

Building a Sustainable Business Model: Incentives and Benefits for Adopting Green Entrepreneurship Practices

Dr. Pankaj Kumar

Assistant Professor, Department of Commerce, Government Degree College Lad Bharol, Distt. Mandi (H.P.) 175016

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ABSTRACT

This study examines sustainable business models (SBMs) as a strategic response to environmental pressure, changing consumer preferences and tightening regulation, and asks what incentives and benefits are associated with adopting green entrepreneurship practices. It uses a descriptive, document-based design. Company sustainability and annual reports for seven firms in six sectors (2019–2021), together with regional and industry reports, are analysed under a framework that draws on Stakeholder Theory, the Resource-Based View and Diffusion of Innovations Theory. The firms were selected purposively, and their figures are self-reported. The study therefore keeps its own findings apart from the arguments established in prior literature and treats the results as associations, not causal effects. The reported evidence points to cost savings, revenue growth in sustainability-linked lines, brand loyalty and operational resilience, but the benefits differ widely by sector and region and are hardest to realise in agriculture, energy and small firms. The study also considers cases in which sustainability investment does not yield immediate returns or conflicts with short-term business priorities, and it sets out why outcomes are difficult to compare across sectors. Recommendations are offered for SMEs, policymakers and future research.

Keywords: Sustainable Business Models, Green Entrepreneurship, Corporate Social Responsibility (CSR), Environmental Sustainability, Economic Impact of Sustainability, Secondary Data Analysis

INTRODUCTION

Background

Sustainability has moved from a marginal concern to a core element of strategic planning and long-term corporate viability (Smith & Jones, 2021). Climate change, seen in rising temperatures and extreme weather, affects supply chains, commodity prices and infrastructure stability (Doe et al., 2022). The depletion of natural resources, such as freshwater and critical minerals, forces firms to rethink resource dependence, product design and waste management (Brown, 2023). Market dynamics are also shifting: it is argued that companies integrating green practices show higher profitability and greater resilience to volatility (White & Green, 2022), and surveys suggest that many consumers prefer ethically sourced and sustainably made products, which affects purchasing decisions and brand loyalty (Kumar & Singh, 2021). Regulation has tightened in parallel. Governments have introduced carbon pricing, sustainability-reporting requirements, incentives for renewable energy and penalties for non-compliance (Lee et al., 2023), so firms must both adapt to these rules and embed environmental considerations in their strategies and processes to remain competitive and compliant (Zhao & Zhu, 2022). At the same time, the case for sustainability is not uniform. Returns may be slow, costs are often front-loaded, and environmental goals can conflict with short-term financial targets. This paper treats that tension as part of the question, not as a footnote.

Research Gap, Objectives and Research Questions

Much of the existing evidence is positive in tone and drawn from well-known frontrunner firms. Less attention has been paid to (a) separating what firm-level documents actually report from what the literature argues, (b) how far outcomes can be compared across sectors and regions, and (c) the conditions under which sustainability investment does not pay quickly. The study addresses this gap through four objectives, each linked to a research question (RQ).

- To document the economic, environmental and social outcomes that leading firms report from integrating sustainability into their business models (**RQ1**: What outcomes do firms report, and of what kind?).
- To examine how sector and geography shape the adoption of green practices and the barriers firms face (**RQ2**: How do sector, region and culture condition adoption?).
- To assess what the documents and the literature say about long-term impacts (**RQ3**: What long-term benefits are claimed, and how well are they evidenced?).
- To identify situations in which sustainability investments do not produce immediate financial returns or conflict with short-term business priorities, and to state the limits of cross-sector comparison (**RQ4**: Under what conditions does the business case weaken?).

Significance of the Study

The study offers a structured, transparent reading of publicly available evidence on incentives and benefits of green entrepreneurship. It is intended to help managers and entrepreneurs judge where sustainability is likely to pay and where it may not, to inform policy that supports sustainable business transformation, and to identify where stronger evidence is needed.

Structure of the Paper

Section 2 reviews the literature and states the arguments the paper builds on. Section 3 presents the conceptual framework and links it to the research questions. Section 4 explains the methodology, including how firms and reports were selected and interpreted. Section 5 reports the findings from the secondary data. Section 6 discusses those findings against the literature, including trade-offs and comparability limits. Sections 7 and 8 give the conclusion and recommendations.

REVIEW OF LITERATURE

This section sets out what prior studies argue. The arguments reviewed here are not findings of the present study. Section 5 reports the study's own evidence, and Section 6.1 compares the two.

Sustainable Business Models: Concept and Components

A sustainable business model (SBM) aims to deliver value to customers, stakeholders and the environment. It rests on economic efficiency, social equity and environmental accountability, and it goes beyond corporate social responsibility (CSR) by reshaping how value is created so that the firm can sustain operations and profitability without depleting natural resources or harming its community. SBMs are characterised by their ability to balance profitability with positive environmental and social impact, often requiring a fundamental reconfiguration of value creation (Hao & Dragomir, 2024). The Sustainable Business Model Design framework links SBM theory with practical design methods for sustainability innovation (Lüdeke-Freund et al., 2022). Five components recur in the literature and in company practice:

- **Resource efficiency:** using materials, energy and water more efficiently. Patagonia's use of recycled materials to reduce dependence on virgin resources is a commonly cited illustration.
- **Sustainable supply chains:** managing the chain from raw materials to finished goods against sustainability standards, as when Starbucks sources coffee from suppliers following sustainable farming practices.
- **Product lifecycle extension:** durable, repairable and recyclable design, as in Fairphone's repairable and upgradable smartphones.
- **Stakeholder engagement:** involving employees, customers, suppliers and communities, for example through local partnerships or product take-back programmes.
- **Environmental impact measurement:** regular measurement and target-setting, using frameworks such as the Global Reporting Initiative.

Arguments Established in the Literature

Four arguments are prominent. Each is summarised as the cited authors present it.

Sustainability and performance. Dyllick and Hockerts (2002) argue conceptually that corporate sustainability requires firms to look beyond a narrow business case and pursue economic, ecological and social sustainability together. Empirical work is often read as showing a positive link between sustainability and financial performance, especially in resource-intensive industries such as manufacturing and energy, because efficiency gains lower costs (White & Green, 2022).

Sustainable supply chains. Seuring and Müller (2008) review the literature and propose a conceptual framework for sustainable supply chain management. Strategies associated with this literature include supplier collaboration on environmental and social standards, investment in sustainable technologies and the integration of sustainability into procurement decisions, which are argued to support operational efficiency and overall performance.

Consumer demand. Studies of willingness to pay suggest that some consumer segments accept a premium for eco-labelled or ethically sourced goods, as in the study of eco-labelled apples by Loureiro et al. (2001). Such evidence is product-specific, so its transfer to other categories and markets should be treated with care. It is nevertheless used to argue that firms are pushed to adapt product lines and marketing towards environmental, social and governance (ESG) criteria.

Incentives and innovation. Tax incentives, subsidies for clean technologies and penalties for violations are widely argued to shape business practice and to offset the initial cost of green technologies (Lee et al., 2023). Schaltegger and Wagner (2011) link sustainable entrepreneurship and sustainability innovation to new market opportunities, and partnerships with governments and NGOs are said to give firms access to resources and knowledge that ease the transition.

Green Entrepreneurship: Incentives and Benefits

Green entrepreneurship is presented as a route to both economic growth and environmental stewardship (Haessler, 2020). By integrating environmentally responsible practices, it is argued to improve financial performance and market positioning (Tekala et al., 2024), and green innovation is associated with better organisational performance and competitive advantage (Hendratmoko, 2023). Green entrepreneurs are also said to contribute to job creation and community empowerment (Aini & Yuliaji, 2024), and by raising consumer awareness of eco-friendly products they may help reduce income disparity and support balanced regional development (Madhavi et al., 2024). Studies of Polish enterprises indicate that sustainable practices can strengthen competitiveness and innovation, particularly in the green economy and social dimensions

(Mazur et al., 2024). Partnerships are described as important for extending consumer reach and sustainability (M et al., 2024), and in the utility sector a hierarchical enabler framework identifies human capital and technological platforms as critical factors for sustainable performance (Arku et al., 2024).

Barriers, Tensions and Contested Evidence

The literature also records obstacles and unresolved tensions. A major barrier is the high initial cost of new technologies and process changes, although strategic investment is argued to pay back over the longer term (Schaltegger & Wagner, 2011). Organisational inertia can slow the adoption of SBMs (Hao & Dragomir, 2024), and regulatory complexity and resource constraints persist for green entrepreneurs. Haessler (2020) frames the core difficulty as a strategic decision between short-term profit and sustainability, which implies that immediate financial pressure can deter firms from committing fully.

The macro-level evidence is also mixed. Menegaki (2011), studying 27 European countries over 1997–2007, found no confirmed causal link between renewable energy consumption and GDP, and only a weak relationship, which is consistent with a neutrality hypothesis. The study did find short-run relationships between renewable energy and greenhouse gas emissions and employment. This is country-level evidence, not firm-level, but it cautions against assuming that environmental progress automatically produces economic gains.

A further interpretive difficulty is direction of causation. Firms with strong profits and spare resources may be better placed to invest in sustainability, so a positive association between the two does not by itself show that sustainability produced the profits. Studies of leading firms are also prone to selection effects, because successful cases are more likely to be reported and studied.

Summary and Gap

The literature supports a broadly favourable case for SBMs and green entrepreneurship, while acknowledging cost barriers, inertia and the tension between short-term and long-term goals. What is less developed is a transparent link between firm-level reported evidence and these arguments, a careful treatment of cross-sector comparability, and a focus on conditions under which the business case weakens. The present study addresses these three points.

CONCEPTUAL FRAMEWORK

The framework (Figure 1) places the sustainable business model, understood through the triple bottom line of economic, social and environmental performance, at the centre. Three theories act as analytical lenses, and each is tied to the part of the analysis it helps to interpret:

- **Stakeholder Theory** guides the reading of social and CSR outcomes, since it treats firm performance as dependent on relationships with employees, customers, suppliers and communities.
- **The Resource-Based View** guides the reading of economic outcomes, since it treats capabilities such as resource efficiency and green innovation as sources of competitive advantage.
- **Diffusion of Innovations Theory** guides the reading of sector and regional differences, since it explains why some industries and regions adopt green practices faster than others.

These lenses feed three analytical dimensions: performance outcomes (RQ1), sector-specific and geographic or cultural contexts (RQ2) and long-term impacts (RQ3). A fourth element, boundary conditions and trade-offs (RQ4), sits across all three, because delayed returns, conflicts with short-term priorities and limits to comparability qualify every finding. The end point of the framework is a balanced view of sustainability, meaning one that reports benefits together with the conditions under which they fail to appear.

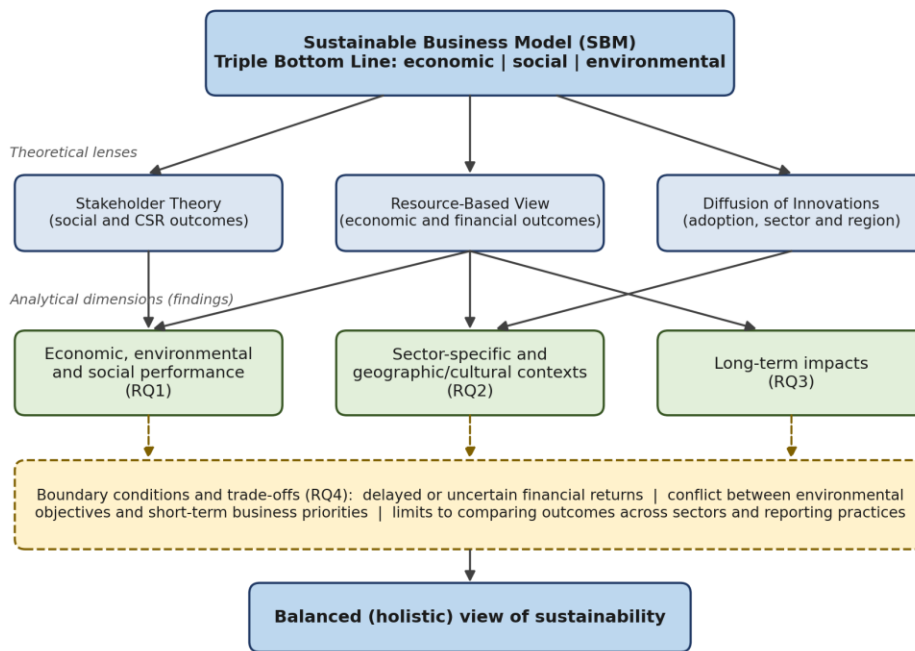


Figure 1: Conceptual framework of the study

Table 1 shows how each research question maps to the framework, the data used and the section in which the results appear. This mapping is the thread that connects the framework, the methodology and the findings.

Table 1: Linking research questions, framework, data and findings

Research question	Framework element	Data and method	Reported in
RQ1: What economic, environmental and social outcomes do leading firms report?	Triple bottom line; Stakeholder Theory; Resource-Based View	Seven firms' sustainability and annual reports; extraction and comparison of reported indicators	Sections 5.1–5.3 (Table 3)
RQ2: How do sector, region and culture condition adoption and barriers?	Diffusion of Innovations Theory	Regional and industry reports; sector groupings	Sections 5.4–5.6 (Tables 4–5)
RQ3: What long-term impacts are claimed, and how well are they evidenced?	Long-term impacts; Resource-Based View	Corporate reports and academic literature, read together	Section 5.7
RQ4: When does the business case weaken, and how comparable are outcomes?	Boundary conditions and trade-offs	Contrasting cases (BP, agriculture, SMEs), literature on short-term versus long-term tension	Sections 6.2–6.3 (Table 7)

METHODOLOGY

Research Design

The study uses a descriptive, document-based design built on secondary data. The indicators drawn from company documents are largely quantitative because firms report them that way (percentages, currency amounts), but the analysis is qualitative and interpretive: it involves systematic extraction, tabulation and

comparison, and no statistical testing or causal modelling. The findings are therefore descriptive and should be read as associations reported in documents.

Data Sources and Selection

Three groups of documents were used (Table 2). Keeping them separate allows the study to distinguish firm-reported evidence, institutional evidence and scholarly argument.

Table 2: Document set analysed

Group	Documents	Role in the analysis
Corporate reports	Unilever Sustainability Report (2020); Tesla Impact Report (2020); Google Sustainability Report (2020); Patagonia Sustainability Report (2021); IKEA Sustainability Report (2020); BP Annual Report (2020) and BP Sustainability Report (2020); Apple Environmental Progress Report (2021)	Source of firm-level indicators in Table 3 (RQ1)
Institutional and industry reports	European Union Green Deal Report (2021); US EPA Report on Electric Vehicles (2020); FAO Report (2020) and FAO Agricultural Innovation Report (2020); ILO Sustainability Report (2021); World Bank Report (2020); IEA Report on Energy Transition (2020) and on Electric Vehicles (2020); McKinsey Tech Industry Report (2021); Fashion Revolution Report (2021)	Source of regional and sector indicators in Tables 4 and 5 (RQ2)
Academic literature and whitepapers	Peer-reviewed studies and whitepapers listed in the References	Theoretical grounding, and comparison with findings in Section 6.1 (RQ3, RQ4)

Selection of firms: The seven firms were chosen purposively, not at random, using four criteria: (1) coverage of different sectors (consumer goods, automotive and energy products, technology, apparel, retail and home furnishings, and oil and gas); (2) global visibility and an established public reputation in sustainability debates or, in the case of BP, in the energy transition; (3) availability of a published sustainability, impact or annual report for 2019–2021 containing quantified indicators; and (4) inclusion of at least one firm moving from a carbon-intensive base, so that the sample is not made up only of frontrunners. Firms were not selected on the basis of their financial results.

Selection of reports: For each firm, the company's own report for the year shown in Table 3 was used. Regional and sector evidence was drawn from reports issued by international institutions, regulators and industry bodies covering the regions and sectors in Table 4, chosen because they are publicly available and report comparable sector-level information. Academic sources were identified through searches on sustainable business models, green entrepreneurship and related terms, and were retained where they addressed the constructs in Figure 1.

Data Extraction, Coding and Interpretation

The information was processed in five steps:

- **Extraction:** For each firm, the reported initiative and the indicators for economic impact (profit growth, cost savings), environmental impact (emissions, energy, waste) and social impact (CSR programmes, engagement) were recorded as stated in the source document, with the year of reporting.

- **Coding:** Each indicator was assigned to one of the three triple-bottom-line dimensions. Regional and sector material was coded for the main challenge, the example firms affected, the overcoming strategy and the reported adoption level.
- **Comparison:** Entries were compared within sectors and then across sectors, noting differences in metric type, baseline year, scope and reporting period.
- **Interpretation:** Each theory in Section 3 was applied to its designated dimension. Findings are described as reported or associated, never as caused, and a statement is marked as literature-based whenever it does not come from the documents analysed.
- **Triangulation:** Firm-level findings were checked against institutional reports and academic sources, and points of agreement and tension were recorded in Table 6.

Limits of the Method

Three limits shape how far the results can be pushed. First, the sample is purposive and small, so results cannot be generalised statistically. Second, company reports are self-reported, unaudited for this study and prepared for stakeholder audiences, so favourable framing is possible. Third, the firms differ in size, sector and reporting standards, so the indicators are not strictly like-for-like. Section 6.3 returns to the comparability problem, and Section 6.5 to the limitations of the study as a whole.

Findings from the Secondary Data

This section reports what the documents analysed show. Statements that rest on the literature rather than on these documents are attributed to their authors and are taken up in Section 6.

Firm-Level Economic Outcomes

Table 3: Financial and CSR performance in sustainable business models (secondary data)

Company	Sector	Sustainability initiative	Economic impact (profit growth, cost savings)	Environmental impact (CO2 reduction, energy savings)	Social impact (CSR programmes, employee engagement)	Source
Unilever	Consumer goods	Sustainable Living Brands	75% of company growth from sustainability brands (2015–2020)	31% reduction in carbon footprint across operations (2019)	High employee engagement, extensive community health programmes	Unilever Sustainability Report (2020)
Tesla	Automotive / energy	Renewable energy use, electric vehicles	56% revenue increase from energy products (2020)	Carbon neutral manufacturing, significant reduction in fossil fuel usage	High customer and investor satisfaction from innovation	Tesla Impact Report (2020)
Google	Technology	100% renewable energy	Operational cost savings from renewable	Achieved 100% renewable energy for global	Extensive philanthropic efforts through	Google Sustainability Report (2020)

		commitment	energy procurement	operations	Google.org	
Patagonia	Apparel	Sustainable supply chain, circular economy initiatives	Consistent growth, loyal customer base willing to pay premium	100% renewable energy powered operations (2021)	Active environmental activism, employee volunteer programmes	Patagonia Sustainability Report (2021)
IKEA	Retail	Investment in renewable energy, eco-friendly products	€1.2 billion in renewable energy savings (2020)	43% reduction in product waste, extensive use of recycled materials	High consumer trust, employee benefits related to sustainability	IKEA Sustainability Report (2020)
BP	Energy	Transition to low-carbon energy sources	\$500 million investment in renewables; oil and gas profits declining	Reduced emissions by 5% in renewable energy projects	Moderate engagement with green initiatives	BP Annual Report (2020)
Apple	Technology	Green manufacturing, closed-loop supply chain	30% reduction in operating costs through energy efficiency (2020)	Carbon-neutral for corporate operations globally (2020)	Strong corporate governance and community engagement	Apple Environmental Progress Report (2021)

Note: Figures are reproduced as stated in each company's report and have not been independently audited. Metrics, baselines and reporting years differ across firms, so the rows are not directly comparable (see Section 6.3).

Table 3 shows that five of the seven firms report a favourable economic effect, but the effects are of different kinds and cannot be added together: a share of company growth (Unilever), revenue growth in one division (Tesla), operating-cost or energy-cost savings (Google, IKEA, Apple), and pricing and loyalty effects (Patagonia). The strongest reported economic outcomes occur where sustainability is close to the core product or to a large energy cost line. BP is the contrasting case. Its report records a \$500 million investment in renewables alongside declining oil and gas profits, so no economic payoff is visible in the reporting period. The data therefore support the statement that many leading firms report economic benefits, but they do not show that sustainability caused those results, nor that other firms would obtain them.

Environmental Outcomes

The reports record substantial environmental gains, though on different scopes. Unilever reports a 31% reduction in its carbon footprint across operations, IKEA a 43% reduction in product waste, and Apple carbon neutrality for corporate operations, which by its wording excludes the wider value chain. Google and Patagonia report 100% renewable energy for their operations, and Tesla reports carbon neutral manufacturing and a shift away from fossil fuels. BP reports a 5% emissions reduction within its renewable projects and a \$500 million allocation to them, which reflects the slower transition of a firm dependent on

fossil fuels. Terms such as “100% renewable” and “carbon neutral” depend on how each firm defines its boundaries and any offsets, and these definitions vary.

Social Outcomes (CSR and ESG)

The reports describe CSR programmes and employee engagement alongside green initiatives. Patagonia emphasises environmental activism and employee volunteering, Unilever reports community health programmes, Apple reports community engagement and governance, and IKEA links employee benefits to sustainability. Social indicators in the reports are mostly descriptive (programmes, satisfaction, trust) and rarely quantified, which limits what can be inferred. The literature argues that ESG performance is increasingly treated as a key performance indicator and that strong ESG ratings are linked to long-run outperformance, but that link is not tested by the documents analysed here and is treated as a literature-based argument.

Sector-Specific Patterns

Technology and automotive: Technology firms such as Google and Apple report faster adoption, in an environment of high consumer demand for transparency and eco-friendly products, and have used internal resources and innovation to address technological barriers through renewable energy use and closed-loop supply chains. The automotive sector faces high upfront costs of transition and the need for wide charging infrastructure. Tesla is reported as a leader in diffusing electric vehicles, which suggests that early adoption can create competitive advantage, although the evidence here comes from one firm.

Manufacturing and agriculture: In manufacturing, IKEA is reported to have adopted eco-efficient production and waste-to-energy technologies. Smaller manufacturers, however, face high costs and technological investment needs. In agriculture, particularly in developing regions, FAO reports indicate that sustainable techniques are growing in popularity but that wide adoption remains slow because of economic constraints and resistance to change.

Geographic and Cultural Contexts

Table 4: Geographical and sector-specific challenges in adopting sustainable practices

Region	Sector	Key challenge	Example firms affected	Overcoming strategies	Source
Europe	Technology	High consumer demand for transparency	Google, Apple	Increased investment in renewable energy and sustainable materials	European Union Green Deal Report (2021)
North America	Automotive	Transition from fossil fuels, regulatory challenges	Tesla, General Motors	Expansion into electric vehicles and renewable energy procurement	US EPA Report on Electric Vehicles (2020)
Africa	Agriculture	High cost of green technology, weak infrastructure	Local smallholder farmers	Government subsidies and microfinancing for green technology	FAO Report (2020)
Asia	Manufacturing	Low consumer awareness, weak regulatory enforcement	Apparel firms (Bangladesh, Vietnam)	Partnerships with NGOs, increased global supply chain pressure	ILO Sustainability Report (2021)

Latin America	Mining and extractives	Environmental degradation, slow adoption of new technology	Mining companies (Brazil, Chile)	Stricter enforcement of environmental regulations, technology investment	World Bank Report (2020)
Middle East	Energy	Oil dependency, political and economic barriers	BP, Saudi Aramco	Investment in renewable energy and diversification	IEA Report on Energy Transition (2020)

Note: Each row pairs one region with one sector as presented in the cited report, so the table shows illustrative regional-sector cases, not a full regional profile.

Table 4 indicates that geography matters. Europe and North America show higher adoption of green practices, associated in the reports with strong regulatory frameworks, consumer demand and access to technology. In Europe, initiatives such as the European Green Deal provide incentives and frameworks for business, and in North America the technology and automotive sectors have a strong market for eco-friendly products. Firms in Africa and parts of Asia face weak regulatory frameworks, limited access to renewable energy and higher upfront costs. Agriculture in Africa faces high technology costs and infrastructure gaps, and manufacturing in Asia faces low consumer awareness and weak enforcement in countries such as Vietnam and Bangladesh. Governments are trying to close these gaps through subsidies and financing, but reported adoption remains lower than in developed regions.

Adoption of Green Innovation across Industries

Table 5: Adoption of green entrepreneurship and innovation diffusion

Industry	Type of green innovation	Innovation adoption rate	Key barriers	Examples of innovation	Source
Technology	Renewable energy, data centre efficiency	High	High energy demand, competitive pressure	Google using 100% renewable energy (2017)	McKinsey Tech Industry Report (2021)
Automotive	Electric vehicles, low-carbon manufacturing	Medium-High	High upfront costs, battery production constraints	Tesla leading electric vehicle market	IEA Report on Electric Vehicles (2020)
Apparel	Sustainable fabrics, circular economy	Medium	High cost of sustainable materials, limited innovation in supply chain	Patagonia's recycled fabric initiative	Fashion Revolution Report (2021)
Energy	Carbon capture, renewable energy (solar, wind, etc.)	Medium	Dependency on fossil fuels, economic constraints	BP investing in solar power	BP Sustainability Report (2020)
Agriculture	Sustainable farming techniques,	Low	High costs, limited technology access, resistance to	Sustainable crop rotation and organic	FAO Agricultural Innovation

	precision agriculture		change	farming in Kenya	Report (2020)
Manufacturing	Eco-efficient production, waste-to-energy technology	Medium	High initial costs, technological constraints	IKEA waste reduction and energy efficiency	IKEA Sustainability Report (2020)

Note: Adoption rates are the categorical ratings given in the cited reports. They were not computed by the author.

Table 5 shows a gradient consistent with Diffusion of Innovations Theory: adoption is rated high where firms have technical capacity, consumer pressure and cost incentives (technology), medium where costs and supply-chain constraints are moderate (automotive, apparel, energy and manufacturing), and low where costs are high and access is limited (agriculture). In each row the key barriers are cost, technology access or dependence on existing systems, which links this table to the barriers found in Table 4.

Long-Term Impacts as Reported

Corporate reports and academic publications describe long-term benefits, and they also acknowledge higher initial costs. Patagonia's and Unilever's reports describe a loyal customer base and consumers willing to pay a premium, and Tesla, IKEA and Google are described as using sustainability to drive innovation, streamline operations and reduce exposure to environmental or regulatory risk. Two cautions apply. The documents cover at most the years 2015–2021, which is too short to establish long-run payoffs, and no peer-benchmarked financial data were analysed, so the study cannot conclude that any firm outperformed its peers. The long-term benefits are therefore reported claims that are consistent with the literature, not demonstrated results.

SUMMARY OF FINDINGS

- **RQ1:** Most firms report economic, environmental and social gains, but the gains differ in kind, scope and measurement. BP reports no visible economic payoff in the period.
- **RQ2:** Adoption is highest in technology and in regions with strong regulation and consumer demand, and lowest in agriculture and in regions with weak enforcement or infrastructure. Cost is the most common barrier.
- **RQ3:** Long-term benefits such as loyalty, resilience and innovation are consistently claimed, but the time span and design of the evidence cannot confirm them.
- **RQ4:** The conditions under which the business case weakens, and the limits of comparison, are analysed in Section 6.

DISCUSSION

Findings in Relation to the Literature

Table 6 compares the arguments established in the literature (Section 2) with what the secondary data show (Section 5). It marks where the study's evidence is consistent with the literature, where it qualifies it, and where the study cannot test the argument.

Table 6: Literature arguments compared with findings from the secondary data

Argument in the literature	Evidence from this study's secondary data	Assessment	Where
Sustainability is associated with higher profitability and resilience (White & Green, 2022)	Five of seven firms report favourable economic effects; BP reports declining oil and gas profits during its transition; no peer-benchmarked profit data analysed	Partly consistent; causation not tested	5.1
Efficiency gains lower costs (Dyllick & Hockerts, 2002; Seuring & Müller, 2008)	Google, IKEA and Apple report cost or energy savings; figures are self-reported and use different bases	Consistent, with reporting caveats	5.1
Consumers pay a premium for green products (Loureiro et al., 2001; Kumar & Singh, 2021)	Patagonia and Unilever reports describe premium-paying, loyal customers; no price or sales data analysed	Consistent in narrative; not quantified	5.7
Incentives and regulation enable adoption (Lee et al., 2023)	European and North American cases pair adoption with regulatory frameworks; weak enforcement accompanies slower adoption in Asia and Africa	Consistent	5.5
Green innovation gives competitive advantage (Hendratmoko, 2023; Tekala et al., 2024)	Tesla and Google are reported as leaders in their fields; evidence is firm-specific	Consistent for frontrunners; not generalisable	5.4
Sustainability pays off over the long term (Schaltegger & Wagner, 2011)	Reports describe loyalty and resilience; period covered is 2015–2021 at most	Not testable with this data	5.7
Short-term profit and sustainability conflict (Haessler, 2020)	BP's investment alongside falling profits; high upfront costs in automotive, agriculture and SMEs	Consistent; supports RQ4	6.2

Two points follow. First, the study's own evidence is strongest for the descriptive claim that leading firms report economic, environmental and social benefits, and weakest for the causal and long-term claims that dominate the literature. Second, the parts of the literature that are consistent with the data are mostly those about frontrunner firms in well-regulated markets, so their reach to other contexts is uncertain.

When Sustainability Does Not Pay Immediately

A balanced reading must consider cases in which sustainability investments do not yield immediate financial returns, or in which environmental objectives conflict with short-term business priorities. The data and literature point to five such situations.

Transition costs before returns: BP illustrates a firm that commits capital to renewables while its core oil and gas profits decline. Capital committed to a lower-carbon business competes with returns from the existing business, and payback depends on future market and policy conditions that the firm does not control. Where reporting periods are short, this cost appears before any benefit.

High fixed and upfront costs: The automotive sector must fund electric-vehicle production, battery supply and charging infrastructure, and agriculture in developing regions faces high technology costs with limited financing (Tables 4 and 5). Smaller firms in manufacturing face the same barrier without the balance sheets of IKEA or Apple. For these firms the payback period may exceed their planning horizon.

Short-term targets versus long-term goals: Haessler (2020) describes the strategic choice between short-term profit and sustainability. Where managers are judged on quarterly or annual results, or where investors expect distributions, investments with delayed payback may be postponed or scaled back, and environmental targets may lose out to immediate financial ones. Organisational inertia can add to this pressure (Hao & Dragomir, 2024).

Weak macro-level links: Menegaki (2011) found only a weak relationship between renewable energy consumption and economic growth across European countries, which warns against assuming that environmental progress translates automatically into economic gains, even if firm-level cases differ.

Direction of causation and reporting bias: The firms in Table 3 are large and well resourced, so the association between sustainability and good results may partly reflect the capacity of successful firms to invest in it. Firms also choose what to disclose, and the strongest results are likely to be highlighted. Both effects would make the business case look stronger than it is for the average firm, and neither can be excluded with this design.

Together these points suggest that the business case is conditional. It is strongest where sustainability lowers a large existing cost (for example energy), where regulation and consumer demand reinforce it, and where the firm can absorb transition costs. It is weakest where costs are front-loaded, financing is limited, enforcement is weak or short-term performance pressure is high.

Limits of Comparing Sustainability Outcomes across Sectors

Table 3 places firms from six sectors side by side, and this invites comparison. Several features of the data limit how far such comparison can go (Table 7).

Table 7: Comparability issues and how they were handled

Issue	Why it limits comparison	Treatment in this study
Different metrics	Firms report growth shares, revenue increases, cost savings, waste reduction and emissions cuts, which are not commensurable	Indicators are compared by type and dimension, not ranked or summed
Different baselines, scope and years	A percentage reduction depends on the starting year and boundary; Apple's neutrality claim covers corporate operations, not the wider value chain	Year and scope are recorded and stated in the text; no cross-firm league table is drawn
Different materiality by sector	Emissions matter far more to an energy firm than to a software firm, so equal percentages carry different meaning	Firms are discussed within their sector context before cross-sector points are made
Different definitions of claims	"100% renewable" and "carbon neutral" depend on firm-specific definitions and use of offsets	Such claims are reported as company statements, not verified outcomes
Different regulatory and market settings	A firm in a strict regime faces different costs and incentives from one with weak enforcement	Regional context is analysed separately (Table 4)
Self-reporting and non-audited data	Firms select and frame the information they publish	Figures are labelled as reported, and institutional reports are used for triangulation

For these reasons the study draws conclusions about patterns within dimensions and contexts, and does not claim that one sector or firm is more sustainable or more profitable than another.

Theoretical and Practical Implications

Through the Resource-Based View, the reported cost savings and innovation suggest that green capabilities can become sources of advantage, but the BP and agriculture cases indicate that the advantage depends on the resources needed to build those capabilities. Through Stakeholder Theory, the reports show that firms treat CSR and engagement as part of their model, although the social evidence is largely descriptive. Through Diffusion of Innovations Theory, the sector and regional gradient in Tables 4 and 5 fits the view that adoption follows cost, capability and institutional support. In practice, firms should assess the payback period, financing and regulatory setting of each green investment, and policymakers should recognise that sectors and regions start from different positions.

Limitations of the Study

The study has the following limitations. The sample of seven firms is purposive and dominated by large, reputable firms. The data are secondary, self-reported and cover a short window of 2015–2021. The method is descriptive and cannot establish causation. Regional and sector evidence is presented as illustrative pairings of region and sector, not full profiles. Future research can address these limits through larger and randomly drawn samples, audited or third-party data, and longer time series.

CONCLUSION

This study examined incentives and benefits associated with adopting green entrepreneurship within sustainable business models, using company reports, institutional reports and academic literature. Its own evidence shows that leading firms report cost savings, revenue growth in sustainability-linked lines, environmental gains and stakeholder benefits, and that adoption is shaped by sector and region, with agriculture, energy and smaller firms facing the highest barriers. These results are consistent with much of the literature, but the study can support only descriptive statements: the sample is purposive, the data are self-reported, and the design cannot show that sustainability caused the reported outcomes.

The study also shows that the business case is conditional. Where costs are front-loaded, financing is limited, enforcement is weak or short-term pressure dominates, sustainability investments may not pay quickly, and environmental and financial objectives may conflict. Outcomes cannot be compared across sectors without care, because metrics, baselines and materiality differ. For green entrepreneurship to scale, supportive policy, access to green technology and consumer awareness need to be strengthened, and firms should plan investments with realistic payback horizons in mind.

RECOMMENDATIONS

Recommendations for SMEs

The findings suggest that small firms face the highest cost barriers, so the recommendations combine investment planning with employee engagement:

- **Phase investments:** Start with practices that lower existing costs, such as energy efficiency and waste reduction, before larger capital projects, and set realistic payback expectations.
- **Communicate the reasons for green practices:** and link them to benefits employees can see, such as health, workplace quality and professional growth.
- **Reward participation:** Introduce incentive programmes that recognise employees who promote green practices inside and outside the firm, and encourage employees to propose and own their own initiatives.
- **Widen the scope** beyond recycling and energy efficiency to sustainable sourcing and remote-work options, which can raise satisfaction and efficiency.

- **Gather and act on feedback** regularly on how green practices affect work and well-being, and include green practices in well-being programmes covering physical, mental and environmental health.

Recommendations for Policymakers

- **Subsidies and tax incentives** for SMEs that adopt wide-ranging sustainable practices, especially those needing large upfront investment, with attention to sectors such as agriculture where cost barriers are highest.
- **Clear, supportive regulation** that offers practical tools and resources as well as guidelines, and consistent enforcement, given the link between weak enforcement and slow adoption.
- **Comparable reporting standards** so that outcomes can be assessed across firms and sectors.
- **Public awareness campaigns** that support green businesses and strengthen customer loyalty for recognised green firms.

Recommendations for Future Research

- **Cultural and psychological factors:** include cultural influences, employee values and personal motivations to understand the drivers of awareness and engagement.
- **Economic impact studies** of specific green practices, giving firms a quantifiable basis for choosing among them.
- **Longitudinal research** on attitudes towards, and the effectiveness of, green practices over time, including cases where returns were delayed or absent.
- **Comparative studies** across industries within the SME sector, using audited or standardised data, to identify sector-specific challenges and opportunities.
- **Causal designs and broader samples** that address reverse causation and selection of successful firms.

REFERENCES

1. Brown, T. (2023). "Resource Scarcity and Its Impact on Sustainable Business Practices." *Journal of Environmental Economics and Management*, 29(3), 308-326.
2. Doe, R., et al. (2022). "Impact of Climate Change on Global Business Operations." *International Journal of Climate Change Strategies and Management*, 18(1), 45-67.
3. Dyllick, T., & Hockerts, K. (2002). Beyond the business case for corporate sustainability. *Journal of Cleaner Production*, 11(3), 245-260.
4. Kumar, V., & Singh, R. (2021). "Consumer Preferences for Green Products: An Empirical Study." *Journal of Consumer Marketing*, 38(1), 15-25.
5. Lee, H., et al. (2023). "Global Trends in Environmental Regulations and Their Impact on Business Practices." *Environmental Law and Management*, 25(2), 134-158.
6. Loureiro, M. L., McCluskey, J. J., & Mittelhammer, R. C. (2001). Assessing consumer preferences for organic, eco-labeled, and regular apples. *Ecological Economics*, 30(2), 287-303.
7. Menegaki, A. N. (2011). Growth and renewable energy in Europe: A random effect model with evidence for neutrality hypothesis. *Energy Policy*, 39(2), 200-210.
8. Schaltegger, S., & Wagner, M. (2011). Sustainable entrepreneurship and sustainability innovation: categories and interactions. *Business Strategy and the Environment*, 20(4), 222-237.
9. Seuring, S., & Müller, M. (2008). From a literature review to a conceptual framework for sustainable supply chain management. *Journal of Cleaner Production*, 16(15), 1699-1710.

10. Smith, J., & Jones, M. (2021). "Strategic Sustainability: Transitioning from Peripheral to Core." *Journal of Business Sustainability*, 15(2), 112-134.
11. White, S., & Green, P. (2022). "Economic Impacts of Sustainable Practices on Corporate Profitability and Resilience." *Business Strategy and the Environment*, 31(4), 202-219.
12. Zhao, Y., & Zhu, J. (2022). "Integrating Environmental Consciousness in Corporate Strategies: A Compliance Perspective." *Corporate Social Responsibility and Environmental Management*, 19(5), 273-290.
13. Aini, E. K., & Yuliaji, E. S. (2024). UNLOCKING BUSINESS GROWTH IN EAST JAVA'S SMES: THE SYNERGY OF KNOWLEDGE MANAGEMENT AND DYNAMIC CAPABILITIES FUELING INNOVATION AMBIDEXTERITY. *Jurnal Ekonomi Bisnis Dan Kewirausahaan*, 13(2), 215–234. <https://doi.org/10.26418/jebik.v13i2.76186>
14. Arku, J. K., Shao, Y., & Ankrah, S. T. (2024). Building a Hierarchical Enablers Framework for Service Business Model Innovation for Sustainable Performance: Evidence from Ghana's Electricity Sector. *Sustainability*, 16(8), 3191. <https://doi.org/10.3390/su16083191>
15. Haessler, P. (2020). Strategic Decisions between Short-Term Profit and Sustainability. *Administrative Sciences*, 10(3), 63. <https://doi.org/10.3390/admsci10030063>
16. Hao, N., & Dragomir, V. D. (2024). The characteristics and institutional factors of sustainable business models. *Proceedings of the . . . International Conference on Business Excellence*, 18(1), 2075–2085. <https://doi.org/10.2478/picbe-2024-0175>
17. Hendratmoko, S. (2023). Developing Green Sustainable Entrepreneurship for Competitive Advantages through Green Management. *Indonesian Journal of Business Analytics*, 3(6), 2163–2176. <https://doi.org/10.55927/ijba.v3i6.5972>
18. Lüdeke-Freund, F., Breuer, H., & Massa, L. (2022). Sustainable Business Model Design - 45 patterns. In *www.sustainablebusiness.design* (1st ed., Vol. 1). Lüdeke-Freund, Breuer & Massa. <https://www.sustainablebusiness.design>
19. M, M. A., Rakib, M., Isma, A., & Sanusi, D. A. (2024). Development of Sustainable Business Models through Internal Partnerships Efforts to Expand Consumer Reach. *International Journal of Current Science Research and Review*, 07(03). <https://doi.org/10.47191/ijcsrr/v7-i3-52>
20. Madhavi, T., Todwal, P., & Bhatt, D. (2024). Growing a Sustainable Future: Exploring the benefits and challenges of green entrepreneurship. *Communications on Applied Nonlinear Analysis*, 31(5), 67–78. <https://internationalpubs.com/index.php/cana/article/download/1000/704/1853>
21. Mazur, B., Walczyna, A., & Wilczewska, W. (2024). Sustainable business model implementation in Polish enterprises. *Sustainability*, 16(15), 6412. <https://doi.org/10.3390/su16156412>
22. Tekala, K., Baradarani, S., Alzubi, A., & Berberoğlu, A. (2024). Green Entrepreneurship for business sustainability: Do environmental dynamism and green structural capital matter? *Sustainability*, 16(13), 5291. <https://doi.org/10.3390/su16135291>