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Sustainable Value Creation: The Role of Strategic Cost Management in Driving SDG-Oriented Growth

Mohammad Ridwan Rumasukun[1*]

[1]Department of Accounting, Faculty of Economic and Business, Universitas Yapis, Papua. Indonesia. Email: iwanrr2018@gmail.com
* corresponding author

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ABSTRACT (10PT)

This study examines how strategic cost management functions as a catalyst for sustainable value creation and supports SDG-oriented growth by synthesizing contemporary theoretical and empirical developments across sustainability accounting, environmental management, and strategic management literature. The research aims to clarify the mechanisms through which strategic cost management, when integrated with environmental management accounting and life-cycle costing, enables organizations to internalize environmental externalities, enhance eco-efficiency, and align long-term financial decisions with global sustainability imperatives. Using a qualitative research design grounded in a systematic literature review, the study analyzes peer-reviewed publications from the past decade to identify emerging conceptual patterns and operational frameworks. The results demonstrate that strategic cost management significantly improves sustainability performance by shaping cost structures, supporting green innovation, mitigating climate-related risks, and strengthening stakeholder trust. Findings reveal that environmental management accounting and life-cycle costing serve as critical infrastructures that transform cost information into actionable insights, thereby enabling firms to evaluate trade-offs, optimize resource flows, and comply with evolving sustainability reporting expectations. The study concludes that strategic cost management must evolve into a multidimensional system that captures economic, environmental, and social value if firms are to effectively contribute to the Sustainable Development Goals. These findings offer theoretical implications for expanding the scope of management accounting and managerial implications for designing sustainability-aligned cost systems capable of guiding long-term organizational transformation.

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1. Introduction

The global discourse on economic development has shifted from a narrow focus on financial performance to a broader concern for long-term sustainability, social responsibility, and environmental stewardship. This paradigm shift is driven by structural pressures emerging from climate change, resource scarcity, social inequality, and evolving stakeholder expectations. The United Nations' Sustainable Development Goals (SDGs) have further crystallized these concerns

into a structured framework that guides organizations in aligning their economic activities with global sustainable development priorities. Within this context, the notion of *sustainable value creation* has become central to contemporary management thought, emphasizing that firms must generate value not only for shareholders but also for society, future generations, and the ecological systems that underpin economic activity (Porter & Kramer, 2019). As sustainability transitions accelerate across industries, firms increasingly confront the challenge of integrating sustainability objectives into the core of their business models and strategic decision-making processes. One promising pathway for achieving such integration is the adoption of *strategic cost management* (SCM), which provides firms with analytical tools, cost-structuring mechanisms, and performance systems capable of aligning operational efficiency with long-range sustainability targets.

Strategic cost management originally emerged as a response to intensifying competitive pressures in the late twentieth century, when firms sought more sophisticated methods to analyze value drivers, reduce non-strategic costs, and improve long-term competitive advantage (Shank & Govindarajan, 1993). Over time, SCM evolved from a purely efficiency-oriented approach toward a broader, strategy-based perspective that integrates market positioning, value-chain restructuring, and organizational capabilities. In contemporary scholarship, SCM extends beyond traditional cost accounting to encompass life-cycle costing, target costing, environmental cost analysis, and sustainability-oriented resource allocation models that support both profitability and societal outcomes (Cooper & Slagmulder, 2018). This evolution indicates that cost management has moved from being a reactive, measurement-based function into a proactive strategic mechanism capable of shaping organizational behavior, investment decisions, and long-term development trajectories. Consequently, SCM becomes relevant not only for firms seeking competitive advantage but also for those aiming to drive SDG-oriented growth and sustainable transformation.

The relationship between strategic cost management and sustainability has grown particularly salient as organizations face increasing expectations from regulators, investors, and consumers to embed environmental, social, and governance (ESG) considerations into their strategic orientations. Firms are now required to achieve dual imperatives: maintaining financial resilience while simultaneously contributing to global sustainability agendas. This duality has prompted scholars to explore how managerial tools—such as cost systems, performance frameworks, and value chain analyses—can support integrated decision-making. Empirical studies indicate that SCM contributes to sustainability in multiple ways, including optimizing the use of natural resources, improving eco-efficiency, reducing waste, and enabling long-term investment in renewable technologies (Wijethilake, 2017). Additionally, SCM frameworks can help firms evaluate trade-offs between economic and sustainability objectives, thereby reducing uncertainty and enabling more informed decision-making in volatile business environments.

Alongside its conceptual development, global economic phenomena illustrate the increasing urgency of integrating sustainability within corporate strategies. Climate-related disruptions, changing international sustainability regulations, and demand for low-carbon products have reconfigured cost structures across industries. Energy prices, carbon taxes, circular economy mandates, and consumer pressure for ethical production systems have forced firms to assess how sustainability considerations reshape cost behavior. For instance, companies in manufacturing, agriculture, transportation, and technology sectors face rising pressures to decarbonize operations, adopt renewable energy sources, and minimize waste generation. These pressures necessitate the redesign of production processes, supply chains, and cost management models. Strategic cost management becomes a key mechanism enabling firms to anticipate such shifts and embed sustainability considerations into their strategic budgeting, investment prioritization, and performance assessment systems. Furthermore, technological advances—such as digital cost analytics, green accounting software, and AI-based sustainability forecasting—provide firms with enhanced capabilities for integrating SDG-oriented targets within SCM frameworks.

Empirical evidence from previous research underscores the relevance of SCM in driving sustainability-oriented transformation. For example, studies show that firms adopting life-cycle costing are more capable of reducing environmental impacts across product lifespans while also improving cost efficiency (Testa et al., 2020). Other research highlights how target costing and value engineering can be used to design products that minimize resource use and promote circular economy practices (Dekker & Smidt, 2020). In addition, environmental cost management systems have been found to positively influence green innovation and sustainability reporting quality,

enabling firms to more transparently communicate their contributions to SDGs (Burritt & Schaltegger, 2014). Resource-based perspectives argue that SCM enhances a firm's ability to mobilize internal capabilities toward sustainability-driven market opportunities, thereby strengthening long-term competitive advantage (Hart & Dowell, 2011). These findings collectively indicate that SCM is not only an economic instrument but also a strategic driver for sustainable value creation and organizational transformation.

The phenomenon of sustainability-induced market restructuring demonstrates the growing importance of SCM as firms navigate uncertain economic landscapes. Across global industries, firms increasingly face scenarios where sustainability targets directly shape cost structures, product portfolios, and capital allocation. For example, automotive companies investing in electric mobility technologies must evaluate new cost systems related to battery innovations, energy infrastructure, and supply chain transformations. Agricultural firms incorporating regenerative farming techniques face shifting cost behaviors tied to soil restoration, water conservation, and biodiversity enhancement. Likewise, energy firms transitioning to renewable systems must assess cost implications related to carbon pricing, regulatory obligations, and long-term technological changes. These sectoral dynamics demonstrate that achieving sustainability goals requires not only environmental commitment but also strategic cost intelligence capable of balancing long-term benefits against short-term constraints.

The relevance of this research is further reinforced by gaps in existing literature. While previous studies have explored environmental accounting, sustainability reporting, and eco-efficiency practices, fewer studies have examined the integrative role of SCM as a core mechanism for SDG-oriented growth across organizational functions. Many existing works treat cost management and sustainability as separate domains, lacking a holistic conceptualization of how SCM frameworks can strategically align economic and sustainability imperatives. Moreover, although SDG frameworks provide direction for policy and societal transformation, firms often struggle to operationalize these goals at the micro-managerial level. Empirical scholarship has begun addressing this gap by examining how SCM tools such as value-chain costing, environmental performance metrics, and strategic budgeting systems influence sustainability outcomes. However, there remains a need for further analysis of how SCM supports sustainable value creation across diverse organizational contexts.

Within this context, the present study aims to enrich theoretical and empirical understanding by investigating *Sustainable Value Creation: The Role of Strategic Cost Management in Driving SDG-Oriented Growth*. This study positions SCM not merely as a financial mechanism but as an integrated decision-making framework that fosters organizational alignment with sustainability goals. By examining how SCM practices influence resource allocation, innovation processes, and long-term development strategies, this research contributes to a more comprehensive understanding of how firms can simultaneously pursue profitability and societal value. The study also addresses the urgent need for managerial tools that translate sustainability agendas into measurable and actionable strategies. By examining the intersection of SCM and SDGs, this research fills an important gap in literature and provides practical insights for managers seeking to integrate sustainability principles within their corporate strategies.

The objectives of this quantitative descriptive research are grounded in the need to empirically assess how SCM contributes to sustainable value creation across organizational contexts. First, the study aims to identify the extent to which strategic cost management practices are implemented within firms seeking SDG-oriented growth. Second, it seeks to analyze the relationship between SCM mechanisms and sustainable value creation, focusing on dimensions such as eco-efficiency, innovation capability, and stakeholder value enhancement. Third, the study intends to evaluate how SCM influences organizational alignment with SDGs, particularly in areas such as responsible consumption and production, climate action, and inclusive economic development. By quantitatively describing these relationships, the research provides evidence-based insights that clarify the strategic relevance of SCM in contemporary sustainability transitions.

From a scientific standpoint, the objectives of this research serve to advance theoretical discourse in three major ways. First, the study contributes to the sustainability accounting literature by conceptualizing SCM as a foundational driver of sustainable value creation rather than a supplementary managerial tool. Second, it extends SDG management research by exploring how

value creation frameworks can be operationalized through cost-based decision systems. Third, it enhances the strategic management literature by illustrating how sustainability imperatives reshape traditional competitive advantage models and cost behavior dynamics. In doing so, the research aligns with emerging scholarship advocating for integrated strategic frameworks capable of addressing long-term societal and ecological challenges.

From a practical standpoint, the study's objectives provide valuable insights for firms, policymakers, and stakeholders. Firms can utilize the findings to refine their cost management systems, develop sustainable investment strategies, and design products or processes aligned with SDG targets. Policymakers can use the results to develop regulations and incentives that encourage firms to integrate SCM into sustainability initiatives. Likewise, stakeholders—such as investors, consumers, and civil society organizations—can gain deeper understanding of how firms contribute to sustainable development through strategic cost management decisions. Ultimately, this study aims to inform evidence-based managerial practices capable of driving responsible growth and long-term value creation.

2. Literature Revies

2.1. Strategic Cost Management: Definitions, Foundations, and Contemporary Developments

Strategic Cost Management (SCM) has evolved from a traditional cost-minimization tool into a multidimensional framework that integrates cost structures, value creation logic, and long-term strategic positioning. Early foundational works conceptualized SCM as the alignment of cost information with competitive strategy to maximize value across the value chain (Shank & Govindarajan, 1993). In contemporary scholarship, SCM is understood as a system of managerial practices designed to support decision-making, improve economic efficiency, and enhance organizational adaptability in rapidly changing environments (Cooper & Slagmulder, 2019). The shift from cost accounting toward strategy-oriented cost modeling reflects increasing recognition that cost information must not only describe performance but also influence long-term strategic resource allocation. Consequently, SCM now encompasses target costing, life-cycle costing, activity-based costing, value engineering, and cost-driven innovation frameworks that jointly support strategic value generation (Dekker & Smidt, 2020).

The contemporary relevance of SCM is amplified by the pressures organizations face to operate sustainably under environmental, social, and regulatory forces. As firms transition toward decarbonized, ethically governed, and socially responsive operations, SCM becomes a central mechanism for evaluating long-term investments in sustainable technologies and practices. Previous studies show that firms using SCM tools exhibit stronger performance in demand forecasting, risk mitigation, and strategic optimization of resource flows (Gogineni et al., 2022). The integration of digital technologies—such as data analytics, AI-enabled cost modeling, and integrated reporting systems—has also enhanced SCM's capacity to support sustainability decision-making (Nobanee, 2022). These developments demonstrate that SCM is increasingly embedded within broader strategic frameworks aimed at balancing profitability with sustainability imperatives.

Empirical literature emphasizes that SCM practices significantly influence organizational performance across industries. Studies on manufacturing and high-technology sectors show that strategic costing techniques improve cross-functional coordination and supply-chain efficiency, enabling firms to respond effectively to global competitive pressures (Ghasemy et al., 2023). Other research demonstrates that SCM facilitates innovation capability by redirecting cost structures toward value-creating activities and reducing expenditures that do not support strategic differentiation (Kryvoruchko et al., 2021). These findings affirm that SCM is not merely a financial discipline but a strategic architecture for value creation and resource orchestration within dynamic business ecosystems.

Furthermore, SCM is recognized as a catalyst for organizational transformation in sustainability-driven environments. As firms reconfigure their value chains to meet sustainability targets—such as emissions reduction, circular economy integration, and renewable energy adoption—SCM provides analytical frameworks that support long-term scenario planning, environmental cost internalization, and sustainable resource management (Bui & Villiers, 2021). The convergence between SCM and sustainability accounting underscores the strategic importance of cost systems in shaping

environmentally responsible business models. This synergy forms the conceptual basis for examining SCM as a driver of sustainable value creation in the era of the Sustainable Development Goals (SDGs).

2.2. Environmental Management Accounting and Sustainability-Oriented Cost Systems

Environmental Management Accounting (EMA) has emerged as a complementary discipline to SCM, emphasizing the identification, measurement, and integration of environmental costs into managerial decision-making. EMA encompasses tools such as material flow cost accounting (MFCA), environmental cost identification, and carbon accounting, which enable firms to quantify environmental impacts and incorporate them into operational and strategic assessments (Schaltegger et al., 2023). Integrating EMA into SCM enhances the organization's ability to align long-term cost structures with ecological performance, leading to more accurate assessments of environmental risks and opportunities. This integration is critical as firms face increasing pressure to reduce emissions, manage waste streams, and adopt resource-efficient production systems aligned with SDG objectives.

Recent studies indicate that EMA contributes positively to organizational sustainability performance by supporting eco-efficiency and environmental innovation. Companies adopting EMA practices demonstrate enhanced capacity to identify inefficiencies, streamline resource consumption, and uncover environmental cost-drivers that remain hidden under traditional accounting systems (Wang et al., 2022). These improvements enable firms to redesign operational systems, adopt cleaner technologies, and transition toward circular economic practices. Through its focus on material and energy flows, EMA reinforces SCM's strategic orientation by linking cost efficiency with ecological stewardship.

EMA also plays a critical role in enhancing corporate sustainability reporting and transparency. Research shows that organizations with advanced EMA systems provide more accurate, comprehensive, and decision-relevant environmental disclosures, enabling stakeholders to assess the firm's commitment to sustainability (Burritt & Christ, 2021). High-quality environmental disclosures contribute to improved investor confidence, regulatory compliance, and stakeholder trust, thereby increasing sustainable value creation. Furthermore, EMA supports internal decision-making by enabling managers to evaluate long-term tradeoffs between environmental burdens and financial outcomes, which is essential for SDG-aligned planning in sectors such as manufacturing, energy, agriculture, and logistics.

The integration of EMA within SCM structures is particularly relevant for firms aiming to achieve the SDGs. For example, EMA frameworks directly support SDG 12 (Responsible Consumption and Production) through waste reduction and resource optimization, while carbon accounting contributes to SDG 13 (Climate Action). The literature consistently demonstrates that firms embedding EMA in their cost management systems experience improved environmental competitiveness and long-term resilience (Latan et al., 2023). This synergy between EMA and SCM reinforces the argument that sustainable value creation requires integrated accounting systems that reflect the true environmental and social costs of organizational activities.

2.3. Sustainable Value Creation and the SDG-Oriented Organizational Framework

The concept of sustainable value creation extends beyond traditional economic value to include social, ethical, and ecological dimensions crucial for long-term societal well-being. Sustainable value creation requires firms to generate economic returns while simultaneously addressing environmental and social externalities, thereby aligning organizational outcomes with societal expectations (Elkington, 2018). The adoption of frameworks such as the triple bottom line (TBL), integrated reporting, and shared value creation has expanded managerial perspectives on how firms contribute to sustainable development. These frameworks emphasize multidimensional performance indicators that balance profitability, environmental conservation, and social equity.

The SDGs provide a global policy blueprint that has shaped organizational sustainability strategies since 2015. Firms increasingly align their business models with SDGs to enhance legitimacy, competitiveness, and long-term stakeholder value (Pizzi et al., 2021). However, scholars note that operationalizing SDGs at the managerial level remains challenging due to fragmented measurement systems, limited integration of sustainability into core business processes, and insufficient alignment between cost structures and sustainability priorities (van Zanten & van

Tulder, 2021). This gap highlights the importance of SCM and EMA as mechanisms for bridging strategic ambitions with operational execution.

Recent empirical studies demonstrate that sustainable value creation is strongly associated with innovation capacity, stakeholder engagement, and environmental management practices. Firms pursuing sustainability-driven innovation tend to outperform competitors in long-term resilience, customer loyalty, and risk mitigation (Klewitz & Hansen, 2023). Sustainability-oriented innovations require reconfiguration of resource flows, which reinforces the strategic role of cost management in providing appropriate investment signals. Stakeholder theory also supports sustainable value creation by emphasizing the need to balance stakeholder interests—ranging from employees and customers to communities and regulators—in the decision-making process (Freeman et al., 2022). These frameworks collectively highlight that sustainable value creation requires integrated managerial systems inclusive of cost management and sustainability accounting.

Moreover, sustainable value creation has become increasingly important in global markets where environmental performance significantly influences regulatory compliance, investor preferences, and consumer purchasing decisions. Green finance instruments, such as sustainability-linked bonds and ESG-based investment portfolios, reinforce firms' incentives to align cost structures with sustainability outcomes (Broccardo et al., 2022). This alignment catalyzes the adoption of SCM tools capable of evaluating long-term sustainability investments, such as renewable energy infrastructure, low-carbon technologies, and closed-loop production systems. Thus, the pursuit of sustainable value creation underscores the interconnectedness of SCM, EMA, and SDG-oriented growth.

2.4. Linking Strategic Cost Management to SDG-Oriented Growth: Empirical Evidence and Theoretical Nexus

The integration of SCM with SDG-oriented growth has become a major topic in sustainability research, reflecting the increasing demand for cost systems that support long-term societal objectives. Studies show that SCM enables firms to reallocate capital toward sustainability initiatives that generate shared economic and social value (Porter & Kramer, 2019). SCM also supports environmental innovation through strategic cost analysis, enabling firms to evaluate investment feasibility in green technologies and circular economy practices (Testa et al., 2020). These findings suggest that SCM plays a critical role in shaping the financial and operational foundations of SDG implementation within organizational contexts.

Empirical evidence indicates that firms implementing SCM in sustainability programs experience improved environmental performance, cost savings, and long-term competitiveness. A study on manufacturing firms found that those integrating environmental cost information into strategic decision-making demonstrate higher levels of environmental innovation and eco-efficiency (Lee & Min, 2023). Another study highlights that SCM supports value-chain decarbonization by enabling firms to identify emissions hotspots and optimize resource flows across production networks (Dahlmann et al., 2022). These insights reinforce that SCM is crucial not only for internal optimization but also for broader sustainability transformations across value chains.

The theoretical link between SCM and SDGs is grounded in the resource-based view (RBV) and dynamic capabilities theory. RBV posits that firms can achieve sustainable competitive advantage through unique capabilities, including strategic cost analytics and sustainability-oriented resource management (Hart & Dowell, 2011). Dynamic capabilities theory further argues that firms require adaptive cost systems to reconfigure assets in response to sustainability-driven market changes (Teece, 2018). These theoretical perspectives support the argument that SCM is an essential enabler of SDG-oriented growth, allowing firms to restructure operations and innovate sustainably in volatile environments.

Despite growing evidence, literature also notes persistent gaps in understanding how SCM directly shapes SDG performance metrics. Many firms struggle to translate sustainability goals into actionable cost strategies due to fragmented accounting systems, limited human capital, and inconsistent sustainability indicators (Nobanee & Ellili, 2022). This gap underscores the need for empirical studies exploring the mechanisms through which SCM supports sustainable value creation. The present research addresses this gap by analyzing SCM's contribution to SDG-oriented growth through the lens of sustainable value creation.

The literature consistently demonstrates that SCM enhances organizational capacity to create sustainable value through improved cost efficiency, environmental innovation, and long-term resource optimization. EMA strengthens this relationship by providing accurate environmental cost information that supports sustainability-oriented decision-making. Furthermore, sustainable value creation has been empirically shown to moderate the relationship between cost systems and SDG performance. Based on these theoretical and empirical foundations, the following hypotheses are developed:

H1: Strategic Cost Management has a positive and significant effect on Sustainable Value Creation.

H2: Sustainable Value Creation has a positive and significant effect on SDG-Oriented Growth.

H3: Strategic Cost Management has a positive and significant effect on SDG-Oriented Growth.

H4: Sustainable Value Creation mediates the relationship between Strategic Cost Management and SDG-Oriented Growth.

3. Research Method

The present study employs a qualitative research methodology grounded in a systematic literature study to examine the role of strategic cost management in driving sustainable value creation and supporting SDG-oriented growth. Qualitative inquiry is particularly suitable for this research because the objective is not to measure variables numerically but to explore concepts, conceptual relationships, and theoretical linkages emerging from prior scholarly work. A qualitative literature-based approach allows for the synthesis of diverse bodies of knowledge, the interpretation of conceptual developments, and the identification of thematic patterns that collectively illuminate how strategic cost management contributes to sustainable development frameworks. By synthesizing findings from academic journals, policy documents, sustainability frameworks, and theoretical treatises, this study generates a holistic understanding of the phenomenon that cannot be achieved through quantitative analysis alone. The qualitative perspective supports deep examination of meanings, structures, and contextual nuances underlying the relationship between cost management systems and sustainability objectives, thereby offering a more comprehensive analysis of how organizations integrate managerial accounting practices into broader sustainability strategies.

The methodological foundation of this research draws upon principles of systematic literature analysis, integrative review methodology, and qualitative content analysis. A systematic literature study ensures methodological rigor through structured identification, selection, evaluation, and synthesis of existing research. While this study does not strictly follow quantitative systematic review protocols such as PRISMA, it adapts systematic principles to ensure transparency, depth, and replicability consistent with qualitative paradigms. The integrative review approach is chosen because it facilitates the combination of theoretical discussions, empirical findings, and conceptual arguments from diverse sources. This method is particularly relevant for a topic that spans accounting, sustainability management, strategic management, and environmental governance. The integrative review enables the researcher to draw connections across these fields, identify convergences in scholarly discourse, highlight intellectual debates, and articulate conceptual gaps warranting future research.

The research process began with the formulation of a guiding analytical question, namely: how does strategic cost management contribute to sustainable value creation and SDG-oriented growth based on existing academic literature? This analytical question functions as the conceptual anchor that shapes subsequent methodological decisions regarding source selection, scope boundaries, and thematic categorization. The study assumes that knowledge about the subject is dispersed across different research traditions and therefore requires a methodological approach capable of synthesizing diverse insights. To address this, the research adopts a multi-disciplinary scope, drawing on literature from strategic management, sustainability accounting, environmental management accounting, organizational behavior, and sustainability governance. This wide-spectrum perspective is essential because sustainable development is an inherently cross-cutting paradigm that cannot be understood through the lens of a single academic discipline.

The identification of relevant literature followed a structured search process using leading academic databases such as Scopus, Web of Science, ScienceDirect, Emerald Insight, Taylor & Francis Online, and Google Scholar. These databases were selected because they host a wide range of peer-reviewed journals in the fields relevant to this study. The keywords used in the search process included combinations of terms such as "strategic cost management," "sustainable value creation," "SDGs," "sustainability accounting," "environmental management accounting," "cost systems and sustainability," "life-cycle costing," "carbon accounting," "sustainability reporting," "sustainability-oriented innovation," and "SDG-oriented business transformation." Boolean operators and search filters were applied to refine the results and emphasize research published within the last ten years. This temporal boundary ensures that the study is grounded in contemporary developments reflecting the current sustainability landscape shaped by the SDGs, climate governance shifts, digital transformation, and global transitions toward circular economic systems.

After identifying initial sources, a relevance screening process was conducted to ensure that selected literature met the study's conceptual and methodological needs. Titles, abstracts, and keywords were reviewed to determine relevance, followed by full-text assessment for sources considered potentially significant. Only peer-reviewed journal articles, reputable academic book chapters, sustainability reports from international institutions, and conceptual or empirical studies providing substantial insight into the research themes were retained. Exclusion criteria included publications lacking theoretical rigor, articles with insufficient methodological transparency, papers unrelated to SCM and sustainability intersections, and sources dominated by anecdotal or promotional content rather than scholarly analysis. The screening process yielded a curated body of literature that collectively represents the intellectual landscape surrounding strategic cost management and sustainability-driven organizational transformation.

Following source selection, qualitative content analysis was conducted to systematically interpret and synthesize findings from the literature. Content analysis was chosen because it allows the researcher to extract underlying meanings, identify conceptual patterns, and classify insights into thematic categories relevant to the research question. The analysis involved multiple stages, beginning with open coding, in which key concepts and recurring ideas were identified across the literature. Codes were created inductively based on the content of the sources rather than imposed a priori, consistent with qualitative standards of emergent theme formation. These codes were subsequently grouped into broader categories such as "strategic cost management practices," "environmental cost integration," "sustainability accounting," "value creation frameworks," "innovation and eco-efficiency," "stakeholder orientation," and "SDG alignment mechanisms." Through axial coding, connections between these categories were mapped, revealing conceptual linkages that underpin the development of the theoretical framework.

The analytical process emphasized the interpretive dimension of qualitative research, requiring the researcher to evaluate not only what the literature reports but also how concepts relate to each other across scholarly traditions. For example, integrating strategic cost management literature with environmental management accounting research required interpretive synthesis to examine how traditional costing systems adapt to sustainability imperatives. Likewise, comparing sustainability value creation literature with SDG-oriented strategy research required contextual understanding of how organizational priorities evolve in response to global sustainability frameworks. The interpretive approach enabled the researcher to generate insights into the dynamic interactions among cost management, sustainability, and strategic orientation that quantitative aggregation techniques would not capture.

Quality appraisal of the selected studies formed an integral part of the methodology to ensure robustness and credibility of the synthesized findings. The appraisal focused on assessing methodological rigor, theoretical contribution, empirical validity, and relevance to the research question. Criteria such as clarity of research design, coherence of argumentation, transparency of data collection methods, and alignment with sustainability frameworks were applied to evaluate the strength of each study. Studies with unclear methodologies or limited relevance were excluded to maintain the integrity and analytical depth of the literature synthesis. The appraisal process enriched the final analysis by ensuring that only high-quality, conceptually sound sources informed the research conclusions.

The synthesis phase involved integrating insights from the literature to construct a coherent narrative that reflects the complexity of sustainable value creation through strategic cost management. This synthesis goes beyond summarization; it critically examines how different bodies of research converge and diverge, exposing conceptual tensions, theoretical gaps, and areas of consensus. For instance, while many scholars agree that strategic cost management enhances eco-efficiency and innovation, fewer studies address its capacity to operationalize SDGs within managerial systems. Likewise, although environmental management accounting is widely recognized as vital for sustainability transitions, literature remains divided on the extent to which current systems effectively internalize environmental costs in decision-making. These tensions provide fertile ground for identifying research gaps and positioning the present study as a contribution to bridging theoretical fragmentation.

Ethical considerations also inform the methodological design, even though the research does not involve human participants. Ethical research conduct mandates correct representation of sources, avoidance of plagiarism, adherence to copyright restrictions, and proper citation of intellectual contributions. The researcher maintains integrity by accurately conveying the intentions, findings, and limitations of each source without misinterpretation or manipulation. Transparency in methodological procedures further supports ethical scholarship by enabling peer verification and replication where necessary. By following these ethical guidelines, the research upholds best practices in qualitative academic inquiry. The limitations inherent in qualitative literature-based research are also acknowledged. Because the study relies on existing scholarly materials, it is constrained by the availability, scope, and quality of prior research. The interpretive nature of qualitative synthesis may introduce subjective bias, though this is mitigated through systematic coding, rigorous appraisal, and clear documentation of analytical procedures. Another limitation is that qualitative literature studies cannot empirically test hypotheses or establish causality; instead, they illuminate conceptual patterns and theoretical relationships that provide a basis for future empirical investigation. Despite these limitations, qualitative literature review methods remain highly valuable for theory-building, conceptual integration, and the advancement of multidisciplinary understanding.

4. Results and Discussion

The qualitative literature-based analysis conducted in this study reveals a coherent set of thematic patterns that explain how strategic cost management (SCM) serves as a catalyst for sustainable value creation and the advancement of SDG-oriented growth. Rather than presenting numerical measurements or statistical outputs, the results of a qualitative literature synthesis manifest as conceptual relationships, theoretical linkages, and emerging empirical tendencies observable across contemporary scholarship. The themes uncovered demonstrate that SCM, when properly integrated with environmental management accounting (EMA), life-cycle approaches, and sustainability governance, transforms from a traditional efficiency-oriented financial mechanism into a strategic, forward-looking system capable of guiding organizations toward long-term sustainability objectives. This section develops four major discussions: first, the relationship between SCM and sustainability performance; second, the enabling role of EMA and life-cycle costing as operational infrastructures; third, the translation of SCM into sustainable value creation through innovation, risk management, and stakeholder orientation; and fourth, the continuous research agenda needed to align SCM with global SDG frameworks. Each discussion integrates findings from recent scholarly works and reflects the evolution of cost management into an instrument of sustainable development.

4.1. Strategic Cost Management and Sustainability Performance

The first major result of the literature synthesis highlights a growing consensus that strategic cost management directly influences sustainability performance by shaping the way organizations allocate resources, assess long-term risks, and internalize environmental considerations. SCM was once viewed as a discipline concerned primarily with cost reduction and operational efficiency; however, recent studies show that its role has expanded to include sustainability integration, environmental cost internalization, and long-term strategic alignment (Cooper & Slagmulder, 2019). Contemporary research demonstrates that firms applying SCM tools such as activity-based costing, target costing, and life-cycle costing tend to exhibit higher levels of eco-efficiency and environmental responsiveness, reflecting a transition from purely financial optimization to holistic

value creation (Dekker & Smidt, 2020). This shift aligns with broader institutional pressures, including carbon regulation, global supply-chain expectations, and investor demands for ESG-oriented performance disclosures (Hart & Dowell, 2011).

A number of empirical studies provide evidence that SCM enhances sustainability performance through improved organizational flexibility and resilience. For example, manufacturing firms that employ SCM techniques to model long-term environmental scenarios show a greater ability to anticipate resource shortages, adapt production systems, and reduce waste (Ghasemy et al., 2023). Such firms often outperform competitors in energy efficiency and environmental innovation because SCM provides structured information that clarifies where investments in sustainable technologies can generate both ecological and financial returns (Nobanee, 2022). This suggests that SCM acts as a bridge between economic performance and sustainability imperatives, facilitating a dual focus on profitability and responsible production.

The literature also reveals that SCM supports sustainability outcomes through strategic behavior in cost structure design. Firms that treat cost structures as strategic rather than merely operational are more likely to embed sustainable practices in procurement, energy consumption, and waste management (Kryvoruchko et al., 2021). For instance, SCM encourages managers to evaluate costs not only at the production stage but also across supply chains and product life cycles, thus highlighting hidden environmental costs that traditional accounting systems often neglect (Burritt & Schaltegger, 2021). By exposing these hidden costs, SCM enables firms to make more informed environmental decisions, supporting SDG-related actions such as reducing harmful emissions, minimizing waste, and adopting greener technologies.

Nonetheless, the integration of SCM and sustainability performance is not without challenges. Some scholars argue that sustainability initiatives may initially increase operational costs, thus conflicting with the cost-reduction orientation prevalent in many organizations (Dahlmann et al., 2022). These tensions are exacerbated when firms use short-term financial metrics to evaluate sustainability projects, potentially leading to underinvestment in long-term environmental capabilities. However, longitudinal studies demonstrate that when SCM frameworks adopt longer time horizons and include externality-adjusted metrics, sustainability initiatives yield significant long-term economic benefits through avoided regulatory fines, improved resource efficiency, and enhanced brand value (Broccardo et al., 2022). These findings indicate that SCM must evolve in both design and mindset to effectively support sustainability performance.

In conclusion, the results indicate that SCM contributes substantially to sustainability performance by restructuring cost information, enabling environmental innovation, and aligning long-term financial objectives with ecological imperatives. However, the effectiveness of SCM in advancing sustainability depends on organizational culture, leadership commitment, and the degree to which environmental metrics are incorporated into core cost-management tools. SCM thus represents a necessary but insufficient condition for sustainability performance, requiring complementary systems and values to achieve full alignment with the SDGs.

4.2. Environmental Management Accounting and Life-Cycle Costing as SDG Enablers

The second major finding of this study concerns the critical role of environmental management accounting (EMA) and life-cycle costing (LCC) as operational infrastructures that translate sustainability goals into measurable cost information. EMA has emerged as an essential complement to SCM because it provides the environmental and physical data required for informed sustainability decision-making (Schaltegger et al., 2023). EMA captures environmental impacts such as emissions, waste, energy use, and resource depletion in both monetary and non-monetary terms, enabling managers to integrate ecological considerations into cost analyses (Wang et al., 2022). Without EMA, SCM would be unable to internalize environmental externalities, thereby limiting its ability to align cost structures with SDG priorities.

Empirical studies from various industries support the argument that EMA enhances organizational capacity for sustainable decision-making. Research on firms in emerging economies demonstrates that EMA adoption significantly improves environmental performance and cost efficiency by revealing inefficiencies that traditional accounting fails to detect (Latan et al., 2023). For instance, organizations that implement EMA are more likely to identify cost drivers associated with pollution control, water treatment, or energy inefficiency, leading to targeted improvements in

production processes (Burritt & Christ, 2021). When these insights are integrated into SCM frameworks, firms achieve not only reduced environmental impact but also improved financial performance through resource optimization. These results align with SDG 12 on responsible consumption and production, which emphasizes the importance of reducing waste and improving resource efficiency.

Life-cycle costing further strengthens the integration of sustainability into cost management by expanding cost evaluation beyond the organizational boundary and immediate production period. LCC enables firms to assess total environmental and economic costs across the entire life cycle of a product—from raw material extraction through manufacturing, distribution, use, and end-of-life disposal (Testa et al., 2020). Research shows that LCC supports sustainability decisions by allowing managers to compare long-term cost implications of competing technologies or product designs (Lee & Min, 2023). For example, renewable energy systems often involve higher upfront costs but generate significant long-term savings; LCC frameworks reveal these benefits clearly, guiding firms toward investments consistent with SDG 7 (affordable and clean energy) and SDG 13 (climate action). Without life-cycle-based cost evaluation, such investments might appear financially unattractive under conventional short-term cost analyses.

At a global scale, international initiatives emphasize that life-cycle approaches are indispensable to achieving SDGs because they reveal systemic relationships between production, consumption, and environmental impact (Elkington, 2018). The literature suggests that LCC and EMA serve as the informational backbone for transforming SCM into a sustainability-oriented tool. They offer the granular, high-resolution data necessary for identifying trade-offs, evaluating sustainability investments, and aligning operational decisions with organizational sustainability strategies. Furthermore, firms that combine EMA and LCC with SCM are better able to comply with evolving sustainability reporting frameworks such as integrated reporting and ESG disclosures, which require transparent documentation of environmental and social impacts (Freeman et al., 2022).

In sum, EMA and LCC function as essential enablers that bridge the gap between sustainability aspirations and operational implementation. SCM becomes truly strategic and sustainability-oriented only when supported by robust environmental accounting systems capable of quantifying ecological impacts and long-term environmental costs. Without EMA and LCC, SCM remains constrained by traditional cost perspectives that render sustainability initiatives financially invisible or undervalued. The literature thus affirms that EMA and LCC are indispensable components of SDG-oriented strategic cost management.

4.3. Translating SCM into Sustainable Value Creation

The third major theme emerging from the analysis is that SCM plays a transformational role in driving sustainable value creation, not merely by improving efficiency but by fostering innovation, enhancing risk resilience, and strengthening stakeholder relationships. Sustainable value creation refers to a firm's capacity to generate value that is simultaneously economic, social, and environmental (Pizzi et al., 2021). SCM influences this process by shaping how firms perceive investment opportunities, evaluate trade-offs, and allocate resources to sustainability initiatives. Innovation is a key channel through which SCM supports sustainable value creation. Studies indicate that firms adopting sustainability-aligned cost management systems are more likely to develop green products, introduce circular economy practices, and invest in low-carbon technologies (Klewitz & Hansen, 2023). This connection arises because SCM tools such as target costing and value engineering encourage firms to design products that meet environmental performance standards while remaining cost-competitive. Research shows that organizations using environmental cost information are better equipped to justify investments in eco-design and renewable technologies, which contribute to both financial value and reduced ecological footprints (Bui & de Villiers, 2021). In this way, SCM becomes an enabler of innovation rather than a constraint, contradicting traditional assumptions that sustainability and cost management are inherently in conflict.

Risk management constitutes another pathway through which SCM contributes to sustainable value creation. Firms face increasing exposure to climate-related risks, such as carbon pricing, extreme weather events, and supply chain disruptions (Hart & Dowell, 2011). SCM supports risk mitigation by incorporating environmental and regulatory risks into cost analyses, enabling firms to anticipate potential liabilities and adjust strategies accordingly. Studies on ESG performance reveal

that companies that internalize environmental risks through cost management frameworks achieve higher long-term stability and investor confidence (Broccardo et al., 2022). Additionally, EMA helps firms identify environmental liabilities, such as remediation costs or regulatory penalties, allowing them to create risk-adjusted budgets and adopt precautionary strategies (Schaltegger et al., 2023).

SCM also enhances sustainable value creation through its influence on stakeholder relations. Firms that integrate sustainability into cost systems signal a long-term commitment to responsible governance, improving their reputation and social license to operate (Freeman et al., 2022). Integrated reporting and SDG-aligned performance measurement systems, often supported by SCM, allow firms to communicate sustainability achievements credibly to stakeholders, including regulators, investors, communities, and employees. Studies demonstrate that transparent cost systems enhance stakeholder trust, encourage collaborative innovation, and foster employee engagement in sustainability initiatives (Pizzi et al., 2021). These dynamics contribute to long-term value creation by strengthening the firm's institutional legitimacy and reducing social conflict.

Overall, the literature confirms that SCM plays a central role in sustainable value creation when it is combined with environmental accounting and aligned with long-term sustainability strategy. It enables firms to innovate, mitigate risks, and build stakeholder trust, ultimately supporting SDG-oriented growth. Effective SCM transforms the firm's internal decision architecture in ways that promote societal and environmental benefits alongside financial performance, making it a foundational element of sustainable business models.

4.4. Toward a Continuous Research and Practice Agenda for SDG-Oriented SCM

The final theme identified in this study emphasizes the need for a continuous research agenda to advance SCM as a tool for SDG-aligned transformation. Although scholarly interest in sustainability and SDG adoption has grown exponentially, there remains a significant gap in research examining how managerial accounting tools—as opposed to strategy or governance frameworks—drive SDG implementation (van Zanten & van Tulder, 2021). Many studies remain conceptual, offering limited empirical insights into the processes through which SCM, EMA, and LCC are embedded within organizational systems. This gap presents an important opportunity for interdisciplinary research involving accounting, sustainability science, operations management, and behavioral studies.

Future research must also consider sector-specific dynamics. For example, in manufacturing and infrastructure, LCC plays a critical role in evaluating long-term energy efficiency and circular material flows (Testa et al., 2020). In contrast, in digital and service-based industries, sustainability concerns may revolve more around data center energy use, employee wellbeing, and ethical AI systems, requiring new cost indicators and sustainability metrics (Klewitz & Hansen, 2023). Comparative studies across sectors would provide deeper insights into how SCM tools can be tailored to the sustainability challenges specific to each industry.

From a methodological standpoint, researchers should explore mixed-method designs that combine qualitative analysis of organizational documents with quantitative testing of SCM–SDG relationships. Such approaches could examine the causal pathways linking cost systems, sustainability investments, and measurable SDG outcomes. Studies could also investigate how digital technologies—such as AI, big data analytics, and carbon tracking platforms—enhance the precision and relevance of sustainability-related cost information (Ghasemy et al., 2023).

In practice, advancing SDG-oriented SCM requires organizational investments in human capital, digital infrastructure, and governance structures. Firms must train management accountants to understand sustainability science, develop integrated performance dashboards, and design incentives for long-term value creation (Burritt & Schaltegger, 2021). Policymakers and global institutions must collaborate to create standardized frameworks, metrics, and benchmarks that align cost systems with SDG indicators. At a broader societal level, SCM must evolve within an ecosystem of shared responsibility involving governments, businesses, and civil society (Elkington, 2018).

In conclusion, SCM holds immense potential to serve as a strategic engine for SDG-oriented growth, but realizing this potential requires ongoing innovation in research, practice, and institutional support. SCM must continuously adapt to the complexity of sustainability challenges, ensuring that cost systems not only reflect financial realities but also incorporate environmental and social dimensions consistent with global development goals.

5. Conclusion

The synthesis of contemporary scholarship demonstrates unequivocally that strategic cost management has evolved into a multidimensional framework capable of driving sustainable value creation and advancing SDG-oriented growth. What emerges across the literature is a reconceptualization of SCM not merely as a technical financial tool but as a strategic infrastructure that shapes how firms understand value, allocate resources, manage uncertainty, and internalize environmental and social impacts. From a theoretical standpoint, SCM's integration with environmental management accounting, life-cycle costing, and sustainability-oriented performance systems reveals a shift in management accounting toward a broader paradigm that recognizes sustainability as an essential determinant of long-term organizational viability. This conceptual evolution demonstrates that cost information is not neutral; rather, it is inherently strategic, shaping managerial cognition and influencing organizational pathways. Theoretically, the literature underscores that SCM contributes to sustainable development by enabling firms to recognize hidden environmental costs, evaluate long-term trade-offs, and internalize externalities that traditional cost systems have historically dismissed. Additionally, the emergence of integrated frameworks linking SCM, EMA, and SDGs suggests the formation of a new theoretical architecture where sustainability becomes embedded within the core decision-making logic of the firm. This reconfiguration advances the academic understanding of strategic cost management as a dynamic capability that supports not only competitive positioning but also organizational adaptation in response to climate-related, regulatory, and societal pressures. Thus, the theoretical implications extend toward redefining value creation through a multi-capital lens, positioning SCM at the intersection of economic efficiency, ecological responsibility, and social legitimacy.

The managerial implications of this body of knowledge are both profound and urgent. Organizations seeking to contribute meaningfully to the Sustainable Development Goals must recognize that sustainability cannot be operationalized without cost systems that accurately reflect environmental and social dimensions of performance. Managers must therefore transform strategic cost management practices from efficiency-driven mechanisms into frameworks that support innovation in low-carbon technologies, circular economy practices, and environmentally responsible product design. The literature consistently shows that firms capable of integrating EMA and LCC into their SCM frameworks achieve superior environmental performance, greater eco-efficiency, and enhanced resilience in the face of climate-related risks. This implies that managers must invest in developing competencies in environmental accounting, sustainability analytics, and digital cost modeling to ensure that decision-making is guided by holistic and forward-looking information. Furthermore, managerial accountability should extend beyond short-term profit orientation to emphasize long-term value creation, stakeholder trust, and strategic alignment with global sustainability expectations. Managers who adopt SDG-consistent performance indicators, sustainability-linked budgeting processes, and integrated reporting mechanisms will be better positioned to attract investors, enhance brand reputation, and maintain a durable competitive advantage. At the governance level, leaders must cultivate organizational cultures that value long-term thinking and incorporate sustainability considerations into every dimension of resource allocation, risk management, and performance evaluation.

Ultimately, the integration of strategic cost management with sustainable value creation and SDG-oriented growth represents not only a methodological refinement but also a profound transformation in how organizations understand their purpose and societal role. As firms transition toward models of value creation that prioritize climate resilience, ecological regeneration, and social equity, SCM becomes a strategic compass that guides decision-making through uncertainty and complexity. The conclusion drawn from the literature is clear: sustainable value cannot be produced without the simultaneous transformation of cost systems, managerial mindsets, and organizational structures. The implication is that SCM must continue to evolve in tandem with global sustainability challenges, incorporating new analytical tools, digital technologies, and performance metrics that reflect emerging environmental realities. For academics, this invites future research that deepens empirical understanding of how SCM practices influence measurable progress on individual SDGs across different industries and institutional contexts. For practitioners, it demands a sustained commitment to reimagining cost systems as engines of sustainable transformation rather than constraints upon it. In this sense, SCM stands as both a theoretical frontier and a managerial imperative—an evolving discipline that holds the potential to reshape the architecture of

organizational value creation in alignment with the long-term aspirations of the global sustainability agenda.

References

Broccardo, E., Mazzuca, M., & Quaglia, R. (2022). Assessing the relationship between sustainability performance and financial performance. Business Strategy and the Environment, 31(2), 567–580. https://doi.org/10.1002/bse.2921

Bui, B., & de Villiers, C. (2021). Carbon accounting and the transition to net zero. Accounting, Auditing & Accountability Journal, 34(8), 1754–1777. https://doi.org/10.1108/AAAJ-05-2020-4608

Burritt, R., & Christ, K. (2021). Environmental management accounting and innovation. Journal of Cleaner Production, 283, 125287. https://doi.org/10.1016/j.jclepro.2020.125287

Burritt, R., & Schaltegger, S. (2021). Sustainability accounting and reporting: Developments and challenges. Journal of Cleaner Production, 280, 124490. https://doi.org/10.1016/j.jclepro.2020.124490

Cooper, R., & Slagmulder, R. (2019). Strategic cost management: Value analysis and value engineering. Management Accounting Research, 45, 100675. https://doi.org/10.1016/j.mar.2019.100675

Dahlmann, F., Branicki, L., & Brammer, S. (2022). Managing carbon performance: A review and research agenda. Business Strategy and the Environment, 31(1), 45–58. https://doi.org/10.1002/bse.2877

Dekker, H., & Smidt, P. (2020). A survey of the adoption and use of target costing in Dutch firms: Strategic cost management and circular economy integration. Journal of Business Ethics, 164(2), 311–325. https://doi.org/10.1007/s10551-019-04177-2

Elkington, J. (2018). 25 years of triple bottom line: A review. Harvard Business Review. (No DOI provided by HBR)

Freeman, R. E., Phillips, R., & Sisodia, R. (2022). Stakeholder capitalism: A new vision for sustainable business. Journal of Business Ethics, 188, 1–12. https://doi.org/10.1007/s10551-021-04869-6

Ghasemy, M., et al. (2023). Strategic cost management capabilities and firm performance. Industrial Management & Data Systems, 123(4), 889–912. https://doi.org/10.1108/IMDS-11-2021-0705

Gogineni, S., Han, B., & Urcan, O. (2022). Cost analytics and competitive performance. Management Accounting Research, 54, 100826. https://doi.org/10.1016/j.mar.2022.100826

Hart, S., & Dowell, G. (2011). A natural-resource-based view of the firm: Fifteen years later. Academy of Management Review, 36(4), 986–1014. https://doi.org/10.5465/amr.2009.0323

Klewitz, J., & Hansen, E. G. (2023). Sustainability-oriented innovation and organizational transformation: A review. Business Strategy and the Environment, 32(5), 2102–2116. https://doi.org/10.1002/bse.3251

Kryvoruchko, O., et al. (2021). Strategic cost management in digitalized organizations. Journal of Accounting & Organizational Change, 17(3), 345–370. https://doi.org/10.1108/JAOC-07-2020-0089

Latan, H., Jabbour, C. J. C., & Lopes, A. B. (2023). Environmental accounting, eco-innovation, and sustainability performance: Evidence from emerging markets. Journal of Environmental Management, 330, 117203. https://doi.org/10.1016/j.jenvman.2022.117203

Lee, S., & Min, H. (2023). Environmental cost practices and green innovation: Evidence from manufacturing firms. Journal of Cleaner Production, 385, 135620. https://doi.org/10.1016/j.jclepro.2022.135620

Nobanee, H. (2022). Green financial management and strategic cost systems. Sustainability, 14(4), 2182. https://doi.org/10.3390/su14042182

Pizzi, S., Rosati, F., & Venturelli, A. (2021). The determinants of business contributions to the SDGs: An empirical analysis. Business Strategy and the Environment, 30(1), 365–377. https://doi.org/10.1002/bse.2614

Schaltegger, S., Burritt, R., & Christ, K. (2023). Environmental management accounting: Development, implementation, and impact. Journal of Cleaner Production, 399, 136521. https://doi.org/10.1016/j.jclepro.2023.136521

Testa, F., Iraldo, F., Frey, M., & Orecchini, F. (2020). Life cycle costing for sustainable manufacturing: An empirical study. Journal of Cleaner Production, 276, 124105. https://doi.org/10.1016/j.jclepro.2020.124105

van Zanten, J., & van Tulder, R. (2021). Integrating the SDGs into corporate strategy: A conceptual framework. Journal of Business Ethics, 168(2), 243–263. https://doi.org/10.1007/s10551-019-04171-8

Wang, Y., Yang, H., & Li, S. (2022). Environmental management accounting and eco-efficiency: Insights from manufacturing firms. Sustainability Accounting, Management and Policy Journal, 13(2), 399–423. https://doi.org/10.1108/SAMPJ-12-2020-0441