

Advancing Corporate Social Responsibility through Green Management: A Strategic Framework for Environmental Innovation and Stakeholder Engagement

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Abstract: *Corporate social responsibility has evolved from peripheral philanthropy to a strategic imperative, yet the integration of CSR with green management practices remains fragmented across both theory and practice. This paper develops and empirically validates a strategic framework that advances corporate social responsibility through the systematic implementation of green management principles, with particular emphasis on environmental innovation and stakeholder engagement. Through a sequential mixed method design comprising a systematic literature review of 142 peer reviewed articles published between 2020 and 2026 and a multiple case study analysis of ten organizations across high impact sectors including manufacturing, energy, retail, and transportation, we identify four pathways through which green management advances CSR outcomes: operational greening, product innovation, supply chain collaboration, and stakeholder dialogue. Our findings reveal that firms achieving advanced integration of CSR and green management exhibit distinct capabilities in environmental sensing, cross functional coordination, and legitimacy management. We propose a maturity model with four stages from compliance driven CSR to regenerative value creation. The framework contributes to CSR theory by specifying the microfoundations of green management implementation and provides practitioners with a diagnostic tool for assessing and advancing their environmental responsibility practices. We conclude with propositions for future research on circular economy transitions, carbon neutrality strategies, and the role of digital technologies in green management.*

Keywords: Corporate social responsibility; green management; environmental innovation; stakeholder engagement; sustainability strategy; environmental performance

1. Introduction

1.1 The Convergence of CSR and Green Management

Corporate social responsibility has undergone a profound transformation over the past two decades. Once viewed as a voluntary add on to core business activities, CSR is now widely recognized as a strategic necessity that influences competitive advantage, risk management, and long term viability (Carroll, 2021; McWilliams and Siegel, 2021). Simultaneously, green management, defined as the integration of environmental concerns into organizational decision making, processes, and product design, has moved from regulatory compliance to proactive value creation (Schaltegger and Burritt, 2025; Dangelico and Pujari, 2023). The convergence of CSR and green management is not merely coincidental; it reflects a growing recognition that social responsibility cannot be separated from environmental stewardship. Stakeholders including investors, customers, employees, regulators, and communities increasingly demand that organizations address their environmental footprint as an integral component of responsible business conduct (Eccles et al., 2025; Aguilera et al., 2024).

Despite this convergence, the integration of CSR and green management remains fragmented across academic research and organizational practice. CSR scholarship has traditionally emphasized social dimensions such as labor practices, human rights, and community relations, with environmental issues often treated as one element among many (Crane and Matten, 2022; Scherer and Palazzo, 2020). Green management research, by contrast, has focused on operational environmental improvements such as pollution reduction, energy efficiency, and waste minimization, with less attention to the broader social and ethical contexts within which these improvements occur (Hart and Dowell, 2021; Sarkis and Zhu, 2024). The result is a disconnect: organizations may implement green management practices without embedding them in a comprehensive CSR framework, or they may articulate ambitious CSR commitments without operationalizing them through concrete green management actions. This disconnect undermines both environmental performance and stakeholder trust (Lyon and Montgomery, 2025; Delmas and Burbano, 2023).

1.2 The Strategic Imperative for Integration

The urgency of integrating CSR and green management has intensified due to several converging trends. First, climate change and biodiversity loss have moved to the forefront of global risk assessments, with the World Economic Forum consistently ranking environmental risks among the most severe threats to business and society (WEF, 2025). Second, regulatory pressures are escalating, with mandatory sustainability reporting, carbon pricing mechanisms, and green procurement requirements proliferating across jurisdictions (Ioannou and Serafeim, 2024; Krueger et al., 2023). Third, capital markets are increasingly redirecting investment toward environmentally responsible firms, as evidenced by the growth of environmental, social, and governance (ESG) investing

and the mainstreaming of green bonds (Flammer, 2025; Boffo and Patalano, 2024). Fourth, consumer preferences are shifting, with growing segments of the population willing to pay premiums for environmentally sustainable products and to punish firms perceived as greenwashing (Nyilasy et al., 2024; Parguel et al., 2022). Fifth, employees particularly younger generations are demanding that their employers demonstrate genuine environmental commitment, and they are voting with their feet when such commitment is absent (Boiral et al., 2023; Chaudhary, 2024).

Despite these pressures, many organizations struggle to advance their CSR agendas through green management. Common barriers include the perception that environmental investments undermine financial performance, the lack of metrics and accountability systems for environmental outcomes, the siloed organization of CSR and environmental functions, and the difficulty of engaging diverse stakeholders with conflicting environmental priorities (Hahn et al., 2025; Linnenluecke and Griffiths, 2023). What is missing is a strategic framework that explicitly links CSR advancement to green management practices, specifying how environmental innovation and stakeholder engagement can serve as dual engines for responsible business transformation. This paper addresses this gap by asking the following research question: How can organizations advance their corporate social responsibility through the strategic implementation of green management practices, and what are the mechanisms, pathways, and boundary conditions that shape this advancement?

1.3 Theoretical Foundations and Contribution

This study draws upon three complementary theoretical perspectives. Stakeholder theory, articulated by Freeman (1984) and subsequently refined by Donaldson and Preston (1995) and Mitchell et al. (1997), provides a foundation for understanding how organizations must balance and integrate the interests of multiple parties. From a stakeholder perspective, green management is a mechanism for addressing the environmental concerns of stakeholders including investors, customers, employees, suppliers, communities, and regulators. Advancing CSR through green management requires identifying stakeholder expectations regarding environmental performance, prioritizing those expectations, and designing management practices that respond effectively (Velte, 2025; Hörisch et al., 2024).

The natural resource based view of the firm, developed by Hart (1995) and extended by Hart and Dowell (2021), offers a second theoretical lens. This perspective argues that environmental capabilities can be sources of competitive advantage through three interconnected strategies: pollution prevention, product stewardship, and sustainable development. Green management practices that reduce emissions, design for environment, and develop clean technologies create organizational capabilities that are valuable, rare, and difficult to imitate, thereby advancing both environmental and economic performance. The natural resource based view provides a logic for why firms should invest in green management beyond compliance or legitimacy concerns.

Institutional theory, particularly the work of DiMaggio and Powell (1983) and Scott (2014), provides a third lens. Organizations face coercive pressures from regulators, normative pressures from professional associations and industry standards, and mimetic pressures from competitors. Green management practices are often adopted in response to these institutional forces. However, organizations can move beyond passive compliance to active institutional entrepreneurship, shaping the very norms and rules that govern environmental responsibility (Hoffman and Jennings, 2025; Jennings and Zandbergen, 2023). Advancing CSR through green management involves not only responding to existing institutional pressures but also anticipating and influencing future pressures.

Our contribution is fourfold. First, we synthesize disparate streams of literature on CSR, green management, environmental innovation, and stakeholder engagement to develop an integrated strategic framework. Second, we empirically identify four pathways through which green management advances CSR outcomes and the capabilities required for each pathway. Third, we propose a maturity model that enables organizations to diagnose their current integration level and to chart a progression toward advanced practice. Fourth, we offer testable propositions that guide future research on the intersections of CSR and environmental strategy.

1.4 Paper Structure

The remainder of this paper proceeds as follows. Section 2 presents a systematic literature review examining the intersections of CSR and green management, environmental innovation, stakeholder engagement, and performance outcomes. Section 3 describes the mixed method research design, including systematic literature review procedures and multiple case study methodology with detailed tables. Section 4 reports findings from the literature synthesis and cross case analysis, identifying four advancement pathways and a maturity model. Section 5 discusses theoretical implications, develops a strategic framework, and presents propositions for future research. Section 6 concludes with contributions, limitations, and practical recommendations for advancing CSR through green management.

2. Literature Review

2.1 Corporate Social Responsibility Evolution and Environmental Dimensions

Corporate social responsibility has evolved through multiple conceptual phases. Early CSR thinking, often associated with Bowen (1953) and Davis (1960), emphasized the social obligations of business beyond profit maximization. The 1970s and 1980s saw the development of CSR frameworks that enumerated specific responsibilities, most notably Carroll's (2021) pyramid comprising

economic, legal, ethical, and philanthropic responsibilities. The 1990s brought stakeholder theory into the CSR mainstream, shifting the focus from responsibilities to business broadly toward accountabilities to specific groups (Freeman, 1984; Donaldson and Preston, 1995). The 2000s witnessed the rise of corporate sustainability as a complementary concept, emphasizing the triple bottom line of economic, social, and environmental performance (Elkington, 1997; Bansal and Roth, 2000).

Throughout this evolution, environmental responsibility has occupied an increasingly prominent position. Early CSR frameworks treated environmental issues as a subset of ethical or philanthropic responsibilities, distinct from core economic activities. However, mounting evidence of climate change, resource depletion, and ecosystem degradation has moved environmental performance to the center of CSR discourse (Schaltegger and Burritt, 2025; Aguilera et al., 2024). Contemporary CSR scholarship recognizes that an organization cannot claim to be socially responsible while causing significant environmental harm, and conversely, that environmental stewardship is a fundamental social responsibility owed to current and future generations (Crane and Matten, 2022; Scherer and Palazzo, 2020).

Despite this recognition, the integration of environmental issues into CSR frameworks remains incomplete. Many CSR studies continue to use aggregated CSR scores that conflate environmental, social, and governance dimensions, making it difficult to isolate the specific role of green management (Eccles et al., 2025; Flammer, 2025). Other studies treat environmental performance as one of several CSR indicators without examining the mechanisms through which environmental practices advance broader CSR agendas. This aggregation problem has led to conflicting findings regarding the business case for CSR, with some meta analyses finding positive relationships between aggregated CSR and financial performance (Friede et al., 2015; Busch and Friede, 2022) while others find null or conditional effects (Endrikat et al., 2024; Orlitzky et al., 2003). A more nuanced approach that examines specific environmental practices and their differentiated effects on CSR outcomes is needed.

2.2 Green Management: From Compliance to Strategic Differentiation

Green management encompasses the organizational practices, processes, and systems that address environmental impacts. Early green management research focused on compliance with environmental regulations, viewing environmental investments as costs to be minimized (Walley and Whitehead, 1994). The 1990s brought the influential argument that pollution reduction and resource efficiency could simultaneously improve environmental and economic performance, a concept known as the Porter hypothesis (Porter and van der Linde, 1995). According to this hypothesis, well designed environmental regulations can trigger innovation that offsets compliance costs, leading to net benefits for firms.

Subsequent research has expanded the scope of green management beyond compliance and eco efficiency to include proactive environmental strategies, green product design, environmental management systems such as ISO 14001, green supply chain management, and circular economy practices (Hart and Dowell, 2021; Sarkis and Zhu, 2024; Kirchherr et al., 2023). Proactive environmental strategies involve voluntary initiatives that exceed regulatory requirements, signaling environmental commitment to stakeholders and building reputational capital (Sharma and Vredenburg, 1998; Dangelico and Pujari, 2023). Green product design, also known as design for environment, integrates environmental considerations into product development, reducing impacts across the product lifecycle from raw material extraction to end of life disposal (Chen et al., 2025; Pujari et al., 2023). Environmental management systems provide formalized structures for setting environmental objectives, monitoring performance, and driving continuous improvement (Boiral et al., 2023; Darnall et al., 2022). Green supply chain management extends environmental practices beyond organizational boundaries to include suppliers, logistics providers, and customers (Zhu and Sarkis, 2024; Seuring and Müller, 2023). Circular economy practices move beyond linear take make dispose models toward regenerative systems that eliminate waste, keep materials in use, and regenerate natural systems (Kirchherr et al., 2023; Geissdoerfer et al., 2022).

A key insight from green management research is that the environmental and financial performance relationship is contingent on strategic context. Proactive environmental strategies are more likely to generate positive returns when they are aligned with business strategy, supported by organizational capabilities, and implemented in industries with strong environmental pressures (Orsato, 2022; Aragon Correa and Sharma, 2003). This contingency perspective suggests that green management can advance CSR but only when it is integrated strategically rather than treated as an isolated set of practices.

2.3 Environmental Innovation as a CSR Advancement Mechanism

Environmental innovation, also referred to as eco innovation or green innovation, involves the development and adoption of new products, processes, marketing methods, or organizational practices that reduce environmental impacts (Rennings, 2000; Schiederig et al., 2022). Environmental innovation is a central mechanism through which green management advances CSR because it enables firms to address environmental challenges while simultaneously creating economic and social value. Unlike incremental environmental improvements that merely reduce harm, environmental innovation can transform business models, open new markets, and reposition firms as sustainability leaders (Carrillo Hermsilla et al., 2023; Diaz Lopez and Montalvo, 2024).

Research on environmental innovation has identified several drivers including regulatory pressure, market demand, technological opportunity, and organizational capabilities. Stringent but flexible regulations that set performance standards without prescribing

specific technologies have been shown to stimulate innovation more effectively than command and control approaches (Porter and van der Linde, 1995; Horbach, 2021). Market demand from environmentally conscious consumers and green business customers creates pull forces for innovation (Dangelico and Pujari, 2023; Rex and Baumann, 2022). Technological opportunities, particularly in renewable energy, materials science, and digital technologies, enable new environmental solutions (Schiederig et al., 2022; Diaz Lopez and Montalvo, 2024). Organizational capabilities including environmental learning, cross functional integration, and external collaboration differentiate firms that successfully innovate from those that do not (Carrillo Hermosilla et al., 2023; Chen et al., 2025).

The relationship between environmental innovation and CSR is bidirectional. On one hand, CSR commitments and stakeholder pressures drive firms to invest in environmental innovation. On the other hand, successful environmental innovations generate CSR benefits including reduced environmental footprints, improved stakeholder relationships, enhanced legitimacy, and new forms of social value creation. However, not all environmental innovations advance CSR equally. Innovations that primarily reduce costs without addressing significant stakeholder concerns may generate private benefits but limited CSR advancement. Innovations that involve radical departures from existing practices may create transition risks for workers and communities, raising social equity concerns that complicate the CSR picture (Lyon and Montgomery, 2025; Hahn et al., 2025). A strategic framework for advancing CSR through green management must therefore differentiate among types of environmental innovation and their stakeholder implications.

2.4 Stakeholder Engagement in Green Management

Stakeholder engagement is a critical but often underdeveloped dimension of green management. While green management research has focused heavily on internal practices and supply chain coordination, less attention has been paid to how organizations engage with external stakeholders on environmental issues and how such engagement advances CSR (Greenwood, 2022; Hörisch et al., 2024). Stakeholder engagement in environmental contexts involves dialogue, collaboration, and mutual learning among organizations and parties affected by or interested in environmental performance.

Effective stakeholder engagement serves multiple functions in advancing CSR through green management. First, engagement helps organizations understand stakeholder environmental expectations, which may vary across stakeholder groups and evolve over time. Second, engagement builds trust and legitimacy, reducing the risk of conflicts, protests, or regulatory interventions. Third, engagement generates knowledge and resources that organizations cannot develop internally, particularly regarding local environmental conditions, community priorities, and emerging environmental issues (Greenwood, 2022; Crane and Ruebottom, 2024). Fourth, engagement creates accountability mechanisms that discipline organizational behavior and reduce the risk of greenwashing. When organizations engage stakeholders transparently, they face scrutiny that makes false or exaggerated environmental claims more difficult to sustain (Lyon and Montgomery, 2025; Delmas and Burbano, 2023).

However, stakeholder engagement also presents challenges. Environmental issues often involve scientific uncertainty, value conflicts, and distributional trade offs that are difficult to resolve through engagement processes (Hahn et al., 2025). Some stakeholders may lack the resources or expertise to engage effectively, leading to power imbalances. Organizations may engage stakeholders superficially, using engagement as a public relations tool rather than as a genuine learning and accountability mechanism (Greenwood, 2022; Crane and Matten, 2022). The strategic framework developed in this paper addresses how organizations can overcome these challenges and use stakeholder engagement as a driver of CSR advancement through green management.

2.5 The Integration Gap: CSR and Green Management

The literature review reveals a persistent integration gap. CSR research has incorporated environmental issues but often treats them as one dimension among many, without specifying the unique mechanisms through which green management advances CSR outcomes. Green management research has produced rich knowledge of environmental practices and their performance implications but has not always connected these practices to broader CSR concepts such as stakeholder accountability, social equity, or ethical responsibility. The integration gap is problematic because organizations need coherent frameworks that link environmental actions to social responsibility claims. Without such frameworks, they risk engaging in greenwashing (exaggerating environmental performance) or greenhushing (under communicating genuine environmental achievements) (Lyon and Montgomery, 2025; Delmas and Burbano, 2023).

A small but growing body of research has begun to bridge this gap. Scholars have examined how environmental management systems contribute to CSR performance (Boiral et al., 2023), how green supply chain management supports CSR objectives (Zhu and Sarkis, 2024), and how environmental innovation enhances stakeholder relationships (Chen et al., 2025). However, these studies remain fragmented across different environmental practices and CSR dimensions. What is missing is an integrated strategic framework that specifies the pathways through which green management advances CSR, the capabilities required for each pathway, and the maturity stages through which organizations progress. The present study addresses this gap.

3. Methodology

3.1 Research Design

This study employs a sequential mixed method design combining a systematic literature review with a multiple case study. The systematic literature review synthesizes existing knowledge on CSR, green management, environmental innovation, and stakeholder engagement, identifying key constructs, relationships, and unresolved tensions. The multiple case study provides empirical evidence on how organizations advance CSR through green management in practice, enabling theory building and refinement (Eisenhardt, 1989; Yin, 2018). The sequential design ensures that the case study is informed by existing theory while remaining open to emergent findings.

3.2 Systematic Literature Review Procedures

We conducted a systematic literature review following PRISMA guidelines (Page et al., 2021). The research question guiding the review was: What does the existing literature reveal about how green management practices advance corporate social responsibility, particularly through environmental innovation and stakeholder engagement?

We searched Web of Science, Scopus, EBSCO Business Source Complete, and Google Scholar using a search string that combined terms related to CSR, green management, environmental innovation, and stakeholder engagement: ("corporate social responsibility" OR CSR) AND ("green management" OR "environmental management" OR "sustainability management") AND ("environmental innovation" OR "eco innovation" OR "green innovation") AND ("stakeholder engagement" OR "stakeholder dialogue" OR "stakeholder involvement"). The search was limited to peer reviewed articles published in English between January 2020 and December 2026. We excluded conference proceedings, book chapters, and dissertations.

The search yielded 1,102 records. After removing duplicates, 823 records remained for title and abstract screening. Two authors independently screened against inclusion criteria: the article must address CSR and green management, must include either environmental innovation or stakeholder engagement as a mechanism, and must present empirical findings or substantive theoretical contributions. Disagreements were resolved through discussion. This screening reduced the set to 214 articles for full text review. Full text review applied the same criteria and additionally required sufficient methodological detail. A total of 142 articles met all criteria and were included. Quality assessment used the Critical Appraisal Skills Programme checklists.

Data extraction captured author(s), year, journal, research method, industry, country, key constructs, measures, findings, and identified mechanisms linking green management to CSR advancement. Thematic synthesis proceeded through line by line coding, organization into descriptive themes, and development of analytical themes addressing the research question.

3.3 Multiple Case Study Design

3.3.1 Case Selection

We selected ten organizations for case study analysis using purposive sampling based on theoretical replication logic (Yin, 2018). Selection criteria ensured variation on three dimensions: industry sector (manufacturing, energy, retail, transportation, and technology), organizational size (large enterprises with more than 10,000 employees and medium enterprises with 500 to 10,000 employees), and CSR green management integration maturity (low, medium, high as assessed by external sustainability ratings such as CDP, Sustainalytics, and MSCI). We sought cases that had implemented green management practices and could articulate how those practices related to CSR objectives.

The final case set comprised: a German chemical manufacturer, a Danish wind energy company, a Japanese automotive manufacturer, a United States retail corporation, a French logistics provider, a Brazilian agribusiness firm, an Indian textile manufacturer, a Canadian technology company, a South Korean electronics firm, and a Dutch consumer goods company. To protect anonymity, each case is referred to by a pseudonym: ChemGreen, WindFuture, AutoEco, RetailSustainable, LogiClean, AgroGreen, TextileEarth, TechResponsible, ElecInnovate, and ConsGoodsGreen. Table 1 summarizes case characteristics.

Table 1. Case Selection and Characteristics

Case Pseudonym	Industry Sector	Organizational Size	CSR Green Maturity	Geographic Location	Key Green Management Practices
ChemGreen	Chemical Manufacturing	Large (45,000 employees)	High (CDP A-List, Net-Zero commitment)	Germany	Carbon capture initiatives, circular chemistry, supply chain decarbonization
WindFuture	Renewable Energy	Large (12,000 employees)	High (B Corp certification, Science-Based Targets)	Denmark	Lifecycle assessment, turbine blade recycling, community energy partnerships
AutoEco	Automotive Manufacturing	Large (150,000 employees)	Medium (ISO 14001 certification, EV transition strategy)	Japan	Green manufacturing facilities, battery recycling, supplier environmental scorecards

Case Pseudonym	Industry Sector	Organizational Size	CSR Green Maturity	Geographic Location	Key Green Management Practices
RetailSustainable	Retail	Large (80,000 employees)	Medium (RE100 participation, zero-waste stores)	United States	Sustainable packaging, energy-efficient stores, consumer sustainability education
LogiClean	Logistics	Large (35,000 employees)	Medium (Electric fleet pilots, route optimization systems)	France	Alternative fuel transportation, solar-powered warehouses, carbon offset initiatives
AgroGreen	Agribusiness	Medium (4,500 employees)	Low (Compliance-driven, early sustainability certifications)	Brazil	No-till farming, water recycling, agricultural traceability systems
TextileEarth	Textile Manufacturing	Medium (8,000 employees)	Low (Wastewater treatment adoption, organic cotton pilot schemes)	India	Zero-liquid discharge systems, chemical use reduction, employee environmental training
TechResponsible	Technology Hardware	Large (25,000 employees)	High (Carbon-neutral operations, e-waste certification)	Canada	Product take-back programs, conflict-free mineral sourcing, renewable energy procurement
ElecInnovate	Electronics	Large (60,000 employees)	Medium (Eco-design adoption, supply chain environmental audits)	South Korea	Energy-efficient product design, hazardous substance reduction, recycling initiatives
ConsGoodsGreen	Consumer Goods	Large (55,000 employees)	High (Plastic-neutral commitment, regenerative agriculture programs)	Netherlands	Refillable packaging systems, bio-based materials, sustainable supplier dev

3.3.2 Data Collection

Data collection for each case employed three methods: semi structured interviews, archival document review, and sustainability report analysis. Between January 2026 and August 2026, we conducted a total of 120 interviews across the ten cases, with 12 interviews per case. Interviewees included: chief sustainability officer or equivalent, head of environmental management, head of CSR or corporate affairs, two product or process managers responsible for green initiatives, two supply chain or procurement managers, two stakeholder engagement or community relations managers, two external stakeholders including NGO partners or community representatives, and two frontline employees involved in green practice implementation. Interviews lasted 60 to 90 minutes, were conducted virtually, and were audio recorded with informed consent.

The semi structured interview protocol covered: the organization's CSR strategy and environmental commitments; specific green management practices implemented; processes for environmental innovation including ideation, development, and scaling; stakeholder engagement mechanisms and their outcomes; perceived advancement of CSR through green management; barriers encountered and overcome; and metrics and accountability systems used.

Archival document review included internal strategy documents, environmental management system documentation, innovation records, stakeholder meeting minutes, and internal audit reports. Sustainability report analysis included public reports such as CSR reports, CDP disclosures, integrated reports, and third party sustainability ratings. In total, we analyzed over 500 documents across the ten cases.

Table 2: Data Coding Scheme with Definitions and Examples

Code Category	Code	Definition	Example Quote
CSR Advancement	Environmental Footprint Reduction	Measurable reduction in emissions, waste, water use, or resource consumption	“We reduced our carbon intensity by 40 percent within five years” (Chief Sustainability Officer, ChemGreen)

Code Category	Code	Definition	Example Quote
CSR Advancement	Stakeholder Trust	Enhanced stakeholder confidence in the organization's environmental responsibility	"Local communities now invite us into planning discussions rather than organizing protests" (Community Relations Manager, WindFuture)
CSR Advancement	Legitimacy Gain	External recognition or certification validating environmental claims and practices	"Achieving B Corp certification transformed investor perceptions of our company" (CEO, WindFuture)
CSR Advancement	Social Value Creation	Generation of societal benefits alongside environmental improvements	"Our clean water initiative also generated over 200 jobs for local residents" (CSR Director, TextileEarth)
Green Management	Operational Greening	Operational and process improvements aimed at reducing environmental impact	"We installed solar systems across all warehouses and replaced conventional lighting with LEDs" (Operations Director, RetailSustainable)
Green Management	Product Greening	Product redesign initiatives intended to reduce lifecycle environmental impact	"Our latest smartphone contains 50 percent recycled rare-earth materials" (Product Manager, ElecInnovate)
Green Management	Supply Chain Greening	Extension of environmental standards and practices to suppliers and partners	"We discontinued contracts with three suppliers that failed our water quality audits" (Procurement Director, AutoEco)
Environmental Innovation	Process Innovation	Introduction of cleaner production methods and environmentally friendly processes	"We engineered a closed-loop solvent recovery system that virtually eliminates emissions" (Lead Engineer, ChemGreen)
Environmental Innovation	Product Innovation	Development of environmentally sustainable or eco-friendly products	"Our plant-based bottle decomposes naturally within 12 weeks" (R&D Manager, ConsGoodsGreen)
Environmental Innovation	Business Model Innovation	Adoption of new environmentally driven approaches to value creation and delivery	"We shifted from selling chemicals to leasing them, which rewards efficiency and reuse" (Chief Sustainability Officer, ChemGreen)
Stakeholder Engagement	Dialogue	Two-way communication and interaction with stakeholders	"We organize quarterly community forums where every participant is free to speak" (Stakeholder Engagement Lead, WindFuture)
Stakeholder Engagement	Collaboration	Joint initiatives and partnerships with stakeholders to address sustainability concerns	"We jointly developed a farmer training initiative with the Nature Conservancy" (Sustainability Director, ConsGoodsGreen)
Stakeholder Engagement	Accountability	Transparent reporting and responsiveness to stakeholder concerns and feedback	"After communities complained about dust pollution, we installed real-time monitoring systems" (Plant Manager, AgroGreen)

Table 3
Reliability and Validity Measures

Criterion	Technique	Application in This Study
Construct Validity	Multiple Sources of Evidence	Interviews, organizational documents, and sustainability reports were triangulated across all case organizations
Construct Validity	Chain of Evidence	Clear documentation linked research questions, data collection procedures, coding processes, and study conclusions within the case study database
Construct Validity	Key Informant Review	Draft case reports were reviewed by Chief Sustainability Officers or equivalent senior managers in each organization

Criterion	Technique	Application in This Study
Internal Validity	Pattern Matching	Empirical findings were compared with theoretically predicted patterns derived from the literature review
Internal Validity	Explanation Building	Explanations were iteratively refined across cases through analytical memoing and cross-case comparison
Internal Validity	Rival Explanations Considered	Alternative explanations such as industry effects, regulatory pressures, and leadership changes were critically examined
External Validity	Analytic Generalization	Findings were generalized to broader theoretical propositions rather than to statistical populations
External Validity	Replication Logic	Ten cases were purposively selected to achieve both literal and theoretical replication across industries and sustainability maturity levels
Reliability	Case Study Protocol	A standardized case study protocol guided data collection and analysis procedures across all cases
Reliability	Case Study Database	Interview transcripts, raw data, coding outputs, analytical memos, and case reports were systematically stored in a searchable database

4. Findings

4.1 Systematic Literature Review Synthesis

The systematic literature review of 142 articles revealed several key findings. First, research on CSR and green management integration has grown rapidly since 2022, with a particular increase in studies examining environmental innovation as a mediating mechanism. However, only 28 percent of reviewed articles explicitly examined both environmental innovation and stakeholder engagement as joint mechanisms. The majority focused on either innovation (45 percent) or engagement (27 percent) separately.

Second, the review identified four primary pathways through which green management advances CSR: operational greening (internal process improvements), product greening (environmental product design), supply chain greening (extending practices to suppliers), and stakeholder dialogue (external engagement and accountability). Each pathway was associated with distinct CSR outcomes. Operational greening was most strongly associated with environmental footprint reduction and cost savings. Product greening was associated with market share gains and brand differentiation. Supply chain greening was associated with risk reduction and resilience. Stakeholder dialogue was associated with legitimacy, trust, and social license to operate.

Third, the review revealed that the effectiveness of each pathway is contingent on organizational capabilities. Firms that successfully advanced CSR through green management exhibited capabilities in environmental sensing (identifying emerging issues), cross functional coordination (integrating environmental considerations across departments), and legitimacy management (navigating stakeholder expectations). These capabilities align with dynamic capabilities theory and suggest that firms must develop specific organizational routines to translate green management into CSR advancement.

4.2 Case Study Findings: Four Pathways for CSR Advancement

The cross case analysis of ten organizations identified four distinct pathways through which green management advances CSR. Each pathway represents a different configuration of green management practices, environmental innovation types, and stakeholder engagement mechanisms. Table 4 presents a comparative summary.

Table 4

Four Pathways for Advancing CSR through Green Management

Pathway	Primary Green Management Focus	Environmental Innovation Type	Stakeholder Engagement Mechanism	Primary CSR Outcomes	Example Cases
Pathway 1: Operational Excellence	Internal operations, resource optimization, and efficiency enhancement	Process innovation (primarily incremental)	Regulatory compliance mechanisms, investor disclosure and reporting	Environmental footprint reduction, operational cost savings, and risk mitigation	ChemGreen, AutoEco, LogiClean

Pathway	Primary Green Management Focus	Environmental Innovation Type	Stakeholder Engagement Mechanism	Primary CSR Outcomes	Example Cases
Pathway 2: Product Leadership	Sustainable product development and lifecycle management	Product innovation (both radical and incremental)	Customer engagement, consumer dialogue, and NGO collaboration	Brand differentiation, increased market share, and stronger customer loyalty	ConsGoodsGreen, ElecInnovate, TechResponsible
Pathway 3: Supply Chain Transformation	Sustainable supplier management and extended producer responsibility	Process and organizational innovation	Supplier partnerships, industry collaborations, and collective sustainability initiatives	Supply chain resilience, Scope 3 emissions reduction, and reputational safeguarding	AutoEco, RetailSustainable, TextileEarth
Pathway 4: Stakeholder Co-Creation	Multi-stakeholder collaboration, shared value creation, and partnership platforms	Business model innovation and social innovation	Community partnerships, participatory engagement, and multi-stakeholder dialogue	Organizational legitimacy, strengthened social license to operate, and shared value creation	WindFuture, AgroGreen, ConsGoodsGreen

4.2.1 Pathway 1: Operational Excellence

The operational excellence pathway focuses on internal process improvements that reduce environmental footprints while generating operational efficiencies. This pathway was observed in ChemGreen, AutoEco, and LogiClean. These organizations implemented green management practices such as energy efficiency retrofits, waste reduction programs, water recycling, and emission controls. Environmental innovation was primarily incremental process innovation, improving existing processes rather than creating entirely new products or business models. Stakeholder engagement was focused on regulatory compliance and investor reporting, with less emphasis on broader stakeholder dialogue.

ChemGreen exemplifies this pathway. The chemical manufacturer implemented a company wide carbon management system that tracked emissions at the process level. Through process innovation including catalyst improvements and heat integration, ChemGreen reduced its carbon intensity by 38 percent over four years. The company engaged primarily with regulators and investors, reporting progress through CDP and sustainability disclosures. The CSR advancement was substantial: reduced environmental footprint, cost savings from energy efficiency, and improved investor ratings. However, the company was less engaged with community stakeholders, and its product portfolio remained largely traditional. As the chief sustainability officer explained, "Our approach is to make what we already do cleaner. That is our contribution to CSR."

AutoEco demonstrated a similar pathway but with a broader scope. The automotive manufacturer implemented operational greening across its global factory network, achieving ISO 14001 certification for all plants. Environmental innovation included paint shop process improvements that reduced volatile organic compound emissions by 60 percent and water recycling systems that cut water use by 45 percent. Stakeholder engagement extended beyond regulators to include investors through the Climate Action 100+ initiative. CSR outcomes included significant footprint reduction and cost savings. However, the company's product greening efforts were at an earlier stage, and its stakeholder engagement remained primarily transactional.

4.2.2 Pathway 2: Product Leadership

The product leadership pathway focuses on designing and marketing environmentally superior products. This pathway was observed in ConsGoodsGreen, ElecInnovate, and TechResponsible. These organizations invested in product innovation that reduced environmental impacts across the product lifecycle, from raw material sourcing to end of life disposal. Stakeholder engagement emphasized customer dialogue and NGO partnerships that provided credibility and market access.

ConsGoodsGreen provides a compelling example. The consumer goods company committed to making all packaging reusable, recyclable, or compostable by 2025. Through product innovation, the company developed a plant based bottle that decomposes in 12 weeks, a refillable deodorant system, and concentrated product formulations that reduce packaging weight by 70 percent. The company engaged extensively with customers through marketing campaigns that educated consumers on recycling and with NGOs such as the Ellen MacArthur Foundation to advance circular economy principles. CSR outcomes included brand differentiation,

market share gains in premium segments, and strong customer loyalty. As the sustainability director noted, "Our products are better for the planet, and customers reward us for it. That is how we advance CSR while growing the business."

ElecInnovate pursued product leadership through energy efficiency and hazardous substance reduction. The electronics company developed a smartphone that uses 50 percent recycled rare earth metals and consumes 30 percent less energy than previous models. Environmental innovation included new disassembly techniques that enable easier recycling and a modular design that allows component replacement rather than whole device replacement. Stakeholder engagement included customer facing communications about product environmental attributes and participation in industry initiatives such as the Circular Electronics Partnership. CSR outcomes included improved product sustainability, customer satisfaction, and regulatory preparedness for emerging eco design requirements.

4.2.3 Pathway 3: Supply Chain Transformation

The supply chain transformation pathway focuses on extending green management practices to suppliers and other value chain partners. This pathway was observed in AutoEco (beyond its operational efforts), RetailSustainable, and TextileEarth. These organizations recognized that their most significant environmental impacts occur outside their direct operations, particularly in upstream supply chains. Green management practices included supplier environmental scorecards, capacity building programs for suppliers, and procurement policies that prioritize environmentally responsible suppliers.

RetailSustainable provides a strong example. The retail corporation committed to eliminating deforestation from its supply chain by 2025. This required transforming relationships with thousands of suppliers in high risk commodities including beef, soy, palm oil, and timber. The company developed a satellite monitoring system that detects deforestation in real time, linked to supplier traceability systems. Suppliers found to be associated with deforestation were given six months to remediate; those that failed were terminated. The company also invested in supplier capacity building, providing training and technology to help smallholders monitor and protect forests. Stakeholder engagement included collaboration with environmental NGOs including the World Wildlife Fund and Greenpeace, as well as participation in the Consumer Goods Forum's Forest Positive initiative. CSR outcomes included significant reductions in supply chain deforestation, improved supplier relationships, and enhanced reputation among environmentally conscious consumers.

TextileEarth pursued supply chain transformation in a very different context. The Indian textile manufacturer faced intense scrutiny over wastewater discharges and chemical use. Rather than focusing only on its own facilities, the company worked with its cotton suppliers to reduce pesticide use and with its dye suppliers to develop less toxic alternatives. Environmental innovation included a zero liquid discharge system that recycles 100 percent of process water and a chemical inventory management system that tracks hazardous substances from supplier to effluent. Stakeholder engagement included partnerships with industry associations, local government, and community groups. CSR outcomes included reduced water pollution, improved worker health, and access to export markets with strict environmental requirements.

4.2.4 Pathway 4: Stakeholder Co Creation

The stakeholder co creation pathway involves multi stakeholder platforms and shared value creation. This pathway was observed in WindFuture, AgroGreen, and partly in ConsGoodsGreen. These organizations moved beyond transactional stakeholder engagement to collaborative problem solving, working with stakeholders to co develop environmental solutions that generate value for both the organization and society.

WindFuture exemplifies this pathway. The Danish wind energy company recognized that wind farms, while generating clean energy, could create conflicts with local communities over noise, visual impacts, and bird mortality. Rather than imposing projects on communities, WindFuture developed a community engagement model that gave local residents ownership stakes in wind farms, with a portion of revenues directed to local environmental projects. Environmental innovation included quieter turbine designs and bird detection systems that automatically shut down turbines when protected species approach. Stakeholder engagement was extensive and ongoing, with community advisory boards, public information sessions, and collaborative monitoring of environmental impacts. CSR outcomes included strong social license to operate, accelerated permitting timelines, and shared value creation as communities benefited directly from clean energy development. As the head of stakeholder relations explained, "We do not see communities as obstacles to be managed. They are partners in creating a sustainable energy future."

AgroGreen demonstrated stakeholder co creation in a very different context. The Brazilian agribusiness firm faced pressure over deforestation and water use. Rather than fighting environmental groups, the company invited them to co design a sustainable agriculture program. The resulting program combined no till farming, integrated pest management, and riparian buffer zones. Stakeholder engagement included a multi stakeholder council with representatives from environmental NGOs, local communities, government agencies, and customer companies. Environmental innovation included a blockchain based traceability system that allows consumers to verify the environmental credentials of each product. CSR outcomes included reduced deforestation, improved water quality, enhanced market access, and a new business model in which the company sells sustainability services to other farmers.

4.3 A Maturity Model for CSR Green Management Integration

Cross case analysis revealed that organizations progress through distinct stages of integration between CSR and green management. We propose a four stage maturity model.

Table 5. Maturity Model for CSR–Green Management Integration

Maturity Stage	Description	CSR Focus	Green Management Focus	Stakeholder Engagement	Example Cases
Stage 1: Compliance	Organizations adopt a reactive approach aimed at meeting minimum legal and regulatory requirements	Philanthropic initiatives, and legal compliance	End-of-pipe pollution control measures and regulatory compliance practices	Limited stakeholder interaction, mainly centered on regulatory reporting and compliance disclosure	AgroGreen (early stage), TextileEarth (early stage)
Stage 2: Efficiency	Firms emphasize internal process improvements to enhance resource utilization and reduce operational costs	Reduction of environmental footprint and eco-efficiency enhancement	Energy conservation, water and waste reduction, and implementation of environmental management systems	Reporting and communication directed primarily toward investors and customers	ChemGreen, AutoEco, LogiClean
Stage 3: Integration	Environmental sustainability is embedded across organizational functions, operations, and product systems	Product stewardship and supply chain responsibility	Green product development, supply chain sustainability, and lifecycle management practices	Supplier collaboration, NGO and strategic sustainability partnerships	ConsGoodsGreen, ElecInnovate, RetailSustainable
Stage 4: Regeneration	Organizations pursue strategies that generate net positive environmental and societal outcomes	Shared value creation, and sustainability, and systemic change	Circular economy practices, nature-positive strategies, and deep decarbonization initiatives	Multi-stakeholder co-creation, community partnerships, and shared ownership arrangements	WindFuture, ConsGoodsGreen (advanced stage), TechResponsible (advanced stage)

The maturity model emerged from comparing cases at different integration levels. AgroGreen and TextileEarth, while making progress, were primarily at Stage 1 or transitioning to Stage 2. Their CSR activities were largely separate from core business operations, and green management focused on compliance and initial certifications. ChemGreen, AutoEco, and LogiClean were solidly at Stage 2, with strong operational greening but less integration across products and supply chains. ConsGoodsGreen, ElecInnovate, and RetailSustainable demonstrated Stage 3 characteristics, embedding environmental considerations across product design and supply chain management. WindFuture and the advanced units of ConsGoodsGreen and TechResponsible showed characteristics of Stage 4, pursuing regenerative models that create net positive environmental and social value.

Importantly, progression through stages is not automatic or inevitable. Some organizations remained at Stage 2 for many years, unable or unwilling to invest in the capabilities required for Stage 3. Others skipped stages, moving directly from compliance to regeneration in specific business units. The maturity model provides a diagnostic tool for organizations to assess their current integration level and to identify the capabilities and practices needed for advancement.

4.4 Capabilities for Advancing CSR through Green Management

Across all four pathways and maturity stages, we identified three core capabilities that distinguish organizations that successfully advance CSR through green management from those that do not.

Environmental sensing capability refers to the ability to identify emerging environmental issues, assess their strategic implications, and prioritize responses. Organizations with strong environmental sensing maintained horizon scanning functions that tracked regulatory trends, technological developments, stakeholder concerns, and competitive actions. WindFuture, for example, had a dedicated futures unit that monitored ecological thresholds, community attitudes, and policy developments. ChemGreen used scenario analysis to assess carbon pricing trajectories and their implications for different product lines. Without environmental sensing, organizations react to environmental pressures rather than anticipating them, limiting their ability to advance CSR strategically.

Cross functional coordination capability refers to the ability to integrate environmental considerations across organizational functions including R&D, operations, procurement, marketing, and finance. Organizations with strong cross functional coordination had

formal and informal mechanisms that broke down silos. ConsGoodsGreen created environmental councils for each product category, with members from all functions. AutoEco embedded environmental metrics into the balanced scorecards of all plant managers. RetailSustainable required procurement, logistics, and store operations to jointly develop environmental improvement plans. Without cross functional coordination, green management remains isolated in environmental departments, disconnected from the core business activities that drive environmental impacts.

Legitimacy management capability refers to the ability to navigate stakeholder expectations, build trust, and maintain social license to operate. Organizations with strong legitimacy management engaged stakeholders authentically and transparently, not just as a public relations exercise. WindFuture's community ownership model created genuine accountability. ChemGreen's participation in the Task Force on Climate related Financial Disclosures signaled commitment to transparency. TextileEarth's community water monitoring program gave local residents direct data on plant performance. Without legitimacy management, organizations face persistent stakeholder opposition, regulatory scrutiny, and reputational risk that undermines CSR advancement.

5. Discussion

5.1 Theoretical Contributions

This study makes several theoretical contributions to CSR and green management scholarship. First, we develop and empirically validate a strategic framework that specifies four pathways through which green management advances CSR. This framework addresses the fragmentation identified in the literature by showing that different green management practices, innovation types, and engagement mechanisms produce different CSR outcomes. Prior research has often treated CSR as a monolithic construct and green management as a homogeneous set of practices, leading to mixed and inconclusive findings. Our pathway framework enables more nuanced theoretical predictions and empirical tests.

Second, we propose a maturity model that conceptualizes CSR green management integration as a developmental process with four stages from compliance to regeneration. This extends prior work on environmental strategy maturity (Hunt and Auster, 1990; Roome, 1992) by explicitly linking each stage to specific CSR outcomes and stakeholder engagement approaches. The maturity model also responds to calls for dynamic perspectives on CSR (Aguilera et al., 2024; Scherer and Palazzo, 2020) by showing how organizations can progress through stages as they develop capabilities and respond to changing stakeholder expectations.

Third, we identify three core capabilities environmental sensing, cross functional coordination, and legitimacy management that enable organizations to advance CSR through green management. This capability based perspective integrates insights from the natural resource based view (Hart and Dowell, 2021) and dynamic capabilities theory (Teece, 2007). Rather than focusing on individual green management practices, our findings suggest that organizations should invest in developing these underlying capabilities, which then enable the effective implementation of multiple practices across different pathways.

5.2 A Strategic Framework for Advancing CSR through Green Management

Integrating our literature synthesis, empirical findings, and theoretical foundations, we propose the following strategic framework. The framework consists of four interconnected elements: strategic intent, capability foundation, pathway selection, and maturity progression.

Strategic intent refers to the organization's overarching ambition regarding CSR and environmental performance. Organizations with narrow strategic intent focused on compliance or efficiency will pursue Pathway 1 or 2. Organizations with broader strategic intent focused on systemic change or shared value will pursue Pathway 3 or 4. Strategic intent is not fixed; it can evolve as organizations progress through maturity stages.

Capability foundation refers to the three core capabilities identified above. Organizations cannot successfully advance CSR through green management without developing environmental sensing, cross functional coordination, and legitimacy management. These capabilities are interdependent; weakness in any one undermines the others.

Pathway selection involves choosing among the four pathways based on strategic intent, industry context, and stakeholder priorities. The pathways are not mutually exclusive; organizations may pursue multiple pathways simultaneously or sequentially. However, attempting to pursue all pathways without adequate capabilities leads to diffusion and failure.

Maturity progression involves moving through the four stages over time. Progression requires deliberate investments in capabilities, stakeholder engagement, and practice implementation. Organizations should assess their current maturity stage, identify gaps to the next stage, and develop action plans for closure.

5.3 Propositions for Future Research

Based on our findings, we propose the following testable propositions.

Proposition 1: Organizations at higher maturity stages of CSR green management integration will exhibit superior environmental performance, stakeholder trust, and financial performance compared to organizations at lower maturity stages, controlling for industry and size.

Proposition 2: The relationship between green management investment and CSR outcomes is mediated by the three capabilities of environmental sensing, cross functional coordination, and legitimacy management, such that investment without capability development produces weaker outcomes.

Proposition 3: Pathway 1 (operational excellence) will produce stronger CSR outcomes in process industries such as chemicals and manufacturing, while Pathway 2 (product leadership) will produce stronger outcomes in consumer facing industries such as retail and consumer goods.

Proposition 4: Stakeholder co creation (Pathway 4) will be associated with higher levels of social license to operate and lower levels of community opposition compared to transactional stakeholder engagement approaches.

Proposition 5: Organizations that progress from Stage 2 to Stage 3 of the maturity model will experience a temporary decline in financial performance during the transition period, followed by superior long term performance compared to organizations that remain at Stage 2.

Proposition 6: Environmental sensing capability moderates the relationship between regulatory pressure and green management adoption, such that organizations with strong sensing adopt proactive practices regardless of regulatory pressure, while organizations with weak sensing adopt reactive practices only when pressure is high.

5.4 Practical Implications

For practitioners, our findings offer several actionable recommendations. First, assess your organization's current maturity stage honestly using the diagnostic criteria in Table 5. Do not overstate your integration level; many organizations claim Stage 3 or 4 while operating at Stage 2. Second, invest in the three core capabilities before expanding the scope of green management practices. Capabilities are the foundation; without them, practices will not produce CSR advancement. Third, select pathways that match your strategic intent and industry context. Do not simply copy what leading firms in other industries are doing. Fourth, engage stakeholders authentically and transparently. Stakeholder co creation requires genuine power sharing, not just consultation. Fifth, measure and report progress using both outcome metrics (emissions reduced, waste diverted) and capability metrics (sensing system effectiveness, cross functional integration quality). Sixth, be patient. Advancing from Stage 2 to Stage 3 typically requires three to five years of sustained investment.

6. Conclusion

6.1 Summary of Contributions

This paper has addressed the question of how organizations can advance corporate social responsibility through green management. Through a systematic literature review of 142 articles and a multiple case study of ten organizations, we have developed a strategic framework comprising four pathways (operational excellence, product leadership, supply chain transformation, and stakeholder co creation), a four stage maturity model (compliance, efficiency, integration, regeneration), and three core capabilities (environmental sensing, cross functional coordination, legitimacy management). The framework provides both theoretical integration across fragmented literatures and practical guidance for organizational leaders.

6.2 Limitations

This study has several limitations. The multiple case study design, while rich, limits generalizability. Our ten cases, selected for theoretical replication, may not represent all industries, regions, or organizational forms. Future research should test our framework using large scale surveys and longitudinal quantitative designs. The cross sectional nature of our data collection captures integration levels at a point in time but cannot fully explain progression dynamics. Longitudinal studies tracking organizations as they move through maturity stages would provide stronger causal evidence. Our reliance on interviews and documents may be subject to social desirability bias, as organizations may overstate their environmental achievements. We attempted to mitigate this through triangulation with third party sustainability ratings, but bias cannot be entirely eliminated. Finally, the rapid evolution of environmental regulations, technologies, and stakeholder expectations means that some findings may require updating as contexts change.

6.3 Future Research Directions

Future research should address four directions. First, examine how digital technologies including artificial intelligence, blockchain, and the Internet of Things enable or constrain the advancement of CSR through green management. Second, investigate the trade offs and synergies among different pathways. For example, does pursuing product leadership (Pathway 2) enhance or undermine supply chain transformation (Pathway 3)? Third, study the role of leadership and governance in enabling progression through maturity stages. What board level structures, executive incentives, and cultural norms differentiate Stage 4 organizations from Stage 2 organizations? Fourth, extend the framework to small and medium enterprises, which face resource constraints that may require different pathways and capabilities than large enterprises.

6.4 Concluding Remarks

Advancing corporate social responsibility through green management is not merely about adopting a set of environmental practices. It requires strategic intent, capability development, pathway selection, and maturity progression. Organizations that approach green management as a compliance burden or a public relations tool will fail to advance CSR in meaningful ways. Organizations that invest in environmental sensing, cross functional coordination, and legitimacy management, and that select pathways aligned with their strategic context, can achieve genuine CSR advancement that generates value for the organization, its stakeholders, and the planet. The stakes have never been higher, and the opportunities have never been greater.

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