Journal of Supply Chain Management
2018, 54(2), 21–33

Emerging Discourse Incubator: CROSS-SECTOR RELATIONS IN GLOBAL SUPPLY CHAINS: A SOCIAL CAPITAL PERSPECTIVE

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Virtually unheard of 30 years ago, collaborations involving environmental NGOs and businesses are now common and are increasingly being used to address sustainability issues in supply chains. We argue that a supply chain perspective is instrumental for collaborative NGOs in helping them to understand environmental impacts, interorganizational dynamics, and optimal collaborative partners and tactics. We apply a framework that integrates three predominant social capital theories to cross-sector partnerships to explain how three dimensions of social capital, individually and in interaction, may create strategic value for NGOs who seek to improve the environmental performance of companies through collaboration. Finally, we survey the nature of the progress that has (and has not) been made through cross-sector partnerships and offer suggestions for how social capital may be deployed to accelerate change.

Keywords: *sustainability; environmental issues; cross-sector partnerships; social networks; social capital*

INTRODUCTION

Thirty years ago, collaborations between environmental NGOs and corporations were virtually unheard of. Today, well over half of the largest NGOs are actively engaged in partnerships with corporations (Hoffman, 2009; Wassmer, Paquin & Sharma, 2014). These cross-sector partnerships have been initiated by NGOs with the goal of reversing environmental trends driven by economic activities that span global supply chains (Balaisyte, Besiou & Van Wassenhove, 2017; Carter & Easton, 2011). Such strategies stand in stark contrast to the activist NGOs' historical approaches to business that typically featured conflict that played out in legislatures, the courts, and in the court of public opinion.

In concert with this collaborative sea change, around the turn of the twenty-first century many NGOs began to think and strategize explicitly in terms of supply chains (Rondinelli & London, 2003; van Huijstee, Pollock, Glasbergen & Leroy, 2011). Indeed, the supply chain perspective shares much in common with a dominant methodology in industrial ecology, life cycle analysis, insofar as both emphasize the importance of a holistic understanding of activities that span the production, distribution, use and disposal (or reuse) phases of products and services (Gereffi & Lee, 2012). A large segment of NGOs, especially those that have a collaborative orientation, have incorporated these perspectives into their strategies, reaching out and forming relationships with key supply chain members to maximize their impacts.

Though widely adopted, the efficacy of cross-sector partnerships is understudied (Austin & Seitanidi, 2012), especially in the context of supply chains. In spite of their popularity among broad swaths of both

NGOs and businesses, thus far the promise of NGO–corporate collaborations has exceeded progress by a fair margin. Environmental degradation, much of which is the result of business activities carried out in global supply chains (e.g., Rockström et al., 2009), continues apace, and there is broad scientific agreement that many of the natural systems upon which societies depend are stressed beyond capacity (e.g., Ripple et al., 2017). Thus, while there may be many cross-sector success stories, activists, and increasingly scholars (e.g., Pagell & Shevchenko, 2014), are calling for more urgent change. Progress must be accelerated if we are to achieve a truly sustainable future.

In this article, we address the efficacy of cross-sector partnerships, especially as they relate to supply chains, through the lens of social capital theory as it has been applied to interorganizational alliances (Gulati, Lavie & Madhavan, 2011). We begin by highlighting ways that cross-sector relationships are relevant to supply chains. We then draw from the rich stream of research in for-profit partnerships that has examined the role that social capital plays in the creation and execution of interorganizational alliances. We borrow concepts from that theoretical tradition and apply them to cross-sector partnerships to examine how they may be made more effective. We then address questions regarding progress made through cross-sector partnerships, offering tentative explanations for why more progress has not been made, and ways that it may be made more effective.

Our intention in this essay is to motivate theory building and research in cross-sector supply chain scholarship. We are especially interested in seeing more theory and research by supply chain scholars that enables NGOs to create more effective cross-sector partnerships that accelerate change. While relevant and insightful, the theories we incorporate need to be further developed and contextualized for the cross-sector arena. We provide a starting point, but much work remains to be done. Along the way, we raise questions and offer insights and suggestions that come from our collective experiences as both scholars and NGO leaders. All of the authors hold terminal degrees (management, engineering, sustainable systems design, and public policy), and three are actively involved in the management of NGOs (Environmental Defense Fund [EDF] and The Sustainability Consortium [TSC]), which are engaged in many collaborative partnerships with businesses. We focus on the environmental arena because it offers excellent examples of the concepts we write about, and because it is the area with which we have the most personal experience, but the concepts should generalize to other social arenas involving partnerships between NGO and businesses.

RELEVANCE OF NGO SUPPLY CHAINS

There are a number of ways in which a supply chain perspective is useful when studying cross-sector efforts, especially concerning sustainability-related initiatives. In this section, we provide an overview of these perspectives, any of which are conceptual lenses through which supply chain scholars can study this phenomenon.

First, any NGO has its own supply chain, where suppliers provide goods, services, information, and philanthropy. The primary focus of NGO supply chains, from this perspective, has been humanitarian and emergency response contexts (e.g., Eftekhar & Van Wassenhove, 2016). In these contexts, supply chains emerge as a response to an event, and the success of these rescue and recovery missions can be greatly influenced by the availability and reliability of supplies (materials and information). Further, it is often the case that NGOs lack traditional expertise in supply chain operations, leading to less success with their mission. There is a lack of research, however, that extends this perspective to the types of projects that environmental NGOs traditionally engage in (e.g., conservation projects or standards development).

Second, a supply chain perspective informs how NGOs determine the materially significant environmental issues—that is, hotspots—to attend to. Environmental NGOs understand that the majority of environmental impacts are due to consumer products and their life cycles and therefore think about impacts in terms of these life cycles, which map onto supply chains (Dooley & Johnson, 2015; O'Rourke, 2014). Further, the scientific community and many NGOs tend to define an activity as a hotspot depending on how its impact compares to the impact of other activities in the life cycle. For example, for a product with packaging, the materiality of packaging production would depend on the magnitude of impacts from producing the product itself—thus a supply chain becomes the frame for a comparative judgment.

Problematically, for many products, the most material impacts often occur in parts of the supply chain with little visibility and several steps removed from the stakeholders who care most about those impacts (Grimm, Hofstetter & Sarkis, 2016; Roth, Tsay, Pullman & Gray, 2008). Further, trade-offs along the supply chain may mean that optimizing the overall environmental footprint of a product or service may involve making decisions that are suboptimal at the local firm level (Melnyk, Davis, Spekman & Sandor, 2010). For example, more energy-intensive upstream manufacturing may be required to produce a more energy efficient light bulb, or more packaging could reduce food waste. Managing these trade-offs requires

knowledge, coordination, and collaboration at the level of the whole supply chain. While there is considerable anecdotal evidence that NGOs look at environmental risks and opportunities from this supply chain perspective, there is a lack of empirical studies around how NGOs make these decisions.

Third, a supply chain perspective helps us understand how an environmental NGO selects commercial organizations to be held accountable (e.g., extended producer responsibility; Hickle, 2013) for hotspots, or to collaborate with to drive change via market mechanisms (e.g., eco-certifications). SCM scholars have begun to take account of the pressures exerted, or opportunities provided, by civil society stakeholders such as environmental NGOs on organizations to improve supply chain practices with respect to environmental impacts as well as a host of social impacts (Hyatt & Berente, 2017; Sarkis, Gonzalez-Torre & Adenso-Diaz, 2010; Wolf, 2014). While traditionally these environmental NGOs operated from an activist perspective, many now go beyond activism to collaboratively engage corporate actors in supply chains in building awareness and identifying impacts for improvement and in some cases helping firms to implement more sustainable practices (Hyatt & Johnson, 2016; McDonald & Young, 2012; Meixell & Luoma, 2015). These cross-sector interactions now have significant scope as they span supply chain activities, including disaster relief (Maon, Lindgreen & Joëlle, 2009), sustainable coffee supply (Argenti, 2004), healthcare and pharmaceuticals (Balaisyte et al., 2017), seafood and forestry (Auld, 2012; Moore, Cubbage & Eicheldinger, 2012), and many others (Gray & Stites, 2013).

One reason for NGOs' emphasis on global supply chains is that, over the years, processes in those chains have exacerbated environmental and social problems (Gereffi & Lee, 2012; Hart, 1999; Tachizawa & Wong, 2015). Companies have increased their global supply reach, seeking lower costs, efficiencies, or what Ghemawat (2003) has termed "administrative arbitrage," often locating polluting supply chain activities in countries with low oversight of environmental or labor practices. In this way, accountability for the environmental performance of products and services is heterogeneously distributed within the supply network and, because companies are shielded by long supply chains, often does not correspond with actual impacts (Gualandris, Klassen, Vachon & Kalchschmidt, 2015). But as globalization and the long reach of supply chains have increased the distance between producers and consumers (Roth et al., 2008), environmental groups have bridged this gap with market activism (O'Rourke, 2005). Firms with the most visibility to consumers and opinion leaders, typically those most reliant on consumer brands and who directly interact with consumers, are increasingly being held accountable for the supply chain-wide impacts of the products and services they sell (Bateman, Blanco & Sheffi, 2017; Carter & Easton, 2011; Tate, Ellram & Kirchoff, 2010).

One significant form of accountability that NGOs have facilitated is the emergence of product eco-certifications (Dooley & Johnson, 2015; O'Rourke, 2014), which often provide on-pack information to consumers about environmental impacts from the production, distribution, and use of the product. While the target is typically consumers whose purchasing choices will cascade up the supply chain, this information may also affect retailer or institutional purchasing decisions. In fact, much like the logic for activism or exposure, NGOs are more likely to choose retailers or brand manufacturers to work with, because their relatively larger size ensures that their purchasing power can incentivize change. For example, the Forest Stewardship Council (FSC) was a multistakeholder certification effort involving businesses, NGOs, and others to define and communicate sustainable practices for forest products, and originally targeted the retailer Home Depot to gain leverage in the forestry supply chain. While there are many case studies demonstrating that NGOs act from an extended producer responsibility lens and seek market-based solutions, there is a lack of research categorizing these strategic options and understanding why one option is chosen over another.

Fourth, NGOs consider supply chain structure when considering how and where to intervene and collaborate, often seeing themselves as brokers of a "structural hole" (Burt, 1992)—that is, as mediators connecting otherwise disconnected parties. Sometimes this structural hole may exist naturally because of the nature of the supply chain, but it can also exist when a conflict causes existing buyer–supplier partners to move away from one another. As an example, consider TSC's efforts to help reconcile a sustainable sourcing challenge within Walmart's fish product supply chain. Walmart's purchasing criteria for the category included a preference for supply certified by the Marine Stewardship Council (MSC). Several of the largest Alaskan fisheries let their MSC certification lapse, however, and in a controversial move, adopted different standards which they believed should also be sufficient for compliance with Walmart's requirements (Leschin-Hoar, 2013). TSC was asked to convene stakeholders to discuss the issue, which, in addition to Walmart and Alaskan fisheries representatives, included numerous industrial, governmental, and NGO organizations. The collective identified the principles and criteria that any seafood certification should follow. Application of the criteria eventually

led to Walmart recognizing the certification and continuing to source from Alaskan fisheries (Leschin-Hoar, 2014). While there is much theory and empirical evidence around the strategic value of bridging a structural hole, both at the individual and organizational level and within triadic and target network structures, there is a lack of theory applying this to either environmental contexts or cross-sector initiatives.

Finally, a supply chain perspective is useful to understand how NGOs strategize and engage their social networks in order to achieve their goals. Structural hole theory can explain some of this, but other perspectives from social capital theory could also be used. For example, while the FSC initiative set about defining how forest products could be sustainable, other NGOs worked to convince the retailer Home Depot to sell FSC-certified products. In a typical good cop/bad cop approach (Lyon, 2010), activists from Rainforest Action used their social networks to enlist celebrities to attack Home Depot on its procurement practices and sent activists into stores nationwide to talk with Home Depot's customers (Carlton, 2000). Other environmental groups activated their networks to approach different constituents. Green America, an activist group appealing to moderates, asked its members to dress in suits and make appointments with store managers to ask for FSC products (A. Gravitz, personal communication, July 2009). Other groups, including Greenpeace, used their social networks to create a team of NGOs who then collated their financial resources to buy an ad in the *New York Times*, praising firms that had committed to more sustainable sourcing of forest products (Bartley, 2007a).

In summary, a supply chain perspective is essential for understanding what motivates an NGO to become involved in cross-sector collaboration and is key to understanding how NGO decision makers frame opportunities and risks. While any of these perspectives are a worthwhile path to consider for future research, we will concentrate this article on our last point—namely, how NGOs build and deploy their networks of relationships, their social capital—to meet their mission and objectives. While social capital has been discussed by supply chain scholars as important to understand supplier collaboration and loyalty, there is a lack of theory at the supply chain level, except for some studies that have used a structural holes perspective, and a lack of empirical testing of theory in the context of environmental concerns within supply chains. We believe it is particularly important for efficacy in cross-sector initiatives because, among other things, it is the most abundant form of capital that most environmental NGOs possess.

SOCIAL CAPITAL IN CROSS-SECTOR PARTNERSHIPS

NGOs are fast becoming prevalent members of supply chains, and they are playing an increasingly important role in supply chain sustainability initiatives (Hyatt & Johnson, 2016). The cross-sector collaborations that are formed in pursuit of these missions have created complex networks of relationships inside and outside of supply chains. These networks have strategic value for the organizations involved, but relatively little is known about them. In this section, we apply a model of interorganizational social capital to cross-sector partnerships to highlight ways that NGOs' networks may enable them to effectively pursue their missions.

Building on established research traditions in network theory, Gulati et al. (2011) offer a model of interorganizational relationships that draws from three predominant theories of social capital, each of which emphasizes a different, but not incompatible, explanation for how social networks can create value. Gulati et al. (2011) sought to integrate these perspectives, and the resulting model is a parsimonious and useful framework for understanding the mechanisms by which social capital creates value for organizations. The model proposes three core relational constructs—receptivity, reach, and richness—each of which is valuable in its own right, and which may also generate additional value in combination, yielding better interorganizational network performance. These three dimensions address the attributes of network resources that create benefit, the relational quality of the ties that facilitate flows, and the degree to which network connections are expansive and heterogeneous, respectively.

The receptivity dimension refers to qualities of relationships themselves, especially those that facilitate collaboration and the flow of resources across organizational boundaries. Receptivity evolved from Coleman's (1988) theory of social capital and is closely related to what is often termed relational capital (e.g., Adler & Kwon, 2002; Gligor & Autry, 2012; Whipple, Wiedmer & Boyer, 2015). Receptivity implies strong ties, which are characterized by enduring, frequent, and intense interactions. They are typically multiplex (Krackhardt, 1992), involving several different kinds of instrumental (e.g., advice, exchange) and expressive (e.g., friendship, emotional support) relationships. Strongly tied actors tend to have similar beliefs, attributes, and resource endowments (e.g., Lin, 2008). Structurally, there is a tendency for strong tie networks to cluster, forming into transitive triads and larger relatively dense connected communities, which may foster social dynamics resulting in the emergence and enforcement of group norms and other emergent group properties (Coleman, 1990).

The shared understandings and narratives characteristic of strong ties enable the efficient transfer of complex concepts and are especially important for communicating knowledge that is difficult or impossible to codify (Hansen, 1999; Reagans & McEvily, 2003). The positive affect that comes with strong relationships is also associated with trust (Krackhardt, 2003), which may enhance productivity in several ways, including by reducing the need for formal control systems and contracting, as well as reducing monitoring costs (Adler & Kwon, 2002). Actors in strong tie relationships are more likely to be committed to the maintenance of the relationship, recognizing its importance and making necessary adjustments to ensure that it endures. Strong ties facilitate social exchange and a willingness to share resources (Lin, 2008), including sensitive information necessary for complex problem solving (Nahapiet & Ghoshal, 1998). Strongly connected actors may also act as "affine agents" (Coleman, 1990) for one another, one acting as an informal representative of the other in their absence, which can be particularly important in contested domains where reputations are at stake. Actors connected by such relationships are receptive to exchanging information and resources, and to collaboration in complex problem solving activities.

In and of itself, receptivity can be a particularly valuable form of social capital for NGOs involved in strong, enduring relationships with influential business partners. For all of the reasons described above, such relationships will be valuable (if not necessary) in partnerships involving elaborate problem solving, innovation, investments of time, personnel and funding, sharing of sensitive information, public support, and other commitments in which trust is primary.

Of course, strong ties are expensive to create and maintain. Partnerships of the sort between EDF and Walmart are examples of this. There are frequent exchanges between senior leaders of both organizations. EDF has set up an office near Walmart's home office and has several staff dedicated to the relationship. Walmart has made substantial investments to the partnership as well and has committed to making internal investments that have reduced its environmental footprint. Perhaps most valuably, it has deployed its own very considerable social capital to address broader supply chain level issues.

Reach indicates the degree to which an actor's network is expansive and diverse. Reach is grounded in theories pioneered by Granovetter (1983) and Burt (1992) and bears close resemblance to structural capital (e.g., Nahapiet & Ghoshal, 1998; Whipple et al., 2015). This form of social capital is primarily derived from the structural features of the overall network of relationships tying actors together. Broad reach implies a network that directly and indirectly connects to a large number of actors in multiple communities.

For the largest NGOs, reach may be the structural result of their global operations. For others, though, reach and tie strength may be negatively related. The expense of creating and maintaining strong ties generally means that there are many fewer strong than weak ties in most actors' networks. For this reason, the most expansive networks—those with the greatest reach—are generally composed of weak ties. Weak tie networks are also less susceptible to the forces of homophily (the tendency to form ties with similar others) and clustering than strong tie networks (Kilduff & Tsai, 2003), resulting in more heterogeneous and sparser networks. The result is a wide-ranging and diverse network structure, which brings with it several benefits, including timely access to a broad spectrum of information (Burt, 1992).

Because weak tie networks are less clustered, they also have many structural holes (Burt, 1992), which creates opportunities for well-positioned actors to mediate, or broker, between disconnected contacts. Individuals with networks rich in structural holes tend to enjoy considerable control over the flow of information. They are also exposed to more divergent and nonredundant information than individuals who are more ensconced in strong tie clusters. Kilduff and Tsai (2003) argue that weak ties also have relational value in their own right. Acquaintances generally require fewer commitments and obligations than close relations, which may lend considerable fluidity and flexibility when interacting with weakly tied actors. Finally, weak ties are more likely to bridge across social divides than strong ties (Granovetter, 1983), including across vertical strata (e.g., Lin, 2008), and thus may play critical integrating societal roles.

Reach can create value for NGOs for any number of reasons. Timely access to information from wide-ranging and diverse sources has obvious value for any actor (Burt, 1992), and actors rich in this form of social capital tend to be creative and innovative (Burt, 2004). In the context of sustainability initiatives, reach can create value in different ways. First, an NGO may have high reach across segments of the supply chain, enabling them to connect supply chain members that are otherwise disconnected (e.g., a retailer and a farming community). Second, an NGO may have significant geographic reach, which may help them understand how their effective use of social and other forms of capital is contextual to the culture (e.g., Rodríguez, Giménez Thomsen, Arenas & Pagell, 2016). Third, an NGO may have reach across multiple knowledge disciplines, thus enabling them to broker the emergence of cross-disciplinary knowledge and action (e.g., interaction of water use, human health, and economic development).

Finally, richness refers to the value of resources embedded in the network that may be made available to actors through their social relationships. It is grounded in theories of social capital that argue that actors need not own productive resources if those resources are made available to them by their connections (e.g., Lin, 2008; Portes, 1998). Embedded resources may include any of the other forms of capital—including others' social capital—and it may be of particular value if the array of embedded resources is strategically complementary with those owned by the focal firm (Gulati, Nohria & Zaheer, 2000). The implications of this form of social capital for NGOs in cross-sector partnerships are relatively straightforward. Access to or the ability to influence the use of a partner's resources is often a key rationale for cross-sector collaborations. To be effective, NGOs must persuade their business partners to alter the use of their resources in an environmentally beneficial way.

Integrating the social capital research traditions into a single model allows for interaction between the three proposed dimensions. Gulati et al. (2011) proposed that each of the dimensions moderated the others' relationships with performance outcomes. For instance, a close dyadic partnership between high impact businesses involving multiple individuals from each party connected by multiplex relationships would represent an interactive receptivity-richness strategy. Such partnerships might entail close working relationships devoted to in-depth projects focused on innovating business processes or product improvements, and would provide both relational and structural forms of social capital.

Of course, three-way interactions are also possible. Gulati et al. (2011) proposed that reach and richness determine the potential value of social capital, but it is receptivity that determine the degree to which it is realized. One can envision, for example, an NGO initially investing in a receptivity-richness social capital strategy by developing strong, receptive ties with a motivated and economically powerful (i.e., rich) supply chain actor. They may then leverage that partner's social capital to influence other less motivated upstream companies (reach). For example, Greenpeace, working closely with McDonald's, was able to exert pressure through their supply chain power over commodity providers to limit sourcing of soy and beef in the Amazon to prevent deforestation (Langert, 2016). EDF's partnership with Walmart to address chemicals of concern and carbon in supply chains is another example (Sturcken, 2017).

It bears mention that the concepts described above are imported from the strategic interorganizational literature, and while there is considerable evidence of social capital's value in the for-profit arena, the theory has not yet been extensively applied to cross-sector partnerships. For the reasons described above—and based on our own experiences working in this arena—we expect the various forms of social capital to be of particular value to collaborative NGOs, but more theory and research explicitly aimed at cross-sector partnerships is needed. We have provided a few examples of how the different forms of social capital can create value, but there are many configurations and network strategies that NGOs may employ in supply chains, all of which pose rich research opportunities for supply chain scholars.

Hoffman (2009) provides a potential starting point. In a network analysis of corporate–NGO partnerships and financial ties, he found that NGOs separated into a variety of network defined roles based on differences in connectedness and centrality. The study did not operationalize tie strength or identify embedded resources, and it did not take supply chain structures into account, but it demonstrates that NGOs separate into different network niches, and that the overall shape of the resulting network may have interesting topological qualities that have strategic implications.

NGOs are increasingly engaging in cross-sector partnerships, and they are increasingly incorporating supply chain thinking and engagement with supply chain actors into their strategies. The approaches they take to forming relationships with supply chain actors, the resulting forms of social capital, and the performance implications are relatively understudied. Good theoretical tools are available, and there is good reason to believe that research in the area would prove insightful.

EFFICACY IN CROSS-SECTOR PARTNERSHIPS

Given the investments made in cross-sector partnerships made by both NGOs and businesses, it is reasonable to ask how effective they have been. On the surface, at least by some measures, these collaborations have been successful, and in many cases remarkably so given the historical context of antagonism between the parties involved. However, it is also fair to say that the successes of collaborations thus far have been significantly outpaced by the continued degradation of ecosystems by industrial activity that occurs in supply chains. In this section, we review progress thus far and consider prospects for the future of cross-sector partnerships, with particular attention to the role that social capital may play in driving change.

To date, the majority of cross-sector projects have been mostly incremental and the result of engagements focused largely on eco-efficiency and pollution prevention goals, including now routine efforts to improve energy efficiency in buildings and facilities,

"lean green" programs in manufacturing, and product stewardship initiatives aimed at reducing or eliminating waste across the life cycle of products and services, all of which have the benefit of simultaneously improving both environmental and economic performance (Hart & Milstein, 2003). Other early collaborations have intended to give guidance on how to solve a problem or prove what is possible in an attempt to shatter the long-standing perception among many in industry and politics that environmental progress and economic growth are at odds. EDF's pioneering partnerships with McDonald's on reducing solid waste and World Wildlife Fund's partnership with Coca-Cola to reduce impacts on freshwater basins around the globe are examples of such projects.

This limited focus on initiatives with incremental environmental gains is perhaps not surprising given that efforts to cut waste and their associated costs are straightforward. Pursuing relatively simple "win–win" projects are natural starting points for partnerships involving actors from different sectors who lack the shared history conducive to building a strong and trusting relationship.

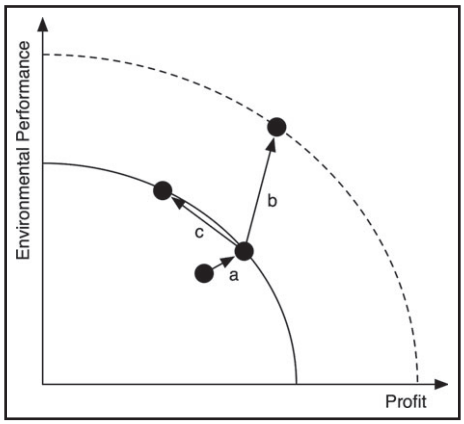
That the economic and environmental gains from such projects are generally incremental in nature is not surprising when viewed through an economic lens. Production decisions involving economic and environmental objectives can be thought of in terms of a modified production possibilities curve in which the economic and environmental dimensions are substituted for the competing goods typically used in the model (Figure 1). From this perspective, the potential for these kinds of eco-efficiency gains is predicated on the assumption that existing production falls below the frontier. Projects that improve both environmental and economic performance through waste reduction could constitute a move upward and to the right in Figure 1 (path a). Such projects likely generate only incremental gains if for no other reason than competitive market pressures would push businesses to operate near the efficiency frontier as a matter of economic survival. Such partnerships may take the form of simple searches for efficiency improvements and process alternatives. While no research has yet explored the hypothesis, it is plausible that in such cases, weak tie networks that emphasize reach over receptivity may be the most effective social capital strategy.

It may very well be that eco-efficiency partnerships are more important for the residual social relationships and trust they create than the outcomes of the initial projects themselves. Weak ties may be built upon and developed into stronger receptive ties, which can serve as a foundation for more substantive efforts, including those that explore opportunities that move the efficiency curve outward through technological and process innovations (Figure 1, path b). It is a trajectory that is consistent with Hart and Milstein's (2003) sustainable value framework, which describes a progression and evolution of corporate sustainability engagements over time and experience. In this framework, early efforts generally begin with incremental efforts aimed at improving present-day eco-efficiency problems or product stewardship opportunities, but move toward future-oriented opportunities in clean tech or new business development as corporate sustainability strategies mature. While each activity has a direct payoff, the future-oriented activities that seek more disruptive change also produce greater benefits to the company and shareholders. That is, while cutting waste and packaging have immediate and direct bottom line benefits, using sustainability as a driver of innovation can open new markets and better prepare companies to compete and thrive over the long term (Hart & Milstein, 2003).

Cross-sector projects intended to create innovative solutions fit nicely into Porter and Kramer's (2011) shared value framework, and are consistent with projects described by Reagans and McEvily (2003) and others that require strong, closed networks, social capital that is high on Gulati et al.'s (2011) receptivity dimension that facilitates complex combinations of resources held by each organization. Reach is also critical in such projects, as connections to wide-ranging, diverse actors have been shown to enhance creativity through exposure to different perspectives and new knowledge (Burt, 2004). An example may be found with EDF, which is undergoing a strategic shift that emphasizes transformative technologies, what EDF President Fred Krupp is calling "4th wave" environmentalism. Their partnership with the oil and gas industry to detect and fix methane leaks in real time involved the collaborative development and implementation of new sensor technologies.

Change at scale will also require changes in the larger institutional environment. By definition, environmental solutions that lie on the efficiency frontier require economic trade-offs (Figure 1, path c). Environmental protections of this sort have typically been achieved through social institutions by way of coercive regulatory mechanisms or normative shifts among consumer populations. NGOs have traditionally pursued strategies in these realms that have included appeals to other sectors, for instance through lobbying or publicity campaigns. However, the growth of cross-sector social capital has provided NGOs direct access to decision-makers in business institutions, with the potential to influence norms and values in the business sector. In particular, strong ties may render managers receptive to conversations about previously taboo subjects, namely voluntarily sacrificing profitability if substantial environmental gains are possible (O'Rourke, 2005). Research that explores the potential

FIGURE 1
Sustainable Possibilities Frontier



of cross-sector strong tie relationships to change business managers' (and NGOs managers') norms would be particularly insightful.

Social capital involving multiple organizations may also result in changes to the broader institutional environment. In competitive markets, even managers genuinely interested in improving environmental performance are unlikely to invest in environmental programs if it puts them at a significant competitive disadvantage, even if such changes would in the long run be in the economic interest of their entire industry. Uncertainty in the competitive implications of environmental initiatives is frequently often sufficient to dissuade managers from making such commitments (Kirchoff, Tate & Mollenkopf, 2016). We have long known that in tragedy of the commons dilemmas, cooperators are punished in the face of mass defection. Government regulation has typically been required to solve problems involving externalities, but increased internationalization of supply chains and a waning regulatory state have led many to look to private environmental governance alternatives. There are a variety of motivations for both businesses and NGOs to engage in private governance (Bartley, 2007b), and while relatively new they are becoming more common. Private governance initiatives are necessarily multilateral arrangements, and due to their structural characteristics, supply chains play a key role. It is difficult to imagine private governance programs succeeding absent cross-sector, multilateral social capital in all of its forms (e.g., Vandenbergh, 2013).

Private governance options notwithstanding, there are a number of environmental issues that will ultimately require some form of effective governmental oversight, which implies institutional change at an even higher level. Due to the nonexcludable and nonrivalrous nature of many public natural resources, fundamental change at scale requires an enabling policy environment, as no single company, industry, or supply chain can hope to solve the underlying challenges alone. To put it in perspective, regardless of its unmatched size and influence over global supply chains, no matter what Walmart does to promote sustainability within and outside of its boundaries, it will never have the scale to affect change with outcomes of policies like the Clean Air Act. However, its political influence can go a long way. As such, getting companies to engage in the policy process to establish effective public policies and global institutions that help provide a broader enabling environment becomes the goal, which brings us to the next phase of NGO–corporate collaborations that are just beginning to take hold: policy engagement to transform systems at scale.

The ability of companies and NGOs to work together on policy advocacy to solve environmental challenges at scale is one of the metrics by which the success of collaborative strategies will ultimately be judged. On this front, efforts to get companies once reluctant to weigh in on environmental policy (at least in a pro-environmental way) are beginning to take shape. The campaign in 2017 to rally corporate voices around climate action and against the U.S. withdrawal from the Paris Accord—as exemplified by full-page ads in the *New York Times*, the *Wall Street Journal*, and *New York Post*—is a prime example. The effort, organized by Boston-based NGOs Ceres and the Center for Climate & Energy Solutions (C2ES) and supported by a host of environmental groups, included a broad coalition of over two dozen companies with market capitalization of over $3.2 billion across sectors including food, technology, finance, manufacturing, entertainment, healthcare, and energy. While unsuccessful at persuading the Trump Administration to change its course, the effort represented a step change in how multinational corporations, in partnership with NGOs, used their collective voice to effect change in significant pro-environmental policy issues consistent with their own self-interest (e.g., Tabuchi & Fountain, 2017).

The concept of social capital generally implies positive performance outcomes, but cross-sector positive ties may also suppress or retard progress. Cooperation can hamstring NGOs at the most basic levels. For instance, the trust and obligations necessary for the maintenance of strong ties may constrain collaborating NGOs from publicly pressuring their partners to change. Partnerships often involve financial support from businesses, which may create dependencies and power asymmetries that may further weaken NGOs' influence (Selsky & Parker, 2005). Furthermore, reputation and credibility may be the most valuable form of capital that NGOs make available through their

relationships, and critics of cross-sector partnerships have argued that simply by collaborating with businesses, NGOs may give cover to their partners without an equivalent improvement in environmental performance (Conner & Epstein, 2007). An NGO may offer a veneer of progress, even in a weak partnership, that may at a minimum buy laggard businesses time. It is natural for researchers to focus on the opportunities created by cross-sector collaborations, but there are also research opportunities in exploring the constraints that these relationships may impose, as well as potential safeguards.

Ironically, the efficacy of cross-sector collaborations may critically depend on the robust population of campaigning NGOs that have maintained an antagonistic orientation toward the business community. Hoffman and Bertels (2009) offer a useful framework for understanding the landscape of positive and negative ties within and between sectors, proposing that both environmental NGOs and businesses fall somewhere along a continuum defined by their posture toward engagement with organizations in other sectors, with conflict orientation anchoring one end and consensus orientation the other (Figure 2). They label campaigning NGOs, which adopt a conflict or disengagement orientation, "Dark Greens" and collaborating NGOs, which adopt an engagement or consensus orientation, "Bright Greens." Similarly oriented businesses are labeled "Dark Blues" and "Bright Blues," respectively.

At a relatively basic level, Haines (1984) proposed a "radical flank effect" which, when applied in this context, suggests that radical (Dark Green) NGOs who publicly campaign against businesses may make more moderate and collaborative (Bright Green) NGOs appear more credible and attractive. Effective Dark Green campaigns may even motivate businesses to form partnerships with Bright Green NGOs and to pursue credible environmental improvements. It is not clear whether Bright Green and Dark Green organizations are aware of this dynamic, and whether they develop strategies with it in mind, which might include tacit or explicit cooperation between the two groups. There are, of course, other configurations that could be explored, including the consequences of frictions between Dark Green and Bright Green NGOs—which is known to occur (Conner & Epstein, 2007)—and the implications of Bright Blue companies who attempt to manage supply chains consisting of Dark Blue companies. In the cross-sector environmental arena, the interaction of campaigning and collaborating NGOs has been more discussed than researched, and the introduction of businesses with differing orientations to collaboration adds intriguing possibilities, all of which represents a fertile arena for research by supply chain scholars.

Taken as a whole, while the emergence of cross-sector partnerships has not yet resulted in notable improvements in the overall environmental performance of companies and the supply chains they are embedded in, it has at least shown evidence that NGOs and businesses can work effectively together. Whether or not the resulting store of social capital can be leveraged for more substantial successes is a question for future research. Greater gains, for instance, may be possible to the extent that existing relationships lead to meaningful improvements by way of innovation and changes in the institutional environment.

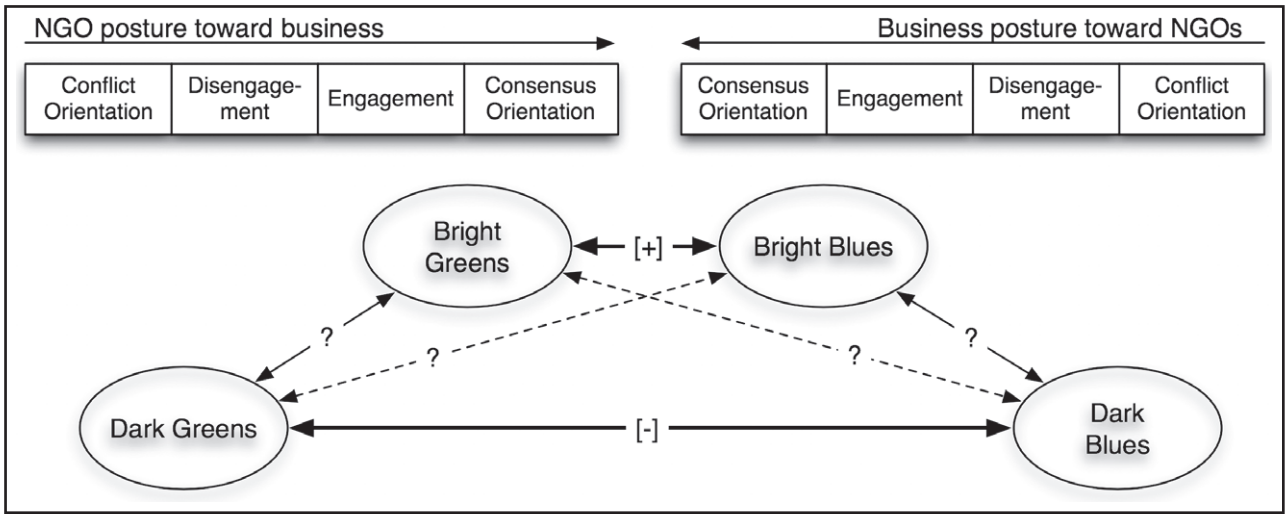
CONCLUSION

While environmental sustainability is of interest to members of supply chains (and those who study them), it is also true that supply chains are of interest to environmental NGOs (and those who study them). As argued above, a supply chain perspective can inform many aspects of environmental sustainability. A strategic NGO might, for instance, apply supply chain concepts to help identify where material impacts occur, who is responsible and who is held accountable, who will be most motivated to address the issue, and who has the most power to effect change. It is no accident that supply chain concepts and terminology are becoming part of the lingua franca of the environmental community, positioning supply chain scholars to make important contributions to theory and practice in corporate sustainability.

We have also argued that cross-sector partnerships are an important feature of the sustainable supply chain landscape and that the quality of the relationships knitting NGOs and businesses together will play an important role in the efficacy of those partnerships. We advocate for the theoretical framework developed by Gulati et al. (2011), which integrates three of the most popular social capital traditions. The framework provides a clear explanation for how each of the social capital dimensions can generate value among related actors and critically also allows for complex interactions among the dimensions. We believe this is particularly appropriate for the study of NGOs because it provides latitude to explain a variety of different collaborative strategies, from close dyadic partnerships to broad reaching, supply chain-wide collective efforts. The observations and examples provided in the article are merely starting points. The opportunity to develop and test theory using these concepts is wide open.

While this article has used a social capital lens to examine the efficacy of cross-sector environmental initiatives, numerous other theoretical lenses familiar to supply chain scholars could also be used to study the same questions, including in combination with a

FIGURE 2
Business–NGO Interactions



Adapted from Hoffman and Bertels (2009).

network perspective. First, given that such initiatives involve at least a dyadic relationship, agency theory, transaction-based economics, and the resource-based view are relevant to look at different aspects of the NGO–corporate dyad. Second, an NGO's social capital will generally only be valuable to the extent that it also possesses other strategic resources and the capabilities necessary to deploy them. Burt (1992), for instance, argues that social capital is valuable primarily in interaction with other forms of capital, including human and intellectual capital. Finally, because most significant environmental efforts involve change among multiple actors, often at multiple physical locales and multiple points in the supply chain, large scale change must be institutional; thus, institutional and organizational field theory are relevant to examine more macrolevel issues. These latter perspectives are particularly amenable to integration with network theory, especially in relation to the kinds of institutional changes described earlier.

Finally, while we have drawn heavily from theories of interorganizational alliances and theories in strategy and organization theory, we believe the study of cross-sector partnerships has much to offer in return. There are several unique aspects of cross-sector relationships that could be used to contextualize and inform our understanding of more traditional organizational alliances. That the collaborating parties are pursuing qualitatively different missions—one explicitly financial in the interest of an ownership class that has decision rights, the other a social or environmental mission in the interest of stakeholders who may have no formal decision rights—complicates the partnership. That the within- and between-sector networks are composed of both collaborative and antagonistic relationships further complicates matters, and it opens up new possibilities for the study of complex alliances and competitions. We encourage cross-sector supply chain scholars to pursue publications both within and outside the supply chain discipline.

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