory chips and batteries are produced in Taiwan; gyroscope manufacturing is outsourced to France. The parts are then shipped to one of five facilities in China and Brazil, where Foxconn and Pegatron perform the final assembly. Meanwhile, Apple has, from

inception, conducted most design and marketing activities in-house, in its R&D office in Cupertino, CA. Over time, Apple has established several international R&D centres in Israel, Taiwan, and China, but core development takes place in Silicon Valley headquarters (Hillemann & Verbeke, 2014). Tacit knowledge related to industrial design, user interfaces, and interfaces between devices and proprietary software is kept close to home and carefully protected (Dedrick, Kraemer, & Linden, 2009).

As the Apple example illustrates, international competitive success hinges on an MNE's ability to use effectively available knowledge, and to combine it with knowledge from other locations and entities (Cantwell & Mudambi, 2005, 2011; Tallman & Chacar, 2011). This knowledge must travel through a variety of formal and informal mechanisms (Bell & Zaheer, 2007; Meyer, Mudambi, & Narula, 2011), which are not yet fully understood—especially when it comes to tacit, complex knowledge components (Tallman & Chacar, 2011). Tacit knowledge transfer in a GVC requires the orchestrating firm to (1) decide where critical knowledge must be sourced from; and (2) establish, maintain, enable, and control information and communication flows among units (Koza, Tallman, & Ataay, 2011). This is a formidable task due to bounded rationality inherent in a complex GVC. As Mats Forsgren (2013) astutely observed:

> [It is] not only that business actors lack knowledge, but also…they do not even know what knowledge they lack….Knowledge is incomplete, also, at the headquarters level. And, what is maybe more interesting, the headquarters does not know what the subunits know (and vice versa). (126)

Further, a GVC is "inherently unstable and transient" (Denicolai et al., 2015: 343), with parties' mutual dependence continually changing because of evolving FSAs. Power dynamics in a GVC also change accordingly (Strange, 2011). In the example above, Apple's relationship with its GVC partner Foxconn has changed over time as Foxconn upgraded its capabilities, moved up "the smile of value creation" (Mudambi, 2008: 705) from component supplier to key production intermediary, and diversified its customer base. Consequently, power asymmetries in Apple's GVC are lessening, while bilateral dependence between Apple and Foxconn is increasing (Denicolai et al., 2015). These power shifts are bringing about new bounded reliability challenges.

From the internalization theory perspective, network governance, like any governance type, will be sustained over time only if it is efficient. Inefficiencies can arise, due either to macro-level

changes (for example, if a host location no longer meets efficiency criteria), or to shifting power dynamics associated with governance dysfunction (for example, if the orchestrating firm's share in the GVC's value creation and distribution declines dramatically over time, thus reducing its incentive to pursue common GVC goals). In such cases, the orchestrating firm is likely to switch to an alternative governance mode. This is exemplified in Apple's loosening of its ties with Foxconn due to increasing transaction costs (Denicolai et al., 2015), or in German manufacturers' backsourcing and inshoring production due to rising labour costs in emerging markets, increasing energy prices, and high transportation costs (Kinkel, Rieder, Horvath, & Jäger, 2016). In situations of high bilateral dependence, it may be in the best interest of the orchestrating firm to sustain GVC governance over time. Further, regardless of the degree of power asymmetries in the network, the orchestrating firm acts as a residual claimant of the GVC's final value proposition, and is thus interested in, and responsible for, the efficiency and effectiveness of the entire GVC.[4]

As such, long-term sustainability of the GVC hinges on the orchestrating firm's ability to implement *ex ante* mechanisms to economize on bounded rationality and reliability, and create an environment conducive to capability development in the GVC. Here, the highly technical "controlling intelligence" (Buckley, 2009: 233) role of the orchestrating firm is insufficient for effective governance. The orchestrating firm must act as a system integrator (Gooris & Peeters, 2016) and foster connectivity in its GVC (Andersson, Dasi, Mudambi, & Pedersen, 2016) by managing micro-level relationships that arise in networks (Lorenzen & Mudambi, 2013). Social exchange mechanisms, examined in the business networks literature, offer some actionable insight into these dynamics.

BORROWING FROM NETWORKS: THE ROLE OF THE ORCHESTRATING FIRM

Jones, Hesterley and Borgatti (1997) described a business network in the following terms:

> A select, persistent, and structured set of autonomous firms (as well as nonprofit organizations) engaged in creating products or services based on implicit and open-ended contracts to adapt to environmental contingencies and to coordinate and safeguard exchanges. These contracts are socially—not legally—binding. (914)

Importantly, though the business network is perceived by outsiders as an identifiable single entity, the organizations engaging in exchange within the network may be legally independent entities.

In the case of overlapping activity domains, they may even operate as fierce competitors outside of the network (Jones et al., 1997).

The literature distinguishes between asymmetrical networks (Rowley, 1997) and emergent or organically grown clusters (Porter, 1990, 1998; Rugman & Verbeke, 2003b; Tallman & Chacar, 2011). Asymmetrical networks are deliberately designed, structured, and managed by entrepreneurial orchestrating firms (Capaldo, 2007), who act as champions to convince potential network members of either a mutually interesting opportunity or a common threat that merits network membership (Doz, Olk, & Ring, 2000). Conversely, organically grown clusters emerge spontaneously among firms that fulfill certain identity criteria, and do not have a distinct leader (Doz et al., 2000; Tallman & Chacar, 2011). Vis-à-vis the extant network literature, the GVC can be conceptualized as an asymmetrical low density/high centrality network[5] (Rowley, 1997) with an orchestrating firm's head office at its centre (Rugman & D'Cruz, 1997, 2000).

The asymmetry implies that economic actors' roles in the network are heterogeneous, whereby the orchestrating firm performs different roles as compared to peripheral actors. While all partners typically contribute specialized knowledge and capabilities, the orchestrating firm occupies a strategic position within the network. In return for partially relinquishing control over their organizations' strategic direction, network participants gain access to the orchestrating firm's reservoir of FSAs, such as brand names, technologies, and organizational capabilities. However, position alone does not drive value creation, nor is such a position inherently stable (Denicolai et al., 2015). Here, the entrepreneurial activity and distinct knowledge base, deployed for economizing and capability creation purposes, are critical. Further, the orchestrating firm develops long-term cooperative relationships with key partners, whereby multiple interactions occur in the realm of strategy formation, information exchange, and access to resources. This ongoing interaction is what distinguishes an integrated network from conventional commercial partnerships (Rugman & D'Cruz, 2000). Such arrangements go beyond arm's length transactions, and include an important relational component.

The classic networks literature uses several core concepts and definitions to describe asymmetrical networks, the orchestrating firm, and its roles. These concepts and definitions may not be fully interchangeable, but usually refer to several common phenomena, as summarized in Table 1.

Insert Table 1 about here

From this overview, we can observe four primary roles played by the orchestrating firm, as detailed below.

1. *Architect: Who is included?* The orchestrating firm's head office acts as an architect when setting up the network. It determines who will participate (Doz et al., 2000; Jarillo, 1988), establishes a mix of internal and external contracts, and decides on optimal locations for fine-sliced economic activities (Buckley & Ghauri, 2004). Toyota's efforts to imitate its Japanese supplier-based network in the US, described by Dyer and Nobeoka (2000), offer an example. Toyota managed to enlist suppliers—though these firms were also working for competitors—by making them recognize common interests (such as the potential to improve quality and lower costs) and potential economizing contribution of network functioning (in terms of reducing bounded rationality and bounded reliability problems) as compared to conventional market contracting.
2. *Strategic leader: What will each partner do?* As the strategic leader, the orchestrating firm influences and shapes the strategy of the entire network (Rugman & D'Cruz, 1997). It sets out the governance principles to help partners exploit their individual capabilities and strive towards achieving common goals (Hamel & Prahalad, 1990). For example, Apple pulls together and coordinates a wide range of creative partners to produce user-friendly, innovatively designed, hardware-software integrated consumer goods (Lorenzoni & Baden-Fuller, 1995).
3. *Caretaker: How will the orchestrating firm coordinate the partners' activities?* As a caretaker, the orchestrating firm assumes a service role to ensure the network operates seamlessly and effectively (Snow, Miles, & Coleman, 1992). This is accomplished by arbitrating knowledge flows—in other words, the orchestrating firm acts as a bridge between the vertical core and the remaining connected group of firms (Kogut, 2000), as well as among the external firms. For instance, firms active in the downstream part of the value chain are kept abreast of new manufacturing capabilities, whereas upstream firms are made aware of upcoming marketplace changes (Snow et al., 1992). The orchestrating firm, then, focuses on coordinating the upstream and downstream components of the innovation process within the network. In practical terms, a network orchestrator can achieve such upstream-downstream integration through advanced

activity-based accounting, ICT systems, and other managerial innovations in coordination and control. For example, Cisco Connection Online is a web-based IT platform for information diffusion set up by Cisco Systems, Inc. (Cisco) for its suppliers and customers (Häcki & Lighton, 2001). Monitoring the behavior of network partners to detect and curb imperfect effort towards the network's goals is also part of the caretaker role (Jarillo, 1988).

4. *Value distributor: How will the orchestrating firm make sure each partner captures value?* In this role, the orchestrating firm commands a capability for overall value creation, while also setting rules to ensure that each partner receives a fair share of value, as a function of its contribution to the network (Dhanaraj & Parkhe, 2006; Lorenzoni & Baden-Fuller, 1995). Partners will only participate in the network if they perceive an opportunity for joint value creation and believe that they will be able to capture their fair share (Jarillo, 1988). The challenge here is that the value may be locked up in the powerful core of the lead firm, with the authoritative elite reluctant to release the value to the rest of the network (Yamin, 2011). Engaging in rule-setting for value distribution that can sustain the network in the long run is therefore not accidental, but requires a distinct effort. In the above example, more than 50% of Cisco's revenue is allowed to flow back to its network partners. This fosters growth of network profits and ultimately enhances the value of Cisco's own stake (Häcki & Lighton, 2001).

Each of the above roles is associated with distinct social mechanisms that can be advanced by the orchestrating firm managers to achieve the comparative, net benefits of network governance (vis-à-vis markets or conventional internalization). These social mechanisms have been identified in the networks literature synthetized above, and are summarized and categorized in Table 2. The next section explores these mechanisms in the GVC context, and discusses how they can help the orchestrating firm safeguard and coordinate exchanges and facilitate knowledge flows in the GVC.

Insert Table 2 about here

SOCIAL MECHANISMS AS EFFICIENCY SAFEGUARDS IN GVCs

Six core social mechanisms available to the orchestrating firm were identified through the review of network literature: (1) carefully selecting partners; (2) enlisting non-business intermediaries in the network; (3) engaging in joint strategizing (4) generating relational capital; (5) ensuring

multilateral feedback; and (6) setting rules for equitable distribution of value created within the network. From the internalization theory perspective, the core argument is that these social mechanisms enable the orchestrating firm to increase comparative efficiency of GVC governance vis-à-vis vertical integration and market transactions, by supporting the three economizing/value creating objectives:

1. Economizing on partners' bounded rationality (i.e., enhancing flows of technical and administrative knowledge, reducing complexity, and filling information gaps);
2. Economizing on partners' bounded reliability (i.e., setting clear and enforceable bounds on the possible lack of reliability of partners (Jarillo, 1988), preventing misappropriation of knowledge, aligning objectives and outcomes, and fostering consistent identity); and
3. Encouraging new capability creation and deployment (i.e., through managerial interaction and joint practice) (Rugman, Verbeke, & D'Cruz, 1995).

The first two mechanisms relate to composition of the GVC, the following three to operational functioning of the GVC, and the last one, to both functioning of the GVC and its outcomes. Figure 1 provides a graphical representation of the theoretical logic, while Table 3 summarizes economizing and capability-creating properties of the social mechanisms identified. The specific processes whereby the orchestrating firm can use these social mechanisms to govern the GVC, as well as the challenges associated with their implementation, are discussed below through illustrative case examples.

Insert Figure 1 and Table 3 about here

Selectivity

The process. The orchestrating firm selects partners based on their ability to perform particular core tasks (Geringer, 1991). Selectivity is calculative and reciprocal in nature, as partners must assess their own expected costs and benefits before participating in a network (Rugman & Verbeke, 2003b). The Cisco Systems' business network, for example, connects the orchestrating firm to 32 non-Cisco manufacturing plants worldwide. Suppliers must go through a lengthy process of certification to participate in the network (Ernst & Kim, 2002).

While GVCs thrive on flexibility and resilience through continuous adaptation, they initially arise from a carefully engineered process. Hence, only partners chosen through rigorous due diligence

can benefit from the network (Rugman & Verbeke, 2003b; Yamin, 2011). Restricting the number of potential partners to the optimal set reduces contracting costs, mainly in the realm of coordination. The freed-up capital is then invested in the development of new capabilities and the pursuit of new opportunities (Forsgren, 2016; Walker, Kogut, & Shan, 1997). Conversely, adding linkages beyond the optimal number decreases returns on network investment. Empirical evidence suggests that orchestrating firms in networks with few, but high quality, ties are more likely to achieve product and process improvement than orchestrating firms in networks with many, but possibly weak, ties (McDermott & Corredoira, 2010). Limiting the number of participants also economizes on bounded rationality by decreasing overall network-wide variance in expectations and goals (Jones et al., 1997).

Because of isolating mechanisms, such as context specificity and relevant knowledge that is dispersed over several partners, the benefits created within the network accrue exclusively to the participants, rather than to all organizations that happen to operate in the same geographic or competitive space (Rugman & Verbeke, 2003b). Formal network boundaries economize on bounded reliability by reducing the risk of proprietary knowledge being diffused outside of the GVC (Moran, 2005). This has been confirmed empirically: Westney (1993) showed that Japanese R&D labs outcompeted American MNEs in Japan, because American R&D subsidiaries were not able to penetrate local networks that tied Japanese R&D labs to suppliers and customers.

The challenges. The orchestrating firm may not always be able to exercise selectivity, for two reasons. *First*, partners' willingness to join the GVC will depend on the desirability of the orchestrating firm's FSAs (Strange, 2011), as well as tradability of those FSAs. If FSAs held by the orchestrating firm are easily transacted in the open market, partners are likely to choose simple market contracting over network governance (Hennart, 2009; Grøgaard & Verbeke, 2012). Second, while the orchestrating firm may be able to exercise thorough due diligence in selecting partners, it may have less influence over the composition of those partners' extant networks—such as with sub-suppliers of suppliers (Yamin, 2011)— and may not be able to impose selection rules all the way to the frontiers of the value chain.

Selectivity based on operational efficiency may also hinder innovation by promoting projects with demonstrable, short-term payoff (Yamin, 2011) and increasing emphasis on routinisation.

Further, selectivity may lead to groupthink. There is a risk of the not-invented-here syndrome, which makes it harder for individuals to embrace new ideas (Katz & Allen, 1982; Porter, 1998). This may explain why Capaldo (2007) found that orchestrating firms within the Italian design industry enhanced competitive advantage by implementing dual network architecture, with a core of strong ties and a large periphery of heterogeneous weak ties.

Enlisting Nonprofit Organizations and Other Intermediaries

The process. Orchestrating firms can increase their own and their GVCs' capabilities by enlisting organizations—both non-commercial and commercial—that are located outside of their immediate value chains. The non-business infrastructure includes governments, research and educational institutions, unions, social services, non-profits, and NGOs (Rugman et al., 1995). Relationships with such partners, as well as with business associations, consultants, and financial institutions, can foster the development of knowledge- and relationship-based FSAs (McDermott & Corredoira, 2010; Rugman & D'Cruz, 1997). Gulati (1999) has argued that such intermediary organizations can significantly affect network performance. Aside from filling resource gaps, including capital (Locke, 1997), intermediaries help disseminate at low cost a common strategy, and can help in developing a common language to spread complex information and managerial practices (Jones et al., 1997). Similarly, intermediaries such as venture capitalists and professional service firms may promote and support risk-taking and entrepreneurship (Smith-Doerr & Powell, 2005).

Engaging institutions as part of the network can help orchestrating firms raise the quality of institutional environments in home or host countries by promoting certain institutional features favouring the firm's business—for example, professional and occupational training (Schneider, Schulze-Bentrop, & Paunescu, 2010). Extant empirical evidence supports the idea that engaging educational intermediaries leads to higher skill levels of network members: McDermott and Corredoira (2010) demonstrated, based on a sample of Argentinian automotive parts suppliers, that stronger network ties to universities resulted in higher skills held by network members. Rugman & D'Cruz (2000) described the example of France Telecom, which commanded two management schools specializing in telecommunications: the Ecole Nationale des Télécommunicationsand the Ecole Nationale Supérieure des Postes et Télécommunications. The firm was directly involved in

program design and instruction in both institutions. In return, the schools provided France Telecom and its partners with managers who shared in the same knowledge and vocabulary.

With the GVC phenomenon being driven, in part, by a macro-level shift of economic activities from developed to emerging economies, engaging with institutions becomes particularly important. These relationships can serve to fill industry-specific institutional voids that are characteristic of many emerging economies (Verbeke & Kano, 2015). In the long run, stronger institutions help economize against bounded reliability at the macro level by protecting critical knowledge and improving enforceability of contracts, both within and outside of the network. The GVC's viability depends on the orchestrating firm's capacity to influence host countries' institutions, even more so than the viability of a conventional, vertically integrated MNE. Yamin argued that "shaping the institutional environment… is *necessary* for the exercise of freedom to 'mix and match' locations and control mechanisms as they see fit" (2011: 290, emphasis in original).

Further, with large MNEs being subject to much public scrutiny for their environmental and social footprint, enlisting non-profits as part of the network may facilitate the development of special FSAs in corporate social responsibility (CSR) and may help diffuse these FSAs throughout the GVC. Here, non-business partners can provide checks and balances should the orchestrating firm be in danger of exposure to sustainability breaches (Campbell, 2007), either through its own actions or the actions of its partners. This is exemplified by Nike's engagement with such organizations as Fair Labor Association and the Global Compact, spurred by the anti-sweatshop movement that put many apparel companies in the hot seat in the 1990s (Verbeke, 2013). Engaging institutional entrepreneurs can also help the orchestrating firm distribute value gained from enhanced efficiencies through the immediate value chain and beyond, to those stakeholders who give the firm its *license to operate*.

The challenges. Such cooperation might create a problem for the orchestrating firm, to the extent that non-network parties may profit from GVC-specific knowledge through intermediary organizations (yet, the orchestrating firm may in turn obtain access to knowledge embedded in local networks outside of its GVC). The orchestrating firm also needs to tread carefully when engaging intermediaries in emerging economies: while potentially increasing institutional quality, emerging

economy-based intermediaries do not necessarily possess the requisite level of skill, qualifications, or influence (Sutz, 2000).

Joint Strategizing

The process. While the GVC implies strong governance control by the orchestrating firm's head office, unilateral control is not possible in most complex, geographically dispersed structures, nor is it conducive to value creation. One reason for this is that the orchestrating firm's knowledge of partners' capabilities is limited, as discussed above (a bounded rationality issue). Further, management by command and control is likely to create tensions in the GVC, stifle initiative and innovation, and misalign units' and individuals' contributions to the overall network value (a bounded reliability issue) (Koza et al., 2011).

Here, joint strategizing can effectively economize on bounded rationality and bounded reliability through facilitating exchange of tacit knowledge (Kotabe, Parente, & Murray, 2007), reducing information asymmetries, and aligning interests of various parties. Joint strategizing is a shared process whereby the orchestrating firm's head office influences and shapes the strategies of its partners (Lorenzoni & Baden-Fuller, 1995), and partners engage in joint routines and collaborative problem-solving (McDermott & Corredoira, 2010). The orchestrating firm, as a strategic centre, creates a sense of common purpose across the GVC that engenders a holistic view among the members. The resulting shared sense of the *whole network* as an aggregate unit can support coordination by standardizing objectives, procedures, and policies, so that administrative and operating overhead is reduced and economizing outcomes are achieved (Lorenzoni & Baden-Fuller, 1995; Luo, Wang, Zheng & Jarayaman, 2012; Manning et al., 2015). The common identity also stimulates capability creation by motivating members to openly share valuable knowledge (Dyer & Nobeoka, 2000). When objectives are aligned through joint strategizing, managers see that the GVC arrangement serves their best interests, and will thus voluntarily work together to create value-added outcomes for the network (Koza et al., 2011; Luo et al, 2012).

The GVC partners are interconnected, each affected by the actions of the others, and yet such interconnectedness is typically indirect. Partners do not have ties with each other, but each has ties with a common partner, i.e. the orchestrating firm. Partners thus do not necessarily recognize their

interdependence on their own. It becomes the orchestrating firm's task to create *network awareness* among partners to convey and reinforce the dependence of each partner on the orchestrating firm itself and on all others active in the network (Provan, 1993). To the extent that each partner views its own well-being as dependent not only on the orchestrating firm but also on the success of the other partners, problems of bounded reliability can be kept in check. A common strategic intent therefore underscores partner interdependence.

The challenges. It may be difficult to forge a common strategic roadmap for an entire GVC. In establishing a common purpose, parties partially relinquish the ability to determine their own future, as they become increasingly dependent on the activities of others (Powell, 1990). Over time, partners' interconnectedness may become more direct and recognizable. This may pose a problem for the orchestrating firm: increased direct ties between partners may decrease their dependence on the orchestrating firm, which may itself become more reliant on network partners. For example, suppliers in a supplier-based network may form coalitions to collectively resist buyer demands. At the same time, buyer dependence on suppliers may increase substantially if these suppliers work together to develop an input that the buyer cannot obtain from any single alternative source (Provan, 1993).

Ultimately, knowledge sharing enabled by joint strategizing may allow suppliers to develop new capabilities in domains previously controlled by the orchestrating firm. Formerly specialized suppliers may then move up the value chain, leave the GVC, or launch competitive products. For example, prior to integrating into the downstream part of the value chain, Taiwan-based handset provider HTC Corp. manufactured products for branded handset producers (e.g., Nokia, Motorola, and Ericcson) and for wireless network operators. Participating in the GVCs of powerful MNEs has allowed HTC to hone its innovation skills and develop branding and distribution capabilities sufficient for launching a successful, branded line of cellphones to compete with former buyers. In extreme cases, a specialized outsourcing partner can replace the orchestrating firm by acquiring its assets (most commonly, brands), as demonstrated by China's Haier Group's recent acquisition of the rights for the GE brand appliances (China Daily, 2016), or Foxconn's acquisition of Japan's Sharp (Inagaki, 2016).

Generating Relational Capital

The process. There is a direct, empirically identified link between an orchestrating firm's investment in network-based relational capital and the network's performance outcomes (Forsgren, 2016; Holm et al., 1996). Relational capital among partners enhances the innovation potential of the GVC (Moran, 2005) by opening up access to strategic resources and increasing the flow of tacit knowledge (Borgatti, 2005; Forsgren, 2016; McDermott & Corredoira, 2010; McEvily & Marcus, 2005; Powell, White, Koput, & Owen-Smith, 2005). Relational ties are particularly helpful when partners exchange complex and risky ideas and issues (Anderson, Forsgren, & Holm, 2002; Forsgren, 2016)—the kind of knowledge that likely constitutes particularly unique and valuable capabilities.

Relational capital also acts as a self-enforcing safeguard against bounded reliability in the network (Forsgren, 2016). Such safeguards allow partners to simultaneously achieve the twin benefits of lower contracting costs and increased specialization. Particularly when a long-term exchange is expected, relational safeguards such as reciprocity and goal congruence[6] can protect asset-specific investments more effectively than conventional contractual safeguards[7] can (Dyer, 1996a,b, 1997). Indeed, Dyer (1996a) found that Japanese parts suppliers and assemblers, who practiced a higher degree of reciprocity and goal congruence with buyers than their U.S counterparts, made greater asset-specific investments into partnerships with automotive manufacturers, yet incurred lower contracting costs and achieved greater financial performance. Importantly, the specialized assets and related capabilities can be effectively leveraged beyond a particular partnership, through the entire GVC (Benito, Grøgaard, & Narula, 2003).

An orchestrating firm can increase the relational capital of its GVC in two ways: by establishing common relational norms, and by enhancing its own international reputation as a market leader.

First, to foster a common identity across the GVC, the orchestrating firm can try to copy identity-based norms and values that are an essential component of organically grown clusters (Rugman & Verbeke, 2003b). In organic networks, common bodies of tacit knowledge are accumulated and disseminated, without codification, within networks of practice comprised of individuals engaged in the same type of activity, participating in the same social networks, and/or

located in close geographic proximity (Tallman & Chacar, 2011). In their study of knowledge accumulation and dissemination in an MNE, Tallman and Chacar (2011) argue that international networks of practice (INoPs) typically emerge among localized groups of individuals who speak the same language, share cultural values and norms, and are engaged in joint practice. However, spontaneous development of INoPs across geographically dispersed units is unlikely. Here, orchestrating firm managers must active intervene to stimulate the same level of knowledge sharing and creation that occurs in localized INoPs.

Diffusing relational norms across a GVC composed of geographically dispersed, independent businesses with diverging identities, strategic agendas, areas of specialization, and cultural backgrounds is even more difficult than in a vertically integrated MNE. GVCs are inherently prone to identity-based discordance (Kano & Verbeke, 2015), also described as dual citizenship of partners' affiliations (Arendt, 1945)—a conflict between a partner's identity as a GVC member versus its identity as a discrete entity. Creating common relational norms in a GVC thus requires a significant up-front investment by the orchestrating firm (Frazier, Spekman, & O'Neal, 1988; Yaqub, 2009). Specifically, the orchestrating firm can develop relational norms by stimulating goal congruence, cooperation, and reciprocity (Holm et al., 1996), and by developing a shared language (Rugman et al., 1995). Promoting personal relationships and common identity in the GVC can come about through face-to-face communication, the use of task forces, external expatriation/secondment of personnel across value chain units, and even networking events facilitated by the orchestrating firm (Cano-Kollmann et al., 2016). Finally, establishing and clearly communicating sanctions to be imposed for unreliability strengthens the perceived value of relational capital.

Second, network theorists argue that the positive reputation of an orchestrating firm in a network promotes mutual interdependence and cohesiveness, and increases the commitment of partners (Dhanaraj & Parkhe, 2006; Jarillo, 1988; Lorenz, 1988; Powell, 1990, Thorelli, 1986). Empirical evidence shows that perceived international leaders are better able to access host country resources through their networks than other firms in the industry (Beugelsdijk & Mudambi, 2013; Cantwell & Mudambi, 2011), since reputation signals high reliability. Market leadership allows orchestrating firms to establish norms of behaviour for GVC partners. Gereffi et al. (2005) argue that

such dominant players as Intel and Microsoft in computing, Shimano in bicycles, and Applied Materials in semiconductors exert their influence over GVC partners not through explicit coordination, but through reputation and leadership in their respective industries. The reputations of the orchestrating firms make network ties difficult to imitate (Gulati, Nohria, & Zaheer, 2000), which enhances the overall competitiveness of the GVC.

The challenges. The downside of targeted relational capital building is that an overly active orchestrating firm may obviate the need for others in the GVC to develop relational capabilities themselves (Doz et al., 2000). In addition, overly strong relational capital may create a "liability of insidership" (Forsgren, 2016: 1142) for network members, whereby obligations resulting from existing social ties may restrict pursuit of new opportunities (Gargiulo & Benassi, 2000). Finally, as mentioned above, it could be a complicated and costly task to build relational capital in a GVC that, by definition, includes parties from different industries and countries that have limited direct ties among each other, and that are separated by significant cultural distance (Forsgren, 2016; Thompson, 2005). Moving people to facilitate face-to face interactions is particularly difficult and expensive (Tallman & Chacar, 2011), especially when GVC operations stretch across various time zones (Manning et al., 2015). Yet, technology can somewhat alleviate the challenges of geographic dispersion. Skype and Cisco teleconferencing can facilitate virtual face-to-face meetings (Manning et al., 2015), and online platforms can foster productive interactions. Procter & Gamble, for example, has greatly benefited from internet-enabled formal and informal collaborative relationships with people, companies and institutions around the world (Huston & Sakkab, 2006).

Multilateral Feedback

The process. Multilateral feedback increases the costs of unreliability for GVC partners—not because of stronger sanctions *per se*, but because of the higher probability of unreliable behaviour getting uncovered and penalized (Landes & Posner, 1987). When different parties in the GVC are all involved in the evaluation process that is managed by the orchestrating firm, it becomes difficult to hide substandard performance. For example, eBay sellers and buyers rate each other's conduct over the course of any given transaction using three criteria: disclosure, honesty, and fulfillment (Häcki & Lighton, 2001). A bad score on all three criteria can result in suspension of eBay membership and

exclusion from future transactions. Airbnb (a peer-to-peer, short-term accommodation provider) and Uber Technologies Inc. (a ride-sharing company) use similar systems, whereby providers and consumers of services rate each other in a public forum. In a GVC, multilateral feedback that is modeled after the above examples can similarly improve information flow, safeguard reliability of the exchange, and facilitate capability development by holding partners accountable to international standards of quality. Here, the onus is on the orchestrating firm to implement mechanisms for measuring partners' activities and processes. It must benchmark results against international standards (Rugman et al., 1995), and share relevant performance information through the network.

The challenges. It may be difficult to set an objective benchmark for performance in a GVC, as different GVC partners may be embedded in their own supplier networks, which operate on different standards. Even if the orchestrating firm exercises due diligence in enforcing performance standards with its immediate partners, it remains vulnerable due to its indirect dependence on the partners' own networks. Embeddedness inherent in a complex GVC (Yamin & Forsgreen, 2006; Yamin, 2011) certainly complicates monitoring and feedback.

Equitable Value Distribution

The process. Researchers have frequently pointed out power asymmetries inherent in a GVC, and have shown that orchestrating firms often have a superior ability to extract rents from outsourcing relationships as compared to suppliers (Strange, 2011). The orchestrating firm's distinct knowledge base and preferential access to resources act as isolating mechanisms that facilitate control over partners. A GVC allows the orchestrating firm to reassert its strategic authority (Yamin, 2011), and to use this power to "appropriate all the rents along the chain from a smaller asset base while enjoying increased flexibility of supply" (Buckley & Strange, 2015: 244). In addition, externalities caused by divergent government regimes in home and host countries create natural inequalities throughout the GVC. Overwhelmingly, value produced by GVCs accrue to firms and locations that control critical knowledge and provide complex differentiated input—typically, orchestrating firms located in advanced economies (Ali-Yrkkö, Rouvinen, Seppälä, & Ylä-Anttila, 2011; Buckley & Strange, 2015; Dedrick et al., 2009).

The problem is that these inherent inequalities may "undermine the future sustainability of an essentially workable—'efficient' productive arrangement" (Yamin, 2011: 290). Long-term sustainability of the arrangement depends on all GVC partners sharing in equitable value distribution (Lawson, Samson, & Roden, 2012). To achieve this, individual partner incentives must be aligned with broader GVC incentives (Häcki & Lighton, 2001).

The orchestrating firm can achieve fair value distribution through establishing an effective communication and knowledge transfer system. Specifically, headquarters managers must assess the value of relevant knowledge residing in different parts of the GVC and funnel it to those partners that can use it for capability creation (Dhanaraj & Parkhe, 2006). Relevant knowledge can be transferred through formal assistance programs aimed at upgrading partners' capabilities. For instance, major automotive MNEs successfully upgraded knowledge and capabilities of their Latin American parts suppliers by offering assistance in product and process development (McDermott & Corredoira, 2010).

Another way to distribute value is to develop inter-organizational capabilities, or network-specific advantages, available exclusively to the GVC partners, akin to alliance-specific advantages (Dyer & Singh, 1998; Verbeke & Vanden Bussche, 2000). Network-specific advantages are both idiosyncratic to the network and "indivisible" (Dyer & Singh, 1998: 673), in the sense that they lose value when separated from the network. These may include usage of brand names (Lorezoni & Baden-Fuller, 1995), patents, copyrights, trademarks extended to the network level (Dhanaraj & Parkhe, 2006), as well as general network knowledge that generates higher value when combined across units (Gooris & Peeters, 2016). Such value-distribution mechanisms promote coordination among partners, and offer partners an opportunity to share positive reputation effects (Yaqub, 2009).

When partners perceive value distribution as equitable, they will be less inclined to breach reliability to the GVC, since partner outcomes and GVC outcomes are aligned (Hennart, 1991). Moreover, the presence of indivisible, inter-organizational resources makes it difficult for individual partners to control and redeploy such resources outside of the GVC (Dyer & Singh, 1998). In such circumstances, the true value of the network knowledge is "unleashed only when combined, using strong internal linkages, with other complementary activities and knowledge of the value chain" (Gooris & Peeters, 2016: 540).

Importantly, *equitable* value distribution should not be confused with *equal*, nor tied to the flow of physical goods (Ali-Yrkkö et al., 2011; Mudambi, 2013). Rather, equitable distribution, in the context of today's knowledge-based economy, means that the capture of value should be proportionate to partners' contributions to innovation through "critical differentiated inputs" (Ali-Yrkkö et al., 2011: 264). Apple captures a higher proportion of value generated in its GVC, as compared to PC manufacturers such as Lenovo and Hewlett Packard, because Apple controls all key, highly differentiated elements of innovation—from the user interface to specialized software. Conversely, software suppliers to PC manufacturers, such as Microsoft and Intel, control key software and hardware standards and microprocessing technologies, and are thus able to capture a larger share of profit in the PC value chain than are hardware manufacturers (Dedrick et al., 2009).

The challenges. Members of the GVC are interdependent, and it may be difficult for the orchestrating firm to establish value-distribution mechanisms that ensure each partner captures a share equitable to its contribution. In the Japanese Keiretsu (that is, sets of interdependent firms), members solve the value-distribution problem by taking equity in one another's companies. Equity joint ventures are also used quite often in innovation networks (Ahuja, 2000; Shan, Walker, & Kogut, 1994), possibly because the high risk of unwanted appropriation of proprietary assets requires higher-order safeguards. However, an equity-based approach is not typically adopted in GVCs, where value is supposedly distributed through common communication and access to inter-organizational resources.

There is also a danger of centralization causing unnecessary filtering of information, thus making the collection and distribution of information cumbersome and slow. The orchestrating firm may either accidentally, or intentionally, manipulate asymmetric information, and partners may use asymmetric information to their own advantage without reciprocating by contributing their own valuable knowledge to the GVC.

The paradox of equitable value distribution within a network with external partners is that greater knowledge and capabilities held by partners may erode the orchestrating firm's control (Mudambi & Navarra, 2004). Here, the presence of indivisible network-specific advantages is critical to maintain partners' motivation to contribute to the GVC's overall performance. This perhaps explains why professional service MNEs tend to fragment their business processes across units and

locations: the strategic fragmentation grants the orchestrating firm sole control of the total body of disaggregated proprietary knowledge (Gooris & Peeters, 2016).

The main challenge is perhaps that equitable value distribution, by definition, undermines the efficiency gains that can be achieved; still, some short-term efficiency losses may be a necessary (non-remediable) sacrifice to ensure long-term sustainability of the GVC as a governance form (Yamin, 2011). In the long run, knowledge sharing, which is central to equitable value distribution, stimulates a virtual cycle of value creation in and beyond the GVC (Mudambi, 2013).

Interaction Effects of Social Exchange Mechanisms

Each social mechanism used by the orchestrating firm differs in its efficacy to enhance the functioning of the GVC. Efficient governance implies the use of multiple economizing mechanisms to minimize the costs of the exchange among partners (Williamson, 1996), while maximizing capability development (Teece, 2014). Simultaneously employing multiple mechanisms is more likely to establish the superiority of network-type governance in a GVC (vis-à-vis markets and internalization), because individual mechanisms can act as functional substitutes for each other, reinforce each other, or offset each other's potential negative effects (Yaqub, 2009). For example, equitable value distribution improves relational capital of the network and vice versa. Enlisting non-market intermediaries supports equitable distribution of value in and beyond the network. Joint strategizing reduces the risk of the not-invented-here syndrome—a potential side effect of selectivity. Relational capital, as a positive form of governance, offsets negativity associated with imperfect performance that has been exposed through multilateral feedback.

DISCUSSION AND DIRECTIONS FOR FUTURE RESEARCH

Linking GVC research to the extensive literature on networks has enabled several contributions to the general understanding of the GVC as a governance form, itemized below:

- Six distinct social mechanisms, whereby the orchestrating firm can enhance sustainability of the GVC, have been identified. These mechanisms improve the quality of network governance by fulfilling three economizing/capability creation conditions of internalization theory, as summarized in Table 3: (1) they help economize on bounded rationality of GVC partners; (2) they help economize on bounded reliability of GVC partners; and (3) they promote an organizational

context conducive to capability generation. If deployed consistently and built into managerial routines of the orchestrating firm, these social mechanisms may become FSAs in their own right.

- Specific processes whereby the orchestrating firm uses social mechanisms to promote knowledge generation and sharing in the GVC have been described, and their practical limitations and impacts have been addressed.
- The role of the orchestrating firm's head office has been re-conceptualized. In much GVC literature, especially the *global factory* stream, the orchestrating firm is described as a *controlling intelligence* of the network. Conversely, the analysis in this paper shows that the evaluation of, and related decisions on, ownership and location represent only a subset of the orchestrating firm's functions. Roles discussed in classic studies on asymmetrical networks, namely those of an architect, strategic leader, caretaker and value distributor, are equally important for successful GVC governance. The role of the orchestrating firm's head office is thus better described as that of a *joint value orchestrator/GVC community leader*, responsible for both making ownership/location decisions and for deploying social mechanisms to implement those decisions. To perform these functions, senior head office managers must command advanced "interface competencies" (Buckley, 2012: 83).

It must be noted that the orchestrating firm is not seen here as inherently benevolent, to the extent that is assumed in some network conceptualizations, such as Rugman's flagship firm model (Rugman & D'Cruz, 1997, 2000). Nor is it seen as necessarily self-serving, as per the power asymmetries view adopted in much GVC research (Gereffi et al., 2005; Denicolai et al., 2015). Rather, in line with internalization theory's position on microfoundations, this study is based on a situational/non-dispositional perspective (Verbeke & Greidanus, 2009). While intended—yet bounded—reliability of managers is indeed taken as a starting point (Kano & Verbeke, 2015), managerial actions are assumed to be driven by the (boundedly) rational end goal of GVC efficiency, rather than by certain inherent predispositions toward benevolent (altruistic) or malevolent (self-serving) behaviour. Over the long term, the GVC will only be sustained if efficient. Harmonious functioning of the GVC, afforded by proposed social mechanisms, serves to maintain this sustainability.

This study suggests several exciting avenues for further investigation. The most recent conceptions of the GVC (e.g., the global factory) present the GVC as an integrated structure consisting of a mix of internal and external contracts. Yet, the social mechanisms discussed in this paper are more easily deployable to manage long-term relationships in the network than simple market contracting. Future research can identify mechanisms to support short-term, market-based contracts and relationships. As well, the six social mechanisms identified here are unlikely to represent an exhaustive set. Future research can identify other social mechanisms used by the orchestrating firm's head office, as well as by its subsidiaries and network partners.

Andersson et al. (2016) have suggested that two types of interactions are critical for understanding global connectivity: those between the orchestrating firm and the relevant locations, and those between the orchestrating firm and the individuals/groups it interacts with. The focus of this study is on the latter. The importance of location is embedded in the notion of the GVC, and is central to the issue of knowledge and capability transfer—while some FSAs are transferable across locations, others are location-bound (Rugman & Verbeke, 2001). Future research can investigate whether and how social mechanisms can unlock transferability of knowledge among specific locations, and how the orchestrating firm can lead the co-evolution of locations and capabilities. Insights from relational economic geography could be particularly helpful to advance this research agenda.

The co-evolutionary nature of "organizations, places, spaces and people" (Cano-Kollmann et al., 2016: 261) points towards a transitory aspect in the asymmetric relationship in a GVC. Today's uncertain political, social, and economic reality—Brexit, scrutiny of international trade agreements, increasing anti-globalization sentiments—further challenges the stability of extant economic activity configurations**.** From a dynamic perspective, dramatic shifts may occur regarding which GVC actors perform specific firm activities, and where these activities are located. The strategic position of the orchestrating firm can be challenged, as evidenced by multiple cases of focal firm replacement (Herrigel, Wittke, & Voskamp, 2013) and increasing strategic value of the periphery (Lipparini, Lorenzoni, & Ferriani, 2014). Under these demanding conditions, the orchestrating firm needs to hone its interface capabilities, and rely on the mix of social mechanisms discussed above to sustain its focal role.

ENDNOTES

[1] Exceptions include Buckley (2009), Gereffi (1999) and Gereffi et al. (2005).

[2] A notable exception is research on international entrepreneurship (IE) and international new ventures (INVs). IE researchers study network relationships in the context of new venture creation, and new venture/small- and medium-sized enterprises (SMEs) internationalization (Coviello & Munro, 1995, 1997; Coviello, 2006; Oviatt & McDougall, 2005). This body of research focuses on networks as resources for INVs/SMEs that lack knowledge and experience, and studies how networks facilitate internationalization by helping these entities overcome liabilities of smallness and newness (Coviello & Cox, 2006; Oehme & Bort, 2015; Oviatt & McDougall, 1994). Conversely, this study is concerned with large/established MNEs with a significant, geographically dispersed international footprint.

[3] More specifically, the three faces of bounded reliability include: (1) conventional Williamsonian opportunism, or a strong form of self-interest—either ex-ante or ex-post; (2) benevolent preference reversal, which can take two forms: *good faith reprioritization*, or instances whereby economic actors make ex-ante commitments with benevolent intent, but reorder preferences over time, and postpone efforts to make good on original commitments, to the point that such commitments can no longer be fulfilled; and *scaling back on overcommitment*, whereby managers scale back ex-post on good faith, yet unrealistic, commitments that were made ex-ante; (3) identity-based discordance, which means that actors fail to fulfill stated commitments due to a personal attachment to a conflicting identity, which can also take two forms: *regression,* referring to abandoning good faith new commitments to revert to pre-change behaviour; and *divided engagement,* referring to situations whereby actors may identify with conflicting commitments and work against each other (though without guile) in a way that undermines overarching organizational commitments.

[4] The core assumption of this study is that it is in the long-term interest of the orchestrating firm to strive for the efficiency of the entire GVC, rather than merely to extract value from the GVC to support its own parochial goals at the expense of partners. This contrasts with both the 'exploitative' view of the orchestrating firm, adopted (explicitly or implicitly) in much GVC literature, and the perhaps naïve, 'benevolent do-gooder' view adopted in some asymmetric network literature (e.g.,

Rugman & D'Cruz's [1997, 2000] work on flagship networks). It is assumed that relational capital is deployed to achieve harmonious functioning of the GVC, yet harmony is not the ultimate objective of the GVC, nor its *raison d'être*—rather, it is a safeguard of efficiency. The orchestrating firm is expected to deploy governance mechanisms (including relational ones) to help sustain the GVC. A non-dispositional approach to headquarters' managers' micro-foundational drivers is taken here: that is, their actions are assumed to be driven by a particular situation or context (i.e., the need to achieve efficient GVC governance) rather than by a particular attitude (i.e., inherent benevolence versus malevolence).

[5] Density can be calculated as a ratio of the number of actual ties within the network compared to the total number of possible ties, if each actor were linked to every other actor (Rowley, 1997). Centrality can be measured by the number of ties the focal actor has with other actors in the network and the path, or steps, between the focal actor and all other network partners (Freeman, 1979; Rowley, 1997).

[6] Reciprocal action is defined as returning ill for ill as well as good for good (Axelrod, 1984). Goal congruence is defined as "the perceived opportunity for joint value creation" (Jarillo, 1988: 34).

[7] Self-enforcing agreements are agreements whereby "no third party intervenes to determine whether a violation has taken place or to estimate the damages that result from such violation" (Telser, 1980: 27).

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Figure 1

Social Mechanisms and GVC Efficiency

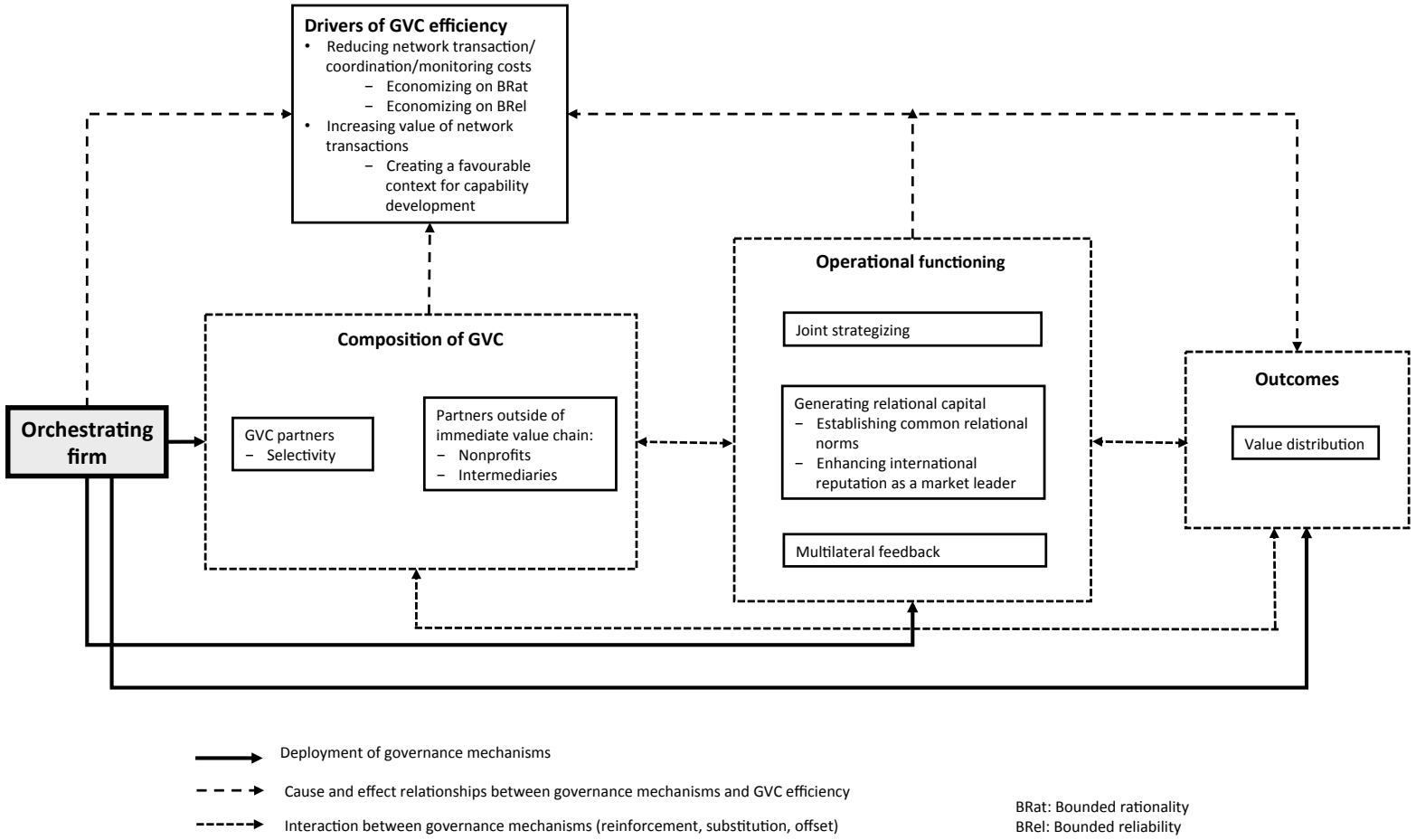

TABLE 1

Classic Treatments of Asymmetrical Networks in the Network Governance Literature

Reference	Term used to describe orchestrating firm	Role of orchestrating firm	Form of network
Buckley (2009, 2010, 2011, 2012, 2014) Buckley & Ghauri (2004)Buckley & Strange (2015)	Core MNE	Controller and coordinator of finely sliced economic activities to achieve optimal locations and internal versus external mix	Global factory
Burt (1997) adapted to firms by Kogut (2000)	Bridge across a structural hole	Arbitrator of information flows	Bridge between otherwise disconnected firms
Capaldo (2007)	Lead firm	Architect leveraging a dual network architecture	Knowledge-intensive alliance network
Dhanaraj & Parkhe (2006)	Orchestrator	Leader in pulling together dispersed resources and capabilities	Loosely-coupled innovation network
Doz, Olk, & Ring (2000)	Triggering entity	Champion in organizing the consortium	Engineered consortium
Häcki & Lighton (2001)	Network orchestrator	Establisher of IT platforms across which partners interact	Value chain system
Jarillo (1988)	Hub firm	Initiator in the set-up of the network and caretaker	Unstructured, long-term, and hierarchical relationships
Lorenzoni & Baden-Fuller (1995)	Strategic centre	Creator of value for partners, leader in rule-setting	Multi-market and multi-stage value chain business network
Rugman & D'Cruz (1997, 2000)	Flagship firm	Strategic leader	Vertical business chain network
Snow, Miles, & Coleman (1992)	Broker	Architect, lead operator, caretaker	Dynamic network

TABLE 2

Social Mechanisms Deployed by an Orchestrating Firm in a Network

Role of orchestrating firm	Mechanism	Effect on coordinating and safeguarding exchanges	Limitations
Architect	Selecting participants, deciding on internal versus external governance, deciding on optimal location of activities	• Reduces coordination costs by minimizing variance between members • Reduces transaction costs through the joint usage of external and internal contracts • Safeguards exchanges by decreasing degree of monitoring needed	• Too much selectivity hinders the development of new ideas • Vulnerable to over-concentration on operational efficiency at the expense of innovation
	Enlisting nonprofit organizations	• Reduces coordination costs by diffusing a common vocabulary and network knowledge	• Non-members may also profit
Strategic leader	Joint strategizing	• Reduces coordination costs by creating common strategy • Safeguards exchanges by fostering network awareness	• Long time required to establish shared vision and routines • Network parties may form coalitions to collectively resist the lead firm • Network parties may lack resources to meaningfully implement strategies
Caretaker	Generating relational capital, promoting reciprocity and goal congruence	• Safeguards exchanges by improving reliability	• Difficult to establish if participant diversity increases • Parties may feel less inclined to develop relational capabilities themselves • Intense competition for resources among parties
Value distributor	Ensuring multilateral feedback	• Safeguards exchanges by increasing likelihood of detecting imperfect effort	• Network members may not have same standards
	Equitable sharing of network-created value	• Reduces coordination costs by aligning interests of parties • Safeguards exchanges as profits depend on value of network	• Difficult to establish profit sharing mechanisms all parties find fair • Value may be locked in small vertical core • Externalities in host countries undermine efficiency • Power and information asymmetries may lead to dysfunctional value distribution (with vulnerable partners reducing their commitment to the GVC)

TABLE 3

Economizing and Capability-creating Properties of Social Mechanisms Advanced by the Orchestrating Firm in a GVC

Social mechanisms	Economizing on bounded rationality in the GVC	Economizing on bounded reliability in the GVC	Facilitating capability creation for the GVC
1. Selectivity	• Reduces knowledge exchange costs by minimizing number of members and variance between members • Easier information flows due to lesser complexity	• Reduces unwanted knowledge dissipation • Safeguards exchanges by decreasing degree of monitoring needed	• High quality ties among fewer partners facilitate knowledge sharing (as opposed to knowledge protection) and new knowledge/innovation development • Reduced exchange costs enable investment into new capability development
2. Enlisting nonprofit organizations and intermediaries	• Facilitates access to local knowledge outside of immediate structural/specialized knowledge of GVC members • Facilitates professional/ occupational training • Helps develop a common language to spread complex information	• Safeguards against unwanted knowledge dissipation by improving institutional quality • Provides checks and balances to control exposure to sustainability breaches	• Fills resource and capital gaps • Supports (reasonable) risk-taking and entrepreneurship • Improves quality of institutional environments in host countries (makes environment more conducive to innovation) • Helps upgrade skill levels of network members • Helps develop specialized capabilities (e.g., in CSR)
3. Joint strategizing	• Enhances knowledge sharing, fills information gaps and reduces asymmetries	• Aligns interests by creating common strategy • Safeguards exchanges by fostering network awareness/identity	• Common identity motivates members to share valuable knowledge/create new knowledge necessary for capability development
4. Generating relational capital	• Increases the flow of tacit knowledge	• Introduces self-enforcing standards to improve reliability	• Enhances innovation by opening access to strategic resources and knowledge
○ *Establishing common relational norms*	• Facilitates spontaneous accumulation and dissemination of knowledge	• Reduces dual citizenship by fostering common identity and language	• Enhances capability development by enabling technical interaction and joint practice
○ *Establishing reputation as a market leader*	• Facilitates knowledge flows by promoting interdependence and cohesiveness	• Signals reliability of flagship firm • Enables orchestrating firm to establish behavioural norms	• Enhances competitiveness by making network ties difficult to imitate • Facilitates easier access to capabilities of partners, and capabilities outside of GVC

Social mechanisms	Economizing on bounded rationality in the GVC	Economizing on bounded reliability in the GVC	Facilitating capability creation for the GVC
5. Multilateral feedback	• Communicates performance expectations and standards	• Safeguards exchanges by increasing likelihood of detecting imperfect effort	• Facilitates capability development by holding partners accountable to international standards
6. Equitable value distribution	• Formally transfers knowledge among different parts of the value chain • Fills knowledge gaps of partners	• Aligns partners' outcomes with whole network outcomes • Safeguards exchanges as profits depend on value of network • Indivisibility of resources prevents unwanted dissipation by individual partners	• Enables capability creation through transfer of relevant knowledge • Stimulates innovation by attaching value to differentiated inputs • Promotes network-specific advantages (idiosyncratic capabilities indivisible from the network)