

How do corporate social responsibility initiatives enhance sustainability performance? Evidence from tobacco firms

Abstract

Corporate social responsibility initiatives (CSRIs) have gained significant attention in the context of growing stakeholder expectations for environmental protection, competitive pressure, and utilizing existing resources for any organization's sustainability. Although prior scholars investigated the CSRI consequences in the sustainability context, these investigations examined them in isolation. Thus, exiting research lacks a single nomological framework to consider green intellectual capital (GIC) and green human resource management (GHRM) despite their importance. Accordingly, this paper investigates the impact of CSRIs on sustainability performance (SP) in the tobacco industry, using the resource-based view (RBV) theory as a foundation. Besides, this paper investigates the pivotal roles of GIC and GHRM in the CSRI-SP linkage. Data were collected from 324 managers at Pakistani tobacco firms and analyzed using WarpPLS 7. Findings indicate that GIC and GHRM resources significantly influenced tobacco firms' sustainability. Furthermore, this paper found that GIC and GHRM serially mediated the CSRIs-SP relationship. Based on RBV, this paper provides valuable insights for decision-makers and academics in the green HRM context.

Keywords

Green intellectual capital, Pakistan, resource-based view, tobacco firms, sustainability performance

1. Introduction

Corporate social responsibility initiatives (CSRI) are significant in several industries, including banking, healthcare, education, and finance (Fatima & Elbanna, 2023; Gull et al., 2023; Nazneen et al., 2023). It is critical, however, to recognize the potential environmental consequences of tobacco cultivation (Behera et al., 2023b; Mukucha et al., 2023). Tobacco cultivation and harvesting have been linked to environmental problems (e.g., deforestation, water pollution, and the widespread use of chemical pesticides) (Adesanya et al., 2020; WHO, 2017). [It is also a source of climate change and environmental degradation \(Behera et al., 2023a\).](#)

Recent studies have emphasized the importance of addressing the environmental footprint of tobacco production and its implications for CSRI, highlighting the need to address these environmental concerns (Kumar et al., 2023; Wang & Juo, 2021). To address these issues, tobacco firms are implementing CSRI (e.g., reducing carbon footprints, implementing ecological policies, and making socially and environmentally conscious investments) to enhance tobacco firms' sustainability performance (SP) (Burlea-Schiopoiu et al., 2022; Silumbwe et al., 2022). CSRI toward stakeholders are a new concept gaining attention among practitioners and scholars (Arian et al., 2023).

A stakeholder is defined as an individual or group interested in a firm that can either influence or be influenced (Heikkinen et al., 2023). Customers, employees, community partners, governments, and regulators are stakeholders in tobacco firms (Adesanya et al., 2020). For instance, tobacco firms in Nigeria are attempting to portray themselves as vital partners in government departments (Egbe et al., 2019)—[firms developing environmentally friendly policies to increase performance \(Ma et al., 2023; Sethi et al., 2023\).](#)

Zhang and Zhu (2019) recently emphasized the necessity for more research on how businesses' CSRI toward stakeholders might enhance SP. Accordingly, firms must optimize the utilization of their current core skills while constructing and creating new assets and capabilities through a resource-based view (RBV) (Mousa & Othman, 2020). [A firm's strategy, operational policy, and competitive advantage in green sustainability should be based on its resources and skills \(Behera et al., 2023a; Hyder et al., 2023\) that promote environmentally sustainable economic activity \(Sethi et al., 2023\).](#)

Nowadays, green intellectual capital (GIC) is a significant and crucial corporate resource influencing business success (Wang & Juo, 2021), which is defined as "*the total stock of a firm's*

intangible assets, knowledge, and talents related to environmental protection or green innovation at the individual and organizational levels” (Chen, 2008, p. 272). Demartini and Beretta (2020) suggested that intangible resources like intellectual capital contribute to firm performance. Despite its importance in contributing to SP, GIC has been underutilized in the tobacco industry. RBV states that valuable, rare, and inimitable resources must be organized into resource orchestration. GIC and organizational procedures regarding green human resource management (GHRM) are critical resource orchestration tools for many firms and are thought to improve SP (Roscoe et al., 2019).

GHRM refers to a combination of practices and systems that align HRM practices with resource-efficient organizational goals (Úbeda-García et al., 2021). Sethi et al. (2023) demonstrated the importance of incorporating sustainability into various business practices. Burlea-Schiopoiu et al. (2022) argued that integrating business processes into GHRM and sustainability is critical for organizational performance. For instance, when a firm focuses on green innovation in business processes and improves its employees’ green skills, they see environmentally friendly products (Wang & Juo, 2021).

Moreover, Zhang and Zhu (2019) emphasize that organizations that focus on environmental development by rethinking their strategies in light of energy consumption will reduce their carbon footprints. However, firms have been compelled to reinvent their strategy and operational policy (Khan et al., 2023a) in response to these environmental challenges and enhance their SP (Fatima & Elbanna, 2022). Firms must use their human resources to pursue green goals that can be linked to SP (Roscoe et al., 2019). These emphasize the significance of GHRM in the sustainability context. However, little research has been conducted to investigate the GHRM-SP relationship (Haldorai et al., 2022). The joining study concerns tobacco firms’ CSR in supplier relationship management (Adesanya et al., 2020) and sports CSR marketing strategy (Siahaya & Smits, 2021).

Nirno et al. (2022) studied the role of corporate venture capital in enhancing CSRI in European firms; however, they emphasized examining this relationship the other way around. Similarly, Úbeda-García et al. (2021) examined the CSRI-SP linkage through GHRM in hotel settings, highlighting that their importance in other research settings is unknown. Do scholars argue that it is critical to understand why these internal resources are essential for SP? No research has employed these variables together in a unified nomological network. Therefore, this paper aims to fill several persistent theoretical gaps:

a) What are the effects of CSRI on SP in the tobacco industry?

b) How do GIC and GHRM serve as a mediating mechanism between the CSRI-SP relationships?

Our main theoretical contributions are as follows: (i) To attempt to answer the question of whether CSRI have a positive or negative impact on firm performance, we empirically examined the relationship using updated evidence from the tobacco industry, a much more controversial industry with public concern about its CSRI and environmental impact. [In doing so, we responded to Behera et al.'s \(2023b\) and Nirino et al.'s \(2022\) suggestion to update the empirical literature on the CSRI-SP relationship](#), and our findings will reveal a significant relationship between CSRI and SP. We also add to existing RBV knowledge by investigating GIC and GHRM as mediating mechanisms to explain CSRI and forecast SP. We first conceptualize the correlation between GIC and GHRM as a resource orchestration mechanism for achieving SP in an organizational context, using existing literature as a foundation (Roscoe et al., 2019).

2. Theoretical foundation and hypotheses development

2.1 Theoretical underpinnings

Resource-based view (RBV) theory supported our model (see Figure 1). This theory supports better firm CSRI toward stakeholders (i.e., society, customers, and employees), increases organizational resources, and improves SP (Úbeda-García et al., 2021). Conversely, suppose a firm's socially responsible programs for its stakeholders (in our case, customers, employees, and society) prove more beneficial and profitable. In our case, socially responsible investments incentivize firms to improve their SP.

Table 1. Summary of critical literature.

Author	Research context	Theories	Research contributions	Limitations and Gaps
Nirino <i>et al.</i> (2022)	Italy/S&P firms	Stakeholder theory	Most prior research examined the CSR-FP relationship with different underlying mechanisms, such as intrinsic and extrinsic motivation and green innovation; however, the mediating relationship with intellectual capital is lacking, and this research contributed to the new line of sustainable intellectual capital.	Research on CSR-FP extended by including sustainable intellectual capital in the model; however, other aspects of organizational performance, such as economic, social, and environmental, seem to be neglected. CSR is considered unidimensional; despite CSR's broader scope, other dimensions of CSR were not considered.
Úbeda-García <i>et al.</i> (2021)	Malaysia/hotel industry	Stakeholder RBV	GHRM and environmental outcomes are serially mediated between CSR-firm performance relationships in a hotel setting. However, no parallel mediation of GHRM was found. Limited research examined organizational resources, such as GHRM, and environmental outcomes. CSR literature has been updated.	Although GHRM and the environment are serially mediated, there is no parallel between CSR-firm performance and a hotel setting. Research context limits the insignificant results. The role of GHRM in another cultural environment may yield significant results. Further, including intellectual capital in a model may bridge the CSR-firm performance linkage.
Yong <i>et al.</i> (2020)	Malaysia/manufacturing firms	Resource based-view	GHRM is a widespread phenomenon in manufacturing firms. Scholars examined the direct relationship of GHRM dimensions (recruitment, training, job analysis, and reward, selection, and performance assessment) with sustainability (social, economic, and environmental). Only significant evidence was found for two dimensions of GHRM (recruitment and training) with sustainability. The role of GHRM in manufacturing firms is not fully developed, and research is scarce in this context.	Research context limits findings of the GHRM and sustainability relationship; GHRM dimensions (rewards, job analysis, performance assessment) do not influence sustainability. Potential mediators seem to be neglected in the model, or GHRM as a mediator between GIC and SP could yield significant results.
Yong <i>et al.</i> (2019)	Malaysia/manufacturing firms	Intellectual capital-based view theory, resource-based view theory	GIC is an internal organizational capability and an essential resource of every organization for enhanced performance, and literature is building on its operationalization in different sectors. Its role with GHRM is not fully established in manufacturing firms.	The inclusive results of structural capital may be because of generalizability. Data from other industries can bring valuable insights for GIC. Sustainability performance could be a significant outcome of GHRM.
Vo <i>et al.</i> (2023)	Vietnam/banking sector	Agency theory	Previous CSR models did not consider CG and IC to measure FP. The outcome of CSR is widely discussed in the literature; however, the boundaries of CSR are rarely discussed. It is claimed that IC significantly strengthens the effect of CG on CSR.	Future research may consider C [±] G a moderator/mediator between IC and CSR relationships. Replicate this model in other contexts.

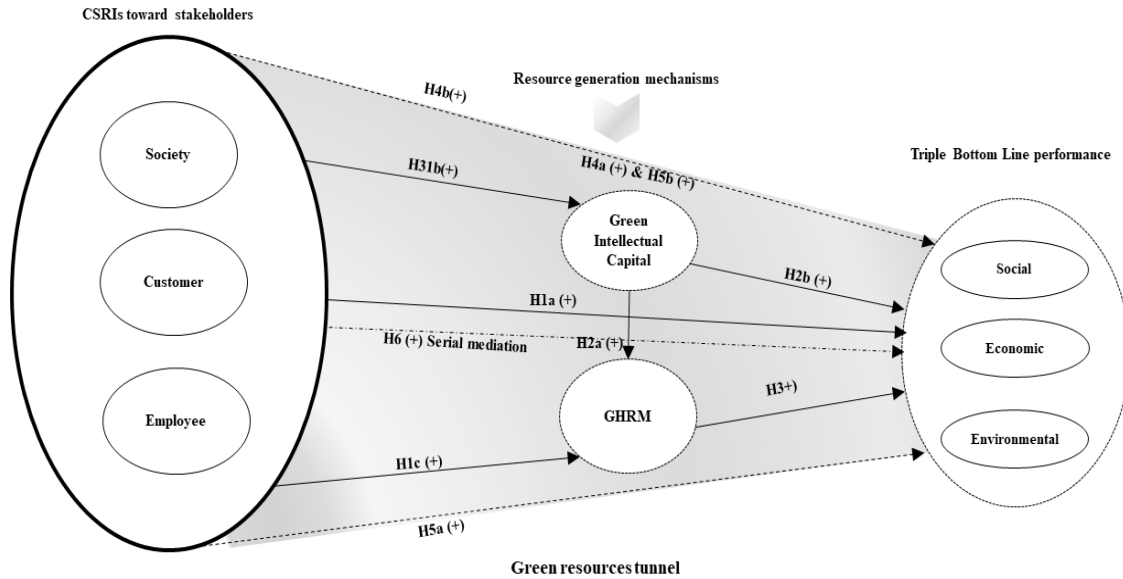


Figure 1. Conceptual model.

2.2 CSRI and sustainability performance

CSRI are operational business policies and initiatives that consider stakeholders' prospects (Nirino et al., 2022). Interest groups claim organizational resources using the triggering RBV to demonstrate the CSRI-SP linkage (Úbeda-García et al., 2021). Businesses that adopt and implement socially responsible strategies show increased profitability (Siahaya & Smits, 2021). CSRI and performance are frequently discussed; Úbeda-García et al. (2021) explored the hospitality sector and found positive outcomes.

Panait et al. (2023) also tested this relationship and found a significant correlation in oil and gas firms. However, the role of CSRI-SP in the tobacco industry is neglected, and research is lacking. Few scholars found positive relationships (Zaragoza-Sáez et al., 2020); however, Crisóstomo et al. (2011) found negative associations. Therefore, we propose that:

H1a. CSRI positively affect sustainability performance.

2.3 CSRI and GIC

The whole pool of team communication systems, organizational competency, and intellectual property rights that provide resources to businesses is called GIC (Nahapiet & Ghoshal, 1998). RBV suggests that a firm's economic advantages are derived from its core capital and expertise. From RBV's viewpoint, green management can also be an essential part of an organization's

policies and should be regarded as a particular skill (Khan et al., 2023b). GIC is a new phenomenon in the tobacco industry, where firms confront challenges in successfully leveraging internal capabilities, and it has gained little attention in the literature.

CSRIs can contribute to a new definition of GIC linked to human, structural, and relational aspects, considering the critical components of GIC (Demartini & Beretta, 2020). Green human capital aims to develop ethical values and a firm culture related to a firm's sustainable value (Yusliza et al., 2020). Thus, CSRIs contribute to social and environmental participation (by designing environmental-related solutions and providing incentives related to CSRIs' goals). Therefore, CSRI-GIC linkages in firms for sustainability cannot be overlooked. Hence, we propose that:

H1b. CSRIs positively affect GIC.

2.4 CSRIs and GHRM

According to Úbeda-García et al. (2021), GHRM is the environmental management component of HRM and is defined as a positive environmental outcome for HRM operations. GHRM practices comprise three essential techniques: increasing green employee skills, motivating green employees, and increasing green involvement (Haldorai et al., 2022). Individuals are ultimately responsible for implementing CSRI's efforts, bearing the brunt of the consequences of resource addition and depletion. Thus, corporations cannot achieve their green objectives solely through control mechanisms unless they obtain their employees' approval and support for such initiatives (Sarwar et al., 2022). Enhancing an employee's green competencies requires positive environmental thinking through human resource procedures (Demartini & Beretta, 2020).

Through employees' decision-making, many plans for CSRIs come to life. This is evident in RBV, which says human investment may generate organizational resources (Khan et al., 2023b). By doing CSRIs, organizations invest in human resources. Although the CSRIs-GHRM linkage is established in other sectors, such as hotels (Úbeda-García et al., 2021), and has significant relationships, the CSRIs-GHRM linkage in the tobacco sector is still lacking. Hence, this paper assumes that:

H1c. CSRIs positively affect GHRM.

2.5 GIC and GHRM

Because of increased environmental concerns among organizations (Behera et al., 2023a), the importance of GIC in ecological management has received a lot of attention (Yusliza et al., 2020). The indirect effect of green organizational capital on environmental product innovation via social capital has been studied previously (Bontis et al., 2018; Nirino et al., 2020). They discovered a significant mediating relationship via social capital. According to recent HRM research, few scholars emphasize the impact of GHRM on GIC (Haldorai et al., 2022; Yong et al., 2019). However, research on the GIC-GHRM relationship is lacking in the literature.

According to RBV, organizations create value through knowledge and invest more in human resources, development, and research (Wang & Juo, 2021). GIC components (i.e., relational, structural, and human capital) have been identified as driving GHRM. We aim to answer the call of Yusliza et al. (2020) that further study be carried out to empirically evaluate the direct influence of GIC on GHRM. Thus, we propose that:

H2a. GIC positively affects GHRM.

2.6 GIC and sustainability performance

GIC plays a significant role in organizations' adoption of modern sustainability practices (Nirino et al., 2020). GIC focuses on the importance of establishing solid capabilities in terms of human, relational, and structural capital involved in environmental issues (Haldorai et al., 2022), which can improve SP (Yusliza et al., 2020). In developing countries, firms' internal resources are limited for attaining sustainable goals, and GIC plays a fundamental role in improving the firm's capabilities (Rashed & Shah, 2021). Thus, this paper assumes that:

H2b. GIC positively affects sustainability performance.

2.7 GHRM and sustainability performance

GHRM practices are significant in achieving performance (Roscoe et al., 2019). Identifying significant concerns for sustainability performance (Gul et al., 2023), yet many studies have found substantial results and explored how GHRM practices boost SP in different sectors (Mousa & Othman, 2020; Yong et al., 2020). However, the GHRM-SP linkage in the tobacco sector needs attention and is lacking. HR managers are responsible for achieving these ecological goals by training and motivating an environmentally conscious workforce to foster operations. Therefore,

GHRM practices are believed to be vital to increasing operational efficiency in the tobacco industry. Hence, this paper proposes that:

H3. GHRM positively affects sustainability performance.

2.8. Mediation mechanisms: Parallel and sequential

2.8.1 Mediating role of GIC

According to RBV, competitive advantage can be achieved through a firm's unique resources, such as GIC (Nirino et al., 2022) and human resources, enabling firms to initiate CSRI (Mukucha et al., 2023). The direct path between CSRI and SP has been established (Zhang et al., 2022). However, research on the intervening role of GIC is lacking. The gap is provided by Úbeda-García et al. (2021) about how internal capabilities can mediate between CSRI and SP.

Prior research indicates that locating and utilizing resources varies from business to business. Hence, organizations have found it difficult to determine how these CSRI can generate green resources and improve SP (Zaragoza-Sáez et al., 2020). This challenge highlights the critical need for GIC to leverage GHRM practices. It is unclear how GHRM practices can be implemented when a firm utilizes GIC. According to Yong et al. (2019), GIC can act as an intermediary between CSRI and GHRM. Hence, we proposed the following two hypotheses:

H4a. GIC mediates the CSRI-GHRM relationship.

H4b. GIC mediates the CSRI-sustainability performance relationship.

2.8.2 Mediating role of GHRM

GHRM managers can help their firm become more socially and environmentally responsible by incorporating the CSRI concept into human resource policy (Úbeda-García et al., 2021). A handful of studies have shown how firms have integrated environmental and social issues into their businesses, such as supply chain management (Nureen et al., 2023). Besides, many green scholars argue that firms should invest in CSRI and identify the advantages of such behavior to increase SP (Kraus et al., 2020).

As noted by Mousa and Othman (2020), a deficit in the environmental orientation of human resources shows a significant challenge for SP. Therefore, to obtain significant results, influential factors like GHRM (Demartini & Beretta, 2020) on the GIC-SP linkage have been overlooked in the HR literature (Yong et al., 2020). Green researchers have also been greatly interested in CSRI

issues in the tobacco sector, mainly how their implementation affects SP (Adesanya et al., 2020; Siahaya & Smits, 2021). On the other hand, no clear linkage exists between spending on CSRI being financially detrimental and not increasing resources (Crisóstomo et al., 2011). However, we introduce the mediating role of GHRM in the GIC-SP linkage, so we propose that:

H5a. GHRM mediates the CSRI-sustainability performance relationship.

H5b. GHRM mediates the GIC-sustainability performance relationship.

2.8.3 Serially mediation of GIC and GHRM

Until recently, most research in service sectors was undertaken, with a small number of CSRI studies focusing primarily on the tobacco sector (Siahaya & Smits, 2021). The importance of CSRI cannot be overlooked because it goes far beyond the environmental advantages of CSRI (Nirino et al., 2022). For instance, CSRI in this sector can help former smokers because they suffer from the environmental disadvantages of the tobacco industry (Siahaya & Smits, 2021). Taken together, scholars are still at an early stage of empirically investigating pivotal roles of GHRM and GIC in the CSRI-SP linkage. Based on shards of evidence, this paper suggests that:

H6. GIC and GHRM serially mediate the CSRI-sustainability performance relationship.

3. Methods

3.1 Measurements

All scales were adapted from previous studies (see Appendix A). To measure CSRI, 11 items were adapted from Úbeda-García et al. (2021). This scale consists of three subscales: CSRI towards society (four items), towards customers (four items), and employees (three items). GIC was measured with 19 items developed by Yusliza et al. (2020), which are green human capital (five items), green structural capital (nine items), and green relational capital (five items).

GHRM was measured on a 10-item scale developed by Úbeda-García et al. (2021) and consisted of three dimensions: green skills development (three items), green motivation (four items), and green involvement (three items). SP was gauged with 14 items adapted from Yusliza et al. (2020). Economic, environmental, and social performance were dimensions of this scale, with four items, five items, and five items, respectively. All items were measured on a 7-point Likert scale ranging from 1 = strongly disagree to 7 = strongly agree. Lastly, career experience

and employee age were examined as control variables. Hence, findings did not reveal any significant effects and were excluded from our model.

3.2 Sample and data gathering

The research population comprised the tobacco firm managers stationed in the northern region of Pakistan. The tobacco industry was chosen because tobacco organizations have more environmental sustainability issues than other manufacturing sectors (Burlea-Schiopoiu et al., 2022), requiring more community-based CSRI (Adesanya et al., 2020). The data collection criteria were pre-defined to identify the study population uniformly. First, managers were eligible to answer the research questions relevant to management and firm performance. Second, managers under 30 were excluded from participating (Khan et al., 2023a). Third, managers know that their participation is voluntary. Hence, this paper employed the purposive sampling approach to obtain the dataset.

After contacting them through the Pakistani tobacco firms forum, a prepared link via Google Forms was provided in managers' emails. To participate in the survey, the custom author obtained their phone numbers and personal emails while attending as one of the Pakistani academic sector representatives. As a result, managers verbally informed us that they agreed to complete the questionnaire. Before launching the primary data collection, a pilot study with 42 managers was undertaken to check this survey's feasibility (not included in the main dataset). This pre-sample was obtained during the forum using a printed questionnaire. Their reviews resulted in an easy understanding of these items. As such, data were examined to see if the items were internally consistent in assessing the intended constructs using Cronbach's alpha values ($\geq .70$). It was found that all items are internally compatible and have acceptable reliability (Khan et al., 2023a), which qualifies them to collect data from the validation sample.

Using a time-lag approach and over 50 days with a week interval between each wave, 450 online copies were distributed via our Google Form link. In Wave 1, 384 responses (with a response rate of 85.33%) were received about participants' perceptions of CSRI in their firms between November 15 and 27, 2022 (13 days). We launched a second survey one week later, and data about their perceptions of GIC and GHRM in their firms were gathered from the same respondents (Wave 2) who participated in Wave 1. As a result, we received 358 composed responses with a response rate of 93.23% between December 5 and 17, 2022 (13 days).

Lastly, we obtained 331 responses from the same respondents in Wave 2 about their perceptions of sustainability performance in their firms. Participants' response rate in the last wave reached 92.46% between December 24, 2022, and January 2, 2023 (10 days). After using the aggregation method through each manager's emails in the three stages of data collection, nine responses containing outliers were eliminated using the non-informative value sorting method in SPSS. Thus, 324 valid responses were obtained, exceeding the minimum sample size (75 cases) with a significance level (< 0.05) and a power level (≥ 0.99) to identify the intended effect size (Ezeugwa et al., 2022) using the inverse square root method. Hence, this indicates that the sample size we employed was adequate.

3.3 Common method variance (CMV)

CMV was procedurally avoided by employing organizational scales, removing double-barreled questions. Besides, content validity was examined by three business associate professors. All construct items were statistically tested using Harman's single-factor test. Items' loading variance was discovered to be 20.77% of the single component ($< 50\%$). Furthermore, post-hoc variance inflation factor (VIF) findings indicated that all measurement items agreed with what Kock and Hadaya (2018) advised ($VIF < 3.3$), showing that our dataset was free of CMV.

3.4 Estimation method

The hypothesized relationships were empirically examined using partial least squares equation modeling (PLS-SEM) using WarpPLS 7 (Kock et al., 2022). PLS-SEM also aids in testing complicated models and does not require distributional assumptions (Hair et al., 2019). Even if PLS is becoming more common in social science, academics like Rönkkö and Evermann (2013) have questioned the accuracy and dependability of this method for SEM data processing. For example, "*the PLS path estimate cannot be utilized in null hypothesis significance testing; the notion that PLS data may be used to validate a measurement model is a fabrication*" (p. 442). Hence, they concluded that PLS could not be used to assess models.

Henseler et al. (2014) responded to these PLS concerns by saying that even though it is "*not a panacea*," PLS is "*certainly a substantial method that warrants a prominent place in any empirical researcher's statistical arsenal*." Furthermore, Guenther et al. (2023) claim that PLS-SEM analysis still generates statistically valid findings even when the sample size and model are

highly complicated, as in this paper. In summary, Figure 2 displays the flowchart form for the methodology stages.

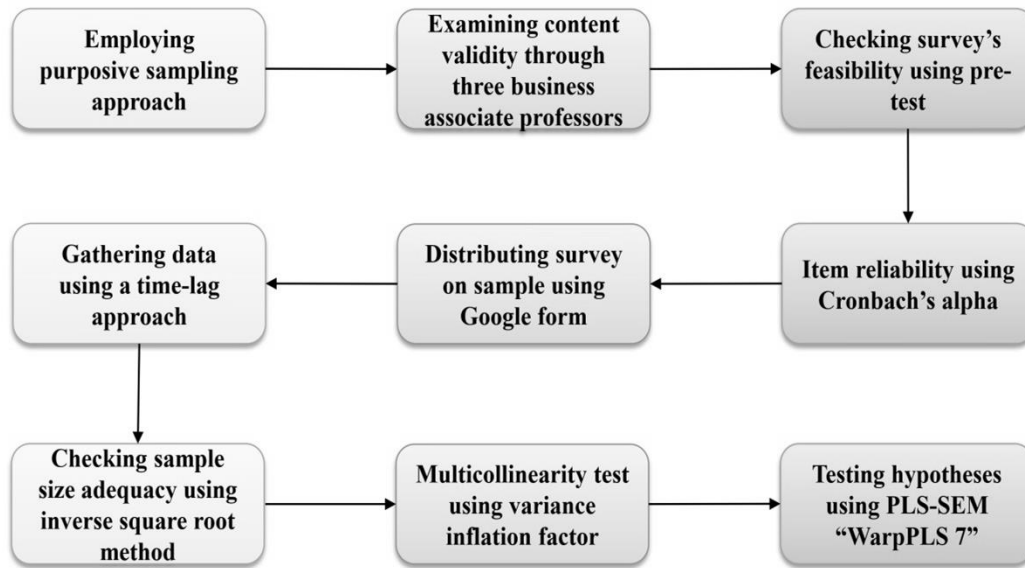


Figure 2. Methodological flowchart.

4. Results

4.1 Respondent profile

Most respondents' ages (57.7%) were between 30 and 35 years old, held a bachelor's degree (71.9%), and had 3–4 years of career experience (53.1%). Most large tobacco firms had between 501 and 1000 employees (22.87%). According to the sample, all participating firms have mostly complied with ISO 9001 certification (87.3%) and ISO 14001 certification (77.2%) and have been in business for more than ten years. Lastly, most respondents (60.8%) were sales executives.

4.2 Outer model

Internal consistency was gauged using Cronbach's alpha and composite reliability (CR) with $\geq .70$ thresholds (Hair et al., 2019). This implies that CR values varied between .750 and .925, while Cronbach's alpha values varied between .717 and .908 (see Table 1), indicating solid internal consistency. Furthermore, factor loadings ($FL \geq .708$) and average variance extracted values ($AVE > .50$) for each first-order and second-order construct were retrieved to test convergent validity. Table 1 shows that all factor loading values (ranging between .709 and .914), except GHC3 and GSC8, were less than this value; hence, these items were omitted (Hair et al., 2019), as well as

AVE values (varied between .531 and .652) exceed these permissible limits, indicating the measurement model has strong convergent validity (Hair et al., 2017).

Next, construct correlation values' heterotrait-monotrait ratio (HTMT) was examined. This method is the most accurate in assessing discriminant validity compared to other alternative methods. The correlation between all latent constructs indicates the dissimilarity of each construct from others ($HTMT \leq .85$) (Guenther et al., 2023). However, if this value is exceeded, it is a significant issue in direct and indirect path analysis (Nazneen et al., 2023). Table 2 shows that all HTMT values ranged between .061 and .554 for first-order constructs. Furthermore, HTMT values of second-order constructs and control variables (see Table 2) did not exceed this allowed limit (ranging between .381 and .564).

Table 1. Item reliability and convergent validity.

First-order	Second-order	Items	<i>FL</i>	<i>CR</i>	<i>α</i>	<i>AVE</i>
CSRIs towards society		CSRIS1	.766	.851	0.769	.588
		CSRIS2	.796			
		CSRIS3	.758			
		CSRIS4	.745			
CSRIs towards customers		CSRIC1	.824	.881	0.819	.649
		CSRIC2	.770			
		CSRIC3	.814			
		CSRIC4	.813			
CSRIs towards employees		CSRIE1	.782	.828	0.717	.618
		CSRIE2	.851			
		CSRIE3	.719			
Green human capital	Corporate social responsibility initiatives	CSRIs towards society	.902	.750	0.731	.531
		CSRIs towards customers	.905			
		CSRIs towards employees	.914			
		GHC1	.748			
		GHC2	.764			
		GHC3	.362			
		GHC4	.786			
		GHC5	.788			
		GHC6	.784			
GHC7	.810					
Green structural capital		GSC1	.737	.925	.908	.608
		GSC2	.797			
		GSC3	.803			
		GSC4	.767			
		GSC5	.802			
		GSC6	.784			
		GSC7	.810			
		GSC8	.432			
		GSC9	.734			
Green relational capital		GRC1	.771	.882	.833	.599
		GRC2	.782			
		GRC3	.782			
		GRC4	.765			
		GRC5	.771			
Green skills development	Green intellectual capital	Green human capital	.809	.849	.735	.652
		Green structural capital	.781			
		Green relational capital	.832			
Green skills development		GSD1	.814	.925	.908	.608
		GSD2	.793			
		GSD3	.792			

Green motivation		GMT1	.762	.863	.790	.612
		GMT2	.787			
		GMT3	.806			
		GMT4	.773			
Green involvement		GIV1	.814	.844	.723	.644
		GIV2	.795			
		GIV3	.798			
	Green human resource management	Green skills development	.828	.826	.791	.613
		Green motivation	.809			
		Green involvement	.709			
Economic performance		ECP1	.776	.868	.798	.621
		ECP2	.790			
		ECP3	.794			
		ECP4	.794			
Social performance		SOP1	.761	.885	.839	.606
		SOP2	.778			
		SOP3	.784			
		SOP4	.782			
		SOP5	.786			
Environmental performance		ENP1	.784	.882	.832	.599
		ENP2	.741			
		ENP3	.763			
		ENP4	.783			
		ENP5	.797			
	Sustainability performance	Economic performance	.724	.788	.723	.568
		Social performance	.886			
		Environmental performance	.834			

Note: AVE = average variance extracted (< .50); FL = factor loadings ($\geq .708$); α = Cronbach's alpha ($\geq .70$); CR = composite reliability ($\geq .70$). Italized items were excluded.

Table 2. Discriminant validity (HTMT method).

First-order constructs		<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1	CSRIs towards customers	4.02	1.261												
2	CSRIs towards employees	3.85	1.310	.422											
3	CSRIs towards society	3.80	1.252	.478	.470										
4	Economic performance	3.55	1.241	.219	.351	.146									
5	Environmental performance	3.67	1.171	.092	.122	.270	.488								
6	Green human capital	3.47	1.187	.275	.289	.250	.178	.236							
7	Green involvement	3.58	1.239	.470	.315	.354	.218	.219	.542						
8	Green motivation	3.79	1.251	.351	.554	.182	.336	.104	.286	.264					
9	Green relational capital	3.65	1.182	.122	.418	.158	.283	.476	.331	.283	.518				
10	Green skills development	3.59	1.210	.289	.500	.110	.255	.503	.373	.149	.244	.496			
11	Green structural capital	3.64	1.282	.441	.141	.174	.198	.404	.577	.232	.378	.502	.311		
12	Social performance	4.14	1.259	.112	.095	.207	.153	.061	.171	.240	.134	.188	.098	.119	
Second-order constructs		<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1	Age	2.31	.532												
2	Career experience	3.19	.620	.052											
3	Corporate social responsibility initiatives	3.89	1.274	.043	.112										
4	Green human resource management	3.79	1.224	.034	.038	.381									
5	Green intellectual capital	3.59	1.217	.103	.045	.564	.477								
6	Sustainability performance	3.65	1.233	.069	.076	.484	.462	.459							

Note: Correlations between each variable < .85 value. *M* = mean and *SD* = standard deviation.

4.3 Structural model

We employed a bootstrapping approach with a 5000-resample in WarpPLS 7 to gauge the inner model. As such, effect size (f^2) values were used to examine the effect size of the predictor-outcome variables relationship ($f^2_{no\ effect} < .02$; $f^2_{small} \geq .02\ and < .15$; $f^2_{medium} \geq .15\ and < .35$, $f^2_{large} \geq .35$) (Hair et al., 2019). As indicated in Table 3, all f^2 values varied between .020 and .310, indicating that effect sizes were modest and close to high. Besides, coefficient of determination (R^2) values were extracted to determine the extent to which a predictor variable was explained by an outcome variable (Hair et al., 2019).

According to Hair et al. (2017), this value is weak ($.19 \leq R^2 < .33$), moderate ($.33 \leq R^2 < .67$), and substantial ($R^2 \geq .67$). Hence, all endogenous latent constructs explained 23.7%, 34.1%, and 36.9% of the GIC, GHRM, and SP variance, respectively. As such, the moderate values of R^2 for the significant target construct demonstrate the model's explanatory power. Furthermore, the structural model's predictive significance was investigated using Stone-Geisser's criteria ($0 < Q^2 > 1$) for all exogenous constructs: $Q^2_{GHRM} = .225$, $Q^2_{GIC} = .186$, and $Q^2_{SP} = .179$, demonstrating the predictive significance of these constructs.

As shown in Figure 3, all path coefficients of direct effects were significant and positive. More specifically, CSRIs positively affected SP ($\beta = .137$, $t = 2.033$, $p < .05$, $LLCI = .074$, $ULCI = .200$), GIC ($\beta = .487$, $t = 10.928$, $p < .001$, $LLCI = .432$, $ULCI = .542$), and GHRM ($\beta = .330$, $t = 5.950$, $p < .001$, $LLCI = .273$, $ULCI = .387$). Therefore, hypotheses H1a-H1c were supported. Likewise, GIC positively affected GHRM ($\beta = .348$, $t = 6.182$, $p < .001$, $LLCI = .287$, $ULCI = .409$) and SP ($\beta = .310$, $t = 4.895$, $p < .001$, $LLCI = .251$, $ULCI = .369$), supporting hypotheses H2a and H2b. Furthermore, GHRM positively affected SP ($\beta = .288$, $t = 4.230$, $p < .001$, $LLCI = .231$, $ULCI = .345$), supporting hypothesis H3.

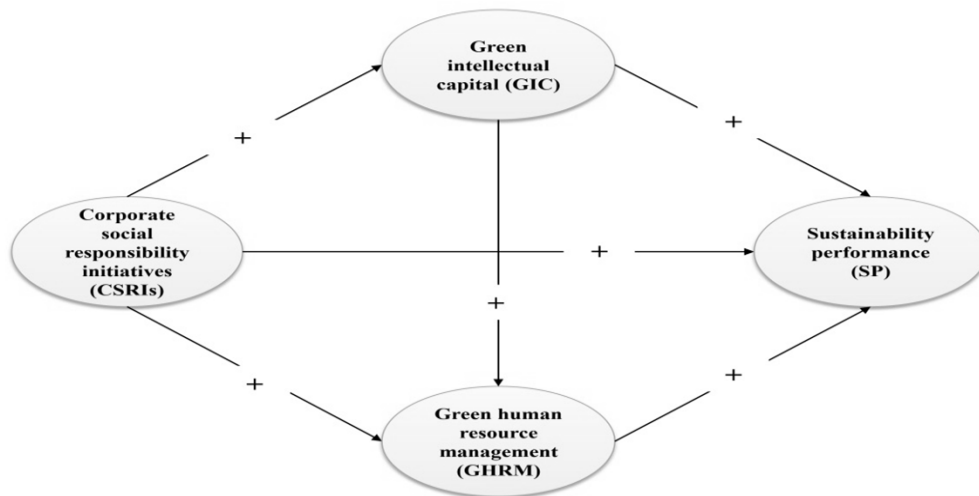


Figure 3. Summary of major outcomes.

4.4. Mediation analysis

In this paper, GIS and GHRM are partially and serially mediated by the proposed linkages. In this regard, findings (see Table 3) proved that CSRI's positively affected GHRM through GIC ($\beta = .169, t = 5.124, p < .001, LLCI = .124, ULCI = .250$), supporting hypothesis H4a. Besides, CSRI's positively affected SP through GIC ($\beta = .151, t = 4.086, p < .001, LLCI = .087, ULCI = .231$), supporting hypothesis H4b. Likewise, CSRI's positively affected SP through GHRM ($\beta = .095, t = 3.395, p < .01, LLCI = .048, ULCI = .162$), supporting hypothesis H5a.

In addition, GIC positively affected SP through GHRM ($\beta = .100, t = 2.988, p < .01, LLCI = .050, ULCI = .181$), supporting hypothesis H5b. This achieved complementary partial mediation because all direct and indirect paths had a common sign (+) and were significant (see Table 3). Lastly, our findings showed that the indirect serial relationship: $CSRI's \rightarrow GIC \rightarrow GHRM \rightarrow SP$ was positive and significant ($\beta = .049, t = 2.832, p < .01, LLCI = .026, ULCI = .091$), supporting hypothesis H6. This indicates serial mediation of GIS and GHRM in the CSRI's-SP relationship.

Table 3. Results of hypothesis testing.

Parameters	β	t-value	p-value	CI (97.5%)	f ² value	Supported?
<i>Direct effects</i>						
H1a: CSRI's \rightarrow SP (+)	.137*	2.033	.043	[.074; .200]	.020	Yes
H1b: CSRI's \rightarrow GIC (+)	.487***	10.928	.000	[.432; .542]	.310	Yes
H1c: CSRI's \rightarrow GHRM (+)	.330***	5.950	.000	[.273; .387]	.126	Yes
H2a: GIC \rightarrow GHRM (+)	.348***	6.182	.000	[.287; .409]	.140	Yes
H2b: GIC \rightarrow SP (+)	.310***	4.895	.000	[.251; .369]	.102	Yes
H3: GHRM \rightarrow SP (+)	.288***	4.230	.000	[.231; .345]	.087	Yes
<i>Indirect effects</i>						
Parameters	β	t-value	p-value	CI (97.5%)	Decision	
H4a: CSRI's \rightarrow GIC \rightarrow GHRM	.169***	5.124	.000	[.124, .250]	Partial mediation	
H4b: CSRI's \rightarrow GIC \rightarrow SP	.151***	4.086	.000	[.087, .231]	Partial mediation	
H5a: CSRI's \rightarrow GHRM \rightarrow SP	.095**	3.395	.001	[.048, .162]	Partial mediation	
H5b: GIC \rightarrow GHRM \rightarrow SP	.100**	2.988	.003	[.050, .181]	Partial mediation	
H6: CSRI's \rightarrow GIC \rightarrow GHRM \rightarrow SP	.049**	2.832	.005	[.026, .091]	Serial mediation	

Note: 2-tailed test; * $p < .05$, ** $p < .01$, *** $p < .001$. CSRI's = corporate social responsibility initiatives; GIC = green intellectual capital; SP = sustainability performance; GHRM = green human resource management; CI = confidence interval.

5. Discussion

This paper aimed to empirically examine CSRI's role in enhancing SP through the mediating mechanisms of GIC and GHRM in Pakistan's tobacco sector. Overall, our results support the research hypotheses. CSRI's toward stakeholders are necessary for every firm's SP. For resource generation, GIC and GHRM are the outcomes of CSRI's that lead to SP. Our results demonstrate that firms could outperform when investing in CSRI's by improving labor and corporate policies that benefit the environment. This study is the first attempt to utilize this theoretical model to investigate the role of CSRI's in Pakistan's tobacco industry, resulting in a greater understanding of sustainability in environmental-based industries. This paper fills a

theoretical gap by examining the influence of CSRI on GHRM. We employed the RBV lens, which supports the idea that CSRI must leverage GHRM strategically to improve economic, social, and environmental performance.

RBV in such organizational natural resources considerably boosts human resources (green motivation, green involvement, and green skill development). For instance, if a firm develops social initiatives to reduce its negative influence on the natural environment, this will affect society, customers, and employee resources (Burlea-Schiopoiu et al., 2022). The considerable influence increases green involvement, motivation, and skill development in any organization's personnel. Our findings show that CSRI aimed at society, employees, and customers can boost employee green involvement and motivation.

H1a is related to the CSRI-SP linkage. It is confirmed that CSRI positively affect SP, albeit with a small effect size. These findings support the previous study (Kraus et al., 2020). However, findings contradict the argument of Crisóstomo et al. (2011), who found a negative influence of CSR on financial performance. They contend that this reveals creditors' external influence over the firm's management. However, our findings based on RBV indicate that investing in CSRI for firms' stakeholders can improve internal resources, increasing SP.

H1b is accepted and is related to the positive relationship between CSRI and GIC. As per our findings, CSRI positively impact GIC with a medium effect size. Nirino et al. (2020) investigate the impact of CSRI on corporate financial performance using intellectual capital as a moderator; their findings show that CSRI significantly impact intellectual capital. According to prior research, most studies focused on CSRI in connection with other categories like green strategy and innovation (Kraus et al., 2020). However, this paper responds to the call to expand CSRI's research into the realm of intellectual capital. GIC is undeveloped in the tobacco sector because it is a newly introduced concept. In a natural resource-based approach, it is clear that firm choices related to CSRI and GIC are intimately linked. Our results demonstrate that GIC is a new firm resource developed by CSRI in business to benefit the firm's stakeholders.

In H1c, our findings support the positive influence of CSRI on GHRM. This confirms that CSRI positively influenced GHRM with a medium effect size. Turner et al. (2019) examined the impact of CSRI on firm performance in the hotel industry, using the intervening role of GHRM; their findings revealed that CSRI have a positive effect on GHRM. Contrary to Úbeda-García et al. (2021), our paper provides empirical evidence to scholars who have not found significant CSRI-GHRM linkage.

For H2a, we also confirmed the GIC-GHRM linkage. Our findings are supported by Haldorai et al. (2022) and Yong et al. (2020). With the mediating effect of GHRM, Haldorai et al. (2022) investigated top management commitment and GIC as enablers of hotel performance. On the other hand, our paper provides pioneering input from the tobacco sector, which has received little attention in the literature. Furthermore, our paper found that GIC is significantly connected to SP, with a medium effect size (H2b). Our results align with Yusliza et al. (2020).

In H3, our findings indicate that GRHM has a small effect on SP. Guerci et al. (2016) revealed that GHRM practices are defined as each organization's management practices to respond to stakeholder demands on environmental concerns. Previous research has not looked into GHRM processes such as green employee involvement in environmental activities (Kraus et al., 2020) through green initiatives raised by firms and green skill development among employees.

Our findings show that when organizations emphasize GHRM components, their long-term economic, environmental, and social performance improves. For instance, when personnel are recruited with considerable ecological knowledge, they can promote the development and diffusion of environmental knowledge in new firms. They are more likely to influence GHRM practices and improve economic, social, and performance outcomes if they are imbued with the appropriate involvement, motivation, and skills (Úbeda-García et al., 2021).

Furthermore, H4a is related to the mediating mechanism of GIC between CSRI and GHRM. Findings revealed partial mediation with a small effect size. Despite past studies indicating a favorable association between GIC and GHRM, we found it challenging to validate the function of GIC in the CSRI-GHRM linkage (Haldorai et al., 2022). This could be because previous studies on this linkage did not include CSRI. According to the analysis, CSRI positively influence GIC, thereby influencing GHRM. Findings direct us to pursue a new avenue of research into whether the GIC fully or partially mediates the CSRI-GHRM linkage.

In H4b, GIC is an intervening construct between CSRI and SP. A partial mediation was found with a small effect size. This highlights the importance of GIC in establishing the linkages between CSRI, GHRM, and SP. Our findings also support RBV, which focuses on internal and external resource businesses. GIC is essential to RBV since it gives particular insights from knowledge-based viewpoints—H5a and H5b concern GHRM-mediated linkages between CSRI, GIC, and SP. Findings found partial mediations with small effect sizes.

Lastly, H6 is associated with the serial mediating roles of GIC and GHRM in the CSRI-SP linkage. We discovered partial mediation with a low effect size. Although our findings indicate that GIC and GHRM mediate the CSRI-SP relationship in parallel, it is unclear whether they can mediate this linkage in serial. GIC and GHRM significantly mediate between CSRI and SP, filling a void in the HRM literature. Our study is pioneering in investigating GIC and GHRM in various mediation roles. Our findings show that CSR can increase environmental knowledge and awareness about sustainability.

6. Conclusion

To summarize, CSRI toward stakeholders significantly predict tobacco firms' sustainability performance. In parallel and serial relationships, GIC and GHRM significantly mediate the CSRI-SP relationship. When a firm's CSRI toward stakeholders are richer than leaner, its sustainability performance is more likely to improve. Similarly, GIC and GHRM are essential resources for establishing the CSRI-SP linkage. Using the time-lagged approach, the research sample demonstrates that firms can outperform when investing in CSRI by improving labor and corporate policies that benefit the environment.

6.1 Theoretical contributions

Using context-relevant firm resources (i.e., GIC) and organizational processes (i.e., GHRM) adds new dimensions to the connection between CSRI and SP. Our first contribution is to advance knowledge of RBV by developing internal resources to form SP. GIC is considered one of the most significant contributions to the literature in recent years (Haldorai et al., 2022). Furthermore, this paper focused on developing internal capabilities and enhancing the use of GIC, which forms a resource orchestration mechanism between CSRI and SP. This paper fills a gap in the literature by demonstrating that GIC can act as a bridge between the CSRI-SP linkages. Although it is commonly believed that a firm's internal resources, in terms of human resources, tend to improve organizational performance, few empirical studies have been conducted to test this assumption.

Most GIC research has concentrated on the linkage between GIC and GHRM in isolation; for example, Nirino et al. (2020) discussed GIC within the CSRI-financial performance linkage, while Úbeda-García et al. (2021) investigated GHRM within this linkage; however, both have remained underexplored jointly between CSRI and SP. Such studies are generally based on the critical assumption that the firm already owns resources. However, research on the linkages between CSRI, GIC, GHRM, and SP is essential for recognizing internal

organizational resources. GIC is a notable phenomenon in environmental management. This paper addresses this gap by proposing that GIC be considered a kind of internal resource that includes three components: human, structural, and relational capital.

Second, we have expanded our research on SP from the RBV perspective, arguing that it is equally essential to consider CSRI towards customers, society, and employees due to high performance. We empirically researched the nexus among CSRI, GIC, GHRM, and SP. Our findings revealed that CSRI towards customers, society, and employees in a firm's resource generation journey are an antecedent of SP by creating internal resources (GIC and GHRM). Its significance in terms of GHRM attests to its impact on SP. Our research bridges the gap between the need for green resources and increasing internal resources, confirming the GHRM-mediated CSRI-SP linkage (Úbeda-García et al., 2021).

Haldorai et al. (2022) suggest future research between CSR and SP include GHRM as a mediating mechanism with GIC; therefore, we include GHRM as a mediating mechanism with GIC. Until recently, the available research had not considered these two mediating mechanisms as integrative as our work does. Our findings suggest that owning sustainable intangibles does not guarantee excellent SP until GHRM is incorporated into the model. By doing so, we address how businesses use green resources to improve their SP.

6.2 Practical implications

This research has several practical implications for tobacco-related organizations. First, managers may use this approach to discover, generate, and utilize green resources inside their organizations more efficiently. For instance, when commencing CSRI, tobacco firm managers may design strategies for selecting employees with environmental understanding and more robust relationship capital for effective CSRI activity execution. Second, this model is intended to serve as a reference for the tobacco industry in terms of the influence of CSRI on the implementation of GHRM and how this leads to SP. Although GHRM has increased in popularity in recent years, using this model of CSRI-SP in manufacturing industries in developing countries such as Pakistan may improve a firm's cleaner production capability. Hence, employees with sustainable awareness should be hired.

Third, businesses concerned with CSRI can increase the efficiency of GIC within their firms, boosting the firm's long-term success. Environmental and social concerns, notably in the tobacco sector, are examples of employee expertise that can assist a firm in acquiring a competitive advantage. Due to legislative bans, tobacco firms are not advertising their goods in television commercials. Fourth, HR managers should develop sustainable practices that

favorably influence organizational intellectual capital in terms of structural, relational, and human capital, making it difficult for competitors to establish sustainable competitive advantage. Furthermore, sales managers may build positive word of mouth by beginning CSRs for society, employees, and customers.

6.3 Limitations and future directions

The first research limitation is related to the procedural remedies employed in data collection. However, we employed temporal separation of measurement of independent and dependent variables to attempt to control common method bias (CMB). Otherwise, we obtained our data from a single source (managers), and Selem et al. (2023) contend that dataset from the same source can cause CMB. Thus, collecting data from multiple sources would reduce CMB by eliminating the impact of consistency motifs and social desirability tendencies.

The second limitation is related to the theoretical underpinnings; we base our findings on using RBV to support resource orchestration mechanisms. However, scholars argue that these resource orchestration mechanisms are ineffective in some organizations due to organizational environmental strategies. Thus, future research may consider other orchestration mechanisms, such as ecological strategies (Nazneen et al., 2023), resistance to change (Salem et al., 2023), and pro-environmental behavior (Demartini & Beretta, 2020).

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