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# Sustainability Capability Development in Buyer-Supplier Relationships

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**Abstract**

*As special types of interorganizational relationships, supply chains possess the unique characteristic of connecting firms across different industries. As such, they play unique roles in the inter-industry diffusion of the impetus to develop sustainability capabilities – i.e. capabilities that help firms improve their sustainability track records. In this study, we develop a theoretical framework to explain the drivers and contingencies that govern this diffusion process at the granular level of a single supply chain link between a buyer and a supplier firm. Our theoretical framework integrates insights from various literatures including firm capabilities, supply chain management, sustainability, and institutional theory to paint a comprehensive picture of the varied and, at times, opposing forces that may be responsible for distinct development patterns of sustainability capabilities along different supply chains.*

Growing concerns shared by a broad range of stakeholders over the deterioration of the natural environment have pushed the issue of sustainability into center stage in many fields including strategic management (Schaltegger, 2011). From a strategy standpoint, firms' sustainability track record and performance can be perceived as being driven by underlying capabilities developed and polished over repeated interactions with relevant stakeholders. Historically, the goal of any organization involved in developing new capabilities has been to secure a competitive advantage by making it difficult for competitors to obtain or replicate. When it comes to sustainability-related capabilities, however, stated goals tend to surpass the economic gain of any single business, paving the way for their transfer and replication by other organizations in the name of the greater social good. As special forms of interorganizational relationships, supply chains are unique in that they cut across industries and connect firms belonging to different industrial and institutional contexts and hence, play a unique role in the interindustry diffusion of sustainability measures. In this study, we focus on the role of supply chains as platforms for the development and diffusion of sustainability-related capabilities[1], defined as sets of routines and practices aimed particularly at improving a firm's sustainability track record.

The unique challenges that the development of sustainability capabilities poses to organizations call for special attention to the dynamics of their inception and diffusion. Extant research on the diffusion of sustainability practices and capabilities has mainly focused on horizontal diffusion among competitors within a single industry, leaving out the idiosyncrasies of the process of diffusion between industries. Supply chains cut across multiple industries and hence, the process of practice diffusion along them is subject to distinctive institutional and market forces of various industries while conforming to the structural features of the supply chain itself. In this paper, we offer a theoretical model for the diffusion of sustainability capability building efforts along supply chains via connections between buyer and supplier organizations.

[1] For simplicity, we will refer to these capabilities as sustainability capabilities from here on.

Our study addresses a persistent gap in our knowledge with regards to actionable solutions to the difficulties of implementing sustainability measures in multi-organizational settings such as supply chains. The obstacles faced by a single enterprise seeking to adopt a new practice are magnified manifold in such settings where different value objectives are often present and operational processes of partners are seldom aligned (So et al., 2011). We examine the ways in which the process of sustainability capability building and transfer is influenced by internal supply chain structure and external institutional environments to which the participants are exposed. By focusing on supply chains as the most common form of inter-industry relationships, we forward a theoretical framework that incorporates insights from various literatures including firm capability life cycle (Helfat and Peteraf, 2003), sustainability, institutional theory, and supply chain management to paint a comprehensive picture of the diverse forces responsible for the development and transfer of sustainability capabilities in buyer-supplier relationships. At a fundamental level, we focus on a single buyer-supplier relationship as a building block, or a 'link', in the long and complex value chains that characterize most product markets today.

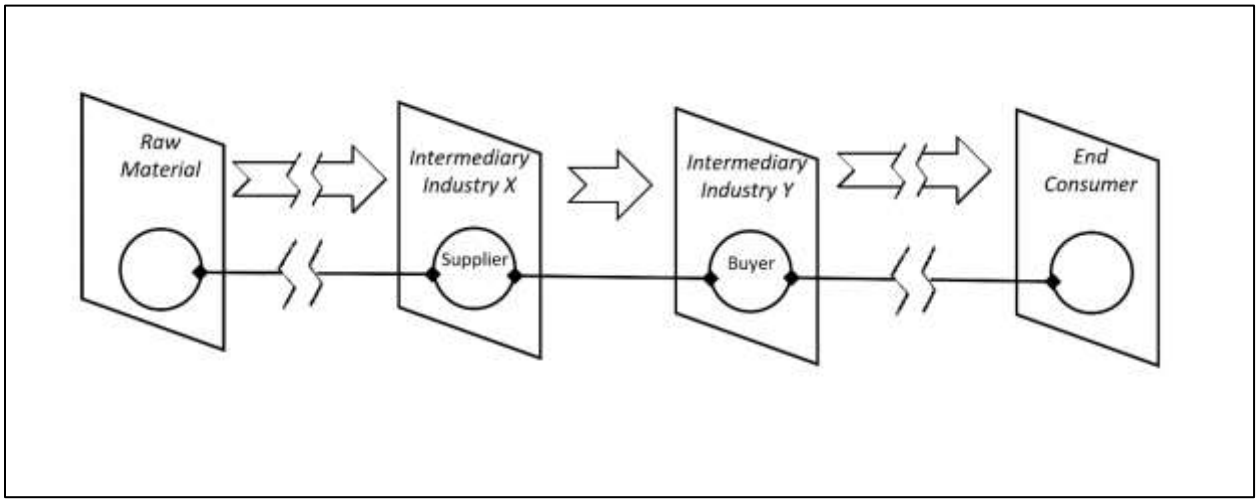
The pressure for sustainability capability development and diffusion may emerge at any stage of the value chain and influence partner policy in both top-down and bottom-up directions. With the accelerated pace of the market demanding ever-improving performance and effectiveness in the face of increasingly stricter sustainability requirements, the importance of supply chain members acting as strategic partners involved in every step of the product life-cycle rather than uncoordinated resource deliverers or product assemblers, has been indicated by both researchers and practitioners time and again (Frohlich and Westbrook, 2001). The pressure for sustainability capability development may originate downstream from a major corporation urging its suppliers to meet certain sustainability criteria, as demonstrated by the case of Wal-Mart acting as a 'private regulator' demanding more environmentally friendly products from its nearly 100,000 suppliers (Nemetz, 2013). Conversely, the pressure may come from upstream suppliers with strong bargaining power due to their overwhelming market share. A case in point is the sustainability leverage of the so-called 'Big Six' energy suppliers controlling over 90 percent of the energy market in the UK and determining the course of energy development all the way to the end consumer. The push for sustainability capability development can also arise in the middle, as in the case of Intel acting as a supplier for a wide variety of original equipment manufacturers as well as major corporations like Google and Facebook, while at the same time employing more than 10,000 suppliers, and essentially setting sustainability expectations for both of these groups.

Prior literature has long argued that inter-firm relationships can function as catalysts in the diffusion of organizational practices. Partner firms often collaborate on developing new practices and advocate their adoption by other firms that are willing to join the coalition, or the interest group, to support the new practice as the next industry standard. Inter-firm relationships often entail a significant level of interaction between the employees of partner firms who act as ambassadors to advocate the acceptance and adoption of new practices within their respective organizations. Such interactions are particularly intricate in the context of supply chains consisting of complex networks of suppliers, buyers, and intermediaries that have to reckon with intersecting internal and external pressures at various levels (Frohlich and Westbrook, 2001). We model the impact of such complexity on sustainability capability development based on the degree of homogeneity at the level of supply chain structure as well as the broader institutional environments that surround it. The 'conduciveness' of a supply chain relationship for the transfer of sustainability capabilities is inherently contingent upon its endogenous characteristics including its structural makeup. Moreover, conduciveness of the relationship also depends on exogenous aspects such as regulative, normative, and cognitive institutional pressures acting upon the partners and their interrelationship. Besides relationship conduciveness, potential patterns of sustainability capability development also depend on the 'disruptiveness' of the capability and its underlying processes and routines (Garcia & Calantone, 2002). Capabilities based on new practices with a high degree of disruptiveness are radically different from current organizational practices and hence involve a higher adoption and implementation risk and a higher likelihood to undergo variation to fit the existing organizational model. We combine the concepts of relationship conduciveness and capability disruptiveness to develop a framework that allows us to explore and explain various sustainability capability development and diffusion patterns that may emerge in a supply chain relationship, along with their implications that transcend the special context of supply chains and inform the broader strategy and organizational research at the intersection of firm capabilities and sustainability in interorganizational settings.

## SUSTAINABILITY CAPABILITIES IN SUPPLY CHAINS

The dynamism created by the perpetual upstream and downstream flow of materials, capital, and information that unvaryingly characterizes all supply chains makes them a stimulating object of analysis when it comes to the diffusion of sustainability capabilities. The Council of Supply Chain Management Professionals (CSCMP) defines a supply chain as "material and informational interchanges in the logistical process, stretching from acquisition of raw materials to delivery of finished products to the end user. All vendors, service providers, and customers are links in the supply chain." A supply chain can also be described as "network of organizations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services delivered to the ultimate consumer" (Christopher, 1992). The pervasive nature of sustainability regulations, corporate pledges, and the resulting sustainable best practices have an undisputable impact on the entire spectrum of supply chain activities, in all links of the chain, ranging from planning, production, logistics, and marketing on the manufacturing and service side, to safe labor, fair treatment, and equal opportunity policies on the managerial side (So et al., 2012). As shown in Figure 1, we choose to focus on a single buyer-supplier relationship as a building block, or a 'link', in the typically long and complex supply chain structure to explore the process of the development and partner-to-partner transfer of sustainability capabilities.

Figure 1: Schematic Depiction of a Single Buyer-Supplier Link (Current Study's Level of Focus) as Part of a Larger Supply Chain Extending from Raw Material to the End Consumer




## RELATIONSHIP CONDUCIVENESS

Conducive buyer-supplier relationships allow for a facilitated diffusion of sustainability capability development impetus and enable a frictionless transfer of capability components (e.g. routines and best practices) between partners. Relationship conduciveness will not only depend on the structural homogeneity of the relationship (e.g. similarities in organizational structure, size, and culture between the partner firms), but also on the institutional homogeneity of the different industries to which the partners belong (i.e. similarities in regulative, normative, and cognitive pressures between the industries spanned by the relationship). That is, the effects of structural homogeneity on relationship conduciveness can only be fully understood if the factors comprising institutional homogeneity are also taken into consideration. The net effect from the aggregation along the structural and institutional elements renders the overall degree of relationship conduciveness which can range from low to high.

### Structural Homogeneity

Supply chains vary in terms of their structural characteristics including their length, make-up, level of coordination, and the size and bargaining power of various members. A uniform supply chain structure would mean a congregation of relatively similar-sized supply chain actors, meaning that there are no major sources of skewness toward the supply side, demand side, or the middle. The higher the degree of conformity among participants, the more likely it is for various links of the supply chain to develop and sustain a common vision about sustainability which can greatly expedite the subsequent diffusion of a new practice up and down the value chain.

Conformity facilitates synchronization and harmonization thereby fostering the common use of materials and systems along the supply chain that can result in efficient product and information flows. A lack of conformity along critical elements of structure including technology, communications, reward systems, and decision-making authority may lead to the failure of partners attempting to work together (Clifford Defee & Stank, 2005).

**Institutional Homogeneity**

The visions and objectives of supply chain members are informed by the dictates of norms and regulations as well as the deep-running value systems that are not the object of the formal contractual agreements. Institutional pressures are most commonly divided into regulative, normative, and cognitive, whereby regulation constitutes explicit rules, controls, sanctions, and rewards (e.g. mandatory information disclosure), norms influence organizational behavior through a less tangible structure of values (e.g. legitimacy and reputation), and cognition comprises psychological and cultural elements guiding behavior in subtle ways (e.g. socio-emotional capital). When a supply chain is marked by a high level of institutional homogeneity, that is, when its actors are dealing with similar regulative, normative, and cognitive institutions (Palthe, 2014; Scott, 1995), diffusing sustainable capabilities along it is projected to be considerably easier than when these influences are at odds with each other. The case of sustainability is all the more interesting from an institutional theory and change point of view because the institutional environments straddled by the same supply chain may not agree about which course of sustainability action is best to pursue. Moreover, what organizations are required to do (regulative) with regards to meeting sustainability criteria is often not the same as what they ought to (normative) or want to do (cognitive), and these dissonances get amplified moving from a single company to the multiplicity of enterprises exposed to differing regulations, norms, values and beliefs that constitute a supply chain.

The ways in which institutional pressures influence the development and diffusion of new sustainability capabilities along the supply chain is particularly interesting and complex since the range of potential stakeholders is limitless and its outcomes constitute important externalities (Berrone et al., 2013). The influence of stakeholders on activities along the supply chain goes beyond the regulatory institutional pressure. Normative pressures from non-governmental organizations, external ratings, activists, and social movements, for instance, may also induce a focal firm or an entire supply chain to engage in environmental innovation (Reid and Toffel, 2009; Chatterji et al., 2010; Berrone et al., 2013). The novelty and uncertainty surrounding sustainability capabilities generally warrants a fresh look at the canonical interpretation of institutions. Specifically, one of the tenets of institutional theory postulates that firms strive to meet, not exceed, the expectations of social actors (DiMaggio & Powell, 1991; Bansal & Clelland, 2004). In the language of sustainability this could be translated as the firm's reluctance to undertake the risk of investing in expensive sustainable practices (e.g. pollution prevention measures) beyond compliance due to the uncertainty of future gains (Margolis & Walsh, 2003; Berrone et al., 2010). This idea is now being questioned in the face of an expanding institutional theory literature introducing concepts such as corporate environmental legitimacy (Bansal & Clelland, 2004), reputation commons (King et al., 2002), self-regulatory institutions (Gunderson et al., 1995; Gunningham & Rees, 1997; Barnett & King, 2008), natural resource-based view (Hart, 1995), and environmental capabilities (Klassen and McLaughlin, 1996; Russo and Fouts, 1997; Margolis and Walsh, 2001), among others.

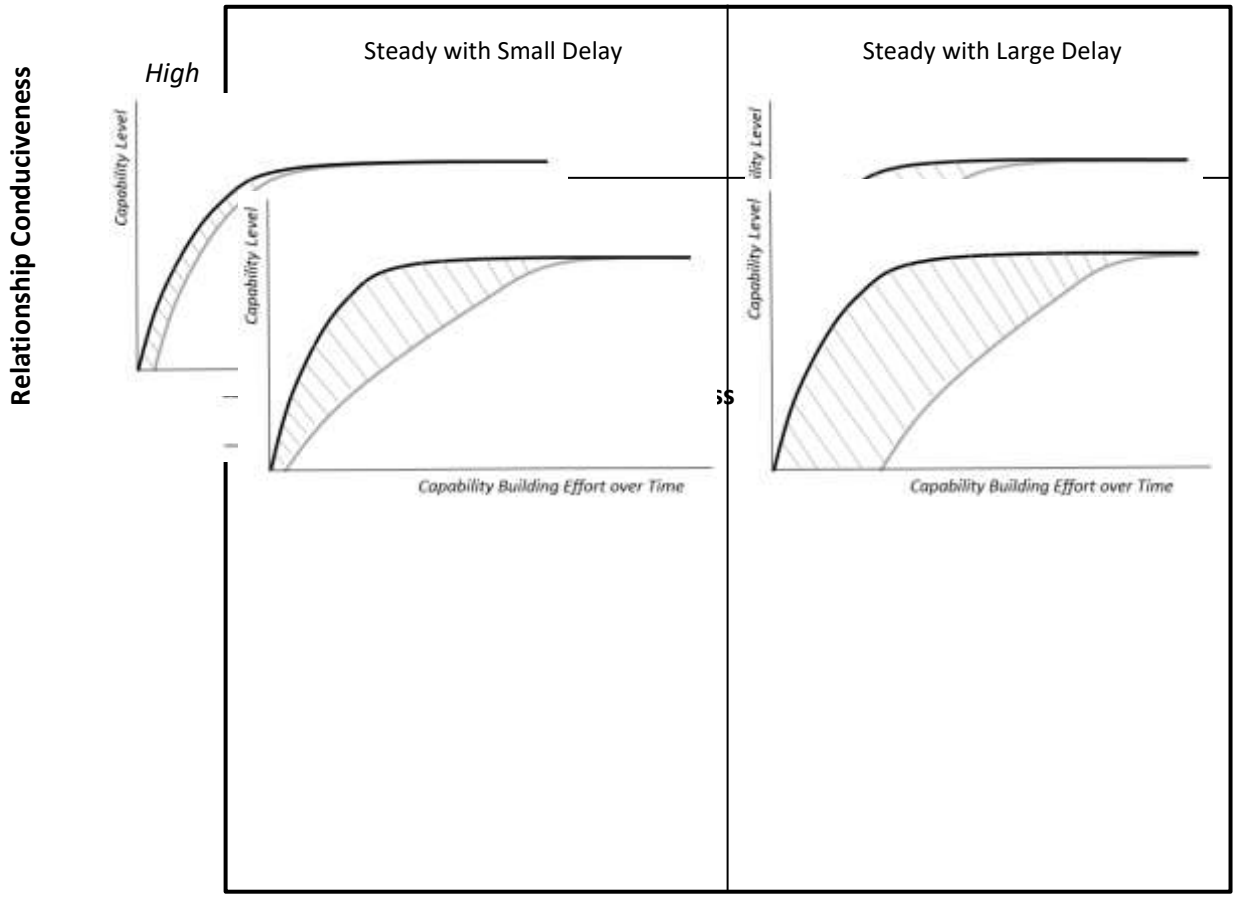
## CAPABILITY DISRUPTIVENESS AND TRANSFER PATTERNS

Besides relationship conduciveness, potential patterns of sustainability capability development also depend on the 'disruptiveness' of the capability and its underlying processes and routines (Garcia & Calantone, 2002). Capabilities based on new practices with a high degree of disruptiveness are radically different from current organizational practices and hence involve a higher adoption and implementation risk and a higher likelihood to undergo variation to fit the existing organizational model.

A joint consideration of the two dimensions of relationship conduciveness and capability disruptiveness reveals four main types of sustainability capability development and transfer patterns in a supply chain link, as presented in Figure 2. Specifically, in the presence of high relationship conduciveness and low capability disruptiveness in the first quadrant, we predict the smallest gap between the capability lifecycle curves of the leading and lagging partners in the supply chain link, as these two dimensions would mean there is the least amount of roadblocks obstructing the diffusion of the impetus to invest in the new capability as well as the transfer of capability components (e.g. established routines, best practices).

That is, on the one hand, the nature of the new sustainability capability is such that it is not significantly different from existing organizational capabilities and practices within partner firms. On the other hand, high relationship conduciveness indicates a well-coordinated link with high degrees of structural and institutional conformity that can act as a 'clean' riverbed without major twists and turns, thus, guaranteeing a 'steady' flow of capability development impetus, information, and best practices with a small delay.

Figure 2: Sustainability Capability Development Patterns under Different Conditions of Conduciveness and Disruptiveness in a Buyer-Supplier Relationship




In the case of high relationship conduciveness and high capability disruptiveness, we predict the flow of capability development impetus, information, and best practices to be steady, but the delay is expected to be much bigger compared to the first quadrant. As such, the gap between the capability lifecycle curves of the leading and lagging partners in the supply chain link will also grow considerably larger in this case. The larger delay in the initiation of the lagging partner's capability life cycle curve is due to potential incongruences between the new sustainability capability and the lagging partner's existing capability base which delay the transfer and buildup of the impetus from the leading to the lagging partner to start investing in the new capability. However, once this initial familiarization phase is successfully completed, the flow of capability development impetus, information, and best practices can proceed unobstructed, with full force, allowing for the lagging partner's capability life cycle curve to catch up with that of the leading partner.

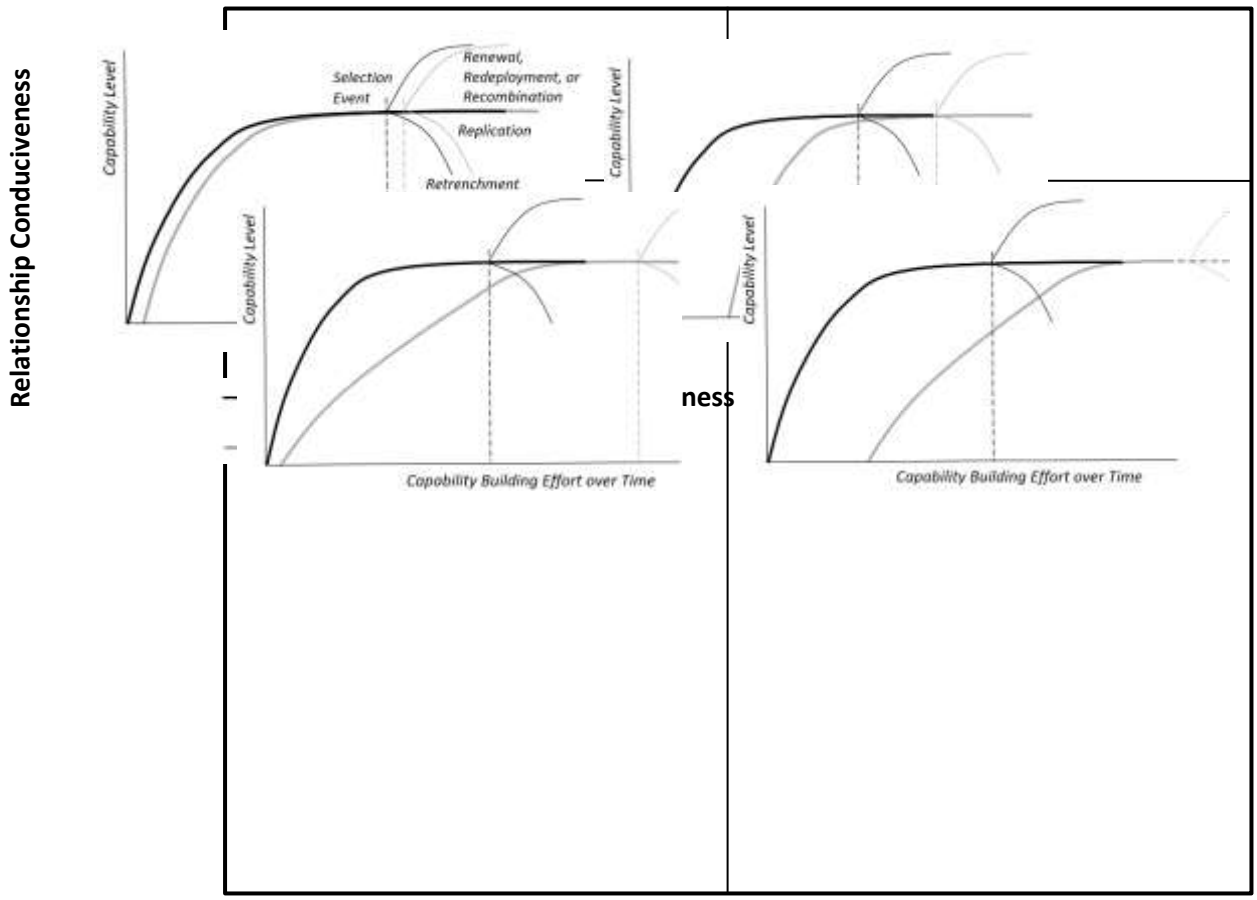
The opposite quadrant corresponds to the case where an uncoordinated or skewed relationship connecting diverse institutional environment is channeling the development and transfer of a sustainability capability with a low level of disruptiveness. Here, although the change needed to implement the new capability by the lagging partner is only incremental (hence, causing only a small delay in the initiation of its life cycle curve), the low level of relationship conduciveness may continue to obstruct the flow causing it to be 'sluggish'. Therefore, despite the small initial gap between the initiations of the partners' respective capability life cycle curves, the sluggish flow of capability development impetus, information, and best practices will cause a widening gap between the two curves, further pushing back the convergence point of the two curves.

The overall gap between the two capability life cycle curves may, in effect, be as large as that occurring in the opposite quadrant where the flow is study but the initial delay is large due to the new capability' disruptive nature. Finally, when a relationship with low conduciveness is channeling the development and transfer of a highly disruptive sustainability capability that is decidedly different than existing capability bases of the partners, the flow with sluggish with a large delay. In this situation, not only the riverbed of the relationship is highly fragmented and convoluted, but also the flux of the new capability components is characterized by high uncertainty, causing the largest amount of gap between the partners' capability life cycle curves.

## CAPABILITY EVOLUTION AND BRANCHING

After entering maturity, capabilities reach a transformation point where different possibilities exist for the future evolution. Helfat and Peteraf (2003) identified retirement, retrenchment, replication, recombination, redeployment, and renewal as the six possible lifecycle branches a capability may follow at a point of transformation induced by internal and external selection events. We argue here that the gaps between sustainability capability lifecycles of the leading and lagging partners influence how close or how far apart these transformation points will be for the two firms' capability life cycles and that this distance will have implications for the general trajectory of sustainability capability at the supply chain level. The various scenarios based on the different combinations of relationship conduciveness and capability disruptiveness are depicted in Figure 3. When the lagging partner's capability curve follows that of the leading firm in a steady with small delay pattern, the points of transformation are also most likely to occur close to each other. This implies that the likelihood that both partners' capabilities will follow a similar transformation trajectory (e.g. reinforcement, retrenchment) is very high, minimizing the dissonance in the overall sustainability capability development in the buyer-supplier relationship.

Figure 3: Sustainability Capability Branching and Transformation Patterns under Different Conditions of Conduciveness and Disruptiveness



As the gap between the lagging partner's capability life cycle curve and that of the leading firm increases, so does the distance between the transformation points in the two curves. The distance will grow larger going from the case of steady with large gap to that of sluggish with small gap, and eventually to the case of sluggish with large gap where the biggest distance in expected. In fact, the distance in the case of sluggish with large gap may be so large that the transformation of the lagging partner's capability life cycle curve may hardly be influenced by that of the leading partner, causing the highest potential level of dissonance in the supply relationship's overall sustainability capability development.

## DISCUSSION AND CONCLUSION

As unique form of interorganizational networks, supply chains cut across different industries and interconnect diverse sets of organizations. A direct implication of the inter-industry span of supply chains is that they can influence the inter-industry diffusion of organizational practices. Here, we focused on the facilitating role of supply chains in the development and diffusion of sustainability capabilities and highlighted the unique challenges that the adoption of such capabilities pose to organizations residing in various industries and exposed to different competitive and institutional environments. Supply chains are best viewed as complex networks of interconnected organizations that are subject to intersecting (and often conflicting) organizational, interorganizational, and industry-level force fields. In light of this view, we argued that the patterns of development, transfer, and adoption of sustainability capabilities will not only depend on the nature of the new capability, but also on the degree of homogeneity at the level of supply chain structure as well as the broader institutional environments that surround it.

Focusing on a single buyer-supplier relationship as the building block of the more complex interorganizational network that characterizes a typical supply chain, we probed the distinct dimensions of relationship conduciveness and capability disruptiveness and developed a theory with potential predictive power to explain their transfer and partner-to-partner flow. We further specified supply chain conduciveness as a function of relationships internal structure and institutional homogeneity of industries spanned by it. These are the dimensions that underlie the forces that dictate the strength and direction of new capability diffusion along a value chain. Supply chains cut across multiple industries and hence, the process of practice diffusion along them is subject to distinctive institutional and market forces of various industries while conforming to the structural features of the supply chain itself. Specifically, we defined levels of homogeneity as the extent to which supply chain actors are aligned with their environment and among each other, concepts that allowed us to explain how subtle structural nuances in a supply chain network can influence sustainability capability diffusion in profound ways. Future research can thus build on our model to identify influential sustainability innovators within a network and predict their paths of practice diffusion depending on their style or some combination of the two. Research can also explain why certain companies are lagging behind their supply chain collaborators and provide suggestions as to how to break out of their adoption isolation.

Extant literature on practice diffusion has addressed diffusion dynamics within the context of specific industries but has barely touched the inter-industry dynamics. The idiosyncrasies of new practice adoption processes in various organizations have long been at the center of institutional diffusion theory (Rogers, 1962). More recently, topics such as variation and evolution of practices as they enter multiple organizations, and the subsequent implementation stages have received attention in the literature (Kennedy & Fiss, 2009; Ansari et al., 2010). It has been argued that traditional institutional diffusion models have neglected practice implementation, thus disregarding the dynamic nature of practice diffusion (Rogers, 1978; Strang & Soule, 1998). Attempts have been made to close this gap in literature by introducing the idea of diffusion variation (Ansari et al., 2010; Gondo & Amis, 2013). Plus, various organizational interpretation approaches to tailor new practices to better fit the needs and characteristics of a particular organization, such as translation (Czarniawska & Sevon, 1996) and framing (Zajac et al., 2000), have been analyzed. Our study highlights not only the challenges of practice diffusion between industries by means of specialized interorganizational links, but also the implications of practice evolution and maturity along its lifecycle curve as it spreads across partner organizations.

Our theory also speaks to the literature on the ramifications of capability development failure for organizations. Given the urgency of sustainability requirements and their diverse origins, the shock of a capability development failure is, in varying degrees, absorbed by the entire system, so the individual player's alarming impression of being left to one's own devices is somewhat mitigated. This is in contrast to most types of organizational failure that remain the sole responsibility of the attempting organization.

Sustainability capability building projects also have a considerable potential for "salvage value" utilization, with many companies and supply chains licensing their sustainability technologies and know-how to others, or negotiating tax credits and other forms of government assistance in exchange for collaboration on sustainability projects. These attributes of sustainability investments highlight the key notion that even though navigating through the often conflicting sustainability demands of numerous stakeholders can be a daunting task, individual companies part of long and complex supply chains can still affect positive change; they can retain a certain level of control if they can successfully assess their position in the corresponding power network as well as the origin and direction of the competing forces of change that act upon them.

From a practical standpoint, the concept of conduciveness makes it possible to understand the interactive nature of sustainability capability diffusion in supply chains – i.e. depending on the interplay between these dimensions, capability can spread more or less easily. A "systems approach" comprising the multitude of these aspects needs to be implemented to analyze and solve the problem when a supply chain experiences difficulties adopting a new capability. Our proposed systematic approach allows for evaluating the strength of capability adoption flow for each of the conformity levels of supply chain conduciveness. Plus, the strength and the nature of the flow based on the interaction between a particular level of conduciveness and new practice disruptiveness can be assessed. We believe such system-oriented feature of our theoretical model can help scholars and practitioners disentangle the intricacies of how and why certain sustainable practices diffuse easily in networks of organizations while others tend to "get stock" and face seemingly insurmountable obstacles against their diffusion.

As our core arguments were developed in the context of a single buyer-supplier link, future research could address the implications of these arguments when extended beyond a single link to include the supply chain in its entirety. For instance, supply chain-level sustainability capability development may depend on the architecture of the capability development relationships throughout the chain. Specifically, if the relationships are sequential, i.e. every partner in the chain only deals with their immediate buyer or supplier, the overall development of sustainability capability may be slow yet predictable. Conversely, if the supply chain architecture is such that parallel connections exist from every partner to others further up or down the chain, the development process may be faster but may also emerge in unpredictable patterns due to the complexity of interpartner relationships. Another important consideration regards the potential evolution of the supply chain relationships underlying its conduciveness. The pattern of this evolution, however, will depend on any potential improvements or deteriorations of the supply chain conduciveness – e.g. the enactment of new regulations in some industries straddled by the supply chain may cause the overall institutional homogeneity to go up or down, in turn impacting the level of conduciveness.

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Figure 4: Stock and Flow Model of the Assessment and Development Processes of Sustainable Capabilities in a Focal Firm's Vertical Alliance Portfolio

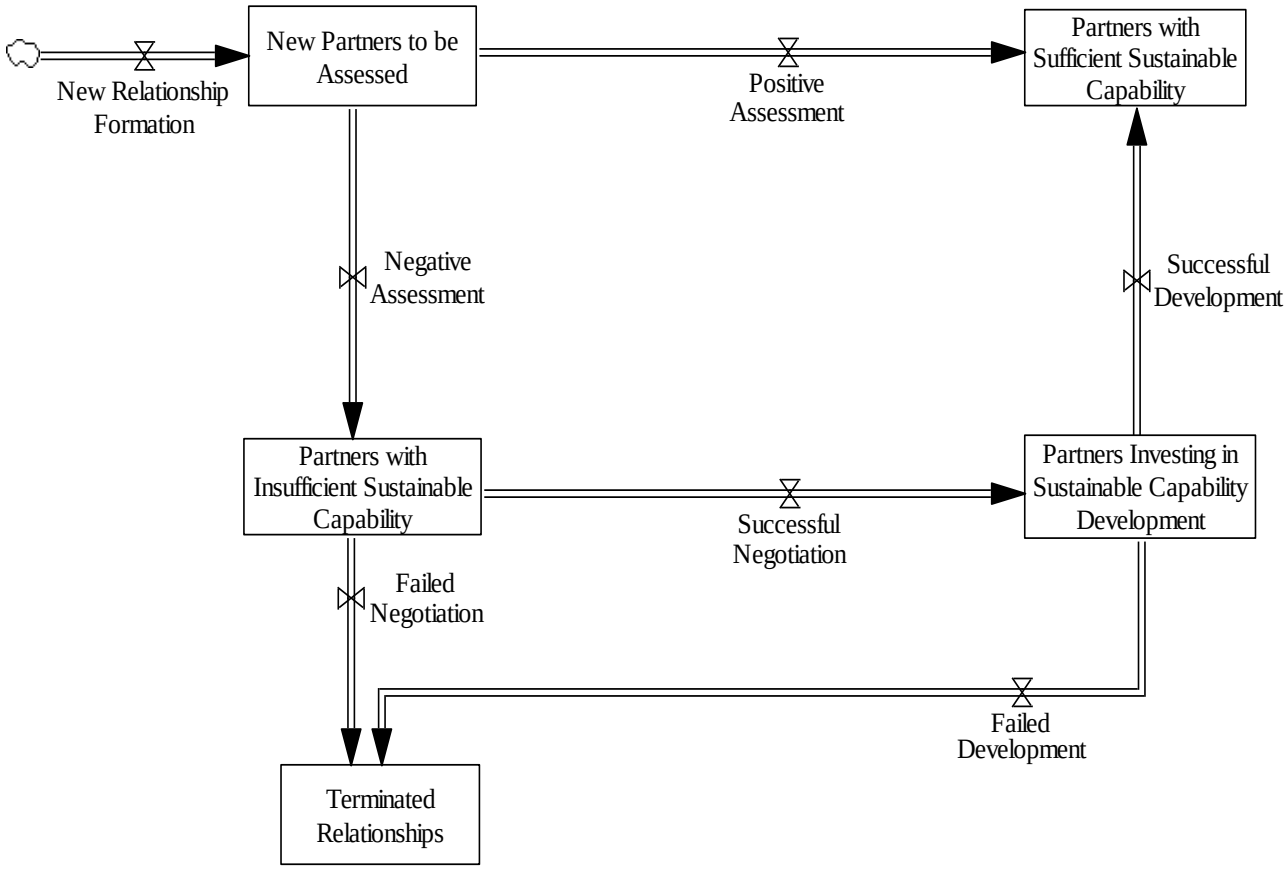

Figure 5: The Influence of Stakeholder Pressure on the Assessment and Development Processes of Sustainable Capabilities via Balancing Feedback Loops