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*Corresponding Author: Osakwe Jude

Examining the Role of Management Accounting in Enhancing Organisational Sustainability

Epifania Ndemuweda,
Department of Accounting and Finance,
Faculty of Strategic Management and Business Administration
International University of Management, Windhoek, Namibia

Abstract

The integration of sustainability considerations into organisational strategy has emerged as a critical imperative for modern businesses facing increasing environmental and social challenges. This paper examines the pivotal role of management accounting in enhancing organisational sustainability through a comprehensive review of contemporary literature. Drawing from systematic analyses of academic journals published between 2020-2025, this study explores how management accounting tools and practices facilitate sustainable value creation while addressing the triple bottom line of economic, environmental, and social performance. The research identifies key areas where management accounting contributes to sustainability, including environmental management accounting (EMA), carbon accounting, sustainability balanced scorecards (SBSC), and integrated performance measurement systems. Findings reveal that organisations successfully implementing sustainability-oriented management accounting practices demonstrate improved environmental performance, enhanced stakeholder engagement, and strengthened competitive positioning. However, significant challenges remain in terms of measurement complexity, integration barriers, and the need for more sophisticated analytical frameworks. The paper concludes with recommendations for future research directions and practical implications for organisations seeking to leverage management accounting as a strategic tool for sustainability transformation. This research contributes to the growing body of knowledge on sustainability accounting and provides valuable insights for academics, practitioners, and policymakers committed to advancing sustainable business practices.

Keywords: Management accounting, organisational sustainability, environmental management accounting, carbon accounting, sustainability balanced scorecard, sustainable performance measurement

1. Introduction

In an era characterized by mounting environmental concerns and growing social consciousness, organisations worldwide are grappling with the urgent need to integrate sustainability into their core business operations. The concept of sustainability, rooted in the premise of meeting present needs without compromising future generations' ability to meet their own needs, has evolved from a peripheral consideration to a central strategic imperative (Schaltegger et al., 2022). This transformation has profound implications for how organisations measure, manage, and report their performance across multiple dimensions of value creation.

Management accounting, traditionally focused on providing financial information for internal decision-making, finds itself at a critical juncture in this sustainability revolution. The discipline is experiencing a fundamental shift as organisations recognize the need for accounting systems that can capture, analyze, and communicate the complex interrelationships between financial performance and environmental and social impacts. This evolution reflects a broader understanding that sustainable business success requires sophisticated information systems capable of supporting decisions that balance economic viability with environmental stewardship and social responsibility.

The significance of this topic extends beyond academic discourse to real-world applications where organisations are discovering that sustainability management accounting can significantly enhance organisational performance through improved resource efficiency, risk management, and stakeholder relationships. Recent empirical evidence from various industries suggests that companies implementing comprehensive sustainability-oriented management accounting practices

achieve superior environmental outcomes while maintaining competitive financial performance.

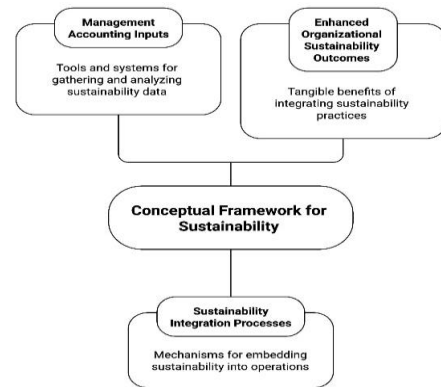


FIGURE 1: Conceptual Framework showing the relationship between Management Accounting and Organisational Sustainability

This figure presents the core conceptual model showing how management accounting tools transform into enhanced organisational sustainability. It displays a three-stage process: inputs (management accounting tools), transformation (sustainability integration processes), and outputs (enhanced sustainability outcomes). Five key components are highlighted at the bottom: Environmental Management Accounting, Carbon Accounting, Sustainability Balanced Scorecard, Performance Measurement Systems, and Strategic Decision Support. A side panel lists measurable benefits including improved environmental performance and competitive advantage.

This paper aims to examine the multifaceted role of management accounting in enhancing organisational sustainability through a systematic analysis of contemporary literature and empirical findings. The research addresses three primary questions: (1) How do management accounting tools and practices contribute to organisational sustainability objectives? (2) What are the key challenges and opportunities associated

with integrating sustainability considerations into management accounting systems? (3) What future developments are likely to shape the evolution of sustainability-oriented management accounting?

2. Literature Review

The intersection of management accounting and sustainability has generated substantial scholarly attention over the past decade, reflecting both the theoretical complexity and practical importance of this domain. A systematic review of accounting's role in integrating sustainability into organisational performance reveals diverse approaches and varying degrees of implementation success across different organisational contexts.

2.1 Evolution of Sustainability Accounting Research

The intellectual structure of sustainability accounting has evolved significantly, with exponential growth in research activity particularly evident after 2006, indicating increased application of sustainability concepts in accounting practice. This growth trajectory reflects the discipline's maturation from exploratory concepts to practical applications across various industries and organisational types.

The theoretical foundations of sustainability accounting draw heavily from institutional theory, stakeholder theory, and legitimacy theory, providing multiple lenses through which to understand organisational motivations and behaviors. Contemporary research emphasizes the importance of management control systems that create multi-level links for sustainability, moving beyond traditional financial metrics to encompass broader stakeholder value creation.

2.2 Environmental Management Accounting

Environmental Management Accounting (EMA) represents one of the most developed areas within sustainability accounting. EMA tools, including biodiversity accounting and carbon management accounting, offer the capability to assess an organisation's impact on the physical environment, ecosystems, and climate change. Research demonstrates that EMA adoption is primarily driven by external pressures from governmental bodies, international organisations, and stakeholder groups seeking enhanced environmental transparency and accountability.

Recent studies examining the nexus between environmental management accounting and carbon emission management reveal significant positive relationships with Environmental, Social, and Governance (ESG) performance, particularly when carbon management acts as a moderating mechanism. This finding suggests that the integration of multiple sustainability accounting tools creates synergistic effects that enhance overall sustainability outcomes.

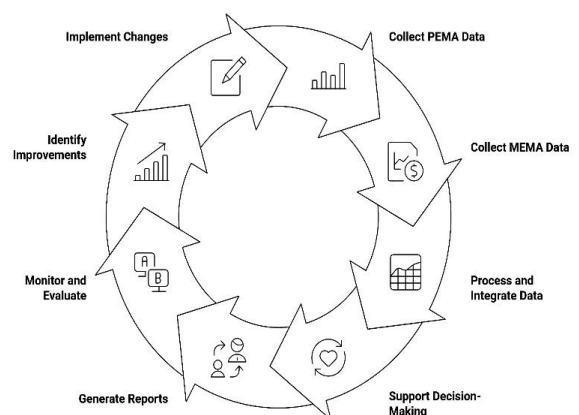


FIGURE 2: Environmental Management Accounting Framework showing Physical and Monetary Information Flows

This framework illustrates the dual information flow system in Environmental Management Accounting. On the left, it

shows two input streams: Physical Environmental Information (material flows, energy usage, emissions) and Monetary Environmental Information (environmental costs, investments, compliance expenses). These inputs are processed through central EMA systems and produce outputs on the right: decision support tools and reporting mechanisms. A feedback loop emphasizes continuous improvement in environmental management practices..

2.3 Performance Measurement and Control Systems

The integration of sustainability considerations into performance measurement systems represents a critical area of research and practice development. The Sustainability Balanced Scorecard (SBSC) has emerged as a performance measurement and management control tool that plays an essential role in driving companies towards sustainability goals, though research reveals significant variations in implementation approaches and architectural configurations.

Studies examining management control systems for sustainability reveal that intensive dialogues among managers at different organisational levels and functions mitigate challenges to technical and organisational integration of sustainability along a firm's value chain. This finding highlights the importance of organisational culture and communication in successful sustainability integration efforts.

3. Theoretical Framework

The theoretical foundation for understanding management accounting's role in organisational sustainability rests on several interconnected frameworks that collectively provide a comprehensive perspective on this complex relationship.

3.1 Triple Bottom Line Framework

The Triple Bottom Line (TBL) framework, developed by Elkington (1994), provides the conceptual foundation for sustainability accounting by recognizing that organisational success must be measured across three dimensions: economic (profit), environmental (planet), and social (people). This framework represents a departure from traditional profit-focused accounting paradigms by incorporating social and environmental considerations alongside economic aspects.

The TBL framework's influence on management accounting practice is evident in the development of integrated performance measurement systems that attempt to capture trade-offs and synergies across the three dimensions. However, practical implementation challenges arise from the difficulty of quantifying and comparing outcomes across disparate measurement units and timeframes.

3.2 Institutional Theory Perspective

Institutional theory provides valuable insights into how institutional pressure—normative, coercive, and mimetic—drives corporate adoption and embedding of sustainability practices, including environmental management accounting and initiatives. This theoretical lens helps explain variations in sustainability accounting adoption across different organisational contexts and regulatory environments.

Coercive pressures from laws and regulations, mimetic pressures from competitive benchmarking, and normative pressures from institutions and society collectively drive organisational environmental action. Understanding these pressure mechanisms is crucial for predicting and managing sustainability accounting implementation success.

3.3 Stakeholder Theory Integration

Stakeholder theory provides another essential theoretical foundation by recognizing that organisational success depends on effectively managing relationships with diverse stakeholder groups who have varying interests in sustainability outcomes. Stakeholder engagement in sustainability issues is critical for the legitimacy and quality of decisions and the admission of complexity and value-laden judgments in decision-making and accountability processes.

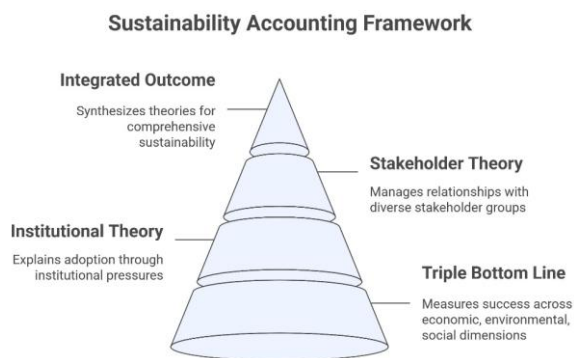


FIGURE 3: Theoretical Framework

Integration Model showing TBL, Institutional Theory, and Stakeholder Theory Interactions

This model demonstrates how three major theories combine to support sustainability accounting. The central hub represents "Management Accounting for Sustainability Integration," connected to three theory circles: Triple Bottom Line Framework (top), Institutional Theory (bottom left), and Stakeholder Theory (bottom right). Each theory has detailed explanation panels showing their specific contributions. Connection lines and arrows show the integration between theories, with a bottom panel explaining the combined theoretical outcome.

4. Key Areas of Management Accounting's Role in Sustainability

4.1 Environmental Cost Management and Carbon Accounting

One of the most tangible contributions of management accounting to organisational sustainability lies in environmental cost management and carbon accounting. Carbon management accounting can support all organisational levels in decision-making, regardless of whether a department is particularly challenged to comply with regulations, to better organize energy and material flows for substantial reduction effects, or is motivated to increase eco-efficiency, product innovation or legitimacy.

The development of sophisticated carbon accounting methodologies enables organisations to quantify, monitor, and manage their greenhouse gas emissions across various scopes and organisational boundaries. Environmental accounting practices like carbon accounting, environmental management accounting, and lifecycle costing support climate mitigation by internalizing environmental externalities, measuring product carbon emissions, and assigning costs to pollution to inform more sustainable decision-making.

Organisations implementing comprehensive carbon accounting systems report several benefits, including:

- Enhanced regulatory compliance capabilities
- Improved energy efficiency and cost reduction
- Better risk management and strategic planning
- Strengthened stakeholder relationships and reputation management

- Increased innovation in product and process design

4.2 Sustainability Performance Measurement Systems

The development of sustainability-oriented performance measurement systems represents another critical area where management accounting contributes to organisational sustainability. The SBSC integrates sustainability accounting and reporting with strategic management, enhancing comprehensive performance evaluation through incorporation of environmental data into BSC frameworks, which improves environmental stewardship and decision-making efficiency.

Research reveals that successful sustainability performance measurement systems share several characteristics:

- **Integration across organisational levels:** Effective systems link strategic objectives with operational activities through hierarchical cause-and-effect relationships
- **Balance of financial and non-financial metrics:** Systems incorporate both quantitative and qualitative indicators to capture the full spectrum of sustainability impacts
- **Stakeholder-responsive design:** Measurement frameworks reflect the priorities and concerns of diverse stakeholder groups
- **Dynamic adaptability:** Systems evolve to address changing sustainability challenges and organisational priorities

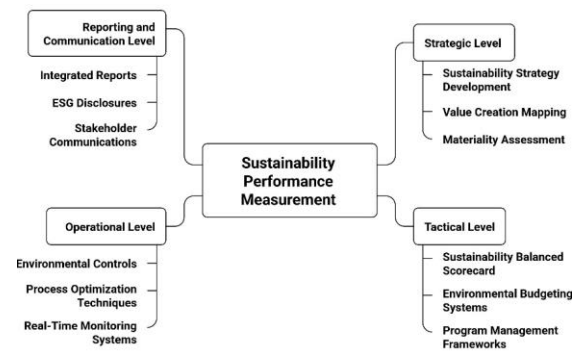


FIGURE 4: Sustainability Performance Measurement System Architecture

This hierarchical framework shows four organisational levels of sustainability performance measurement. From top to bottom: Strategic Level (long-term vision and value creation), Tactical Level (medium-term planning and resource allocation), Operational Level (day-to-day execution and monitoring), and Reporting Level (data aggregation and stakeholder communication). A comprehensive metrics panel on the right provides specific KPIs for each level, while arrows show information flow and a curved line represents continuous feedback.

4.3 Decision Support and Resource Allocation

Management accounting's contribution to sustainability extends to providing sophisticated decision support capabilities that enable organisations to make informed trade-offs between competing objectives. Environmental management accounting furnishes environmental information, helping organisations mitigate uncertainty factors, such as regulatory changes, uncertain waste disposal options, costs, and fluctuations in recycling market demands.

Advanced sustainability-oriented management accounting systems support decision-making through:

- **Life-cycle costing:** Comprehensive analysis of environmental and social costs across product and service lifecycles
- **Activity-based environmental costing:** Detailed allocation of environmental costs to specific products, processes, and organisational units
- **Capital investment analysis:** Integration of sustainability criteria into capital budgeting and investment appraisal processes
- **Supply chain optimisation:** Assessment of sustainability performance across value chain partners and suppliers

4.4 Risk Management and Strategic Planning

Environmental management accounting practices contribute significantly to strategic resilience in organisations by providing data that aids managers in planning, decision-making, and regulating companies' environmental policies and effects. This capability is particularly valuable in increasingly volatile business environments where sustainability-related risks can significantly impact organisational performance.

The integration of sustainability considerations into risk management frameworks enables organisations to:

- Identify and assess environmental and social risks across operations
- Develop mitigation strategies for climate-related financial risks
- Enhance organisational resilience through diversified sustainability practices

- Improve long-term strategic planning through scenario analysis and sustainability forecasting

5. Challenges and Opportunities

5.1 Implementation Challenges

Despite the recognized benefits of integrating sustainability into management accounting systems, organisations face significant challenges in implementation. Analysis of management accounting textbooks reveals relatively low to non-existent coverage of sustainability management accounting issues in the majority of analyzed materials, presenting basic definitions, selected legal requirements, or instruments in only a superficial manner.

Key implementation challenges include:

Measurement Complexity: The multidimensional nature of sustainability creates measurement challenges that require sophisticated methodological approaches to capture complex interdependencies and trade-offs.

Integration Barriers: Many companies still treat sustainability accounting as a separate silo from financial accounting, leading to climate risks being described in ESG reports but not reflected in financial risk analysis or asset valuation.

Resource Constraints: Particularly for small and medium enterprises (SMEs), the development and maintenance of comprehensive sustainability accounting systems require significant resource investments in technology, training, and expertise.

Standardisation Issues: The lack of universally accepted standards for sustainability measurement and reporting creates challenges for comparability and

benchmarking across organisations and industries.

5.2 Technological Opportunities

Digital technologies occupy an essential place in increasing the role of management accounting in organisational strategy and, particularly, in ensuring organisational sustainability through cloud computing, IoT sensors, big data technologies, and artificial intelligence.

Emerging technological opportunities include:

- **Real-time monitoring systems:** IoT sensors and automated data collection enable continuous monitoring of environmental parameters and resource consumption
- **Advanced analytics:** Machine learning and artificial intelligence enhance predictive capabilities for sustainability forecasting and scenario analysis
- **Blockchain applications:** Distributed ledger technologies improve transparency and traceability in sustainability reporting and supply chain management
- **Integrated reporting platforms:** Cloud-based systems facilitate integration of sustainability data with financial information for comprehensive performance management

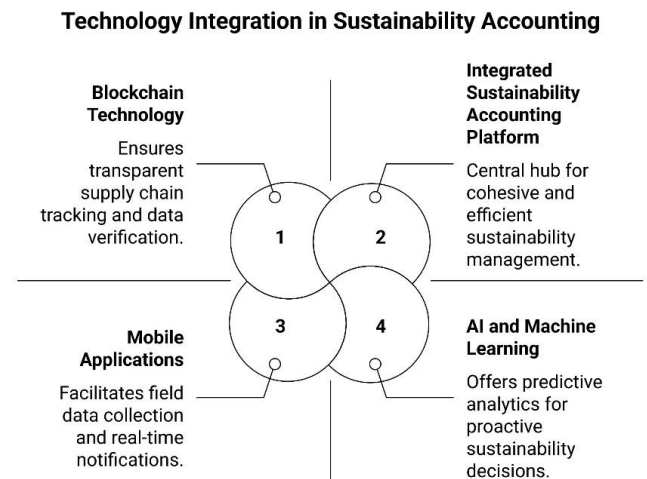


Figure 5: Technology Integration in Sustainability Accounting Systems

This technology ecosystem map shows eight digital technologies arranged around a central "Integrated Sustainability Accounting Platform." The technologies include Data Collection Systems, IoT Sensors, Cloud Computing, AI & Machine Learning, Blockchain Technology, Advanced Reporting, Integration APIs, and Mobile Applications. Connection lines and animated data flow indicators show real-time information exchange between components. A bottom panel highlights eight key benefits of technology integration including real-time monitoring and enhanced transparency.

5.3 Regulatory and Market Opportunities

The evolving regulatory landscape presents both challenges and opportunities for sustainability accounting development. Sustainability reporting shifts from voluntary disclosure to compliance-driven accountability, reinforcing standardisation and governance while sustainability reporting evolves toward integrated thinking, linking financial, social, and environmental considerations.

Regulatory developments creating opportunities include:

- **Mandatory sustainability reporting:** Increasing regulatory requirements for sustainability disclosure drive investment in measurement and reporting systems
- **Carbon pricing mechanisms:** Market-based instruments create economic incentives for sophisticated carbon accounting and management systems
- **Sustainable finance frameworks:** Growing emphasis on ESG criteria in investment decisions creates demand for reliable sustainability information
- **Supply chain due diligence:** Regulatory requirements for supply chain transparency drive development of comprehensive sustainability management systems
- **Sector-specific approaches:** Customized sustainability accounting frameworks tailored to specific industry characteristics and challenges
- **Small and medium enterprise applications:** Simplified sustainability accounting tools appropriate for resource-constrained organisations

6.2 Organisational and Behavioural Research

Further research is needed to develop a better understanding of the influence of stakeholders on the design of EMA tools, systems, or packages within business corporations, moving beyond pressure-only perspectives to examine collaborative engagement approaches.

Key research questions include:

- How do organisational culture and leadership influence sustainability accounting implementation success?
- What are the behavioural impacts of sustainability performance measurement on employee motivation and decision-making?
- How do different stakeholder engagement approaches affect sustainability accounting system design and effectiveness?
- What role do management accountants play as change agents in sustainability transformation efforts?

6.3 Technology and Innovation Research

The rapid pace of technological development creates numerous opportunities for research on technology-enabled sustainability accounting innovations. Future research should explore:

- **Artificial intelligence applications:** Machine learning algorithms for

6. Future Research Directions

6.1 Methodological Advancements

Future research opportunities exist in developing more sophisticated methodological approaches to sustainability accounting. Moving forward, more environmental accounting studies could be undertaken on specific areas of environmental issues aligning with sustainable development goals, such as water accounting, carbon accounting, and space accounting.

Priority research areas include:

- **Integrated measurement frameworks:** Development of methodologies that effectively capture synergies and trade-offs across multiple sustainability dimensions
- **Dynamic sustainability accounting:** Systems that adapt to changing stakeholder priorities and emerging sustainability challenges

sustainability pattern recognition and predictive analytics

- **Blockchain implementation:** Distributed ledger applications for sustainability data verification and supply chain transparency
- **Real-time analytics:** Systems for continuous sustainability performance monitoring and adaptive management
- **Integration platforms:** Technologies for seamlessly integrating sustainability data with financial reporting systems

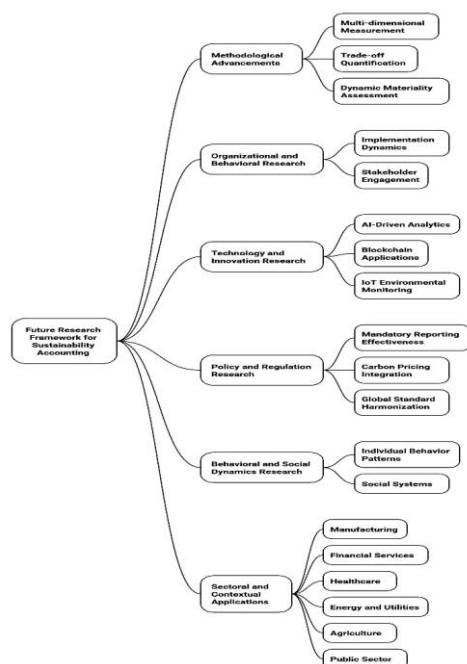


FIGURE 6: Future Research Framework for Sustainability Accounting

This research roadmap identifies six critical domains for future sustainability accounting research arranged in a grid format. The domains are: Methodological Advancements, Organisational & Behavioural, Technology & Innovation, Policy & Regulation, Behavioural & Social Dynamics (spanning full width), and Sectoral Applications (spanning full width with six industry-specific focus areas). Each domain includes priority indicators (High,

Medium, Emerging), timeline labels (2025-2030), and specific research questions. A central circle emphasizes interdisciplinary research integration across all domains.

7. Practical Implications

7.1 For Organisations

Organisations seeking to leverage management accounting for sustainability enhancement should consider several practical strategies:

Phased Implementation: Begin with foundational elements such as environmental cost tracking and carbon footprint measurement before advancing to integrated sustainability performance systems.

Stakeholder Integration: Develop management control systems that address stakeholder expectations through systematic engagement and materiality assessment processes.

Technology Investment: Invest in digital technologies that enable real-time data collection, analysis, and reporting to support evidence-based sustainability decision-making.

Capability Development: Build internal expertise in sustainability accounting through training, recruitment, and collaboration with external experts and academic institutions.

7.2 For Policymakers

Policymakers can support the development of sustainability accounting through several mechanisms:

Standardisation Support: Contribute to the development of standardized sustainability measurement and reporting frameworks that facilitate comparability and reduce implementation costs.

Incentive Structures: Design regulatory and economic incentives that reward organisations for investing in comprehensive sustainability accounting systems.

Education Integration: Support integration of sustainability issues into management accounting education to ensure future practitioners have necessary competencies.

Research Funding: Provide funding for research on sustainability accounting methodologies, particularly for small and medium enterprises and developing economy contexts.

7.3 For Practitioners

Management accounting practitioners can enhance their contribution to organisational sustainability by:

- Developing expertise in sustainability measurement methodologies and reporting frameworks
- Collaborating with sustainability professionals to design integrated performance management systems
- Advocating for technology investments that enable sophisticated sustainability analytics
- Engaging with stakeholders to understand sustainability information needs and priorities

8. Conclusion

This comprehensive examination of management accounting's role in enhancing organisational sustainability reveals a field undergoing rapid evolution and increasing sophistication (Oliveira et al., 2025). The research demonstrates that management accounting contributes to sustainability through multiple pathways, including environmental cost management,

performance measurement system design, decision support capabilities, and strategic risk management (Schaltegger et al., 2022).

The evidence strongly suggests that organisations implementing well-designed sustainability-oriented management accounting systems achieve superior sustainability outcomes while maintaining competitive financial performance (Gerged et al., 2024). Research findings show significant positive relationships between sustainability management accounting and organisational performance, with environmental management systems serving as important mediating factors (Rahman et al., 2025).

However, significant challenges remain in terms of measurement complexity, integration barriers, and the need for more sophisticated analytical frameworks (Burritt et al., 2023). The field requires continued innovation in methodological approaches, technology applications, and organisational design to realize its full potential for supporting sustainability transformation (Christ et al., 2024).

Several key conclusions emerge from this analysis:

Integration is Essential: Successful sustainability accounting requires integration across multiple dimensions—technical systems, organisational processes, and stakeholder engagement mechanisms (Gond et al., 2012). Isolated approaches that treat sustainability as separate from financial performance are unlikely to achieve transformational results (Velte, 2023).

Technology Enables Transformation: Digital technologies provide unprecedented opportunities for sophisticated sustainability measurement, analysis, and reporting (Swalih et al., 2024). Organisations that invest strategically in technology-enabled sustainability accounting systems are likely to achieve competitive advantages (Asiaei et al., 2022).

Stakeholder Engagement Drives Success:

The most effective sustainability accounting systems are those designed with explicit consideration of diverse stakeholder needs and priorities, moving beyond compliance to embrace collaborative value creation (Bebbington & Unerman, 2020).

Continuous Innovation is Required:

The sustainability accounting field must continue evolving to address emerging challenges such as climate change, biodiversity loss, and social inequality (D'Amore et al., 2025). This requires sustained commitment to research, experimentation, and knowledge sharing (Burritt & Schaltegger, 2010).

The implications of this research extend beyond academic discourse to practical applications where organisations are discovering that sustainability accounting represents not just an ethical imperative but a strategic opportunity for long-term value creation (Porter & Kramer, 2011). As global sustainability challenges intensify, management accounting's role in enabling organisational transformation becomes increasingly critical (Lee, 2012).

Future research should focus on developing more sophisticated integration methodologies, exploring technology applications, and examining behavioural and organisational factors that influence implementation success (Hansen & Schaltegger, 2018). The field requires continued collaboration between academics, practitioners, and policymakers to realize the full potential of management accounting as a tool for sustainable transformation (Rodrigue et al., 2013).

This research contributes to the growing body of knowledge on sustainability accounting while providing practical insights for organisations seeking to leverage management accounting capabilities for enhanced sustainability performance (Gunarathne et al., 2021). As the field

continues evolving, the need for evidence-based approaches to sustainability accounting will only intensify, creating opportunities for continued innovation and development (Lueg & Radlach, 2016).

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