

# Linking HRM with Sustainability Performance Through Sustainability Practices: Unlocking the Black Box

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**In response to the triple-bottom-line sustainability challenges facing today's world, organizations are increasingly incorporating sustainability principles into their strategies; however, this is challenging for small and medium-sized enterprises (SMEs) with limited resources. While sustainable human resource management (HRM) has recently gained scholarly prominence, the impact of sustainable HRM practices on an organization's sustainability performance remains under-explored. Anchored on signalling theory, we address this gap by examining the impact of sustainable HRM on an organization's sustainability performance. Drawing upon survey data collected from 254 employees across SMEs in Vietnam, we found that sustainable HRM practices and managerial competency positively impact sustainability practices, which in turn predict sustainability performance, while sustainability practices mediate these relationships. Employee sustainability participation and long-term orientation strengthen the relationship between sustainability practices and sustainability performance. Further, co-worker sustainability support moderates the relationship between sustainable HRM practices and managerial competency and sustainability practices. We discuss the contributions to theory and practice and provide future research directions.**

## Introduction

Against the backdrop of triple-bottom-line challenges concerning people, planet and profit, coupled with the effect of the COVID-19 pandemic, climate change and recent environmental and social reporting demands from companies, the need is pressing to prioritize organizational sustainability practices and enhance sustainability performance (De Stefano, Bagdadli and Camuffo, 2018; Gillani, Kutaula and Budhwar, 2023; Ren *et al.*, 2023). In this context, sustainable human resource management (HRM), entailing developing and implementing sustainable HRM practices, can enhance sustainability performance in organizations (Ehnert *et al.*, 2016), focusing on profitability outcomes while preserving human capital and the natural environment (Stahl *et al.*, 2020). However, a shortcoming of existing sustainable HRM research is that it lacks a holistic analysis of the impact of sustainable HRM on sustainability performance within organizations (Diaz-

Carrion, López-Fernández and Romero-Fernández, 2021; Ren and Jackson, 2020; Voegtlin and Greenwood, 2016). This mirrors the HRM performance black box issue in the sustainability context, given the need to examine the explanatory mechanisms between sustainable HRM and sustainability performance (Ren, Jiang and Tang, 2022) within organizations.

However, most sustainable HRM literature is dominated by the senior management perspective, overlooking the significance of managers and employees in enhancing sustainability performance. This is a major oversight since managers are closely involved in the day-to-day implementation of organizational strategies and thus act as a conduit between the organization and its employees (Alfes *et al.*, 2013; Kim, Su and Wright, 2018). Therefore, examining their competencies and the role they play in managing the implementation of sustainability practices is crucial. In addition, we consider factors such as employee sustainability performance and long-term orientation, which could moderate

sustainability practices and sustainability performance. Employees play a pivotal role in an organization by promoting and participating in sustainability initiatives and assuming voluntary leadership roles, thereby contributing to organizations' overall sustainability objectives (Dahlmann and Grosvold, 2017; Paillé and Francoeur, 2022; Stahl *et al.*, 2020). Therefore, exploring the role these internal actors play in incorporating sustainability within organizational practices is vital as the uptake of sustainability practices can be influenced by their attitudes (Paillé, Amara and Halilem, 2018; Schuler *et al.*, 2017; Stahl *et al.*, 2020).

Furthermore, long-term orientation, defined as the extent to which the future is considered in decision-making, can influence the implementation of sustainability practices (Brulhart, Gherra and Quelin, 2019; Choi, Kim and Shenkar, 2023; Garavan *et al.*, 2023; Wang and Bansal, 2012). The longer the time horizon, the more the organization may be willing to consider future sustainability impacts rather than immediate economic gains (Graafland and Noorderhaven, 2020). However, the relevance of long-term orientation to sustainability performance has been understudied in the extant HRM and sustainability literature, thus warranting further examination. Moreover, employees often harbour closer ties with their co-workers (Martdianty, Coetzer and Susomrith, 2020), who play a vital part in their support system in their organization. Co-workers can influence employees' interpretations of organizational practices, thereby impacting their attitudes and behaviours. However, while co-workers may provide support regarding sustainability practices and managerial competency, their role is under-explored in the existing literature.

We draw upon signalling theory, which involves alleviating the information asymmetry between different parties (Connelly *et al.*, 2011; Guest *et al.*, 2021), forming the basis for our hypotheses and analyses. We argue that when sustainability becomes salient within the organizational strategy, it influences the sustainable HRM practices and actions of managers, employees and co-workers. These, in turn, could impact the overall sustainability practices within the organization, affecting its sustainability performance. Also, organizations send signals about their sustainability initiatives to their internal actors, about whether they harbour more forward-looking values, which also influences the relationship between sustainability practices and sustainability performance.

The research setting for this study involves small and medium-sized enterprises (SMEs), which constitute approximately 90% of global businesses and employ 50% of the workforce (World Bank, 2023). Yet, their negative environmental impact is alarming, given that their supply chains account for more than 70% of industrial pollution (OECD, 2018; Tseng *et al.*, 2023). While the

majority of sustainable HRM research is based on Western settings, a paucity of research examines the context of emerging economies (Adomako *et al.*, 2023). We focus on SMEs in Vietnam, a rapidly growing emerging market, with a recent annual gross domestic product (GDP) growth rate of 7% (Nguyen *et al.*, 2023). However, these SMEs face sustainability challenges, such as environmental degradation, plastic waste and high carbon emissions (Pham *et al.*, 2020). Although Vietnamese SMEs strive to harmonize their HRM and sustainability practices, thereby increasing their legitimacy (Do *et al.*, 2020), the role of sustainable HRM in enhancing the sustainability performance of SMEs is overlooked.

Considering the abovementioned gaps, this paper examines the inter-relationships between sustainable HRM and sustainability performance within Vietnamese SMEs. More specifically, the objectives of the study are: (a) to examine the impact of sustainable HRM practices and managerial competency on sustainability practices and subsequently on sustainability performance as a mediator between these links; (b) to assess whether the link between sustainability practices and sustainability performance is moderated by employee sustainability participation and long-term orientation; and (c) to examine the moderating role of co-worker sustainability support on sustainable HRM practices and managerial competency and sustainability practices linkages.

In doing so, we make several contributions. First, to our knowledge, this is the first study to propose and test sustainable HRM practices and managerial competency as antecedents to sustainability practices, which in turn mediate their relationship with sustainability performance by employing a novel theoretical perspective of signalling theory. Second, we examine relatively unexplored constructs, employee sustainability participation and long-term orientation as significant moderators on the relationship between sustainability practices and sustainability performance. Third, we contribute to the literature on sustainable HRM by analysing co-worker sustainability support as moderating the relationship between sustainable HRM practices and managerial competency and sustainability practices. Finally, our study provides valuable insights into sustainable HRM within SMEs in Vietnam, an emerging economy, which has received limited attention in the existing literature.

## Literature review

HRM is crucial for the development and execution of an organization's sustainability strategy, affecting both internal and external stakeholders and the organization's sustainability performance (Ehnert *et al.*, 2016;

López-Cabrales and Valle-Cabrera, 2020). Yet, the role of integrating HRM and sustainability to enhance the organization's sustainability performance remains under-researched (Ren and Jackson, 2020; Stahl *et al.*, 2020). Sustainable HRM is defined as 'the adoption of HRM strategies and practices that enable the achievement of financial, social and ecological goals, with an impact inside and outside of the organization and over a long-term time horizon' (Ehnert *et al.*, 2016, p. 90). It provides a holistic approach to sustainability by increasing awareness and engagement among employees regarding organizational sustainability initiatives (Díaz-Carrion, López-Fernández and Romero-Fernández, 2021; Kramar, 2014). Employees may perceive a socially responsible organization as more desirable, resulting in positive attitudes and commitment to the organization (Guerci *et al.*, 2019; Lu *et al.*, 2023).

Furthermore, most research concerning sustainable HRM examines the role of the senior management perspective. Given the higher level of informality prevalent in SMEs, managers can influence employees more through co-designing the practices (Bacon and Hoque, 2005; Beer, 2015; Harney and Alkhalaf, 2021). Employees may also partake in voluntary initiatives related to sustainability within organizations, which could influence sustainability outcomes (Detert *et al.*, 2013; Wilkinson *et al.*, 2020).

In SMEs, employees tend to form connections with their co-workers (Martdianty, Coetzer and Susomrith, 2020), and as vital social referents, co-workers can be seen as part of the support system, largely influencing employees' interpretations of organizational practices and their behaviours. However, despite the significant role of employee participation and co-worker support, their role in achieving the organizational sustainability agenda is neglected in the literature. This omission results in a less comprehensive view of the subject (Aust, Matthews and Muller-Camen, 2020; Paillé, Amara and Halilem, 2018; Ren *et al.*, 2023).

Also, organizations could engage in future-oriented behaviours, often self-initiated, to improve organizational functioning (Graafland and Noorderhaven, 2020). This future orientation is more notable for SMEs, especially when embracing innovations, as they need to consider the time horizon for adopting strategic decisions (Casidy, Nyadzayo and Mohan, 2020; Choi, Kim and Shenkar, 2023). However, this relationship is currently under-researched. Therefore, to address these gaps in the literature, this study adopts a holistic view of sustainable HRM and organizational sustainability, drawing upon the key organizational actors.

### *Theoretical background*

We draw upon signalling theory (Spence, 1973) as the overarching theoretical perspective for this study, high-

lighting the significance of communication and information in rational decision-making by individuals within and outside the organization (Bergh *et al.*, 2014; Guest *et al.*, 2021). It posits that signals are communicated from a sender and interpreted by the receiver (Connelly *et al.*, 2011; Drover, Wood and Corbett, 2018; Spence, 1973), thus emphasizing three key elements: the signaller, the signal and the receiver. When sustainability forms a large part of the organizational agenda, it is reflected through sustainable HRM practices. Bowen and Ostroff (2004) asserted it as 'the features of an HRM system that send signals to employees that allow them to understand the desired and appropriate responses and form a collective sense of what is expected' (p. 204).

Using this lens, we argue that senior managers provide information to managers, employees or co-workers, which could impact how they perceive the organization, its practices and strategy (Guest *et al.*, 2021; Huettermann and Bruch, 2019). When organizations partake in sustainability initiatives, they signal to individuals to prioritize the agenda, encouraging active contributions from managers, employees and co-workers (Carmeli *et al.*, 2017; Lamm, Tosti-Kharas and King, 2015). Furthermore, these interpretations could impact overall sustainability practices within the organization, subsequently influencing sustainability performance (Ergene, Banerjee and Hoffman, 2021).

### *Hypothesis development*

Extant literature has shown support for HRM practices as a driver for organizational performance (Aust, Matthews and Muller-Camen, 2020; Beer, 2015; Schuler and Jackson, 1987). While research evidence supporting the link between HRM practices and organizational performance in large organizations is growing, awareness of how these mechanisms are related in SMEs is small (Elorza *et al.*, 2022; Klaas *et al.*, 2012; Wu *et al.*, 2015). In the context of sustainable HRM practices, it is important to consider a holistic development of economic, social and environmental capital instead of a uni-dimensional profit maximization approach (Jackson, Schuler and Jiang, 2014; Ren *et al.*, 2023; Westerman *et al.*, 2020). Implementing sustainability practices requires a gradual shift in workplace attitudes and behaviours, achieved through sustainable HRM practices such as recruitment and selection, talent management and performance and reward management (Kramar, 2014; Stahl *et al.*, 2020; Zhang, Zhang and Daim, 2023).

In line with signalling theory, sustainable HRM practices can be seen as an employee investment in organizational sustainability, which will encourage them to pivot towards overall sustainability practices (Connelly *et al.*, 2011). For instance, a provision of continual training and development targeted at building and

expanding employees' skills and knowledge regarding organizational sustainability will influence the focus of the organization's vision towards these principles (Ehnert *et al.*, 2016; Pellegrini, Rizzi and Frey, 2018). Similarly, performance appraisals could capture employees' sustainability behaviours, for example, by proposing innovative product packaging ideas. Thus, HRM practices that consider sustainability strategies can facilitate organizational sustainability practices by encouraging such workplace behaviours. Therefore, we hypothesize that

*H1:* Sustainable HRM practices are positively associated with sustainability practices.

Managerial competency refers to a supervisor's ability to perform the skills required for a specific job (Spencer and Spencer, 2008). It is a multi-dimensional construct that encompasses technical/functional skills (e.g. developing expertise in others), management skills (e.g. addressing job performance in others) and leadership skills (e.g. influencing others) (Levenson, Van der Stede and Cohen, 2006). While sustainability literature has thus far focused primarily on senior management who formulate the organizational sustainability strategy (e.g. Ren, Jiang and Tang, 2022), the immediate supervisors play a pivotal role in implementing this strategy (Andersson, Shivarajan and Blau, 2005; Kramar, 2014; Purcell and Hutchinson, 2007). In other words, immediate supervisors are direct organizational representatives who send a signal to subordinates with whom they frequently interact (Gilbert, De Winne and Sels, 2015). This is particularly the case in SMEs, which have a flatter hierarchical structure than larger organizations (Martdianty, Coetzer and Susomrith, 2020; Storey *et al.*, 2010). Hence, based on signalling theory (Spence, 1973), we argue that the managerial competency of immediate supervisors will be positively associated with sustainability practices for the following reasons.

Managerial competency serves as a signal that communicates the immediate supervisors' managerial skill set, decision-making abilities and strategic vision. Research has unveiled the complexities inherent in organizations' transformation towards sustainability (Ren and Jackson, 2020). Competent supervisors are more likely to understand the complexities of integrating sustainability into business strategies and operations. Also, a key tenet of signalling theory points to the value of signals in times of incomplete distributed information (Spence, 1973). Managerial competency represents a combination of skills, attributes and knowledge that enable managers to effectively align their strategies with the organization's sustainability practices. Competent supervisors possess a deep understanding of both the technical and strategic aspects of sustainability, allowing them to send a signal to integrate these principles seamlessly into their company's sustainability practices.

This, in turn, sends a signal to subordinates in terms of clear expectations about what to do and how to achieve the sustainability target (Alfes *et al.*, 2013; Kim, Su and Wright, 2018). Thus, we hypothesize that

*H2:* Managerial competency is positively associated with sustainability practices.

Organizational sustainability practices are defined as 'companies' activities that contribute to the economic, social and environmental domains of sustainability by meeting stakeholders' needs in the present without compromising the requirements of future generations' (Miska, Szócs and Schiffinger, 2018, p. 265). For instance, when organizations pursue environmentally sustainable practices such as the careful disposal of hazardous waste, it could enhance sustainability performance, including better product quality and improved waste disposal (Dey *et al.*, 2020). However, most organizational sustainability research has studied the environmental aspects of these practices while overlooking the social and economic dimensions of sustainability (DuBois and Dubois, 2012; Ren, Tang and Jackson, 2018). Also, Harney and Alkhalaf (2021) call for research to examine HRM in the context of long-term sustainability within SMEs. Addressing this gap, we offer a comprehensive view of these practices and performance, incorporating the economic, social and environmental dimensions in SMEs (Ren *et al.*, 2023; Sharma and Henriques, 2005; Svensson, Wood and Callaghan, 2010).

Building on signalling theory, we argue that by successfully implementing sustainability practices, the organization communicates clear messages about its strategic priorities, which sends cues understood and internalized by employees, visible in their sustainability performance. These signals are also interpreted in a positive light by other stakeholders (Westerman *et al.*, 2020). For example, organizations engaging in social sustainability-oriented practices could apply social criteria in supplier selection, enhancing trust and improving their reputation with other stakeholders. This can translate into positive economic performance for the organization through increased sales. Therefore, we hypothesize that

*H3:* Sustainability practices are positively associated with sustainability performance.

HRM practices are known to provide numerous opportunities to enhance organizational performance and provide a distinct competitive advantage (Cooke and Saini, 2010; Jerónimo, de Lacerda and Henriques, 2020). At the same time, the mechanisms that link HRM practices and organizational performance, often referred to as the 'black box', need continuous examination (Chowhan, 2016). While some sustainable

HRM studies have focused on the economic outcomes by examining intervening variables such as engagement, psychological contract and job satisfaction, limited research investigates the social or environmental consequences (Diaz-Carrion, López-Fernández and Romero-Fernández, 2021; Ren, Jiang and Tang, 2022). Researchers have called for a systematic approach to review the impact of sustainable HRM from a multi-faceted perspective, including economic, social and environmental impacts, highlighting the need for testing new mediating mechanisms (Aust, Matthews and Muller-Camen, 2020; Jamali, El Dirani and Harwood, 2015).

Organizational sustainability practices such as innovative waste management from manufacturing sites depend on recruiting knowledgeable employees or training employees in these processes. This will lead to the acquisition and development of human capital, hence enhancing sustainability performance, including improved waste disposal (Stahl *et al.*, 2020). Managerial competencies such as communication, leadership attributes, developmental orientation and knowledge and skills can strengthen employees' involvement with the organizational sustainability agenda by imparting information about the organization's commitment to the economy, society and the environment (Bruwer, Coetzee and Meiring, 2017; Hassan, 2020). For example, when managers try to eliminate any bias based on age or gender, such actions promote perceptions of justice and fairness amongst employees (Barrena-Martínez, López-Fernández and Romero-Fernández, 2019). The employees may also feel more motivated and committed to the organization, maximizing their efforts towards implementing sustainability practices. Consequently, this could lead to sustainability performance based on enhancing employee productivity and reducing turnover.

Signalling theory provides a compelling explanation as to why sustainable HRM practices and managerial competency can lead to higher levels of sustainability performance through the mediating role of sustainability practices. This is because HRM practices are focused on human knowledge and skills, which translate into achieving sustainable performance, connected by sustainability practices. For instance, compensation and reward schemes based on sustainability performance can encourage employees to partake in sustainability practices. Similarly, managers can signal an organizational commitment to sustainability through their functional and communication skills, creative thinking and a risk-taking innovative mindset, thus inspiring employee engagement with organizational sustainability practices that subsequently increase sustainability performance. This leads to the following hypothesis:

**H4:** Sustainability practices mediate the association between (a) sustainable HRM practices and (b) managerial competency in sustainability performance.

Sustainability practices cannot come to fruition if employees do not believe in the strategic vision and lend their participation to it (Aust, Matthews and Muller-Camen, 2020; Benn, Teo and Martin, 2015; Lamm, Tosti-Kharas and King, 2015). Employees may use their voice by suggesting recommendations and raising issues, thus impacting sustainability performance (Liang, Farh and Farh, 2012; Morrison, 2011; Paillé, Amara and Halilem, 2018). SMEs strongly emphasize encouraging discretionary contributions from employees as most SMEs are entrepreneurial and promote a learning orientation rather than a traditional efficiency orientation (Della Torre, Gritti and Salimi, 2021; Heavey, Simsek and Fox, 2015; Paauwe and Boselie, 2005; Wikhamn, Wikhamn and Fasth, 2022). Zhou, Fan and Son (2019) argue that employee participation, including both in-role and extra-role, can help enact sustainability practices.

Based on signalling theory, when employees see that the organization favours more long-term sustainability goals, they are more likely to participate to a greater extent, enhancing their contributions towards these goals (Guerci *et al.*, 2019; Van Buren III, 2022; Wikhamn, Wikhamn and Fasth, 2022). Such employees are likely to work towards implementing sustainability practices and go beyond their given roles and responsibilities to achieve higher sustainability performance. For example, employees may find ways to create more opportunities within local communities. These employee efforts can enhance sustainability practices, thereby solidifying the bonds between the employees and these practices, thus raising the social sustainability performance. Hence, we posit

**H5:** Employee sustainability participation moderates the relationship between sustainability practices and sustainability performance, such that it strengthens this relationship at high levels of employee sustainability participation and vice-versa.

Co-worker sustainability support refers to the extent to which employees can discuss sustainability issues and exchange related knowledge at the workplace (Paillé, Amara and Halilem, 2018). Within the context of SMEs, employees tend to have a closer relationship with their colleagues compared to larger companies (Kim *et al.*, 2017; Martdianty, Coetzer and Susomrith, 2020; Storey *et al.*, 2010). Hence co-workers can be an important social referent, as sources of support. According to signalling theory, employees who receive higher levels of co-worker support are more likely to comprehend and act upon cues received. This means, at a higher level of co-worker sustainability support, they are more likely to develop a shared positive perception about sustainable HRM practices and managerial competency, hence carrying out sustainability practices

(Cooke, Wang and Bartram, 2019; Hammer *et al.*, 2004; Hayton, Carnabuci and Eisenberger, 2012). Also, employees who perceive higher levels of co-worker sustainability support are more likely to recognize their responsibility to respond positively to the signals they receive (manifested in sustainable HRM practices and managerial competency). This response could mean higher levels of employee engagement with sustainability practices. For instance, when employees see their peers valuing and supporting sustainability, it can reinforce the importance of sustainable HRM practices and create a stronger collective commitment to sustainability goals. This may also foster a conducive culture where employees may be more open to adopting new sustainability practices (Ren and Jackson, 2020). Similarly, this sense of collective responsibility enhances the impact of managerial competencies to implement sustainable practices, as employees feel more invested in sustainability initiatives. Consequently, we hypothesize

*H6:* Co-worker sustainability support moderates the relationship between (a) sustainable HRM practices and (b) managerial competency and sustainability practices so that it intensifies these relationships at high levels of co-worker sustainability support and vice-versa.

Long-term orientation refers to the degree to which the future is deemed significant while making key decisions (Brulhart, Gherra and Quelin, 2019; Choi, Kim and Shenkar, 2023; Garavan *et al.*, 2023; Wang and Bansal, 2012). The organizational sustainability agenda hinges upon the triple-bottom-line approach, creating economic, social and environmental value (López-Cabrales and Valle-Cabrera, 2020). The fundamental assumption of this approach is that organizations are interested in longer-term goals, using their resources to address significant challenges such as climate change, poverty or responsible production and consumption (Graafland and Noorderhaven, 2020). However, while pursuing a sustainability agenda, organizations typically must balance short-term economic losses with achieving long-term sustainability gains (Bansal and Song, 2017; Hahn *et al.*, 2014).

Signalling theory supports the assertion that an organization that engages in long-term orientation will send cues to the managers and employees to expand the organizational sustainability agenda (Ortiz-de-Mandojana and Bansal, 2016). As long-term orientation is about considering time holistically, it aligns with the long-term focus element of sustainability practices. This is essential from a sustainability perspective, as having a long-term orientation can help encourage organizations to implement more sustainability initiatives given the reduced emphasis on short-term rewards (Garavan *et al.*, 2023). Thus, a long-term orientation signals a greater

willingness on the part of the managers and employees to exert more effort in fulfilling their roles and responsibilities, leading to a stronger relationship between sustainability practices and sustainability performance. Hence, we propose

*H7:* Long-term orientation moderates the relationship between sustainability practices and sustainability performance.

## Methods

We employed a survey methodology to empirically test and validate the conceptual model presented in Figure 1.

### *Research setting*

The research setting for our study is Vietnam, a fast-growing developing economy where the shift towards sustainable practices has received recognition from policymakers (Vietnam Investment Review, 2021). Vietnamese firms consistently work towards integrating their HRM and sustainability practices to minimize environmental impact and enhance their legitimacy (Adomako *et al.*, 2023; Do *et al.*, 2020). A study commissioned by the Organisation for Economic Co-operation and Development (OECD) identified a lack of managerial competency, inadequate awareness of HRM sustainability practices, and insufficient skills and abilities among managers and employees as potential obstacles to innovation and sustainable performance in Vietnam (OECD, 2021).

Addressing the calls for research in sustainable HRM and organizational sustainability literature, SMEs were chosen as a suitable organizational context. Harney and Alkhalaf (2021) contend that SMEs present a fascinating context in which to examine the strategic fit and influence of managerial competency and other related HRM concepts and their role in the adoption and implementation of sustainable HRM. They stress the need to go beyond traditional economic organizational outcomes to take account of social and environmental impacts. While many large organizations have launched sustainability initiatives, these are still uncommon in SMEs due to resource and financial limitations (Bos-Brouwers, 2010; Dey *et al.*, 2020; Sardi *et al.*, 2020).

Although the adoption and implementation of sustainability practices have been widely studied in the Western context, such as in the United Kingdom and the United States, research concerning other contexts is scarce (Roux *et al.*, 2023; Rovanto and Finne, 2023). We address this gap by focusing on SMEs in Vietnam, an emerging market (Do *et al.*, 2020; Nguyen *et al.*, 2023). For this study, we adopted the definition of SMEs put forward by the Vietnamese National Assembly (Law

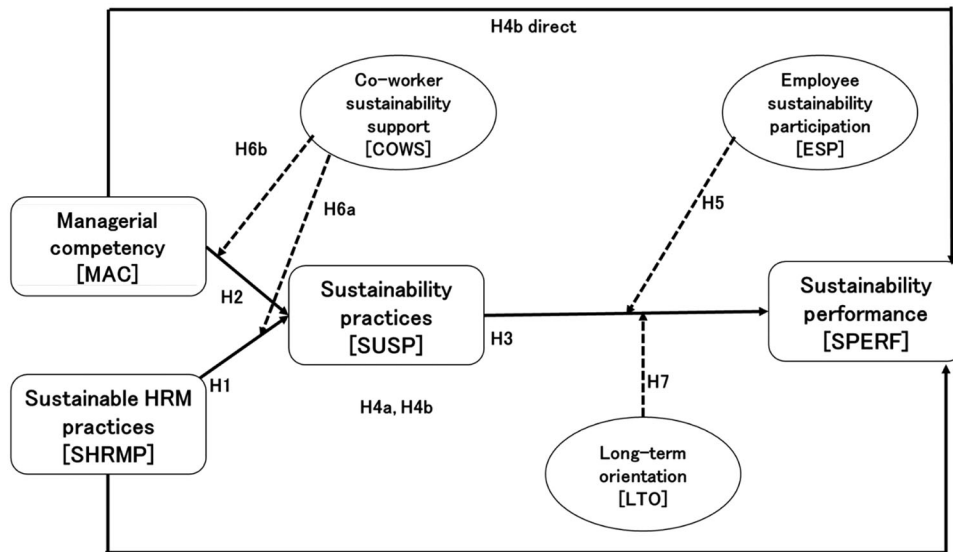


Figure 1. Conceptual model

04/2017/QH14 – SME law); that is, employing no more than 200 employees, total turnover not exceeding VND 100 billion (for the current and preceding year) and registered with the state social insurance scheme (UNDP Vietnam, 2020).

*Sampling and inclusion criteria*

This study employed purposive sampling involving employees working in Vietnamese SMEs with first-hand knowledge about HRM, sustainability practices and performance within their organization. For data collection, an online survey questionnaire was set up and administered by Qualtrics, a web-based survey research platform. The data were captured anonymously on the platform and prepared for analysis using structural equation modelling (SEM).

We included a set of screening questions to establish the inclusion criteria, thereby ensuring that all respondents met the following prerequisites: (a) had a minimum of 2 years of experience in the current organization, facilitating an understanding of HRM practices, operational processes and strategies; (b) demonstrated knowledge of sustainability practices and their implementation within the organization; (c) belonged to organizations currently undertaking sustainability projects in their operations over the past 2 to 5 years; (d) held managerial responsibilities; (e) actively participated in and contributed to senior management strategic meetings; (f) exhibited an understanding of the organization’s business operations, strategies and sustainability performance; and (g) worked in organizations with between 10 and 50 employees. Most Vietnamese SMEs fall into the micro, small or medium-sized business cate-

gories, with micro businesses typically employing fewer than 10 individuals (see Table 1 – sample population characteristics).

The total sample is 254, a size sufficient for the analysis. Specifically, we assessed our sampling adequacy for valid empirical insights, following Sideridis *et al.* (2014) and Wolf *et al.* (2013). Using the semTools package in R, we confirmed that our sample size (254) exceeded the required 175. The Kaiser–Meyer–Olkin measure (0.91) and Bartlett’s test supported the suitability for subsequent analysis (i.e. SEM analysis). Sample characteristics are summarized in Table 1.

*Measures*

All items were measured using a five-point Likert scale (1 = completely disagree; 5 = completely agree) and were derived from the existing literature. They were pilot-tested with eight academic experts and 20 SME employees in Vietnam. The pilot testing aimed to confirm measurement items and ensure clarity, a procedure recommended in the existing literature (Mackenzie, Podsakoff and Podsakoff, 2011; Robinson, 2018; Shuck, Adelson and Reio Jr, 2017).

We measured sustainable HRM practices with six items adapted from Dumont, Shen and Deng (2017) to cover a range of practices including training, performance appraisal and career development, referring specifically to sustainable HRM. Given the under-developed nature of the sustainable HRM practices scale, we adapted this scale by replacing ‘green’ with ‘sustainability’ in the statements, as sustainable HRM and green HRM are often treated interchangeably (Aust, Matthews and Muller-Camen, 2020). We

Table 1. Sample population characteristics

	Key figures
Target sample size	340 (each employee from a distinct organization)
Incomplete responses	40
Unusable responses	46
Response validation criteria (checking the internal response consistency)	Non-meaningful response to subjective questions; time taken to complete the survey (not less than the threshold of 15 minutes); inconsistent responses to reverse-coded items
Eligible responses	254 (sample adequacy statistically tested and is greater than the required sample of 172) and theoretical recommendations (Sideridis <i>et al.</i> , 2014)
Employees within the organization	10–20: 65% 21–30: 35%
Type of role	Some form of managerial responsibility (example roles include team leader, project leader, supplier relationship leader) but not formally employed in a manager position (e.g. operations manager). All respondents had a line manager
Sector	Manufacturing and production: 85% Other process intensive (e.g. repair, mining, construction material supply): 15%
Years of employments (mean)	3.5 years
Target SDGs of the organization (90% of responses)	Goal 5: Gender equality Goal 7: Affordable and clean energy Goal 8: Decent work and economic growth Goal 9: Industry innovation and infrastructure Goal 10: Reduced inequalities Goal 12: Responsible consumption and production Goal 13: Climate action Goal 17: Partnerships to achieve goals
SME sustainability maturity	Innovator (has implemented successful business cases employing sustainability practices): 45% Early adopter (currently implementing pilot projects): 55%

measured managerial competency with 10 items covering the three dimensions (technical/functional, management and leadership skills) used in Spencer and Spencer (2008). A sample item was ‘Manager is democratic in their approach – meaning collaborative and conducive to needs of staff’.

We measured organizations’ sustainability practices using 13 items, combining the recommended practices in the sustainability literature (Ormazabal *et al.*, 2016; Prieto-Sandoval *et al.*, 2019; Saha, Dey and Papagiannaki, 2021). Sample items included ‘We apply environmental criteria in the selection of suppliers along with quality, cost and time’. Employee sustainability participation was based on seven items used by Vlachos, Panagopoulos and Rapp (2014) to capture both in-role and extra-role participation behaviours. For instance, the sample items included ‘I contribute many ideas for improving my organization’s sustainability programmes’.

We measured co-worker sustainability support by adapting Ladd and Henry’s (2000) nine-item scale. The original scale measured generic co-worker support, and we adapted the items to refer specifically to sustainability. Sample items included ‘My co-workers are complimentary of my sustainability-related accomplishments at work’. We measured long-term orientation with the eight-item scale from Bearden, Money and Nevins (2006). An example item is ‘Traditional values are important to me’.

We measured sustainability performance using 18 items covering economic, environmental and social performance. We built upon the 10-item scale used by Dey *et al.* (2020) and added eight items that captured the recent performance indicators related specifically to the circular economy in SMEs (Saha, Dey and Papagiannaki, 2021). Sample items included ‘We have reduced our manufacturing costs in recent years’ (economic performance), ‘We have created jobs to support the community and thus contributed to the nation’s entrepreneurial growth’ (social performance) and ‘We have reduced business waste across our processes’ (environmental performance).

#### Control variables

We controlled firm size, age and sustainability maturity and the results showed no significant impact on the results of our hypothesis testing.

#### Data analysis method

SEM, a popular statistical technique in social sciences, examines relationships between constructs using quantitative data (Dadeliene *et al.*, 2020). It measures direct and indirect relationships, including latent ones (Kalapouti *et al.*, 2020). We used SEM with maximum



Table 2. Reliability and construct validity

	Alpha	CR	AVE	SHRMP	MAC	SUSP	SPERF	LTO	COWS	ESP
Sustainable HRM practices (SHRMP)	0.853	0.938	0.605	<b>0.778</b>	0.315*	0.192*	0.148**	0.451*	0.284**	0.151**
Managerial competency (MAC)	0.890	0.925	0.557		<b>0.746</b>	0.451*	0.284**	0.273**	0.352**	0.253*
Sustainability practices (SUSP)	0.872	0.923	0.553			<b>0.743</b>	0.471*	0.342*	0.433*	0.394**
Sustainability performance (SPERF)	0.914	0.943	0.624				<b>0.788</b>	0.258**	0.231*	0.229*
Long-term orientation (LTO)	0.892	0.915	0.527					<b>0.725</b>	0.342*	0.378*
Co-worker sustainability support (COWS)	0.914	0.933	0.584						<b>0.764</b>	0.214**
Employee sustainability participation (ESP)	0.896	0.939	0.608							<b>0.779</b>

Note: Values in bold represent square root of AVE. \*p < 0.05. \*\*p < 0.01.

likelihood extraction to test hypotheses, interpret results and visualize connections via SEM path diagrams.

## Results

### Construct validity

We adhered to the guidelines set by Mackenzie, Podsakoff and Podsakoff (2011), Schmiedel, Vom Brocke and Recker (2014) and Hair *et al.* (2019) to validate the proxy items used to measure each construct. Principal component analysis, using both the scree plot and Kaiser’s rule, indicated that all proxies were grouped into seven factors, corresponding to the number of constructs in our study.

Self-reported data are prone to common method biases (CMB) due to social desirability (Podsakoff *et al.*, 2003). To mitigate this, we used procedural and statistical strategies recommended by Podsakoff, Mackenzie and Podsakoff (2012), including clear instructions, respondent anonymity, simple questions, brief surveys, spatial separation of variables, obscured causal relationships and reverse coding. The results revealed that the common method variance (CMV) was 0.37, which is below the literature’s standard threshold of 0.5 (Hair, Ringle and Sarstedt, 2013). Consequently, we deem the potential influence of CMB to be minimal. We also implemented the marker variable technique (Williams, Hartman and Cavazotte, 2010), revealing an insignificant relationship ( $r = 0.047$ ,  $p = 0.68$ , non-significant) between the original theoretical model and the modified model incorporating the marker variable. The marker variable chosen was the behavioural intention to use digital tools, based on the technology management literature concerning user acceptance of information technology (Venkatesh, Thong and Xu, 2012). This selection adhered to the guidelines in the existing literature (Simmering *et al.*, 2015) to ensure the marker variable’s

theoretical irrelevance to the study variables. The reliability and discriminant validity of the theoretical latent constructs for the subsequent SEM analysis were determined by calculating Cronbach’s alpha values for each latent construct. Table 2 shows that alpha values for all the constructs were above the threshold of 0.7 (Hair *et al.*, 2019).

We tested the convergence validity for each construct using average variance extracted (AVE) calculations using the individual proxy loadings (obtained from PCA) and the scale composite reliability coefficients (SCR), which were calculated using the square root of the AVE values. In our analysis, we found that the AVE for each construct is greater than 0.5 and SCR is greater than 0.7, which are acceptable according to the literature. We also found that the square root of the AVE is greater than all the inter-construct correlations, providing further evidence of sufficient validity for SEM analysis (Hair *et al.*, 2019). Table 2 summarizes the results of convergence and discriminant validity, including the inter-correlations among major constructs.

We further verified the model by examining the coefficient of determination ( $R^2$ ) values, which showed the predictive power of the endogenous variables. The values indicated that the full model explained 62% of the variance for SUSP and 67% of the variance for SPERF, both of which can be considered high (Chin, 1998). We also examined the effect size ( $f^2$ ) to determine the contribution of an exogenous construct to an endogenous construct (i.e. the effect size of exogenous predictor variables on sustainability practices and performance). According to Cohen (1988),  $f^2$  values of 0.35, 0.15 and 0.02 are considered large, medium and small. We found that all the direct values are greater than the threshold of 0.15; therefore, we concluded that the relationships have moderate to high effect sizes.

CFA indicates that the fit of our four-factor model is acceptable:  $\chi^2(704) = 625.95$  ( $p = 0.897 > 0.05$ );

Table 3. Hypothesis testing

(H#)	Relationship	B	SD	t-Value	Confidence interval (95%)		p-Value	Result
H1	SHRMP → SUSP	0.482	0.141	3.442	0.208	0.0756	0.000	Supported <sup>***</sup>
H2	MAC → SUSP	0.547	0.172	3.180	0.211	0.884	0.000	Supported <sup>***</sup>
H3	SUSP → SPERF	0.294	0.091	3.230	0.116	0.472	0.000	Supported <sup>***</sup>
<b>Mediation</b>								
H4a	SHRMP→SUSP→SPERF	0.233	0.082	2.841	0.072	0.393	0.002	Supported <sup>**</sup>
H4b	MAC→SUSP→SPERF	0.465	0.185	2.514	0.102	0.828	0.006	Supported <sup>**</sup>
<b>Moderation</b>								
H5	SUSP*ESP→SPERF	0.097	0.185	3.566	0.156	0.536	0.000	Supported <sup>***</sup>
H6a	SHRMP*COWS→SUSP	0.195	0.097	2.753	0.154	0.92	0.003	Supported <sup>**</sup>
H6b	MAC*COWS→SUSP	0.163	0.163	3.631	0.272	0.911	0.000	Supported <sup>***</sup>
H7	SUSP*LTO→SPERF	0.086	0.086	3.826	0.161	0.498	0.000	Supported <sup>***</sup>

Note: \*\*\*  $p < 0.001$ , \*\*  $p < 0.01$ , \*  $p < 0.05$  significance levels.

SRMR = 0.052; RMSEA = 0.043; CFI = 0.968, TLI = 0.962. Finally, the goodness of fit was determined by calculating the standardized root mean square residual (SRMR = 0.070 < 0.08 for data fitting the model) and the normed fit index (NFI = 0.832, value close to 1 for better fit) (Ren *et al.*, 2023). Therefore, we can conclude that the model predicts and tests the hypotheses.

#### SEM path coefficient and hypothesis results

SEM results – that is, standardized path coefficients and their corresponding significance – are presented in Table 3.

Sustainable HRM practices positively and significantly influence sustainability practices [H1 accepted] ( $\beta = 0.482$ ,  $p < 0.001$ ) and sustainability performance ( $\beta = 0.527$ ,  $p < 0.001$ ). Therefore, H1 is supported. Managerial competency positively and significantly influences sustainability practices [H2 accepted] ( $\beta = 0.547$ ,  $p < 0.001$ ) and sustainability performance ( $\beta = 0.763$ ,  $p < 0.001$ ). Sustainability practices positively and significantly influence sustainability performance ( $\beta = 0.294$ ,  $p < 0.001$ ); therefore, H3 is supported.

We evaluated mediating and moderating effects using a SEM bootstrap technique (Preacher and Hayes, 2004), a method frequently employed in the extant literature. The mediating role of sustainability practices was tested. The indirect path from sustainable HRM practices to sustainability performance through sustainability practices was significant ( $\beta = 0.233$ ,  $p < 0.01$ ); therefore, H4a is supported. The indirect path from managerial competency to sustainability performance through sustainability practices was also significant ( $\beta = 0.465$ ,  $p < 0.001$ ), thus supporting H4b and revealing the mediating role of sustainability practices.

The moderator variables (co-worker sustainability support, employee sustainability participation and long-term orientation) were checked for both high and low values, considering one standard deviation (1 SD) above and below the mean (Alfes, Veld and Fürsten-

berg, 2021). The analysis showed that the positive effect of sustainability practices on sustainability performance ( $\beta = 0.294$ ,  $p < 0.001$ ) became stronger due to employee sustainability participation ( $\beta = 0.346$ ,  $p < 0.001$ ), supporting H5. This strength of the relationship between sustainable HRM practices and sustainability practices increased significantly due to the presence of co-worker sustainability support ( $\beta = 0.537$ ,  $p < 0.001$ ), supporting H6a. Finally, the effect between managerial competency and sustainability practices was strengthened owing to co-worker sustainability support ( $\beta = 0.592$ ,  $p < 0.001$ ), supporting H6b. The positive influence of sustainability practices on sustainability performance became stronger due to the long-term orientation of employees ( $\beta = 0.329$ ,  $p < 0.001$ ), supporting H7.

## Discussion

Underpinned by signalling theory, this study used survey data collected from SMEs in Vietnam to empirically test a model of how and when sustainable HRM impacts sustainability performance. Specifically, sustainable HRM practices and leadership were positively associated with sustainability performance, mediated by sustainability practices. We also found support for two key moderating variables, namely, employee sustainability participation and long-term orientation, for the relationships between sustainability practices and sustainability performance. Furthermore, our data revealed that the positive association between sustainable HRM practices and leadership with sustainability practices was amplified in the presence of higher levels of co-worker sustainability support.

#### Theoretical implications

Overall, this study responds to calls in the literature for more research that acts as a conduit between the areas of sustainable HRM and organizational

sustainability (Aust, Matthews and Muller-Camen, 2020; Guerci *et al.*, 2019; Ren *et al.*, 2023). In doing so, our findings offer significant theoretical implications for sustainable HRM and the broader organizational sustainability literature. First, considering the limited application of theories in sustainability research (Connelly *et al.*, 2011), we augment the literature by using a novel theoretical perspective—signalling theory. Often, studies overlook the multi-faceted nature of signalling theory, placing too much attention on the signaller, signal or receiver (Choi, Kim and Shenkar, 2023; Guest *et al.*, 2021). We strengthen the theoretical arguments of signalling theory, emphasizing the critical role of managers as implementers of organizational practices. We also outline the importance of employees and co-workers as interpreters of these signals. In doing so, our study provides a comprehensive understanding of signalling theory in the context of organizational sustainability.

Second, our findings highlight the importance of sustainable HRM practices and leadership as two key antecedents of sustainability practices. Sustainable HRM practices reflect the way employees are managed within the organization and the broader organizational strategy (Stahl *et al.*, 2020; Westerman *et al.*, 2020). Our findings suggest that when employees perceive themselves as being treated favourably, they reciprocate through increased adoption of sustainability practices (Jerónimo, de Lacerda and Henriques, 2020; López-Cabrales and Valle-Cabrera, 2020; Pellegrini, Rizzi and Frey, 2018) and play a crucial role in acquiring and developing individual and organizational capabilities (Aust, Matthews and Muller-Camen, 2020). Similarly, the support for leadership as an antecedent aligns with existing research proposing that managers can play an effective role in the implementation of practices (Gilbert, De Winne and Sels, 2015). These findings also reinforce the need for managers to adapt their leadership behaviours to integrate sustainability practices within the organizational strategy (Ren *et al.*, 2023). Our study also supports the view that in SMEs, leadership plays a crucial role in gaining employee respect and enhancing employee–organization fit (Martdianty, Coetzer and Susomrith, 2020).

Third, our findings reveal a new mediating mechanism, sustainability practices, to deepen the understanding of the relationship between sustainable HRM practices and leadership with sustainability performance. This mechanism provides a valuable explanation of how HRM is linked with performance, specifically in the context of sustainability (Bowen and Ostroff, 2004; Diaz-Carrion, López-Fernández and Romero-Fernández, 2021; Stahl *et al.*, 2020). While existing research implicitly suggested the need to examine potential mediators for this relationship, to our knowledge,

this is the first study to propose and empirically test this intermediate pathway. Building on the literature that suggests a sustainable HRM system can result in higher levels of sustainability performance, our study highlights the mediating role of sustainability practices (López-Cabrales and Valle-Cabrera, 2020).

Another notable finding of this study is that the positive relationship between sustainable HRM practices and leadership with sustainability practices is amplified in the presence of higher levels of co-worker sustainability support. Previous studies have largely ignored the role of co-workers in reinforcing the collective belief in the organizational sustainability ethos and its influence in further integrating sustainability practices (Kim *et al.*, 2017; Pfeffer, 2010). Our findings suggest that co-workers can actively support employees to understand the sustainability-related messages from the organization and managers, thus expanding upon the organizational sustainability agenda (de la Rosa-Navarro *et al.*, 2024). Our study adds to the existing evidence that organizations cannot operate solely on strategic goals; the development and execution of strategies are contingent upon individual and collective attitudes and behaviours (Marescaux, De Winne and Rofcanin, 2021).

Fifth, our results present evidence that employee sustainability participation can serve as a key contingency variable influencing the link between sustainability practices and sustainability performance, thus adding to previous studies that have mainly focused on the direct main effect (Ones and Dilchert, 2012; Richards, 2022). This agrees with studies that argue that employee involvement could be significant in advancing or diminishing sustainability performance, through performing various sustainability-related activities (Benn, Teo and Martin, 2015; Carmeli *et al.*, 2017; Wikhamn, Wikhamn and Fasth, 2022).

Finally, despite being at the heart of the sustainability concept, long-term orientation has received little theoretical and empirical attention in organizational sustainability literature. By confirming the construct as a moderator for the relationship between sustainability practices and sustainability performance, we extend the existing literature by shedding light on an under-researched moderator and strengthen the business case for sustainability within organizations. We find that organizations need to move away from initiatives that focus on short-term myopic visions as they stand in contradiction with long-term sustainability goals (Miska, Szócs and Schiffinger, 2018; Van Marrewijk, 2003; Wang and Bansal, 2012). The findings affirm that long-term orientation is more common in organizations operating in Eastern cultures than in Western cultures, as they tend to set broader long-term objectives and are thus less affected by short-term events such as daily stock prices (Bansal, Kim and Wood, 2018).

### *Managerial implications*

The findings from this study offer insightful recommendations for managers. Given that sustainable HRM practices and managerial competency impact a firm's sustainability practices, companies could incorporate sustainability-related issues into their training and development programmes. In this context, managers in particular should receive specialized training to develop competencies in leading sustainability-oriented initiatives and innovation. This can include courses on sustainable business strategy, stakeholder engagement and the implementation of eco-friendly initiatives. By enhancing their ability to lead and advocate for sustainability, managers can better integrate these principles into business operations and decision-making processes.

In terms of specific sustainable HRM practices, sustainability training should be tailored to SMEs, ensuring they are experienced effectively by organizational members. Integrating sustainability into performance appraisal systems is another recommended approach. Human resource managers can include sustainability-related objectives and metrics in performance evaluations, ensuring that employees' contributions to sustainability are recognized and rewarded. Recognizing and rewarding sustainable practices among employees is also vital. Implementing a rewards system that celebrates employees who contribute to the company's sustainability initiatives can significantly boost engagement and motivation. This could include formal recognition programmes such as 'Sustainability Champion' awards, bonuses for achieving sustainability targets or public acknowledgement in company communications.

In addition, the importance of co-worker sustainability support suggests promoting collaborative efforts towards sustainability. One possible way forward is creating cross-functional teams to focus on sustainability projects, or facilitating knowledge-sharing platforms where employees can exchange ideas on sustainability practices. Creating cross-functional teams to work on sustainability initiatives will ensure innovative and creative solutions stemming from diverse perspectives. Moreover, platforms such as regular brainstorming sessions, suggestion boxes, or digital collaboration tools for employees to share ideas and innovations related to sustainability will help develop a sense of teamwork and collective responsibility towards sustainability.

Given the evidence on signalling effects revealed by the study, we also recommend that organizations ensure clear and consistent communication emphasizing the company's commitment to sustainability, making it integral to the company's strategic planning and daily operations in meetings and company updates and through internal communication channels. Further, organizations could collaborate with other stakeholders and participate in capacity-building initiatives to enhance their

overall sustainability performance. This could benefit SMEs, creating networking opportunities that enable them to learn from other organizations. To demonstrate a long-term commitment to sustainability and ensure credibility, organizations could obtain external certifications, enhancing their brand image among stakeholders, including suppliers, distributors and customers.

### *Limitations and future research*

The findings of this study extend the relatively unexplored areas of sustainable HRM and organizational sustainability. However, some limitations remain. First, the study is cross-sectional, thus limiting the inferences of causality between variables, which is a common limitation of other cross-sectional studies in the sustainability management literature (e.g. Chaudhuri *et al.*, 2024; Chowdhury *et al.*, 2022; Dey *et al.*, 2020) and work recently published in this journal (e.g. Queiroz *et al.*, 2024). To account for this issue, we have comprehensively tested for CMB using both Harman's single-factor test and marker variable method. Our test results using both methods show the absence of CMB. Therefore, we believe that procedural remedies and statistical tests demonstrate the validity and reliability of the constructs and the structural model. Future studies could employ an experimental longitudinal design to overcome this limitation. For instance, either collecting independent and outcome variables from different sources or collecting from the same source but at different points in time reduces the chances of CMB in self-reported data.

Second, we focused on three key organizational stakeholders: employees, co-workers and immediate managers. Future studies could examine external stakeholders such as policymakers, customers and pressure groups who could drive sustainability performance (Diaz-Carrion, López-Fernández and Romero-Fernández, 2021). Third, we tested a holistic framework of sustainable HRM and sustainability performance, using managerial competency, employee participation, co-worker support and long-term orientation. Future researchers could explore other constructs, for example, employee engagement, motivation and psychological contracts (Dixon-Fowler *et al.*, 2020; Kutaula, Gillani and Budhwar, 2020).

Fourth, we examined the moderating role of employees' long-term orientation on sustainability practices and sustainability performance. Other studies could investigate cultural values such as individualism and collectivism and their impact on an organization's sustainable HRM and corporate practices. Fifth, while this study provides significant insights regarding Vietnamese SMEs in the context of HRM and sustainability, the findings are limited in terms of generalizability. Future studies could evaluate the applicability of findings from this study in other emerging and developed market

contexts and organizations of various sizes to overcome this limitation. Finally, future studies should explore a three-way interaction among sustainable HRM, managerial competency and co-worker sustainability support on sustainability practices, building on the insights of this study. Moreover, investigating the three-way interaction among sustainability practices, long-term orientation and employee sustainability participation could enhance our understanding of how these factors collectively influence employee sustainability performance. This deeper insight could lead to more targeted and effective strategies for promoting sustainability within organizations.

## Conclusion

Considering the triple-bottom-line challenges and the uncertain and dynamic business supply chain ecosystem, organizations are integrating sustainability practices. However, SMEs possess limited resources. In this context, HRM scholars have called for research regarding the impact of sustainable HRM on sustainability performance. We examined the role of sustainable HRM practices and managerial competency in influencing sustainability practices, which in turn impacted sustainability performance. The relationship between sustainability practices and sustainability performance was enhanced by employee sustainability participation and long-term orientation. Furthermore, co-worker sustainability support played a moderating role in the relationship between sustainable HRM practices and managerial competency and sustainability practices. Our findings highlight the significance of a holistic approach including managers, employees and co-workers to promote sustainability, thereby improving sustainability performance. This paper advances insights into the field of sustainable HRM and organizational sustainability, guiding future research in this area.

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