

# Impact of social sustainability orientation and supply chain practices on operational performance

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## Abstract

**Purpose** – Socially sustainable supply chain (SSSC) practices address pressing social issues and may provide operational benefits as well as positive impacts on society. However, due to gaps in the current knowledge, it is difficult to know what practices will provide benefits and what management orientations can maximize the impact of these practices on operational performance. The purpose of this paper is to advance the knowledge on the effect of social sustainability orientation on operational performance by examining the mediating roles of basic and advanced SSSC practices and the moderating role of long-term orientation (LTO).

**Design/methodology/approach** – Data were collected through a survey of US-based companies about their relationships with key suppliers. Confirmatory factor analysis and multiple regression were used to test the proposed moderated mediation model.

**Findings** – Surprisingly, sustainability orientation predicts operational performance through advanced but not basic SSSC practices. Results also indicate that the effect of sustainability orientation on operational performance is significantly moderated by LTO.

**Research limitations/implications** – Results are limited by the US context, the cross-sectional nature of the research, the use of a single-respondent survey instrument and the challenges of measuring LTO.

**Practical implications** – Managers and policymakers should be aware of the limitations of adopting basic SSSC practices on the performance of their operations. Advanced practices provide a more robust business case and significantly and positively impact operational performance. In addition, the interaction of a sustainability orientation and LTO can lead to even greater improvements in firms' operational performance. Firms with the highest levels of social sustainability and LTOs attain superior operational performance.

**Originality/value** – This study contributes to the growing literature on sustainable supply chain management (SSCM) and extends this literature by focusing on social sustainability practices, identifying specific practices that impact and the orientations that maximize operational performance. The authors contribute to the growing literature on the importance of manager's temporal orientation and provide nuance to emerging SSCM theory by exposing the interplay of these orientations and the impact of SSSC practice adoption.

**Keywords** Operational performance, Supply chains, Long-term orientation, Sustainability orientation, Social sustainability practices

**Paper type** Research paper



## 1. Introduction

Socially sustainable supply chain (SSSC) practices involve a range of initiatives that are critical for global supply chains, including health and safety, child and slave labor, working conditions, human rights and community impact programs (Walker *et al.*, 2014). Tragedies such as the Dhaka fire in 2012 (Manik and Yardley, 2012) and the 2013

collapse of Rana Plaza (North, 2013), coupled with concerns for child and slave labor in the global fashion supply chain (International Labor Organization, 2017), many brands, such as Marks & Spencer (M&S) in the UK, expanded their SSSC practices to improve human rights across their supply base and supplier communities (Waldock, 2016).

Besides being relatively unexplored when compared to environmental practices (Carter and Rogers, 2008; Seuring and Müller, 2008), different SSSC practices can have different business outcomes (Sharma and Henriques, 2005; Klassen and Vereecke, 2012). For example, process-oriented SSSC practices, such as codes of conduct and monitoring systems, serve as guides for suppliers on sustainability issues and help monitor supplier activities (Klassen and Vereecke, 2012; Huq *et al.*, 2014; Marshall *et al.*, 2014; Marshall *et al.*, 2015). However, while they may improve supplier sustainability behavior, they do not necessarily lead to better sustainability performance (Jiang, 2009). Audits may in fact drive dishonest behavior and mock compliance. The need to provide the right “face” to the customer and the subjective nature of auditing creates uncertain performance outcomes (Jiang, 2009; Huq *et al.*, 2014). After all, the Rana Plaza building had passed compliance audit months before its collapse (Webb, 2017). Conversely, market-oriented practices, such as product redesign and Fairtrade initiatives, are much more strategic, longer-term commitments, which enhance reputation and potentially lead to improved operational performance across supply chains (Pagell and Wu, 2009; Awaysheh and Klassen, 2010; Marshall *et al.*, 2015). The Ferrero Group, the world’s third largest chocolate producer, plan to eliminate slavery amongst all their cocoa suppliers by 2020, partnering with the cooperative movement “Enterprise Cooperative Kimbre” in Côte D’Ivoire. This collaboration forms a major element of their sustainability effort, addresses their reputational challenges and drives operational improvements (Kittilaksanawong and Curcuraci, 2017).

Some argue that firms should implement a broad range of SSSC practices (Winter and Knemeyer, 2013), though most tend to limit their practices, usually monitoring and certification practices, to key upstream partners (Quarshie *et al.*, 2016; Thorlakson *et al.*, 2018). Therefore, it is important to understand which practices can be most effective in improving sustainability, overall firm performance (Quarshie *et al.*, 2016) and the mechanisms for such influence (Pagell and Wu, 2009; Closs *et al.*, 2011).

Given the array of SSSC practices, Marshall *et al.* (2015) distinguish between “basic” and “advanced” practices. Basic practices focus on the health and safety of workers in the supply chain, such as health and safety monitoring or management systems, while advanced practices redefine the supply chain through new products or processes that benefit multiple stakeholder groups, promote transparency of social sustainability information and include NGOs and communities in supply chain decision making (Marshall *et al.*, 2015).

Due to a lack of research on SSSC practices, academics and managers find it difficult to delineate them, understand what drives them and have little knowledge of their impact. Furthermore, evidence suggests that the impact of SSSC on the operational performance of firms is ambiguous (Marshall *et al.*, 2017). The few existing studies find performance benefits from SSSC practices difficult to realize (Holloos *et al.*, 2012; Marshall *et al.*, 2017). However, other studies found general sustainability practices led to improved access to knowledge and information-sharing capabilities (Pedersen, 2009), better collaboration (Wu and Pagell, 2011) and resulted in “cooperative advantages” from incorporating local community concerns (Strand, 2009). It is contended, though, that SSSC practices might indirectly lead to improvements in operational performance through the reduction of operational risk (Klassen and Vereecke, 2012) and enhance reputation through public recognition of SSSC adoption (Brammer and Pavelin, 2006). However, as noted by Sodhi (2015), this topic has not been fully investigated. Thus, our research focuses on the

influence of social sustainability orientation (i.e. the extent to which a firms' commitment to SSSC practices is ingrained into its actions) and long-term orientation (LTO) on distinctive SSSC practices, and their impact on operational performance. Our research questions are:

*RQ1.* Does sustainability orientation impact operational performance through basic and/or advanced SSSC practices and, if so, how?

*RQ2.* Does LTO impact the relationships between sustainability orientation, SSSC practices and operational performance and, if so, how?

Five research hypotheses are developed and examined to address these questions. This study is similar to the work by Marshall *et al.* (2015) as we explore the relationship between sustainability orientation and basic and advanced SSSC practices. Our study extends their research by examining not only the impact of sustainability orientation on the adoption of practices but also how these practices relate to operational performance in US-based firms. Our study makes an original contribution to the sustainable supply chain management (SSCM) literature by investigating the conditional effect of LTO on the relationship between social sustainability orientation, distinct SSSC practices and operational performance.

## 2. Construct development

There is a clear gap in research relating to SSSC practices. The literature so far focuses primarily on environmental supply chain practices (Klassen and Vereecke, 2012; Huq *et al.*, 2014) leaving a gap about the form, drivers or impacts of SSSC initiatives (Zorzini *et al.*, 2015). In the few supply chain-related studies that have touched on SSSC practices, labor-related issues are typically discussed in a peripheral manner. Their focus has instead been on a narrow range of concerns, particularly concentrating on health and safety at work; child, slave and forced labor; compliance with labor standards; equal rights; freedom of association; and human rights (Welford and Frost, 2006; Font *et al.*, 2008). Methodologically, SSSC studies mainly use case studies to build theory and deconstruct SSSC practices (Ciliberti *et al.*, 2009; Klassen and Vereecke, 2012; Huq *et al.*, 2014). Some studies have tested theory but conflate SSSC practices into one construct (Hollos *et al.*, 2012).

Klassen and Vereecke (2012) posit that managing social issues in supply chains requires the awareness of how such issues evolve in the supply chain, how practices can respond to stakeholder concerns and their impact on performance. However, since research remains limited, the drivers of SSSC practice adoption remain unclear (Pagell and Wu, 2009; Closs *et al.*, 2011). One notable exception is Marshall *et al.* (2015), who make a significant contribution to this domain by deconstructing basic and advanced practices and investigating how sustainability orientation affects such practices. However, particularly germane to this paper, they do not investigate the influence of temporal orientation or the impact on performance.

### 2.1 Social sustainability orientation

The extent a firm embraces social sustainability determines their social sustainability orientation. The term orientation loosely refers to a broad focus or positioning of an organization's activities and policies, and the concept of firm orientation has been applied to many areas of research, such as marketing (Siguaw *et al.*, 1994), entrepreneurship (Lumpkin and Dess, 2001), stakeholder theory (Berman *et al.*, 1999) and corporate environmentalism (Banerjee, 2002). Banerjee's (2002) definition of environmental orientation and Berman *et al.*'s (1999) definition of stakeholder orientation are both applications of this concept to the broader study of sustainability. Similarly, Marshall *et al.* (2015, p. 438) used the term "sustainability culture" as a firm's recognition of the impact of its activities "on society and communities and

the need to minimize it, which translates into a philosophy and values that drive the decision-making process of the firm” applying the concept of orientation to both entrepreneurial and socially sustainable positioning.

Extending these definitions, we define the construct of social sustainability orientation as the overall firm commitment to SSSC practices. Firms that are social sustainability-oriented have ingrained social sustainability in their values and recognize the need to minimize their impact on society (Banerjee, 2002; Marshall *et al.*, 2015). Furthermore, social sustainability-oriented cultures promote decision making and practices that operationalize these values (Marshall *et al.*, 2015). Our examination of social sustainability orientation emphasizes the systems in place, innovations introduced and the strategies adopted to drive SSSC practices (Gimenez *et al.*, 2012).

## 2.2 Basic and advanced SSSC practices

The operational practices that can drive social sustainability across supply chains are categorized into basic and advanced practices by Marshall *et al.* (2015). Basic SSSC practices focus on the health and safety of workers in the supply chain and usually include monitoring of suppliers and/or the implementation of sustainability management systems (Marshall *et al.*, 2015). Monitoring of suppliers can be accomplished through verification of suppliers’ compliance with codes of conduct, compliance with government regulation and audits of suppliers’ facilities and operations (McCarthy and Jayarathne, 2012; Klassen and Vereecke, 2012; Marshall *et al.*, 2015). Sustainability management systems are developed by firms following guidelines from certification bodies to provide structure to their practices (Marshall *et al.*, 2015). Examples include codes of conduct to ensure ethical behavior, human rights and acceptable working conditions, and social monitoring and management systems, e.g., SA 8000, OHSAS 18001 certification (Marshall *et al.*, 2015).

Advanced SSSC practices are significant because they redefine the supply chain and focus on the development of new products or processes that benefit different stakeholder groups (Marshall *et al.*, 2015). These practices require proactive behavior from firms to implement major changes that go beyond monitoring and compliance of suppliers (Klassen and Vereecke, 2012; Marshall *et al.*, 2014, 2015). Advanced practices usually include the redesign of products or processes or supply chain strategy redefinition (Pagell and Wu, 2009; Klassen and Vereecke, 2012; Marshall *et al.*, 2015). Products and processes may be redesigned to benefit workers, reduce health risks for consumers and include fair-trade arrangements with suppliers (Sharma and Henriques, 2005; Carter and Rogers, 2008; Tate *et al.*, 2010; Klassen and Vereecke, 2012; Marshall *et al.*, 2015). For example, in fair trade arrangements, which focus on long-term relationships between farmers and importers, commodities are purchased directly from producers, guaranteeing a fairer price for their products even when market prices are low (Levi and Linton, 2003). These practices encourage collaboration with non-traditional partners and open up the supply chain to scrutiny by disclosing data on workers’ rights, human rights and well-being for workers in the supply chain (Marshall *et al.*, 2015).

## 2.3 Operational performance

Few studies examined the relationship between sustainability practices and non-financial performance (Walker *et al.*, 2014; Zorzini *et al.*, 2015). One study, however, found that the top ten global sustainability leaders integrate sustainability into the “fiber” of their organizations, improving their overall performance (Danciu, 2013). Another found a direct relationship between a well-articulated and developed sustainability vision and operational performance (Peršič and Markič, 2013). However, a challenge in connecting operational performance to social sustainability is the potential for a wide diversity of operational outcomes across industries as well as the highly specific nature of those measures (Roca and Searcy, 2012). As such,

measuring operational performance is problematic and experts recommend using perceptual measures (Ketokivi and Schroeder, 2004). Consequently, here we build on Kotabe *et al.*'s (2003) definition of operational performance by exploring respondents' perceptions in the dimensions of product quality, process improvement and lead time improvements. Operational performance is thus defined as "the combination of product development efficiency, process improvements, quality conformity, and short lead times" (Kotabe *et al.*, 2003, p. 294).

We can also assume that SSSC practices can influence operational performance through employee engagement and productivity. Research shows motivated, committed workers are more productive (Pfeffer, 2010) and, given that SSSC practices emphasize human health and well-being in the supply chain (Marshall *et al.*, 2015), they are thus likely to influence operational performance through product-development efficiency, process improvements and lead time reductions.

#### *2.4 Long-term orientation*

LTO is particularly important in exploring SSSC practices as there are different arguments for the impact of STO or LTO on practice adoption and performance. In studies confined to environmentally sustainable supply chain practices, researchers disagree if these practices lead to short-term costs or benefits, or if there are long-term costs or benefits (Colby *et al.*, 1995; Carter and Rogers, 2008; Wu and Pagell, 2011). Additionally, Wu and Pagell (2011) found that short-term concessions to business imperatives were often made at the expense of sustainability practices. Therefore, understanding the impact of LTO on the relationship between social sustainability orientation and SSSC practice adoption should provide important insights.

The temporal orientation of firms is a subjective measure of time that reflects the depth of strategic decision making (Lee and Liebenau, 1999) and may range from short-term to long-term focus of strategic decisions on outcomes (Wang and Bansal, 2012). The important distinction between an STO and LTO is that while STO tends to emphasize efficiency and productivity, LTO generally focuses on effectiveness and competitiveness, requiring vision and careful coordination of relationships and processes (Wang and Bansal, 2012). Consequently, we adopt Lumpkin *et al.*'s (2010, p. 241) definition of LTO as firms' "tendency to prioritize the long-range implications and impact of decisions and actions that come to fruition after an extended time period."

### **3. Hypotheses development**

#### *3.1 Social sustainability orientation, basic and advanced SSSC practices and operational performance*

As Marshall *et al.* (2015) found, adoption of SSSC practices is dependent on the internal decision-making context and orientation of the sourcing firm. However, their study did not address the potential relation between firms' sustainability orientation and operational performance. Other studies explore social sustainability practices and/or financial performance (Pullman and Dillard, 2010; Klassen and Vereecke, 2012; Shafiq *et al.*, 2017) rather than on operational performance.

Marshall *et al.*'s (2015) framework identifies two main categories of basic practices: monitoring activities and management systems that improve the health and safety of workers in the supply chain. While few studies looked at the connection between basic practices and operational performance, some studies looked into the impact of basic practices such as suppliers' behaviors and capabilities, quality and productivity on operational performance. Jiang (2009) found that basic practices, such as codes of conduct and company policies, can help guide the improvement of supplier sustainable behavior; however, they do not always lead to sustainability outcomes. Klassen and Vereecke (2012)

found that firms with basic practices, such as supplier monitoring, are better able to shape their suppliers' social capabilities. Similarly, Tencati *et al.* (2008) found that basic practices improve productivity, quality, competitiveness and retention of skilled workers. According to them, basic practices (e.g. monitoring and management systems) organize and standardize business systems across the supply chain leading to fewer mistakes, fewer accidents, decreased employee turnover and higher productivity. Therefore, the benefits identified by Jiang (2009), Tencati *et al.* (2008) and Klassen and Vereecke (2012) suggest that basic practices can influence operational performance by improving quality, reducing lead times and improving processes.

More advanced practices identified in Marshall *et al.*'s (2015) classification involve substantial changes in product and process designs along with the redefinition of SSSC strategies. These practices have been shown to help focal firms improve operational processes, identify new product opportunities, develop new markets for existing products and services, increase transparency in the supply chain, improve competitive advantage, improve reputation of the entire supply chain and increase organizational learning (Awaysheh and Klassen, 2010; Tate *et al.*, 2010; Marshall *et al.*, 2015). For example, Puma, the international sportswear company, has engaged in multi-stakeholder dialogue for over a decade, bringing them into their strategy and decision-making processes. They have motivated suppliers to provide information for their social key performance indicators. According to the company, this has increased supply chain visibility allowing Puma to mitigate risks and identify opportunities for product and process development (Puma, 2016). Advanced practices make social issues central to the organization and its supply chain and arguably should improve firm performance in the long term (Sharma and Henriques, 2005).

Further, the significance of advanced practices for operational performance is primarily through the identification of process and product inefficiencies in an analytical manner, based on the incorporation of operational data in decision analysis (Klassen and Vachon, 2003; Hervani *et al.*, 2005). Such a "forensic" approach increases the engagement of personnel in collaborative knowledge sharing related to the organization's internal operations, again driving progress in sustainability goals (Hervani *et al.*, 2005).

Thus, in examining the relationship between social sustainability orientation and operational performance, we posit that the impact of basic and advanced practices may differ, and the relationship will be impacted by the type of practice adopted. This leads to our first two hypotheses:

*H1a.* The relationship between social sustainability orientation and operational performance will be mediated by basic SSSC practices.

*H1b.* The relationship between social sustainability orientation and operational performance will be mediated by advanced SSSC practices.

### 3.2 LTO, social sustainability orientation, SSSC practices and operational performance

Researchers state that LTO is critical to reaping the benefits of sustainable operations and supply chain practices (Rouse and Daellenbach, 1999). Given corporate sustainability is widely viewed as a long-term construct (Klassen and Hajmohammad, 2017), Wang and Bansal (2012) argued LTO may help firms recognize the value of investing in sustainability activities, even if investments cannot be recouped in the short term (Wu and Pagell, 2011) and therefore have to be traded off against other benefits such as increased value from stakeholder relationships, decreased risks and compliance costs and reduced managerial distractions by improving alignment among stakeholder demands.

Wu and Pagell (2011) reinforce the connection between sustainability, LTO and firm performance by affirming social and environmental sustainability are essential to creating

long-term competitiveness and, therefore, an LTO should ultimately positively impact a firm's operational performance (Lumpkin *et al.*, 2010; Flammer and Bansal, 2016). Jiang (2009) and Roehrich *et al.* (2014) pointed out that many firms realize the successful implementation of SSCM practices requires LTO. Firms with LTO, for example, are more capable of developing successful suppliers partnerships, which can positively affect operational performance by ensuring quality, improving processes and reducing lead times (Kotabe *et al.*, 2003; Roehrich *et al.*, 2014). However, Aguinis and Glavas (2012) and Klassen and Hajmohammad (2017) note that temporal issues related to sustainability practices and performance have received scant attention and, they argue for the incorporation of time-based factors in any research investigating the impact of sustainability practices on performance.

Adoption of different types of sustainability practices is also related to firms' temporal orientation. Although the literature indicates temporal orientation plays a role in the adoption of basic SSC practices, few studies have looked at the impact of firms' temporal orientation on the adoption of basic SSC practices. Some supplier certification programs, such as FLO-CERT from Fairtrade, emphasize short-term results to reassure consumers that suppliers are adhering to sustainable practices (Klassen and Hajmohammad, 2017). However, Huq *et al.* (2014) found that suppliers who appropriately comply with basic practices, such as labor standards, were able to secure longer-term orders from buyers and retain skilled workers for longer periods of time, which suggests that LTO plays a role in firms' decision to adopt basic practices.

Additionally, the literature indicates a connection between LTO and advanced practices. Eccles *et al.* (2014) found a positive relationship between LTO and highly sustainability-oriented firms, i.e., those adopting a wide array of sustainability practices. They posit that LTO is necessary when adopting sustainability practices that can meet the needs of different stakeholder groups. Flammer and Bansal (2016) proposed that firms with LTO are more likely to increase investments in long-term strategies, such as innovation and developing lasting relationships with stakeholder groups. In addition, they observed improved operational performance in the long-term due to firms' investment in long-term strategies and practices, while these might be costly in the short term they have higher long-term returns. For example, McDonald's supplier, Cargill, through an alliance with the non-governmental organization CARE, have worked to enhance the livelihoods of workers and farmers in supply chains, have improved crop yields, given farmers access to new markets and thus increased incomes, improved educational opportunities and access, nutritious food and child care. Further, Cargill has reaped not only reputational advantage benefits but also, operational benefits of higher quality, better product and process design and a more stable supply chain (McDonald's, 2014).

Based on this evidence from the literature, we propose the following hypotheses:

- H2a.* The relationship between social sustainability orientation and operational performance will be moderated by LTO.
- H2b.* The relationship between social sustainability orientation and basic SSC practices will be moderated by LTO.
- H2c.* The relationship between social sustainability orientation and advanced SSC practices will be moderated by LTO.

Our research model with the proposed relationships is represented later in the paper in Figure 2.

## 4. Methodology

### 4.1 Sampling

To test our hypotheses, we used Marshall *et al.*'s (2015) online survey instrument. The unit of analysis was the supply chain relationship with top suppliers by spend, reflecting

previous research in which focal firm influence was used (Vachon and Klassen, 2006; Seuring and Müller, 2008; Cao and Zhang, 2011).

Using a validated US-based institutional database, we identified individuals in senior procurement positions. An initial screening was performed to select companies representing various industry types and with a minimum of 50 employees (eliminating small firms as recommended in Awaysheh and Klassen, 2010) to improve the generalizability of the study (Liu *et al.*, 2010; Carter and Easton, 2011).

#### 4.2 Data collection

The design and implementation of the survey (Appendix 2) were based on the concepts prescribed by Dillman (2000). Of the 1,466 organizations approached, 229 responded. In total, 54 questionnaires of the 229 were incomplete/invalid, resulting in 175 valid responses and an adjusted response rate of 12 percent. The final sample comprised of senior management, such as presidents, vice presidents and chief executives (19 percent), supply chain directors (22.9 percent) and supply chain purchasing or operations managers and other functional managers responsible for supply chain management (58.2 percent). On average, respondents were in their current jobs for 7.8 years. The mean number of employees and mean revenue of the companies in the sample were 27,898 and US\$8.2 billion, respectively. Table I shows the profile of the participants.

Finally, nonresponse bias was not found after *t*-tests ( $\alpha = 0.05$ ) indicated no statistical difference between means of early and late respondents on all variables used in the study (Armstrong and Overton, 1977).

Categories		%
Number of employees	≤500	23.3
	501–3,000	17.6
	3,001–10,000	27.3
	10,001–100,000	21.6
	> 100,000	10.2
Revenue (US\$)	≤1m	5.7
	≤50m	12.8
	≤500m	20.1
	≤3bn	23.9
	≤10bn	22.7
	> 10bn	14.8
Company age (years)	≤25	23.3
	26–60	30.1
	61–100	25.6
	> 100	21.0
Industry (NAICS codes)		
Manufacturing (six categories)	31	44.6
Retail trade	44–45	14.9
Transportation, logistics, warehousing and storage	48–49	10.9
Specialty trade contractors and heavy and civil engineering construction	23	9.1
Research and development, education and consulting	54	7.4
Utilities	22	6.9
Telecommunications	517	3.4
Merchant wholesalers	423	1.7
Printing and related support activities	323	1.1

**Table I.**  
Company profiles and  
industry types



#### 4.3 Social desirability and common method variance

To control for desirability bias and common method variance, we used both design and methodological approaches. Respondents were asked to answer questions on their firms' behalf rather than on personal opinions. They were assured full anonymity and that results would be published in aggregate (Carter *et al.*, 2000; Zhu *et al.*, 2013). Questions were designed with different scale endpoints to minimize acquiescence bias (Paulraj, 2011). Additionally, the completion time for each questionnaire was used as a marker variable to check for potential biases from yea/nay-saying or common scale formats (Podsakoff *et al.*, 2003). Consequently, 16 questionnaires were considered invalid as they had extremely short completion times and the same scores for all questions.

#### 4.4 Measures

The items used in this study were designed to measure respondents' level of agreement on a seven-point Likert scale, with endpoints of 1 ("strongly disagree" or "not at all") and 7 ("strongly agree", "fully implemented" or "developed"). Social sustainability orientation was assessed with a seven-item construct adapted from Marshall *et al.* (2015) and operational performance was assessed from pre-established measures adapted from Kotabe *et al.* (2003). Basic and advanced SSSC practices were assessed with two second-order constructs validated by Marshall *et al.* (2014, 2015) and LTO was assessed with a three-item construct adapted from Wang and Bansal (2012).

#### 4.5 Control variables

Six covariates were used to account for potential variability in the dependent variable, i.e., company size (natural logarithm of revenues), company age (square root of age), industry type (dichotomous measure: 1 being manufacturing; 2 being not manufacturing) and three variables assessing regulatory, mimetic legitimacy and normative institutional pressures (Marshall *et al.*, 2015).

### 5. Results

#### 5.1 Measurement instruments: goodness of fit, validity and reliability

Prior to empirically testing our hypotheses, the assumptions of CFA and multiple regression were evaluated.

Lack of normality was not an issue as all indicators had absolute values of skewness and kurtosis of less than 2 and 7, respectively (Byrne, 2016). Assumptions of linearity and homoscedasticity were assessed through graphical plots of standardized residuals against standardized predicted values. The Durbin-Watson statistic at 2.007 was within the accepted range of above 1 and below 3 (Tabachnick and Fidell, 2012).

Multicollinearity was assessed through variance inflation factors (VIFs) and tolerance statistics. All variables had VIF values well below the maximum recommendation of 10 and tolerance statistics were well above the minimum recommendation of 0.2 (Field, 2013). Therefore, multicollinearity was not an issue in our data.

Construct validity was tested via CFA and the lowest factor loading value was 0.7 (see Table AI), above the critical threshold of 0.5 (Marshall *et al.*, 2015). All loadings were significantly related to their theoretical constructs ( $p < 0.001$ ) (Paulraj, 2011). Table AI shows descriptive statistics for all items and Cronbach's  $\alpha$  for all first-order and second-order constructs. No cross-loadings were identified, and three items were dropped from further analysis due to poor psychometric properties.

Indices describing the goodness-of-fit statistics were selected based on two criteria: that fit indices were sensitive to the model complexity-sample size relationship and that indices

had been previously reported in SSCM research, e.g., Paulraj (2011), Green *et al.* (2012) and Marshall *et al.* (2014, 2015). We reported on six indices (see Table II).

First, we reported the  $\chi^2/\text{degrees of freedom}$  ratio, which minimizes the effect of sample size; our model's value of 1.725 was below the maximum of 2.0 recommended by Tabachnick and Fidell (2012). The root mean square error of approximation (RMSEA) value of 0.064 indicated good model fit, being below 0.07 recommended by Steiger (2007).

The comparative fit index (CFI) value of 0.955 is representative of a well-fitting model according to Hu and Bentler (1999). The incremental fit index (IFI) and Tucker–Lewis index (TLI) were 0.956 and 0.949, respectively. Values greater than 0.90 for both IFI and TLI are indicative of well-fit models (Hu and Bentler, 1999). Finally, the standardized root mean square residual (SRMR), at 0.049, was within the limit of 0.08 proposed by Hu and Bentler (1999).

Discriminant validity was assessed by comparing the cross-correlations between constructs to the square root of the average variance extracted (AVE). As shown in the diagonal of Table II, the square root of AVE for each construct is greater than all correlations between constructs. Also, AVE for each construct is greater than the maximum shared variances (MSV) and average shared variances (ASV), supporting the discriminant validity of the measures.

Reliability was assessed using Cronbach's  $\alpha$  (Table AI), composite reliability (CR) and AVE. For all constructs, values for the latter exceeded the accepted threshold of 0.5, while values of CR and Cronbach's  $\alpha$  were greater than the limit of 0.7 recommend by Bagozzi and Yi (2012), see Table II and Table AI, respectively.

Using Harmon's CFA approach (Paulraj, 2011; Marshall *et al.*, 2015), the probability of common method bias in our sample is low, as shown by the fit indices that resulted from the one-construct model ( $\chi^2/\text{df} = 2,376.52/348 = 6.829$ , RMSEA = 0.183, IFI = 0.586, TLI = 0.551, CFI = 0.584, SRMR = 0.1330).

## 5.2 Hypotheses testing

All variables were standardized prior to the analyses and hypotheses were tested using the macro PROCESS (version 2.16.1 for IBM SPSS; Hayes, 2013). Results from the hypotheses testing are presented in Table III.

The final model was significantly different from 0,  $F(11, 163) = 43.49$ ,  $p < 0.001$ , with predictors explaining 62.6 percent of the variability in the dependent variable ( $R^2 = 0.626$ ). The control variable revenue was a significant predictor of basic practices after all predictors were in the model. For the advanced practices and operational performance models, none of the six control variables were significant after all predictors were used in the models.

## 5.3 Conditional indirect effects

Table III shows sustainability orientation significantly predicts the adoption of basic practices ( $\beta = 0.428$ ,  $p < 0.001$ ,  $R^2 = 0.37$ ). Also, LTO significantly moderates the

Constructs	AVE	MSV	CR	1	2	3	4	5
Operational performance (OPP)	0.864	0.676	0.962	<i>0.930</i>				
Social sustainability orientation (SSO)	0.777	0.526	0.961	0.642*	<i>0.881</i>			
Long-term orientation (LTO)	0.671	0.271	0.859	0.458*	0.491*	<i>0.819</i>		
Basic social sustainability practices (BSP)	0.897	0.623	0.946	0.566*	0.524*	0.355*	<i>0.947</i>	
Advanced social sustainability practices (ASP)	0.787	0.676	0.881	0.822*	0.725*	0.521*	0.789*	<i>0.887</i>

**Notes:** The square root of AVE is shown in the diagonal (in italics). Fit indices:  $\chi^2/\text{df} = 1.725$ ; RMSEA = 0.064; CFI = 0.955; IFI = 0.956; TLI = 0.949; SRMR = 0.049. \* $p < 0.001$

**Table II.**  
Fit indices, reliability  
measures and  
correlations among  
constructs

**Table III.**  
Regression results

DV	Basic social sustainability practices		IV Advanced social sustainability practices		Operational performance	
	<i>B</i>	$\Delta R^2$	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$
<i>Controls</i>						
Regulatory pressure	0.088		0.074		0.043	
Mimetic legitimacy	0.001		0.123		0.094	
Normative pressure	0.066		0.063		0.061	
Revenue (ln)	0.153*		0.057		-0.083	
Age (square root)	0.052		0.040		-0.069	
Industry type	-0.111		-0.027		0.058	
<i>Direct effect</i>						
Social sustainability orientation (SSO)	0.428***		0.521***		0.223*	
<i>Mediators</i>						
Basic social sustainability practices (BSP)	—		—		0.011	
Advanced social sustainability practices (ASP)	—		—		0.481***	
<i>Moderator</i>						
Long-term orientation (LTO)	0.150*		0.170**		0.070	
<i>Interaction</i>						
Long-term orientation × sustainability orientation	0.118*	0.02*	0.102*	0.01*	0.086*	0.01*
$R^2$	0.37		0.56		0.63	
<i>F</i>	14.926***		33.229***		43.493***	

**Notes:** *B* = standardized regression coefficients;  $R^2$  = overall variance explained;  $\Delta R^2$  = changes in the variance explained due to interactions. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

relationship between sustainability orientation and basic practices ( $\beta = 0.118$ ,  $\Delta R^2 = 0.02$ ,  $p < 0.05$ ). The latter result supports *H2b*, which claims that the prediction of basic practices by sustainability orientation will be higher as firms have a higher LTO. However, the path between basic practices and operational performance is not significant ( $\beta = 0.011$ ,  $p > 0.05$ ); that is, basic practices do not significantly predict operational performance. Since evidence of mediation requires that the paths between the dependent variable and the mediator and between the mediator and the independent variable are both statistically significant, *H1a* is not supported. Taken together, these results may suggest that while some companies with higher levels of both social sustainability and LTO engage in higher adoption of basic practices, such practices, in turn, do not significantly improve operational performance.

Sustainability orientation also significantly predicts the adoption of advanced practices ( $\beta = 0.521$ ,  $p < 0.001$ ,  $R^2 = 0.56$ ) and advanced practices significantly predict operational performance ( $\beta = 0.481$ ,  $p < 0.001$ ). Both paths of the indirect effect of sustainability orientation on operational performance through advanced practices are significant, which supports *H1b* and indicates the existence of mediation in the relationship between sustainability orientation and operational performance. We adopted the more recent approach to mediation analysis proposed by Hayes (2013), in which evidence of mediation is tested with the estimation of the indirect effect and a significance test that uses bootstrap methods to compute confidence intervals.

Moreover, the effect of sustainability orientation on advanced practices is significantly moderated by LTO ( $\beta = 0.102$ ,  $\Delta R^2 = 0.01$ ,  $p < 0.05$ ), thus supporting *H2c*. Taken together,

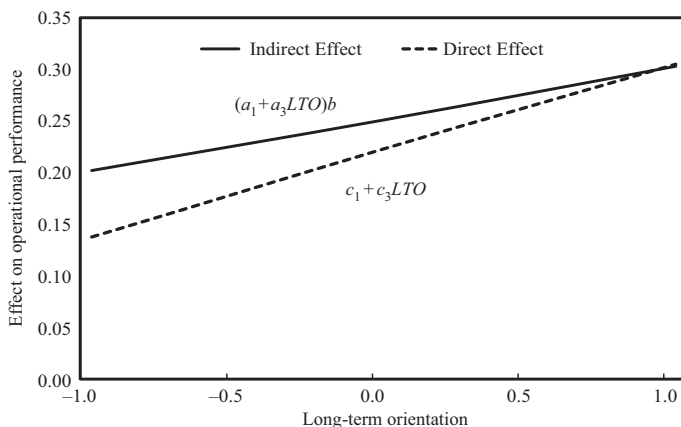
the results from *H1b* and *H2c* indicate the existence of a significant conditional indirect effect, as the effect of sustainability orientation on operational performance through advanced practices is a function of LTO.

#### 5.4 Conditional direct effect

To test *H2a*, LTO was used as the moderator variable between sustainability orientation and operational performance (while holding the mediators constant). Table III shows that *H2a* is supported since LTO significantly moderates the prediction of operational performance from sustainability orientation ( $\beta = 0.086$ ,  $\Delta R^2 = 0.01$ ,  $p < 0.05$ ). In other words, sustainability orientation predicts operational performance at higher levels when firms are more inclined to LTO.

#### 5.5 Probing conditional direct and indirect effects

As the indirect effect (through advanced practices) and the direct effect of sustainability orientation on operational performance are functions of LTO, there is no single value representing these effects. Therefore, Figure 1 shows indirect and direct effects at three values of LTO (at the mean, 1 sd above and 1 sd below the mean). Figure 1 illustrates that organizations' sustainability efforts have a higher impact on operational performance as their LTO increases. This is the case for both the direct and indirect effects. However, an overall more positive impact on operational performance from sustainability efforts is seen for organizations with higher adoptions of advanced practices; i.e., the indirect effect line is above the direct effect line.



**Notes:** As proposed by Hayes (2013), the coefficients for the conditional indirect effect is calculated by  $(a_1 + a_3LTO)b$ , where  $a_1$  is the path between sustainability orientation and advanced practices (0.521 from Table III),  $a_3$  is the interaction between sustainability orientation and long-term orientation (0.102), and  $b$  is the path between advanced practices and operational performance (0.481). The conditional direct effect is calculated by  $c_1 + c_3LTO$ , where  $c_1$  is the path between sustainability orientation and operational performance (0.223), and  $c_3$  is the interaction between sustainability orientation and long-term orientation (0.086). Further information, including bootstrap confident intervals and  $p$  values for the indirect and direct effects coefficients is available from the authors upon request

**Figure 1.**  
Conditional direct and  
indirect effects of  
social sustainability  
orientation on  
operational  
performance as a  
function of long-term  
orientation

For the direct effect, the Johnson–Neyman technique (Johnson and Neyman, 1936) revealed the significant region of moderation ( $p \leq 0.05$ ) starts at  $-0.67$  of LTO. For the indirect effect, the test of the index of moderated mediation, as proposed by Hayes (2013), reveals that the difference between two indirect effects (e.g.  $0.300 - 0.251 = 0.049$ ) resulting from a one unit change in LTO is statistically significant, as the 95% bias-correct bootstrap confidence interval ( $0.008 - 0.104$ ) based on 10,000 samples does not contain zero. In Figure 2, our research model is shown with the results of all hypotheses tests.

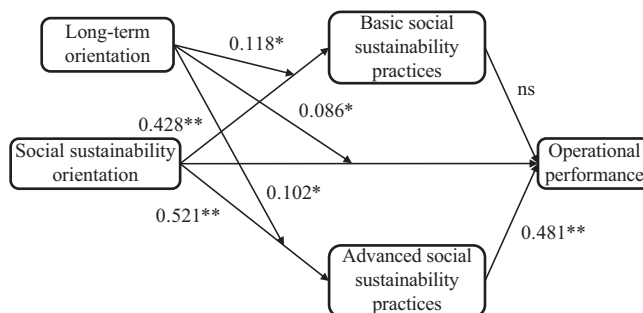
## 6. Discussion and conclusion

In this study, a number of significant results provide insights into the relationships between social sustainability orientation, LTO, different SSSC practices and operational performance.

In answer to *RQ1*, our study supports the conclusions of Marshall *et al.* (2015) that social sustainability orientation is a strong antecedent to the adoption of both basic and advanced practices. However, our findings differ from previous research in several ways. First, the adoption of basic practices did not significantly predict better operational performance, a significant finding since it contrasts with studies by Tate *et al.* (2010), Ciliberti *et al.* (2009) and Pagell and Wu (2009), who found basic practices improved overall firm performance. However, our research does support the idea that monitoring and management systems have the potential to stifle innovation (Konnola and Unruh, 2007). Briscoe *et al.* (2015) found that organizations participating in voluntary self-regulation perceive a need to maintain consistency in their adopted self-regulation practices, which can decrease their ability to adapt to change. Since the ability to find innovative solutions to social issues in supply chains may be valuable for improving operational performance (Klassen and Vereecke, 2012), this might explain why basic practices, which can suppress innovation (Konnola and Unruh, 2007; Briscoe *et al.*, 2015), do not predict better operational performance.

The adoption of advanced practices positively predicts better operational outcomes and positively impacts operational performance. This is in line with existing research that, in general, sustainability practices that encourage product and process design changes improve organizational learning, which then leads to long-term performance improvements (Sharma and Henriques, 2005; Tate *et al.*, 2010). Where our findings differ is in the nuance we bring to the argument where we delineate the specific practices and their impact on operational performance. Potentially, the implementation of advanced practices in the supply chain requires better strategic planning and coordination in the focal firm and its supply chain (Flint and Larsson, 2007), which then leads to improved operational outcomes (Peršič and Markič, 2013).

In relation to *RQ2*, we make a significant contribution to SSCM theory and to LTO theory due to the positive impact of sustainability orientation on operational performance through



**Figure 2.**  
Research model with  
the results of the  
hypotheses testing

Notes: \* $p < 0.05$ ; \*\* $p < 0.001$

the implementation of advanced practices, which is stronger for those organizations with higher LTO (Wang and Bansal, 2012). The presence of an LTO thus amplifies the benefits of a sustainability orientation. These results corroborate the existing literature on the effects of LTO on performance (e.g. Flammer and Bansal, 2016; Klassen and Hajmohammad, 2017), but we add to the existing knowledge by showing how different levels of LTO impact the relationship between sustainability orientation and operational performance. Given the role of advanced practices in this relationship, LTO may help to foster advanced SSSC practices, which in turn serves as a mechanism to assist firms in obtaining benefits from this long-term view (Flammer and Bansal, 2016).

Our findings show that companies with higher levels of social sustainability orientation and LTO adopt basic practices at higher levels, supporting prior studies that also note the possible influence of LTO on their adoption (Huq *et al.*, 2014). However, as the above discussion of *RQ1* shows, basic practices do not significantly improve operational performance. The effect of LTO on the adoption of basic practices indicates that these may serve as initial steps in companies' social sustainability journey: companies with high social sustainability orientation and LTO start with basic practices which serve as the foundation for more sophisticated sustainability activities (Konnola and Unruh, 2007; Tate *et al.*, 2010).

It may also be that there are different pathways in SSSC practice adoption that led to socially sustainable practice, which may impact operational performance. However, based on our data, we were not able to test the relationships between basic and advanced practices in this study, but this would be an interesting question for future research.

### 6.1 Implications for theory

This study contributes to the emerging SSCM theory in a number of ways. First, building on Pagell and Wu's (2009) theory that a general sustainability orientation leads to new behaviors which in turn enhance economic performance, we provide nuance to their theory by exposing the interplay of sustainability orientation and LTO as well as the precise nature of advanced SSSC practices and their impact on specific operational outcomes. This theory testing and building is imperative and brings greater insight into the behaviors that will lead to the adoption of SSSC practices and enhance performance.

We add to SSCM theory by confirming that not all SSSC practices are created equal and simply implementing certain SSSC practices does not necessarily lead to better operational performance. Basic practices may temporarily improve the sustainability performance of firms but do not have a positive impact on operational performance. Thus the "low-hanging fruit" argument that basic SSSC practices pay off due to enhanced efficiencies in operations (Hollos *et al.*, 2012) does not hold true here – reputation may be improved, but without generating higher quality products, process redesign or reduction in lead times. Allied to this argument is the idea that once basic practices are adopted, advanced practices aimed at tackling more systemic problems, become more expensive and difficult to implement (Colby *et al.*, 1995). Although needing further investigation, we find operational benefits accrue from advanced practice implementation but not from basic practices. Therefore, it may be wiser to invest in advanced practices, which although potentially more resource-intensive, will deliver operational improvements.

Despite the breadth of the SSCM literature, this is the first work that empirically measured the importance of LTO for firms incorporating SSSC practices and highlights the main contribution of this study – the effect of sustainability orientation on operational performance is amplified by LTO, particularly through the adoption and implementation of advanced practices (Flammer and Bansal, 2016).

The theory of temporal orientation suggests that LTO is equated with strategic thinking whereas it is claimed that the operations management research is largely short term in its orientation to date (Klassen and Hajmohammad, 2017). In this paper, we have

considered the effects of a more LTO. Our nuanced approach finds that the intersection of social sustainability orientation and LTO is a powerful lever for improving performance. This study also contributes to the growing literature on the importance of manager's temporal orientation in SSCM (Slawinski and Bansal, 2009; Wang and Bansal, 2012; Flammer and Bansal, 2016; Klassen and Hajmohammad, 2017) and concurs that a long-term view is required for significant benefits to accrue. This supports arguments in the distinctive capabilities or competencies perspective, highlighting the value of an explicit, strategic social sustainability engagement within the supply chain in order to deliver effective socially responsible activities and enhanced performance (Teece *et al.*, 1997).

### 6.2 *Implications for practitioners*

This study has a number of practical implications. First, managers should be cognizant of the limitations of adopting and implementing basic SSSC practices. While these practices might improve the sustainability performance of firms in the short term, they may create organizational inertia that prevents firms from investing in more innovative practices (Konnola and Unruh, 2007) to continue advancing their sustainability and operational performances. We are not arguing to exclude basic practices since they may be important as a foundation for more advanced practices (Konnola and Unruh, 2007; Tate *et al.*, 2010), but managers should be aware of the limitations of relying solely on basic practices if they wish to realize the full benefits of adopting SSSC practices.

The positive impact of advanced practices on firms' operational performance points to the importance of truly embedding social sustainability practices in the organization (Barnett and Salomon, 2012). Advanced practices require fundamental changes in supply chains (Klassen and Vereecke, 2012; Marshall *et al.*, 2014, 2015). To properly embed these practices, firms need to approach them with a long-term mentality and accept that they might be costly in the short term but have the potential of providing important long-term benefits (Flammer and Bansal, 2016). It is clear that sustainability-oriented firms adopting advanced SSSC practices are more likely to have better operational performance and thus provide a strong business case for the adoption of social sustainability practices in supply chains.

Finally, verifying the benefits from LTO are clear, even for firms at the initial stages of SSSC practice implementation. Firms do not necessarily need to have the highest levels of sustainability orientation or LTO to notice improvements in their operational performance. As shown in Figure 1, as senior managers begin to focus on the long term this will lead to initial improvements in the firm's operations. However, firms with a long-term and focused sustainability mindset will reap the most benefits in terms of significantly improved operational performance.

The results of our research could also prompt actions from policymakers. Government bodies could incentivize business practice that encourages managers' sustainability orientation and LTO through the adoption of advanced SSSC practices. From a policy perspective, this is not only good for business but also good for citizens and society.

### 6.3 *Limitations and future research*

Our overall model is limited to US companies. In addition, given that this study is a cross-sectional assessment of US firms, contextual circumstances might have influenced the data.

While precautions were taken to minimize response biases, individuals less knowledgeable about social sustainability and the overall strategy of the firm may have unconsciously misrepresented their opinions. This is also a disadvantage with single-respondent surveys where data cannot be triangulated.

Finally, the measurement of the LTO concept is inherently challenging (Flammer and Bansal, 2016) because the effects of such orientation are in the future. Future studies assessing LTO in SSCM could adopt a research design, e.g., time series or experimentation, which allows the manipulation of the effects of LTO on performance.

For future research, it would be interesting to investigate this topic in other national contexts, which might offer different insights. Our sample also included a variety of industries, so future studies could focus on specific industry types. For example, service organizations are relatively neglected in the sustainable supply chain literature.

In terms of the constructs, further investigation of the interaction of basic and advanced SSSC practices poses interesting questions, such as do some basic practices lead to advanced practices or discourage their adoption? Do some basic practices cause inertia preventing investment in more advanced practices? Additionally, research to investigate the interplay of social sustainability orientation and LTO will add to our understanding of the dynamics of these orientations.

Finally, different performance outcomes could also be explored. For example, what are the impacts of orientations and practices on financial and sustainability performance? Are there trade-offs between financial, operational and sustainability outcomes?

Due to the emergent and nascent nature of SSSC management research, the field is ripe for research and insight and, with our research, we have only just begun to uncover the behaviors and insights in this field.

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Appendix 1

	Items	Standardized factor loadings <sup>a</sup>	Mean	SD
Social sustainability orientation $\alpha = 0.962$	1	0.81	4.68	1.674
	2	0.88	4.56	1.781
	3	0.87	4.56	1.792
	4	0.94	4.54	1.733
	5	0.93	4.61	1.819
	6	0.86	5.14	1.689
	7	0.88	4.74	1.835
<i>Basic practices</i>				
Social monitoring, $\alpha = 0.947$ (0.92)	1	0.94	4.38	2.008
	2	0.87	3.91	2.060
	3	0.97	4.12	2.040
Social management systems, $\alpha = 0.895$ (0.97)	1	0.92	3.72	2.108
	2	0.84	3.31	2.042
	3	0.83	4.12	2.214
<i>Advanced practices</i>				
Social new product and process development, $\alpha = 0.898$ (0.89)	1	0.80	3.94	2.054
	2	0.91	4.16	1.959
	3	0.90	4.60	1.898
	4	0.74	4.35	1.780
Social supply chain redefinition, $\alpha = 0.828$ (0.88)	1	0.70	3.57	1.880
	2	0.86	4.09	1.849
	3	0.79	4.28	1.977
Long-term orientation, $\alpha = 0.857$	1	0.80	4.69	1.775
	2	0.91	4.44	1.637
	3	0.74	4.99	1.616
Operational performance, $\alpha = 0.965$	1	0.93	3.84	1.761
	2	0.99	3.96	1.746
	3	0.88	3.82	1.719
	4	0.92	4.06	1.716

**Table AI.**  
Descriptive statistics, standardized factor loadings for constructs (first order and second order) and Cronbach's  $\alpha$

**Notes:** <sup>a</sup>All factor loadings were statistically significant at  $p < 0.001$ . Standardized factor loadings between first-order and second-order constructs are shown in parenthesis

Appendix 2

Constructs and items (all items were measured using a seven-point Likert scale where 1 = "strongly disagree/not at all" and 7 = "strongly agree/fully implemented or developed").

Social sustainability orientation (Marshall *et al.*, 2015):

- At your firm, you provided information to all employees to understand the importance of social sustainability.

- You tried to promote social sustainability as a major goal across all departments.
- Your firm had a clear policy statement urging social sustainability in every area of operations.
- Social sustainability was a high-priority activity in your firm.
- Social sustainability was a central corporate value in your firm.
- Your firm had a responsibility to be socially sustainable.
- Your firm worked hard for an image of social sustainability.

Basic social sustainability supply chain practices (Marshall *et al.*, 2014, 2015):

- You monitored your key supplier's compliance with your health and safety requirements.
- You sent health and safety questionnaires to your key supplier to monitor their compliance.
- You monitored your key supplier's commitment to health and safety improvement goals.
- You conducted audits of the health and safety of their employees.
- You designed systems for work/family balance across the supply chain with your key supplier (dropped item).
- You introduced employee health and safety compliance and auditing systems with your key supplier.
- You helped your key supplier obtain OHSAS 18001 certification, SA8000 or other management system certification (dropped item).
- You developed an ethical code of conduct system with your key supplier.

Advanced social sustainability supply chain practices (Marshall *et al.*, 2014, 2015):

- Your company developed new product/processes with your key supplier that reduced health risks for consumers.
- Your company developed new product/processes with your key supplier that benefited workers throughout the supply chain.
- Your company developed new product/processes with your key supplier that reduced health and safety hazards for employees.
- Your company developed new product/processes with your key supplier that provided fair margins to all of your suppliers.
- Your company has changed its supply chain strategy to bring non-governmental organizations and community groups into the supply chain.
- Your company has changed its supply chain strategy to minimize negative impacts on communities around your supply chain operations.
- Your company has changed its supply chain strategy to make social sustainability data (ethical code of conduct/ impact on communities) throughout your supply chain available to the public (dropped item).
- Your company has changed its supply chain strategy to focus on fair trade throughout the supply chain.

Long-term orientation (Wang and Bansal, 2012):

- As my firm defines strategies, we generally emphasized long-term (more than five years) goals and strategies.
- My firm's criteria for resource allocation largely reflected long-term considerations.

- As my firm defined strategies, our major concern was how to build future competitive advantages.

Operational performance (Kotabe *et al.*, 2003):

- Your company has implemented social sustainability practices with your key supplier that has resulted in improved product design.
- Your company has implemented social sustainability practices with your key supplier that has resulted in improved process design.
- Your company has implemented social sustainability practices with your key supplier that has resulted in a reduction in lead times.
- Your company has implemented social sustainability practices with your key supplier that has resulted in improved product quality.

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