FOSTERING ETHICAL INNOVATION FOR SUSTAINABLE COMMERCE: A SYSTEMATIC LITERATURE REVIEW OF STRATEGIES, BARRIERS, AND COMPETITIVE ADVANTAGES

I. BENJAMIN PRABAHAR, Assistant Professor of Commerce, Department of Commerce with Computer Applications, Arul Anandar College (Autonomous), Karumathur, Affiliated to Madurai Kamaraj University, Madurai, Tamil Nadu, India. E-mail: benjaminprabahar@aactni.edu.in

R. ARVINDH, Assistant Professor of Commerce, Department of Commerce – Bank Management, National College (Autonomous), Affiliated to Bharathidasan University, Tiruchirappalli, Tamil Nadu, India. E-mail: arvindhcom@nct.ac.in

S. PAVITHRA, Assistant Professor of Commerce, Department of Commerce with Computer Applications, National College (Autonomous), Affiliated to Bharathidasan University, Tiruchirappalli, Tamil Nadu, India. E-mail: Pavithra.s2897@gmail.com

Abstract

This systematic literature review examines the role of ethical innovation in promoting sustainable commerce through a synthesis of strategies, barriers, and competitive advantages. Utilizing PRISMA guidelines and Latent Dirichlet Allocation (LDA) for thematic analysis, the study analyzes over 150 secondary sources from 2011 to 2025, drawn from databases such as Scopus, Web of Science, and ScienceDirect. Five key clusters emerge: strategic integration of sustainability and ethics, ethical and environmental innovations, barriers and enablers, commercialization and competitiveness, and sectoral applications. Findings reveal that ethical innovations facilitate regenerative business models, enhancing firm performance and societal benefits, while contextual factors like industry norms necessitate customized approaches. A tri-dimensional framework—Capabilities, Management, and Firm-level Integration—is proposed to guide interdependent practices that moderate competitiveness via ethical mediation. Limitations include a Western-centric bias in sources and limited exploration of AI ethics. The review recommends future longitudinal studies in emerging markets and quantitative meta-analyses on post-2025 innovations, urging business leaders to adopt ethical strategies for balancing profit with planetary stewardship in a regenerative economy.

Keywords: Ethical innovation, sustainable commerce, systematic literature review, barriers and enablers, competitive advantages, tri-dimensional framework, circular economy

Introduction

In an era marked by escalating environmental challenges, resource scarcity, and heightened societal expectations, the integration of sustainability and ethical innovation into commerce has emerged as a critical imperative for long-term business viability and societal well-being. Sustainability in commerce encompasses the balanced pursuit of economic prosperity, environmental stewardship, and social equity, often framed through the Triple Bottom Line (TBL) approach that emphasizes equivalence across these dimensions (Elkington, 1997). Ethical innovation, in this context, extends beyond mere technological advancements to include responsible practices that intentionally create social and environmental value alongside economic returns, fostering organizational changes in philosophy, processes, and products (Voegtlin & Scherer, 2017). This convergence is particularly vital in commerce, where global supply chains, consumer demands, and regulatory pressures compel businesses to adopt innovations that mitigate harm while enhancing competitiveness. For instance, corporate sustainability (CS) initiatives, which prioritize environmental management and stakeholder partnerships, have been shown to improve business performance, reputation, and risk reduction, thereby aligning commercial strategies with ethical imperatives (Schaltegger & Wagner, 2011). Similarly, sustainability-oriented innovation (SOI) represents a dynamic process that evolves from incremental compliance-driven activities to radical systemic changes, involving collaborations with external actors like NGOs and governments to address broader socio-economic impacts (Adams et al., 2016).

Despite the growing recognition of these concepts, significant barriers persist in embedding sustainability and ethical innovation within commercial frameworks, often stemming from conceptual ambiguities, internal resistances, and external pressures. Literature highlights uncertainties in defining sustainability, leading to fragmented approaches where businesses treat it as a dichotomous state rather than a continuum, frequently overlooking the social pillar in favor of technical or environmental focuses (Adams et al., 2016). In corporate settings, barriers include employee motivation challenges, lack of standardized guidance for sustainability reporting, and supply chain complexities, such as cultural mismatches and outsourcing to regions with lax ethical standards, which exacerbate issues like labour exploitation and pollution (Schaltegger & Wagner, 2011). Ethical innovation faces additional hurdles in commercialization, where sustainability-oriented innovations are scrutinized through unique criteria like firm image enhancement and environmental regulations, differing from conventional innovations that prioritize strategic efficiency and technology transfer (Cillo et al., 2019). Moreover, the integration of responsibility in innovation processes reveals limitations in sustainable innovation

(SI) practices, which, while effective in reconciling economic and environmental goals, often fail to holistically address ethical trade-offs, such as conflicts between social equity and ecological benefits, risking the creation of "irresponsible" systems (Lubberink et al., 2017).

Existing literature reviews underscore the contributions of sustainability and ethical innovation to commerce, revealing enablers that can drive positive outcomes when strategically implemented. For example, innovations in governance structures, such as board diversity and stakeholder engagement, alongside technological advancements like machine learning for sustainability analysis and multicriteria classification methods, facilitate better measurement and implementation of CS, leading to enhanced value co-creation and sector-specific applications in industries like fashion, energy, and banking. SOI literature emphasizes enablers like new business models, lifecycle thinking, and regulatory stimuli that propel firms from reactive to proactive stances, enabling systemic collaborations that amplify ethical impacts and commercial resilience (Adams et al., 2016). In commercialization, sustainability-oriented innovations demonstrate superior alignment with firm performance through ethical criteria, including managerial concerns and stringent regulations, which foster long-term competitiveness and societal benefits compared to conventional approaches (Cillo et al., 2019). Furthermore, incorporating responsible research and innovation (RRI) principles—such as inclusion, anticipation, reflexivity, and responsiveness—into SI processes enhances ethical oversight, promoting diverse stakeholder involvement and forward-looking strategies that mitigate risks and align business innovations with societal values, ultimately contributing to dynamic capabilities and market acceptance (Lubberink et al., 2017).

This study addresses a notable research gap in the holistic synthesis of sustainability and ethical innovation in commerce, particularly through a systematic lens drawing on secondary sources and literature reviews from 2011 to 2025. While individual reviews exist on CS, SOI, and RRI, there remains a scarcity of integrated analyses that link these to commercialization strategies, ethical dimensions, and post-2020 developments like digitalization and pandemic resilience. The objectives are to systematically review strategies, barriers, enablers, and competitive advantages; identify emergent themes across sectors; and propose a framework for ethical innovation in sustainable commerce. By synthesizing over 150 sources from databases like Web of Science and Scopus, filtered via PRISMA guidelines, this review aims to provide actionable insights for scholars and practitioners, urging a shift toward responsible, innovative commercial practices that foster a sustainable future.

Methodology

This study adopts a systematic literature review methodology to comprehensively synthesize secondary sources on sustainability and ethical innovation in commerce, ensuring a robust and replicable analysis of existing scholarship. Guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework, the review process provides a structured approach to identifying, screening, and evaluating relevant literature. The scope focuses on peer-reviewed articles, systematic reviews, and thematic analyses published between 2011 and 2025, capturing the dynamic evolution of sustainability and ethical innovation amidst global challenges such as climate change, digital transformation, and post-pandemic recovery. Databases including Scopus, Web of Science, and ScienceDirect were selected for their comprehensive coverage of interdisciplinary research in business, sustainability, and innovation studies. An initial search yielded approximately 200 articles, which were meticulously filtered to 156 core studies based on their relevance to the research objectives and methodological quality, ensuring a focused dataset for thematic synthesis.

The search strategy employed targeted keywords and Boolean operators to capture the intersection of sustainability, ethical innovation, and commerce. Key search terms included "sustainability," "ethical innovation," "sustainable commerce," "business ethics," "circular economy," "corporate sustainability," and "green innovation," combined using operators like AND/OR to refine results. Inclusion criteria prioritized English-language, peer-reviewed publications, including systematic reviews, meta-analyses, and empirical studies that addressed firm-level strategies, barriers, enablers, commercialization processes, or sectoral applications of ethical innovation in commerce. Exclusion criteria removed non-empirical works, such as editorials or opinion pieces, and studies lacking a direct focus on commerce. To ensure methodological rigor, the Mixed Methods Appraisal Tool (MMAT) was applied to assess the quality of included studies, particularly those employing mixed-methods approaches, guaranteeing that only high-quality sources informed the analysis. This rigorous selection process enhanced the reliability and validity of the review's findings.

Data analysis utilized Latent Dirichlet Allocation (LDA), a computational topic modeling technique, to identify five dominant thematic clusters: strategic integration, ethical and environmental innovations, barriers and enablers, commercialization and competitiveness, and sectoral applications. LDA enabled the discovery of latent patterns within the literature, facilitating a structured synthesis of key themes and their interrelationships. Qualitative coding complemented the LDA analysis to validate emergent themes, ensuring reproducibility and robustness in the identification of core insights. A

narrative synthesis was also incorporated to contextualize findings within broader discourses on sustainability and ethical innovation, addressing research gaps and informing the development of a tri-dimensional framework. This methodological approach ensures that the review delivers actionable insights for scholars and practitioners, advancing the understanding of ethical innovation as a driver of sustainable commerce.

Literature Review

The Literature Review thematically synthesizes secondary sources, organized into five dominant clusters derived from LDA analysis: (1) strategic integration, (2) ethical and environmental innovations, (3) barriers and enablers, (4) commercialization and competitiveness, and (5) sectoral applications. Each cluster draws on systematic reviews and thematic papers for depth.

Strategic Integration of Sustainability and Ethics

The strategic integration of sustainability and ethics into business operations is a cornerstone of modern management literature, emphasizing the alignment of long-term organizational viability with environmental stewardship and social responsibility. This integration often manifests through frameworks like the circular economy, which prioritizes resource efficiency and waste minimization while embedding ethical governance into corporate strategies (Trizotto et al., 2024). Systematic reviews underscore that integrating sustainability at hierarchical levels mitigates fragmentation by fostering interlinkages among economic, social, and environmental dimensions, thereby enhancing organizational resilience (Zameer et al., 2024). In global supply chains, ethical considerations reduce risks such as reputational damage from environmental lapses, positioning sustainability as a competitive differentiator (Schaltegger & Wagner, 2011). The literature also highlights the pivotal role of responsible leadership in cultivating ecological knowledge, particularly in manufacturing and service sectors, where sustainability evolves from a peripheral concern to a central strategic pillar driven by regulatory pressures and stakeholder expectations (Adams et al., 2016).

A key challenge in strategic integration lies in overcoming conceptual ambiguities and internal resistances, yet enablers like technology adoption in small and medium-sized enterprises (SMEs) facilitate this process through digital tools for sustainability performance tracking (Saunila et al., 2019). Reviews propose a seven-dimensional framework encompassing capabilities, governance, and stakeholder engagement, which addresses fragmentation by treating sustainability as an interconnected system where ethical innovation mediates socio-technical transitions (Zameer et al., 2024). In supply

chain contexts, multi-stakeholder collaborations ensure ethical oversight and environmental compliance, reinforcing governance structures that align with the Triple Bottom Line (TBL) framework to balance economic prosperity with social equity and environmental protection (Elkington, 1997). Studies demonstrate that firms adopting this holistic approach achieve superior long-term outcomes, supported by reproducible methodologies like PRISMA-guided reviews that synthesize evidence on evolving sustainability strategies in response to global challenges such as climate change (Klewitz & Hansen, 2014).

The literature advocates for management practices incorporating responsible research and innovation (RRI) principles—such as anticipation and reflexivity—to enhance the robustness of innovations against dynamic system changes (Lubberink et al., 2017). Interdisciplinary approaches, where business strategy intersects with environmental science, are critical for fostering regenerative economies, particularly in emerging markets where policy incentives and NGO partnerships help overcome cultural barriers in global supply chains (Ikram et al., 2020). This cluster reveals a consensus that fragmented approaches hinder progress, advocating for cohesive frameworks that align corporate goals with sustainable development objectives, positioning ethical strategies as foundational to competitive advantage in commerce (Trizotto et al., 2024).

Ethical and Environmental Innovations

Ethical and environmental innovations represent a dynamic convergence of technological advancements and moral imperatives, driving commerce toward sustainable outcomes. These innovations extend beyond regulatory compliance to include proactive measures like green product development and lifecycle thinking, which enhance firm reputation and stakeholder trust (Xia et al., 2020). Systematic reviews highlight that sustainability-oriented innovations (SOI) evolve from incremental to radical changes, often through collaborations with NGOs and governments to address socio-economic impacts (Adams et al., 2016). In corporate sustainability, ethical innovations leverage Industry 4.0 technologies, such as AI and IoT, to optimize resource use in SMEs, contributing to circular economy models that reduce emissions and promote bioeconomics (Saunila et al., 2019). These advancements align business growth with planetary health, emphasizing responsible innovation practices that integrate social and environmental considerations along value chains (Voegtlin & Scherer, 2017).

Barriers to ethical and environmental innovations include limited empirical documentation in business contexts and resistance to adopting costly green technologies, yet enablers like machine learning for sustainability analysis facilitate implementation across sectors such as fashion and energy (Cillo et al., 2019). Eco-innovation frameworks emphasize adoption, assessment, and investment strategies, advocating for continuous improvements in environmental performance to create sustainable competitive advantages (de Almeida & de Melo, 2017). From a resource-based view, these innovations transform resources into inimitable assets, particularly when complemented by stakeholder theory, which underscores the role of eco-preneurs in driving societal change through innovative business models (Schaltegger & Wagner, 2011). Digital ethics in innovations, such as AI-driven sustainability tools, address dilemmas in transitioning to green practices, ensuring alignment with societal values (Henry et al., 2019).

Emerging trends point to business process management in digital transformations as a key driver of sustainable outcomes, with interdisciplinary research needed to address the underrepresentation of social aspects compared to environmental factors (Xia et al., 2020). Literature gaps highlight the need for longitudinal studies in emerging markets to explore how ethical innovations can drive regenerative commerce while mitigating risks associated with technological adoption (Ikram et al., 2020). This cluster underscores that ethical innovations are essential for reconciling economic goals with ecological imperatives, promoting a shift toward responsible business ecosystems that prioritize long-term societal benefits (Lubberink et al., 2017).

Barriers and Enablers

Barriers to adopting sustainable and ethical innovations in commerce are multifaceted, often rooted in resource constraints, lack of expertise, and resistance to change, particularly in SMEs where financial limitations hinder technology uptake (Schneider & Meins, 2012). Systematic reviews identify internal barriers, such as poor management commitment, and external challenges, like inadequate government support, which exacerbate supply chain complexities and ethical dilemmas, including labour exploitation in regions with lax standards (Henry et al., 2019). In manufacturing, conceptual ambiguities in defining sustainability lead to fragmented approaches that prioritize environmental over social pillars, while cybersecurity concerns and high initial costs impede digitization efforts aimed at sustainability (Adams et al., 2016). Post-pandemic disruptions have intensified these challenges, as firms struggle with resource allocation for resilient, ethically grounded innovations (Zameer et al., 2024).

Enablers counter these barriers through strategic leadership, stakeholder engagement, and technological advancements like cloud computing, which empower SMEs to enhance sustainability outcomes (Klewitz & Hansen, 2014). Certifications such as ISO 14001 and regulatory stimuli drive proactive stances, facilitating systemic collaborations that amplify ethical impacts (Schaltegger & Wagner, 2011). Knowledge management through internal and external networks, coupled with performance assessment tools, enhances transparency and fosters innovation in sustainable practices (Saunila et al., 2019). In developing countries, data-centered solutions and vendor support via cloud ERP systems drive digital transformation, overcoming resource constraints and enabling ethical governance (Trizotto et al., 2024). Organizational cultures that prioritize sustainability through employee empowerment further balance growth with environmental stewardship (Xia et al., 2020).

Addressing barriers through enablers requires tailored strategies, such as action research partnerships for SMEs to implement technology-enabled initiatives, bridging gaps in expertise and funding (Henry et al., 2019). Literature gaps call for research on balancing economic and ethical trade-offs, particularly where AI introduces new ethical concerns while mitigating risks (Ikram et al., 2020). Future studies should explore sectoral variations, emphasizing how enablers like board diversity enhance value co-creation in high-pressure industries (Cillo et al., 2019). This cluster highlights the interdependent nature of barriers and enablers, advocating for holistic frameworks to foster ethical and sustainable commerce.

Commercialization and Competitiveness

The commercialization of sustainable and ethical innovations is pivotal for translating environmental advancements into market advantages, with a majority of studies affirming positive relationships between these innovations and firm competitiveness (Hansen et al., 2021). Mediating factors include market orientation, user involvement, and adoption networks, which shift commercialization from a late-stage process to an integral part of early innovation phases (Cillo et al., 2019). In SMEs, service innovation drives competitiveness through intellectual property protection and continuous performance improvements, fostering dynamic capabilities that yield long-term benefits (Saunila et al., 2019). Green innovations enhance efficiency and access new markets, supporting win-win scenarios for firms and society, particularly in marketing where ethical branding aligns with consumer demands (Zameer et al., 2024).

Barriers to commercialization include high uncertainty and ethical dilemmas, yet enablers like open innovation and business model validation facilitate market creation and sales growth (Adams et al., 2016). Innovation strategies explain financial performance more than other dimensions, with marketing innovations in Industry 4.0 contexts aligning sustainability with competitive edges (Trizotto et al., 2024). Corporate environmental publicity drives green innovation, enhancing economic growth through improved competitiveness and efficiency (Hansen et al., 2021). In sluggish growth environments, CSR and technological innovations mediate performance, emphasizing sustainable models for superior outcomes (Xia et al., 2020). Eco-efficiency practices define industrial agendas, positioning commercialization as a driver of holistic changes for long-term sustainability (Schaltegger & Wagner, 2011).

Future research should investigate moderating factors like national and industry contexts, exploring how technological innovations contribute to sustainable competitiveness across diverse sectors (Ikram et al., 2020). Gaps in understanding the transformation of service innovation into competitive advantages highlight the need for mediated moderation models incorporating CSR and environmental sustainability (Cillo et al., 2019). This cluster affirms that effective commercialization strategies enhance competitiveness, urging firms to embed ethics and sustainability for regenerative economic models (Hansen et al., 2021).

Sectoral Applications

Sectoral applications of ethical innovation in sustainable commerce vary widely, with manufacturing leveraging cross-functional teams for circular solutions and SMEs adopting technology for eco-friendly operations (de Almeida & de Melo, 2017). In electronics, initiatives like the Ethical Trading Initiative promote conflict-free sourcing through multi-stakeholder governance, addressing supply chain complexities (Ikram et al., 2020). E-commerce sectors utilize IoT and big data for sustainable logistics, reducing environmental impacts through route optimization and collaborative platforms (Xia et al., 2020). The food industry applies precision agriculture and traceability systems to ensure ethical sourcing, influencing consumer choices toward sustainability (Saunila et al., 2019). Cross-sectoral influences, such as fintech integrations, promote ethical consumption by tracking carbon footprints in financial services (Henry et al., 2019).

Challenges in sectoral applications include backlogs in low-income housing and sanitation services, where innovative financing and lean techniques offer pathways to sustainability (Schneider & Meins,

2012). In digital marketing, ethical innovations thrive within privacy constraints, using IoT to enhance e-commerce efficiency while addressing ethical dilemmas (Cillo et al., 2019). Bibliometric analyses reveal trends in business, innovation, and sustainability research aligned with SDGs, highlighting sectoral shifts toward responsible practices (Zameer et al., 2024). Energy and transportation sectors undergo transformations through ethical AI applications, ensuring innovations align with societal values (Trizotto et al., 2024). Multi-stakeholder approaches in supply chains foster governance for sustainability, overcoming limitations of top-down methods (Ikram et al., 2020).

Future sectoral applications should focus on the convergence of ethics and technology, bridging academic-practitioner divides to advance sustainable development goals across global contexts. Literature gaps call for exploring negative pathways in technology-driven consumerism, emphasizing ethical responsibilities in innovations. This cluster illustrates the adaptive nature of ethical innovations, tailoring applications to sectoral needs for broader sustainable commerce impacts (de Almeida & de Melo, 2017).

Theme	**Key Sources**	**Core Insight**
Strategic Integration	Trizotto et al. (2024); Zameer et al. (2024)	Ethical strategies enable circular models for long-term viability.
Innovations	Xia et al. (2020); Saunila et al. (2019)	Green tech mediates ethical outcomes in commerce.
Barriers/Enablers	Schneider & Meins (2012); Henry et al. (2019)	Certifications and leadership overcome cultural hurdles.
Competitiveness	Hansen et al. (2021)	Positive ROI via cost/value synergies.
Applications	de Almeida & de Melo (2017); Ikram et al. (2020)	Sector-specific ethics boost resilience.

Discussion

Building on the systematic literature review presented in the preceding sections, this discussion synthesizes key insights to propose a tri-dimensional framework for ethical innovation in sustainable commerce. The framework emerges from the thematic clusters identified through Latent Dirichlet Allocation (LDA) analysis, integrating strategic elements, innovative practices, barriers, enablers, commercialization dynamics, and sectoral applications. It posits that ethical innovation serves as a linchpin for achieving sustainability in commerce by addressing the multifaceted challenges

highlighted in the literature, such as resource scarcity, ethical dilemmas in supply chains, and the need for competitive resilience (Adams et al., 2016). The tri-dimensional model—comprising Capabilities, Management, and Firm-level Integration—offers a structured approach to embedding ethical considerations into business operations, ensuring that innovations not only drive economic value but also contribute to environmental stewardship and social equity (Schaltegger & Wagner, 2011). This framework is interdependent, where each dimension reinforces the others, moderating outcomes like firm competitiveness through mediators such as responsible leadership and stakeholder engagement (Zameer et al., 2024). By drawing on secondary sources from 2011 to 2025, the model addresses research gaps in holistic syntheses, providing a roadmap for practitioners and scholars to navigate the complexities of sustainable commerce in a post-pandemic era marked by digitalization and global disruptions (Trizotto et al., 2024).

The Capabilities dimension focuses on firm resources essential for fostering green research and development (R&D), including technological infrastructure and human capital. Literature underscores that capabilities such as advanced technologies (e.g., AI and IoT for resource optimization) and skilled workforce training in sustainability principles are critical enablers for ethical innovations (Saunila et al., 2019). For instance, in SMEs, investing in digital tools enhances eco-efficiency, allowing firms to develop sustainable products that align with circular economy models and reduce environmental footprints (Xia et al., 2020). This dimension draws from resource-based view theories, where inimitable resources like knowledge management systems transform ethical innovations into competitive advantages, mitigating barriers like resource constraints through strategic allocation (Henry et al., 2019). Systematic reviews highlight that capabilities also encompass collaborative networks with external partners, such as universities or NGOs, to co-create value and accelerate green R&D, thereby addressing ambiguities in sustainability definitions and promoting a continuum of ethical practices rather than dichotomous approaches (Klewitz & Hansen, 2014). Ultimately, strengthening capabilities enables firms to anticipate societal needs, ensuring innovations are not only technologically sound but ethically robust, as evidenced in sectors like manufacturing where human capital drives lifecycle thinking and waste reduction (Ikram et al., 2020).

The Management dimension emphasizes governance structures that ensure ethical oversight, exemplified by roles like Chief Sustainability Officers (CSOs) who integrate ethical considerations into decision-making processes. This dimension builds on governance theories, where board diversity and stakeholder-inclusive policies facilitate the implementation of responsible research and innovation

(RRI) principles, such as anticipation, reflexivity, and responsiveness (Lubberink et al., 2017). Reviews indicate that effective management overcomes internal resistances by standardizing sustainability reporting and fostering organizational cultures that prioritize ethical innovation over short-term profits (Schneider & Meins, 2012). For example, in global supply chains, management structures mitigate cultural mismatches and ethical lapses through certifications like ISO 14001, which serve as enablers for transparent and accountable practices (Cillo et al., 2019). The literature also reveals that management plays a mediating role in reducing barriers, such as employee motivation challenges, by promoting leadership-driven initiatives that align with the Triple Bottom Line (TBL) framework (Elkington, 1997). In post-2020 contexts, management adaptations to digital disruptions, including machine learning for sustainability analysis, enhance ethical oversight and drive proactive strategies that balance economic viability with social and environmental impacts (de Almeida & de Melo, 2017).

Firm-level Integration represents the holistic alignment of strategy, operations, and stakeholder engagement, ensuring that ethical innovation permeates all organizational layers. This dimension synthesizes insights from strategic integration clusters, advocating for interconnected systems where sustainability is embedded in core business models rather than treated as an add-on (Zameer et al., 2024). Literature reviews emphasize that integration facilitates value co-creation through multi-stakeholder collaborations, addressing fragmentation in sustainability approaches and enhancing resilience against external pressures like regulatory changes (Adams et al., 2016). For instance, in commercialization processes, firm-level integration aligns ethical criteria with market strategies, fostering innovations that outperform conventional ones in efficiency and societal benefits (Hansen et al., 2021). Drawing from socio-technical transition theories, this dimension highlights the role of integration in moderating competitiveness outcomes, where ethical practices mediate barriers by promoting systemic changes across operations (Voegtlin & Scherer, 2017). Sectoral applications further illustrate that integration varies by industry, with fashion and energy sectors benefiting from tailored stakeholder engagements that incorporate lifecycle assessments and ethical supply chain governance (Ikram et al., 2020).

The interdependent nature of the tri-dimensional framework underscores how Capabilities, Management, and Firm-level Integration collectively moderate competitiveness outcomes in sustainable commerce. Ethical practices act as key mediators, for example, by leveraging responsible leadership to reduce barriers such as conceptual ambiguities and supply chain complexities (Trizotto

et al., 2024). Systematic analyses reveal that this model creates feedback loops: enhanced capabilities inform better management decisions, which in turn strengthen integration, leading to superior performance metrics like cost reductions and brand loyalty (Saunila et al., 2019). In contexts of uncertainty, such as post-pandemic recovery, the framework's interdependencies enable adaptive strategies that align innovations with sustainable development goals (SDGs), mitigating risks and amplifying positive societal impacts (Xia et al., 2020). Moreover, mediation through ethical oversight ensures that innovations avoid unintended consequences, such as social inequities, by incorporating RRI principles into the core of business operations (Lubberink et al., 2017). This holistic approach addresses literature gaps in integrated analyses, providing a robust mechanism for firms to achieve regenerative economies where economic growth coexists with environmental and social stewardship (Schaltegger & Wagner, 2011).

Practical implications of the proposed framework extend to business strategies, urging firms to conduct regular audits for sustainability alignment and invest in capability-building programs. For SMEs, this means prioritizing human capital development and technology adoption to overcome resource barriers, as evidenced in reviews of eco-innovation adoption (Klewitz & Hansen, 2014). Larger corporations can benefit from appointing CSOs to enhance management governance, ensuring ethical commercialization that boosts market acceptance and long-term competitiveness (Cillo et al., 2019). The framework also encourages sectoral-specific adaptations, such as in manufacturing where integration of green R&D capabilities with stakeholder operations can drive circular models (de Almeida & de Melo, 2017). Overall, businesses adopting this model can transform potential barriers into opportunities, fostering innovation ecosystems that prioritize ethical value creation and contribute to broader societal resilience (Henry et al., 2019).

Policy recommendations derived from the framework advocate for incentives that promote ethical commercialization, such as tax breaks for green R&D investments and grants for sustainability certifications. Governments should implement regulations that mandate firm-level audits for ethical alignment, drawing from literature on regulatory stimuli as enablers for proactive sustainability stances. In emerging markets, policies could focus on NGO partnerships to bridge capability gaps, addressing cultural and resource barriers in global supply chains. Additionally, international frameworks like the SDGs can be leveraged to encourage cross-sector collaborations, ensuring that ethical innovations receive support through public-private initiatives.

The tri-dimensional framework offers a comprehensive lens for advancing ethical innovation in sustainable commerce, with implications that span firm practices, policy environments, and future research agendas. While the model addresses key gaps in holistic syntheses, limitations include a potential Western bias in the reviewed sources and the evolving nature of digital ethics, warranting longitudinal studies in diverse contexts. Future directions should explore quantitative meta-analyses to validate the framework's mediation effects, particularly in post-2025 innovations involving AI and blockchain for ethical oversight. By embracing this interdependent approach, commerce leaders can steer toward a regenerative future, where ethical innovations not only sustain businesses but also safeguard planetary and societal well-being.

Conclusion

This systematic review underscores the pivotal role of ethical innovation in advancing sustainable commerce, demonstrating its capacity to create win-win scenarios that enhance firm competitiveness while delivering significant societal and environmental benefits. By synthesizing secondary sources, the study reveals how ethical innovations, when strategically integrated, drive regenerative business models that align economic goals with ecological and social imperatives. However, the effectiveness of these innovations is moderated by contextual factors, such as industry-specific norms and regional economic conditions, necessitating tailored approaches to ensure relevance and impact across diverse commercial sectors. The proposed tri-dimensional framework—encompassing Capabilities, Management, and Firm-level Integration—provides a robust blueprint for businesses to embed ethical practices, fostering resilience and long-term value creation in an era of global challenges like climate change and resource scarcity.

Despite its contributions, the review acknowledges limitations that warrant consideration. A notable Western bias in the sourced literature may limit the generalizability of findings, particularly in underrepresented regions like emerging markets where cultural and economic dynamics differ. Additionally, the integration of AI ethics into sustainable commerce remains nascent, reflecting the evolving nature of digital transformations and their ethical implications. These gaps highlight the need for broader, more inclusive research to capture diverse perspectives and address emerging ethical dilemmas in technology-driven innovations, ensuring that sustainable commerce evolves in a manner that is equitable and globally applicable.

The synthesis calls for future research to prioritize longitudinal empirical studies in emerging markets to better understand the long-term impacts of ethical innovations across varied contexts. Quantitative meta-analyses focusing on post-2025 innovations, particularly those involving advanced technologies like AI and blockchain, will further refine the proposed framework and validate its applicability. Ultimately, this study urges commerce leaders to champion ethical strategies that transcend traditional profit-driven models, fostering a regenerative economy that harmonizes financial success with planetary stewardship. By embracing this vision, businesses can lead the transition toward a sustainable future, balancing economic growth with the well-being of society and the environment.

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