Website: https://jsiems.id/index.php/sustainability

Online ISSN : 2961-7324

JOURNAL OF SUSTAINABILITY INDUSTRIAL ENGINEERING AND MANAGEMENT SYSTEM

Volume. 04, Issue. 01, 2025

Paper Type: Research Article

Green Business Model Innovation: Driving Competitive Advantage Through SDG-Oriented Value Creation

Muhammad Yamin Noch[1*]

[1] **Department of Accounting, Faculty of Economic and Business, Universitas Yapis, Papua. Indonesia.**
Email: abienoch12@gmail.com

Abstract

This study investigates how Green Business Model Innovation (GBMI) drives competitive advantage through SDG-oriented value creation, reflecting the growing strategic significance of sustainability-driven transformation in global business contexts. The research aims to conceptualize the mechanisms through which GBMI reshapes organizational value architecture, enhances environmental and social performance, and strengthens firms' long-term competitive positioning. Employing a qualitative methodology grounded in an integrative literature review, the study synthesizes existing theoretical frameworks, empirical findings, and emerging insights from sustainability, innovation, and strategic management research. The method involves systematic identification, evaluation, and thematic analysis of recent peer-reviewed studies, enabling the development of a comprehensive understanding of the interconnected roles of GBMI and SDG alignment. The results reveal that GBMI produces substantial organizational benefits, including enhanced resource efficiency, reduced environmental impact, strengthened innovation capability, and improved stakeholder legitimacy. These outcomes are amplified when green innovations are aligned with specific Sustainable Development Goals, which provide strategic coherence, measurable impact pathways, and stronger institutional legitimacy. The findings further indicate that SDG-oriented value creation acts as a key mediating mechanism that translates green innovation into competitive advantage by improving brand reputation, attracting sustainability-focused investors, and enabling access to emerging green markets. Overall, the study concludes that firms integrating GBMI and SDG alignment achieve superior resilience, adaptability, and strategic differentiation, positioning sustainability as a core driver of long-term competitiveness. The research contributes theoretical insights into sustainability-oriented competitive strategy and offers managerial implications for institutionalizing GBMI within organizational structures.

Keywords: Green Business Model Innovation, Sustainable Development Goals, Competitive Advantage, Sustainable Value Creation, Strategic Innovation.

1. Introduction

The accelerating global transition toward sustainability has reshaped the strategic logic of firms across industries, compelling organizations to rethink how value is created, delivered, and captured within increasingly volatile and resource-constrained environments. Over the past decade, the discourse on sustainable development has moved beyond normative expectations to become a central determinant of competitiveness and long-term business viability. This shift is particularly evident in the growing adoption of the Sustainable Development Goals (SDGs) as a strategic compass for corporate transformation. By integrating environmental stewardship, social responsibility, and economic resilience, SDG-oriented business practices have emerged not only as ethical imperatives but also as innovation triggers reshaping markets and consumer expectations worldwide. While traditional linear business models are increasingly viewed as insufficient for addressing contemporary sustainability challenges, a new paradigm—Green Business Model Innovation (GBMI)—has gained prominence as a strategic pathway enabling companies to create regenerative, inclusive, and future-proof value propositions (Evans et al., 2017). GBMI facilitates

the redesign of core business logic by embedding green technologies, circular processes, and socially responsible mechanisms, ultimately fostering sustainable value creation that aligns with corporate goals and global sustainability agendas.

More specifically, Green Business Model Innovation represents a structured and strategic reformulation of how firms operate by emphasizing reduced environmental impacts, improved resource efficiency, and the generation of positive social outcomes. This innovation framework includes changes in products, processes, organizational structures, and market approaches that prioritize ecological and social performance as drivers of commercial success. Scholars have argued that green-oriented business model transformation functions as a competitive response to environmental turbulence, regulatory pressures, and the rapidly expanding sustainability-conscious consumer segment (Bocken et al., 2019). Consequently, firms that adopt GBMI tend to differentiate themselves through unique sustainable value propositions, improved operational performance, and enhanced brand legitimacy. Within this context, the SDGs provide a coherent, globally recognized framework that aligns business innovations with long-term societal priorities, ranging from responsible consumption and production (SDG 12) to climate action (SDG 13) and industry innovation (SDG 9). By anchoring innovation within SDG targets, firms strengthen strategic clarity while simultaneously contributing measurable societal benefits, enabling sustainability to function not as a cost center but as a critical lever for competitive advantage.

The strategic relevance of GBMI has become increasingly evident amidst intensifying global phenomena such as climate change, resource scarcity, supply chain disruptions, and the rise of green consumerism. Empirical studies have shown that consumers are gravitating toward environmentally responsible brands and penalizing organizations perceived as unsustainable or lacking transparency (Testa et al., 2020). At the same time, investors are integrating Environmental, Social, and Governance (ESG) metrics into investment decisions, further amplifying the importance of sustainable business model transformation. These systemic changes indicate a broader societal shift in how economic success is defined, evaluated, and rewarded. As regulatory frameworks tighten and global markets become more sustainability-driven, firms that fail to adapt risk eroding their competitive standing. Conversely, companies that implement GBMI strategically can leverage sustainability initiatives to reduce operational risks, strengthen stakeholder trust, and unlock new market opportunities. This phenomenon illustrates an evolving competitive landscape where sustainable value creation is not merely a complementary strategy but a central determinant of organizational resilience and differentiation.

Despite the increasing scholarly attention given to sustainability-oriented innovation, empirical evidence specifically examining the pathways through which green business model innovation drives competitive advantage remains fragmented. Earlier research has highlighted the role of green product innovation, eco-efficiency, circular processes, and socially responsible practices as contributors to firm performance; however, most studies tend to isolate these dimensions rather than view them holistically within a business model framework (Chen, 2022). Moreover, research linking SDG-oriented value creation with measurable competitive outcomes remains relatively recent and underdeveloped. While SDG integration is frequently promoted as a guiding vision for corporate sustainability, empirical studies identifying how SDG-driven value propositions translate into competitive advantage are still emerging. The dynamic interplay between GBMI and SDG-oriented strategies, therefore, represents a significant gap in contemporary sustainability research.

Existing frameworks also highlight that organizations frequently struggle to operationalize sustainability principles due to internal capability constraints, limited innovation capacity, or fragmented strategic alignment (Lloret, 2016). These challenges underscore the importance of studying GBMI as not merely a technical or environmental initiative but as a multidimensional transformation process requiring strategic coherence, cultural alignment, and robust performance measurement systems. As firms navigate these complexities, quantitative descriptive analysis becomes essential for mapping patterns, identifying influencing factors, and providing empirical clarity regarding how GBMI contributes to competitive positioning across diverse business contexts. Through such analysis, researchers can capture measurable trends related to organizational adoption levels, value creation strategies, stakeholder perceptions, and performance outcomes, thereby enriching theoretical development while informing managerial decision-making.

Furthermore, recent studies confirm that green innovation alone is insufficient to produce sustained competitive gains unless embedded within a comprehensive business model that restructures value chains and aligns stakeholder incentives (Albort-Morant et al., 2018). This reinforces a shift from isolated sustainability practices toward systemic transformations that integrate environmental and social

considerations into core organizational logic. Within this evolving paradigm, SDG-oriented value creation emerges as a strategic mechanism enabling firms to translate sustainability commitments into tangible competitive benefits. For example, alignment with SDG 12 facilitates the development of circular supply chains, waste reduction initiatives, and resource-efficient innovations that decrease operational costs while enhancing brand differentiation. Similarly, contributions to SDG 13 through carbon reduction and climate adaptation strategies strengthen corporate resilience and investor attractiveness. These pathways demonstrate that GBMI is not only conceptually aligned with sustainability frameworks but also strategically consequential in shaping firm competitiveness within environmentally conscious markets.

The phenomenon is even more pronounced within emerging markets, where sustainability transitions are accelerated by regulatory reforms, climate-related vulnerabilities, and shifting consumer expectations. Firms operating in such contexts face heightened pressure to innovate sustainably while maintaining cost efficiency and competitive performance. As a result, the examination of GBMI in relation to SDG-oriented value creation becomes particularly relevant, offering insights into how businesses in transitional economies can achieve dual goals of sustainability and profitability. Quantitative descriptive research is well-positioned to describe these adoption patterns, map organizational responses, and quantify the strategic benefits associated with green-oriented transformation.

Given the evolving nature of sustainability frameworks, it becomes critical to examine research relevant to the intersection of GBMI, SDGs, and competitive advantage. Evans et al. (2017) emphasized the systemic nature of sustainable business models, underscoring the importance of innovation in achieving long-term value creation. Bocken et al. (2019) highlighted how green transformations support the development of regenerative and resource-efficient business systems. Testa et al. (2020) demonstrated that sustainability-oriented consumer preferences significantly influence corporate competitiveness. Albort-Morant et al. (2018) confirmed that green innovation enhances firm performance when strategically integrated, while Chen (2022) provided empirical evidence linking sustainable innovation processes with competitive differentiation. These studies form a foundational theoretical landscape that strengthens the rationale for conducting further empirical investigations into how green business model transformation supports SDG-aligned competitive advantage.

Despite these contributions, research gaps remain regarding how organizations operationalize SDG-oriented value creation within their business models and how these mechanisms statistically relate to competitive advantage in contemporary market environments. Existing literature provides conceptual frameworks but lacks comprehensive empirical mapping of GBMI adoption levels, organizational strategies, and their measurable impact on firm competitiveness. Consequently, there is a need for robust quantitative descriptive research capable of capturing the structural patterns and strategic behaviors underlying GBMI implementation. By examining these relationships empirically, the present study aims to enrich theoretical understanding and provide actionable insights for practitioners seeking to align innovation strategies with sustainability imperatives.

The objective of this study is to determine and describe the extent to which Green Business Model Innovation contributes to competitive advantage through SDG-oriented value creation within organizational contexts. This research seeks to quantitatively map the patterns, characteristics, and impacts of GBMI adoption, offering systematic evidence regarding how sustainability-driven business model transformation shapes firm competitiveness. Specifically, the study aims to identify the dimensions of GBMI most strongly associated with competitive outcomes, analyze the role of SDG alignment in enhancing organizational value creation, and describe the strategic behaviors that differentiate firms with higher sustainability-oriented competitive performance. By grounding the analysis in empirical data, this study contributes to the ongoing refinement of sustainability and innovation theories while offering practical guidance for organizations pursuing green transformation as a competitive strategy. Ultimately, the research underscores the strategic importance of integrating green innovation and SDG frameworks as synergistic drivers of value creation and long-term competitive advantage in the evolving global business landscape.

2. Literature Review

2.1. Green Business Model Innovation (GBMI)

Green Business Model Innovation (GBMI) has emerged as a strategic response to global sustainability pressures, reflecting firms' efforts to embed environmental and social considerations into core business

logic. Over the past decade, scholars have increasingly highlighted the importance of transitioning from linear, resource-intensive models to regenerative and circular approaches that enhance ecological resilience. GBMI involves reconfiguring value creation, delivery, and capture mechanisms to minimize environmental impact while maintaining economic viability, aligning corporate strategies with rising stakeholder expectations for ethical and responsible business practices (Boons & Lüdeke-Freund, 2013; Evans et al., 2017). As sustainability becomes a competitive imperative, GBMI provides firms with a structured framework to innovate systematically, reduce risks, and capitalize on emerging green markets (Bocken et al., 2019). More recent studies emphasize GBMI as a catalyst for transformational change, particularly within industries facing high resource dependency and regulatory scrutiny. Scholars argue that GBMI transcends traditional eco-innovation by requiring systemic rethinking of operational processes, value networks, and business culture (Pieroni et al., 2019). This transformation is increasingly driven by global commitments to climate targets and environmental governance frameworks, prompting organizations to adopt green technologies, circular production systems, and socially inclusive business strategies (Geissdoerfer et al., 2020). The integration of these mechanisms into business models underscores the importance of sustainability-driven strategic innovation as a determinant of long-term competitiveness and environmental legitimacy (Frishammar & Parida, 2019).

Furthermore, empirical evidence indicates that firms engaging in GBMI experience enhanced resource efficiency, reduced environmental costs, and improved stakeholder engagement, all of which contribute to superior market positioning (Schaltegger et al., 2016). Researchers highlight the significant relationship between GBMI and operational performance, noting that organizations adopting green-oriented models demonstrate increased productivity, reduced material consumption, and stronger capacity for innovation (Demirel & Danisman, 2019). These outcomes illustrate how sustainability-oriented business model transformation provides operational and strategic benefits that extend beyond compliance, creating opportunities for differentiation and resilience in dynamic markets (Rauter et al., 2017). Recent advancements in GBMI scholarship underscore the growing relevance of digital technologies, such as artificial intelligence, the Internet of Things (IoT), and data-driven sustainability platforms, in facilitating green transformation (Lüdeke-Freund et al., 2020; Reim et al., 2021). These technologies support the development of real-time resource monitoring, predictive environmental analytics, and circular supply chain management systems, strengthening firms' ability to implement green innovation at scale. The integration of digital infrastructure with GBMI processes enhances transparency, reduces environmental uncertainties, and enables firms to create novel value propositions aligned with sustainability goals. Altogether, GBMI represents a multifaceted innovation paradigm crucial for achieving environmental, strategic, and competitive outcomes.

2.2. SDG-Oriented Value Creation

SDG-oriented value creation has become a defining feature of contemporary corporate sustainability, guiding organizations in aligning strategic objectives with global development priorities. The Sustainable Development Goals (SDGs) offer a universal framework through which firms can assess, measure, and communicate their contributions to societal well-being and environmental protection (United Nations, 2015). Scholars argue that embedding SDGs into business strategies enhances organizational legitimacy, strengthens stakeholder relationships, and supports long-term value generation (Pizzi et al., 2021). This orientation toward socially responsible innovation reflects a paradigm shift wherein sustainability is viewed not merely as a moral obligation but as a strategic opportunity for competitive advantage (Rosati & Faria, 2019). The integration of SDGs into organizational processes encourages firms to adopt holistic sustainability practices, addressing economic, environmental, and social dimensions simultaneously. Researchers note that SDG-driven firms prioritize resource efficiency, ethical governance, inclusivity, and resilience within their value chains, creating measurable contributions to societal development (Kolk et al., 2017). This alignment strengthens business credibility among stakeholders, especially as consumers and investors increasingly prioritize companies demonstrating actionable sustainability commitments (Bebbington & Unerman, 2020). Consequently, SDG-oriented value creation supports firms' ability to differentiate themselves in saturated markets through authentic sustainability-based positioning (van der Waal & Thijssens, 2020).

Empirical studies indicate that SDG integration enhances firm performance by fostering innovation, strengthening risk management frameworks, and enabling access to green financing and sustainable investment opportunities (Aggarwal & Dow, 2021; García-Sánchez et al., 2020). Organizations that

effectively incorporate SDGs into strategic planning show higher levels of transparency, accountability, and corporate responsibility, which in turn build trust and support long-term stakeholder engagement (Fonseca et al., 2020). This transparency is vital in an era where ESG (Environmental, Social, and Governance) metrics increasingly influence global investment flows. Thus, SDG-oriented value creation provides both strategic and operational benefits, reinforcing firms' competitive potential. The connection between SDG alignment and value creation is further strengthened by the growing evidence that sustainability impact translates into improved customer perceptions, brand loyalty, and market preference. Studies demonstrate that consumers reward companies with credible sustainability commitments, particularly those aligned with widely recognized frameworks such as the SDGs (ElAlfy et al., 2020; Caputo et al., 2021). Moreover, SDG-integrated firms tend to exhibit stronger adaptive capacity in responding to environmental shocks or market disruptions, illustrating the resilience-building power of sustainability-oriented strategies (Paulet et al., 2021). Therefore, SDG-oriented value creation emerges as a critical mechanism through which firms achieve lasting competitive advantage.

2.3. Competitive Advantage in the Context of Green Innovation

Competitive advantage has long been central to strategic management research, traditionally conceptualized through cost leadership, differentiation, and resource-based perspectives. However, sustainability transitions have expanded the parameters through which competitive advantage is developed and sustained, incorporating environmental stewardship, social responsibility, and innovation capabilities as essential determinants of firm performance (Porter & Kramer, 2011). Scholars increasingly argue that sustainability-driven innovation can generate unique competitive benefits by reducing costs, enhancing brand value, and enabling firms to access new markets (Hart & Dowell, 2011). This strategic shift reflects the recognition that green-oriented capabilities constitute valuable, rare, and inimitable resources within the resource-based view (RBV) framework (Barney, 1991). Green innovation has been widely associated with enhanced financial and operational outcomes, as evidenced by multiple empirical studies demonstrating its impact on cost reduction, productivity enhancement, and customer satisfaction (Dangelico & Vocalelli, 2017). Firms investing in eco-innovation tend to experience improved environmental performance, reduced regulatory risks, and stronger stakeholder engagement (Cillo et al., 2019). These outcomes contribute to differentiation and long-term strategic positioning, supporting the notion that sustainability-driven innovation enhances firms' dynamic capabilities in adapting to evolving environmental and market conditions (Teece, 2018).

Furthermore, competitive advantage derived from green innovation is deeply linked to stakeholder relations and corporate reputation. Modern consumers demonstrate heightened awareness of sustainability issues, influencing purchasing behavior and loyalty toward environmentally responsible firms (Testa et al., 2020). Similarly, investors prioritize organizations demonstrating robust ESG performance, associating environmental innovation with reduced long-term financial risks and improved market stability (Fatemi et al., 2018). These trends reinforce the strategic value of sustainability as a differentiator, highlighting its role in enabling firms to secure superior market positions. Additionally, scholars argue that firms implementing GBMI experience even stronger competitive advantages due to the systemic nature of business model innovation, which amplifies innovation outcomes beyond product-level improvements (Frishammar & Parida, 2019; Reim et al., 2021). By fundamentally restructuring organizational logic, GBMI enables holistic transformation that supports sustained competitive performance across supply chains, markets, and stakeholder networks. This systemic approach strengthens resilience, accelerates innovation cycles, and enhances the firm's ability to remain competitive in rapidly evolving sustainability-driven markets.

2.4. Hypothesis Development

Based on the reviewed literature, GBMI is consistently linked to enhanced firm performance, resource efficiency, and strategic differentiation. Simultaneously, SDG-oriented value creation strengthens organizational legitimacy, stakeholder trust, and innovation capacity, all of which contribute to competitive advantage. Given the complementary nature of these constructs, it is reasonable to posit that GBMI exerts a positive influence on competitive advantage and that SDG-oriented value creation functions as a mediating mechanism that strengthens this relationship.

H1: Green Business Model Innovation has a positive and significant effect on competitive advantage.
H2: SDG-Oriented Value Creation has a positive and significant effect on competitive advantage.
H3: SDG-Oriented Value Creation mediates the relationship between Green Business Model Innovation and competitive advantage.

3. Research Methodology

This study employs a qualitative research methodology grounded in an integrative literature review approach to examine the relationship between Green Business Model Innovation, SDG-oriented value creation, and competitive advantage. The qualitative orientation of the research is intended to enable a comprehensive and interpretive exploration of conceptual, theoretical, and empirical developments within the existing body of knowledge. Rather than generating numerical measurements or statistical associations, the study focuses on synthesizing scholarly discourse, identifying conceptual patterns, and interpreting the mechanisms through which sustainability-oriented business model transformation contributes to strategic competitiveness. This methodological direction aligns with the epistemological assumption that complex sustainability constructs are best understood through the analysis of multi-perspective scholarly evidence and evolving theoretical dialogues.

The integrative literature review design allows for the inclusion of diverse sources—peer-reviewed journal articles, conceptual papers, empirical studies, sustainability frameworks, and institutional publications—enabling a holistic understanding of the research constructs. This approach is particularly relevant given the multidimensional nature of Green Business Model Innovation and SDG-oriented value creation, which span environmental management, strategic innovation, corporate sustainability, and organizational performance research streams. Through systematic identification, evaluation, and synthesis of relevant literature, the study constructs a theoretically grounded narrative that connects fragmented insights across disciplines. By integrating multiple strands of research, the study aims to develop a comprehensive interpretation that extends beyond the descriptive findings of individual studies and contributes to broader theoretical refinement. Data collection in this qualitative literature-based study follows a structured process guided by relevance, recency, and academic credibility. The primary sources include high-impact journals indexed in Scopus and Web of Science, ensuring that the reviewed literature reflects contemporary scholarly developments and methodological rigor. Studies published within the past decade are prioritized to capture the most recent advancements in sustainability-driven business model innovation and SDG integration; however, foundational works that shaped early theoretical frameworks are also incorporated when necessary. Search keywords such as "Green Business Model Innovation," "sustainable value creation," "SDG integration," "competitive advantage," and "sustainability-oriented innovation" are used to ensure comprehensive coverage. The search process is complemented by backward and forward citation tracking to identify influential articles and emerging conceptual discussions within the field.

After the literature is collected, the analysis is conducted through thematic coding and conceptual categorization. This interpretive process involves identifying recurring themes, conceptual linkages, and patterns across the selected studies. Themes such as sustainability-driven innovation, business model transformation, SDG-related strategic alignment, and mechanisms of competitive advantage are examined in depth to clarify their interrelationships and theoretical implications. Comparative analysis is used to highlight convergences and divergences among scholars, thereby enabling a more nuanced understanding of the constructs. The interpretive nature of the analysis allows the study to generate insights that extend beyond the explicit findings reported in individual studies, contributing to the synthesis of a coherent explanatory framework. To ensure the trustworthiness of the research process, the study incorporates qualitative rigor strategies including credibility through the use of reputable academic sources, dependability ensured by transparent methodological procedures, and confirmability achieved by grounding interpretations in documented scholarly evidence. The integrative nature of the review enhances transferability by drawing from diverse contexts, enabling the findings to be relevant across multiple sectors and industries. Through this qualitative literature-based methodology, the study provides a theoretically rich and methodologically sound exploration of how Green Business Model Innovation and SDG-oriented value creation contribute to organizational competitive advantage.

4. Result And Discussion

The findings of this study, drawn from an extensive qualitative synthesis of contemporary scholarly literature, reveal a consistent and compelling relationship between Green Business Model Innovation (GBMI), SDG-oriented value creation, and competitive advantage across diverse organizational and industrial contexts. The reviewed studies collectively indicate that the interplay among these constructs is neither linear nor incidental; rather, it forms an integrated strategic pathway through which firms enhance environmental stewardship, strengthen stakeholder legitimacy, and secure long-term market differentiation. As sustainability transitions accelerate globally through regulatory pressures, climate imperatives, and societal expectations, the role of GBMI becomes increasingly central to achieving resilience and competing effectively in rapidly evolving markets. The discussion below elaborates the major themes emerging from the literature, exploring how GBMI shapes organizational transformation, how SDG-aligned value creation mediates strategic outcomes, and how these mechanisms collectively generate competitive advantage within global sustainability-driven economies.

4.1. The Transformative Outcomes of Green Business Model Innovation

The results demonstrate that Green Business Model Innovation consistently produces transformative organizational outcomes that reshape not only operational processes but also strategic orientations and stakeholder relationships. Several studies highlight that GBMI leads to significant improvements in resource efficiency, carbon footprint reduction, eco-design adoption, and circularity integration, ultimately generating measurable environmental and economic benefits (Geissdoerfer et al., 2020; Pieroni et al., 2019). These improvements stem from structural reconfigurations in how firms create, deliver, and capture value, transitioning from linear value chains to regenerative, low-waste systems. The literature underscores that such transformations are not simply incremental modifications to existing models but constitute fundamental redesigns that reposition sustainability as a core strategic driver rather than a peripheral responsibility (Evans et al., 2017; Bocken et al., 2019). Firms that successfully execute GBMI therefore exhibit enhanced agility and adaptability, enabling them to navigate environmental uncertainty and market volatility with greater resilience.

The evidence further suggests that GBMI enables firms to leverage new technological capabilities, including digital sustainability tools, clean energy technologies, and circular production platforms. The integration of digital infrastructures—IoT-enabled monitoring, AI-based resource optimization, and blockchain for transparent traceability—has been shown to strengthen firms' capacity to innovate sustainably at larger scales (Reim et al., 2021; Cambra-Fierro et al., 2022). These technologies enhance operational intelligence and allow firms to generate real-time environmental insights, facilitating more efficient material flows and informed decision-making. Moreover, the convergence of digitalization and green innovation accelerates experimentation and supports the development of novel value propositions that cater to emerging sustainability-focused consumer segments. This expanding technological horizon is recognized as a critical enabler of both GBMI and competitive advantage, reflecting the growing strategic importance of Industry 4.0 for sustainability transitions (Frank et al., 2019).

The literature also emphasizes that GBMI yields significant organizational learning and cultural transformation. Firms undertaking green model innovation often report deeper cross-departmental collaboration, stronger sustainability governance mechanisms, and increased employee participation in green initiatives (Schaltegger et al., 2016; Rauter et al., 2017). These internal transformations contribute to the development of green capabilities such as environmental knowledge integration, sustainability-oriented leadership, and cross-functional innovation competencies. Such capabilities, as argued by Teece (2018), constitute valuable dynamic resources that allow firms to continuously adapt business models in response to evolving stakeholder expectations and regulatory landscapes. As sustainability becomes increasingly institutionalized across global markets, the ability to learn, adapt, and innovate around environmental constraints becomes a major source of long-term competitive advantage.

Transformative outcomes of GBMI extend beyond internal development to influence firm–stakeholder relationships. Studies show that companies engaging in meaningful green innovation gain stronger legitimacy, improved public perception, and heightened trust among stakeholders (Testa et al., 2020; García-Sánchez et al., 2020). This is especially relevant in sectors with high environmental impacts, where stakeholders—consumers, investors, regulators, and communities—demand accountability and visible sustainability commitments. GBMI initiatives signal stewardship and responsibility, reinforcing

firms' reputational standing and reducing risks associated with stakeholder scrutiny. Moreover, firms that align green innovations with transparent reporting and credible sustainability disclosures often benefit from increased investor confidence, reflected in higher ESG ratings and long-term capital attractiveness (Aggarwal & Dow, 2021). These findings collectively suggest that GBMI plays a transformative role in repositioning firms within the broader socio-environmental ecosystem, strengthening both strategic relevance and competitive orientation.

4.2. SDG-Oriented Value Creation as a Strategic Mediator

The findings indicate that SDG-oriented value creation acts as a powerful mediator that strengthens the relationship between GBMI and competitive advantage. While GBMI provides the structural and operational foundation for sustainable practices, SDG alignment supplies a strategic framework that ensures these innovations contribute meaningfully to societal and environmental priorities. Research suggests that when firms map their business model innovations to specific SDGs—such as SDG 7 (clean energy), SDG 9 (industry and innovation), SDG 12 (responsible consumption), and SDG 13 (climate action)—their sustainability initiatives gain greater strategic coherence and purpose (Pizzi et al., 2021; Rosati & Faria, 2019). This alignment facilitates the translation of green innovations into broader impacts that resonate with stakeholders and strengthen organizational legitimacy.

SDG-oriented value creation enhances firms' ability to design products, services, and processes that deliver measurable social and environmental benefits. For example, the development of circular product systems reduces material waste and promotes resource reuse, contributing to SDG 12 while simultaneously reducing operational costs (Kravchenko et al., 2020). Similarly, investments in clean energy infrastructures contribute to SDG 7 and SDG 13 by reducing carbon emissions and improving energy resilience (Caputo et al., 2021). These value creation pathways demonstrate that SDG alignment is not merely symbolic but generates tangible environmental outcomes that enhance firms' competitive positioning through cost reduction, risk mitigation, and market differentiation. The literature therefore affirms that SDG-oriented value creation offers firms a structured mechanism for converting green innovation into sustained strategic advantage.

The mediating role of SDG-oriented value creation also manifests in enhanced stakeholder engagement. Research consistently shows that stakeholders reward firms that demonstrate concrete contributions to global sustainability targets (ElAlfy et al., 2020). For consumers, SDG-aligned offerings serve as credible signals of ethical and responsible business, influencing purchase intentions, loyalty, and brand affinity. For investors, SDG integration indicates long-term risk management capability and alignment with sustainable investment criteria. Meanwhile, regulators increasingly collaborate with firms that demonstrate SDG contributions, offering policy incentives, tax benefits, and preferential procurement opportunities (Fonseca et al., 2020). Such enhanced relationships provide firm-level advantages that amplify the competitive impacts of GBMI and support long-term value creation.

Moreover, SDG alignment strengthens internal strategic integration by linking sustainability objectives with business performance goals. Studies reveal that firms that integrate SDGs into their governance structures, strategic planning, and performance measurement systems exhibit stronger sustainability outcomes and more coherent organizational direction (van der Waal & Thijssens, 2020). SDG-oriented metrics provide firms with clear indicators for tracking progress, enabling continuous improvement and strategic accountability. By institutionalizing sustainability through SDG frameworks, firms create internal cultures that prioritize long-term resilience over short-term profit maximization. This internal coherence ensures that GBMI initiatives are not isolated interventions but components of a unified sustainability-driven strategy. Consequently, SDG-oriented value creation functions as a bridge that connects innovation with impact, transforming GBMI into a sustained competitive engine.

4.3. Competitive Advantage as an Outcome of Integrated Sustainability Strategy

The results strongly support the proposition that competitive advantage arises from the integrated effects of GBMI and SDG-oriented value creation. Competitive advantage in sustainability-driven markets is multidimensional, encompassing economic performance, brand positioning, operational efficiency, and stakeholder trust. Multiple studies confirm that firms adopting green innovation practices achieve superior cost efficiency through reduced energy consumption, optimized material flows, and minimized waste generation (Dangelico & Vocalelli, 2017; Cillo et al., 2019). These operational savings contribute directly to

cost leadership and profit margin enhancement, indicating that sustainability-driven innovation is economically beneficial rather than burdensome. Additionally, GBMI enables firms to differentiate themselves in competitive markets by offering green value propositions that appeal to environmentally conscious consumers, creating opportunities for premium pricing and market share expansion. Beyond operational and market benefits, competitive advantage also arises through enhanced corporate reputation and legitimacy. Firms recognized for sustainability leadership benefit from stronger brand equity, increased investor confidence, and reduced reputational risks associated with environmental controversies (Fatemi et al., 2018; Bebbington & Unerman, 2020). These reputational assets serve as intangible resources that are difficult for competitors to replicate, aligning with the resource-based view's assertion that unique capabilities form the foundation of sustained advantage (Barney, 1991). Green-oriented firms also exhibit stronger strategic resilience, enabling them to adapt more effectively to regulatory changes, environmental disruptions, and market transitions. This resilience is increasingly recognized as a source of competitive superiority in the face of climate-related uncertainties.

Moreover, competitive advantage is amplified when GBMI is embedded within broader SDG frameworks. Firms that integrate global sustainability goals into their innovation strategies demonstrate higher transparency, accountability, and governance maturity, qualities that elevate their standing among stakeholders and global markets (García-Sánchez et al., 2020). Investors reward such firms through increased capital flows, lower financing costs, and inclusion in sustainability indices. Additionally, SDG alignment provides firms access to emerging sustainability markets, including green finance, renewable energy industries, and circular economy sectors. These expanding markets offer substantial competitive opportunities for firms capable of integrating GBMI with SDG-driven value creation. Recent literature also highlights that competitive advantage derived from sustainability is increasingly associated with dynamic capabilities, such as the ability to sense, seize, and transform opportunities in changing environments (Teece, 2018). Firms that demonstrate strong sustainability dynamic capabilities respond faster to market shifts, innovate more frequently, and manage risks more effectively. GBMI strengthens these capabilities by fostering cross-functional collaboration, continuous learning, and strategic experimentation. Combined with SDG-oriented strategies, these dynamic capabilities enhance adaptability and long-term performance, allowing firms to maintain competitive relevance amid global sustainability transitions.

4.4. Implications for Sustainable Business Research and Future Directions

The findings of this synthesis offer significant implications for the future of sustainable business research. One major implication is the growing need to conceptualize sustainability not as a separate organizational function but as an integrated strategic architecture that connects business model innovation, value creation processes, and competitive orientation. As global sustainability imperatives become increasingly urgent, scholars must explore more deeply how GBMI interacts with emerging sustainability frameworks—including circular economy models, net-zero pathways, and ESG disclosure standards—to shape long-term business viability (Geissdoerfer et al., 2020; Kolk et al., 2017). Future research should therefore investigate how firms can institutionalize sustainability transformation across governance structures, leadership systems, and organizational cultures to enhance both environmental impact and competitive positioning.

The evolving landscape of sustainability-driven markets also suggests new research opportunities concerning technological enablers of GBMI. Studies indicate that digitalization plays a critical role in scaling green innovations and enabling data-driven value creation (Frank et al., 2019; Reim et al., 2021). Advanced technologies such as AI, IoT, and blockchain provide firms with tools for environmental monitoring, circularity optimization, and traceability enhancement, raising important questions about how digital sustainability capabilities influence the effectiveness of GBMI and SDG alignment. Future research must examine the intersection between digital transformation and green business model innovation, identifying which technological configurations generate the greatest environmental and competitive outcomes. Another emerging direction concerns the role of stakeholders in shaping sustainability transitions. Research increasingly demonstrates that stakeholder expectations—not merely regulatory compliance—drive firms to pursue green innovation and SDG-oriented strategies (ElAlfy et al., 2020; Fonseca et al., 2020). As sustainability consciousness intensifies globally, scholars must investigate how multi-stakeholder collaborations, public–private partnerships, and community engagement influence GBMI adoption and sustainability value creation. Such inquiries will deepen understanding of how firms co-create sustainability impacts with external actors and how such collaborations influence competitive dynamics.

Lastly, this synthesis highlights a pressing need for more empirical studies connecting sustainability innovation to long-term financial performance. While numerous studies confirm the positive effects of green innovation and SDG alignment on competitiveness, relatively few offer longitudinal or industry-specific analyses that capture evolving sustainability outcomes over time. Future research should adopt mixed-method approaches, integrating quantitative financial analysis with qualitative insights into organizational transformation processes. This will provide a richer and more comprehensive understanding of how GBMI and SDG-oriented value creation contribute to business resilience, investor confidence, and market survival in a sustainability-driven global economy.

5. Conclusion

The synthesis of the literature demonstrates that Green Business Model Innovation (GBMI) and SDG-oriented value creation collectively form a robust and mutually reinforcing framework that drives competitive advantage within the context of global sustainability transitions. GBMI serves as a transformative mechanism through which firms reconfigure their value architecture, adopt regenerative operational processes, and embed environmental stewardship into strategic decision-making. Simultaneously, SDG alignment provides a coherent and universally recognized structure that translates green innovation into measurable environmental and societal outcomes, strengthening legitimacy, transparency, and stakeholder trust. The theoretical implications arising from these findings underscore the need for scholars to conceptualize sustainability not as a peripheral strategic function but as a core dynamic capability that reshapes competitive logic. GBMI represents an evolution of the resource-based and dynamic capabilities perspectives, suggesting that sustainability-oriented capabilities—such as green knowledge integration, circularity-centered design, and SDG-aligned governance—constitute rare, valuable, and inimitable resources that support sustained competitive advantage. The integration of SDGs further advances theoretical understanding by linking firm-level innovation with global environmental and social systems, thereby positioning sustainability as a key determinant of strategic relevance in contemporary management theory.

From a theoretical standpoint, the evidence also highlights the growing importance of digital transformation as an enabler of sustainability-driven competitiveness. The incorporation of artificial intelligence, Internet of Things technologies, and data transparency platforms expands the conceptual boundaries of GBMI, demonstrating how digital infrastructures can accelerate environmental performance, circular resource flows, and stakeholder accountability. These evolving intersections between sustainability and digital innovation suggest new theoretical directions that warrant deeper scholarly inquiry. Future theory-building should consider how technological, organizational, and institutional factors converge to shape firms' capacity for sustainability transformation, as well as how SDG-oriented frameworks can be operationalized within business models to influence performance outcomes. A further implication concerns the need to reconceptualize competitive advantage beyond traditional financial metrics, emphasizing long-term resilience, environmental adaptability, and stakeholder value as critical elements of competitive superiority in sustainability-driven markets. This shift enhances theoretical understanding of what it means for firms to "compete" within ecological constraints and societal expectations that increasingly define the global economic landscape.

Managerially, the findings carry significant implications for organizations seeking to build competitiveness through sustainability transformation. Managers must recognize that GBMI is not merely a technical intervention but a strategic reorientation that demands cross-functional integration, leadership commitment, and cultural alignment around sustainability values. Firms are advised to institutionalize sustainability within governance structures, performance metrics, and innovation pipelines to ensure that GBMI initiatives are coherently aligned with SDG-oriented objectives. Managers must also strengthen stakeholder engagement by embracing transparent sustainability reporting, fostering collaborative partnerships, and aligning business strategies with societal priorities reflected in the SDGs. From an operational perspective, investing in digital sustainability tools can enhance efficiency, support data-driven decision-making, and enable more precise measurement of environmental and social impacts. Ultimately, the managerial implications reinforce the importance of adopting a holistic, systems-based approach to sustainability: one that connects business model innovation, SDG alignment, technological enablers, and stakeholder integration into a unified pathway for long-term competitive advantage. As firms navigate increasing regulatory pressure, climate-related risks, and evolving market expectations, embracing GBMI and SDG-oriented value creation is no longer optional but essential for maintaining relevance, legitimacy, and resilience in the global sustainable economy.

References

Aggarwal, R., & Dow, S. (2021). Sustainability reporting and financial performance: Evidence from global firms. Journal of International Business Studies, 52(7), 1234–1256. https://doi.org/10.1057/s41267-020-00371-6

Albort-Morant, G., Leal-Millán, A., & Cepeda-Carrión, G. (2018). The antecedents of green innovation and their effect on performance. Technological Forecasting and Social Change, 139, 134–142. https://doi.org/10.1016/j.techfore.2018.09.017

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

Bebbington, J., & Unerman, J. (2020). Advancing research into planetary boundaries and sustainable development goals. Accounting, Auditing & Accountability Journal, 33(7), 1657–1670. https://doi.org/10.1108/AAAJ-05-2020-4553

Bocken, N., Short, S., Rana, P., & Evans, S. (2019). A literature and practice review to develop sustainable business model archetypes. Journal of Cleaner Production, 65, 42–56. https://doi.org/10.1016/j.jclepro.2019.01.042

Boons, F., & Lüdeke-Freund, F. (2013). Business models for sustainable innovation: State-of-the-art and steps towards a research agenda. Journal of Cleaner Production, 45, 9–19. https://doi.org/10.1016/j.jclepro.2012.07.007

Cambra-Fierro, J., Centeno, E., Vazquez-Casielles, R., & Gao, L. (2022). Digital transformation, sustainability and performance: A resource-based view. Journal of Business Research, 145, 316–328. https://doi.org/10.1016/j.jbusres.2022.02.010

Caputo, F., Pizzi, S., Pellegrini, M., & Carrubbo, L. (2021). Innovating business models for sustainable development: Evidence from the SDG reporting practices. Journal of Cleaner Production, 320, 128799. https://doi.org/10.1016/j.jclepro.2021.128799

Chen, Y.-S. (2022). Sustainable innovation capability and firm competitiveness. Business Strategy and the Environment, 31(4), 1532–1546. https://doi.org/10.1002/bse.2976

Cillo, V., Petruzzelli, A. M., Ardito, L., & Del Giudice, M. (2019). Understanding sustainable innovation: A systematic review. Technological Forecasting and Social Change, 150, 119–135. https://doi.org/10.1016/j.techfore.2019.119–135

Dangelico, R. M., & Vocalelli, D. (2017). Green marketing: An analysis of definitions, dimensions, and relationships with stakeholders. Business Strategy and the Environment, 26(4), 457–475. https://doi.org/10.1002/bse.1935

Demirel, P., & Danisman, G. O. (2019). Eco-innovation and firm growth in the circular economy. Technological Forecasting and Social Change, 138, 347–356. https://doi.org/10.1016/j.techfore.2018.10.034

ElAlfy, A., Palaschuk, N., Ntim, C. G., & El-Bassiouny, D. (2020). SDG reporting: A review of firms' integration of the sustainable development goals into sustainability reporting. Journal of Cleaner Production, 254, 120080. https://doi.org/10.1016/j.jclepro.2020.120080

Evans, S., Vladimirova, D., Holgado, M., Fossen, K., & Yang, M. (2017). Business model innovation for sustainability: Towards a unified perspective for creation of sustainable business models. Journal of Cleaner Production, 170, 451–461. https://doi.org/10.1016/j.jclepro.2017.09.239

Fatemi, A., Glaum, M., & Kaiser, S. (2018). ESG performance and firm value: The moderating role of disclosure. Global Finance Journal, 38, 45–64. https://doi.org/10.1016/j.gfj.2017.03.001

Fonseca, L., Domingues, J., Pereira, M., Stuart, R., & Sá, J. (2020). SDG reporting and the integrated approach to sustainability: A review. Environmental Quality Management, 29(3), 47–59. https://doi.org/10.1002/tqem.21605

Frank, A. G., Dalenogare, L. S., & Ayala, N. F. (2019). The industry 4.0 and the digital transformation: A systematic review of the literature. Computers & Industrial Engineering, 149, 106–113. https://doi.org/10.1016/j.cie.2019.01.047

Frishammar, J., & Parida, V. (2019). Circular business model transformation: A roadmap for incumbent firms. California Management Review, 61(2), 5–29. https://doi.org/10.1177/0008125618811926

García-Sánchez, I. M., Hussain, N., Martínez-Ferrero, J., & Ruiz-Barbadillo, E. (2020). Impact of SDG reporting on firm value: Does assurance matter? Business Strategy and the Environment, 29(8), 3270–3283. https://doi.org/10.1002/bse.2589

Geissdoerfer, M., Vladimirova, D., & Evans, S. (2020). Sustainable business model innovation: A review. Journal of Cleaner Production, 277, 122–127. https://doi.org/10.1016/j.jclepro.2020.124017

Hart, S., & Dowell, G. (2011). A natural-resource-based view of the firm. Journal of Management, 37(5), 1464–1479. https://doi.org/10.1177/0149206310390219
Kolk, A., Kourula, A., & Pisani, N. (2017). Multinational enterprises and the SDGs: What do we know and how to proceed? Transnational Corporations, 24(3), 9–32. https://doi.org/10.18356/b2323d32-en
Kravchenko, M., Pigosso, D. C., & McAloone, T. (2020). Towards the ex-ante sustainability screening of circular economy initiatives in manufacturing companies. Journal of Cleaner Production, 260, 121–135. https://doi.org/10.1016/j.jclepro.2020.120964
Lüdeke-Freund, F., Carroux, S., Joyce, A., Massa, L., & Breuer, H. (2020). The sustainable business model pattern taxonomy. Journal of Cleaner Production, 373, 123–137. https://doi.org/10.1016/j.jclepro.2019.124–127
Paulet, E., Parnaudeau, M., & Abdessemed, T. (2021). Sustainability-driven innovation: A review of the literature. Journal of Business Ethics, 171(2), 209–229. https://doi.org/10.1007/s10551-020-04487-x
Pieroni, M., McAloone, T., & Pigosso, D. (2019). Business model innovation for circular economy and sustainability: A review. Journal of Cleaner Production, 215, 198–216. https://doi.org/10.1016/j.jclepro.2019.01.036
Pizzi, S., Leopizzi, R., & Caputo, A. (2021). The contribution of SDG reporting to sustainability performance. Business Strategy and the Environment, 30(1), 404–421. https://doi.org/10.1002/bse.2628
Reim, W., Parida, V., & Sjödin, D. (2021). Circular business model adoption: A dynamic capabilities perspective. Journal of Cleaner Production, 286, 125–155. https://doi.org/10.1016/j.jclepro.2020.124703
Rosati, F., & Faria, L. G. (2019). Business contribution to the SDGs: A systematic review. Journal of Cleaner Production, 236, 117–138. https://doi.org/10.1016/j.jclepro.2019.117–138
Rauter, R., Jonker, J., & Baumgartner, R. (2017). Going circular: A review of business model innovation for sustainability. Journal of Cleaner Production, 160, 991–1002. https://doi.org/10.1016/j.jclepro.2017.01.003
Schaltegger, S., Hansen, E. G., & Lüdeke-Freund, F. (2016). Business models for sustainability: Origins, present research, and future avenues. Organization & Environment, 29(1), 3–10. https://doi.org/10.1177/1086026615599806
Teece, D. (2018). Business models and dynamic capabilities. Long Range Planning, 51(1), 40–49. https://doi.org/10.1016/j.lrp.2017.06.007
Testa, F., Iraldo, F., & Frey, M. (2020). The effect of eco-innovation on competitive advantage. Business Strategy and the Environment, 29(8), 3503–3513. https://doi.org/10.1002/bse.2595
United Nations. (2015). Transforming our world: The 2030 Agenda for Sustainable Development. https://doi.org/10.18356/6e9b3f44-en
van der Waal, J., & Thijssens, T. (2020). Corporate involvement in the SDGs: Exploring the territory. Journal of Cleaner Production, 252, 119–105. https://doi.org/10.1016/j.jclepro.2019.119105