

A BEHAVIORAL THEORY OF SUSTAINABLE SUPPLY CHAIN MANAGEMENT DECISION MAKING IN NON-EXEMPLAR FIRMS

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Empirical evidence shows that investments in sustainable supply chain management can improve economic-based performance. Thus, based on standard economic theory, rational business decision makers should and will implement sustainable supply chain management practices. However, through inductive research methods, we uncovered an intriguing theme that runs counter to both the existing empirical evidence and such economic-based assumptions. We find that managers operating in firms without exemplary sustainable supply chain management practices face immense hurdles in developing a business case for implementing sustainability initiatives. Despite the lack of such practices—and in tension with the prevailing empirical evidence and theory—the firms within which these managers operate were performing well on economic-based performance metrics. Departing from the neoclassical economic theory of the firm, we apply the Behavioral Theory of the Firm's theoretical assumptions to findings which suggest four segments of managers in non-exemplary firms who vary based primarily on how they perceive strategic vulnerability, evaluate choices, and utilize sustainability knowledge.

Keywords: sustainable supply chain management; human judgment and decision making; environmental issues; social responsibility; grounded theory; qualitative data analysis; behavioral theory of the firm

INTRODUCTION

The debate on whether or not a strong business case exists for developing and implementing socially and environmentally sustainable practices has attracted considerable attention from practitioners and academics. In particular, research has shed light on this debate by finding empirical support for a positive link between sustainable supply chain management (SSCM) and economic-based business performance (e.g., Ageron, Gunasekaran & Spalanzani, 2012; Golicic & Smith, 2013; Reuter, Foerstl, Hartmann & Blome, 2010; Wolf, 2014). Importantly, these empirical findings are aligned with robust theoretical justifications, such as providing dynamic competencies,

satisfying external stakeholder pressure, and fostering high-performing collaborative supply chain partnerships (Linton, Klassen & Jayaraman, 2007; Paulraj, 2011). Thus, standard economic theory would contend that firms consisting of rational decision makers will adopt and implement SSCM because it will improve performance.

During the analysis of the data collected for this research on SSCM, however, an interesting theme emerged that initiated further exploration. Despite the strong theoretical support and the empirical evidence that rational managers will and should pursue SSCM, some of the managers in our sample faced significant hurdles in developing a business case to commit

resources toward SSCM. Others experienced immense difficulties implementing SSCM even when resources were committed. Interestingly, and perhaps even an unpopular notion, despite the lack of SSCM practices ranging from virtually no interest to limited implementation, each of these firms was performing well on accounting-based profitability metrics, including positive net income and growth in their industry. Furthermore, all the firms were performing as well or better than their competitors that appear (according to qualitative data and industry reports) to be successfully practicing SSCM.

In light of our findings, a review of the literature suggests that the current application of theory may not sufficiently explain nor predict the managerial behavior observed with respect to SSCM. To better understand this apparent contradiction, we applied the behavioral theory of the firm (BTF) (Cyert & March, 1963). The BTF departs from the standard, neoclassical economic theory of the firm and concentrates on managerial decision making processes, but has received scant direct and explicit attention within the SCM discipline (although indirectly foundational to many topics and studies within SCM; see Gavetti & Levinthal, 2004). The BTF focuses on explaining the realistic, boundedly rational decision making processes of managers.

Rational individual-level attitudes, experiences, and preferences about the importance of sustainability have been shown to vary greatly across managers (Kaufmann, Michel & Carter, 2009; Klassen, 2001; Pagell & Gobeli, 2009), which creates confusion regarding commitment to SSCM. Conflicting pressures from internal and external stakeholders often exacerbate these challenges. For instance, senior management, shareholders, and supply chain members harbor concerns about SSCM implementation and corresponding opportunity costs, the reality of tangible outcomes, the impact on customer demand, and the magnitude of improved financial performance (Walker, Di Sisto & McBain, 2008). Decisions about SSCM practices are ambitious in ideology, but in reality, may be a lower priority or impractical in the minds of many managers (Bowen, Cousins, Lamming & Faruk, 2006).

If the benefits of SSCM are to come to fruition, managers need guidance on this socially complex and challenging process of evaluating and implementing SSCM (Zhu, Sarkis & Lai, 2012). To that end, more theoretical and practical insight is needed to address this common situation—the manager who is forced to struggle with the SSCM phenomenon within organizations and supply chains that are *not* intrinsically and strategically motivated to emphasize exemplary environmental and social responsibility (i.e., non-exemplary). To advance theory and practice through a better understanding of the complexities of the SSCM

phenomenon, this research undertakes an in-depth exploratory investigation into the decision making processes of SSCM practices and the corresponding difficulties with which managers struggle. The objective of this research is to gain a better understanding of how managers perceive, process, react to, and contend with SSCM, from an emotive and cerebral dimension, when their organizations are struggling to adopt or implement SSCM. We approach this objective by inductively developing a grounded theoretical model of SSCM in non-exemplary firms, which is integrated with the BTF. Four segments of managerial behavior which emerged from this model are presented and then juxtaposed with exemplary SSCM organizations to provide a more comprehensive theoretical explanation of the complexities of SSCM from a manager's point of view.

LITERATURE REVIEW

Carter and Rogers (2008, p. 358) define SSCM as “the strategic, transparent integration and achievement of an organization's social, environmental, and economic goals in the systemic coordination of key interorganizational business processes for improving long-term economic performance.” The underlying assertion is that SSCM creates value for organizations, which has led to years of research seeking results regarding the link between sustainable practices and performance (Tate, Dooley & Ellram, 2011). Indeed, empirical findings indicate that the “win-win-win” of balancing environmental, social, and economic performance leads to improved operational efficiency and cost reductions, quality, compliance, risk mitigation, supply chain security, company image, health and safety standards for workers, market growth, and revenue generation (Golicic & Smith, 2013; Hollos, Blome & Foerstl, 2012; Pagell & Wu, 2009; Pagell, Wu & Wasserman, 2010; Reuter et al., 2010; Zhu, Sarkis & Lai, 2013). Yet despite this overwhelming preponderance of evidence, the question remains as follows: why are not more organizations adopting SSCM practices?

SSCM Decision Making

Firms face significant trade-offs and challenges associated with the decision to develop and implement SSCM. The sustainability concept itself is confusing for many managers (Ehrenfeld, 2005). This is understandable, given that SSCM encompasses a wide variety of different, sometimes divergent, contexts, priorities, and goals (e.g., environmental responsibility, growth limits, diversity, profitability, resource conservation, workplace safety, and labor rights) (Carter & Jennings, 2002; Ehrenfeld, 2005). Also, the growing number of external global stakeholders and regulations

adds to the confusion as differing levels of expectations on a global scale must be managed (Carroll, 2004).

Some firms successfully overcome these challenges; many do not. Successful firms are considered proactive exemplars that make deliberate decisions to take a strategic, long-term perspective of achieving positive economic and noneconomic performance impacts of SSCM (Carter & Easton, 2011; Carter & Rogers, 2008; Gold, Seuring & Beske, 2010; Seuring & Müller, 2008). By exemplar, we refer to the small subset of organizations that are leaders, well ahead of their industry, in SSCM (Pagell & Wu, 2009). Examples of research using exemplar firms in the literature include Reuter et al. (2010), who found multiple cases where firms prioritize sustainable supplier management, Gold et al. (2010), who base their SSCM framework on the practices of exemplar firms, and Pagell and Wu (2009), who focused specifically on exemplar companies in SSCM in their sampling process.

Conversely, non-exemplar firms face significant difficulties and challenges associated with implementing SSCM practices. These firms are assumed to be simply less sophisticated, unable or unwilling to make SSCM decisions, lagging in positioning themselves for long-term competitiveness, and generally not performing as well as they could (Zhu et al., 2012). However, the reality of why these firms struggle goes deeper and is more complex than simply a discussion of leaders versus laggards. The BTF (Cyert & March, 1963) provides an important theoretical foundation to better understand these complexities.

Behavioral Theory of the Firm

Researchers have utilized stakeholder theory and the resource-based theory of the firm (RBT) extensively to explain that a proactive SSCM strategy would result in a competitive advantage and produce a market offering that has value for customers (Carter & Easton, 2011). Correspondingly, during our research analysis, it became clear that stakeholder, RBT, and other common theories applied to SSCM (Sarkis, Zhu & Lai, 2011) did not sufficiently explain the managers' decision making in terms of SSCM. Instead, analysis of the data led us to the BTF, which provides theoretical justification for the results observed in the data.

Cyert and March (1963), in their behavioral theory of the firm, departed from standard economic theory by articulating a realistic account of bounded rationality and its importance in understanding the behavioral decision making process of firms. There are numerous literature reviews of the BTF, which we will not redundantly repeat here (see for example, Augier, 2013; Gavetti, Greve, Levinthal & Ocasio, 2012; and Miner, 2015), except to say there are many core, influential "little ideas" from the BTF (Miner, 2015). The

analyses of our grounded qualitative data identified four theoretical BTF assumptions that both facilitate the explanation of our findings and provide integrated extensions to the BTF-SSCM theoretical insights. First, the role of managerial decision making is to manage and minimize uncertainty. Also, firm aspirations are driven by past performance more so than core goals, strategies, and direct external influences. Further, firm decision makers will only initiate search for information when aspirant levels are not being met (i.e., problematic search). Stemming from bounded rationality and the costliness of information search, the BTF contends that decision makers will satisfice instead of maximize. Thus, search is motivated by a problem (not meeting "satisficing" aspirant levels), simple-minded and biased (e.g., Kaufmann et al., 2009). Lastly, the BTF argues that most decisions do not arise out of "mindful future-oriented choices" (long-term strategies, planning, etc.), but rather firm routines, developed through path dependencies over time, drive the preponderance of managerial decisions (Miner, 2015).

The primary benefit of exploring this topic is that it allows for a more in-depth understanding of why non-exemplar firms struggle to understand and implement sustainable strategies and practices, and what strategies might be useful to help propel them forward. This path forward is a critical stage of firm development as the push for more transparency, compliance, flexibility, and sensitivity toward SSCM is expected to grow in the future.

RESEARCH METHOD

The objective of this research was to investigate the complexity in the decision making processes of supply chain managers as they confront and engage in SSCM initiatives. This research objective requires the intuitive approach of qualitative methods that gathers and examines data in a manner that reveals detailed aspects of the topic and unlocks information with deep meaning (Lincoln & Guba, 1985). Accordingly, we used a grounded theory approach given the need for more theory in the literature, specifically as it relates to non-exemplar organizations. Grounded theory is well suited to investigating the decision making of individuals as they deal with socially complex phenomenon (Kaufmann & Denk, 2011; Manuj, Omar & Pohlen, 2014). Following grounded theory methodology practices (Strauss & Corbin, 1998), this research was conducted iteratively by reviewing existing literature and collecting and analyzing data simultaneously. The introduction and literature review utilized the concepts that emerged from our research analysis (Omar, Davis-Sramek, Fugate & Mentzer, 2012; Sud-daby, 2006). We used theoretical sampling and constant

comparison and continually contrasted the findings with the literature to examine the differences and similarities between existing research and the emerging patterns from the findings (Corbin & Strauss, 2008).

Context and Sample

Interview participants were chosen based on theoretical sampling guidelines whereby researchers concurrently collect, code, and analyze the data to develop the theory as it emerges (Belk, 1989). The first several interview participants were chosen based on our original research focus, investigating SSCM decisions related to regulation and global sourcing. This was performed using purposeful sampling techniques to ensure a good fit with our research question. Purposeful sampling or criteria-based sampling is a strategy that is used in qualitative research to deliberately select particular people or settings (Maxwell, 1996). The initial participants were selected from a diverse set of industries where there was significant global sourcing involved as well implications for sustainable practices. However, after the initial set of interviews, we realized that the stories being told by the participants stressed the complexity and difficulties that they were facing with SSCM. Following the objectives of grounded theory research and the opportunities it affords to allow theory to emerge, we started to focus on a different pattern as it emerged from the data collected in the interviews—namely the nature, scope, and extent of difficulties and issues that managers were facing. We then sought out additional companies in different industries to create a sample from which we could generalize about the phenomenon that was emerging.

Data collection stopped when a state of saturation of the findings was reached (Suddaby, 2006). The final sample consisted of twenty three supply chain managers involved in SSCM, across nineteen different organizations. The sample reflected diversity along several dimensions, such as tenure on the job (5–30+ years), title and job responsibilities, firm size and annual sales (\$2 million–\$3.6 billion), and products and industry (e.g., aerospace, automotive, healthcare, retail, electronics, food and beverage, pharmaceuticals, etc.). A detailed description of the research participants and the organizations are available in Tables 1 and 2.

Data Collection

Interviews were conducted on-site and by phone. The interviews generally lasted 60–90 minutes. The grand touring technique was used during the interviews with the managers, where the participants were asked to recall memories of personal experiences related to their involvement in sustainable supply chain operations. The participants were prompted to provide more details in certain situations (Spradley,

1979). The interviews were transcribed through a professional transcription service provider. Additional notes were taken during and immediately after the interview through a debrief meeting among the researchers. In some cases, we asked (or were provided) with additional documents from the company that seemed relevant to the discussion.

Data Analysis

Data analysis was conducted using open, axial, and selective coding procedures (Corbin & Strauss, 2008). This approach consisted of each author independently following the coding techniques, using NVivo, Version 9. The analysis involved scanning of passages, returning to focus on words, phrases, sentences, sections, etc., and looking for similarities and differences to discover variation (Omar et al., 2012). This analysis eventually led to comparing, analyzing in detail, and combining themes into categories.

The purpose of these coding techniques is to identify “a slightly higher level of abstraction—higher than the data itself” (Martin & Turner, 1986, p. 147). This was achieved through the constant comparative method (Glaser & Strauss, 1967). From this perspective, we focused on creativity in applying analytical ability, theoretical sensitivity, and sensitivity to the subtleties of the actions and interactions. The data collection and analysis constantly evolved over time, and the themes were modified accordingly. This resulted in “lifting” the participant’s responses to themes, categories, and their properties and dimensional ranges into an overall theoretical explanatory scheme showing their relationships and interactions (Flint, Woodruff & Gardial, 2002; Suddaby, 2006).

Research Trustworthiness. The objectives of this study called for evaluating criteria appropriate for qualitative exploratory research (Hirschman, 1986). These include the following trustworthiness criteria: credibility, transferability, dependability, confirmability, integrity, fit, understanding, and generality (Belk, 1989; Flint et al., 2002; Hirschman, 1986; Kaufmann & Denk, 2011; Lincoln & Guba, 1985). A complete list of these criteria and how they were assessed is shown in Table 3.

In addition, inter-rater reliability was assessed to ensure consistency of coding across all researchers at different stages of the data analysis. Inter-rater reliability was measured using the “percent agreement” among raters method which reports the percentage of agreed upon coding decision from the total coding decisions (Autry & Bobbitt, 2008; McHugh, 2012). This was done in two stages. In the initial round, the reliability was 92 percent, which indicates strong reliability (McHugh, 2012), followed by a round of discussions among the coders to address and clarify differences in coding (Wu & Pagell, 2011). Consistent with other studies (e.g., Autry & Bobbitt, 2008; Wu &

TABLE 1

Profile of Participating Firms

Industry	Description
A. Industrial manufacturing	Company designs, produces, sells, and services material handling equipment; has a global presence. Annual revenues of nearly \$3 billion.
B. Communications	Global company which develops and provides global satellite services and video delivery technologies. Provides services to customers in more than 100 countries; annual revenues of \$3 billion.
C. Lubricants	Leading provider of fuels, chemicals, and lubricants for domestic and global automotive OEMs, fleet managers, equipment manufacturers, and private-label OEMs.
D. Electronics distribution	Global provider of electronic components and computer solutions to over 100,000 OEMs; supply chain partners in 58 countries; annual revenues of \$21 billion.
E. Pharmaceuticals	Leading global pharmaceutical company with sales offices, manufacturing facilities, and suppliers worldwide. Annual revenues of over \$23 billion.
F. Industrial manufacturing	Multinational manufacturer, sales, and service provider of heavy construction and other industrial equipment. Significant global presence with operations on five continents.
G. Aerospace	U.S. aerospace company that develops and manufactures sophisticated rocket systems for the DOD and NASA.
H. Automotive	Global supplier of chassis and transmission systems with operations in 26 countries. Customers include automotive, truck, and bus OEMs, industrial equipment and agricultural machinery manufacturers, and transportation companies. Annual revenues of \$17 billion.
I. Aerospace	Leading global supplier of aerospace and defense systems for aircraft and space programs. Worldwide operations and supply chain partners; annual revenues of over \$14 billion.
J. Healthcare	Leading U.S. healthcare systems with nearly 200 facilities nationwide. Large network of domestic and global supply chain partners. Annual revenues of over \$13 billion.
K. Food and beverage	Multinational food and beverage corporation with manufacturing and bottling operations worldwide and customers in over 200 countries. Revenues of over \$14 billion annually.
L. Automotive	Global automotive OEM with production in 13 countries and sales/service in nearly every country. Manages nearly 8,000 suppliers worldwide.
M. Retail	One of the largest retailing chains in the USA with nearly 9,000 stores selling a range of products, from groceries to prescription drugs. Revenues of \$72 billion annually.
N. Furniture	Online and catalog home furnishings company with customers in over 100 countries. Products purchased from suppliers based in North and South America, Europe, and Asia.
O. Electronics and paper products	Global sourcing company that manufactures and produces products globally and sells them to retailers or industrial customers worldwide.
P. Logistics services	Leading 3PL that specializes in supply chain management, reverse logistics, closed-loop supply chain, warehousing, and transportation solutions. Operations in North America, Europe, and the Middle-East. Annual revenues of almost \$2 billion.
Q. Hospitality	Global hospitality company with hotel and resort properties worldwide.
R. Electronics	Multinational computer technology company. Designs, sells and services computers and related technology around the world. Approximately \$60 billion in annual revenues.
S. Electronics	Leading global information technology company with suppliers and operations worldwide.

TABLE 2

Profile of Participating Professionals

Participant	Professional Experience in Supply Chain Management and Related Fields
Manager 1	6 years of experience. Commodity Manager/Leader. Responsible for maintaining strategic framework of components and accessories, including logistics.
Manager 2	21 years of experience. Vice President Business Development. Previous experience as Supply Chain Manager responsible for contract negotiations and procurement.
Manager 3	25 years of experience. SCM Manager. Responsible for global supply chain activities at manufacturing facilities; includes procurement, freight and transportation, and establishing corporate metrics for supply chain performance.
Manager 4	11 years of experience in procurement. Director of Supply Chain Management focusing on e-commerce and online revenue. Responsibilities include inventory and cost management.
Manager 5	16 years of experience. Global Director of Procurement, e-businesses, and e-marketing. Previous experience in IT solutions, military, and laboratory research.
Manager 6	Over 11 years of experience. General Manager of Supply Chain Division responsible for scheduling, inventory, import/export, and customer support. Previously in global sales.
Manager 7	21 years of experience in aerospace procurement. Currently a Subcontract Administrator, responsible for sourcing and supplier management.
Manager 8	24 years of experience in automotive SCM. Director of Purchasing and Supplier Quality. Responsible for managing global component procurement and quality assurance.
Manager 9	14 years of experience. Director of Design and Development. Responsible for the design, development, and purchasing of all retail customer's equipment, supplier development, and customer support.
Manager 10	12 years of experience. Director of Operations and Supply Chain Management. Responsible for inventory cost management, supplier management, and process integration nationwide.
Manager 11	5 years of experience. Currently in supplier development. Previous experience with international sourcing. Involved in spend analysis and strategy, forecasting, global supplier development, procurement, and quality management.
Manager 12	23 years of experience. Manager of Purchasing Strategy responsible for strategic business planning, supplier risk management, and supplier financial evaluation.
Manager 13	15 years of experience. Director of Purchasing. Manages nationwide team of procurement specialists responsible for supply procurement, supplier management, and customer-supplier relationship management. Previous experience in automotive purchasing.
Manager 14	11 year of experience. Global Product and Marketing Manager. Responsible for product from international suppliers and matching customer demands with possible sources.
Manager 15	25 years of experience. President of a global sourcing company. Customers include a worldwide variety of mass retailers and international hotel chains.
Manager 16	Over 30 years of experience. Senior Director of Engineering and Operations. Responsible for all aspects of operations, including product specifications and design, supplier selection, procurement, and cost and risk management.
Manager 17	30 years of experience, Executive vice president of a global logistics service provider. Responsible for strategic initiatives with clients as well as over corporate operations.
Manager 18	30+ years of experience. President of Global Logistics, responsible for the day-to-day operations.

(continued)

TABLE 2 (continued)

Participant	Professional Experience in Supply Chain Management and Related Fields
Manager 19	6 years in the current position and 16 years of industry experience. Facility Manager, general manager of the returns processing facility.
Manager 20	5 years with the firm. Site Manager and responsible for managing operations on-site and making decisions on behalf of the customer.
Manager 21	10 years of experience. Customer solution manager, responsibilities include managing the day-to-day customer interactions and database management.
Manager 22	9 years of experience. Inventory and Control Manager, responsible for inventory audits and customer compliance.
Manager 23	12 years of experience. Operations Supervisor, responsible for returns processing operations.

Pagell, 2011), the discussions on the differences in coding eventually led to a consensus across all coded categories among all of the researchers which resulted in a 100 percent inter-rater reliability.

FINDINGS

A grounded, theoretical framework emerged from analysis of the data which provided rich insight into understanding how managers experience the challenges related to adopting and implementing SSCM and the decision making processes in their job, department, and organization (Figure 1). The framework incorporates three primary, overlapping categories which provide the theoretical underpinnings of managers' perceptions and interpretations of SSCM practices and strategies. The three categories divide into one core category and two supporting categories, each with properties that vary across dimensional ranges, as dictated by the data. The categories interact with one another, which illustrates the complexity and multidimensionality of the interviewees' feelings and interpretations of SSCM practices. The following sections will discuss the theoretical framework followed by a discussion of the four different segments.

Categories

The three major categories in the theoretical framework are *managing supply chain strategic vulnerability*, *utilizing sustainability knowledge*, and *evaluating strategic choices* (Figure 1). Each category emerged with properties and subproperties, which explain and highlight the thought process and the perceptions of supply chain managers as they described their interactions with SSCM practices. Importantly, while these categories have distinct concepts, they are not mutually exclusive; they are densely overlapping and interdependent. The following sections provide detailed explanations of the categories and properties with accompanying power quotes and supportive quotes.

Managing Supply Chain Strategic Vulnerability. Managing supply chain strategic vulnerability emerged as the core category that provided the greatest explanatory power and is the most concise representation of the different ways managers interacted with SSCM. Strategic vulnerability is described as a psychological state where managers feel a sense of being "at risk" when making strategic choices, including operational decisions as well as decisions related to firm goals and competitiveness (Spekman & Strauss, 1986). Perceived strategic vulnerability has been used in numerous contexts including buyer-supplier relationships, ethics, and strategic decision-making processes (Kennedy & Lawton, 1993; Mantel, Tatikonda & Liao, 2006; Rugman, Verbeke & Campbell, 1990). Strategic vulnerability arises when managers believe that limited options exist for them when making decisions, especially decisions which are potentially impactful (Nielson, 1996; Spekman, 1988a; Spekman & Strauss, 1986), for example, whether or not to develop and implement SSCM practices.

Respondents perceived managing supply chain strategic vulnerability as a critical component of their decision making process related to considering, adopting, and implementing SSCM practices. This finding was the initial impetus to consider applying the BTF as an explanatory theoretical foundation for understanding the SSCM phenomenon we observed. A key premise underlying the BTF is that the role of managerial decision making is to manage and mitigate uncertainty (Cyert & March, 1963). Furthermore, the BTF provided the insight during our analyses when we found that the elements of the core category are noticeable in the supporting categories, creating a continuous reinforcement of the importance of strategic vulnerability in the theoretical framework.

Strategic vulnerability appeared to be the underlying reason for the uneasiness in the managers interviewed. Consequently, they exhibited an obvious

TABLE 3
Data Trustworthiness^a

Trustworthiness Criteria	Method of Addressing Criteria in This Study
<p>Credibility Extent to which the results appear to represent the data</p>	<ul style="list-style-type: none"> • Regular on-site team interaction and debriefing. • Codes and text were analyzed by independent coders. • Independent researchers reviewed interpretations. • 36 weeks conducting interviews. • Interviews allowed participants to respond to interviewee's initial interpretations. • Result: Emergent models were constantly altered.
<p>Transferability Extent to which the findings from one study in one context will be applicable to other contexts</p>	<ul style="list-style-type: none"> • Triangulation of interview sites within and across participating organizations. • Theoretical sampling. • Result: Data from all participants were represented by the theoretical concepts.
<p>Dependability Extent to which the findings are unique to time and place; the stability or consistency of explanations</p>	<ul style="list-style-type: none"> • Many experiences covering recent and past events were reflected on by the participants. • Result: Regardless of position in firm and when the story took place, found consistency across participants' stories across different organizations.
<p>Confirmability Extent to which interpretations are the result of the participants and the phenomenon as opposed to researcher biases</p>	<ul style="list-style-type: none"> • Interpretations, documents, and summary of preliminary findings were independently reviewed by at least three researchers. • Result: Interpretations were broadened and refined.
<p>Integrity Extent to which interpretations are influenced by misinformation or evasions by participants</p>	<ul style="list-style-type: none"> • Interviews were of a nonthreatening nature, confidential, and professional. • Result: researchers never believed that participants were trying to evade the issues being discussed.
<p>Fit Extent to which findings fit with the substantive area under investigation.</p>	<ul style="list-style-type: none"> • Addressed through the methods used to address credibility, dependability, and confirmability. • Result: Concepts were more deeply described, and the theoretical integration was made more fluid and less linear, capturing the complexities of social interaction discovered in the data.
<p>Understanding Extent to which participants buy into results as possible representations of their worlds.</p>	<ul style="list-style-type: none"> • Participants were asked during the interviews to confirm whether researcher's initial interpretations were accurate. • Result: Interviewees and participants bought into the findings.
<p>Generality Extent to which findings discover multiple aspects of the phenomenon.</p>	<ul style="list-style-type: none"> • Interviews were of sufficient length and openness to elicit many complex facets of the phenomenon and related concepts. • Result: Captured multiple aspects of the phenomenon.

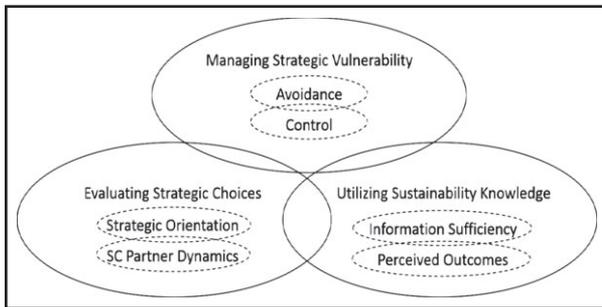
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TABLE 3 (continued)

Trustworthiness Criteria	Method of Addressing Criteria in This Study
Control Extent to which organizations can influence aspects of the theory.	<ul style="list-style-type: none"> • Participants can control almost all theory variables. • Result: Participants were involved in implementing (or attempting to implement) sustainable supply chain initiatives.

^aAdapted from Flint et al. (2002).

FIGURE 1
Implementing SSCM in Non-exemplar Organizations



strong desire to manage and mitigate strategic vulnerability. Some participants described this as a sense of apprehension about making strategic decisions related to SSCM. The data reveal this apprehension as a common theme to explain why the managers were having difficulties implementing or initiating SSCM practices. A participant described how they felt as follows:

The difficulty for us is that by the time we are done packaging it, it's so un-green it is not even funny. And so we would look foolish to say to customers hey the finish on this is this that or the other or the materials are recycled and so on. So, if we bring [SSCM] up we are so far wrong that we would look foolish at best. On top of that, I'm not even sure I know much about it.

Two important properties associated with the core category of managing supply chain strategic vulnerability emerged from the data: *avoidance* and *control*. Participants often referred to these two properties as mechanisms of dealing with the strategic vulnerability that was perceived to be present while implementing supply chain sustainable ideas or projects. The two properties and their ranges are shown in Table 4.

Avoidance describes managers' reactions to strategic vulnerability and their attempts to avoid making decisions in situations that were perceived to pose risks not only to the company, but also to their own

reputations. According to the BTF, firms avoid the necessity of confronting uncertainty by (1) negotiating their internal and external environments and/or (2) delaying decisions until the uncertainty is resolved through the unfolding of events (Cyert & March, 1963). The managers described the use of both of these tactics. Some showed avoidance by taking specific and deliberate actions to discount SSCM initiatives altogether and suggested other strategic courses of action instead. For example, some expressed avoiding SSCM initiatives even on a small scale because it opens the door for external stakeholders to criticize them about a complex area in which the managers have little knowledge and experience. For instance:

We worry about being able to do it [SSCM] and if we do whether we stay competitive as before or not. There is a big risk involved here and we constantly fear losing our standing in the market because of such initiatives.

Following the avoidance tactic of delaying decisions as described in the BTF, other managers worked to postpone any decisions related to SSCM in the short term while they gathered more information or waited until the decision was made for them. As one participant expressed:

In cases where I was presented with a project that had a sustainability focus, I would ask for more time to gather data and maybe just buy some time . . . perhaps people would forget about this or by then someone else would come and say this has to be implemented and now they have full ownership.

The other property related to supply chain strategic vulnerability is control. Managers explained that control was also one of the ways used to manage any new sustainable undertakings. The BTF contends that rather than treat the external environment as exogenous and suffer consequences of uncertainty, firms develop standard operating procedures (formal and informal routines) through coalition interaction over time as a means to control the external environment (Cyert, 1988). According to the BTF, these rules provide stable, predictable structures (e.g., allocation of function, contracts, and approximating procedures

TABLE 4

Categories, Properties, Dimensional Range, and Supportive Quotes

Category	Property	Dimensional Range	Supportive Quotes
Managing Supply Chain Strategic Vulnerability	Avoidance	Major–minimal	“So there’s really not a huge opportunity for something scandalous because these are major, major companies that we’re working with. But with the local vendors, you still do have that risk.”
	Control	High–low	“We’re not worried about our supplier’s behavior. I mean, it’s not an issue as we’re not sourcing in impoverished nations...it’s just not something we would do.”
Utilizing Sustainability Knowledge	Information Sufficiency	High–low	“We don’t know enough to do it. It’s not a policy thing, it’s just you don’t know what you don’t know.”
	Perceived Outcomes	Clear–vague	“We’ve got all the metrics to make sure we are reducing that year over year we have commitments to Wall Street to reduce our global commitment year after year.”
Evaluating Strategic Choices	Strategic Orientation	Long term–short term	“Since we’re kind of in the infancy of understanding the needs of our own company, forcing that down on our strategic suppliers is probably a good ways away.”
	SC Partner Dynamics	Aligned–misaligned	“We expect suppliers to follow our guidelines but we never go out to audit them.”
Contextual Conditions	Type of industry		“There is no major push for sustainability in our industry.”
	Level of technology required		“Suppliers lack the technology needed to undertake certain initiatives.”
	Company size		“We’re a big—real big company and we move at the speed of snail so I just don’t know—it just takes a long time to turn the ship one way or another.”

with both employees and external parties such as suppliers) to establish greater control over a manager's uncertain environment. Control thus relates to the level of perceived power managers have to influence their firm's (and their own) destiny in varying environments (stable and unstable) (Spekman & Strauss, 1986). Furthermore, control is often employed to minimize risks associated with asset specificity (Aulakh & Kotabe, 1997). In some cases, this refers to situations where avoidance is not possible (e.g., regulation).

Control also refers to reducing dependence on suppliers by controlling their actions, resources, and internal decisions, when possible (Parmigiani, Klassen & Russo, 2011). As predicted by the BTF, higher control has been shown to lower perceptions of vulnerability, so it makes sense that decisions to decrease dependence through control was undertaken (Nielson, 1996). One manager explained:

They (suppliers) don't even know what the regulation is. So we have to just make sure that they've got the—steer them to the REACH website and take them—make sure that they don't have any of those classifiers. If they do, we get them registered and come up with a plan for them remove it over the next couple years.

In addition to the core category, two other related categories emerged: utilizing sustainability knowledge and evaluating strategic choices. The overlap and interaction of these with strategic vulnerability represents a significant finding as the way in which the participants managed strategic vulnerability varied with their perceptions of uncertainty and risk associated with the two supporting categories. One of the participants explained:

[SSCM is] not in the strategy because the task would be in my opinion literally impossible and very risky. I don't think that we could actually become or build "green" ... the main thing in my mind about that would be the money. Green initiatives and sustainable practices cost a great deal more money and for us and for our company or anybody like us, the cost would be astronomical in terms of product. But it is not just about the cost or the risk of becoming less competitive, it is much more complex than that. I'm not even sure what materials we would use to get it to them. I do not know if our suppliers would be on board. So it's really something at this point that's not possible and presents a major risk to us. It's not something we are prepared to do for a variety of reasons.

Utilizing Sustainability Knowledge. Utilizing sustainability knowledge relates to a manager's knowledge of sustainability strategies, practices, and their outcomes.

It also refers to how to implement sustainable initiatives, where to start, and how to manage the process. This includes manager's own personal preconceptions, level of acceptance, and biases about sustainable business practices. For example, one of the participants described the following:

We have a recycling division that continues to grow exponentially so we go as far as we can logistically and capture used oil and that actually goes back into the asphalt burning market for repaving and paving new roads ... our recycling goes to that market. The recycling helps in our sustainable strategy but there is still a debate on understanding the actual benefits from such initiatives. From the customer standpoint we are looking at more sustainable packaging as well, with the bottles that can be recyclable, flexible packaging to reduce land fill ... as well it is probably not packing as much in the lubricants oil industry as maybe some others, but it is starting to take off. Everyone is going after recycling and sustainability, it is just sometimes a struggle to know how to launch and manage this complex process. We want to do it and get involved but we face many challenges because of our lack of knowledge and expertise in this area which is relatively new to us.

This category has two main properties: *information sufficiency* and *perceived outcomes*. The BTF again helps to better understand these two properties and their dimensional ranges (Table 4). While standard economic theory assumes humans to be economically rational by knowing all decision alternatives and evaluating these to select which maximizes the objective function, the BTF rejects this assumption by pointing out the fact that managers make decisions without considering all the potential alternatives because information search is costly (Nelson & Winter, 1982). Thus, managers will make decisions without a sufficient level of information and the less available information, the more uncertainty that exists (Cyert & March, 1963).

Within the context of SSCM, information sufficiency was explained by supply chain managers as the degree to which the managers possessed the knowledge and information about the sustainable projects. This included understanding where to begin (i.e., products, suppliers, within factory walls, etc.), how to begin, what metrics to use, and how to assess the sustainability performance. Information sufficiency represents an individual's sense of how much information is available to make a decision (Spekman, 1988a). It also represents a perception of what is yet unknown about potential contributors to risk (Mantel et al., 2006). Managers struggled with information sufficiency in

cases where their customers demanded sustainable and green aspects with their products or services. For example, a supply chain manager described the request and the urgency to respond to such a request as follows:

The customer gets to make the rules. For us the pressure comes from our customers—if they want green or recycled products then that's what we get them.

In such cases, the supply chain managers recalled that they were unable to fulfill such demands because of their lack of knowledge of understanding what the customers exactly wanted, how to incorporate those additions or modifications to their processes, and how to measure such changes. One of the respondents described this property as follows:

In some cases we had a pressure from our customers to switch to sustainable products and we found this to be very challenging. We had a hard time understanding exactly what it is that they wanted—so how green should the products be and what's green enough? We also began to panic about the implementation and the nature of adjustments necessary to our different supply chain processes. We worried about both the implementation and having the right metrics in place. We were clueless about both of those aspects.

The other related dimension within this category was perceived outcomes, which refers to managers' expectations of the benefits and/or costs of any sustainable projects that they are considering implementing. In many cases, managers did not perceive the benefits to be enough to outweigh the risks or costs involved. In other cases, the participants did not perceive any positive benefits from the projects. Some participants talked about the potential of benefits, but due to insufficient information increasing the level of uncertainty and risk, they were hesitant about throwing their support behind those projects.

Overall, it was apparent that much ambiguity existed regarding the perceived outcomes of SSCM. This is reflected in the BTF, which argues that expectations are derived from managerial observations and interpretations of surroundings and are inherently myopic due to biases in motivation based on local rationality and simple-mindedness in the ability to understand cause and effect (Cyert & March, 1963). In several instances, the managers did not necessarily perceive a negative impact on operations but were just unsure what the benefits would be. For instance, true to the BTF's contention that the search for information, and thus routines and action, is more likely to be triggered by quantitatively measurable goals (Cyert & March,

1963), managers perceived that investing time and efforts into SSCM may not yield tangible benefits. Conversely, investments in traditional operational and market-based supply chain initiatives provided more predictable outcomes.

Evaluating Strategic Choices. Evaluating strategic choices refers to managing, adjusting, and reconciling personal goals and objectives (including reputation/image) and perceived corporate objectives and strategic direction(s). This involves providing a justification for operational and strategic decisions. This also includes beliefs about best practices. Two primary properties emerged from evaluating strategic choices: *strategic orientation* and *supply chain partner dynamics*. The two properties and their dimensional ranges are found in Table 4.

Strategic orientation refers to the time frame of the strategic horizon under consideration. Following the BTF's argument that managers avoid uncertainty more often (not always) by resolving short-term problems rather than long-term strategy, most managers in our sample had a short-term focus where they were more concerned with strategy that needed to be implemented within the next six months to two years. The focus on the short term for several managers represented a conflict with starting or implementing any SSCM initiatives that were typically viewed as not urgent to address or simply too hard to predict. As Cyert and March (1963) assert, "in short, they achieve a reasonably manageable prediction by avoiding planning where plans depend on predictions on uncertain future events and by emphasizing planning where the plans can be made self-confirming through some control device" (p. 119). Managers recognized that while SSCM was important, there were simply too many other, higher priorities to address that provided more predictable outcomes. This was directly connected to the other categories discussed earlier where managers talked about the risk of failure, the risk of the unknown, and not understanding clearly where and when the benefits would come. In an environment where the focus is on short-term deliverables, this represented an even greater obstacle. One manager explained:

I'm buying medical supplies for doctors. Now, the fact that there may be a bad carbon footprint over in India where one of those particular gloves is made—the difference with my supply chain, I'm like fifth in line after—after four others that do have a dramatic impact on that, so I don't think it's very important or beneficial to us because we don't really have a lot of—we can't really have an impact over changing it anytime soon. And don't really, quite frankly, have a lot of vision on who's doing things, quote unquote, right or not right.

The other property exhibited within evaluating strategic choices was supply chain partner dynamics, which refers to the degree of appropriate supply chain structures and supply chain relationships. Supply chain structure/relationship is related to clearly understanding the relational goals and objectives/expectations of interfirm relationships (suppliers) and the reality of such relationships and overall supply chain structure. In some cases, there were evident contradictions between how managers perceived their relationships with external entities, and how the relationships actually operate. Managers would sometimes describe their relationships with suppliers as “strategic” yet when asked more about the details of that relationship, it was clear that the actual relationship tended to be more transactional or moderately collaborative. There were no signs of sufficient information sharing or aligned metrics or incentives to carry out SSCM actions. One of the participants explained that they had no understanding of what their suppliers are doing despite describing those relationships as strategic:

Those three suppliers are considered as strategic ones for us ... I'm not aware of any child labor or other violations of sustainable practices in our set of strategic suppliers; whether in marketing, logistics, or manufacturing, we do not get involved much in what takes place within their facilities. Yeah, we have a published code of conduct for our suppliers. Is it something that shows up in the contract, per se? There is a reference to a code of conduct and where it's published on our website for suppliers, but I think the more compelling admonition in our contract basically is for suppliers to follow all applicable law, to obey all applicable law and government regulations and policies and court decisions and dot, dot, dot. So there is the hope that the intersection between the law and morality is there. We do not audit those practices but assume they are being followed.

In other cases, the data showed stronger supplier relationships, yet suppliers were very resistant to any SSCM initiatives. Some managers explained that they would request certain actions from their suppliers to become more sustainable only to find a lack of cooperation and interest in implementing those initiatives for a variety of reasons. One participant explained supplier resistance:

In regards to ethical or sustainability criteria for our suppliers? Well, there are a lot of these vendors that have a feeling of entitlement. They have been around for forever; since they have been playing the game for a long time and it is very difficult to get them to move and every time you ask them to do something they stick their hand out and say pay me.

We've tried to implement some of these types of requirements and on every front our suppliers want us to pay to do these things. A lot of them (are resistant), especially the ones who are making unique products. They are pretty entrenched.

Thus, while much of the current literature explains the critical role of suppliers in creating successful SSCM practices (e.g., Reuter et al., 2010), managers expressed that the involvement of suppliers in SSCM discussions was premature and/or not being considered. This finding overlaps with managing supply chain strategic vulnerability and corresponding BTF firm routines; managers develop firm routines over time that protect information about internal decisions and who is involved, which reduces dependency on external relationships with suppliers to increase organizational control (Mantel et al., 2006; Spekman, 1988b).

Segmenting the Data

Four segments also emerged during the open, axial, and selective coding process, which represented variations based on the categories and properties we identified, that is, the areas in which the managers struggled most. Table 5 provides a summary description of each segment, along with its primary differentiating category and specific property and the corresponding BTF theoretical explanation of managerial decisions making up that segment.

Although this segmentation reveals the differences among the managers, it also highlights that all of the firms in our sample struggle at some level with implementing SSCM. This finding is in stark contrast to the preponderance of scholarly articles and industry press which seem to support the dialogue that managers understand the benefits of sustainability and actively pursue SSCM. The four segments found in the data are referred to as *Skeptical*, *Hesitant*, *Seeking*, and *Limited*.

Interestingly, the first two segments (*Skeptical* and *Hesitant*) are primarily differentiated based on the category information sufficiency and the second two segments (*Seeking* and *Limited*) are primarily differentiated based on the category evaluating strategic choices. Yet our findings suggest that the unique characteristics of each segment create distinctive associations with the core category, managing strategic vulnerability. The last column in Table 5 summarizes these associations.

The *Skeptical*. The first segment describes managers who were skeptical about any benefits that would come from SSCM practices; they simply were not motivated to pursue SSCM. They perceived SSCM as a fad that industry consultants are exploiting and something that will eventually fade out. Most of the effort put forth by the managers in this segment was related

TABLE 5
Clustering Managerial Experiences

Segment Name	Description	Primary Differentiating Category and Property (Managerial Struggle)	Corresponding BTF Explanation	Association with Core Category of Managing Strategic Vulnerability
"Skeptical"	This segment consisted of companies that were not eager to adopt sustainable practices. The customers did not signal a clear interest in sustainable products or services. Accordingly, this segment of managers saw little value in investing in green or sustainable initiatives. Any projects that were carried out by this segment were regulatory in nature in response to government regulation but very little was done voluntarily.	Utilizing Sustainability Knowledge <ul style="list-style-type: none"> Perceived Outcomes: no clear benefit to pursue SSCM. 	Aspirant levels: expectations are met, thus no need to conduct problematic search (no need to change). Managers tend to stick with status quo. Making riskier decisions is not warranted.	Associated with higher levels of Control. No motivation to pursue SSCM, thus do not need to avoid. Managers maintained control of current business processes and direction, while avoiding the unknown.
"Hesitant"	Managers in this segment were slightly more open to sustainable practices. Customer interest varied where some managers discussed instances when some of the customers were seeking or inquisitive about more sustainable practices. This was not the case with all customers. The managers had a hard time figuring out the true cost of the transition and felt that they lacked any kind	Utilizing Sustainability Knowledge <ul style="list-style-type: none"> Information Sufficiency: lack of adequate information about SSCM. 	Problemistic search: limits of rationality results in lack of complete information and corresponding ability to predict outcomes of decisions. Managers recognize need to change, but less likely to push for making a change.	Associated with higher levels of Avoidance. Little justification to convince others, internally and suppliers, and take the risk inherent in adopting SSCM.

(continued)

TABLE 5 (continued)

Segment Name	Description	Primary Differentiating Category and Property (Managerial Struggle)	Corresponding BTF Explanation	Association with Core Category of Managing Strategic Vulnerability
"Seeking"	<p>of knowledge or expertise to implement SSCM practices. They described the complexity of this process as similar to a state of paralysis where it was too risky to engage although they were tempted to in some cases. Managers in this segment showed more interest in sustainable practices. Customers' interest here varied. Most of the efforts seen by this segment were internal to their respective companies. The managers in this segment described a clear lack of visibility into their suppliers' capabilities. Supplier relationships were described in some cases as strategic although the managers had little knowledge about their suppliers' practices. Beyond any internal efforts the managers discussed the hurdles of getting started with any sustainable initiatives due inadequate supply chain structures and relationships such as joint investments, incentives, contracts, and relational norms.</p>	<p>Evaluating Strategic Choices</p> <ul style="list-style-type: none"> • <i>SC Partner Dynamics:</i> <ul style="list-style-type: none"> challenges with restructuring current inappropriate supply chain structures and relationships necessary to align supply chain partners and corresponding SSCM initiatives. 	<p><i>Intendedly altering routines:</i> current routines are self-reinforcing and will continue to persist. Managers attempt to change existing routines will be met with considerable resistance.</p>	<p>Associated with lower levels of Control. Inadequate supply chain structures and relationships hinder influence over suppliers which have little interest in SSCM.</p>

(continued)

TABLE 5 (continued)

Segment Name	Description	Primary Differentiating Category and Property (Managerial Struggle)	Corresponding BTF Explanation	Association with Core Category of Managing Strategic Vulnerability
"Limited"	<p>The managers in this segment talked about clearly understanding the value of pursuing SSCM practices. They even talked about it as a way to mitigate potential risks. The managers talked about problems of using the appropriate metrics, and advancing to other global regions in their supply chain. Overall, the managers had started implementing some best-practice sustainable initiatives but were having major challenges successfully adapting such practices to their organizations.</p>	<p>Evaluating Strategic Choices</p> <ul style="list-style-type: none"> Strategic Orientation: struggles with implementing existing best-practice SSCM in the short term. 	<p>Path dependency limitations: short-term focused managers tend to mimic routines of others. But firms are unique, possessing difficult to imitate routines, thus managers will struggle.</p>	<p>Associated with moderate levels of Control and Avoidance. The majority of the initiatives are internal with no vision to expand SSCM practices beyond company boundaries.</p>

to regulatory demands and compliance. None of them were trying to take proactive measures to initiate sustainability efforts either due to them not perceiving potential benefits from doing so or because they felt it did not make a difference to their customers. Some managers even struggled to provide examples of SSCM-related initiatives, indicating that their organizational procedures and incentives limited any sustainability efforts to work with the corporate SH&E managers and public relations department.

The data suggest that there may be good reasons why organizations and their managers have not pursued SSCM, as one manager highlighted:

There is a constant study going on as to what the competition is doing and of what customers have responded to in the past and of what they have not responded to in the past and what is in the marketplace and in trade shows and factories. All of that plays a role in determining what we think is out there. Everything that comes at us about fashion and interior design ... we are trying to stay on top of it in order to know what it is that we need to do next, what will be new and fresh and the study of what customer has been responding as to what we want to pick up and bring back because the customer likes it. Few of those aspects include the customers' request for sustainable practices whether in terms of the raw materials used or in terms of actual company practices.

Although it might be assumed that these managers were not innovative, the data revealed quite the opposite given the numerous non-sustainability-related novel and innovative initiatives they were developing and implementing. These managers simply wanted to focus their innovation and experimentations within supply chain areas with which they had more experience and understanding (not SSCM). While perhaps surprising at first given the preponderance of evidence highlighting motivations for pursuing SSCM, this finding is adequately explained through the lens of the BTF. A central assumption of the BTF is that as information search and processing about alternatives is costly (Cyert & March, 1963; March, 1988), managerial decision making is assumed to follow a logic of consequence, by which the outcomes of decisions are evaluated in relation to predefined aspirations (March, 1994). Further, the BTF contends that aspirations are not only driven by firm mission/vision or outside stakeholders, but are also adjusted based on past performance (Miner, 2015). Thus, it is dissatisfaction with existing processes that leads to search and the direction of search influences the decisions of the firm. However, when performance is satisfactory, the firm's direction, including routines and corresponding

actions, is not revised (March, 1994; March & Simon, 1958).

Accordingly, managers in the Skeptical segment thought that it was better to continue with business as usual rather than to risk an attempt at implementing sustainability requirements into products or processes when those requirements were neither understood nor perceived to add value to the organization, given their current satisfactory (or better) level of performance (i.e., these managers felt "satisfied"). Consequently, this allowed the managers to manage strategic vulnerability by maintaining higher levels of control of current business processes and direction, while minimizing the unknown. One manager put it succinctly:

We don't really get into any of this with the distributors ... let's just say we don't really deal with any of the distributors' warehouse people, labor practices, stuff like that. We don't have any criteria for labor ethics or anything.

The Hesitant. Managers in this segment were more convinced than the Skeptical of the potential benefits of implementing SSCM practices and in some cases received interest in sustainability by their customers. However, most of these managers were in organizations that did not prioritize resources for such initiatives. This segment is explained via the BTF's postulate that even when a manager is motivated (via unmet aspirant levels) to conduct information search, the limits of rationality result in the lack of "complete knowledge and anticipation of the consequences that will follow on each choice" (Gavetti et al., 2012; Simon, 1947, p. 81). It follows that managers who cannot gather and process adequate information that justifies revisions to current firm routines will be less likely to persist in making such a change (Cyert & March, 1963).

Correspondingly, this segment also suffered from low information sufficiency and real knowledge of which SSCM practices could be valuable. In particular, while the managers in this segment described strong working relationships with their suppliers, several experienced major pushback from their key suppliers on those SSCM initiatives which the managers attempted to implement, indicating a misalignment in the perceived structure of supply chain relationships. The managers explained that this pushback left them unable to do much on their own and, in some cases, too nervous to implement certain SCM programs because of the risk of failure and an unsettling and vague understanding of the perceived benefits as a result of such programs.

The managers in this segment also expressed that they had a hard time understanding the true cost of the transition to more sustainable supply chain

practices. They also expressed concerns about the potential loss of control if they suggested the implementation of SSCM practices and hence, greater strategic vulnerability of themselves and the firm. The managers described the complexity of these thought processes almost as a state of paralysis; they felt pressure to engage in SSCM but simultaneously believed it too risky to actually move forward given the lack of sufficient information. Ultimately, the managers kept referring to this interplay of emotions stemming from low information sufficiency as something which kept them from pursuing SSCM. Thus, they tended to manage strategic vulnerability by avoiding SSCM as much as possible.

The Seeking. The managers in this segment perceived clearer valuable outcomes from sustainable practices and were more eager to implement them than the managers in the Hesitant segment. It was more evident to them that aspiration levels were not being met, in many cases in conjunction with customers' requests and requirements, and thus were relatively more motivated to implement SSCM. The managers also expressed a higher level of information sufficiency than either the Skeptical or the Hesitant managers. Ultimately, these managers expressed minimal avoidance due to the perceived benefits, the support of customers, and at least some willingness of suppliers to at least participate in the SSCM discussions.

Yet they were still unable to develop and implement SSCM initiatives, but for different reasons than those described by the previous segment. They also lacked several tools for implementation such as supply chain information systems, and unified and aligned metrics. The BTF explains this as the struggle involved in intendedly altering firm (and subsequently added, interfirm) routines (Argote & Greve, 2007). Routines—incentivizing metrics, intrafirm and interfirm coordination mechanisms and structures, contracts, budgets, resource allocation, etc.—of the firm are self-sustaining and self-reinforcing such that repetition of routines strengthens their stasis within the firm (March, 1994). Consequently, such routine conformity creates challenges in subsequently adapting firm routines. Routines will continue to persist even when managers attempt to revise them to be more appropriate for the changing business environment (Nelson & Winter, 1982; Teece, 1982).

Managers in this segment explained that even if they were unable to make the economic-based business case for a sustainability initiative, they *felt* strongly the initiative would pay off in the long run by pursuing it. But when managers in this segment did undertake some initiatives, they were mainly internal and there were no real interfirm programs being implemented. Managers explained that beyond any internal efforts, they faced significant hurdles moving forward with

interfirm sustainable initiatives due to inadequate levels of control over their supply chain and corresponding misaligned supply chain structures. Ultimately, these managers struggled to adapt firm and interfirm routines to enable SSCM.

The Limited. The last segment that we identified was considered to have the most far-reaching interest in SSCM practices. Managers in this segment were more advanced than others in initiating and implementing sustainable initiatives and seemed to have a clear understanding of the value of the outcomes for undertaking such initiatives. Customer interest was quite evident and more collaborative relationships with their suppliers existed, indicating that the organizations' supply chain structures and relationships were more aligned than the previous segments. Despite the stronger structures and interest, managers in this segment were still quite limited in what they had accomplished and in what their overall strategic orientation looked like over the long term. Managers explained that they were constantly faced with a dilemma of balancing the cost of implementing SSCM versus the cost of doing nothing, and the risk that each action or nonaction may entail. One manager explained this dilemma:

On the one hand, because of compliance laws, our company has very strict rules on the maximum time a shift could be on a line, hour per week, etc. But it made us uncompetitive because those workers would jump ship and go to a factory across the street, get similar pay but significantly more hours of overtime work. The public perception at least here in the U.S. is that these workers are being overworked and that these standards are not fair to them, but at the same time they want as much earning potential as possible even if that means working 16 hours a day, seven days a week.

The greatest struggle these managers faced was in replicating best-practice SSCM into and throughout their supply chain. The managers in this segment described examples of other companies' SSCM initiatives and metrics, but faced significant problems with developing, adopting, and utilizing these initiatives and metrics within their firm and supply chain. This was especially true when working toward a consensus, both internally and with the members of the supply chain. Thus, while managers in these segments were motivated to change, had relatively more sufficient information to implement SSCM, and relatively greater ability to alter firm and interfirm routines, they lacked the ability to successfully create SSCM routines appropriate for their particular firm and supply chain.

The BTF provides a strong rationale for the struggles described by managers within this segment. Managers in this segment often described frustrations with not

being able to successfully implement the well-known sustainability initiatives that other firms had implemented. The BTF suggests that short-term focused managers will tend to mimic others more because “as long as there is some chance that others have better information ... it may be better to do what those others do” (Ingram & Baum, 2002; p. 658). The BTF further explains that the difficulty of replication and imitation of routines is a result of path dependencies of routines and contends that firms are highly heterogeneous in their internal structure. Even if firms can accurately observe which routines (e.g., best practices) are most effective at obtaining their objective, they will be limited in their ability to apply these routines to other, less-efficient parts of their firm (Cyert & March, 1963) and to their supply chain. Likewise, less-efficient firms, while always striving to adopt the routines of their more successful competitors, are rarely able to do so, even when they hire key personnel. Unlike the neoclassical economic treatment of the firm, routines are not observable, replicable production functions ripe for imitation (Nelson & Winter, 1982).

These firms were also associated with moderate levels of control and avoidance. At the local subsidiary level, they maintained high levels of control (influence over sustainability in terms of local, internal operations) and low levels of avoidance. At the corporate and supplier levels, however, they had low levels of control (influence) and correspondingly high levels of avoidance in implementing sustainability at those levels. While they expressed that they were trying to expand their initiatives organization-wide and externally, it was clear that much of their efforts were surface level; they had concentrated their efforts on the low hanging fruit thus far. They still had little influence (control) over their suppliers, often because they were avoiding taking the necessary steps to overcome the existing barriers to implementing sustainability with their suppliers. As one manager explained:

And actually we're trying have a meeting but there's no time for this kind of thing. We're trying to schedule for some time next year I think ... we're meeting with our suppliers I think, trying to form sustainability policies.

The profiles of these segments begin to provide a skeletal framework for thinking about key differences and similarities in managers' existing level of knowledge, supplier involvement, sources of motivation, and degree of implementation of SSCM practices within non-exemplar organizations. The characteristics regarding managerial decision making vary based on how they approach managing strategic vulnerability of sustainability with their supply base, the level and use of knowledge about sustainability, and evaluating strategic choices about sustainability. The characteristics of

these segments are also associated with or impacted by particular contextual conditions such as overall industry interest in sustainability, the sophistication of technology needed to implement sustainability across the supply base, and the size of the company and its corresponding ability to drive changes in sustainability internally. The findings regarding these SSCM categories and their corresponding supporting categories and properties, along with the four segments provide new insights on the nature of implementing SSCM in non-exemplar organizations. These insights are compared and contrasted with the prevailing state of the SSCM literature in the following sections.

DISCUSSION

The objective of this research was to explore how managers in non-exemplary firms perceive, process, react to, and contend with adopting and implementing SSCM. A theoretical framework, which emerged from a grounded theory qualitative research analysis, revealed that managing strategic vulnerability, utilizing sustainability knowledge, and evaluating strategic choices are major categories that describe the thought processes and perceptions of managers struggling with SSCM. Importantly, each of these findings is substantiated and integrated with theoretical foundations of the BTF. The results also indicate that these managers can be placed into four segments that vary based on managers' existing level of knowledge, supplier involvement, sources of motivation, and degree of implementation of SSCM practices.

Although some of our findings are consistent with the current literature, other findings challenge some prevailing wisdom about the nature of implementing SSCM in non-exemplar organizations. Therefore, we begin our discussion by comparing and contrasting our findings with existing SSCM research and corresponding theoretical perspectives in light of our findings, followed by a discussion of the implications of BTF for SSCM and then a discussion of the implications of the results for managerial practice. The section concludes by acknowledging the limitations of the research. Throughout this section, we provided suggestions for further research.

Implications

Theoretical Implications. Existing research has provided convincing evidence that SSCM is positively associated with high levels of organizational performance (e.g., Ageron et al., 2012; Golicic & Smith, 2013; Pagell & Wu, 2009; Reuter et al., 2010). This positive association is often justified by theoretical arguments that sustainability provides a competitive advantage. For instance, RBT suggests that SSCM might lead to the building of dynamic and unique

capabilities that can create a sustained competitive advantage (Barney, 1991). The cumulative evidence from literature surrounding SSCM would suggest that organizations not pursuing SSCM are less mature, short-sighted, and should embark on a path to implement SSCM. Yet the broad set of organizations represented in our sample come from a variety of industries and are performing well on traditional economic-based criteria despite only minimal adoption and implementation of SSCM practices. In particular, the Skeptical and Hesitant segments did not view sustainability as a competitive priority.

Similarly, stakeholder theory is often used to justify organizational or managerial investments into sustainability practices (Carter & Easton, 2011). Stakeholder theory posits that the purpose of business is the maximization of value creation for the various stakeholders of the business (Freeman, Harrison, Wicks, Parmar & De Colle, 2010). Stakeholder theory contends that stakeholders set norms for, experience the effects of, and evaluate corporate behavior which in turn influences managerial behavior. Correspondingly, stakeholders are an increasingly prominent motivator for organizations to adopt environmental and social practices (Eesley & Lenox, 2006). Stakeholder theory thus provides one perspective that is commonly used in research to theoretically justify increased managerial motivation for sustainability (e.g., Pagell et al., 2010). Yet again, many of the participants in our study, particularly within the Skeptical and Hesitant segments, did not perceive that such shifts were occurring within their industry.

While the RBT and stakeholder theory are attractive theories to support managerial motivation for implementing sustainability, the application of these theories to SSCM is based on assumptions that perhaps need to be reexamined. The data collected in this research suggest that these assumptions, that is, customers and other stakeholders' values are shifting toward sustainability, are limited. These assumptions may not always hold true, and indeed may rarely hold true (i.e., rather, it may only hold true in those outlier organizations that are considered exemplars of SSCM). Sustainable supply chain management is posited to stem from a business model where economic goals are compatible with environmental and social goals.

Some of the managers in our research felt that improving upon the traditional economic-based SCM practices was the key to their organizations' competitive advantage; they needed to create dynamic and unique competencies that their markets value and in such a way that is compatible with their key stakeholders' values. Thus, future research should carefully assess the degree to which these assumptions hold true for the sample being studied and whether the corresponding theory is indeed appropriate.

In addition, stemming from the theoretical justifications of the RBV and stakeholder theory, much of the SSCM literature has focused on or has analyzed data from organizations that are considered exemplars in terms of SSCM (e.g., Pagell & Wu, 2009). This critical research provides insight into SSCM best practices of unique, innovative, and sustainability-postured organizations. Such research suggests, for example, that managers must have an orientation to be proactive and committed to sustainability.

Conversely, while the managers in the Seeking and Limited segments expressed greater interest in and/or were implementing SSCM practices more than either the Skeptical or Hesitant segments, their efforts were still quite restricted due to the social and contextual complexities with which they must operate. The findings suggest that managers do not necessarily reach the same conclusions as is portrayed in much of the extant literature. These managers are often quite limited due to the challenge of managing the supply chain strategic vulnerability that exists when implementing SSCM, information insufficiency regarding SSCM and its perceived outcomes, and misalignment with supply chain members.

One of the important theoretical contributions of this research is delving into the mindset of managers to understand the dilemma and the degree of complexity of decision making in the area of SSCM. These perceptions are important to understand because the phenomenon represents a complex social process that is constantly changing and dynamic in nature. Our research therefore employed an interpretivist ontological perspective, which provides a richer and more detailed context of how managers perceive and respond to this phenomenon. This inductive perspective identified an emergent theoretical model that provides a look inside the minds of supply chain managers operating in organizations that are non-exemplars of SSCM.

This inductive approach also afforded the ability to allow the most interesting phenomena and theoretical explanations to emerge during the research process. Indeed, the initial findings led us to the BTF, which has been argued to be the most impactful research within the study of organizations (Argote & Greve, 2007; Gavetti & Levinthal, 2004), yet which to our knowledge has not been connected to sustainability research. The BTF provided an appropriate theoretical foundation for our study as it has a particular focus on recognizing the complexities with which managers' struggle, and which we believe could provide unique and important theoretical implications for the study of SSCM. For instance, the BTF contends that firms' aspirations are not driven only by outside influences but are most influenced based on past performance. If this assumption of the BTF is accurate, this implies

that the commonly applied stakeholder theory may be overemphasized. Further, the RBV and resource-advantage theory assume the prominence of mindful, future-oriented decision making, while the BTF challenges this notion, suggesting that path-dependent routines will tend to dominate.

While our research can serve as an initial connection between the BTF and SSCM, the BTF is vast and deep and provides a fertile ground for future research to better understand the realities of SSCM. One avenue for future research is to apply the BTF's notion of aspirant levels, particularly the assumption of sequential attention, which argues that decision makers attend to one goal at a time and move on to the next goal when performance on the first is above the aspiration level (Cyert & March, 1963). While important work has been conducted in this area (e.g., Greve, 2008), it has yet to be connected to the notion of the triple-bottom line, which in effect is based on the assumption that more than one goal can be attended to at one time. The BTF is also often credited as the foundation of organizational learning, and the subsequent routine-adaptive (Nelson & Winter, 1982) dynamic capabilities (Teece, 1982). While we do not want to conjecture far beyond our findings, it is possible that Wu and Pagell's (2011) exemplars reached the state of creating SSCM-specific dynamic capabilities, which the Limited segment had not developed. Future research could attempt to connect these non-exemplars to exemplars of SSCM by investigating the development and presence of SSCM-specific dynamic capabilities.

Managerial Implications. The findings point to the idea that management of the unknown is perhaps a leading principle that guides SSCM decisions. Risk management and its inherent trade-offs (risk and return) are the central manifestation of motivation. The line between making an effective or ineffective decision is often thin. Thus, research suggests that in such situations, managers need to find ways to provide psychological safety (Edmondson, 1999) for those who work with and for them instead of reaching the point of paralysis. Creating psychological safety is important to facilitate the willingness to push beyond paralysis in decision making when faced with high levels of uncertainty. Managers should therefore alleviate excessive concern about negative outcomes resulting from SSCM, but rather promote an environment of experimentation and invest in training in the area of supply chain risk management principles.

In addition, while previous research (Wu & Pagell, 2011) provides four segments of exemplar SSCM organizations that could be used for managers as a best-practice standard to which a manager could compare his/herself, the findings of this research may be more pertinent to managers operating within the more

common organization. The four segments identified in this research and their corresponding characteristics in terms of managerial experiences and decision making are perhaps more relevant and salient.

For instance, managers who identify with the Skeptical segment should actively monitor understanding competitive priorities of their organization, market opportunities, and stakeholders' influences. If the market forces do not indicate a clear business case for pursuing SSCM, then the manager is faced with the decision of attempting to pursue SSCM as a long-term strategy, recognizing the potential short-term financial challenges. Because current aspirant levels are being met in this segment, the manager's primary focus would need to be to develop the business case for SSCM using future scenarios and corresponding aspirant levels (i.e., whether the future market will demand and/or recognize the value of sustainability).

For managers who relate more to the Hesitant segment, they should increase the monitoring of their market and stakeholders while also actively gathering information about opportunities for SSCM, and assess potential impacts of SSCM on customer desires, cost reductions, and other economic performance criteria. Because managers in this segment have a more salient business case (relative to the Skeptical), they must not fall into the trap of paralysis and instead take small but calculated risks, recognizing that they will never possess nor be able to process all the required information necessary to make a risk-free decision (i.e., problemistic search). They should also consider fostering a stronger relationship with suppliers that are key to SSCM to get them involved and encourage more risk sharing across their supply chain members.

Managers who find themselves within the Seeking segment should take similar steps but also seek to establish a sustainability strategy that includes interfirm initiatives, performance metrics, and involvement. They need to seek those sustainability champions, whether inside their firm or external suppliers, customers, or third parties, who will help them overcome resistance. Here, it is important that they recognize that altering existing routines is very challenging. Research suggests one potentially successful strategy for altering existing routines is to do so incrementally—seemingly minor alterations that exponentially make the subsequent change easier and more effective (Teece, 1982).

Lastly, managers who identify with the Limited segment should go beyond the actions of the Seeking segment and begin understanding advanced metrics and interorganizational initiatives. While studying best-practice SSCM is important, managers need to recognize that dynamic capabilities specific to their firm will need to be developed in order to move into the exemplar SSCM segments. Such SSCM dynamic capabilities must involve a firm-permeated desire for

continual adaptation of rules and standard operating procedures. This is especially important because sustainability is very much an emerging topic with relatively little reliable guidance for managers. As research, data accessibility and usefulness, and technologies advance, so too must firms and the managers who create and implement SSCM practices.

Limitations

In with any research project, the research question determines the methodological approach and choices made by the researchers that create limitations in interpreting the results. In this research, the researchers' time spent with each interviewee was limited to the participant's availability. This truncated the realm of possibilities that could have been part of the interview protocol and thus limited the depth and breadth of the information collected. For instance, case studies are often identified as having the richest data and could be conducted in the future. This would allow for more in-depth discussion, on-site observations, and snowballing data collection within a smaller set of organizations.

External validity is difficult to achieve with qualitative research methodologies and presents a limitation in this research. While external validity is not the goal of grounded theory, positivist leanings in academic research dictate the need for broader sampling. Following this approach, constructs could be identified and survey items extrapolated from the findings in this study to initiate the process of developing scales for a survey methodology.

In addition, whereas this study included customer pressures as an important contextual concept, the scope of this research did not address how to actually motivate supply chain managers to consider implementing SSCM strategies and practices. In particular, it would be useful for future research to consider exploring the concept of a "tipping point," to understand whether there is a point or set of points where managers would move from Skeptical, Hesitant, and Seeking, to Limited and beyond.

Finally, future research could examine the perceptions and decision making of managers based in Europe and other geographical areas. The sample in this research consisted of managers engaged in global operations, but all of the managers were based in the United States. Differences in national culture, government regulation, and consumer preferences across different regions can have an impact on managers in how they address sustainable practices in their supply chains.

CONCLUSIONS

Although advances in practice and theory have contributed to SSCM, the topic is far from mature.

Managers continue to struggle with adopting and implementing sustainability internally and across their supply chain. More effective decision making regarding when and how to adopt and implement SSCM can help managers throughout the supply chain to understand the complexities they face as they encounter both the operational and social challenges of sustainability. By offering insight into how managers in non-exemplar SSCM organizations experience and make decisions about SSCM, this grounded research helps advance theory and knowledge in the arena of business sustainability and supply chain management.

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