MAKING ENVIRONMENTAL SCM INITIATIVES WORK—MOVING BEYOND THE DYAD TO GAIN AFFECTIVE COMMITMENT

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Companies often struggle to embed environmental sustainability in their supply chain management (SCM) processes due to an insufficient understanding of how to initiate and bring environmental initiatives to fruition. Scholars argue that commitment of employees is crucial to enhance the implementation of these initiatives. Drawing from intra-organizational influence theory, this study examines how managers who champion these initiatives can gain employee affective commitment within a social network context. Prior research has investigated influence behavior by an individual (an agent) within the organization to gain the commitment of another individual (a target), by focusing on this agent–target dyad. Our research extends this single dyadic agent–target perspective, by investigating influence attempts within a more realistic, multi-dyadic context in which influence attempts by multiple agents are possible and in fact likely, and in which an actor can be both an agent and a target. We identify a 90-actor social network, resulting in 273 influence attempts surrounding the implementation of an environmental SCM initiative at a large, multinational corporation, and investigate how the affective commitment of actors in this network is achieved. Based on the analysis of a generalized linear mixed model, the results suggest that if agents want to create a high level of target commitment, then consultation and to a lesser degree inspirational appeals seem to be key, while tactics such as rational persuasion, ingratiation, legitimating, and coalition are not related to affective commitment, within the context of a social network where multiple agents often attempt to influence a target.

Keywords: *environmental supply chain management; intra-organizational influence theory; affective commitment; social networks; sustainability*

INTRODUCTION

Environmental practices have become a significant and growing concern among both supply chain managers and researchers (e.g., Theißen, Spinler & Huchzermeier, 2014; Wong, 2013). Pagell and Shevchenko (2014) even argue that a supply chain's social and environmental performance should be given equal if not greater emphasis than short-term economic performance. Companies, however, face the challenge of embedding environmental

sustainability in their supply chain management (SCM) processes due to a lack of understanding of how to implement environmental SCM initiatives (e.g., Clark, 2011; Pagell & Shevchenko, 2014; Rauer & Kaufmann, 2015), and how to gain employee commitment to these initiatives (Cantor, Morrow & Montabon, 2012; Gattiker & Carter, 2010).

Research has identified numerous barriers that impede the effective implementation of environmental SCM initiatives. For instance, environmental initiatives are usually instigated by middle managers and often lack initial top management support (e.g., Drumwright, 1994; Fischhoff, 2007; Nemes, 2008; Berns, Townend, Khayat, Balagopal, Reeves, Hopkins & Kruschwitz, 2009). In addition, these initiatives can be complex (i.e., in terms of technical specifications and changes to processes) (Matos & Hall, 2007), are often associated with "additional costs" or "green utopia," and may thus raise skepticism among the workforce (Berns, Townend, Khayat, Balagopal, Reeves, Hopkins & Kruschwitz, 2009).

Several studies argue that gaining employee commitment is vital to overcoming these barriers and to making environmental SCM efforts successful (e.g., Gattiker & Carter, 2010; Wu & Pagell, 2011). Cantor, Morrow, and Montabon (2012) provide more detailed insight and show that gaining the *right type* of commitment can lead to innovative environmental behaviors and the promotion of environmental initiatives. Research on how to gain commitment for environmental SCM initiatives is, however, still embryonic (Cantor, Morrow & Montabon, 2012; Gattiker & Carter, 2010). To our knowledge, Gattiker and Carter's (2010) study is the first to address this research question in a deductive fashion, by investigating how different intra-organizational influence tactics lead to commitment to a specific environmental initiative. Cantor, Morrow & Montabon (2012) look specifically at affective commitment—a desire to support a change induced by complete agreement with its goals and benefits—and how firm practices, such as supervisor support and incentives, might affect an employee's commitment to environmental initiatives in general.

Although Gattiker and Carter's (2010) study provides an important contribution to the SCM literature, the relationships are investigated in a dyadic setting, with the unit of analysis being two actors—the agent and the target. Similarly, prior organizational studies have also investigated influence behavior and commitment within this dyadic context, and typically from the perspective of only one member of the agent–target dyad (e.g., Falbe & Yukl, 1992; Yukl, Seifert & Chavez, 2008). However, given that environmental initiatives usually involve more than two actors, further research is needed that takes into account this multi-actor perspective by examining influence behavior beyond the single, isolated dyad. Extant research has suggested that taking a social network perspective might yield richer and more realistic insights to these interactions in SCM initiatives (e.g., Carter, Ellram & Tate, 2007).

Our study combines the contributions of Cantor, Morrow, and Montabon (2012) and Gattiker and Carter (2010), by considering employee's *affective* commitment to environmental SCM (Cantor, Morrow & Montabon, 2012) and by examining the use of intra-organizational influence tactics to gain affective commitment (Gattiker & Carter, 2010). We also extend both of these studies, by considering affective commitment to a *specific* environmental initiative (Cantor, Morrow & Montabon, 2012) and by investigating the use of intra-organizational influence tactics beyond the dyad, in a *network* context (Gattiker & Carter, 2010). This social network context enables us to investigate the use of influence in a much richer and more realistic manner as we allow for each actor to be both an agent and a target, and also allow multiple agents to potentially influence a target. Also, in contrast to a purely dyadic perspective, a social network perspective accounts for the relationships among all dyads, which are by nature not independent of each other (Borgatti & Li, 2009).

Our investigation (1) provides insights into how supply chain managers can enhance the implementation of environmental initiatives by investigating how affective commitment to these initiatives can be gained, (2) extends the understanding of influence behavior and intra-organizational influence theory beyond the single dyad by linking the dyadic influence attempts into interconnected chains, and (3) illustrates how an understanding of social networks can be used to steer the implementation of an initiative.

Our study's focus on individual-level research also contributes to the SCM literature as it advances the emerging research on behavioral facets of supply chain management (e.g., Bendoly, Croson, Goncalves & Schultz, 2010; Katsikopoulos & Gigerenzer, 2013). Additionally, our study contributes to existing organizational research by collecting matched data, from both the agent and the target. Prior studies have largely either investigated non-matched agent–target dyads or they have collected data either from the target *or* from the agent concerning the actions and perceptions of each member of the agent–target dyad (e.g., Falbe & Yukl, 1992; Gattiker & Carter, 2010; Yukl, Seifert & Chavez, 2008). This latter approach, however, has several potential limitations. Erez, Rim and Keider (1986), for example, argue that agents and targets may perceive influence attempts differently. Also, agents might misevaluate a target's reaction and/or attitude (Gattiker & Carter, 2010; Yukl, Kim & Chavez, 1999). We address these potential limitations by collecting matched data

from both the agent with respect to the influence attempt, and the target with respect to the target's commitment.

THEORETICAL BACKGROUND AND RESEARCH HYPOTHESES

Intra-Organizational Influence Theory

According to intra-organizational influence theory, an influence attempt occurs when an agent[1] uses and directs one or several influence tactics toward a target (individual) to achieve a desired outcome (Kipnis, Schmidt & Wilkinson, 1980; Yukl & Falbe, 1990; Yukl, Seifert & Chavez, 2008). Yukl (2013) classifies these outcomes as commitment, compliance, and resistance. Accordingly, influence theory posits that the opinion of a target with respect to a request can be impacted by an agent's influence behavior, which is described as the extent to which an agent uses certain influence tactics (Gattiker & Carter, 2010; Yukl, 2013; Yukl, Chavez & Seifert, 2005). Particularly when managers possess little formal control, their success is dependent on their ability to effectively influence others (Yukl, Chavez & Seifert, 2005).

Prior research has indicated that there are various influence tactics that people use to influence others within the company (e.g., Cialdini, 2001; Kipnis, Schmidt, and Wilkinson, 1980; Yukl, Lepsinger & Lucia, 1992). Kipnis and Schmidt (1985) classify the influence tactics into three meta-categories—hard, soft, and reason-based tactics. Hard tactics engage the agent's authority and exert pressure (e.g., the use of coalitions and legitimating). Soft tactics are based on friendly behavior (e.g., the use of ingratiation and consultation), whereas reason-based tactics are based on factual evidence and logic (e.g., the use of rational persuasion) (Falbe & Yukl, 1992; Kipnis & Schmidt, 1985). Soft tactics and reason-based tactics are often effective, whereas hard tactics tend to be ineffective (Yukl & Tracey, 1992).

An indicator of an effective influence tactic is target commitment. Gaining commitment is necessary because committed individuals tend to become sympathetic with and enthusiastic about an initiative and its goals. Furthermore, these individuals tend to be more persistent and exert additional effort and/or individual engagement to ensure that the initiative is completed successfully (Cantor, Morrow & Montabon, 2012; Falbe & Yukl, 1992; Mowday, Steers & Porter, 1979). Commitment is hence an important property of intra-organizational influence theory.

[1]We employ the intra-organizational influence nomenclature and define an agent as an actor within the network who attempts to influence another actor (referred to as a target) within the network.

Commitment can be divided into three dimensions—affective, normative, and continuance commitment. In particular, commitment to change is defined as a mind-set which reflects (1) a desire to support a change induced by complete agreement with its goals and benefits (affective commitment to change), (2) a perception that failing to support the change will result in personal disadvantage (continuance commitment to change), and (3) a perceived obligation to contribute to the change (normative commitment to change) (Herscovitch & Meyer, 2002).

Meyer, Stanley, Herscovitch and Topolnytsky (2002) compare the three dimensions of commitment and their impact on work behaviors such as work attendance and job performance. The authors find affective commitment to have the highest correlation with these behaviors. According to Meyer and Herscovitch (2001, p. 313), individuals with high affective commitment "might be quite willing to go above and beyond the call of duty to find ways to make the initiative work." Thus, the authors recommend encouraging affective commitment whenever possible. As mentioned above, this is especially important for environmental initiatives as they are often complex (Matos & Hall, 2007; Wu & Pagell, 2011) and challenging to implement (Berns et al., 2009). Hence, their success can be dependent on employees who are willing to go above and beyond what is usually expected from them at work.

Model Development

The previously mentioned studies on influence behavior have investigated influence behavior in a single, dyadic context and generally from the perspective of only one member of the agent–target dyad. This is a potential limitation of the extant literature and our understanding of intra-organizational influence, because within organizations it is likely that at least some targets are approached by more than one agent and that a target could even become an agent who attempts to influence another target. Our study moves beyond the single dyad by investigating dyadic interactions in such a social network context. In particular, it is a characteristic of social networks that the basic unit of analysis is the dyad and that in a social network, the relationships among all dyads are considered (Borgatti & Li, 2009). Compared to a pure, isolated dyadic perspective, the dyads in a social network are interdependent (Borgatti & Li, 2009). By investigating influence behavior in a social network context, we account for multiple interactions and influence attempts across agents, which represent a more realistic scenario of influence attempts in an organization.

In the subsequent section, we follow the approach of extant influence behavior studies, which have generally investigated a subset of tactics from each

of the three meta-categories mentioned above (e.g., Furst & Cable, 2008; Gattiker & Carter, 2010; Gattiker, Carter, Tate & Huang, 2014). Following this approach and building on Gattiker and Carter (2010), we included rational persuasion, three soft tactics (consultation, ingratiation, and inspirational appeals), and two hard tactics (legitimating and coalition) in our study.

Rational Persuasion and Affective Commitment. Rational persuasion includes using logical arguments and facts to persuade a target (Kipnis, Schmidt & Wilkinson, 1980; Yukl, 2013). For instance, the agent might give details concerning why the initiative is important for the company or why and how it will be advantageous for the target (Kipnis et al., 1980; Yukl et al., 1999). Rational persuasion is the most widely examined, and has been shown to be the most commonly employed, influence tactic (Gattiker & Carter, 2010). Prior studies investigating rational persuasion from a dyadic perspective report a positive relationship between an agent's use of rational persuasion and target commitment (e.g., Blickle, 2003; Clarke & Ward, 2006; Yukl, Kim & Falbe, 1996). Within an environmental context, Gattiker and Carter (2010) also find that selling an initiative by arguing rationally is an effective tactic to gain commitment from others. As extant research has strongly supported the link between rational persuasion and increased commitment in a dyadic context, we also expect that this relationship holds when investigating the implementation of an environmental SCM initiative beyond the single agent–target dyad (e.g., within a broader social network). We therefore posit the following:

H1: In a social network context, the use of rational persuasion by agents will be positively related to targets' affective commitment to environmental SCM initiatives.

Consultation and Affective Commitment. Consultation is one of the most frequently used soft influence tactics (Gattiker & Carter, 2010). It aims at involving the target by asking him or her for advice or help on how to improve or plan an activity or change (Yukl, 2012; Yukl & Falbe, 1990). Thus, this tactic can basically be understood as "influence through participation" (Yukl & Falbe, 1990, p. 133). Yukl and Falbe (1990) suggest that "when a person is invited to help decide what to do and how to do it, the person is likely to identify with the decision and try to make it successful" (p. 133). This is in line with Yukl, Chavez, and Seifert (2005), who assess dyadic interactions and find consultation to positively impact target commitment. Gattiker and Carter (2010) find empirical support for this relationship in an environmental SCM context. Based on the above reasoning and prior findings, we suggest that a positive relationship between consultation and target commitment is also likely within a social network context. Thus, the following:

H2: In a social network context, the use of consultation by agents will be positively related to targets' affective commitment to environmental SCM initiatives.

Ingratiation and Affective Commitment. Ingratiation is also a soft influence tactic. Using praise and flattery, the agent attempts to boost the target's confidence and raise his or her attractiveness toward the target (Blickle, 2003; Liden & Mitchell, 1988). The agent expresses extensive kindness but it is calculated (Blickle, 2003). Ingratiation thus tries to impact the target by imposing a sense of gratitude and obligation to support the agent and to act in the agent's favor (Cialdini, 2001; Vonk, 2002). Baron (1986) argues that the excessive use of ingratiation may be perceived as manipulative and thus can negatively impact the outcome of such an influence effort. He builds his argumentation on the fact that there may be "too much of a good thing" (p. 17).

This is in line with Vonk (1998), who argues that if a person is extremely friendly to us, we may become cautious and ask, "Does this person want something from me?" Gattiker and Carter (2010) find a negative relationship between the use of ingratiation and target commitment to environmental SCM initiatives. The authors therefore recommend that change agents of environmental initiatives refrain from using ingratiation. Based on the above reasoning from Baron (1986) as well as Vonk (1998), and based on findings from Gattiker and Carter (2010), we suggest that agents who use ingratiation can create mistrust by targets by not seeming to be sincere about their request. We also posit that this is especially the case when investigated in a social network context, where multiple interactions and agent attempts are possible. In this realistic setting, the use of ingratiation might be "too much of a good thing." We therefore put forth the following:

H3: In a social network context, the use of ingratiation by agents will be negatively related to targets' affective commitment to environmental SCM initiatives.

Inspirational Appeals and Affective Commitment. Inspirational appeals are another soft influence strategy. An agent who uses inspirational appeals attempts to engender commitment by appealing to a target's values, principles, and emotions (Falbe & Yukl, 1992; Yukl, 2013). Prior studies investigating dyadic agent–target interactions consistently reveal the positive effect of the use of inspirational appeals on

target commitment (e.g., Gattiker & Carter, 2010; Yukl, 2012). Gattiker and Carter (2010) assume that requests which reveal the uniformity of an initiative with a target's values will engender the target's beliefs in the initiative's goals and thus enhance his/her willingness to support the request. The authors also argue that the use of inspirational appeals is particularly interesting when investigating environmental SCM initiatives. This claim is based on Crane's (2000) case study, which finds that environmental change agents are less likely to use this approach because they worry about interpersonal confrontations with the targets. Although Gattiker and Carter (2010) find this approach to be strongly effective, the authors also find inspirational appeals to be one of the least applied tactics. They consequently argue that this approach necessitates further analysis. We thus hypothesize:

H4: In a social network context, the use of inspirational appeals by agents will be positively related to targets' affective commitment to environmental SCM initiatives.

Legitimating and Affective Commitment. Legitimating is considered to be a hard tactic. Agents who employ legitimating refer to their authority, organizational strategy, or external requirements such as regulations (Falbe & Yukl, 1992; Yukl, 2013). This may lead to the target's compliance with the request as it appears to be in line with organizational policies (Yukl & Tracey, 1992). Influence theory, however, posits that legitimating will instead engender resistance rather than commitment (e.g., Falbe & Yukl, 1992; Yukl, 2013). This is particularly the case if it is applied in a demanding style (Yukl, 2013) or if the target feels coerced or manipulated (Yukl & Tracey, 1992). Consequently, when individuals feel that they have no choice but to support an initiative, they may not internalize the initiative's goals, and instead only comply with or even resist the initiative (Yukl & Tracey, 1992; Yukl et al., 1992).

These outcomes, however, may be different when examined in an environmental SCM context. Gattiker and Carter (2010) find legitimating to be one of the most frequently used influence tactics. They suggest that due to several constraints imposed by the government and customers as well as self-imposed "green" company policies (e.g., EPA regulations, HFC quotas, RoHS, and industry codes of conduct), environmental change agents may liberally employ this influence tactic by emphasizing these regulations and policies. Further, they find legitimating to be positively associated with commitment to environmental initiatives (albeit marginally at $p < .10$ in a later study Gattiker, Carter, Tate and Huang, 2014)—which is in contrast to the predictions of intra-organizational influence theory. In an environmental SCM context, we expect that due to greater environmental awareness associated with the increasing proliferation of regulatory and industry policies, the use of legitimating will be positively perceived by targets. We therefore tentatively posit:

H5: In a social network context, the use of legitimating by agents will be positively related to targets' affective commitment to environmental SCM initiatives.

Coalition and Affective Commitment. Coalition is another influence tactic that belongs to the hard tactics category and has been found to be the most frequently employed tactic in this category (Gattiker & Carter, 2010). The goal of this tactic is to gain a target's commitment by arguing that others also support the request (Kipnis et al., 1980; Yukl, 2013; Yukl & Falbe, 1990). Thus, when coalition is employed, the target might feel forced to support the request as he or she believes that the agent holds a certain degree of power (Gattiker & Carter, 2010).

Prior influence literature indicates that the use of coalition is not overly successful when attempting to gain a target's commitment (e.g., Falbe & Yukl, 1992; Schilit & Locke, 1982; Yukl & Tracey, 1992). However, recent empirical results are inconsistent. For example, Gattiker and Carter (2010) find no relationship, whereas Andersson and Bateman (2000), who investigate antecedents to successful environmental championing, find a positive relationship. Clarke and Ward (2006), who investigate the effect of leader influence tactics on employee safety participation within an organization, also find a positive relationship. The authors argue that the positive relationship might be due to group goal setting and group cohesiveness.

A social network can as well be considered to be a grouping; we hence aim to gain a deeper understanding of this relationship by investigating the use of coalition in a social network context. However, as the empirical results are not consistent, we maintain the theoretical arguments from the influence literature and thus put forth the following:

H6: In a social network context, the use of coalition by agents will be negatively related to targets' affective commitment to environmental SCM initiatives.

RESEARCH DESIGN AND METHODOLOGY

Sampling and Description of the Environmental Initiative

Critical case sampling was used to identify an organization and an initiative that were informative with regard to our research (Eisenhardt, 1989; Yin, 2009).

Given this goal, the following criteria need to be met. The company needed to be large-sized and environmentally proactive to assure that an environmental initiative with an adequate number of participants could be identified. The environmental initiative on the other hand needed to already have been implemented at the time we began our study to ensure the identification of all actors and a complete bounding of the network. To ensure sufficient variance within the data (Galunic & Eisenhardt, 2001) and that we would be able to survey enough participants for our study, the initiative also needed to be large-scale and cross-functional.

Based on these criteria, we were able to identify a U.S.-based, high-technology organization (hereafter referred to as Betamon) that agreed to participate in the research. A high-level executive suggested a potential environmental initiative that Betamon's European supply chain had just launched (hereafter referred to as the TRANSPORT initiative). To further validate the initiative, multiple meetings were scheduled (both in-person and via telephone) with two mid-level logistics/supply chain managers who comprehensively described the initiative. Both managers were driving forces of the initiative and one of them was the primary initiative champion. Based on these meetings, it was determined that the TRANSPORT initiative met the above criteria.

As part of the TRANSPORT initiative, a new transportation system was established which involved the implementation of European-wide transportation hubs. These hubs enabled the consolidation of different shipments to European customers, which in turn facilitated the shipment of fully loaded trucks to their various destinations. The initiative also involved the development of practices to double-stack products onboard the trucks (e.g., improved packaging, the introduction of a second floor in the vehicles) to guarantee an effective loading of vehicles.

The initiative started in a grassroots fashion and was promoted by the main initiative champion whose goal was to improve the carbon footprint of the company by reducing CO2 emissions. Prior to the TRANSPORT initiative, products were shipped directly from each manufacturing plant or warehouse to customers across Europe. The TRANSPORT initiative resulted in a doubling of truckload utilization which reached 70 percent. This led to an annual reduction of 3.1 million truck-miles, which is equal to a 10 percent decrease in CO2 emissions.

Collection of Data

The unit of analysis of our study is an agent's influence attempt to gain the affective commitment of the target. We collected *matched* data from both the agent with respect to tactic usage and the target with respect to her/his commitment. To illustrate, an agent provided data with respect to his/her influence behavior toward a specific target. In turn, this specific target provided data with respect to his/her affective commitment *as a result* of the influence attempt(s). As mentioned previously, collecting matched data from the agent and the target is fruitful because agents and targets may perceive influence attempts differently. Further, agents might misevaluate a target's commitment.

Because our aim is to investigate the influence attempts among all dyads throughout the network, we collected dyadic data and then linked these individual dyads into chains to build the full network. That is, we treated a node in the network as both an agent and a target. To illustrate, we collected data from an agent who approached a target. In turn, we acknowledged that this target could also become an agent and employ various influence tactics to gain commitment from *other* targets. Hence, we also collected data from that target person with respect to his/her potential influence behavior toward others.

This process aligns with Borgatti and Li (2009) who note that it is a characteristic of social networks that the basic unit of analysis is the dyad and that in a social network, the relationships among all dyads are considered.

We followed Carter et al.'s (2007) social network data collection approach. First, an in-person survey was conducted with the main initiative champion. To identify additional targets and/or agents within the network and to map the full social network, we applied a snowballing approach (Moriarty, 1983) during the survey (see Appendix A). That is, we asked the initiative champion whom he had interacted with on at least a monthly basis, on average, to gain buy-in to the initiative. After the initiative champion identified the targets, we asked him to complete a self-administered questionnaire describing his influence attempt with each target that he approached (see Appendix B).

The identified targets were then contacted to arrange a similar in-person survey. At the beginning of every survey, we gave a short introduction to the study and described the TRANSPORT initiative to ensure that the participants were able to recall the initiative's implementation. We then asked the respondents to name agents who interacted with them on at least a monthly basis, on average, to get their buy-in to the initiative (see Appendix A). This enabled us to verify the influence attempt that the agent and/or agents initially mentioned and to ensure that we were not missing any influence attempts by other agents. We then asked the targets to reference the approaches and to rate their resulting attitude toward the initiative based on a self-administered questionnaire that we distributed during the survey (see Appendix B). We also asked the respondents who they interacted with on at least a monthly basis, on average, in order to gain buy-in to the initiative and to describe the influence attempt for

each target that they approached, as targets could potentially become agents after they have been approached.

These additional persons were then contacted to schedule the in-person surveys. We continued this process until no further agents/targets were identified through the snowballing approach. This led to the identification of 156 potential network actors, all of whom were surveyed. This data collection process occurred during a ten-week period, immediately after the TRANSPORT initiative was launched.

The self-administered questionnaire was read and completed by the respondents; thus, potential "interviewer effects" were alleviated. The researcher also stressed at the beginning of the survey that there were no right or wrong answers and that their information would be treated as strictly confidential. Furthermore, the participants were asked to respond as honestly as possible to the questionnaire. These methods are commonly used to ensure that respondents are less likely to provide socially desirable responses (Nederhof, 1985; Podsakoff, MacKenzie, Lee & Podsakoff, 2003).

The following three criteria were developed to bound the network:

> Criterion 1: The actor needed to be working at Betamon's European headquarters or in one of the following countries: France, Germany, Italy, Poland, Spain, and the U.K. The main divisions were located in these countries, and thus, these countries initially implemented the TRANSPORT initiative.
>
> Criterion 2: The actor needed to have a sufficient amount of discretion concerning whether to support the initiative and to what degree to support the initiative.
>
> Criterion 3: If criterion 2 did not hold, we examined whether this actor approached other actors to gain their buy-in to the initiative. If this was the case, the actor was included in the network.

Ninety of the 156 actors met our criteria and were thus included in the network—resulting in 273 influence attempts. To validate our network bounding, we performed a short interview with each actor who was supposed to be excluded based on the above criteria. In addition, we consulted the core initiative team, who confirmed that no actors were missing from the network. The network's actors represented a broad set of functional areas within Betamon (i.e., logistics, planning, lean six sigma, sourcing, transportation, warehousing, information technology, packaging engineering, and manufacturing), with an average tenure of 16.71 years.

As described above, data collection relied on retrospective data. According to Miller, Cardinal and Glick (1997), the use of retrospective data is suitable when the scales used for the study are reliable and valid. We therefore collected our data via structured in-person surveys and used established scales to ensure comparability of responses (Weller & Romney, 1988). We also assured the valid bounding of the network by applying a snowballing approach and conducting open discussions with the core initiative team.

Measurement of Variables

Following Gattiker and Carter (2010), we assessed rational persuasion, ingratiation, and coalition based on Kipnis, Schmidt, and Wilkinson (1980) and Schriesheim and Hinkin (1990). Further, we employed Gattiker and Carter's (2010) scales to measure inspirational appeals, consultation, and legitimating. All items were collected via a 7-point Likert-type response format (i.e., 1 = to no extent whatsoever, 7 = to a very great extent). We assessed affective commitment using a 4-item subset from Herscovitch and Meyer's (2002) affective commitment scale. The items for affective commitment were also rated using a 7-point Likert-type response format (i.e., 1 = strongly disagree, 7 = strongly agree). All items are displayed in Appendix B.

We collected our data based on self-reports, which elevates the concern for social desirability bias (Armacost, Hosseini, Morris & Rehbein, 1991; Nederhof, 1985; Podsakoff, MacKenzie, Lee & Podsakoff, 2003). We thus took several precautions to mitigate potential social desirability bias. First, we developed our study's model based on prior works that investigated influence behavior and commitment using self-based scales (e.g., Gattiker & Carter, 2010; Herscovitch & Meyer, 2002; Kipnis, Schmidt & Wilkinson, 1980; Schriesheim & Hinkin, 1990). In addition, as described previously, we used self-administered questionnaires and prefaced the sensitive questions by guaranteeing anonymity, asking for honest responses, and clarifying that there were no right or wrong answers (Armacost, Hosseini, Morris, and Rehbein, 1991; Nederhof, 1985; Podsakoff et al., 2003). Finally, we tested for social desirability by examining the potential relationship between an abbreviated version of the Crown–Marlowe social desirability scale (Crown & Marlowe, 1960) and affective commitment and the six influence tactics, and found no statistically significant relationships.

The analysis also includes nationality, organizational tenure, and individual experience as control variables (see Appendix B). Employees from different *countries* can have differing beliefs and attitudes due to their cultural background (Hofstede, 1980; Schwartz, 1992). For example, these individuals may handle uncertainty or change differently (e.g., Hofstede, 1980) and thus might perceive the implementation of environmental initiatives differently. Further, we investigated *organizational tenure* as a control variable.

Herscovitch and Meyer (2002), for instance, suggest that time spent in a company spurs affective commitment toward a change initiative. This is in line with Cantor, Morrow, McElroy and Montabon (2013), who find a positive relationship between tenure and managers' participation in environmental initiatives. Several studies have also suggested that experience might positively impact commitment to change (Ford, Wessbein & Plamandon, 2003; Herscovitch & Meyer, 2002). We therefore included *individual experience* (i.e., prior involvement in environmental initiatives) as a control variable.

Data for our exogenous and endogenous variables were collected from different respondents to mitigate common method bias (Podsakoff, et al., 2003). In addition, seven international academics from the area of environmental SCM and eight employees from different companies pretested the questionnaire to avoid item ambiguity and complexity (Peterson, 2000; Podsakoff et al., 2003; Tourangeau, Rips & Rasinski, 2000). We statistically tested for common method bias by conducting a Harman's (1967) single factor test. The test revealed seven factors with eigenvalues greater than one. This provides support that common method bias did not impact our data.

RESULTS

Measurement Model Analysis

To evaluate our measurement model, we assessed construct validity by performing a factor analysis using a factor-loading matrix via the PROC Factor procedure in SAS (Version 9.2), instead of by performing a confirmatory factor analysis (CFA) using maximum likelihood estimation (MLE) (e.g., via LISREL, AMOS, or PROC CALIS in SAS). The results are shown in Table 1. Because we examined the social network surrounding the TRANSPORT initiative, and we collected data for all actors who were a part of this network, 90 is the maximum number of observations that could have been collected and analyzed. Although employing a CFA using MLE provides several advantages, including the generation of various fit statistics that enable the researcher to assess the measurement model, such an analysis would require a larger sample size (MacCallum, Roznowski & Necowitz, 1992). We therefore used the Factor procedure in SAS. While this is a potential limitation, we utilized existing scales.

Seven factors were extracted which were in line with our seven main constructs, providing support that all variables are distinct. Besides IA1 and IG3 (i.e., items from the inspirational appeals and ingratiation scales, respectively), all items loaded on their related factor with factor loadings greater than .40 and did not display any cross-loadings on other factors. Because IA1 loaded on the rational persuasion and the inspirational appeals constructs, and IG3 on the consultation and the ingratiation constructs, these items were eliminated from further analysis.

We examined the Cronbach's coefficient alpha and the average variance extracted (AVE) for each of the constructs to assess construct reliability. The Cronbach's alpha and the AVEs of all constructs met the critical value of .70 for alpha values (Flynn, Sakakihara, Schroeder, Bates & Flynn, 1990) and .50 for AVE values (Fornell & Larcker, 1981; Garver & Mentzer, 1999) (see Appendix B). The high factor loadings on the related constructs, the high coefficient alphas, and high AVEs provide support for the study's measurement model and its convergent validity and reliability. To test for discriminant validity, we compared the AVEs of each construct to the respective square of correlations between these constructs (Fornell & Larcker, 1981). As all AVEs exceeded the respective square of correlations, discriminant validity was supported (see Appendix C).

Using UCINET 6 (Borgatti, Everett & Freeman, 2002), we analyzed the information from the survey in Appendix A (i.e., the interaction to gain buy-in) to map the informal communication network. The sociogram in Figure 1 displays the position of the actors within the network and the relationships between the actors. Each arrow in the figure represents an influence attempt by an agent (the base of an arrow) toward a target (the tip of that arrow). For example, near the top of Figure 1, we can see that both actors 61 and 68 made influence attempts to gain actor 89's affective commitment, while the right-hand side of Figure 1 shows that actor 17 attempted to influence actor 44, who in turn attempted to influence actor 51. This visualization reveals how our investigation encompasses multiple agent–target dyads that represent influence attempts and shows how these individual dyads are linked together to form a social network (Borgatti & Li, 2009). It thus demonstrates the differentiation between a simple dyadic perspective and a holistic network perspective in that the dyads are not independent of each other (Borgatti & Li, 2009). The sociogram also shows that targets of an influence attempt can themselves become influencers.

Data Analysis for Hypothesis Testing

We fitted a logistic regression model with random intercepts using PROC GLIMMIX in SAS (Version 9.2). PROC GLIMMIX is a procedure that allows the fit of statistical models to data that are not independent and not necessarily normally distributed (SAS Institute Inc., 2008; Schabenberger, 2005). These hierarchical or multilevel models are referred to as generalized linear mixed models (GLMM) (SAS Institute Inc., 2008; Stroup, 2013). They are seen as an exten-

TABLE 1

Factor Analysis

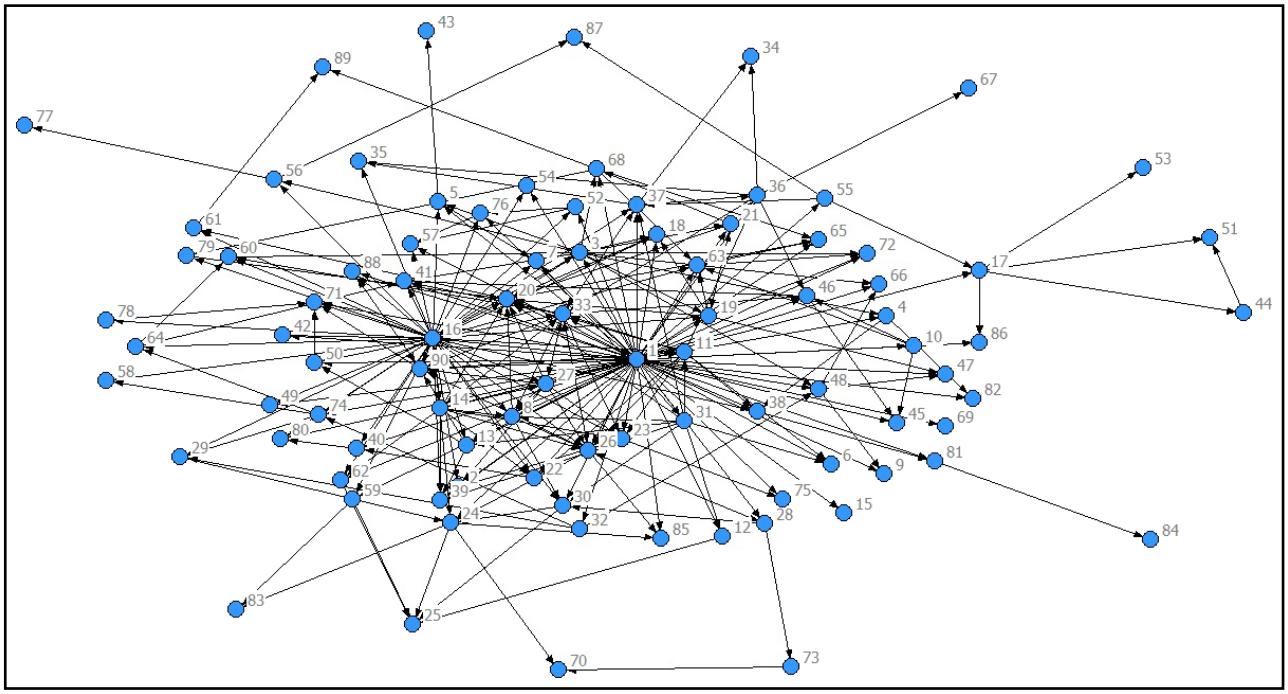
	Consultation	Affective Commitment	Legitimating	Rational Persuasion	Inspirational Appeals	Coalition	Ingratiation
RP1	24	6	29	**68**[a]	−3	6	24
RP2	33	3	16	**80**[a]	15	12	13
RP3	21	4	2	**80**[a]	19	9	24
RP4	32	7	10	**69**[a]	18	26	−6
IA1	10	26	18	49[a]	43[a]	28	28
IA2	17	23	21	17	**85**[a]	8	9
IA3	13	21	21	10	**89**[a]	14	11
IA4	6	19	21	19	**85**[a]	12	18
CO1	**76**[a]	6	3	15	25	20	23
CO2	**77**[a]	8	4	24	8	18	15
CO3	**83**[a]	12	10	22	7	11	5
CO4	**77**[a]	12	9	34	9	8	8
LE1	3	11	**83**[a]	13	12	17	11
LE2	12	−3	**77**[a]	−1	30	13	13
LE3	13	7	**80**[a]	17	25	22	2
LE4	0	12	**76**[a]	23	2	25	26
IG1	15	10	10	16	16	4	**83**[a]
IG2	5	6	16	14	15	31	**72**[a]
IG3	53[a]	−3	5	6	−12	4	59[a]
IG4	21	12	30	21	27	13	**63**[a]
CT1	22	−2	12	−3	18	**84**[a]	19
CT2	33	6	20	25	−6	**78**[a]	3
CT3	13	15	30	21	10	**64**[a]	4
CT4	−4	8	32	19	21	**67**[a]	29
AC1	−3	**88**[a]	7	16	16	14	−1
AC2	11	**79**[a]	5	−9	13	4	11
AC3	11	**92**[a]	4	7	5	−7	7
AC4	13	**87**[a]	9	11	25	11	3

The printed values are multiplied by 100 and rounded to the nearest integer. Bolded values represent retained items.
[a]Factor loading greater than or equal to .40.

sion to the generalized linear models (GLM) (McCullagh & Nelder, 1989) in which the linear predictor contains the random effects (i.e., agents) in addition to the fixed effects (i.e., rational persuasion, consultation, ingratiation, inspirational appeals, legitimating, and coalition). The assumptions of the GLMM are that the conditional mean of the response random variable (i.e., affective commitment) given the random effects are explained by the fixed effects. The fixed and random effects together form the linear predictor or the so-called systematic component. Thus, instead of specifying a distribution for affective commitment, as in the case of a GLM, we specified the distribution of the conditional response (affective commitment given the agent who approached the target).

A GLMM was thus used to address the deficiencies of a linear model, as linear models assume independence of the responses and their normal distribution, which is not the case in this study. We therefore dichotomized affective commitment using a median split at 6 (MacCallum, Zhang, Preacher & Rucker, 2002). Our derived response variable was thus assumed to be binomial. To illustrate, values below 6 were coded as "0" and values greater than or equal to 6 were coded as "1." A median split at 6 was used as we wanted to examine the point beyond just "commitment" to more "proactive commitment" (a "5" on the 7-point commitment scale corresponded to "somewhat agree" whereas a "6" represented "agree"), because the average level of commitment within the network was already relatively high (see Table 2)—i.e., high enough to ensure that personnel would engage in the initiative, although not necessarily proactively support the initiative and its goals. In our analysis, we use the logit, and for the distribution of the errors, we use the standard logistic distribution. As we have sufficient data to present the

FIGURE 1
A Sociogram of the Actors in Betamon's TRANSPORT Initiative Network



true distribution of the data, any power loss in the dichotomization would be negligible due to the sample size (e.g., 273) of the data (Agresti, 2007; Donner & Eliasziw, 1994).

The results are summarized in Table 3, which presents the parameter estimates and their t-values based on the fit of the general linear mixed model. The coefficients for consultation (.41; t = 2.20) and coalition (−.32; t = −2.08) are both significant ($p < .05$) and in the posited directions, yielding support for H2 and H6. There is also moderate support ($p < .10$) for H4 (.24; t = 1.67). Contrary to our predicted positive direction posited in Hypothesis 5, legitimating is significant ($p < .05$) in the *negative* direction (−.39; t = −2.16). The coefficients for rational persuasion and ingratiation are not significant; accordingly, we did not find support for H1 and H3. The control variables were not significantly related to target affective commitment and the results did not change when we included the control variables.

As a means of checking the fit of the GLMM, we examined the ratio between the Pearson chi-square statistic and its degrees of freedom to check its proximity with the value of one. Values larger than one are indicative of *over-dispersion* (Schabenberger, 2005). With a ratio of .93, our model appears to fit. Thus, accounting for the extra variation through the random effects was necessary. Also, comparing this model to a standard logistic regression model without random intercepts yields clear evidence that there is variation among the random effects. The estimates, t-values, and *p*-values for the test of random effects are displayed in Appendix D.

TABLE 2

Summary Statistics

	Mean	SD
Rational persuasion	5.78	1.09
Inspirational appeals	4.11	1.69
Consultation	5.25	1.17
Legitimating	5.20	1.19
Ingratiation	5.30	1.05
Coalition	4.11	1.23
Affective commitment	6.05	.84

DISCUSSION

As numerous companies encounter a myriad of barriers when embedding environmental practices in their business operations, our research objective was to provide insights to the critical task of implementation. Specifically, our goal was to gain a deeper understanding of how agents attempt to influence and gain the commitment of other individuals to an environmental initiative within a real-world, social network

TABLE 3

Results of Hypothesis Testing for Influence Tactics

Influence Tactic	Parameter Estimate	*t* value	Hypothesis Supported
H1: Rational persuasion	−.07	−.30	No
H2: Consultation	.41*	2.20	Yes
H3: Ingratiation	.23	1.11	No
H4: Inspirational appeals	.24[ɪ]	1.67	Yes
H5: Legitimating	−.39*	−2.16	No[a]
H6: Coalition	−.32*	−2.08	Yes

[a]A positive relationship was hypothesized.
[ɪ]$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$.

context. The study has revealed influence tactics that environmental change agents should use, such as consultation and to a lesser degree inspirational appeals, and tactics, such as legitimating and coalition, that these agents should avoid when attempting to gain target affective commitment in a social network context. Ingratiation and surprisingly rational persuasion were not related to target commitment. We will discuss each of the results next.

Consistent with prior research that investigated influence behavior in a dyadic context, our study findings support the hypothesis that the use of *consultation* positively impacts target commitment. Thus, our results augment prior research by providing empirical evidence that this positive relationship also holds in a social network context. As also suggested by Gattiker and Carter (2010), champions of environmental initiatives should therefore involve targets in the change process, so that they can develop a sense of ownership for the initiative.

Regarding the use of *inspirational appeals*, our results provide marginal support for the hypothesis that this influence tactic positively impacts target commitment. Interestingly, our results do not show the strong positive effect of this tactic on target commitment found for instance by the dyadic studies of Gattiker and Carter (2010) or Yukl and Tracey (1992). As our results are marginally positive, we can only cautiously suggest that inspirational appeals are an effective tactic within the network context in which influence attempts actually occur in organizations. Further, our results show that inspirational appeals belong to the least frequently used tactics in the study (see Table 2). This latter result was also found by Gattiker and Carter (2010), who refer in this context to Crane's (2000) suggestion that environmental change agents are less likely to use value-based appeals as they worry about difficult interpersonal confrontations.

Contrary to our hypothesis, our findings reveal that *legitimating* negatively impacts target commitment. Results also show that legitimating is used frequently in an environmental context (see Table 2), which aligns with Gattiker and Carter (2010), who also find legitimating to be a frequently used tactic. The authors argue that the frequent use of legitimating might be explained by the fact that "[it] is easy for agents to advocate for many environmental projects by appealing to rules and policies since many environmental issues are governed by them" (p. 79). This frequent usage, however, is problematic as our findings suggest that legitimating—even in an environmental context—does not appear to add value in terms of gaining target commitment. At environmentally proactive companies such as Betamon, referring to regulations as reasons to engage in environmental initiatives seems to underwhelm employees. This may be due to the fact that regulations frequently run behind what proactive companies are already doing (Porter & Van Der Linde, 1995). Therefore, these employees might instead be driven by the idea of staying ahead of the curve. Future research could verify this assumption by investigating the effectiveness of legitimating at multiple companies that differ with respect to their environmental proactivity and regulations.

Our results support the hypothesis proposing that the use of *coalition* negatively impacts target commitment. Thus, these findings suggest that environmental change agents should avoid the use of coalition. Results of prior studies are, however, inconsistent. The influence literature categorizes coalition as a hard influence tactic and hence recommends avoiding the use of coalition. Conversely, Andersson and Bateman (2000) as well as Clarke and Ward (2006) find coalition to have a positive relationship, whereas Gattiker and Carter (2010) find no relationship. Clarke and Ward (2006) propose that the positive relationship is due to group goal setting and group cohesiveness. Although we investigated a social network surrounding the logistics/supply chain departments, which can be considered as a certain kind of grouping, we cannot empirically verify their findings. Moreover, the latter studies demonstrate some limitations that might

contribute to the mixed findings (e.g., using only target or agent reports within a dyadic setting).

We address these limitations in our study. However, additional research is needed that validates our findings. Further, as recommended by Gattiker and Carter (2010), additional research is needed that investigates moderators which might impact the effectiveness of the coalition tactic. For example, future research could draw from social influence theory and investigate the political skills—defined by Ahearn, Ferris, Hochwarter, Douglas and Ammeter (2004, p. 311) as "the ability to effectively understand others at work, and to use such knowledge to influence others to act in ways that enhance one's personal and/or organizational objectives"—of the agent who attempts to gain commitment through coalition. In particular, a politically skilled agent might apply the coalition tactic in such a way that the target would not feel "forced" to support the environmental initiative. Thus, it can be suggested that if the use of coalition is not visible to the target, it might actually become an effective tactic.

In contrast to H3, our study findings reveal that *ingratiation* is not associated with target commitment to environmental initiatives. Our findings, however, demonstrate that ingratiation belongs to the most frequently employed influence tactics (see Table 2). As there is no relationship between the use of ingratiation and target commitment, we cannot categorically agree with Baron's (1986) statement that there can be "too much of a good thing." Our results are also in contrast to the findings of Gattiker and Carter (2010), who found a strong negative relationship with target commitment. This discrepancy may be due to the fact that respondents at Betamon repeatedly mentioned that it is rooted in their company culture to always "act in a friendly manner." This would explain the high use of ingratiation and the fact that this expected behavior did not impact target commitment toward the environmental initiative. However, as research on the effectiveness of ingratiation reports mixed findings, further research is needed that sheds light on this relationship. For example, does company culture impact the use or avoidance of ingratiation? Are there moderators, such as political skills and personality traits, which make the use of ingratiation an effective or ineffective tactic?

Our results for *rational persuasion* demonstrate that this tactic is the most frequently used (see Table 2), but it has no effect on target commitment. This is an unexpected result as reason-based tactics are usually considered to be effective influence tactics. We therefore re-interviewed the initiative champion and two of the executive managers to better understand this relationship. These follow-up interviews shed light on the lack of a relationship between rational persuasion and affective commitment. The logic and benefits of the initiative were understood at a very early stage; however, employees asked themselves, "What is in it for me?" Thus, arguing rationally from an overall company perspective did not lead to a higher level of commitment. This underlines the argumentation from Gattiker and Carter (2010) who find a positive, but much weaker than expected, relationship between rational persuasion and commitment. The authors thus suggested that "rational persuasion may be a necessary but not sufficient tactic" (p. 79) to garner a target's commitment to environmental initiatives. Similar to Gattiker and Carter's (2010) proposition, Falbe and Yukl (1992) as well as Yukl, Falbe and Youn (1993) argue that rational persuasion can be more effective when combined with soft tactics. We agree and suggest that rational persuasion is an important tactic; however, to gain a sufficient level of affective commitment, other influence tactics (i.e., consultation and to a lesser degree inspirational appeals) should be used.

Theoretical Contribution and Managerial Implications

Theoretical Contribution. Our research contributes to theory and the extant literature in several ways. By investigating how to gain affective commitment to an environmental supply chain initiative in a social network context, we respond to calls for addressing the need to examine how to successfully implement environmental sustainability in the supply chain (e.g., Kleindorfer, Singhal & Wassenhove, 2005; Pagell & Shevchenko, 2014; Rauer & Kaufmann, 2015). Also, our research addresses the call of Cantor, Morrow, and Montabon (2012) to identify factors that increase affective commitment to environmental supply chain initiatives.

Further, our study advances intra-organizational influence theory by collecting network data that allow us to (1) account for influence attempts across agents, (2) treat a node in the network as both an agent and a target, and (3) investigate multiple, linked dyadic interactions.

The majority of extant studies have collected data from either the agent or the target, but not both and not from triads or beyond. Our study thus contributes to intra-organizational influence theory by extending the understanding of influence behavior beyond the single, isolated dyad—a context in which influence attempts actually occur in organizations. This holistic network perspective also more closely reflects reality because it accounts for the fact that dyads (i.e., single agent–target dyads) are usually linked together to form a network and, in contrast to a purely dyadic perspective, these dyads are interdependent (Borgatti & Li, 2009). Our study hence advances intra-organizational influence theory by advancing insights with respect to

the efficacy of certain influence tactics in a real-world, network context.

Managerial Implications. Our findings provide supply chain managers with an understanding of how initiative champions can gain affective commitment to enhance the implementation of these initiatives. These results suggest that agents and targets do not interact in a social vacuum. Social networks, in which influence attempts actually occur in organizations, play a prominent role in which multiple agent approaches are not only possible but likely. Consequently, managers need to be aware that these multiple interactions and opportunities for influence can shape the effectiveness of their influence approach.

One implication of this network context relates to our finding of a negative relationship between the use of coalition and affective commitment. Specifically, managers who champion these initiatives may want to coordinate their influence attempts to minimize a target's perception of being "ganged up on" or "bullied" into engaging in an initiative.

In addition, change agents need to understand that in order to gain a high level of target commitment, consultation and to a lesser degree inspirational appeals should be employed, instead of rational persuasion. This is significant in light of the fact that change agents most frequently use rational persuasion. Consequently, these individuals need to reflect on which influence tactics to use in order to successfully gain buy-in for an environmental initiative within an organization.

Limitations

The primary limitation of this study is that our findings are based on the analysis of one company, and thus, the generalizability of our findings across companies is low. Given the lack of environmental research examining the use of influence tactics within a social network context, we, however, followed the advice of Eisenhardt (1989) and Flyvbjerg (2006), who recommend that researchers conduct in-depth, one-company case studies to gain a richer understanding when empirical research is in its infancy. To address the concern of generalizability, we used critical case sampling and ensured that our sample consisted of a series of different functions, hierarchical levels, and countries which increased the variability of our data (Eisenhardt, 1989; Galunic & Eisenhardt, 2001). To further mitigate the issue of generalizability, future research might employ simulation to assess sample stability (e.g., Benedek, Lublóy & Vastag, 2014).

In addition, as mentioned previously, our sample size was limited by the size of the network. Given the fact that our study relied on the collection of primary data, conducting a large-scale network study across multiple companies would, however, have been extremely difficult to operationalize (Halinen & Törnroos, 2005) due to the tremendous amount of time and effort required to collect data (the scheduling of meetings, traveling, interviewing, and time spent at different locations). A promising avenue for future research would therefore be to map social networks based on secondary data. This would facilitate the data collection procedure and hence allow researchers to investigate multiple and perhaps larger social networks.

A further limitation is the use of retrospective data. A potential opportunity for future research would be to analyze social networks longitudinally and examine the data via dynamic network visualizations (Galaskiewicz, 2011). Such a dynamic network visualization would, for example, allow researchers to investigate the evolution of networks over time (Galaskiewicz, 2011). However, scholars conducting longitudinal research need to be aware that they would have to choose a network at the beginning of the research study without knowing whether this network would adequately evolve and also without knowing whether this network would become large enough for statistical analysis.

As our study investigated a subset of six representative influence tactics, we acknowledge that individuals might have used other influence tactics such as exchange, pressure, or personal appeals as well. However, we purposefully examined influence tactics that are considered to be the most frequently employed (Gattiker & Carter, 2010). Still, future research might examine these additional influence tactics and investigate the extent to which these tactics are employed in an environmental context and how they impact target commitment.

In addition, our study does not account for personal values and their potential impact on target commitment (e.g., Gattiker, Carter, Tate & Huang, 2014). An interesting opportunity for future research would therefore be to investigate how personal values impact both an agent's influence behavior as well as target commitment.

CONCLUSION

Investigating the implementation of an environmental SCM initiative from a social network perspective, our study yields substantial insights for change agents concerning how to gain affective commitment to these initiatives to enhance their implementation. In addition, the study provides managers and researchers alike with insights on how to collect and analyze social network data. This is fruitful because social network analysis is becoming a promising research avenue in the SCM discipline (e.g., Borgatti & Li, 2009; Carnovale & Yeniyurt, 2015; Kim, 2014). However, due to the difficulty of collecting social network data (Halinen & Törnroos, 2005; Kim, Choi, Yan & Doo-

ley, 2011), extant SCM studies have largely neglected the investigation of real-life social networks. Our study also moves beyond the dyadic context in which intra-organizational influence theory has been investigated in the extant literature, by testing the theory in a broader social network where multiple agents might approach a target and where a target might in turn attempt to influence another target. We hope that this research paves the way for additional field-based, social network studies to further SCM theory and practitioner knowledge about how to successfully implement environmental practices.

REFERENCES

Agresti, A. (2007). *An introduction to categorical data analysis*. Hoboken, NJ: John Wiley & Sons, Inc.

Ahearn, K. K., Ferris, G. R., Hochwarter, W. A., Douglas, C., & Ammeter, A. P. (2004). Leader political skill and team performance. *Journal of Management*, 30, 309–327.

Andersson, L. M., & Bateman, T. S. (2000). Individual environmental initiative: Championing natural environmental issues in U.S. business organizations. *Academy of Management Journal*, 43, 548–570.

Armacost, R. L., Hosseini, J. S., Morris, S. A., & Rehbein, K. A. (1991). An empirical comparison of direct questioning, scenario, and randomized response methods for obtaining sensitive information. *Decision Sciences*, 22, 1073–1090.

Baron, R. A. (1986). Self-presentation in job interviews: When there can be "too much of a good thing." *Journal of Applied Social Psychology*, 16(1), 16–28.

Bendoly, E., Croson, R., Goncalves, P., & Schultz, K. L. (2010). Bodies of knowledge for research in behavioral operations. *Production and Operations Management*, 19, 434–452.

Benedek, G., Lublóy, Á., & Vastag, G. (2014). The importance of social embeddedness: Churn models at mobile providers. *Decision Sciences*, 45(1), 175–201.

Berns, M., Townend, A., Khayat, Z., Balagopal, B., Reeves, M., Hopkins, M., & Kruschwitz, N. (2009). The business of sustainability: Findings and insights from the first annual business of sustainability survey and the global thought leaders' research project. *MIT Sloan Management Review*, 51(1), 1–84.

Blickle, G. (2003). Some outcomes of pressure, ingratiation, and rational persuasion used with peers in the workplace. *Journal of Applied Social Psychology*, 33, 648–665.

Borgatti, S. P., Everett, M. G., & Freeman, L. C. (2002). *UCINET for Windows: Software for social network analysis*. Harvard, MA: Analytic Technologies.

Borgatti, S. P., & Li, X. (2009). On social network analysis in a supply chain context. *Journal of Supply Chain Management*, 45, 5–22.

Cantor, D. E., Morrow, P. C., McElroy, J. C., & Montabon, F. (2013). The role of individual and organizational factors in promoting firm environmental practices. *International Journal of Physical Distribution & Logistics Management*, 43, 407–426.

Cantor, D. E., Morrow, P. C., & Montabon, F. (2012). Engagement in environmental behaviors among supply chain management employees: An organizational support theoretical perspective. *Journal of Supply Chain Management*, 48, 33–51.

Carnovale, S., & Yeniyurt, S. (2015). The role of ego network structure in facilitating ego network innovations. *Journal of Supply Chain Management*, 51, 22–46.

Carter, C. R., Ellram, L. M., & Tate, W. L. (2007). The use of social network analysis in logistics research. *Journal of Business Logistics*, 28(1), 137–168.

Cialdini, R. B. (2001). Harnessing the science of persuasion. *Harvard Business Review*, 79, 72–79.

Clark, A. (2011). Why employee engagement is critical to sustaining sustainability. Retrieved from http://www.greenbiz.com/blog/2011/09/06/why-employee-engagement-critical-sustaining-sustainability (accessed January 14, 2015).

Clarke, S., & Ward, K. (2006). The role of leader influence tactics and safety climate in engaging employees' safety participation. *Risk Analysis: An International Journal*, 26, 1175–1185.

Crane, A. (2000). Corporate greening as amoralization. *Organization Studies*, 21, 673–696.

Crown, D. P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology*, 24, 349–354.

Donner, A., & Eliasziw, M. (1994). Statistical implications of the choice between a dichotomous or continuous trait in studies of interobserver agreement. *Biometrics*, 50, 550–555.

Drumwright, M. (1994). Socially responsible organizational buying: Environmental concern as a non-economic buying criterion. *Journal of Marketing*, 58(3), 1–19.

Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, 14, 532–550.

Erez, M., Rim, Y., & Keider, I. (1986). The two sides of the tactics of influence: Agent vs target. *Journal of Occupational Psychology*, 59(1), 25–39.

Falbe, C. M., & Yukl, G. (1992). Consequences for managers of using single influence tactics and combinations of tactics. *Academy of Management Journal*, 35, 638–652.

Fischhoff, M. (2007). Middle management as environmental change agent. Retrieved from http://www.greenbiz.com/news/2007/07/29/middle-management-environmental-change-agent (accessed January 14, 2015).

Flynn, B. B., Sakakihara, S., Schroeder, R. G., Bates, K. A., & Flynn, E. J. (1990). Empirical research methods in operations management. *Journal of Operations Management*, 9, 250–284.

Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative Inquiry*, 12, 219–245.
Ford, J. K., Wessbein, D. A., & Plamandon, K. E. (2003). Distinguishing organizational from strategy commitment: Linking officers' commitment to community policing to job behaviors and satisfaction. *Justice Quarterly*, 20(1), 159–185.
Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50.
Furst, S. A., & Cable, D. M. (2008). Employee resistance to organizational change: Managerial influence tactics and leader–member exchange. *Journal of Applied Psychology*, 93, 453–462.
Galaskiewicz, J. (2011). Studying supply chains from a social network perspective. *Journal of Supply Chain Management*, 47(1), 4–8.
Galunic, D. C., & Eisenhardt, K. M. (2001). Architectural innovation and modular corporate forms. *Academy of Management Journal*, 44, 1229–1249.
Garver, M. S., & Mentzer, J. T. (1999). Logistics research methods: Employing structural equation modeling to test for construct validity. *Journal of Business Logistics*, 20(1), 33–57.
Gattiker, T. F., & Carter, C. R. (2010). Understanding project champions' ability to gain intra-organizational commitment for environmental projects. *Journal of Operations Management*, 28(1), 72–85.
Gattiker, T. F., Carter, C. R., Tate, W. L., & Huang, X. (2014). Managerial commitment to sustainable supply chain management projects. *Journal of Business Logistics*, 35, 318–337.
Halinen, A., & Törnroos, J.-A. (2005). Using case methods in the study of contemporary business networks. *Journal of Business Research*, 58, 1285–1297.
Harman, H. H. (1967). *Modern factor analysis*. Chicago, IL: University of Chicago Press.
Herscovitch, L., & Meyer, J. P. (2002). Commitment to organizational change: Extension of a three-component model. *Journal of Applied Psychology*, 87, 474–487.
Hofstede, G. (1980). *Culture's consequences: International differences in work-related values*. Beverly Hills, CA: Sage Publications.
Katsikopoulos, K. V., & Gigerenzer, G. (2013). Behavioral operations management: A blind spot and a research program. *Journal of Supply Chain Management*, 49(1), 3–7.
Kim, Y., Choi, T. Y., Yan, T., & Dooley, K. (2011). Structural investigation of supply networks: A social network analysis approach. *Journal of Operations Management*, 29, 194–211.
Kipnis, D., & Schmidt, S. M. (1985). The language of persuasion. *Psychology Today*, 19(4), 41–46.
Kipnis, D., Schmidt, S. M., & Wilkinson, I. (1980). Intraorganizational influence tactics: Explorations in getting one's way. *Journal of Applied Psychology*, 65, 440–452.
Kleindorfer, P. R., Singhal, K., & Wassenhove, L. N. (2005). Sustainable operations management. *Production and Operations Management*, 14, 482–492.
Liden, R. C., & Mitchell, T. R. (1988). Ingratiatory behaviors in organizational settings. *Academy of Management Review*, 13, 572–587.
MacCallum, R. C., Roznowski, M., & Necowitz, L. B. (1992). Model modifications in covariance structure analysis: The problem of capitalization on chance. *Psychological Bulletin*, 111, 490–504.
MacCallum, R. C., Zhang, S., Preacher, K. J., & Rucker, D. D. (2002). On the practice of dichotomization of quantitative variables. *Psychological Methods*, 7 (1), 19–40.
Matos, S., & Hall, J. (2007). Integrating sustainable development in the supply chain: The case of life cycle assessment in oil and gas and agricultural biotechnology. *Journal of Operations Management*, 25, 1083–1102.
McCullagh, P., & Nelder, J. A. (1989). *Generalized linear models* (2nd ed.). London: Chapman and Hall.
Meyer, J. P., & Herscovitch, L. (2001). Commitment in the workplace: Toward a general model. *Human Resource Management Review*, 11, 299–326.
Meyer, J. P., Stanley, D. J., Herscovitch, L., & Topolnytsky, L. (2002). Affective, continuance, and normative commitment to the organization: A meta-analysis of antecedents, correlates, and consequences. *Journal of Vocational Behavior*, 61(1), 20–52.
Miller, C. C., Cardinal, L. B., & Glick, W. H. (1997). Retrospective reports in organizational research: A re-examination of recent evidence. *Academy of Management Journal*, 40(1), 189–204.
Moriarty, R. T. (1983). *Industrial buying behavior*. Lexington, MA: Lexington Books.
Mowday, R. T., Steers, R. M., & Porter, L. W. (1979). The measurement of organizational commitment. *Journal of Vocational Behavior*, 14, 224–247.
Nederhof, A. J. (1985). Methods of coping with social desirability bias: A review. *European Journal of Social Psychology*, 15, 263–280.
Nemes, J. (2008). Leading from the middle: The power of the green champion. Retrieved from http://www.greenbiz.com/news/2008/10/12/leading-middle-power-green-champion (accessed January 4, 2015).
Pagell, M., & Shevchenko, A. (2014). Why research in sustainable supply chain management should have no future. *Journal of Supply Chain Management*, 50(1), 44–55.
Peterson, R. A. (2000). *Constructing effective questionnaires*. Thousand Oaks, CA: Sage Publications.
Podsakoff, P. M., MacKenzie, S. M., Lee, J., & Podsakoff, N. P. (2003). Common method variance in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88, 879–903.

Porter, M. E., & Van Der Linde, C. (1995). Green and competitive: Ending the stalemate. *Harvard Business Review*, 73, 120–134.

Rauer, J., & Kaufmann, L. (2015). Mitigating external barriers to implementing green supply chain management: A grounded theory investigation of green-tech companies' rare earth metals supply chains. *Journal of Supply Chain Management*, 51, 65–88.

SAS Institute Inc. (2008). *SAS/STAT® 9.2 user's guide: The GLIMMIX procedure (Book Excerpt)*. Cary, NC: SAS Institute Inc.

Schabenberger, O. (2005). Introducing the GLIMMIX procedure for generalized linear mixed models. In: *North East SAS users group Inc. 18th annual conference*. Portland, ME: SAS Institute Inc.

Schilit, W. K., & Locke, E. A. (1982). A study of upward influence in organizations. *Administrative Science Quarterly*, 27, 304–316.

Schriesheim, C. A., & Hinkin, T. R. (1990). Influence tactics used by subordinates: A theoretical and empirical analysis and refinement of the Kipnis, Schmidt, and Wilkinson subscales. *Journal of Applied Psychology*, 75, 246–257.

Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. In M. Zanna (Ed.), *Advances in experimental social psychology*, Vol. 25 (pp. 1–65). New York: Academic Press.

Stroup, W. W. (2013). *Generalized linear mixed models*. Boca Raton, FL: CRC Press.

Theißen, S., Spinler, S., & Huchzermeier, A. (2014). Reducing the carbon footprint within fast-moving consumer goods supply chains through collaboration: The manufacturers' perspective. *Journal of Supply Chain Management*, 50, 44–61.

Tourangeau, R., Rips, L. J., & Rasinski, K. (2000). *The psychology of survey response*. Cambridge, U.K.: Cambridge University Press.

Vonk, R. (1998). The slime effect: Suspicion and dislike of likeable behavior toward superiors. *Journal of Personality and Social Psychology*, 74, 849–864.

Vonk, R. (2002). Self-serving interpretations of flattery: Why ingratiation works. *Journal of Personality and Social Psychology*, 82, 515.

Weller, S. C., & Romney, A. K. (1988). *Systematic data collection*. Newbury Park, CA: Sage Publications.

Wong, C. W. Y. (2013). Leveraging environmental information integration to enable environmental management capability and performance. *Journal of Supply Chain Management*, 49, 114–136.

Wu, Z., & Pagell, M. (2011). Balancing priorities: Decision-making in sustainable supply chain management. *Journal of Operations Management*, 29, 577–590.

Yin, R. K. (2009). *Case study research: Design and methods*. Thousand Oaks, CA: Sage Publications.

Yukl, G. (2012). Effective leadership behavior: What we know and what questions need more attention. *Academy of Management Perspectives*, 26, 66–85.

Yukl, G. (2013). *Leadership in organizations* (8th ed., global edition). Essex, U.K.: Pearson Education Limited.

Yukl, G., Chavez, C., & Seifert, C. F. (2005). Assessing the construct validity and utility of two new influence tactics. *Journal of Organizational Behavior*, 26, 705–725.

Yukl, G., & Falbe, C. M. (1990). Influence tactics and objectives in upward downward and lateral influence attempts. *Journal of Applied Psychology*, 75, 132–140.

Yukl, G., Falbe, C. M., & Youn, J. Y. (1993). Patterns of influence behavior for managers. *Group & Organization Management*, 18(1), 5–28.

Yukl, G., Kim, H., & Chavez, C. (1999). Task importance, feasibility, and agent influence behavior as determinants of target commitment. *Journal of Applied Psychology*, 84(1), 137–143.

Yukl, G., Kim, H., & Falbe, C. M. (1996). Antecedents of influence outcomes. *Journal of Applied Psychology*, 81, 309–317.

Yukl, G., Lepsinger, R., & Lucia, T. (1992). Preliminary report on the development and validation of the influence behavior questionnaire. In K. E. Clark, M. B. Clark & D. P. Campbell (Eds.), *The impact of leadership* (pp. 417–427). Greensboro, NC: Center for Creative Leadership.

Yukl, G., Seifert, C. F., & Chavez, C. (2008). Validation of the extended influence behavior questionnaire. *Leadership Quarterly*, 19, 609–621.

Yukl, G., & Tracey, J. B. (1992). Consequences of influence tactics used with subordinates, peers, and the boss. *Journal of Applied Psychology*, 77, 525–535.

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APPENDIX A
Interview Protocol

1. Colleagues that approached you in order to get your buy-in to the TRANSPORT initiative.

   Think back to your involvement in the TRANSPORT initiative during the entire time period from the start-up of the TRANSPORT initiative until today.

   Please list all individuals and their functions/business units that have interacted with you, *at least once per month, on average*, in order to get your buy-in to the TRANSPORT initiative. This interaction could include formal communication (such as emails and meetings) as well as informal communication (including phone calls and face-to-face conversation) surrounding the implementation and management of the TRANSPORT initiative.

2. Colleagues you approached in order to get their buy-in to the TRANSPORT initiative.

   Think back to your involvement in the TRANSPORT initiative during the entire time period from the start-up of the TRANSPORT initiative until today.

   Please list all individuals and their functions/business units that you have interacted with, *at least once per month, on average*, in order to get their buy-in to the TRANSPORT initiative. This interaction could include formal communication (such as email and meetings) as well as informal communication (including phone calls and face-to-face conversation) surrounding the implementation and management of the TRANSPORT initiative.

APPENDIX B
Questionnaire Scale Items

INFLUENCE TACTICS[a]

To what extent did you use each type of behavior when seeking the person's buy-in to the TRANSPORT initiative.

Rational Persuasion (α = .85; AVE = .55)
RP1: I explained the reasons for my request.
RP2: I presented him/her with information in support of my point of view.
RP3: I used a business case.
RP4: I presented facts/statistics to substantiate my request.

Inspirational Appeals (α = .95; AVE = .74)
IA1: I aroused enthusiasm concerning the benefits of the initiative.
IA2: I tried to inspire his/her environmental ideals.
IA3: I stirred his/her emotions concerning the environmental importance of the initiative.
IA4: I appealed to his/her environmental values.

Consultation (α = .89; AVE = .63)
CO1: I told him/her what I was trying to accomplish and asked if he/she knew a good way to do it.
CO2: I explained the goals of the initiative and asked for input.
CO3: I sought his/her input in developing the initiative's implementation.
CO4: I consulted him/her to get his/her ideas and views about the implementation of the initiative.

Legitimating (α = .88; AVE = .62)
LE1: I said that the request was consistent with organizational rules and policies.
LE2: I stated that the initiative was part of a broader company strategy.
LE3: I showed him/her that the initiative is consistent with organizational guidelines.
LE4: I stated that the initiative supported organizational goals.

Ingratiation (α = .78; AVE = .56)
IG1: I acted in a friendly manner.
IG2: I acted in a modest manner while making my request.
IG3: I did everything I could to be polite.
IG4: I said things to make him/her feel important.

Coalition (α = .85; AVE = .54)
CT1: I obtained the support of co-workers to back up my request.
CT2: I mobilized other people in the organization to help me gain his/her buy-in to the initiative.
CT3: I pointed out that others have already endorsed the initiative.
CT4: I asked someone he/she respects to help encourage him/her to support the initiative.

COMMITMENT[b]

Affective Commitment (α = .90; AVE = .75)
AC1: This initiative is good for our organization.
AC2: Things would be worse without this initiative.
AC3: This initiative is necessary.
AC4: I believe in the value of this initiative.

Other Variables[c]
1. Have you ever been involved in another environmental initiative at your company? *(Responses: yes; no)*
2. Please indicate your nationality.
3. How long have you worked for Betamon?

[a]All items were measured on a 7-point Likert-type scale where *1 = to no extent whatsoever* and *7 = to a very great extent*; based on Gattiker and Carter (2010), Kipnis, Schmidt, and Wilkinson (1980) and Schriesheim and Hinkin (1990).

[b]All items were measured on a 7-point Likert-type scale where *1 = strongly disagree* and *7 = strongly agree*; based on Herscovitch and Meyer (2002).

[c]Used as control variables in the study. Note: α = Cronbach's coefficient alpha; AVE = Average Variance Extracted.

APPENDIX C
Average Variance Extracted and Squared Correlations

	AVE	1	2	3	4	5	6	7
(1) Rational Persuasion	.55	1.00						
(2) Inspirational Appeals	.74	.18	1.00					
(3) Consultation	.63	.37	.13	1.00				
(4) Legitimating	.62	.15	.22	.08	1.00			
(5) Ingratiation	.56	.22	.23	.20	.24	1.00		
(6) Coalition	.54	.21	.15	.19	.31	.24	1.00	
(7) Affective Commitment	.75	.04	.17	.06	.04	.06	.04	1.00

AVE = Average Variance Extracted; the values below the diagonal represent squared correlations of the items.

APPENDIX D
Solution for Random Effects

Effect	Subject	Estimate	*t* value	Pr > |t|
Intercept	Agent 1	.25	.64	.5201
Intercept	Agent 3	−.96	−1.82	.0697
Intercept	Agent 4	.18	.26	.7958
Intercept	Agent 5	−.36	−.52	.6064
Intercept	Agent 8	.30	.44	.6601
Intercept	Agent 10	−.30	−.47	.6353
Intercept	Agent 11	.40	.69	.4893
Intercept	Agent 12	−.08	−.11	.9115
Intercept	Agent 13	.39	.58	.5647
Intercept	Agent 14	.32	.54	.5888
Intercept	Agent 16	.31	.57	.5664
Intercept	Agent 17	.70	1.10	.2734
Intercept	Agent 19	−.28	−.47	.6415
Intercept	Agent 20	−.51	−.78	.4343
Intercept	Agent 21	.06	.09	.9246
Intercept	Agent 22	.14	.20	.8420
Intercept	Agent 23	.34	.50	.6189
Intercept	Agent 24	−.20	−.32	.7479
Intercept	Agent 26	−.14	−.23	.8218
Intercept	Agent 27	.64	1.03	.3041
Intercept	Agent 28	.06	.09	.9305
Intercept	Agent 29	.20	.28	.7768
Intercept	Agent 30	−.22	−.32	.7476
Intercept	Agent 31	.23	.38	.7051
Intercept	Agent 32	.43	.64	.5218
Intercept	Agent 33	−.13	−.23	.8170
Intercept	Agent 36	−.12	−.21	.8377
Intercept	Agent 37	−.57	−.87	.3855
Intercept	Agent 38	.07	.09	.9245
Intercept	Agent 40	.11	.15	.8843
Intercept	Agent 44	.07	.10	.9213
Intercept	Agent 46	−.23	−.33	.7455
Intercept	Agent 48	−.27	−.39	.6946

(continued)

APPENDIX D (continued)

Effect	Subject	Estimate	*t* value	Pr > |t|
Intercept	Agent 50	−.36	−.51	.6110
Intercept	Agent 52	−.41	−.60	.5511
Intercept	Agent 55	.60	.92	.3574
Intercept	Agent 56	.46	.68	.4942
Intercept	Agent 59	−.44	−.65	.5157
Intercept	Agent 61	−.16	−.22	.8238
Intercept	Agent 62	−.29	−.41	.6837
Intercept	Agent 63	−.05	−.07	.9464
Intercept	Agent 64	−.60	−.89	.3724
Intercept	Agent 68	.16	.25	.7994
Intercept	Agent 73	.25	.35	.7299
Intercept	Agent 74	.56	.85	.3974
Intercept	Agent 76	−.41	−.57	.5696
Intercept	Agent 78	−.45	−.62	.5349
Intercept	Agent 79	.14	.19	.8476
Intercept	Agent 81	.20	.28	.7799
Intercept	Agent 88	.16	.23	.8206
Intercept	Agent 90	−.19	−.28	.7805