Integrating Strategic Management Accounting And Sustainability Accounting Under the Twin Transition: A Conceptual Framework For Vietnamese Enterprises Toward Net-Zero Emissions

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Abstract
The global pursuit of net-zero emissions has repositioned decarbonisation from a peripheral compliance concern to a determinant of competitive survival, yet the accounting systems firms rely upon to guide strategic decisions were not designed to internalise carbon and other sustainability imperatives. This deficiency is acute in export-dependent, carbon-intensive emerging economies such as Vietnam, which has pledged net-zero emissions by 2050 while facing immediate pressure from the European Union's Carbon Border Adjustment Mechanism. This paper addresses a persistent theoretical gap: strategic management accounting and sustainability accounting have developed as largely separate scholarly conversations, leaving unexamined the mechanisms by which the two systems might complement one another under the conditions of the contemporary twin transition. Adopting a desk-research methodology grounded in the synthesis, analysis, comparison, and evaluation of academic, standard-setting, and policy literature, the study develops an integrated conceptual framework built on three interdependent pillars-strategic, sustainability, and digital enablement-drawing on stakeholder theory, institutional theory, the resource-based view, and contingency theory. The framework positions the digital technologies of the twin transition as the mechanism that renders sustainability information strategically actionable and strategic decisions environmentally informed, and it yields three research propositions calibrated to the Vietnamese context. The paper contributes theoretically by bridging two disconnected research streams, and practically by offering managers and policymakers a structured logic for embedding decarbonisation within strategic decision-making. Its principal limitation is that the framework is a theoretical proposition awaiting empirical validation, a task the study specifies as a clear agenda for future research.

Keywords: *strategic management accounting; sustainability accounting; twin transition; net-zero emissions; conceptual framework; Vietnam*

1. Introduction

The global imperative to achieve climate neutrality by mid-century has fundamentally reconfigured the strategic landscape within which firms operate. In 2021, when Vietnam's Prime Minister declared at the 26th Conference of the Parties (COP26) that the country would pursue net-zero emissions by 2050, this pledge became not merely a diplomatic gesture but a structural commitment subsequently formalised in the National Climate Change Strategy to 2050 (Prime Minister of Vietnam, 2022). Yet the translation of such macro-level ambitions into firm-level action remains constrained by a persistent deficiency: the accounting systems that firms rely upon

to guide strategic decisions were not designed to internalise carbon and other sustainability imperatives. This paper argues that resolving this deficiency requires an integrated architecture connecting strategic management accounting (SMA) and sustainability accounting (SA) under the conditions of the contemporary twin transition-the simultaneous and mutually reinforcing pursuit of digital and green transformation (Müller et al., 2024).

The pressures compelling this integration are neither abstract nor distant, particularly for an export-dependent, carbon-intensive economy. The European Union's Carbon Border Adjustment Mechanism (CBAM), which entered its transitional phase on 1 October 2023, requires importers to report the embedded greenhouse gas emissions of goods in six carbon-intensive sectors, with financial obligations commencing in 2026 (European Commission, n.d.). For Vietnam, the implications are material: iron and steel account for the largest share of the country's CBAM-exposed exports to the EU, and the average carbon intensity of Vietnamese steel production stands at approximately 2.51 tonnes of carbon dioxide per tonne of crude steel, well above the global average of 1.85 tonnes (Vietnam Briefing, 2023). Compounding this exposure is a striking readiness gap: a 2022 survey found that only 11 percent of Vietnamese firms understood the content of CBAM, while 53 percent were entirely unaware of the mechanism (Vietnam Briefing, 2023). This combination of high carbon intensity, deep trade exposure, and low institutional preparedness renders the accounting infrastructure supporting corporate decarbonisation a question of competitive survival rather than voluntary corporate citizenship.

The scholarly literature, however, has developed the two accounting subfields relevant to this challenge largely in parallel. Strategic management accounting, since its emergence, has extended the analytical horizon of management accounting toward competitors, markets, and long-term value creation, employing techniques such as strategic cost management, value-chain analysis, and the balanced scorecard (Ekkaphol & Wichitsathian, 2024). Sustainability accounting, in turn, has evolved to capture environmental, social, and governance (ESG) performance, advancing rapidly under the convergence of the International Financial Reporting Standards Sustainability Disclosure Standards and the Global Reporting Initiative framework. Yet reviews of corporate sustainability integration consistently characterise the field as disjointed and fragmented, noting that strategy research has addressed sustainability as a niche problem while neglecting its consolidated effects (Nguyen & Kanbach, 2024). The twin transition literature, meanwhile, has advanced conceptualisations of how digitalisation and decarbonisation interact at the industrial and policy levels (Kovacic et al., 2024), but has rarely been connected to the accounting systems through which firms would operationalise this dual transformation.

This fragmentation constitutes the central research gap this study addresses. Three limitations are salient. First, SMA and SA remain theoretically siloed, leaving unexamined the mechanisms by which the two systems might complement one another. Second, the twin transition is seldom treated as the operative condition shaping accounting integration, despite digital technologies being precisely what render granular carbon measurement and real-time strategic feedback feasible. Third, the overwhelming majority of relevant scholarship is situated in advanced economies, offering limited insight into emerging economies where institutional infrastructures, firm capabilities, and regulatory maturity differ substantially. Vietnam, positioned at the intersection of an ambitious net-zero commitment, acute CBAM exposure, and an accounting system still in transition, represents a theoretically consequential and underexamined setting.

Accordingly, this paper poses the following research question: how can strategic management accounting and sustainability accounting be integrated, under the conditions of the twin transition, into a coherent framework that supports Vietnamese enterprises in advancing toward net-zero

emissions? To address this question, the study adopts a desk-research methodology grounded in the synthesis, analysis, comparison, and evaluation of academic, standard-setting, and policy literature. Its contribution is threefold. Theoretically, it bridges two disconnected research streams by developing an integrated three-pillar conceptual framework-strategic, sustainability, and digital enablement-drawing on stakeholder theory, institutional theory, the resource-based view, and contingency theory. Practically, it offers managers a structured logic for embedding decarbonisation within strategic decision-making. From a policy standpoint, it situates a Vietnamese problem within a global regulatory context, generating implications relevant to other emerging economies confronting comparable carbon-border pressures.

The remainder of the paper proceeds as follows. Section 2 details the research methodology. Section 3 reviews the theoretical foundations of SMA, SA, and the twin transition. Section 4 develops a comparative analysis of the two accounting systems. Section 5 presents the proposed integrated framework and its associated research propositions. Section 6 discusses theoretical, managerial, and policy implications, and Section 7 concludes.

2. Research Methodology

2.1. Research design

This study is conceptual in nature. Rather than testing hypotheses against empirical data, it develops an integrative framework by synthesising existing scholarly, standard-setting, and policy knowledge. This choice is deliberate and methodologically appropriate: the research question concerns how two established but hitherto disconnected accounting subfields can be theoretically reconciled under a novel contextual condition-the twin transition-and such theory-building work is best served by conceptual synthesis rather than premature empirical measurement. Conceptual papers are valuable precisely when a field's constructs have advanced in isolation and require bridging before empirical investigation can proceed on sound theoretical footing.

The study employs a desk-research methodology structured around four sequential analytical operations: synthesis, analysis, comparison, and evaluation. Synthesis aggregates dispersed contributions from strategic management accounting, sustainability accounting, and twin-transition scholarship into a coherent knowledge base. Analysis decomposes each body of literature into its constituent theoretical elements, techniques, and assumptions. Comparison juxtaposes SMA and SA across defined analytical dimensions to expose points of convergence and tension. Evaluation assesses the resulting insights against the empirical and institutional realities of the Vietnamese context to derive an applicable framework. These four operations correspond to the paper's structure, moving from literature review through comparative analysis to framework construction.

2.2. Literature identification and source selection

Source material was drawn from three complementary strata. The first comprises peer-reviewed academic literature retrieved from the Scopus and Web of Science databases, supplemented by targeted searches in Google Scholar to capture recent contributions not yet fully indexed. Search terms combined the core constructs-strategic management accounting, sustainability accounting, carbon accounting, twin transition, digital and green transformation-with contextual qualifiers such as net-zero, emerging economy, and Vietnam. The second stratum consists of authoritative standard-setting and framework documents, including the International Financial Reporting Standards Sustainability Disclosure Standards issued by the International Sustainability Standards Board and the Global Reporting Initiative Standards, which define the contemporary architecture

of sustainability disclosure. The third stratum comprises policy and regulatory sources relevant to the Vietnamese and international decarbonisation context, notably Vietnam's National Climate Change Strategy to 2050 and the European Union's Carbon Border Adjustment Mechanism regulation. To balance conceptual foundation with currency, the selection prioritised recent scholarship-particularly work published from 2020 onward, coinciding with the intensification of both net-zero policymaking and twin-transition research-while retaining seminal earlier contributions that established the theoretical constructs under examination, such as foundational work on SMA techniques and on the integration of sustainability into management control systems. Sources were included where they contributed directly to defining constructs, articulating theoretical mechanisms, or characterising the Vietnamese institutional setting; purely technical or sector-specific studies without conceptual bearing were excluded. Table 1 summarises the three source strata, their principal contribution to the study, and representative references.

Table 1. Source strata and their contribution to the study

Source stratum	Principal contribution to the study	Representative sources
Peer-reviewed academic literature (Scopus, Web of Science, Google Scholar)	Defines core constructs (SMA, SA, twin transition); provides theoretical foundations and prior integration attempts	Ekkaphol & Wichitsathian (2024); Nguyen & Kanbach (2024); Müller et al. (2024)
Standard-setting and framework documents	Establishes the contemporary architecture of sustainability disclosure and measurement	IFRS Sustainability Disclosure Standards (ISSB); GRI Standards
Policy and regulatory sources	Characterises the decarbonisation context and regulatory pressures shaping firm behaviour	Prime Minister of Vietnam (2022); European Commission CBAM Regulation; Chu et al. (2024)

2.3. Analytical procedure

The retrieved material was analysed thematically. Following an established approach to qualitative synthesis, the analysis proceeded by coding sources according to recurring conceptual themes-strategic orientation, information scope, measurement instruments, temporal horizon, digital enablement, and institutional pressure-and then clustering these themes to reveal the structural relationships that inform the proposed framework. This thematic structure directly generated the six comparative dimensions applied in Section 4 and the three pillars of the integrated framework developed in Section 5. Theoretical triangulation was employed throughout: rather than relying on a single lens, the analysis draws jointly on stakeholder theory, institutional theory, the resource-based view, and contingency theory, each illuminating a distinct facet of the integration problem and collectively guarding against the partiality of any single perspective.

2.4. Methodological transparency and limitations

As a conceptual study, this paper is subject to the inherent limitations of the genre. The framework it advances is a theoretical proposition, not an empirically validated model; its constituent

relationships are argued from the literature rather than estimated from data. The source selection, while systematic in its logic, does not follow the exhaustive protocol of a systematic literature review and therefore does not claim comprehensive coverage of all relevant publications. Furthermore, the framework's calibration to the Vietnamese context, though grounded in documented institutional and policy evidence, remains to be tested against firm-level practice. These limitations are not incidental but define the boundary of the study's contribution: the framework is offered as a theoretically disciplined foundation for subsequent empirical inquiry, and Section 7 accordingly specifies directions through which it may be operationalised and validated.

3. Theoretical Background and Literature Review

3.1. Strategic management accounting

Strategic management accounting emerged as a response to critiques that conventional management accounting, with its predominantly internal and short-term orientation, had grown disconnected from the strategic realities firms confront. The term was first coined by Simmonds (1981), who defined it as the provision and analysis of management accounting data about a business and its competitors for use in developing and monitoring business strategy. This formulation marked a decisive reorientation: it directed the management accountant's attention outward, toward competitors, markets, and the firm's relative competitive position, rather than confining it to internal cost control. Bromwich (1990) extended the concept by emphasising the analysis of financial information on the firm's product markets and on competitors' costs and cost structures, thereby locating SMA at the interface between accounting and strategic management.

Over four decades, SMA has developed into a portfolio of techniques rather than a single method. These are commonly grouped into cost-based instruments-such as activity-based costing, life-cycle costing, and value-chain analysis-and performance-based instruments, most prominently the balanced scorecard, which integrates financial and non-financial measures across multiple performance perspectives. What unites these techniques is a common purpose: to generate information that supports the formulation and monitoring of competitive strategy and long-term value creation. Recent syntheses classify the contemporary SMA research agenda into its role in competitive advantage, its integration into strategic management processes, the determinants of its adoption, and, increasingly, its contribution to innovation and sustainability (Ekkaphol & Wichitsathian, 2024)-the last of these signalling the very frontier this paper addresses.

3.2. Sustainability accounting

Sustainability accounting encompasses the identification, measurement, and communication of an organisation's environmental, social, and governance performance, extending the boundaries of accounting beyond financial capital to the ecological and social systems within which the firm operates. Within this broad field, carbon accounting has acquired particular salience as decarbonisation has moved to the centre of corporate and regulatory agendas. Carbon accounting refers to the measurement, tracking, and reporting of an organisation's greenhouse gas emissions, providing the informational basis for both external disclosure and internal management of climate-related risks and opportunities. A systematic review by Di Vaio et al. (2024) documents how carbon accounting outputs increasingly connect to integrated reporting and assurance systems in firms' transition toward net-zero business models, underscoring the field's shift from voluntary disclosure toward strategically consequential measurement.

The institutional architecture of SA has consolidated markedly in recent years. The International Sustainability Standards Board has issued the International Financial Reporting Standards Sustainability Disclosure Standards-IFRS S1 on general sustainability-related disclosures and IFRS S2 on climate-related disclosures-establishing a global baseline for investor-oriented sustainability reporting. These operate alongside the more multi-stakeholder-oriented Global Reporting Initiative Standards, and the convergence between these frameworks is progressively defining the contemporary contours of sustainability disclosure. This standardisation is significant for the present study because it renders sustainability information more comparable, verifiable, and therefore more amenable to integration with the strategic decision architecture of SMA.

3.3. The twin transition

The concept of the twin transition denotes the simultaneous and mutually reinforcing pursuit of digital and green transformation. Originating in European Union policy discourse-where the European Green Deal framed digitalisation as a key enabler of environmental objectives-the concept has since been taken up across management scholarship (Kovacic et al., 2024). Its analytical premise is that digitalisation and decarbonisation are not parallel but interdependent: digital technologies such as artificial intelligence, big data analytics, the Internet of Things, and blockchain furnish the measurement precision, data granularity, and traceability that credible decarbonisation requires, while sustainability imperatives increasingly direct the purposes toward which digital investment is deployed (Müller et al., 2024). Reviews of the field nonetheless caution that the literature remains terminologically fragmented and that the mechanisms linking the two transitions are not yet well theorised. For accounting, the twin transition carries a specific implication that this paper foregrounds: the digital pillar is precisely what makes the integration of strategic and sustainability accounting technically feasible. Real-time emissions data, automated life-cycle assessment, and blockchain-enabled supply-chain traceability transform carbon from a periodically estimated externality into a continuously measurable variable that can enter strategic cost analysis and performance evaluation on the same footing as conventional financial metrics. The twin transition thus functions in this study not as background context but as the enabling condition of the proposed integration.

3.4. Theoretical foundations

Building an integrative framework requires an explicit theoretical basis, and this study draws jointly on four complementary theories, each addressing a distinct facet of the integration problem. This multi-theory approach follows established practice in sustainability accounting scholarship, where legitimacy, stakeholder, and institutional theories are frequently deployed in tandem to provide a holistic, system-oriented account of corporate environmental behaviour (Ali et al., 2024). Stakeholder theory explains why firms extend accounting beyond shareholders' financial interests: the firm depends for its survival and prosperity on a broad constituency-investors, customers, regulators, employees, and communities-whose expectations regarding environmental performance must be managed, with transparent disclosure serving as a central mechanism for doing so. Institutional theory accounts for the pressures that drive convergence in accounting practice, explaining how regulatory mandates such as CBAM, together with normative and mimetic forces, compel firms to adopt carbon measurement and disclosure to secure legitimacy within their institutional field. The resource-based view reframes the integrated accounting system itself as a potential source of competitive advantage: the capabilities to measure, analyse, and strategically deploy sustainability information-especially when enabled by digital technologies-

constitute valuable, rare, and difficult-to-imitate resources. Finally, contingency theory guards against the assumption of a universal solution, holding that the appropriate configuration of accounting systems depends on contextual factors such as regulatory environment, firm size, and technological capability-a consideration of particular importance when transposing frameworks developed in advanced economies to the Vietnamese setting.

3.5. Research gap

The foregoing review reveals three interlocking gaps. First, SMA and SA have matured as largely separate scholarly conversations; although recent work identifies sustainability as an emerging concern within SMA, an integrative framework connecting the two through explicit theoretical mechanisms remains absent. Second, the twin transition, despite its evident relevance, has rarely been positioned as the operative condition enabling accounting integration, leaving the role of digital technologies in reconciling strategic and sustainability accounting undertheorised. Third, the literature is overwhelmingly situated in advanced economies, offering limited purchase on emerging economies where institutional maturity, firm capabilities, and regulatory infrastructure differ substantially. Vietnam-confronting an ambitious net-zero commitment, acute CBAM exposure, and an accounting system still in transition-constitutes precisely the kind of setting these gaps render invisible, and it is to the reconciliation of these gaps that the remainder of this paper is directed.

4. Comparative Analysis of Strategic Management Accounting and Sustainability Accounting

Constructing an integrated framework presupposes a clear understanding of how the two accounting systems differ and where they might reconcile. This section compares strategic management accounting and sustainability accounting across six analytical dimensions derived from the thematic analysis described in Section 2. The comparison serves not to establish the superiority of either system but to expose the structural complementarities and tensions that any integration must address.

4.1. Dimensions of comparison

The two systems diverge first in their primary objective. SMA exists to support the formulation and monitoring of competitive strategy, orienting information toward the firm's market position relative to rivals. SA, by contrast, is oriented toward accountability and the management of environmental and social performance, serving to demonstrate legitimacy and responsiveness to stakeholder and regulatory demands. This difference in purpose cascades into a difference in information scope: SMA draws predominantly on financial and competitor-oriented data, whereas SA incorporates non-financial, physical, and often externality-based measures such as greenhouse gas emissions, resource throughput, and social impact.

The systems also differ in their primary audience. SMA information is fundamentally internal, generated for managers and strategists, while SA information-particularly under the International Financial Reporting Standards Sustainability Disclosure Standards and the Global Reporting Initiative Standards-is substantially external, directed toward investors, regulators, and the broader stakeholder constituency. Their temporal horizons diverge accordingly: SMA typically operates on a medium-term strategic planning cycle, whereas SA increasingly adopts a long-term horizon commensurate with climate trajectories extending to 2050 net-zero targets.

A fifth dimension concerns measurement instruments. SMA deploys established techniques such as value-chain analysis, strategic cost management, and the balanced scorecard, while SA relies on carbon footprinting, life-cycle assessment, and standardised ESG disclosure metrics. Finally, and most consequentially for this study, the two differ in their degree of strategic integration: SMA is by definition embedded in strategic decision-making, whereas SA has historically remained peripheral to core strategy, frequently confined to a compliance or reporting function rather than informing competitive positioning. Table 2 summarises this comparison.

Table 2. Comparative analysis of strategic management accounting and sustainability accounting

Dimension	**Strategic Management Accounting (SMA)**	**Sustainability Accounting (SA)**
Primary objective	Support formulation and monitoring of competitive strategy	Ensure accountability for environmental and social performance
Information scope	Financial and competitor-oriented data	Non-financial, physical, and externality-based data (e.g., GHG emissions)
Primary audience	Internal - managers and strategists	Largely external - investors, regulators, stakeholders
Temporal horizon	Medium-term strategic planning cycle	Long-term, aligned with net-zero trajectories
Measurement instruments	Value-chain analysis, strategic cost management, balanced scorecard	Carbon footprinting, life-cycle assessment, ESG disclosure metrics
Degree of strategic integration	High - embedded in strategic decision-making	Historically low - often confined to compliance and reporting

4.2. Points of convergence and tension

The comparison reveals a fundamental complementarity. SMA possesses a strategic decision architecture but has traditionally lacked systematic environmental content; SA possesses rich environmental content but has struggled to penetrate strategic decision-making. Each system, in other words, holds precisely what the other lacks. This complementarity is the theoretical foundation on which integration becomes not merely possible but compelling: embedding SA's carbon and sustainability metrics within SMA's strategic techniques would allow decarbonisation to be evaluated as a determinant of competitive position rather than as an external constraint upon it. Yet integration confronts genuine tensions. The two systems differ in the temporal cadence of their information, in the units in which they measure (monetary versus physical), and in the audiences they serve, such that naive combination risks producing information that is neither strategically actionable nor externally credible. Reconciling these tensions requires a mechanism capable of translating physical sustainability data into strategically legible form and of synchronising information across differing time horizons.

4.3. Digital technologies as the integrating mechanism

It is here that the twin transition becomes decisive. Digital technologies furnish the mechanism through which the tensions identified above can be resolved. Artificial intelligence and big data analytics enable the continuous processing of high-volume, non-financial data, converting periodic emissions estimates into real-time metrics that can be aligned with strategic planning cycles. The Internet of Things provides direct sensor-based measurement of energy and resource flows, closing the granularity gap between physical and financial data. Blockchain offers verifiable traceability across supply chains, lending SA data the auditability that strategic and external users alike require. In combination, these technologies transform carbon from a periodically reported externality into a continuously measurable strategic variable-precisely the transformation that makes the integrated framework proposed in the next section operable rather than merely aspirational.

5. Proposed Integrated Conceptual Framework

5.1. Structure of the framework

Drawing on the comparative analysis and the theoretical foundations established earlier, this study proposes an integrated conceptual framework built on three interdependent pillars culminating in a single strategic outcome. The first is the strategic pillar, constituted by SMA and its techniques for competitive analysis, cost management, and performance measurement. The second is the sustainability pillar, constituted by SA and its capabilities for carbon accounting, life-cycle assessment, and ESG disclosure. The third is the digital enablement pillar, comprising the technologies of the twin transition-artificial intelligence, big data analytics, the Internet of Things, and blockchain-that mediate between the other two. These three pillars jointly support the target outcome: a credible and strategically embedded pathway toward net-zero emissions.

The framework's central proposition is that the strategic and sustainability pillars, which have historically operated in isolation, become integrable only through the digital enablement pillar, which supplies the data infrastructure necessary to render sustainability information strategically actionable and strategic decisions environmentally inf

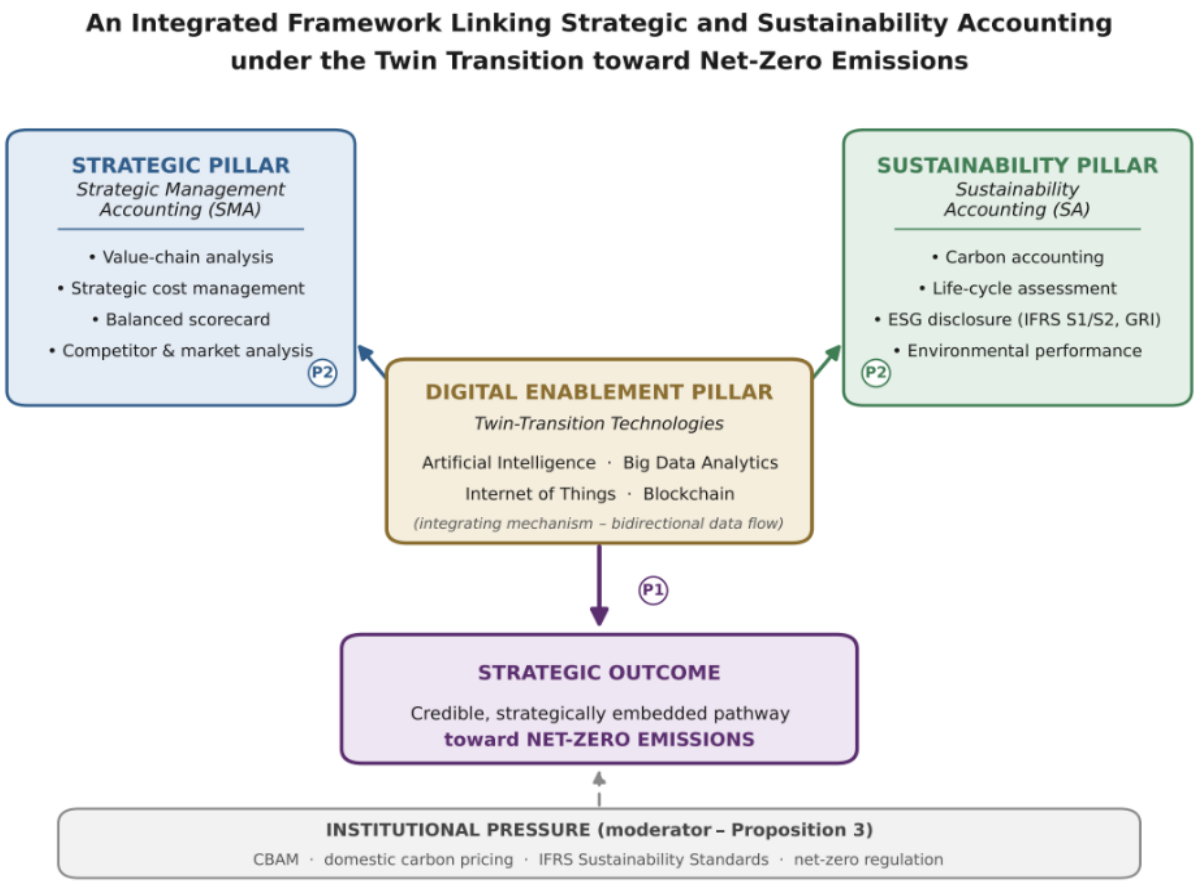

Figure 1 depicts this architecture.

Figure 1. The three-pillar integrated conceptual framework linking strategic management accounting and sustainability accounting under the twin transition. P1–P3 denote the study's research propositions.

5.2. Integration mechanisms and information flows

The framework operates through bidirectional information flows mediated by the digital pillar. From the sustainability pillar, digitally captured carbon and resource data flow into SMA techniques, so that value-chain analysis incorporates emissions intensity, strategic cost management internalises carbon pricing and CBAM exposure, and the balanced scorecard integrates decarbonisation targets among its performance perspectives. In the reverse direction, strategic priorities from the SMA pillar direct the focus of sustainability measurement, ensuring that carbon accounting concentrates on the emissions sources most material to competitive position. The digital pillar sustains a continuous feedback loop between the two, replacing the periodic, backward-looking cadence of conventional sustainability reporting with real-time, forward-looking strategic intelligence.

5.3. Research propositions

Three propositions follow from the framework. First, the integration of SMA and SA enhances the quality of strategic decision-making relevant to decarbonisation, because it allows environmental performance to be evaluated as a determinant rather than a constraint of competitive advantage (Proposition 1). Second, the strength of this integration is contingent upon the firm's digital

enablement capability, such that firms with greater artificial-intelligence, data-analytics, and traceability capacity achieve tighter and more effective integration (Proposition 2). Third, external institutional pressures-most notably CBAM and domestic climate regulation-positively moderate the relationship between integration and decarbonisation performance, as regulatory exposure raises the strategic salience of carbon information (Proposition 3).

5.4. Application to the Vietnamese context

The framework's relevance to Vietnam is grounded in the country's specific institutional configuration. Vietnamese exporters in CBAM-exposed sectors, particularly steel, face immediate pressure to measure and reduce embedded emissions, yet the documented readiness gap indicates that the strategic accounting infrastructure to do so is underdeveloped. Contingency theory cautions that the framework cannot be transposed wholesale from advanced-economy settings: the appropriate configuration must account for the prevalence of small and medium-sized enterprises with limited digital capability, an accounting profession still building sustainability competencies, and a regulatory carbon-pricing regime that remains in formation. For such firms, the digital enablement pillar represents both the principal constraint and the principal opportunity-constraint because capability is scarce, opportunity because targeted investment in digital carbon measurement can simultaneously secure CBAM compliance and generate strategic advantage. The framework thus offers Vietnamese firms a structured logic for sequencing this investment in a manner that couples regulatory necessity with competitive benefit.

6. Discussion and Implications

6.1. Theoretical contribution

This study's principal theoretical contribution is to bridge two research streams that have developed in isolation. By positioning the twin transition's digital technologies as the mechanism reconciling strategic and sustainability accounting, the framework moves beyond prior work that treated sustainability integration either as a management-control configuration or as a disclosure phenomenon, and instead theorises it as a strategically embedded, digitally enabled capability. In doing so, it responds to the emerging recognition within SMA scholarship that sustainability constitutes a frontier of the field, and it extends carbon accounting scholarship by connecting measurement to strategic use rather than to disclosure alone.

6.2. Managerial implications

For managers, the framework offers a structured logic for embedding decarbonisation within strategic decision-making rather than treating it as a parallel compliance obligation. It implies that investment in digital carbon-measurement infrastructure should be evaluated not merely as a reporting cost but as a strategic capability that enables carbon to be managed as a determinant of competitive position. For firms exposed to CBAM, the framework suggests that emissions measurement and strategic cost management should be developed in tandem, so that compliance investment simultaneously yields competitive intelligence.

6.3. Policy implications

For policymakers, particularly in Vietnam, the framework highlights that the readiness gap among firms is not solely a matter of awareness but of accounting infrastructure. Policy support-through capacity-building in sustainability accounting, incentives for digital carbon-measurement adoption, and the timely development of a domestic carbon-pricing regime-would lower the barrier

to the integration the framework describes. Situating a Vietnamese challenge within the global regulatory context, these implications extend to other emerging economies confronting comparable carbon-border pressures.

7. Conclusion, Limitations and Future Research

This paper has developed an integrated conceptual framework connecting strategic management accounting and sustainability accounting through the digital technologies of the twin transition, oriented toward the net-zero objective and calibrated to the Vietnamese context. Its contribution is to reconcile two hitherto separate accounting domains by theorising digital enablement as the mechanism that renders sustainability information strategically actionable, and to translate this reconciliation into three testable propositions and a context-sensitive application for an emerging economy under acute decarbonisation pressure.

The study's limitations follow from its conceptual character. The framework is a theoretical proposition rather than an empirically validated model, its source base does not claim the exhaustiveness of a systematic review, and its calibration to Vietnamese practice remains to be tested at the firm level. These limitations define a clear agenda for future research. The three propositions invite empirical examination through survey or case-based designs among Vietnamese firms in CBAM-exposed sectors; the moderating role of digital capability and institutional pressure warrants quantitative testing; and comparative work across emerging economies would establish the boundaries of the framework's generalisability. In these directions, the framework offered here is intended as a theoretically disciplined foundation for subsequent empirical inquiry rather than as a terminal account.

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