
Green Innovation and Sustainable HRM: A Conceptual Framework and Systematic Review of Drivers, Linkages, and Organisational Outcomes

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Abstract

Growing environmental pressures, such as limited resources, have pushed organisations to rethink how they operate and raised concerns about their long-term viability. The responsibility towards the environment has compelled organisations to embrace green innovation and more sustainable approaches to manage people. This paper examines what drives green innovation in the first place, and then traces how those innovations shape the way organisations build and sustain their HR practices. This study explores the relationship between green innovation and sustainable HRM through a conceptual framework. Green innovation encompasses new technologies, products, and processes aimed at reducing environmental impact, while sustainable HRM focuses on aligning human resource practices with corporate sustainability goals. Despite growing scholarly interest in both areas, there is a lack of a comprehensive framework that linked them together. This research directly addresses this gap. Built on resource-based view (RBV), corporate social responsibility (CSR), and dynamic capability theory, the framework draws on a systematic review of 65 Scopus-sourced papers, selected through rigorous inclusion and exclusion criteria. Findings confirm that green innovation significantly shapes sustainable HRM practices. This paper aims to enhance understanding of how companies can use green innovation and sustainable HRM to achieve both organisational and environmental goals in order to gain a sustainable competitive advantage.

Keywords: *Green innovation, Sustainable HRM, Green HRM, Sustainable competitive advantage, Corporate Social Responsibility, Literature review*

1. Introduction:

The concept of sustainable development did not emerge in a vacuum. Its formal articulation can be traced back to the 1987 Brundtland Report, published by the World Commission on Environment and Development, which not only defined what sustainable development means but also drew attention to the central role human resource development plays in keeping economies functional and societies viable over time. Since then, scholars began interested in examining the relationship between sustainability and human resource management. The relationship between the two fields began to take clearer shape toward the end of the twentieth century and into the early

2000s. This developing stage was motivated by the "Map of the HRM Territory," commonly referred to as the Harvard model of HRM, which enumerates the causes and the effects of HRM policies (Beer et al., 1984). Building on this foundation, sustainable HRM has since emerged as something more than just an extension of strategic HRM; it represents a genuinely distinct approach to managing people, one that takes broader social and environmental considerations seriously (Kramar, 2014). Within this body of literature, two particular strands have attracted considerable attention - green HRM (Renwick et al., 2008; Guerci et al., 2016), which focuses on environmentally oriented people management, and socially responsible HRM (Shen and Zhu, 2011; Newman et al., 2016; Barrena-

Martínez et al., 2019), which is often reflected in how companies communicate their actions and commitments to stakeholders through sustainability reporting. The latter is closely tied to broader conversations about corporate social responsibility, with several scholars noting the overlap between the two (Cohen et al., 2012; Kramar, 2014). The term "green innovation" was introduced by Braun and Wield in 1994. Since then, the concept has been developed further. It is broadly understood as the process of generating new products, services, and ideas with environmental sustainability at their core (An et al., 2021; Sharif et al., 2022). Green innovation, similarly, is understood through the lens of the triple bottom line and it cannot be evaluated without accounting for its social, environmental, and economic dimensions together.

2. Literature Review:

2.1 Green Innovation

Green innovation refers to the integration of technological advancement with environmental conservation so as to simultaneously drive economic growth and reduce ecological harm. Hart (1995) was among the first to argue that organisations can enhance productivity by channelling their resources through environmentally oriented innovation strategies. Building on this, Lai et al. and Chang (2011) observed that firms seeking to meet environmental protection requirements must develop new markets and sustain competitive advantages through an improved corporate image — a concern that has since generated a substantial body of research.

Chang (2011, p. 363) further argued that green innovation holds the capacity to strengthen environmental management performance while simultaneously helping firms comply with regulatory standards and raise barriers to competitors. Leenders and Chandra (2013) defined it as process or product innovation that encompasses pollution reduction, waste recycling, energy conservation, and the design of environmentally friendly products. Hashim (2015) extended this definition to include changes in corporate strategy, production methods, resource use, and waste management — all aimed at

reducing an organisation's overall environmental footprint. More recently, Sun (2022) described green innovation as the process of weaving technological progress together with environmental stewardship to build a productive relationship between ecological responsibility and economic development.

2.2 Drivers of Green Innovation

Green innovation in business is shaped by two broad forces: pressures that originate outside the organisation and challenges that emerge from within it. Seman et al. (2019), Kong et al. (2020), Lisi et al. (2019), and Zhu et al. (2017) collectively demonstrated that green supply chain management and organisational learning contribute directly and indirectly to the adoption of green innovation. Internal determinants include the qualities of senior executives, available resources and capabilities, and the organisation's overall commitment to sustainability. On the external side, Castellacci et al. (2017) identified environmental legislation as a primary motivator, while Zailani et al. (2015) showed that market demand exerts a measurable positive influence on green innovation efforts. Regulatory requirements, shifting market conditions, and social expectations together create both the pressure and the opportunity for organisations to invest in green innovation. The specific mix of internal and external drivers varies across firms depending on their operating context and strategic orientation.

2.3 Sustainable HRM

Sustainable HRM calls on the HR function to reorient it towards longer-term organisational and societal goals. Ehnert (2009) and De Prins et al. (2014) argued that this reorientation ultimately reshapes the wider organisation. Ehnert et al. (2016, p. 90) defined it as the adoption of HRM strategies and practices that enable the attainment of financial, social, and environmental goals, with an impact both inside and outside the organisation over a long-term horizon. Wikhamn (2019) added that sustainable HRM is fundamentally about attending to the human side of work- providing decent conditions, offering genuine development opportunities, and caring for employees' physical

and psychosocial well-being. Mariappanadar (2003) and Harcourt et al. (2007) grounded sustainable HRM in the three-pillar model of sustainability, linking it to practices such as equality and diversity, green recruitment, green performance management, occupational health and safety, and green compensation. Cohen et al. (2012), Renwick et al. (2013), and Kramar (2014) further clarified that green HRM sits within the theoretical scope of sustainable HRM, encompassing those practices that shape employees' environmental attitudes and behaviours.

2.4 Sustainable HRM Practices

Wright et al. (2005), Sun et al. (2007), Shen and Zhu (2011), and Newman et al. (2016) all concurred that well-designed HRM practices are essential for achieving superior performance and sustaining competitive advantage. Recruitment and selection now increasingly factor environmental awareness into candidate evaluation alongside conventional competencies. Jabbour and Santos (2008) noted this early shift, and Renwick (2013) reinforced it by arguing that hiring decisions send a clear signal about what the organisation genuinely values in terms of environmental responsibility. Opatha (2014) made a strong case for structured green training programmes, covering areas such as energy efficiency, waste reduction, and environmentally conscious working practices. Ehnert, Harry, and Zink (2012) highlighted that such training also cultivates a broader environmental mindset, embedding sustainability into how employees approach their work day to day. Cascio et al. (2016) demonstrated that when performance metrics tied to environmental targets are built into reward structures, employees are considerably more likely to treat sustainable behaviours as a genuine priority rather than an optional extra.

2.5 Relationship between Green Innovation and Sustainable HRM

Baeshen (2021) found that green innovation significantly affects the sustainable performance of small and medium-sized enterprises. Xie (2019) and Kanan (2023) similarly demonstrated positive effects of green HRM practices and green process

innovation on sustainable performance. Jirawuttinunt (2018) examined the relationship between green HRM and environmental performance in ISO 14000 certified firms, while Choudhary (2022) explored its influence on employee green creativity in the hotel industry.

3. Research Objectives:

- To examine the principal drivers of green innovation and to investigate the nature of its relationship with sustainable human resource management practices in contemporary organisational contexts.
- To develop a conceptual framework grounded in Resource-Based View, Corporate Social Responsibility theory, and Dynamic Capabilities that systematically integrates green innovation with sustainable HRM.
- To analyse how organisations can strategically leverage green innovation and sustainable HRM in tandem to achieve environmental responsibility and sustained competitive advantage.

4. Theoretical Base

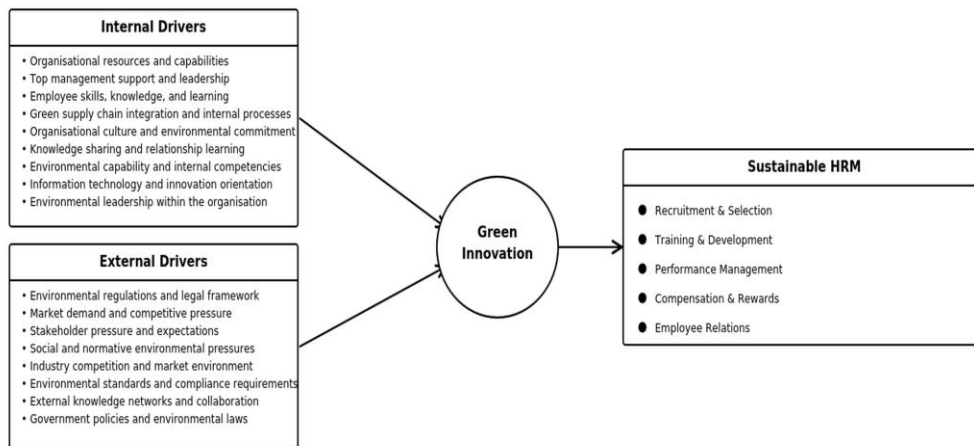
4.1 The Resource-Based View (RBV) (Wright et al., 1994; Wright et al., 2001) provides the primary theoretical foundation of this study, focusing on how green innovation enables the implementation of sustainable HRM as a source of sustained competitive advantage.

4.2 The theory of Corporate Social Responsibility (CSR) (Dyllick and Hockerts, 2002; Bansal, 2005; Hediger, 2010) situates sustainable HRM within a stakeholder-oriented framework, arguing that organisations must meet the legitimate expectations of employees, customers, governments, and communities without compromising their future capacity to do so. Glavas and Godwin (2013) added that employees identify more strongly with their organisation when they perceive genuine internal and external social responsibility commitments. Shen and Zhu (2011), Newman et al. (2016), Barrera-Martínez et al. (2019), Renwick et al. (2008), and Guerci et al. (2016) further distinguished between green HRM and socially responsible HRM as the two principal streams within the sustainable HRM literature.

4.3 The theory of Dynamic Capabilities completes the theoretical framework by emphasising that organisations must continuously innovate to maintain sustainability-oriented competitive advantages over time.

Together, these three lenses provide a coherent and comprehensive basis for examining how green innovation and sustainable HRM interact to produce lasting environmental and organisational outcomes.

Figure 1. Conceptual Framework



Source: Author's Compilation

Table 1. Drivers of Green Innovation from existing literature

Category	Drivers of Green Innovation	Source
Internal Drivers	Organisational resources and capabilities	Castellacci et al. (2017)
	Top management support and leadership orientation	Seman et al. (2019); Kong et al. (2020)
	Employee skills, knowledge, and learning capability	Lisi et al. (2019); Zhu et al. (2017)
	Green supply chain integration and internal processes	Seman et al. (2019); Kong et al. (2020)
	Organisational culture and environmental commitment	Zhu et al. (2017)
	Knowledge sharing and relationship learning	Lisi et al. (2019)
	Environmental capability and internal competencies	Castellacci et al. (2017)
External Drivers	Environmental regulations and legal framework	Castellacci et al. (2017)
	Market demand and competitive pressure	Zailani et al. (2015)
	Industry competition and market environment	Zailani et al. (2015)
	Environmental standards and compliance requirements	Zhu et al. (2017)
	External knowledge networks and collaboration	Kong et al. (2020)
	Government policies and environmental laws	Castellacci et al. (2017)

Source: Author's compilation

5. Methodology

Scopus Database is used in the development of this research endeavour. Secondary sources such books, journals, articles, websites, and reports are also studied in order to draft the full research paper. To gather the necessary information, the search expression is constructed using defined keywords such as “Green innovation” OR “Environmental

innovation” OR “Eco- innovation” AND “Sustainable HRM” OR “Sustainable human resource management” OR “Green HRM”. PRISMA protocol outlines four main stages in the literature selection process, which include identification, screening, eligibility, and inclusion. Figure 2 elucidates the PRISMA protocol applied in the current study.

Figure 2. PRISMA Flow Diagram

IDENTIFICATION

Records identified from Scopus database(n = 92)
Records after applying time period (2020–2026) and language (English) filters (n = 92)

SCREENING

Records screened by document type (Articles only) (n = 79)	Records excluded (n = 13): Reviews, book chapters, conference papers, and retracted articles removed
Records screened by publication stage (Final publications only) (n = 69)	Records excluded (n = 10): Articles in press (not yet finalised) removed
Records screened by source type (Journal articles only) (n = 69)	Records excluded (n = 0): No records sourced from books or book series

ELIGIBILITY

Records assessed for eligibility by subject area (Business, Management & Accounting; Environmental Science; Psychology; Arts & Humanities; Multidisciplinary) (n = 65)	Records excluded (n = 4): Articles outside the designated subject areas removed
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INCLUDED

Studies included in the final review (n = 65)
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6. Research gap:

Many research advancements in this field have mainly happened in the last few years because of the relative novelty of green innovation & sustainable HRM and its significance in various organisational domains. Many researchers (Wilkham, 2019; Lopez-Cabrales & Valle-Cabrera, 2020) highlighted the effect of sustainable HRM practices on various outcome variables. For a deeper understanding of its nature and maintain its own identity as an academic subject, Shirmohammadi et al. (2021) have proposed that research should be developed. Although there has been an increase in publications in the topic of sustainable human resource management recently, experts are still having difficulty defining what sustainable HRM. This study aims to reduce this gap by conceptually exploring green innovation & Sustainable HRM.

7. Findings and Discussion:

The thematic structure presented in this section was derived through a systematic and iterative process of inductive content analysis applied to the corpus of studies identified in the literature review. Following the removal of duplicates and the application of inclusion criteria, the retained studies were subjected to repeated close reading, during which recurring conceptual clusters were noted and progressively abstracted into higher-order themes. Each theme was validated against the broader theoretical framework comprising Resource-Based View, Corporate Social Responsibility theory, and Dynamic Capabilities to ensure conceptual coherence and analytical relevance. This approach departs from the predominantly descriptive cataloguing that characterises much prior work in this field, wherein studies are itemised by topic rather than synthesised into interpretively meaningful patterns. The resulting themes are therefore not merely organisational conveniences but represent substantive conceptual contributions: they surface the underexplored bidirectional



relationship between green innovation and sustainable HRM, foreground the structural role of HRM systems as active drivers rather than passive enablers of green behaviour, and draw attention to the critical but neglected mechanisms of value congruence and employee meaningfulness as

mediating conditions. Collectively, these findings move the scholarly conversation beyond descriptive mapping towards a more theoretically generative understanding of how sustainable HRM and green innovation interact to produce durable environmental and organisational outcomes.

Table 2. Summary of Findings

S. No.	Theme	Summary of Findings	Citation
1	Sustainable HRM & Organisational Performance	Organisations that embed sustainable HRM within their core strategy rather than appending it as a peripheral compliance obligation consistently record measurable gains in overall performance. Such practices extend well beyond regulatory adherence; over time they reshape workforce culture, deepen employee commitment, and raise productive capacity.	Aust et al., 2020; Ahmad, 2015; Jyoti, 2019
2	Theoretical Development of Green Innovation & Sustainable HRM	Notwithstanding the considerable scholarly attention both constructs have attracted in recent years, the theoretical foundations upon which they rest have not kept pace with the empirical interest they have generated. A recurring limitation in the available literature is its tendency to position green innovation as an outcome that HRM practices produce, rather than as a force that may, in turn, exert formative influence on the structure and orientation of HRM itself. This unidirectional framing has narrowed the field's theoretical scope, and revisiting the directionality of this relationship represents one of the more promising avenues through which the field might advance.	General synthesis of reviewed literature
3	Historical Evolution of Green Innovation	Green innovation assumed its current conceptual form through a prolonged and uneven process of intellectual development, its earliest foundations rooted in the environmental management debates that gained scholarly and policy traction during the 1970s. The decades that followed witnessed a gradual accumulation of empirical and theoretical work, interspersed with periods of heightened research activity that have progressively shaped the field's contours.	Broad literature synthesis
4	Leadership & Managerial Commitment as Drivers	The degree to which green innovation becomes an enduring organisational priority is closely tied to the depth and sincerity of commitment demonstrated by senior leadership. Executives who treat sustainability as a genuine strategic concern rather than a reputational signal are tend to create institutional conditions in which ecological goals are pursued with rigour and consistency. Crucially, this effect is amplified when employees are brought into meaningful dialogue about the organisation's direction, fostering a shared investment in sustainability outcomes. Leadership that communicates environmental values through action rather than announcement proves considerably more effective in driving substantive change than that which relies on formal declarations alone.	Key driver identified across reviewed literature
5	Employee Role in Green Innovation Adoption	The role of the individual employee in advancing or impeding an organisation's green agenda is often underestimated in the sustainability literature, yet the evidence gathered here suggests it is decisive. Individuals who derive genuine meaning from their professional roles tend to demonstrate a stronger inclination to incorporate environmental values into their day-to-day role. They are considerably more disposed towards adopting environmentally responsible conduct.	Schaufeli & Bakker, 2004; Colvin & Boswell, 2007
6	Value Incongruence & Reduced Engagement	A discernible divergence between the values an organisation professes and the realities employees encounter in daily organisational life tends to weaken engagement with sustainability programmes considerably. Credibility in environmental matters is not secured through policy drafting alone but through the sustained and observable consistency between what leadership advocates and what the organisation demonstrably does.	Schaufeli & Bakker, 2004; Colvin & Boswell, 2007
7	Role of HRM Systems in Enabling Green Behaviour	Organisations in which green considerations are woven throughout every stage of the HR functions from the criteria applied in recruitment to the frameworks used for performance assessment and remuneration are tend to produce workforces for whom environmentally responsible conduct becomes a professional norm rather than an optional commitment..	Synthesis across sustainable HRM and green HRM literature

Source: Author's compilation from previous studies.

7. Conclusion and Future Prospects:

The field would benefit considerably from research that moves beyond the descriptive mapping of associations and engages more directly with the mechanisms through which these enabling conditions are established, sustained, or degraded. Of particular interest is the question of how emerging Industry 5.0 technologies are beginning to reconfigure the context within which people management and sustainability strategy intersect. Extending the empirical reach of the field in these directions will be essential if the frameworks developed from this body of work are to possess the generalizability that genuine theoretical contribution requires. More fundamentally, as Kira et al. (2013) observed, sustainability is an inherently dynamic condition rather than a fixed destination. For the field of HRM, this means that theoretical frameworks and empirical programmes must remain genuinely responsive to the evolving character of sustainable practices and green innovation, rather than treating either as a settled or bounded phenomenon.

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