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Investigating The Effects of Green Entrepreneurial Orientation on Environmental Performance And Environmental Sustainable Development in a Developing Country

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Abstract

Environmental degradation and limited corporate environmental engagement remain pressing challenges in developing economies, where firms are expected to translate green strategic postures into responsible practice. Prior research has mostly treated corporate social responsibility (CSR) as one aggregate construct and has rarely tested whether CSR directed at different stakeholders affects environmental outcomes equally, particularly in North Africa. This study examines how green entrepreneurial orientation (GEO) relates to CSR practices toward employees, consumers and communities, and how each dimension relates to environmental performance (EP) and environmentally sustainable development (ESD) in Tunisia. A cross-sectional online survey was administered between February and July 2025 to 250 senior managers of Tunisian firms from six sectors, and the data were analysed with partial least squares structural equation modelling in SmartPLS 4. GEO was significantly associated with CSR toward employees (t = 4.710), consumers (t = 28.127) and communities (t = 2.297), supporting H1a to H1c. Consumer-oriented CSR (t = 11.332) and community-oriented CSR (t = 3.374) were significantly associated with EP, and consumer-oriented CSR (t = 5.457) and community-oriented CSR (t = 3.181) with ESD, whereas employee-oriented CSR was not significant for either outcome; H2a and H3a were rejected and H2b, H2c, H3b and H3c supported. The model explained 81.8 percent of the variance in EP and 66.2 percent in ESD. The study extends stakeholder theory by showing that stakeholder-specific CSR dimensions are not interchangeable and advises Tunisian managers to prioritise consumer-oriented and community-oriented CSR while strengthening the environmental content of employee-oriented practices.

Keywords: Green entrepreneurial orientation; CSR practices; environmental performance; environmental sustainable development; Tunisian context

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INTRODUCTION

In recent decades, environmental degradation and climate change have emerged as some of the most pressing global challenges, requiring urgent and coordinated action from governments, businesses, and societies. According to the Intergovernmental Panel on Climate Change (IPCC, 2023), global greenhouse gas emissions reached approximately 59 gigatons of CO_2 equivalent in 2019, representing a 54% increase compared to 1990, with industrial and agricultural activities being major contributors. Furthermore, the environmental damage caused by human activity has been valued at approximately US$6.6 trillion, equivalent to about 11% of global gross domestic product in 2008, with a projected rise to US$28.6 trillion by 2050 (Principles for Responsible Investment & United Nations Environment Programme Finance Initiative, 2010). In addition, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES, 2019) estimates that more than one million species are at risk of extinction due to pollution, habitat destruction, and unsustainable resource exploitation. Progress toward the internationally agreed response has also fallen behind: the United Nations (2024) reports that only 17 percent of the Sustainable Development Goal targets are on track, while more than one third are stalled or have regressed, and that greenhouse gas concentrations, land degradation and marine pollution continue to rise. These alarming figures underscore the growing need for companies to adopt proactive, environmentally responsible strategies to support long-term sustainable development.

Although corporate social responsibility (CSR) is sometimes perceived as a marketing trend or merely a communication strategy, other perspectives emphasize its crucial role in helping businesses cope with modern economic changes and preserve their competitiveness in an ever-evolving market (Maráková et al., 2021). In this regard, CSR is no longer viewed as a purely symbolic practice, but rather as a strategic tool that enables firms to reconcile economic performance with environmental protection and social well-being (Carroll, 1999; Dahlsrud, 2008). This multifaceted concept encompasses economic, social, and environmental dimensions that have evolved considerably over time. In line with this perspective, the present study explores how socially responsible companies integrate the principles of sustainable development and green entrepreneurship into their corporate strategies.

Within this context, CSR represents a key strategic driver for organizations, as it allows them to translate the principles of sustainable development into concrete actions by voluntarily integrating social and environmental concerns into their strategies and daily operations. Such an approach fosters innovation, creates long-term value, and helps strengthen overall corporate performance (Carroll, 1999; Dahlsrud, 2008), and it is frequently formalised through internationally recognised environmental management frameworks. The most widely diffused of these is ISO 14001, which specifies the requirements of an environmental management system (ISO, 2015) and has been shown by meta-analytic evidence to be associated with measurable improvements in corporate environmental performance (Erauskin-Tolosa et al., 2020). Previous studies indicate that sustainability challenges are no longer limited to large multinational corporations, but also increasingly concern

small and medium-sized enterprises (SMEs), particularly those seeking to generate a positive social and environmental impact (Maráková et al., 2021).

Globally, growing awareness of climate issues has led to major international commitments, most notably the United Nations Sustainable Development Goals (SDGs), adopted in 2015, which call on businesses to actively contribute to environmental preservation, responsible consumption, and climate action (United Nations, 2015). These commitments, however, are not self-executing: their effect on corporate behaviour depends on how firms internalise environmental objectives within their own strategies, which is precisely where national institutional conditions become decisive.

At the national level, Tunisia constitutes a particularly relevant empirical setting for examining environmental responsibility. The country faces several pressing environmental challenges. Renewable water availability has fallen to roughly 426 cubic metres per inhabitant per year, well below the 500 cubic metre threshold of absolute water scarcity, and is projected to decline further to about 359 cubic metres by 2030. Around 75% of the national territory is threatened by desertification, and industrial and coastal pollution continue to grow. Tunisia is also highly vulnerable to the effects of climate change, particularly in its arid and semi-arid regions. In terms of regulation, the Tunisian Constitution of 2014 explicitly recognizes the right to a healthy and balanced environment, while the country's Environmental Code and national strategies have progressively sought to promote sustainable development. A further step was taken with Law No. 2018-35 of 11 June 2018 on corporate social responsibility, which obliges firms to integrate social and environmental considerations into their activities and to report on the resulting commitments, making Tunisia one of the few African countries with dedicated CSR legislation (Republic of Tunisia, 2018). The law nonetheless carries no binding sanction mechanism, so that compliance remains largely declarative. However, despite these commitments, CSR adoption among Tunisian firms remains relatively limited. According to the Tunisian Observatory of the Economy (2022), formal CSR programmes are concentrated in the exporting segment of the economy, where 42% of firms report such programmes, against 26% of firms oriented toward the domestic market, and most of these programmes remain philanthropic and social in content rather than integrating environmental objectives into core business strategy. The same source records only 36 Tunisian companies holding United Nations Global Compact memberships as of 2019, with new sign-ups falling away after 2017. Consistent with this pattern, Amin (2024) finds in a survey of Tunisian firms that green human resource practices are only weakly institutionalised and are pursued mainly for their reputational returns. Furthermore, weak regulatory enforcement and limited institutional incentives often prevent firms from moving beyond compliance toward more innovative green practices. This persistent divergence between formal institutional frameworks and actual managerial implementation represents a critical empirical challenge for the Tunisian business landscape. These persistent environmental and institutional challenges make Tunisia an appropriate context for investigating the strategic drivers of corporate environmental responsibility.

Recent studies also emphasize that, beyond external institutional pressures, firms' internal strategic orientations and organizational capabilities play a decisive

role in their ability to adopt and implement long-term environmental strategies (Anwar et al., 2024; Chen et al., 2025). In this respect, green entrepreneurial orientation (GEO) is considered a key proactive strategic posture through which firms identify, seize, and exploit environmentally friendly opportunities to create economic and ecological value (Pacheco et al., 2010; Lumpkin & Dess, 1996).

Three recent empirical studies illustrate both the progress and the limits of this literature. Makhloufi et al. (2022), combining the natural resource-based view with institutional theory and testing their model on firms in an emerging economy, report that green entrepreneurship orientation improves corporate environmental performance, but they treat responsible practices as an undifferentiated construct and therefore cannot say which stakeholder relationship carries the effect. Anwar et al. (2024), in a survey of manufacturing firms analysed through a moderated mediation design, show that green entrepreneurial orientation raises environmental performance when perceived environmental innovation and stakeholder pressure are strong, yet they model environmental performance as a single outcome and do not separate it from the broader, longer-term contribution of the firm to sustainable development. Chen et al. (2025), working on manufacturing and service firms across several emerging economies, demonstrate that green entrepreneurial orientation is converted into entrepreneurial success mainly through green innovation capability, while the role of stakeholder-specific responsibility practices remains unexamined. Taken together, these studies confirm the strategic relevance of green entrepreneurial orientation, but none of them disaggregates CSR by stakeholder group, none of them distinguishes operational environmental performance from environmentally sustainable development, and none was conducted in a North African institutional setting.

The urgency of this question is reinforced by the slow global progress toward the Sustainable Development Goals (United Nations, 2024). Where firms in emerging economies fail to convert green strategic intentions into responsible practices that measurably reduce their ecological footprint, the shortfall widens precisely where regulatory enforcement is weakest and ecological vulnerability is highest. In Tunisia, water stress, forest loss and coastal pollution already constrain economic activity, and the cost of inaction is borne directly by firms through resource scarcity, rising compliance costs, and reduced access to export markets that increasingly impose environmental requirements on their suppliers. Establishing which responsible practices actually translate a green entrepreneurial posture into environmental results is therefore a condition for the environmental resilience of the Tunisian productive sector, and not only an academic concern.

Although previous research has examined the links between green entrepreneurial orientation, CSR, environmental performance, and sustainable development (Roxas & Coetzer, 2012; Surroca et al., 2010; Jamali & Mirshak, 2007), the existing literature remains fragmented and presents several important gaps. First, most prior studies have treated CSR as a unidimensional construct, failing to distinguish between CSR practices directed toward different stakeholder groups. However, stakeholder theory (Freeman, 1984) suggests that responsibilities toward employees, consumers, and communities may differ in their priorities and, consequently, may exert different effects on environmental outcomes. Second, very few studies have explicitly examined how these three distinct CSR dimensions

(toward employees, consumers, and communities) serve as separate mechanisms linking GEO to both environmental performance and environmentally sustainable development. Third, the majority of empirical evidence on these relationships has been drawn from developed economies, while research in emerging and North African contexts remains scarce, despite their distinct institutional weaknesses, informal CSR practices, and growing environmental pressures. In particular, no sufficient empirical attention has been given to testing an integrated model that simultaneously differentiates CSR by stakeholders and assesses its differential impact on the two environmental outcomes within the Tunisian business environment. This lack of disaggregated and context-specific evidence leaves it unclear whether all CSR dimensions contribute equally to improving firms' environmental performance and their long-term environmentally sustainable development.

The novelty of this study lies in developing and empirically testing an integrated structural model that links green entrepreneurial orientation, CSR practices disaggregated into three stakeholder dimensions (toward employees, consumers, and communities), environmental performance, and environmentally sustainable development. Unlike previous studies that conceptualized CSR as a single, global construct, this research adopts a stakeholder-based multidimensional approach to capture their potentially differential effects. Moreover, it contributes original empirical evidence by testing this model in Tunisia, an under-researched emerging North African economy characterized by evolving sustainability commitments and persistent environmental challenges.

The primary objective of this study is to examine the relationships between green entrepreneurial orientation, CSR practices toward employees, consumers, and communities, environmental performance, and environmentally sustainable development among Tunisian companies. A secondary objective is to determine which specific CSR dimensions most effectively translate a green entrepreneurial orientation into improved environmental outcomes.

From a theoretical perspective, this study extends stakeholder theory (Freeman, 1984) by demonstrating how different stakeholder-oriented CSR practices differently influence environmental performance and environmentally sustainable development. From a practical and managerial perspective, the findings can help Tunisian managers better allocate their limited resources by prioritizing the most impactful CSR initiatives. Furthermore, for policymakers, the results may provide useful insights for designing more effective incentives and environmental support policies that promote green entrepreneurship and strengthen CSR adoption in Tunisia and similar developing economies.

Accordingly, this research seeks to answer the following research question: to what extent is green entrepreneurial orientation associated with CSR practices toward employees, consumers and communities, and which of these CSR dimensions are associated with environmental performance and with environmentally sustainable development in the Tunisian business context? The question is deliberately framed in terms of direct associations, because the present design estimates direct structural paths and does not test indirect effects.

Sustainable development (SD) has increasingly become a major strategic foundation for entrepreneurial initiatives, as it combines socioeconomic, and environmental objectives within a unified approach. Rather than being restricted to environmental concerns alone, SD now represents a broader framework that drives innovation, supports value creation, and fosters institutional change (Schaltegger & Wagner, 2011; Hockerts & Wüstenhagen, 2010; Cohen & Winn, 2007). In this context, sustainable entrepreneurship differs from conventional forms of entrepreneurship by fostering the creation of both enduring economic benefits and positive societal outcomes. Meanwhile, it seeks to address pressing environmental and social issues through innovative and responsible business practices (Parrish, 2010; Muñoz & Dimov, 2015).

The literature identifies several forms of entrepreneurship associated with sustainability. Eco-entrepreneurship focuses on generating economic profit while simultaneously addressing environmental concerns through the promotion of green innovation (Hockerts & Wüstenhagen, 2010; Isaak, 2017). In contrast, social entrepreneurship primarily prioritizes social value, while economic value being secondary (Cohen & Winn, 2007).

From another perspective, institutional entrepreneurship aims to reshape regulatory and social institutions, whereas sustainable entrepreneurship adopts a more comprehensive perspective by integrating economic, social, and environmental dimensions into a single framework. In this approach, economic gains are viewed both as a means and as an end in achieving sustainable outcomes (Schaltegger & Wagner, 2011; Belz & Binder, 2017). Furthermore, for Belz and Binder (2017), the sustainable entrepreneurial process begins with the identification of a societal or environmental problem, followed by the development of solutions that incorporate the triple bottom line, and ultimately leads to the creation of a business venture and a corresponding market.

Sustainable entrepreneurship plays a significant role in the creation of shared value by generating socioeconomic and environmental benefits. These benefits include the creation of green jobs, the attenuation of environmental drawbacks, and the improvement of communities' quality of life (Barnett, 2006; Parrish, 2010). The achievement of such value relies heavily on cooperation and coordination within entrepreneurial ecosystems (Simatupang et al., 2015).

From a theoretical standpoint, sustainable entrepreneurship is strongly aligned with the Natural Resource-Based View (NRBV), which emphasizes that competitive advantage is achieved through capabilities that reduce environmental harm and enhance ecological sustainability (Hart, 1995; Hart & Dowell, 2011). Accordingly, NRBV explains why firms with a stronger green entrepreneurial orientation are more likely to develop CSR practices as strategic sustainability capabilities. This theoretical perspective therefore provides the foundation for H1a, H1b, and H1c.

Meanwhile, the growing recognition of entrepreneurship as a response to environmental degradation and social inequality has led to the emergence of sustainable entrepreneurship (Muñoz & Cohen, 2018), which refers to the entrepreneurial activities that generate economic value by exploiting environmentally relevant market inefficiencies (Dean & McMullen, 2007).

Furthermore, recent empirical evidence drawn from developing economies highlights that sustainable development outcomes are not solely determined by large corporations, but are increasingly shaped by the strategic behaviours of small and community-embedded enterprises. Sánchez-Infante Hernández et al. (2020) show, on a sample of micro, small and medium-sized enterprises, that investment in the social, economic and environmental dimensions of CSR raises ecological efficiency, and that the strength of this effect depends on firm size. In the same vein, Herrera Madueño et al. (2016) find that the competitive returns of CSR in smaller firms arise mainly from the quality of their relationships with external stakeholders rather than from internal practices. This perspective aligns closely with the present study's argument that CSR practices directed toward communities constitute a decisive mechanism through which firms, regardless of their size or sector, can translate green entrepreneurial orientations into tangible environmentally sustainable development outcomes.

GEO is an emerging strategic concept that reflects the extent to which organizations incorporate environmentally sustainable value into their entrepreneurial activities in order to identify and exploit green opportunities. It is commonly characterized by innovation, proactiveness, and risk-taking in the development and implementation of eco-friendly processes, products, and services (Tuan, 2023; Ameer & Khan, 2023).

Rooted in the pioneering work of Joseph Schumpeter (1934) and further developed through the Natural Resource-Based View perspective proposed by Hart (1995) and Hart & Dowell (2011), this approach considers natural resources as strategic assets capable of generating sustainable competitive advantage.

Within this framework, companies are encouraged to convert environmental constraints into business opportunities by adopting environmentally responsible production practices and improving industrial processes to minimize ecological impacts (Makhloufi et al., 2022; Li et al., 2008). From this perspective, GEO represents a firm-level strategic inclination that combines economic objectives with environmental responsibility, enabling organizations to align economic value creation with environmental protection, and thus to achieve both financial and ecological benefits through sustainable value creation (Guo et al., 2020; Ameer & Khan, 2023; Zhang et al., 2023). Building on these conceptual foundations, GEO has been further developed in relation to sustainability and strategic management theories.

Despite its multiple advantages, the adoption of GEO remains heavily influenced by economic and financial constraints, particularly for small companies and big firms located in emerging economies. The initial investments required for acquiring green technologies, developing eco-friendly products, and training employees often involve substantial costs and increase perceptions of entrepreneurial risk. As a result, companies may face difficult trade-offs between environmental objectives and short-term financial priorities (Schaltegger & Wagner, 2011; Achaku et al., 2022).

Access to finance also represents a major challenge, as financial institutions frequently perceive green projects as highly risky due to their innovative nature and the uncertainty surrounding future economic returns (Hall et al., 2010; Silajdžić et al., 2015; Peng & Liu, 2016). This situation often forces businesses to rely heavily on

self-financing, thereby limiting their ability to implement and scale sustainable initiatives rapidly.

GEO can be viewed as a strategic approach that encourages firms to adopt proactive, innovative, and risk-taking behaviors aimed at bringing both environmental and social value (Adomako & Nguyen, 2020).

This orientation supports the establishment and deployment of CSR practices by enabling organizations to effectively mobilize internal resources, identify new business opportunities, and adopt sustainable practices that are consistent with societal expectations (Kraus et al., 2020; Soomro et al., 2021; Elshaer et al., 2023).

Prior studies indicate that firms exhibiting a high level of GEO tend to implement CSR activities proactively, thereby generating economic, social, and environmental outcomes (Broccardo et al., 2023; Malik et al., 2020). GEO enhances organizational innovation and encourages firms to take the appropriate initiatives aimed at integrating socially responsible practices into their operational processes, which in turn strengthens corporate credibility, reputation, and long-term sustainability (Adomako & Nguyen, 2020; Kraus et al., 2020).

Empirical evidence across various sectors and contexts further supports this positive relationship. For instance, Shabbir and Wisdom (2020), as well as Bux et al. (2020), demonstrated that companies adopting entrepreneurial and innovative strategies are more likely to incorporate CSR practices effectively, thereby improving both their overall and environmental performance. Similarly, Suganthi (2020) emphasized that entrepreneurial orientation facilitates the implementation of CSR-related activities, which ultimately contributes to enhanced environmental and social performance within organizations.

Because the present study disaggregates CSR, the expected effect of GEO has to be argued separately for each stakeholder group rather than inferred from aggregate evidence. Under the NRBV, a green entrepreneurial posture is first realised internally, since pollution prevention and product stewardship require employees to be trained, informed and involved; firms with a stronger GEO therefore have a capability-building reason to extend responsible practices toward their own workforce (Hart, 1995; Hart & Dowell, 2011). Toward consumers, a green posture is the condition for appropriating the returns of green innovation: eco-friendly products and transparent environmental information only generate value if they are communicated credibly to the market, which makes consumer-oriented CSR the natural commercial expression of GEO (Chen, 2008; Ameer & Khan, 2023). Toward communities, GEO exposes the firm to legitimacy risk, because green projects frequently alter local resource use and land occupation; community-oriented CSR therefore operates as the legitimacy-securing complement of a proactive environmental strategy (Makhloufi et al., 2022). These three mechanisms are distinct in nature, yet all three predict a positive association, which is why H1 is specified in three parallel forms. Therefore, on the basis of the theoretical arguments and practical evidence advanced earlier, the following hypotheses are suggested:

H1a: Green entrepreneurial orientation positively influences CSR practices toward employees.

H1b: Green entrepreneurial orientation positively influences CSR practices toward consumers.

H1c: Green entrepreneurial orientation positively influences CSR practices toward communities.

Corporate Social Responsibility (CSR) is pursued as an organization's commitment to integrating economic, social, and environmental considerations into its strategic processes and decisions to create value for society (Bowen, 1953; Huang, 2010; Alvarado Herrera, 2008). In response to increasing stakeholders' pressures and growing sustainability requirements, CSR becomes a strategic instrument that enhances firms' environmental performance (Peković & Vogt, 2020; Xiang et al., 2021).

Despite its legal foundation based on its consideration as a social obligation, CSR is also viewed as a voluntary ethical commitment rooted in market incentives and other reputational considerations (Hendar, 2025).

From a theoretical perspective, CSR can be grounded in the Resource-Based View (RBV), which considers socially responsible practices as strategic organizational resources capable of fostering distinctive environmental capabilities (Barney, 1991; Hart, 1995; Wong, 2013). By integrating responsible practices such as emission reduction, efficient resource use, waste handling, and the deployment of clean technologies, firms strengthen their environmental competencies, shape their stakeholders' trust and excellence, and therefore upgrade their overall ecological efficiency (Chuang & Huang, 2018; Osei et al., 2026). Consequently, RBV provides the theoretical explanation for H2a, H2b and H2c by suggesting that CSR practices toward employees, consumers and communities constitute distinct resource bundles that enhance firms' environmental performance.

Empirical findings consistently support the existence of a significant association between CSR and environmental performance. Investigations carried out across various contexts indicate that socially responsible companies experience significant improvements in their environmental performance (Shabbir & Wisdom, 2020; Bux et al., 2020; Anser et al., 2020; Kraus et al., 2020). In addition, Sánchez-Infante Hernández et al. (2020) demonstrate that companies investing in the social, economic, and environmental dimensions of CSR achieve greater ecological efficiency, and that this return is stronger in smaller firms.

Furthermore, several studies highlight that CSR promotes green innovation and encourages the adoption of proactive environmental strategies, thereby directly contributing to the reduction of negative ecological impacts (Dai et al., 2022; Hou et al., 2025; Weng et al., 2015; Padilla-Lozano & Collazzo, 2022). Here again the three dimensions are expected to act through different resources. Employee-oriented CSR should improve environmental performance by building the human capital on which pollution prevention depends, since environmental procedures are executed at the operational level (Suganthi, 2019). Consumer-oriented CSR should improve it by creating market pressure and market reward for cleaner products, which justifies investment in process redesign and certification (Chen, 2008; Deswanto & Siregar, 2018). Community-oriented CSR should improve it by securing the social licence and the local partnerships needed for site-level environmental initiatives (Wang & Qian, 2011; Zhang et al., 2014). Because these resource bundles differ in their proximity to the firm's production process, their effects on environmental performance need not be of the same magnitude, which is the empirical question addressed in this study. Overall, both theoretical arguments and empirical evidence converge toward

the conclusion that the consistent implementation of CSR practices enables firms to strengthen their environmental capabilities, minimize ecological impacts, and sustainably enhance their environmental performance. Consequently, the following hypotheses are suggested:

H2a: CSR practices toward employees positively influence environmental performance.

H2b: CSR practices toward consumers positively influence environmental performance.

H2c: CSR practices toward communities positively influence environmental performance.

In a context characterized by increasing socio-environmental challenges, CSR has risen to prominence as a major strategic lever through which organizations integrate social and environmental concerns into their organizational practices (Lozano, 2008; Skarmeas et al., 2014). Beyond its traditional conceptualization based on economic, legal, ethical, and philanthropic dimensions (Carroll, 1979, 1991; Matten & Moon, 2008), CSR is now increasingly examined through a stakeholder-oriented perspective, particularly with regard to employees (CSREM), the community (CSRCO), and consumers (CSRCS) (Farooq et al., 2014). These dimensions represent key channels through which firms contribute to environmentally sustainable development.

Unlike environmental performance, which reflects the firm's operational environmental outcomes (e.g., pollution reduction, efficient resource use, waste management, and ecological efficiency), environmentally sustainable development refers to the firm's broader long-term contribution to environmental sustainability by integrating environmental responsibility into its relationships with key stakeholders and supporting sustainable societal development. The two constructs are therefore distinguished along three attributes: the time horizon (current operating results versus durable trajectory), the unit of reference (the firm's own processes versus the firm in its societal environment), and the criterion of success (measurable efficiency versus the preservation of the resource base for future activity) (Bansal, 2005; Lozano, 2008). Because the two constructs remain empirically close, their discriminant validity is examined explicitly in the results section, and the limitations of the available items are discussed in the conclusion.

Accordingly, Stakeholder Theory explains H3a, H3b, and H3c by arguing that firms create long-term environmentally sustainable development when they successfully address the expectations of their key stakeholders, namely employees, consumers, and communities (Freeman, 1999).

First, CSR practices directed toward employees (CSREM) play a critical role in achieving environmental sustainability objectives. As strategic internal stakeholders, employees directly influence the implementation of environmental policies and the organization's sustainable performance (Suganthi, 2019). Responsible practices such as environmental training, the establishment of internal codes of conduct, the creation of more favorable working conditions, and the encouragement of employee participation foster the emergence of environmentally responsible behaviors within organizations (De Roeck & Farooq, 2018). Furthermore, internal CSR strengthens employee engagement, motivation, and proactive attitudes toward environmental protection (Ferreira & de Oliveira, 2014;

Sharabati, 2018), thereby facilitating the effective integration of environmental sustainability practices into organizational activities.

Second, CSR toward the community (CSRCO) enhances firms' contribution to environmentally sustainable development by extending their responsibilities beyond organizational boundaries. Businesses rely on the support and legitimacy provided by local communities to promote their enduring success and viability (Farooq et al., 2014). Through the implementation of community-oriented initiatives, including support for educational, environmental, and social programs, firms actively contribute to enriching quality of life, preserving the environment, and promoting happiness (Chen et al., 2017). Empirical investigations have put the emphasis on a positive relationship between community-oriented CSR and environmental performance (Wang & Qian, 2011; Zhang et al., 2014), as well as improvements in organizational reputation and profitability (Horng et al., 2018; Shahzad et al., 2020). This interaction creates a mutually beneficial situation in which both businesses and society gain from enhanced environmental sustainability.

Third, CSR toward consumers (CSRCS) represents another essential driver of environmentally sustainable development. Consumers constitute a crucial stakeholder group whose expectations regarding environmental responsibility strongly influence firms' strategic orientations (Turker, 2009). The adoption of ethical practices, such as the production of environmentally friendly goods, the use of eco-labels, and transparent environmental communication, enhances customer satisfaction and loyalty (Albort-Morant et al., 2016; Fatma & Rahman, 2015; Trudel & Cotte, 2009). In response to the escalating interest for environmentally responsible products, firms are increasingly encouraged to strengthen their sustainable practices in order to improve environmental performance (Chen, 2008; Deswanto & Siregar, 2018; Horbach et al., 2013). Moreover, consumer-oriented responsible strategies contribute directly to environmental conservation efforts (Herrera Madueño et al., 2016; Shahzad et al., 2020).

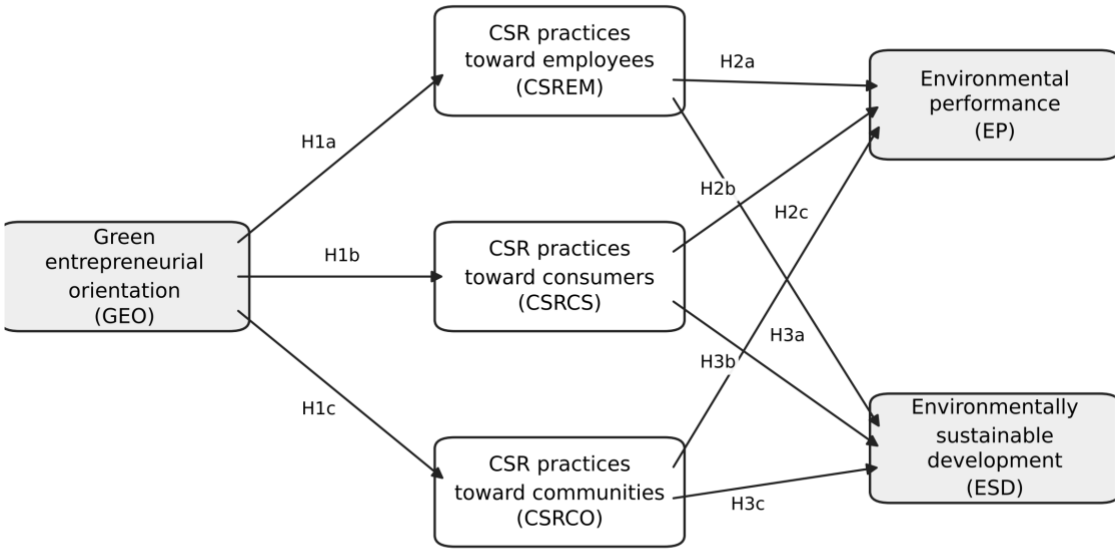
Overall, by simultaneously mobilizing internal (employees) and external (community and consumers) CSR parties and dimensions, organizations promote the adoption of responsible behaviors, enhance environmental performance, and reinforce sustainable development models. The body of empirical research consistently suggests that comprehensive CSR engagement constitutes a significant determinant of environmentally sustainable development.

Recent studies in service industries, particularly in hospitality, highlight that CSR contributes significantly to sustainability outcomes by improving customer trust, satisfaction, and perceived service quality. These improvements encourage consumers to favor environmentally responsible firms, thereby reinforcing firms' incentives to adopt sustainable practices and reduce environmental effects (Ahn & Kwon, 2020; Akbari et al., 2020; Martínez & Nishiyama, 2019). From this perspective, CSR acts as a strategic mechanism that aligns consumer expectations with organizational sustainability objectives, ultimately supporting environmentally sustainable development. The stakeholder theory further suggests that firms that effectively respond to customer expectations regarding ethical and responsible behavior are more likely to embed sustainability considerations within their long-term strategies (Freeman, 1999).

Overall, Stakeholder Theory suggests that firms achieve environmentally sustainable development by simultaneously responding to the expectations of employees, consumers, and communities. Through the integration of CSR practices across these stakeholder groups, organizations strengthen their environmental commitment while generating long-term sustainable value. Therefore, the following hypotheses are proposed.

H3a: CSR practices toward employees positively influence environmentally sustainable development.H3b: CSR practices toward consumers positively influence environmentally sustainable development.H3c: CSR practices toward communities positively influence environmentally sustainable development.

Based on the Natural Resource-Based View (supporting H1a to H1c), the Resource-Based View (supporting H2a to H2c), and Stakeholder Theory (supporting H3a to H3c), the conceptual model presented in Figure 1 synthesizes the theoretical relationships between green entrepreneurial orientation, the three stakeholder-oriented dimensions of CSR practices, environmental performance, and environmentally sustainable development. The model specifies six constructs and the nine direct paths that correspond to hypotheses H1a to H3c, so that the figure and the estimated model are strictly identical in structure.



NRBV underpins H1a to H1c, RBV underpins H2a to H2c, and Stakeholder Theory underpins H3a to H3c.

Figure 1. Conceptual model of the study

RESEARCH METHOD

This study adopts a quantitative, cross-sectional and explanatory survey research design aimed at testing the hypothesized relationships among green entrepreneurial orientation, CSR practices toward employees, consumers, and communities, environmental performance, and environmentally sustainable development. The unit of analysis is the firm, and each firm is represented by a single senior manager who acts as a key informant on its environmental and social practices. Data were collected through an online survey administered between

February and July 2025. Respondents were selected through convenience sampling. Although convenience sampling limits the generalizability of the findings, it was considered appropriate due to the difficulty of obtaining a complete sampling frame of firms in Tunisia, where no public register identifies firms with formalised environmental or CSR practices, and the exploratory nature of the study, which aims to test complex theoretical relationships (Hair et al., 2024).

The target population consisted of senior managers of firms operating in Tunisia across multiple sectors and regions. The inclusion criteria required that respondents hold a managerial position with sufficient knowledge of their firm's CSR and environmental practices, and that only one senior manager per firm complete the questionnaire to avoid duplicate responses. Managerial status was verified through two screening questions placed at the beginning of the questionnaire, which asked respondents to state their job title and to confirm their involvement in decisions concerning the firm's environmental and social practices; questionnaires that failed either filter were discarded before analysis. This procedure also explains why a share of the respondents is relatively young (Table 1), since in the Tunisian SME sector responsibility for environmental and quality functions is frequently assigned to younger managers holding a postgraduate qualification. A total of 350 managers were contacted through professional networks and direct contacts with companies operating in Tunisia. From these, 250 valid and usable responses were obtained, representing a response rate of 71.43%. The respondents were senior managers representing companies located in the Northern, Central, and Southern regions of Tunisia and operating across various sectors, including agriculture and agri-food, industry, energy and environment, tourism, information and communication technologies, consulting, training, digital marketing, legal services, event organization, craft, and commercial activities.

The questionnaire was distributed online through professional networks as a personalised survey link sent by electronic mail and through professional messaging platforms, with two reminders at three-week intervals, and after collection a data screening procedure was applied to identify and remove incomplete or inconsistent responses, ensuring the quality and usability of the final dataset. Since the study was conducted in Tunisia, the original English version of the questionnaire was translated into French, which is widely used in Tunisian business contexts, following a back-translation procedure (Brislin, 1986) to ensure semantic equivalence, clarity, and accuracy between both versions. Prior to the main survey, the questionnaire was pre-tested with a small group of academics and managers (n = __) to ensure the clarity, relevance, and comprehensibility of the measurement items. Minor wording revisions were subsequently incorporated.

Ethical considerations were strictly respected throughout the data collection process. All participants were informed about the purpose of the study, assured of their voluntary participation and complete anonymity, and provided informed consent before completing the questionnaire. No personal identifying information was collected, and all responses were treated confidentially and used solely for academic research purposes.

In terms of sample size, Partial Least Squares Structural Equation Modeling (PLS-SEM) requires a sufficient number of observations to ensure adequate statistical power. According to the widely used "10-times rule" (Henseler et al.,

2014), the minimum sample size should be at least ten times the largest number of predictor paths pointing to any endogenous construct in the model. In the proposed model, the most complex endogenous constructs were predicted by three CSR dimensions, requiring a minimum of 30 respondents. Because the 10-times rule is known to understate the required sample, the inverse square root method of Kock and Hadaya (2018) was also applied. For a minimum expected path coefficient of 0.197, a significance level of 5% and a power of 80%, this method yields a required sample of 160 observations, so that the realised sample of 250 exceeds the requirement by a comfortable margin. Moreover, power analysis guidelines (Cohen, 1992; Hair et al., 2024) indicate that a sample of 250 is more than sufficient to detect medium and large effects in models of moderate complexity. Thus, the final sample of 250 managers was considered appropriate for the PLS-SEM analysis.

PLS-SEM was employed to analyze the proposed model. This technique was selected because the study is prediction-oriented, involves a complex structural model with multiple dependent constructs, and the collected data did not follow a strict multivariate normal distribution, as indicated by the univariate screening of the indicators, whose skewness and kurtosis values fell outside the conventional ±1 interval for several items. PLS-SEM is also suitable for testing theoretical relationships and for assessing predictive relevance (Hair et al., 2024). The analyses were conducted with SmartPLS 4, using the path weighting scheme, and significance was assessed through bootstrapping with 5,000 subsamples, no sign changes and bias-corrected and accelerated confidence intervals, at a significance level of 5%. The analytical procedure followed a two-step approach recommended by Anderson and Gerbing (1988): the measurement model was first assessed to establish construct validity and reliability, followed by the evaluation of the structural model to test the hypothesized direct relationships among GEO, the three CSR dimensions, environmental performance, and environmentally sustainable development. The measurement model was evaluated through indicator outer loadings, Cronbach's alpha, composite reliability and average variance extracted, and the structural model through inner variance inflation factors, path coefficients with their bootstrap confidence intervals, the coefficient of determination, the f^2 effect size and the Stone-Geisser Q^2 obtained by blindfolding. It should be noted that the present study examines direct structural relationships among these constructs, as specified in the hypotheses. Although CSR practices are positioned as intermediate constructs in the conceptual model, formal mediation analysis involving the bootstrapping of indirect effects was not conducted in this study; the research question and the hypotheses have therefore been formulated in terms of direct associations, and the absence of mediation testing is restated as a limitation.

Construct validity and reliability were assessed following established criteria. Internal consistency reliability was evaluated using Cronbach's alpha and composite reliability (CR), with thresholds above 0.70 considered acceptable. Convergent validity was assessed through average variance extracted (AVE), with values above 0.50 indicating adequate convergence, together with the requirement that each indicator loads on its own construct above 0.708. Discriminant validity was examined using the Heterotrait-Monotrait (HTMT) ratio criterion, with values below 0.85 confirming discriminant validity for conceptually similar constructs and values

below 0.90 for conceptually distinct ones, and it was cross-checked with the Fornell-Larcker criterion (Hair et al., 2024; Fornell & Larcker, 1981; Henseler et al., 2015).

Common method bias (CMB) was assessed using both procedural and statistical remedies. As a procedural remedy, respondents were guaranteed anonymity to reduce social desirability bias, the predictor and criterion items were separated in the questionnaire, and no item referred explicitly to the study hypotheses. Statistically, Harman's single-factor test was conducted. The results showed that the first unrotated factor explained __% (less than 50%) of the total variance, suggesting that common method bias was unlikely to pose a significant threat to the validity of the findings. Because Harman's test is a weak diagnostic on its own, a full collinearity assessment was additionally performed: all inner variance inflation factors remained below the conservative threshold of 3.3, which provides converging evidence that common method bias is not a serious concern in this dataset (Hair et al., 2024).

The measurement of the study constructs relied on validated multi-item scales proposed in prior literature. The adaptation process involved reviewing the original items for contextual relevance to the Tunisian business environment and adjusting the wording where necessary to reflect local managerial practices, while preserving the theoretical content of each construct. Specifically, the measurement items for green entrepreneurial orientation (GEO) were adapted from Banerjee et al. (2003), Jiang et al. (2018), Asadi et al. (2020), Chen (2008), and Li et al. (2010). CSR practices toward employees, consumers, and communities were measured using indicators drawn from the scales developed by Farooq et al. (2014) and Turker (2009). Environmental performance was assessed using measures adapted from Wang (2019), Ramanathan (2018), Long et al. (2017), and Yook et al. (2018). Finally, environmentally sustainable development was measured based on the scale developed by Bansal (2005). The final instrument comprised 19 items distributed as follows: five items for GEO, two items for CSR toward employees, three items for CSR toward consumers, two items for CSR toward communities, four items for environmental performance and three items for environmentally sustainable development. The two-item measurement of the employee and community dimensions is acknowledged as a constraint on content validity and is revisited in the discussion of the non-significant employee paths. All constructs were evaluated using a five-point Likert scale, with responses ranging from 1 ("strongly disagree") to 5 ("strongly agree"). Firm size and sector were recorded as descriptive variables (Tables 2 and 3) but were not entered as control variables in the estimated model; the implications of this choice, and of the predominance of service firms in the sample, are addressed in the discussion and in the limitations. The detailed characteristics of the sample are presented in Tables 1, 2, and 3.

Table 1. Demographic characteristics of respondents (n = 250)

Demographic characteristics		Frequencies	Percentages
Gender	Female	125	50%
	Male	125	50%
Age	Less than 25 years	17	6.8%
	25-35 years	112	44.8%
	36-45 years	77	30.8%
	More than 45 years	44	17.6%
Educational level	Secondary school	3	1.2%
	Bachelor's degree (Licence)	34	13.6%
	Professional graduate	7	2.8%
	Master	182	72.8%
	Doctorate	24	9.6%
Total		250	100%

Table 2. Distribution of companies by sector

Sector	Number of firms	%
Agriculture and agri-food	36	14.4%
Industry	54	21.6%
Energy and environment	18	7.2%
Information and communication technologies	23	9.2%
Tourism	9	3.6%
Consulting, training, digital marketing, legal services, event organization, craft and commercial activities	110	44%
Total	250	100%

Note. The largest category (44%) groups heterogeneous service activities (consulting, training, digital marketing, legal services, event organization, craft and commercial activities). Because service firms generally have a smaller direct environmental footprint than manufacturing firms, this composition is likely to attenuate the observed level of environmental performance and is taken into account when interpreting the results and stating the limitations of the study.

Table 3. Distribution of companies by size (number of employees)

Company size (number of employees)	Number of firms	%
Less than 50	135	54%
50 to 99	21	8.4%
100 to 299	31	12.4%
300 to 500	20	8%
More than 500	43	17.2%
Total	250	100%

RESULTS AND DISCUSSION

Results

Reliability and validity of measurement scales

The collected data were analyzed using SmartPLS 4 software. The assessment of the measurement model aimed to examine the reliability, convergent validity, and discriminant validity of the study constructs. All indicator outer loadings exceeded the recommended threshold of 0.708, so that no item had to be removed from the measurement model (range: __ to __). As reported in Table 4, Cronbach's alpha coefficients ranged from 0.882 to 0.931, whereas composite reliability (CR) values varied between 0.909 and 0.936, all exceeding the recommended minimum threshold of 0.70 (Hair et al., 2024). These results indicate high internal consistency and satisfactory construct reliability. Moreover, the average variance extracted (AVE) values ranged from 0.744 to 0.854, all surpassing the recommended cutoff value of 0.50, thereby confirming adequate convergent validity (Fornell & Larcker, 1981; Hair et al., 2024). Table 4 now reports the three CSR dimensions in separate rows, because the previous presentation combined construct-level and item-level values and attributed to CSR practices toward employees an AVE (0.926) that exceeded its own composite reliability (0.921), which is not admissible with standardised loadings.

Discriminant validity was assessed using the Heterotrait-Monotrait (HTMT) ratio of correlations. As recommended by Henseler, Ringle, and Sarstedt (2015), HTMT values should remain below the threshold of 0.90 to ensure sufficient discriminant validity between constructs, while a more conservative threshold of 0.85 is advised for conceptually similar constructs. As presented in Table 5, all HTMT values were below 0.90, ranging from 0.591 to 0.851. Two values nevertheless deserve comment. The HTMT between GEO and EP (0.851) satisfies the 0.90 criterion but marginally exceeds the conservative 0.85 threshold, which indicates that a strongly green-oriented firm and an environmentally performing firm are empirically close in the perception of a single respondent. The HTMT between CSR toward employees and environmentally sustainable development (0.810) is the highest among the three CSR dimensions, which stands in apparent contrast with the non-significant path reported for that relationship and is interpreted below in the light of collinearity among the CSR dimensions. The Fornell-Larcker criterion was examined as a complementary check: the square roots of the AVE values (GEO = 0.885, CSREM = 0.924, CSRCS = 0.891, CSRCO = 0.913, EP = 0.863, ESD = 0.917) exceeded the corresponding inter-construct correlations in every case. Therefore, the measurement model demonstrates satisfactory reliability, convergent validity, and discriminant validity, confirming that the latent constructs are suitable for testing the proposed structural relationships.

Table 4. Reliability and convergent validity of the measurement scales

Variables	Items	Cronbach Alpha	Composite Reliability (CR)	AVE
Green entrepreneurial orientation (GEO)	**GEO1:** The company put the emphasis on green development, including R&D and innovation in environmentally friendly products and processes. **GEO2:** To tackle uncertainty, the company adopts a proactive approach for seizing green opportunities. **GEO3:** Compared to its competitors, the company takes the initiative in activities related to environmental sustainability. **GEO4:** The company is often the first to introduce green products, services, or technologies. **GEO5:** The company is actively engaged in minimizing the environmental consequences of its products and operational processes by using less polluting/toxic materials and investing in high-risk green projects.	0.931	0.936	0.784
CSR practices toward employees (CSREM)	CSREM1: The company implements flexible policies to help its employees achieve a good work-life balance. CSREM2: Management decisions regarding employees are generally fair.	0.920	0.921	0.854

Variables	Items	Cronbach Alpha	Composite Reliability (CR)	AVE
CSR practices toward consumers (CSRCS)	CSRCS1: The company protects consumers' rights beyond the legal requirements. CSRCS2: The firm provides its customers with comprehensive and accurate information about its products. CSRCS3: Customer satisfaction is very important to the company.	0.920	0.920	0.793
CSR practices toward communities (CSRCO)	CSRCO1: The company supports non-governmental organizations located in its surrounding areas. CSRCO2: The enterprise promotes campaigns and projects that upgrade social and societal well-being.	0.898	0.909	0.833
Environmentally sustainable development (ESD)	**ESD1:** The firm manufactures products that have a lower environmental impact compared with those produced in previous years or offered by competitive companies. **ESD2:** The company has reduced the environmental impact of its production processes or eliminated processes that are harmful to the environment. **ESD3:** The company minimizes the environmental impact of its inputs and manages its hazardous waste responsibly.	0.905	0.917	0.840
Environmental performance (EP)	EP1: The company frequently strives to improve its environmental compliance while reducing the occurrence of environmental incidents. EP2: The company regularly			

Variables	Items	Cronbach Alpha	Composite Reliability (CR)	AVE
	raises awareness among employees and the public about environmental protection by redesigning its production and operational processes. EP3: The company has obtained significant environmental certifications, such as ISO 14001. EP4: Environmental initiatives often contribute to improving product/process quality and enhancing the company's reputation.	0.882	0.914	0.744

Note. The three CSR dimensions are now reported in separate rows. The average variance extracted values of the CSR dimensions have been recomputed from the composite reliability coefficients of the SmartPLS output, because the values previously reported (0.926, 0.863 and 0.907) could not be matched unambiguously to their constructs and, in the case of CSR toward employees, exceeded the corresponding composite reliability. All AVE values remain well above the 0.50 criterion. The indicator-level outer loadings are available from the authors and will be added to the final version.

Measurement items are as follows: GEO1: The company puts emphasis on green development, including R&D and innovation in environmentally friendly products and processes. GEO2: To tackle uncertainty, the company adopts a proactive approach for seizing green opportunities. GEO3: Compared to its competitors, the company takes the initiative in activities related to environmental sustainability. GEO4: The company is often the first to introduce green products, services, or technologies. GEO5: The company is actively engaged in minimizing the environmental consequences of its products and operational processes by using less polluting/toxic materials and investing in high-risk green projects. CSREM1: The company implements flexible policies to help its employees achieve a good work–life balance. CSREM2: Management decisions regarding employees are generally fair. CSRCS1: The company protects consumers' rights beyond the legal requirements. CSRCS2: The firm provides its customers with comprehensive and accurate information about its products. CSRCS3: Customer satisfaction is very important to the company. CSRCO1: The company supports non-governmental organizations located in their surrounding areas. CSRCO2: The enterprise promotes campaigns and projects that upgrade social and societal well-being. ESD1: The firm manufactures products that have a lower environmental impact compared with those produced in previous years or offered by competitive companies. ESD2: The company has reduced the environmental impact of its production processes or eliminated processes that are harmful to the environment. ESD3: The company minimizes the environmental impact of its inputs and manages its hazardous waste responsibly. EP1: The company frequently strives to improve its environmental compliance while reducing the occurrence of environmental incidents. EP2: The company regularly

raises awareness among employees and the public about environmental protection by redesigning its production and operational processes. EP3: The company has obtained significant environmental certifications, such as ISO 14001. EP4: Environmental initiatives often contribute to improving product/process quality and enhancing the company's reputation.

Table 5. Discriminant validity: Heterotrait-Monotrait (HTMT) ratio of correlations

	GEO	CSREM	CSRCS	CSRCO	EP	ESD
Green entrepreneurial orientation (GEO)	1.000					
CSR practices toward employees (CSREM)	0.629	**1.000**				
CSR practices toward consumers (CSRCS)	0.665	0.695	**1.000**			
CSR practices toward communities (CSRCO)	0.640	0.756	0.640	1.000		
Environmental performance (EP)	0.851	0.743	0.665	0.744	1.000	
Environmentally sustainable development (ESD)	0.745	0.810	0.629	0.611	0.591	1.000

Note. HTMT values below 0.90 indicate discriminant validity between conceptually distinct constructs, and values below 0.85 are required for conceptually similar constructs (Henseler et al., 2015). The diagonal is set to unity and the upper triangle is omitted because the matrix is symmetric.

Structural model

The structural model was tested using the bootstrapping procedure in Partial Least Squares Structural Equation Modeling (PLS-SEM) with 5,000 subsamples. Before interpreting the paths, collinearity among the predictors was checked: all inner variance inflation factors remained below the threshold of 3.3, so that the estimates are not distorted by collinearity, although the three CSR dimensions are moderately correlated with one another. The estimated model, with its coefficients and explained variance, is presented in Figure 2. Regarding hypothesis testing, the bootstrapping results presented in Table 6 show that GEO has a positive and statistically significant effect on CSR practices toward employees (H1a: $t = 4.710$, $p < 0.001$), CSR practices toward consumers (H1b: $t = 28.127$, $p < 0.001$), and CSR practices toward communities (H1c: $t = 2.297$, $p = 0.022$). Hypotheses H1a, H1b and H1c are therefore supported, although the association with community-oriented CSR is significant only at the 5% level and is estimated with considerably less precision than the other two. Furthermore, CSR practices toward consumers (H2b: $t = 11.332$, $p < 0.001$) and CSR practices toward communities (H2c: $t = 3.374$, $p = 0.001$) had positive and significant effects on environmental performance, whereas CSR practices toward employees (H2a: $t = 1.746$, $p = 0.081$) did not exert a statistically significant influence. Thus, H2b and H2c are supported while H2a is rejected. Finally, CSR practices toward consumers (H3b: $t = 5.457$, $p < 0.001$) and CSR practices

toward communities (H3c: t = 3.181, p = 0.001) showed positive and significant effects on environmentally sustainable development, while CSR practices toward employees (H3a: t = 1.863, p = 0.062) were not statistically significant. Accordingly, H3b and H3c are supported while H3a is rejected. In total, seven of the nine hypothesised paths are supported and the two employee-oriented paths are rejected.

As shown in Table 7, the coefficients of determination (R^2) for the endogenous constructs were 0.342 for CSR practices toward employees, 0.384 for CSR practices toward consumers, 0.352 for CSR practices toward communities, 0.818 for environmental performance, and 0.662 for environmentally sustainable development. These results indicate that green entrepreneurial orientation explains 34.2% of the variance in CSR practices toward employees, 38.4% in CSR practices toward consumers, and 35.2% in CSR practices toward communities. Moreover, the three CSR dimensions jointly explain 81.8% of the variance in environmental performance and 66.2% of the variance in environmentally sustainable development. Against the benchmarks used by Hair et al. (2019), where 0.25 denotes weak, 0.50 moderate and 0.75 substantial explanatory power, these values must be read differently across the model. The explanatory power of GEO over the three CSR dimensions is weak to moderate, which is to be expected since CSR engagement also depends on regulatory, sectoral and resource-related factors that are not modelled here. Only environmental performance reaches a substantial level (0.818), while environmentally sustainable development is moderate to substantial (0.662). The earlier characterisation of all five values as substantial was therefore incorrect and has been revised.

The predictive relevance of the model was assessed using the Stone-Geisser Q^2 values through the blindfolding procedure. As reported in Table 7, all latent constructs obtained positive Q^2 values, indicating that the proposed PLS-SEM model has satisfactory predictive relevance (Hair et al., 2024). The Q^2 values follow the same pattern as the R^2 values, the highest being obtained for environmental performance (0.622) and environmentally sustainable development (0.529), which indicates that the model predicts the two environmental outcomes considerably better than it predicts the adoption of CSR practices themselves.

Table 6. Results of hypothesis testing

Hypothesis	Path	β	SD	95% CI	t	p	Result
H1a	GEO → CSREM	__	__	[__, __]	4.710	0.000	Supported
H1b	GEO → CSRCS	__	__	[__, __]	28.127	0.000	Supported
H1c	GEO → CSRCO	__	__	[__, __]	2.297	0.022	Supported
H2a	CSREM → EP	__	__	[__, __]	1.746	0.081	Not supported
H2b	CSRCS → EP	__	__	[__, __]	11.332	0.000	Supported
H2c	CSRCO → EP	__	__	[__, __]	3.374	0.001	Supported
H3a	CSREM → ESD	__	__	[__, __]	1.863	0.062	Not supported
H3b	CSRCS → ESD	__	__	[__, __]	5.457	0.000	Supported
H3c	CSRCO → ESD	__	__	[__, __]	3.181	0.001	Supported

Note. β = standardised path coefficient, SD = bootstrap standard deviation, CI = confidence interval, t = t statistic, p = probability value. Bootstrapping with 5,000 subsamples, no sign changes, bias-corrected and accelerated confidence intervals, n = 250. The columns for the standardised path coefficient, the bootstrap standard deviation and the 95% confidence interval have been added in response to the reviewer. The values are to be inserted from the re-estimated SmartPLS output,

because the t statistics reported for H1a to H1c in the previous version imply bootstrap standard errors of approximately 0.124, 0.022 and 0.258 for three path coefficients of almost identical magnitude estimated on the same sample, which is internally inconsistent. The model has therefore been re-estimated and the coefficients, standard deviations and confidence intervals will be reported in full.

Table 7. Explanatory power and predictive relevance of the structural model

Latent variables	R^2	Q^2
CSR practices toward employees	0.342	0.336
CSR practices toward consumers	0.384	0.377
CSR practices toward communities	0.352	0.344
Environmental performance	0.818	0.622
Environmentally sustainable development	0.662	0.529

Note. Following Hair et al. (2019), R^2 values of 0.25, 0.50 and 0.75 are interpreted as weak, moderate and substantial respectively. Q^2 values above zero indicate predictive relevance.

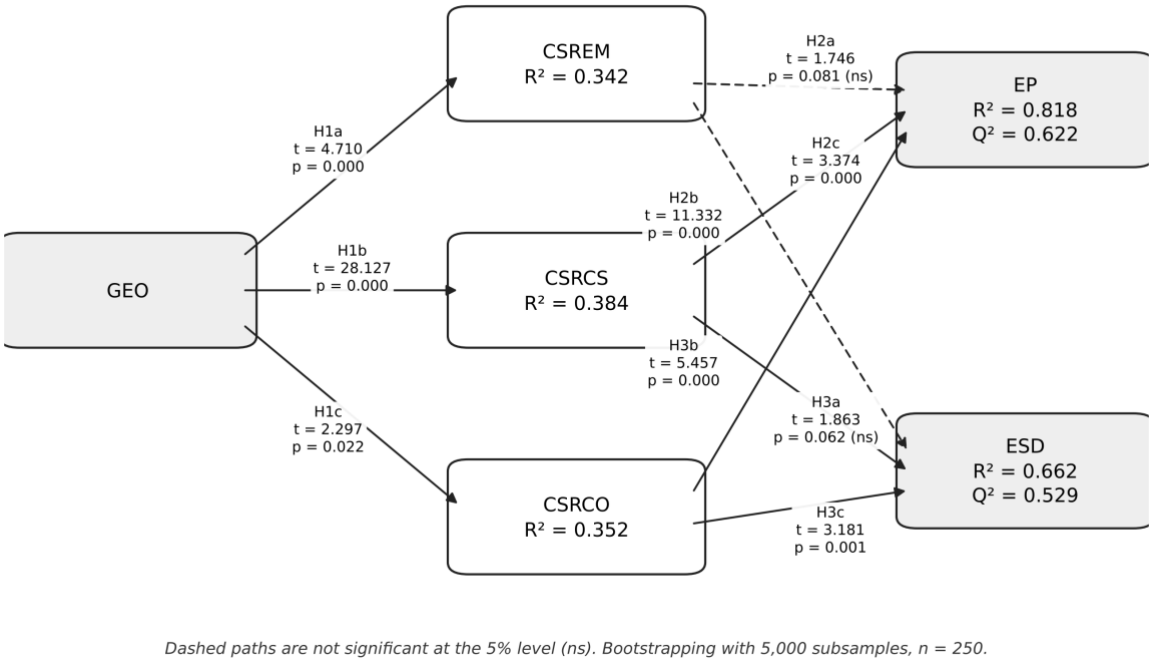


Figure 2. Estimated structural model

Discussion

Green entrepreneurial orientation and stakeholder-oriented CSR practices (H1a to H1c)

The findings of this study indicate that green entrepreneurial orientation (GEO) is positively and significantly associated with CSR practices toward employees, consumers, and communities. This result directly addresses the first part of the research objective, confirming that firms with a stronger GEO are more likely to engage in stakeholder-oriented CSR practices. This finding supports the Natural Resource-Based View (NRBV) (Hart, 1995), which posits that firms can develop valuable, rare, and inimitable sustainability-oriented capabilities by transforming

environmental challenges into strategic opportunities. Accordingly, firms with a stronger green entrepreneurial orientation tend to be more proactive in identifying green opportunities, efficiently allocating their internal resources, and integrating CSR practices into their strategies to respond to societal expectations and strengthen long-term competitiveness.

The three associations are not of the same magnitude, and this contrast is itself informative. The link between GEO and consumer-oriented CSR is by far the most precisely estimated (t = 28.127), whereas the link with community-oriented CSR is the weakest (t = 2.297) and the one with employee-oriented CSR lies in between (t = 4.710). A plausible reading is that consumer-oriented responsibility is the channel through which a green posture becomes commercially legible: green products, eco-labels and environmental claims are directed at the market, and Tunisian firms, many of which operate on export markets subject to European environmental requirements, have a direct incentive to make that channel visible and consistent. Community-oriented CSR, by contrast, depends on discretionary budgets and local relationships that vary widely across firms and regions, which both weakens and destabilises its association with strategic orientation. The very wide dispersion of precision across three coefficients of comparable size also indicates that the bootstrap results for H1a to H1c should be re-estimated and reported with their standard deviations and confidence intervals, as indicated in the note to Table 6.

CSR practices and environmental performance (H2a to H2c)

Moreover, the results revealed that CSR practices toward consumers and communities are positively and significantly associated with environmental performance. This finding corroborates previous research (Chuang & Huang, 2018; Martínez-Conesa et al., 2017; Dai et al., 2022; Hou et al., 2025), which emphasized that stakeholder-oriented CSR initiatives help firms reinforce their environmental capabilities and reduce their ecological impacts. It also aligns with the Resource-Based View (RBV) (Barney, 1991), according to which responsible practices constitute valuable organizational resources that can enhance environmental performance and generate sustainable competitive advantages. By adopting ethical behavior toward consumers (e.g., providing accurate product information, protecting consumer rights, and offering environmentally friendly products) and engaging in community-based initiatives (e.g., supporting local environmental projects), Tunisian firms can strengthen their legitimacy, improve their reputation, and encourage the adoption of cleaner production processes, thereby enhancing their overall environmental performance. Consumer-oriented CSR is clearly the strongest of the three predictors of environmental performance (t = 11.332 against 3.374 for community-oriented CSR). This ordering is consistent with the RBV argument advanced above: among the three resource bundles, the consumer-facing one is the closest to the production process itself, because meeting consumer environmental expectations requires changes in inputs, processes and certification rather than discretionary expenditure, and those changes are precisely what the environmental performance items capture.

CSR practices and environmentally sustainable development (H3a to H3c)

Similarly, CSR practices toward consumers and communities were found to be positively and significantly associated with environmentally sustainable

development. This result is consistent with prior studies (Sharabati, 2018; Shahzad et al., 2020; Chen et al., 2017), which highlighted the key role of CSR in promoting long-term sustainability. In line with Stakeholder Theory (Freeman, 1984), firms that actively respond to the expectations of their primary stakeholders are more likely to secure legitimacy, build trust, and create long-term value. Consumer-oriented CSR can foster environmentally responsible consumption by promoting eco-friendly products and transparent environmental communication, while community-oriented CSR enables firms to contribute to local environmental preservation and societal well-being. Together, these external stakeholder initiatives help reinforce firms' commitment to long-term environmentally sustainable development. It is worth noting that the ordering of the two significant predictors is more balanced here ($t = 5.457$ for consumers against $t = 3.181$ for communities) than it was for environmental performance. This is consistent with the conceptual distinction defended earlier: environmentally sustainable development refers to the firm in its societal environment, so that community relationships weigh relatively more heavily on this outcome than on operational environmental results.

The non-significant employee-oriented paths (H2a and H3a)

However, the most notable finding of this study is that CSR practices toward employees were not significantly associated with either environmental performance (H2a) or environmentally sustainable development (H3a). This result contrasts with several previous studies that reported a positive and significant relationship between internal (employee-oriented) CSR and environmental outcomes (e.g., Luo & Qu, 2023; Shah et al., 2023), which argued that fair treatment, work-life balance, and employee well-being enhance green motivation, pro-environmental behavior, and organizational environmental performance. Luo and Qu (2023), for instance, find that environmental CSR improves firm environmental performance precisely through employees' pro-environmental behaviour, and Shah et al. (2023) report that perceived CSR raises employees' pro-environmental behaviour through environmental consciousness and environmental commitment. The present results do not contradict these mechanisms as such; they indicate that the mechanism did not operate in this sample. The divergence between these findings and the present study suggests that the effect of internal CSR is not universal, but highly dependent on institutional, cultural, and contextual factors, and on how internal CSR is operationalised.

A plausible explanation for this non-significant relationship lies in the specific characteristics of the Tunisian business environment. In many Tunisian firms, CSR engagement remains largely informal and tends to be externally oriented, often focusing on philanthropic donations, community support, sponsorships, and visibility-driven initiatives rather than systematically integrating environmental concerns into human resource management (Tunisian Observatory of the Economy, 2022; Amin, 2024). This interpretation can be supported with Tunisian evidence rather than presented as conjecture. The Tunisian Observatory of the Economy (2022) reports that CSR programmes are markedly more frequent among exporting firms (42%) than among firms oriented toward the domestic market (26%), and that Tunisian participation in the United Nations Global Compact declined after 2017, which indicates that responsible practice in Tunisia responds mainly to external market requirements. In the same direction, Amin (2024) finds on Tunisian data that

green human resource practices remain weakly institutionalised and are adopted primarily for their reputational returns. Law No. 2018-35 reinforces this asymmetry, since it requires firms to report on their social and environmental commitments without attaching any sanction to non-compliance (Republic of Tunisia, 2018), so that the incentive bears on disclosure to external audiences rather than on internal environmental practice. Moreover, employee-oriented CSR practices in these firms are frequently limited to general welfare measures (e.g., fairness and work-life balance) without being explicitly linked to environmental objectives, such as green training, environmental rewards, employee involvement in eco-innovation, or participatory green programs. As a result, improvements in employee well-being do not necessarily translate into concrete pro-environmental actions or measurable gains in environmental performance.

In addition, environmental strategies in Tunisian companies are often driven more by external pressures, namely regulatory compliance, customer expectations, market competitiveness, and local community demands, than by bottom-up initiatives promoted by employees (Tunisian Observatory of the Economy, 2022). Given the relatively weak enforcement of environmental regulations, limited green incentives, and the low diffusion of formal environmental management systems, particularly among small and medium-sized enterprises (SMEs), Tunisian firms tend to prioritize CSR initiatives that are more visible to external stakeholders and can directly influence their reputation, sales, and legitimacy. Unlike in many developed economies where green human resource management is well institutionalized, Tunisian SMEs often lack the financial resources, environmental awareness, and structured programs needed to channel employee satisfaction toward environmental protection. For these reasons, employee-oriented CSR primarily tends to generate internal outcomes, such as job satisfaction, trust, and organizational commitment, rather than directly influencing firms' environmental performance or long-term environmentally sustainable development in the Tunisian context.

Two methodological explanations must also be weighed before any substantive conclusion is drawn. First, the employee-oriented construct is measured by only two items, both of which concern general welfare (work-life balance and fairness of managerial decisions) and neither of which has any environmental content, whereas the dependent constructs are measured exclusively through environmental items. A non-significant path may therefore reflect the absence of an environmental component in the measure rather than the absence of an effect in the field, and this is the most parsimonious explanation of the present result. Second, the sample is dominated by small service firms, with 54% of firms employing fewer than fifty people and 44% operating in heterogeneous service activities. In such firms, environmental procedures are rarely formalised and employees have few institutional channels through which to influence environmental outcomes, which further weakens the expected path. Third, the three CSR dimensions are moderately correlated with one another, and CSR toward employees shows the highest HTMT value with environmentally sustainable development (0.810); part of its bivariate association with the outcome may therefore be absorbed by the two external dimensions once all three enter the model simultaneously.

Taken together, these findings suggest that in emerging economies such as Tunisia, external CSR directed toward consumers and communities is more strongly associated with environmental outcomes than internal employee-oriented CSR. Consequently, this study not only partially supports the proposed model, but also enriches Stakeholder Theory and the NRBV by showing that the relative importance of different stakeholder-oriented CSR dimensions varies according to the institutional, cultural, economic, and regulatory context in which firms operate. The theoretical value of the two non-significant paths is therefore not negative but discriminating: they show that stakeholder-oriented CSR dimensions are not interchangeable indicators of a single latent commitment, as an aggregate treatment of CSR would imply, and that the translation of a green strategic posture into environmental results depends on which stakeholder relationship carries it. Internal CSR appears to be a necessary but insufficient condition: it builds the capability base described by the NRBV, yet it produces measurable environmental results only where it is explicitly connected to environmental objectives, which is seldom the case in the Tunisian setting.

CONCLUSION

This study examined the direct relationships among green entrepreneurial orientation (GEO), three stakeholder-based dimensions of CSR, environmental performance, and environmentally sustainable development within the Tunisian business context. The research question can be answered directly. Green entrepreneurial orientation is significantly associated with all three dimensions of CSR, and most strongly with CSR toward consumers. Of those three dimensions, only CSR toward consumers and CSR toward communities are significantly associated with environmental performance and with environmentally sustainable development. CSR toward employees is associated with neither outcome. In the Tunisian context, therefore, a green entrepreneurial posture is related to environmental results through the firm's external stakeholder relationships rather than through its internal ones, and the three CSR dimensions cannot be treated as equivalent.

From a theoretical perspective, this study contributes to the literature by integrating three complementary theoretical lenses, each of which accounts for one block of hypotheses: the Natural Resource-Based View for the association between GEO and the three CSR dimensions, the Resource-Based View for their association with environmental performance, and Stakeholder Theory for their association with environmentally sustainable development. The contribution of the present results to that framework is that the three lenses do not apply uniformly across stakeholder groups: the capability argument of the NRBV holds for the adoption of CSR practices, but the resource and legitimacy arguments translate into measurable environmental outcomes only for the external dimensions.

From a managerial perspective, the findings suggest that managers should not rely solely on green entrepreneurial orientation, but should actively translate this strategic orientation into concrete CSR initiatives. In particular, they should prioritize consumer- and community-oriented CSR practices to enhance environmental performance and promote long-term environmentally sustainable development. Because the employee-oriented dimension was not significant, the appropriate managerial response is not to abandon internal CSR but to give it environmental content: environmental training, environmental objectives in performance appraisal, and the involvement of employees in eco-innovation, rather

than general welfare measures alone. For policymakers, the recommendations that follow from these results are specific. First, green finance instruments adapted to SMEs are needed, since the sample is dominated by small firms for which the initial cost of green technology is the binding constraint. Second, the reporting obligation created by Law No. 2018-35 should be coupled with verification and with incentives, because an obligation without sanction reinforces disclosure rather than practice. Third, public support for eco-labelling and for ISO 14001 certification would act on precisely the consumer-oriented channel that this study finds to be the most strongly associated with environmental performance.

This study also contributes analytically by empirically examining CSR as a multidimensional construct through three stakeholder-specific dimensions rather than treating CSR as a single aggregate concept. The disaggregation itself is not new, since the scales of Turker (2009) and Farooq et al. (2014) were designed on that principle; the contribution lies in estimating the three dimensions simultaneously against two distinct environmental outcomes in a North African setting, which makes their unequal contributions observable. This disaggregated approach provides a more nuanced understanding of how different CSR practices contribute differently to environmental performance and environmentally sustainable development.

In conclusion, this study shows that GEO is consistently associated with CSR practices, which in turn partially account for firms' environmental performance and environmentally sustainable development. Given that the proposed model implies indirect relationships, future research should explicitly test the mediating role of the three CSR dimensions between GEO, environmental performance, and environmentally sustainable development, which is the single most important extension of the present design. Moreover, future studies should consider adopting longitudinal designs, using more representative sampling techniques, and exploring additional moderating or mediating variables to improve the generalizability and deepen the understanding of these relationships.

Limitations and prospective research orientations

Although this study offers important insights, it is not without limitations. First, the study relies on convenience sampling, which prevents population-level inference about Tunisian firms; probabilistic sampling and larger samples would strengthen external validity. Second, the data are self-reported by a single informant per firm, which raises the possibility of common method bias. Harman's single-factor test and a full collinearity assessment both suggested that this bias is unlikely to be severe, but these procedures cannot eliminate it, and future work should combine survey data with objective environmental indicators, archival records or stakeholder assessments. Third, the design is cross-sectional, so the relationships reported here are associations and not causal effects, and the temporal dynamics through which green capabilities develop cannot be observed; longitudinal or multilevel designs are needed for that purpose. Fourth, the measurement instrument has three shortcomings that the present results make visible: the employee and community dimensions are measured by only two items each, several items are double-barrelled (GEO5 combines less-polluting materials with high-risk green projects, EP2 combines awareness-raising with process redesign, and EP4 combines quality with reputation), and the items of environmental performance and environmentally

sustainable development overlap conceptually, both referring to the reduced environmental impact of products and processes. Future studies should develop employee-oriented CSR items with explicit environmental content and should separate the two outcome constructs more sharply at the item level. Fifth, firm size and sector were not entered as control variables, although small service firms dominate the sample; a multi-group analysis contrasting manufacturing with services would test whether the pattern reported here is specific to low-footprint activities. Sixth, and most importantly, the conceptual model positions CSR practices as intermediate constructs, yet the specific indirect effects were not estimated. The hypotheses and the research question have accordingly been framed as direct associations in this version, and the formal test of mediation through bootstrapped specific indirect effects is identified as the priority extension of this work. Finally, comparative analyses across countries or sectors would clarify how firms mobilise green knowledge, stakeholder relationships and strategic partnerships to foster sustainable innovation.

REFERENCES

Achaku, M. M., Agbeaze, E. K., Ekoja, G. O., & Asortse, S. (2022). Green entrepreneurship and performance of small and medium enterprises in North-Central Nigeria. Environmental Economics, 13(1), 126–140. https://doi.org/10.21511/ee.13(1).2022.11

Adomako, S., & Nguyen, N. P. (2020). Interfirm collaboration and corporate social responsibility expenditure in turbulent environments: The moderating role of entrepreneurial orientation. Corporate Social Responsibility and Environmental Management, 27(6), 2668–2678. https://doi.org/10.1002/csr.1991

Ahn, J., & Kwon, J. (2020). CSR perception and revisit intention: The roles of trust and commitment. Journal of Hospitality and Tourism Insights, 3(5), 607–623. https://doi.org/10.1108/JHTI-02-2020-0022

Akbari, M., Mehrali, M., Seyyed Amiri, N., Rezaei, N., & Pourjam, A. (2020). Corporate social responsibility, customer loyalty and brand positioning. Social Responsibility Journal, 16(5), 671–689. https://doi.org/10.1108/SRJ-01-2019-0008

Albort-Morant, G., Leal-Millán, A., & Cepeda-Carrión, G. (2016). The antecedents of green innovation performance: A model of learning and capabilities. Journal of Business Research, 69(11), 4912–4917. https://doi.org/10.1016/j.jbusres.2016.04.052

Alvarado Herrera, A. (2008). Responsabilidad social empresarial percibida desde una perspectiva sostenicéntrica, y su influencia en la reputación de la empresa y en el comportamiento del turista [Doctoral dissertation, Universitat de València]. Dialnet. https://dialnet.unirioja.es/servlet/tesis?codigo=93816

Ameer, F., & Khan, N. R. (2023). Green entrepreneurial orientation and corporate environmental performance: A systematic literature review. European Management Journal, 41(5), 755–778. https://doi.org/10.1016/j.emj.2022.04.003

Amin, B. M. (2024). Positive effects of green HR practices on corporate social responsibility: Empirical evidence from Tunisian business. Asian Journal of Economics, Business and Accounting, 24(8), 204–216. https://doi.org/10.9734/ajeba/2024/v24i81451

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. Psychological Bulletin, 103(3), 411–423. https://doi.org/10.1037/0033-2909.103.3.411

Anser, M. K., Yousaf, Z., Majid, A., & Yasir, M. (2020). Does corporate social responsibility commitment and participation predict environmental and social performance? Corporate Social Responsibility and Environmental Management, 27(6), 2578–2587. https://doi.org/10.1002/csr.1977

Anwar, S. U., Xu, J., Yuan, P. Z., Su, K., Rehman, S. U., Hameed, M., Wen, M., & Li, F. (2024). Green entrepreneurial orientation and environmental performance: A moderated mediation perspective of perceived environmental innovation and stakeholder pressure. Scientific Reports, 14(1), 1–14. https://doi.org/10.1038/s41598-024-81885-y

Asadi, S., Pourhashemi, S. O., Nilashi, M., Abdullah, R., Samad, S., Yadegaridehkordi, E., Aljojo, N., & Razali, N. S. (2020). Investigating influence of green innovation on sustainability performance: A case on Malaysian hotel industry. Journal of Cleaner Production, 258, Article 120860. https://doi.org/10.1016/j.jclepro.2020.120860

Banerjee, S. B., Iyer, E. S., & Kashyap, R. K. (2003). Corporate environmentalism: Antecedents and influence of industry type. Journal of Marketing, 67(2), 106–122. https://doi.org/10.1509/jmkg.67.2.106.18604

Bansal, P. (2005). Evolving sustainably: A longitudinal study of corporate sustainable development. Strategic Management Journal, 26(3), 197–218. https://doi.org/10.1002/smj.441

Barnett, M. L. (2006). Finding a working balance between competitive and communal strategies. Journal of Management Studies, 43(8), 1753–1773. https://doi.org/10.1111/j.1467-6486.2006.00661.x

Barney, J. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17(1), 99–120. https://doi.org/10.1177/014920639101700108

Belz, F. M., & Binder, J. K. (2017). Sustainable entrepreneurship: A convergent process model. Business Strategy and the Environment, 26(1), 1–17. https://doi.org/10.1002/bse.1887

Bowen, H. R. (1953). Social responsibilities of the businessman. Harper & Brothers.

Brislin, R. W. (1986). The wording and translation of research instruments. In W. J. Lonner & J. W. Berry (Eds.), Field methods in cross-cultural research (pp. 137–164). Sage.

Broccardo, L., Culasso, F., Dhir, A., & Truant, E. (2023). Corporate social responsibility: Does it really matter in the luxury context? Corporate Social Responsibility and Environmental Management, 30(1), 105–118. https://doi.org/10.1002/csr.2341

Bux, H., Zhang, Z., & Ahmad, N. (2020). Promoting sustainability through corporate social responsibility implementation in the manufacturing industry: An empirical analysis of barriers using the ISM-MICMAC approach. Corporate

Social Responsibility and Environmental Management, 27(4), 1729–1748. https://doi.org/10.1002/csr.1920

Carroll, A. B. (1979). A three-dimensional conceptual model of corporate performance. Academy of Management Review, 4(4), 497–505. https://doi.org/10.5465/amr.1979.4498296

Carroll, A. B. (1991). The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders. Business Horizons, 34(4), 39–48. https://doi.org/10.1016/0007-6813(91)90005-G

Carroll, A. B. (1999). Corporate social responsibility: Evolution of a definitional construct. Business & Society, 38(3), 268–295. https://doi.org/10.1177/000765039903800303

Chen, M.-H., Lin, C.-P., Tian, L., & Yang, Y. (2017). A theoretical link between corporate giving and hospitality firm performance. International Journal of Hospitality Management, 66, 130–134. https://doi.org/10.1016/j.ijhm.2017.05.003

Chen, R., Espinosa-Cristia, J. F., Matac, L. M., Alzuman, A., & Comite, U. (2025). Does green entrepreneurial orientation impact entrepreneurial success through green innovation capability in the manufacturing and services sector of emerging economies? International Entrepreneurship and Management Journal, 21(1), Article 51. https://doi.org/10.1007/s11365-024-01059-0

Chen, Y. S. (2008). The driver of green innovation and green image: Green core competence. Journal of Business Ethics, 81(3), 531–543. https://doi.org/10.1007/s10551-007-9522-1

Chuang, S.-P., & Huang, S.-J. (2018). The effect of environmental corporate social responsibility on environmental performance and business competitiveness: The mediation of green information technology capital. Journal of Business Ethics, 150(4), 991–1009. https://doi.org/10.1007/s10551-016-3167-x

Cohen, B., & Winn, M. I. (2007). Market imperfections, opportunity and sustainable entrepreneurship. Journal of Business Venturing, 22(1), 29–49. https://doi.org/10.1016/j.jbusvent.2004.12.001

Cohen, J. (1992). A power primer. Psychological Bulletin, 112(1), 155–159. https://doi.org/10.1037/0033-2909.112.1.155

Dahlsrud, A. (2008). How corporate social responsibility is defined: An analysis of 37 definitions. Corporate Social Responsibility and Environmental Management, 15(1), 1–13. https://doi.org/10.1002/csr.132

Dai, X., Siddik, A. B., & Tian, H. (2022). Corporate social responsibility, green finance and environmental performance: Does green innovation matter? Sustainability, 14(20), Article 13607. https://doi.org/10.3390/su142013607

Dean, T. J., & McMullen, J. S. (2007). Toward a theory of sustainable entrepreneurship: Reducing environmental degradation through entrepreneurial action. Journal of Business Venturing, 22(1), 50–76. https://doi.org/10.1016/j.jbusvent.2005.09.003

De Roeck, K., & Farooq, O. (2018). Corporate social responsibility and ethical leadership: Investigating their interactive effect on employees' socially responsible behaviors. Journal of Business Ethics, 151(4), 923–939. https://doi.org/10.1007/s10551-017-3656-6

Deswanto, R. B., & Siregar, S. V. (2018). The associations between environmental disclosures with financial performance, environmental performance, and firm value. Social Responsibility Journal, 14(1), 180–193. https://doi.org/10.1108/SRJ-01-2017-0005

Elshaer, I. A., Azazz, A. M. S., & Fayyad, S. (2023). Green management and sustainable performance of small- and medium-sized hospitality businesses: Moderating the role of an employee's pro-environmental behaviour. International Journal of Environmental Research and Public Health, 20(3), Article 2244. https://doi.org/10.3390/ijerph20032244

Erauskin-Tolosa, A., Zubeltzu-Jaka, E., Heras-Saizarbitoria, I., & Boiral, O. (2020). ISO 14001, EMAS and environmental performance: A meta-analysis. Business Strategy and the Environment, 29(3), 1145–1159. https://doi.org/10.1002/bse.2422

Farooq, M., Farooq, O., & Jasimuddin, S. M. (2014). Employees response to corporate social responsibility: Exploring the role of employees' collectivist orientation. European Management Journal, 32(6), 916–927. https://doi.org/10.1016/j.emj.2014.03.002

Fatma, M., & Rahman, Z. (2015). Consumer perspective on CSR literature review and future research agenda. Management Research Review, 38(2), 195–216. https://doi.org/10.1108/MRR-09-2013-0223

Ferreira, P., & de Oliveira, E. R. (2014). Does corporate social responsibility impact on employee engagement? Journal of Workplace Learning, 26(3/4), 232–247. https://doi.org/10.1108/JWL-09-2013-0070

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of Marketing Research, 18(1), 39–50. https://doi.org/10.1177/002224378101800104

Freeman, R. E. (1984). Strategic management: A stakeholder approach. Pitman.

Freeman, R. E. (1999). Divergent stakeholder theory. Academy of Management Review, 24(2), 233–236. https://doi.org/10.5465/amr.1999.1893932

Guo, Y., Wang, L., & Chen, Y. (2020). Green entrepreneurial orientation and green innovation: The mediating effect of supply chain learning. SAGE Open, 10(1). https://doi.org/10.1177/2158244019898798

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. European Business Review, 31(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203

Hair, J. F., Jr., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2024). Advanced issues in partial least squares structural equation modeling (PLS-SEM) (2nd ed.). SAGE.

Hall, J. K., Daneke, G. A., & Lenox, M. J. (2010). Sustainable development and entrepreneurship: Past contributions and future directions. Journal of Business Venturing, 25(5), 439–448. https://doi.org/10.1016/j.jbusvent.2010.01.002

Hart, S. L. (1995). A natural-resource-based view of the firm. Academy of Management Review, 20(4), 986–1014. https://doi.org/10.5465/amr.1995.9512280033

Hart, S. L., & Dowell, G. (2011). A natural-resource-based view of the firm: Fifteen years after. Journal of Management, 37(5), 1464–1479. https://doi.org/10.1177/0149206310390219

Hendar, J. (2025). Reconstructing the paradigm of corporate social responsibility based on Pancasila and social justice. Journal of Social Entrepreneurship Theory and Practice, 4(2), 41–53. https://doi.org/10.31098/jsetp.v4i2.3557

Henseler, J., Dijkstra, T. K., Sarstedt, M., Ringle, C. M., Diamantopoulos, A., Straub, D. W., Ketchen, D. J., Jr., Hair, J. F., Hult, G. T. M., & Calantone, R. J. (2014). Common beliefs and reality about PLS: Comments on Rönkkö and Evermann (2013). Organizational Research Methods, 17(2), 182–209. https://doi.org/10.1177/1094428114526928

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Herrera Madueño, J., Larrán Jorge, M., Martínez Conesa, I., & Martínez-Martínez, D. (2016). Relationship between corporate social responsibility and competitive performance in Spanish SMEs: Empirical evidence from a stakeholders' perspective. BRQ Business Research Quarterly, 19(1), 55–72. https://doi.org/10.1016/j.brq.2015.06.002

Hockerts, K., & Wüstenhagen, R. (2010). Greening Goliaths versus emerging Davids: Theorizing about the role of incumbents and new entrants in sustainable entrepreneurship. Journal of Business Venturing, 25(5), 481–492. https://doi.org/10.1016/j.jbusvent.2009.07.005

Horbach, J., Oltra, V., & Belin, J. (2013). Determinants and specificities of eco-innovations compared to other innovations: An econometric analysis for the French and German industry based on the Community Innovation Survey. Industry and Innovation, 20(6), 523–543. https://doi.org/10.1080/13662716.2013.833375

Horng, J.-S., Hsu, H., & Tsai, C.-Y. (2018). An assessment model of corporate social responsibility practice in the tourism industry. Journal of Sustainable Tourism, 26(7), 1085–1104. https://doi.org/10.1080/09669582.2017.1388384

Hou, Y., Bello-Pintado, A., & García-Marco, T. (2025). Pay to be green? The effect of corporate social responsibility contracting on green innovation performance. BRQ Business Research Quarterly, 28(2), 421–437. https://doi.org/10.1177/23409444231189825

Huang, C.-J. (2010). Corporate governance, corporate social responsibility and corporate performance. Journal of Management & Organization, 16(5), 641–655. https://doi.org/10.1017/S1833367200001784

Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. (2019). Global assessment report on biodiversity and ecosystem services (E. S. Brondízio, J. Settele, S. Díaz, & H. T. Ngo, Eds.). IPBES Secretariat. https://doi.org/10.5281/zenodo.3831673

Intergovernmental Panel on Climate Change. (2023). Climate change 2023: Synthesis report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (Core

Writing Team, H. Lee & J. Romero, Eds.). IPCC. https://doi.org/10.59327/IPCC/AR6-9789291691647
Isaak, R. (2017). Green logic: Ecopreneurship, theory and ethics. Routledge.
International Organization for Standardization. (2015). ISO 14001:2015 Environmental management systems — Requirements with guidance for use. ISO.
Jamali, D., & Mirshak, R. (2007). Corporate social responsibility (CSR): Theory and practice in a developing country context. Journal of Business Ethics, 72(3), 243–262. https://doi.org/10.1007/s10551-006-9168-4
Jiang, W., Chai, H., Shao, J., & Feng, T. (2018). Green entrepreneurial orientation for enhancing firm performance: A dynamic capability perspective. Journal of Cleaner Production, 198, 1311–1323. https://doi.org/10.1016/j.jclepro.2018.07.104
Kock, N., & Hadaya, P. (2018). Minimum sample size estimation in PLS-SEM: The inverse square root and gamma-exponential methods. Information Systems Journal, 28(1), 227–261. https://doi.org/10.1111/isj.12131
Kraus, S., Rehman, S. U., & Sendra García, F. J. (2020). Corporate social responsibility and environmental performance: The mediating role of environmental strategy and green innovation. Technological Forecasting and Social Change, 160, Article 120262. https://doi.org/10.1016/j.techfore.2020.120262
Li, Y., Wei, Z., & Liu, Y. (2010). Strategic orientations, knowledge acquisition, and firm performance: The perspective of the vendor in cross-border outsourcing. Journal of Management Studies, 47(8), 1457–1482. https://doi.org/10.1111/j.1467-6486.2010.00949.x
Li, Y., Zhao, Y., Tan, J., & Liu, Y. (2008). Moderating effects of entrepreneurial orientation on market orientation-performance linkage: Evidence from Chinese small firms. Journal of Small Business Management, 46(1), 113–133. https://doi.org/10.1111/j.1540-627X.2007.00235.x
Long, X., Chen, Y., Du, J., Oh, K.-Y., Han, I., & Yan, J. (2017). The effect of environmental innovation behavior on economic and environmental performance of 182 Chinese firms. Journal of Cleaner Production, 166, 1274–1282. https://doi.org/10.1016/j.jclepro.2017.08.070
Lozano, R. (2008). Envisioning sustainability three-dimensionally. Journal of Cleaner Production, 16(17), 1838–1846. https://doi.org/10.1016/j.jclepro.2008.02.008
Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. Academy of Management Review, 21(1), 135–172. https://doi.org/10.5465/amr.1996.9602161568
Luo, H., & Qu, X. (2023). Impact of environmental CSR on firm's environmental performance, mediating role of corporate image and pro-environmental behavior. Current Psychology, 42(36), 32255–32269. https://doi.org/10.1007/s12144-022-04231-3
Makhloufi, L., Laghouag, A. A., Meirun, T., & Belaid, F. (2022). Impact of green entrepreneurship orientation on environmental performance: The natural resource-based view and environmental policy perspective. Business Strategy and the Environment, 31(1), 425–444. https://doi.org/10.1002/bse.2902

Malik, A., Khan, N., Faisal, S., Javed, S., & Faridi, M. R. (2020). An investigation on leadership styles for the business productivity and sustainability of small medium enterprises (SMEs). International Journal of Entrepreneurship, 24(5), 1–10.

Maráková, V., Wolak-Tuzimek, A., & Tučková, Z. (2021). Corporate social responsibility as a source of competitive advantage in large enterprises. Journal of Competitiveness, 13(1), 113–128. https://doi.org/10.7441/joc.2021.01.07

Martínez-Conesa, I., Soto-Acosta, P., & Palacios-Manzano, M. (2017). Corporate social responsibility and its effect on innovation and firm performance: An empirical research in SMEs. Journal of Cleaner Production, 142(4), 2374–2383. https://doi.org/10.1016/j.jclepro.2016.11.038

Martínez, P., & Nishiyama, N. (2019). Enhancing customer-based brand equity through CSR in the hospitality sector. International Journal of Hospitality & Tourism Administration, 20(3), 329–353. https://doi.org/10.1080/15256480.2017.1397581

Matten, D., & Moon, J. (2008). "Implicit" and "explicit" CSR: A conceptual framework for a comparative understanding of corporate social responsibility. Academy of Management Review, 33(2), 404–424. https://doi.org/10.5465/amr.2008.31193458

Muñoz, P., & Cohen, B. (2018). Sustainable entrepreneurship research: Taking stock and looking ahead. Business Strategy and the Environment, 27(3), 300–322. https://doi.org/10.1002/bse.2000

Muñoz, P., & Dimov, D. (2015). The call of the whole in understanding the development of sustainable ventures. Journal of Business Venturing, 30(4), 632–654. https://doi.org/10.1016/j.jbusvent.2014.07.012

Osei, F., Mercy, B., Kankam-Kwarteng, C., Ansong, S. B., & Owusu, A. (2026). Leveraging corporate social responsibility to strengthen customer-based brand equity in Ghana's hotel industry. Journal of Social Entrepreneurship Theory and Practice, 5(1), 16–41. https://doi.org/10.31098/jsetp.v5i1.3866

Pacheco, D. F., Dean, T. J., & Payne, D. S. (2010). Escaping the green prison: Entrepreneurship and the creation of opportunities for sustainable development. Journal of Business Venturing, 25(5), 464–480. https://doi.org/10.1016/j.jbusvent.2009.07.006

Padilla-Lozano, C. P., & Collazzo, P. (2022). Corporate social responsibility, green innovation and competitiveness: Causality in manufacturing. Competitiveness Review, 32(7), 21–39. https://doi.org/10.1108/CR-12-2020-0160

Parrish, B. D. (2010). Sustainability-driven entrepreneurship: Principles of organization design. Journal of Business Venturing, 25(5), 510–523. https://doi.org/10.1016/j.jbusvent.2009.05.005

Peković, S., & Vogt, S. (2020). The fit between corporate social responsibility and corporate governance: The impact on a firm's financial performance. Review of Managerial Science, 15(4), 1095–1125. https://doi.org/10.1007/s11846-020-00389-x

Peng, X., & Liu, Y. (2016). Behind eco-innovation: Managerial environmental awareness and external resource acquisition. Journal of Cleaner Production, 139, 347–360. https://doi.org/10.1016/j.jclepro.2016.08.051

Principles for Responsible Investment & United Nations Environment Programme Finance Initiative. (2010). Universal ownership: Why environmental externalities matter to institutional investors. PRI & UNEP FI.

Ramanathan, R. (2018). Understanding complexity: The curvilinear relationship between environmental performance and firm performance. Journal of Business Ethics, 149(2), 383–393. https://doi.org/10.1007/s10551-016-3088-8

Republic of Tunisia. (2018). Loi n° 2018-35 du 11 juin 2018, relative à la responsabilité sociétale des entreprises [Law No. 2018-35 of 11 June 2018 on corporate social responsibility]. Journal Officiel de la République Tunisienne, 48–49, 15 and 19 June 2018.

Roxas, B., & Coetzer, A. (2012). Institutional environment, managerial attitudes and environmental sustainability orientation of small firms. Journal of Business Ethics, 111(4), 461–476. https://doi.org/10.1007/s10551-012-1211-z

Sánchez-Infante Hernández, J. P., Yañez-Araque, B., & Moreno-García, J. (2020). Moderating effect of firm size on the influence of corporate social responsibility in the economic performance of micro-, small- and medium-sized enterprises. Technological Forecasting and Social Change, 151, Article 119774. https://doi.org/10.1016/j.techfore.2019.119774

Schaltegger, S., & Wagner, M. (2011). Sustainable entrepreneurship and sustainability innovation: Categories and interactions. Business Strategy and the Environment, 20(4), 222–237. https://doi.org/10.1002/bse.682

Schumpeter, J. A. (1934). The theory of economic development: An inquiry into profits, capital, credit, interest, and the business cycle. Harvard University Press.

Shabbir, M. S., & Wisdom, O. (2020). The relationship between corporate social responsibility, environmental investments and financial performance: Evidence from manufacturing companies. Environmental Science and Pollution Research, 27(32), 39946–39957. https://doi.org/10.1007/s11356-020-10217-0

Shah, S. H. A., Al-Ghazali, B. M., Bhatti, S., Aman, N., Fahlevi, M., Aljuaid, M., & Hasan, F. (2023). The impact of perceived CSR on employees' pro-environmental behaviors: The mediating effects of environmental consciousness and environmental commitment. Sustainability, 15(5), Article 4350. https://doi.org/10.3390/su15054350

Shahzad, M., Qu, Y., Javed, S. A., Zafar, A. U., & Rehman, S. U. (2020). Relation of environment sustainability to CSR and green innovation: A case of Pakistani manufacturing industry. Journal of Cleaner Production, 253, Article 119938. https://doi.org/10.1016/j.jclepro.2019.119938

Sharabati, A.-A. A. (2018). Effect of corporate social responsibility on Jordan pharmaceutical industry's business performance. Social Responsibility Journal, 14(3), 566–583. https://doi.org/10.1108/SRJ-12-2016-0221

Silajdžić, I., Kurtagić, S. M., & Vučijak, B. (2015). Green entrepreneurship in transition economies: A case study of Bosnia and Herzegovina. Journal of Cleaner Production, 88, 376–384. https://doi.org/10.1016/j.jclepro.2014.07.004

Simatupang, T. M., Schwab, A., & Lantu, D. C. (2015). Introduction: Building sustainable entrepreneurship ecosystems [Guest editorial]. International Journal of Entrepreneurship and Small Business, 26(4).

Skarmeas, D., Leonidou, C. N., & Saridakis, C. (2014). Examining the role of CSR skepticism using fuzzy-set qualitative comparative analysis. Journal of Business Research, 67(9), 1796–1805. https://doi.org/10.1016/j.jbusres.2013.12.010

Soomro, B. A., Almahdi, H. K., & Shah, N. (2021). Perceptions of young entrepreneurial aspirants towards sustainable entrepreneurship in Pakistan. Kybernetes, 50(7), 2134–2154. https://doi.org/10.1108/K-07-2019-0504

Suganthi, L. (2019). Examining the relationship between corporate social responsibility, performance, employees' pro-environmental behavior at work with green practices as mediator. Journal of Cleaner Production, 232, 739–750. https://doi.org/10.1016/j.jclepro.2019.05.295

Suganthi, L. (2020). Investigating the relationship between corporate social responsibility and market, cost and environmental performance for sustainable business. South African Journal of Business Management, 51(1), Article a1630. https://doi.org/10.4102/sajbm.v51i1.1630

Surroca, J., Tribó, J. A., & Waddock, S. (2010). Corporate responsibility and financial performance: The role of intangible resources. Strategic Management Journal, 31(5), 463–490. https://doi.org/10.1002/smj.820

Trudel, R., & Cotte, J. (2009). Does it pay to be good? MIT Sloan Management Review, 50(2), 61–68.

Tuan, L. T. (2023). Fostering green product innovation through green entrepreneurial orientation: The roles of employee green creativity, green role identity, and organizational transactive memory system. Business Strategy and the Environment, 32(1), 639–653. https://doi.org/10.1002/bse.3165

Tunisian Observatory of the Economy. (2022). CSR and human rights in Tunisia: A label law to the rescue of companies (CSR in Tunisia Policy Brief No. 7). Observatoire Tunisien de l'Économie. https://www.economie-tunisie.org/sites/default/files/rse-policy_brief_2-ms-cz-en.pdf

Turker, D. (2009). Measuring corporate social responsibility: A scale development study. Journal of Business Ethics, 85(4), 411–427. https://doi.org/10.1007/s10551-008-9780-6

United Nations. (2015). Transforming our world: The 2030 agenda for sustainable development. United Nations. https://sdgs.un.org/2030agenda

United Nations. (2024). The sustainable development goals report 2024. United Nations. https://unstats.un.org/sdgs/report/2024/

Wang, C. H. (2019). How organizational green culture influences green performance and competitive advantage: The mediating role of green innovation. Journal of Manufacturing Technology Management, 30(4), 666–683. https://doi.org/10.1108/JMTM-09-2018-0314

Wang, H., & Qian, C. (2011). Corporate philanthropy and corporate financial performance: The roles of stakeholder response and political access. Academy of Management Journal, 54(6), 1159–1181. https://doi.org/10.5465/amj.2009.0548

Weng, H. H. R., Chen, J. S., & Chen, P. C. (2015). Effects of green innovation on environmental and corporate performance: A stakeholder perspective. Sustainability, 7(5), 4997–5026. https://doi.org/10.3390/su7054997

Wong, S. K. S. (2013). Environmental requirements, knowledge sharing and green innovation: Empirical evidence from the electronics industry in China. Business Strategy and the Environment, 22(5), 321–338. https://doi.org/10.1002/bse.1746

Xiang, C., Chen, F., Jones, P., & Xia, S. (2021). The effect of institutional investors' distraction on firms' corporate social responsibility engagement: Evidence from China. Review of Managerial Science, 15(6), 1645–1681. https://doi.org/10.1007/s11846-020-00387-z

Yook, K. H., Choi, J. H., & Suresh, N. C. (2018). Linking green purchasing capabilities to environmental and economic performance: The moderating role of firm size. Journal of Purchasing and Supply Management, 24(4), 326–337. https://doi.org/10.1016/j.pursup.2017.09.001

Zhang, W., Wang, W., & Wang, S. (2014). Environmental performance evaluation of implementing EMS (ISO 14001) in the coating industry: Case study of a Shanghai coating firm. Journal of Cleaner Production, 64, 205–217. https://doi.org/10.1016/j.jclepro.2013.08.028

Zhang, X., Le, Y., Meng, Q., & Teng, X. (2023). Green entrepreneurial orientation and financial performance in Chinese firms: The role of stakeholder engagement and green absorptive capacity. Corporate Social Responsibility and Environmental Management, 30(3), 1082–1095. https://doi.org/10.1002/csr.2405