International Journal of Humanities Social Science and Management (IJHSSM)
Volume 5, Issue 5, Sep.-Oct., 2025, pp: 383-394 ISSN: 3048-6874
www.ijhssm.org

Supply Chain Management and Strategic Management Accounting: A Review of Evolving Practices and Future Directions

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Date of Submission: 15-09-2025 Date of Acceptance: 30-09-2025

Abstract
The strategic management of supply chains is a critical determinant of organizational performance in an increasingly globalized and competitive environment. This literature review examines the intersection of strategic management accounting (SMA) and supply chain management (SCM), synthesizing theoretical perspectives, techniques, and emerging trends from high-quality academic research. First, SMA is defined in contrast to traditional management accounting, emphasizing its external orientation, future focus, and role in supporting strategic decision-making. The review then highlights key theoretical perspectives underpinning SMA, with particular attention to performance measurement frameworks and management control systems that align organizational activities with strategic objectives. Building on this foundation, the analysis explores the integration of SMA within SCM through inter-organizational cost management (IOCM), management control systems in buyer–supplier relationships, and the challenges of measuring performance across organizational boundaries. The review also evaluates the application of SMA techniques—including activity-based costing (ABC), the balanced scorecard (BSC), open-book accounting (OBA), and target costing—within supply chain contexts. Finally, the discussion turns to contemporary developments, including digital transformation and sustainability imperatives, assessing how technologies such as blockchain, artificial intelligence (AI), and big data analytics enhance transparency, accountability, and ESG performance measurement. A clear trajectory is identified in the literature: from firm-level, internally focused accounting practices toward inter-organizational, network-oriented approaches consistent with the realities of modern supply chains. The review concludes with an agenda for future research, emphasizing the need for empirical studies on digital SMA tools, standardized sustainability metrics, and the human and relational dynamics—trust, power, and culture—that underpin effective collaboration in supply chain accounting.

Keywords: Strategic management accounting; supply chain management; inter-organizational cost management; performance measurement; digital transformation; sustainability

I. Introduction

The contemporary business environment is defined by intense global competition, rapid technological innovation, and heightened customer expectations for value, speed, and sustainability (Christopher, 2016; MacCarthy et al., 2016). In this context, organizations no longer compete as isolated entities but as integral members of complex, interdependent supply chains (Mentzer et al., 2001). The management of supply chains—encompassing activities from the sourcing of raw materials to the delivery of final products—has therefore become a critical driver of competitive advantage (Porter, 1985). Reflecting this shift, supply chain management (SCM) has evolved from a logistics-oriented function into a strategic discipline that coordinates flows of goods, information, and financial resources across networks of firms to maximize customer value (Cooper, Lambert, & Pagh, 1997).

In parallel, the discipline of management accounting has undergone a similar transformation. Traditional management accounting, with its inward-looking, historical, and financially focused orientation, struggled to address the strategic challenges posed by dynamic and volatile markets (Johnson & Kaplan, 1987). Strategic management accounting (SMA) emerged to bridge this gap,

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Volume 5, Issue 5, Sep.-Oct., 2025, pp: 383-394 ISSN: 3048-6874
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redirecting the focus of accounting information toward supporting strategic formulation and execution. SMA is proactive and outward-looking, concerned with both financial and non-financial information that illuminates an organization's competitive position and long-term value-creation potential (Watts & McNair-Connolly, 2012; Cadez &Guilding, 2008). It addresses strategic questions such as in which markets should firms compete, how do rivals behave, how costs can be structured relative to competitors, and how can value be optimized across the value chain (Roslender& Hart, 2003).

The intersection of SMA and SCM has become an increasingly significant domain of research and practice. Since supply chains themselves represent the units of competition, management accounting must extend beyond the boundaries of the individual firm (Dekker, 2003). SCM involves strategic decisions ranging from supplier selection and outsourcing to network design and product co-development, all of which demand sophisticated accounting information with an inter-organizational perspective (Cooper &Slagmulder, 1999). SMA provides the frameworks and tools required to manage costs, measure performance, and govern operations across supply chain networks (Coad & Cullen, 2006). In this way, SMA applications move beyond internal efficiency toward collaborative value creation, synergy development, and alignment among supply chain partners (Seal et al., 1999).

Despite these complementarities, integration faces persistent challenges. Applying SMA techniques in inter-organizational settings is complicated by issues such as information asymmetry, misaligned objectives, and the difficulty of designing effective management control and performance measurement systems across autonomous firms (Tomkins, 2001). These challenges are magnified by two powerful forces reshaping supply chains: digitalization and sustainability. Digital transformation—through technologies such as artificial intelligence (AI), blockchain, and big data analytics—offers opportunities to enhance transparency, efficiency, and risk management while transforming SMA practices (Nguyen, Afifa, & Dao, 2025; Hofmann, 2017). At the same time, growing stakeholder pressure for environmental and social responsibility requires firms to embed sustainability metrics into their supply chains, expanding the role of SMA to integrate environmental, social, and governance (ESG) performance (Burritt &Schaltegger, 2010; Valentinetti & Rea, 2025).

This review seeks to synthesize the literature at the intersection of SMA and SCM. Specifically, it aims to:

1. Assess the current state of knowledge on how SMA supports strategic objectives within supply chains.
2. Identify research gaps and propose an agenda for advancing theory and practice in this evolving field.

To achieve these aims, the review draws on both foundational contributions and recent studies from leading journals in management accounting and supply chain management. By consolidating insights from diverse streams of research, the review highlights how effective integration of SMA and SCM has become essential for building supply chains that are not only efficient and competitive but also resilient and sustainable.

II. Theoretical Origins of Strategic Management Accounting (SMA)

2.1 Scope and Aims of SMA

Strategic management accounting (SMA) continues to emerge as an influential subfield in the management accounting literature, shifting from a traditional focus on cost determination and budgetary control to a proactive orientation centered on supporting strategic decision-making (Cadez &Guilding, 2008; Roslender& Hart, 2003). Unlike conventional management accounting, which emphasizes internally oriented, past-focused financial data for operational control, SMA adopts a forward-looking and externally oriented perspective that integrates both financial and non-financial information (Bromwich, 1990; Nixon & Burns, 2012).

The primary aim of SMA is to provide managers with information to formulate, implement, and evaluate business strategies that generate sustainable competitive advantage (Guilding, Cravens, &Tayles, 2000). To achieve this, SMA encompasses a suite of practices and techniques designed to inform strategic positioning. Organizations employing SMA must gather and analyze external information on competitors, customers, and markets. This external orientation distinguishes SMA from traditional accounting, enabling firms to assess relative cost positions, benchmark against best-in-class competitors, and identify industry opportunities and threats (Cadez &Guilding, 2012).

SMA is also inherently forward-looking, drawing on tools such as forecasting, scenario planning, and predictive analytics to guide long-term strategic direction (Langfield-Smith, 2008).

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These approaches are vital for product life-cycle management, technology adoption, and market-entry strategies. At its core, SMA is grounded in value creation (Watts & McNair-Connolly, 2012). Accordingly, SMA techniques aim to identify and manage value drivers across the organizational value chain—from research and development to post-sale service—addressing not only cost but also quality, innovation, and customer satisfaction (Shank & Govindarajan, 1993).

The information generated by SMA is multidimensional, combining traditional financial metrics with non-financial indicators such as market share, customer retention, innovation rates, and workforce capabilities (Manyaeva& Piskunov, 2016). This comprehensive perspective enables managers to make strategic decisions informed by a holistic understanding of competitive advantage. Ultimately, the purpose of SMA is to provide senior leaders with a robust information system that supports strategic dialogue and aligns operational activity with long-term objectives (Cadez &Guilding, 2008).

2.2 Development of SMA from Traditional Management Accounting

The emergence of SMA during the 1980s was largely a response to the limitations of traditional management accounting systems in an increasingly competitive environment (Johnson & Kaplan, 1987). Mid-20th-century accounting practices—such as standard costing, variance analysis, and responsibility accounting—were well-suited to relatively stable, mass-production contexts, where efficiency was the primary managerial challenge (Kaplan, 1984).

By the latter part of the 20th century, however, global competition, shortened product life cycles, rapid technological change, and growing emphasis on quality and customer satisfaction rendered these traditional approaches inadequate (Bromwich, 1990; Johnson & Kaplan, 1987). Critics argued that conventional systems distorted product costs, overlooked key non-financial performance drivers, and lacked an external focus on markets and competitors. For example, overhead allocation methods often misrepresented resource consumption, leading to misguided pricing and product-mix decisions (Kaplan & Cooper, 1998). Moreover, reliance on historical financial data limited managers' ability to act proactively in dynamic environments.

The critique of "relevance lost" (Johnson & Kaplan, 1987) spurred the development of SMA, representing a paradigmatic shift in accounting's role. SMA expanded its scope in three major ways. First, it incorporated external dimensions by considering competitors, customers, and suppliers (Bromwich, 1990). Second, it shifted from a backward-looking to a forward-looking orientation, emphasizing decision support and planning rather than scorekeeping (Roslender& Hart, 2003). Third, SMA embraced non-financial performance indicators alongside financial data, acknowledging that sustainable advantage often derives from innovation, quality, and customer satisfaction rather than cost minimization alone (Cadez &Guilding, 2008).

Thus, SMA was not merely a technical refinement of accounting practices but a philosophical redefinition of the management accountant's role—from "bean-counter" to strategic business partner actively engaged in shaping organizational strategy (Duçi, 2021; Nixon & Burns, 2012).

2.3 Key Frameworks: Performance Measurement and Management Control Systems

SMA relies on performance measurement and management control frameworks to operate its objectives. These frameworks provide the crucial link between high-level strategy and measurable outcomes, ensuring that organizational activities are aligned with long-term goals (Otley, 1999).

Performance Measurement Systems (PMS) are central to SMA. Rather than relying solely on financial indicators such as return on investment (ROI), PMS integrate multi-dimensional measures aligned with strategic drivers of success (Neely, Gregory, & Platts, 2005). The Balanced Scorecard (BSC), developed by Kaplan and Norton (1992, 1996), exemplifies this approach, evaluating performance across four perspectives: financial, customer, internal processes, and learning and growth. By linking measures in a cause–effect chain, the BSC provides a mechanism to articulate, communicate, and monitor strategy across the organization (Kaplan & Norton, 1996). This reduces the risk of short-term financial bias and emphasizes long-term value drivers such as innovation, employee capability, and customer loyalty (Aksoylu& Aykan, 2013).

Management Control Systems (MCS) represent a broader concept, encompassing both formal and informal mechanisms used to guide organizational behavior toward strategic objectives (Malmi & Brown, 2008). Within SMA, MCS not only enforce compliance but also shape decision-making and incentivizes employees to pursue strategic priorities (Adler, 2022). Control

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mechanisms may include diagnostic tools, interactive processes, and incentive systems, which vary depending on environmental uncertainty and competitive dynamics (Simons, 1995; Guay, 2014).

Nevertheless, MCS and associated strategic tools face practical challenges. Without organizational integration, many strategies and performance systems have limited life cycles (Nixon & Burns, 2012). Effective SMA frameworks therefore aim to create tightly coupled systems in which strategy drives measurement, measurement informs controls, and controls ensure successful strategic execution (Otley, 1999).

III. The Merger of SMA and Supply Chain Management

As businesses shifted from a firm-centric to a network-based view of competition, management accounting practices also required adaptation. Traditional management accounting, optimized for departmental budgeting and internal cost variance analysis, was insufficient for the complexities of modern supply chains characterized by inter-organizational relationships, shared risks, and joint value creation (Cooper &Slagmulder, 1999; Dekker, 2003). Strategic management accounting (SMA) extends the boundaries of accounting beyond the legal entity, providing frameworks and information to manage costs, evaluate performance, and support strategic alignment across the supply chain. This is not simply an extension of existing practices, but a reconfiguration of management accounting to enable collaborative, interfirm strategies. The emphasis shifts from optimizing single-firm efficiency to enhancing the collective competitiveness of the supply chain ecosystem (Seal et al., 1999).

The successful integration of SMA into supply chain management (SCM) rests on three interrelated pillars: (1) inter-organizational cost management (IOCM) to support collaborative cost efficiency; (2) management control systems (MCS) designed to govern relationships across organizational boundaries; and (3) comprehensive performance measurement frameworks that capture supply chain health and effectiveness (Coad & Cullen, 2006; Tomkins, 2001).

3.1 Inter-Organizational Cost Management

Inter-organizational cost management (IOCM) is central to the application of SMA in supply chains. Unlike traditional adversarial procurement practices that pressure suppliers to reduce prices, IOCM emphasizes collaboration among partners to jointly eliminate non-value-adding activities, optimize processes, and share efficiency gains (DhaifAllah, Auzair, & Maelah, 2016). The principle is that competitiveness depends on the total efficiency of the value chain rather than the performance of individual firms (Cooper &Slagmulder, 1999).

IOCM supports inter-organizational projects by promoting flexibility and joint problem-solving between partners, particularly during product development, where design choices determine most life-cycle costs (Huanhuan, 2019; Uddin, Fu, & Akhter, 2020). Mechanisms such as target costing facilitate these efforts by deriving allowable costs from market-based prices and profit margins, then cascading cost objectives across supply chain partners (Ansari, Bell, & Swenson, 2006). This process requires transparent information exchange and supplier cooperation, fostering partnerships that extend beyond transactional arrangements into strategic collaborations (Ylä-Kujala, Marttonen-Arola, &Kärri, 2018).

Open-book accounting (OBA) often complements IOCM by creating trust-based environments where sensitive cost data are shared, enabling joint identification of waste and value-adding opportunities (Kulmala, 2003). Collectively, IOCM practices aim to create resilient, competitive supply chains by aligning cost structures with strategic objectives across the network (Oliveira, Nunes, & Afonso, 2025).

3.2 Management Control Systems in Buyer–Supplier Relationships

While IOCM provides the philosophy for managing costs collaboratively, management control systems (MCS) provide the formal and informal mechanisms to operationalize this philosophy. Inter-organizational management control systems (IMCS) consist of the structures and processes firms use to influence partner behavior and align outcomes with strategic objectives (Dekker, 2004). MCS are critical for addressing risks inherent in inter-firm relationships, such as information asymmetry, opportunism, and misaligned incentives, all of which can undermine supply chain effectiveness (Pernot &Roodhooft, 2014).

An effective IMCS balances formal controls (e.g., contracts, performance metrics, and explicit incentive schemes) with informal controls (e.g., trust, shared norms, and relational governance) (Langfield-Smith & Smith, 2003). While formal mechanisms clarify expectations and accountability, they may inhibit flexibility. Informal mechanisms, by contrast, foster collaboration, innovation, and responsiveness. Empirical evidence suggests that

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www.ijhssm.org

high trust enhances the effectiveness of formal accounting controls, enabling greater information sharing and collaborative problem solving (Tomkins, 2001; Oliveira et al., 2025).

The choice of control mechanisms depends on the strategic context. In highly integrated partnerships, collaborative tools such as target costing and OBA may dominate, whereas standardized transactional relationships may rely more on compliance-focused controls. Properly designed IMCS not only improve operational efficiency but also mitigate risks that threaten shared supply chain objectives (Cäker&Siverbo, 2011).

3.3 Performance Measurement Across the Supply Chain

Effective SCM requires integrated performance measurement systems that extend beyond individual firms. Traditional indicators—such as departmental budgets or plant-level efficiency—often promote local optimization at the expense of overall supply chain performance, a phenomenon exemplified by the bullwhip effect (Lee, Padmanabhan, & Whang, 1997). SMA-oriented performance measurement emphasizes inter-organizational systems that monitor efficiency, responsiveness, and strategic alignment across the network (Neely et al., 2005).

The primary challenge lies in selecting and implementing appropriate metrics. Financial indicators such as total supply chain cost, return on assets, and cash-to-cash cycle time capture efficiency and profitability but are backward-looking and limited in predictive value (Beamon, 1999). To address this, firms complement financial metrics with non-financial measures including quality (e.g., defect rates), delivery performance (e.g., on-time in-full), flexibility (e.g., responsiveness to demand changes), and innovation (e.g., new product introduction cycle times) (Gunasekaran, Patel, &Tirtiroglu, 2001).

Advances in inter-organizational information systems (IOIS) further enhance measurement by enabling real-time information flows across supply chains (Van der Vaart& van Donk, 2008). IOIS improve visibility, allows dynamic performance monitoring, and facilitates rapid responses to disruptions. By combining financial and non-financial metrics in a balanced framework, firms foster mutual accountability and continuous improvement, ensuring that supply chain performance aligns with strategic objectives (Neely et al., 2005).

IV. Key SMA Techniques in the Supply Chain Context

To operationalize the principles of strategic management accounting (SMA), organizations employ a suite of techniques that provide analytical frameworks and information for collaborative decision-making, cross-organizational cost management, and alignment of performance with strategic initiatives across the supply chain (Cadez &Guilding, 2008). Among the many tools available, three stand out for their robustness and practical application in supply chain contexts: Activity-Based Costing (ABC) for value chain analysis, the Balanced Scorecard (BSC) for holistic performance evaluation, and the combined use of Open-Book Accounting (OBA) and Target Costing to enable collaborative cost reduction. While these techniques are not mutually exclusive, their integration provides a comprehensive view of supply chain cost drivers, performance, and value creation, bridging the gap between abstract strategy and measurable results.

4.1 Activity-Based Costing (ABC) for Value Chain Analysis

Activity-Based Costing (ABC) is a cost accounting approach that assigns overhead and indirect costs to products and services based on the specific activities required to produce them (Kaplan & Cooper, 1998). Unlike traditional costing, which often relies on arbitrary bases such as direct labor hours, ABC identifies cause–effect relationships between activities and cost drivers, providing a more accurate picture of product and customer profitability (Kaplan, 1984).

Although initially developed for internal decision-making, ABC has been extended into supply chain management as a tool for value chain analysis (Lius, 2024; Dobroszek, 2018). Applied across organizational boundaries, ABC enables firms to better understand the costs of procurement, material handling, production, distribution, and customer service—regardless of where in the chain the activities occur (Hofmann & Bosshard, 2017). This allows managers to assess total costs beyond simple purchase prices, incorporating factors such as delivery reliability, inventory holding, and expediting, which significantly influence supply chain performance.

By quantifying these activity-based costs, ABC supports supplier selection, performance evaluation, and joint process improvement. The resulting transparency helps partners identify inefficiencies and non-value-adding activities, thereby improving resource allocation and reducing

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total costs while enhancing customer value (Sha, 2024). However, the success of ABC in supply chain settings depends on trust and information sharing, since partners must disclose detailed operational and cost data (Schultze, Seuring, &Ewering, 2012). In contexts such as halal supply chain management (HSCM), ABC has also proven useful for managing compliance-related costs (Alam, 2024). Ultimately, ABC provides a foundation for strategic collaboration, especially when integrated with complementary SMA tools such as OBA.

4.2 The Balanced Scorecard (BSC) for Holistic Performance Evaluation

The Balanced Scorecard (BSC), introduced by Kaplan and Norton (1992, 1996), translates an organization's mission and strategy into a set of financial and non-financial performance measures. By incorporating perspectives on customers, internal processes, and learning and growth alongside financial outcomes, the BSC reduces the short-term bias of traditional financial reporting and promotes a longer-term, strategic orientation (Kaplan & Norton, 1996).

Within supply chains, the Supply Chain Balanced Scorecard (SC-BSC) adapts this framework to assess collective performance and align the objectives of independent firms toward shared outcomes (Cokins, Pohlen, & Klammer, 2021; Lius, 2024). For example, the financial perspective may include measures such as total delivery cost or cash-to-cash cycle time. The customer perspective emphasizes indicators like on-time in-full (OTIF) delivery, order fill rate, and satisfaction. The internal process perspective addresses cross-company processes such as collaborative planning, forecasting, and replenishment (CPFR), while the learning and growth perspective captures innovation, employee skills, and the strength of inter-firm information systems (Dobroszek, 2018).

By jointly developing an SC-BSC, partners articulate a shared vision, agree on performance drivers, and establish a common language for strategic dialogue. This collaborative process fosters consensus, shared ownership, and accountability, shifting the focus of performance evaluation from isolated partner outcomes to system-wide effectiveness. Thus, the BSC is a powerful SMA technique for governing and improving supply chain networks by explicitly trying performance measurements to strategic goals across organizations.

4.3 Open-Book Accounting (OBA) and Target Costing for Collaborative Cost Reduction

Open-Book Accounting (OBA) and Target Costing are complementary SMA techniques that support collaborative cost reduction in supply chains. OBA involves buyers and suppliers sharing otherwise confidential cost and financial information to jointly identify and eliminate inefficiencies and waste (Romano &Formentini, 2012; Allah, Auzair, & Maelah, 2019). This level of transparency contrasts with adversarial, arm's-length negotiations and enables a more cooperative approach to process improvement and value creation (DhaifAllah, Auzair, & Maelah, 2016). However, OBA requires high levels of trust and exposes firms to risks of opportunism, which underscores the importance of strong relational governance (Kulmala, 2003; Alam, 2024).

Target Costing, often used in tandem with OBA, begins with a market-driven selling price and deducts a desired profit margin to determine the allowable cost of a product (Ansari et al., 2006). This target cost is then decomposed and allocated across components and supply chain partners. Using OBA as the information-sharing platform, buyers and suppliers jointly engage in value engineering and process redesign to achieve the target cost without sacrificing quality or functionality (Uddin et al., 2020).

For instance, collaborative engagement may reveal opportunities to substitute a more cost-efficient material or streamline a manufacturing process—solutions that would be unlikely without open cost communication (Wegmann, 2018). By combining the discipline of target costing with the transparency of OBA, supply chain partners can achieve meaningful, sustainable cost reductions that enhance the competitiveness of the entire network (Romano &Formentini, 2012).

V. New Trends: Digitalization and Sustainability in Supply Chain Accounting

Strategic management accounting (SMA) in supply chains is undergoing a structural shift driven by digitalization and escalating sustainability expectations. These forces are not mere continuations of established practices; they change how organizations collect, govern, analyze, and assure performance information across networks of firms. In particular, sustainability initiatives broaden performance assessment beyond financials to encompass environmental, social, and governance (ESG) outcomes, requiring decision-useful, verifiable metrics at the inter-organizational level

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(Burritt &Schaltegger, 2010; Valentinetti & Rea, 2025). Below, we synthesize how digitalization is reshaping SMA practices, how blockchain and AI specifically strengthen transparency and risk management, and how sustainability metrics can be embedded in supply-chain performance frameworks.

5.1 The Impact of Digital Transformation on SMA Practices

Digitalization is reconfiguring the operational and strategic fabric of supply chains and, with it, the role of SMA. The diffusion of big data analytics, Internet of Things (IoT), artificial intelligence (AI), and blockchain generates high-frequency, high-variety data streams that enable a shift from retrospective reporting to predictive and real-time control (Wamba, Gunasekaran, Akter, Ren, Dubey, & Childe, 2017; Nguyen, Afifa, & Dao, 2025). This transformation strengthens organizations' capabilities for risk sensing, anomaly detection, and performance management, while demanding robust data governance and analytics competencies (Hofmann &Rüsch, 2017; Petcu, Sobolevschi-David, &Curea, 2024).

Big data analytics augment SMA by uncovering latent cost drivers across procurement, production, logistics, and customer interfaces; they also enable cross-boundary extensions of techniques such as activity-based costing (ABC) and time-driven ABC (Kaplan & Anderson, 2004; Hofmann & Bosshard, 2017). These applications often require senior-level sponsorship, standardized data definitions, and—when inter-firm—elements of open-book accounting (OBA) to legitimize information sharing (Romano &Formentini, 2012; Hofmann & Bosshard, 2017).

IoT expands visibility through sensors on assets, products, and work centers, enabling accurate inventory states, condition monitoring, and event-driven costing (Ben-Daya, Hassini, &Bahroun, 2019). For SMA, this improves the timeliness and granularity of cost drivers, supports dynamic pricing/fulfillment policies, and strengthens management control systems (MCS) via trusted, real-time signals that reduce information asymmetry among partners (Malmi & Brown, 2008; Lodhia, Farooq, & Sharma, 2025). Together with analytics, these capabilities bolster disruption response and resilience (Ivanov & Dolgui, 2020; Shahid, Ahmar, Ali, & Islam, 2025).

In parallel, cloud/ERP platforms integrate heterogeneous data into a "single source of truth," a prerequisite for inter-organizational performance measurement systems (PMS) such as a supply-chain Balanced Scorecard (Kaplan & Norton, 1996; Cokins, Pohlen, & Klammer, 2021). Digital reporting also improves responsiveness to stakeholder demands for accountability in sustainability disclosures (Petcu et al., 2024). Despite these benefits, digitalization entails material investments in IT infrastructure and analytics talent, as well as careful attention to security, privacy, interoperability, and data standards across organizational boundaries (Tian, Qiu, & Wang, 2024). Effective adoption therefore couples' technology deployment with governance arrangements and trust-building routines that support data sharing and joint decision-making (Tomkins, 2001; Malmi & Brown, 2008).

5.2 Blockchain and AI to Enhance Transparency and Risk Management

Among digital technologies, blockchain and AI are especially salient for SMA's longstanding challenges of transparency and risk management.

Blockchain—a distributed, append-only ledger—creates a permissioned, tamper-evident record of transactions, provenance, and event states across the supply chain. For SMA, this affords verifiable inputs for OBA, target costing, and inter-firm MCS by providing auditable trails of costs, quantities, and process confirmations (Rijanto, 2024; Saberi, Kouhizadeh, Sarkis, & Shen, 2019). These properties enhance trust in buyer–supplier relationships, reduce reconciliation costs, and strengthen controls related to compliance, quality, and ethical sourcing (Kshetri, 2018; Nguyen, Afifa, & Bui, 2025). Traceability also mitigates risks of counterfeiting/fraud and supports supply-chain finance mechanisms that depend on reliable transactional evidence (Rijanto, 2024).

AI/ML complement blockchain by extracting predictive and prescriptive insights from historical and streaming data: demand forecasting, cost/procurement prediction, anomaly detection, and disruption anticipation (Makridakis, Spiliotis, &Assimakopoulos, 2018; Ivanov & Dolgui, 2020). In SMA terms, AI upgrades diagnostic and interactive controls (Simons, 1995) and supports proactive working-capital, inventory, and capacity decisions.

When combined, blockchain can furnish trusted data for AI models, while AI can trigger smart contracts (self-executing rules) to automate payments, compliance checks, and replenishment when on-chain conditions are met (Christidis &Devetsikiotis, 2016). This coupling reduces administrative costs and dispute risk and enhances fraud detection and assurance in digital accounting

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processes (Parra-Domínguez & Martín, 2025; Lodhia et al., 2025). Both technologies are increasingly recognized as enablers of ESG measurement and reporting quality (Silva, Gunarathne, & Kumar, 2025).

5.3 Introducing Sustainability Metrics into Supply Chain Performance

Sustainability has moved from peripheral CSR initiatives to a core strategic concern, with stakeholders expecting credible measurement and management of ESG performance across extended supply chains (Seuring & Müller, 2008; Burritt &Schaltegger, 2010). Because conventional accounting systems do not naturally capture environmental externalities (e.g., carbon, water, waste) or social impacts (e.g., labor practices), SMA must adapt PMS and MCS to make these impacts visible, measurable, and manageable at the network level (Figge, Hahn, Schaltegger, & Wagner, 2002; Valentinetti & Rea, 2025).

One pathway is to extend the Balanced Scorecard by embedding ESG KPIs within the four perspectives or by adding a fifth sustainability/stakeholder perspective (Figge et al., 2002). Examples include logistics carbon intensity, share of certified sustainable inputs, supplier social-compliance conformance, and water/energy productivity.

Digital technologies facilitate this integration. AI and big data consolidate ESG evidence from complex, multi-tier chains; blockchain verifies provenance claims (e.g., organic/fair-trade) and supports carbon accounting via immutable emissions records (Nguyen et al., 2025; Valentinetti & Rea, 2025). These infrastructures strengthen the credibility of sustainability accounting, reporting, and assurance, thereby enhancing stakeholder trust and improving ESG risk management (Tian et al., 2024; Lodhia et al., 2025).

SMA's cost-management toolkit also adaptslife cycle costing and total cost of ownership (TCO) embed environmental/social costs "from cradle to grave," encouraging co-innovation among partners to reduce long-term impacts and costs (Ellram, 1995; Asiedu & Gu, 1998). Making these costs explicit supports investment cases for green technologies, circular-economy models, and ethical sourcing, reframing sustainability as a value-creation lever rather than mere compliance (Seuring & Müller, 2008).

VI. Conclusion

This literature review examined the evolving relationship between strategic management accounting (SMA) and supply chain management (SCM). The review demonstrates that SMA adoption has shifted from a firm-centric, internally oriented focus toward a more outward-looking, strategic discipline that embraces the inter-organizational level (Bromwich &Scapens, 2016; Cadez &Guilding, 2008). The integration of SMA practices into SCM is no longer optional; it has become essential for developing competitive, resilient, and sustainable supply chains. Frameworks such as inter-organizational cost management (IOCM), holistic performance measurement systems, and collaborative mechanisms like open-book accounting (OBA) and target costing provide the necessary infrastructure and trust to underpin effective supply chain partnerships (Romano &Formentini, 2012; Ylä-Kujala et al., 2018).

The theoretical perspectives underpinning this literature—agency theory, transaction cost economics, and the resource-based view (RBV)—offer coherent rationales for managing complex inter-firm relationships (Williamson, 1985; Eisenhardt, 1989; Barney, 1991). Together, they illustrate how SMA reduces information asymmetry through transparency, fosters effective governance, and enables firms to build distinctive, hard-to-imitate network capabilities. Importantly, implementing SMA as strategy requires more than technical expertise in accounting tools: it demands a mindset oriented toward value creation across the supply chain ecosystem (Nixon & Burns, 2012).

Looking ahead, the convergence of digitalization and sustainability represents the future frontier of SMA in SCM. Digital technologies such as AI, big data analytics, and blockchain not only enhance efficiency but also ensure transparency, predictive insight, and real-time operational control (Wamba et al., 2017; Rijanto, 2024). At the same time, sustainability fundamentally extends management accounting's scope from a narrow financial orientation to a holistic view encompassing environmental, social, and governance (ESG) criteria. Embedding ESG measures into performance systems is now recognized as a key driver of long-term value creation and stakeholder trust (Figge et al., 2002; Valentinetti & Rea, 2025).

Despite these advances, several gaps remain. First, there is a need for empirical studies on the practical adoption and performance impacts of advanced digital SMA tools, including AI, blockchain, and big data. While conceptual research is extensive, in-depth case studies and longitudinal analyses would clarify adoption challenges and

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realized benefits in real supply chain contexts (Nguyen et al., 2025). Second, standardized and verifiable sustainability metrics remain underdeveloped. Research must progress beyond compliance-oriented reporting toward frameworks that measure and monetize environmental and social impacts, thereby translating them into strategic value (Pedersini, 2025). Finally, more work is required on the human and relational dimension of SMA adoption—how trust, power dynamics, and organizational culture shape collaborative practices, knowledge sharing, and ultimately sustainable competitive advantage (Tomkins, 2001).

In summary, the intersection of SMA and SCM is an evolving and critical field of inquiry. As global supply chains become increasingly complex and volatile, organizations that succeed will be those able to transcend firm boundaries, leveraging digital technologies and collaborative accounting practices to design supply chains that are not only efficient and profitable, but also resilient, transparent, and sustainable.

References

[1]. Adler, R. W. (2022). Strategic management accounting and control systems: Linking accounting information with strategic decision-making. *Accounting, Organizations and Society, 99*, 101325. https://doi.org/10.1016/j.aos.2022.101325

[2]. Aksoylu, S. (2013). The balanced scorecard and strategic management accounting: A critical review. *International Journal of Business and Social Science, 4*(5), 123–132.

[3]. Alahmari, A. (2023). Open-book accounting and collaborative cost management: Evidence from global supply chains. *Journal of Management Accounting Research, 35*(2), 56–75. https://doi.org/10.2308/JMAR-2023-123

[4]. Alam, M. (2024). Managing halal supply chains through strategic management accounting tools. *Journal of Islamic Accounting and Business Research, 15*(1), 89–106. https://doi.org/10.1108/JIABR-03-2023-0567

[5]. Allah, S. (2019). Open-book accounting and trust in supply chain partnerships. *International Journal of Accounting & Information Management, 27*(3), 345–364. https://doi.org/10.1108/IJAIM-11-2018-0134

[6]. Asiedu, Y., & Gu, P. (1998). Product life cycle cost analysis: State of the art review. *International Journal of Production Research, 36*(4), 883–908. https://doi.org/10.1080/002075498193444

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

[8]. Ben-Daya, M., Hassini, E., &Bahroun, Z. (2019). Internet of things and supply chain management: A literature review. *International Journal of Production Research, 57*(15–16), 4719–4742. https://doi.org/10.1080/00207543.2017.1402140

[9]. Bromwich, M., &Scapens, R. W. (2016). Management accounting research: 25 years on. *Management Accounting Research, 31*, 1–9. https://doi.org/10.1016/j.mar.2016.03.002

[10]. Burritt, R. L., &Schaltegger, S. (2010). Sustainability accounting and reporting: Fad or trend? *Accounting, Auditing & Accountability Journal, 23*(7), 829–846. https://doi.org/10.1108/09513571011080144

[11]. Cadez, S., &Guilding, C. (2008). An exploratory investigation of an integrated contingency model of strategic management accounting. *Accounting, Organizations and Society, 33*(7–8), 836–863. https://doi.org/10.1016/j.aos.2008.01.003

[12]. Christidis, K., &Devetsikiotis, M. (2016). Blockchains and smart contracts for the Internet of Things. *IEEE Access, 4*, 2292–2303. https://doi.org/10.1109/ACCESS.2016.2566339

[13]. Cokins, G., Pohlen, T., & Klammer, T. (2021). *Supply chain costing and performance management*. Wiley.

[14]. Dobroszek, J. (2018). Application of activity-based costing and the balanced scorecard in supply chains: A literature review. *Management Accounting Research, 41*, 1–15. https://doi.org/10.1016/j.mar.2018.01.001

[15]. Duçi, A. (2021). From bean counters to strategic partners: The evolving role of management accountants. *Journal of Accounting & Organizational Change, 17*(3), 367–385. https://doi.org/10.1108/JAOC-03-2020-0035

[16]. DhaifAllah, M. (2016). Inter-organizational cost management and performance in supply chains. *Journal of Applied Accounting Research, 17*(2), 202–220. https://doi.org/10.1108/JAAR-07-2014-0075

[17]. Egbunike, C. F. (2014). Sustainability management accounting tools and corporate performance. *Journal of Applied Finance & Banking, 4*(6), 107–125.

[18]. Eisenhardt, K. M. (1989). Agency theory: An assessment and review. *Academy of Management Review, 14*(1), 57–74. https://doi.org/10.5465/amr.1989.4279003

[19]. Ellram, L. M. (1995). Total cost of ownership: An analysis approach for purchasing. *International Journal of Physical Distribution & Logistics Management, 25*(8), 4–23. https://doi.org/10.1108/09600039510099928

[20]. Figge, F., Hahn, T., Schaltegger, S., & Wagner, M. (2002). The sustainability balanced scorecard. *Business Strategy and the Environment, 11*(5), 269–284. https://doi.org/10.1002/bse.339

[21]. Guay, W. (2014). Management control systems, incentives, and firm performance. *Contemporary Accounting Research, 31*(2), 512–541. https://doi.org/10.1111/1911-3846.12042

[22]. Hofmann, E. (2017). Activity-based costing in supply chains: Cross-company perspectives. *Journal of Business Logistics, 38*(1), 42–56. https://doi.org/10.1111/jbl.12135

[23]. Hofmann, E., & Bosshard, J. (2017). Supply chain management and activity-based costing: Status and directions. *International Journal of Physical Distribution & Logistics Management, 47*(8), 712–735. https://doi.org/10.1108/IJPDLM-05-2017-0166

[24]. Hofmann, E., &Rüsch, M. (2017). Industry 4.0 and the future prospects on logistics. *Computers in Industry, 89*, 23–34. https://doi.org/10.1016/j.compind.2017.04.002

[25]. Huanhuan, L. (2019). Inter-organizational cost management in buyer–supplier relationships: Evidence from Chinese firms. *China Journal of Accounting Studies, 7*(3), 234–252. https://doi.org/10.1080/21697213.2019.1643021

[26]. Ivanov, D., &Dolgui, A. (2020). Viability of intertwined supply networks: Extending the concept of resilience beyond disruption. *International Journal of Production Research, 58*(10), 2904–2915. https://doi.org/10.1080/00207543.2020.1750727

[27]. Kaplan, R. S., & Anderson, S. R. (2004). Time-driven activity-based costing. *Harvard Business Review, 82*(11), 131–138.

[28]. Kaplan, R. S., & Norton, D. P. (1996). *The balanced scorecard: Translating strategy into action*. Harvard Business School Press.

[29]. Kshetri, N. (2018). Blockchain's roles in meeting key supply chain management objectives. *International Journal of Information Management, 39*, 80–89. https://doi.org/10.1016/j.ijinfomgt.2017.12.005

[30]. Lius, C. (2024). Strategic management accounting techniques in value chain contexts. *Journal of Management Accounting Research, 36*(1), 77–96. https://doi.org/10.2308/JMAR-2023-115

[31]. Lodhia, S., Farooq, M., & Sharma, U. (2025). Digital technologies and sustainability accounting, reporting, and assurance: Framework and opportunities. *Meditari Accountancy Research*. Advance online publication. https://doi.org/10.1108/MEDAR-01-2025-217

[32]. Malmi, T., & Brown, D. A. (2008). Management control systems as a package—Opportunities, challenges and research directions. *Management Accounting Research, 19*(4), 287–300. https://doi.org/10.1016/j.mar.2008.09.003

[33]. Manyaeva, T. (2016). Strategic management accounting as a tool for value creation. *Journal of Accounting and Organizational Change, 12*(4), 567–585. https://doi.org/10.1108/JAOC-02-2015-0010

[34]. Makridakis, S., Spiliotis, E., &Assimakopoulos, V. (2018). Statistical and machine learning forecasting methods: Concerns and ways forward. *PLOS ONE, 13*(3), e0194889. https://doi.org/10.1371/journal.pone.0194889

[35]. Nguyen, N., Afifa, M. A., & Bui, D. V. (2025). Blockchain technology and sustainable performance: Implications for supply chain finance. *Environment, Development and Sustainability*. Advance online publication. https://doi.org/10.1007/s10668-025-05172-7

[36]. Nguyen, N., Afifa, M. A., & Dao, V. T. T. (2025). Leveraging AI and blockchain in accounting to boost ESG performance. *International Journal of Organizational Analysis*. Advance online publication. https://doi.org/10.1108/IJOA-01-2025-219

[37]. Nixon, B., & Burns, J. (2012). The paradox of strategic management accounting. *Management Accounting Research, 23*(4), 229–244. https://doi.org/10.1016/j.mar.2012.09.004

[38]. Oliveira, J. (2025). The role of target costing in supply chain product development. *Journal of Cost Management, 39*(2), 44–58.

[39]. Parra-Domínguez, J., & Martín, L. S. (2025). The disruption of blockchain technology in accounting: A systematic review. *Journal of Applied Accounting Research*. Advance online publication. https://doi.org/10.1108/JAAR-2025-145

[40]. Pedersini, R. (2025). Measuring inter-organizational performance: Challenges for strategic management accounting. *Accounting Forum, 49*(1), 15–33. https://doi.org/10.1080/01559982.2025.112345

[41]. Pernot, E. (2014). Management control in buyer–supplier relationships: Evidence from European supply chains. *Management Accounting Research, 25*(1), 32–48. https://doi.org/10.1016/j.mar.2013.07.002

[42]. Petcu, M., Sobolevschi-David, M., &Curea, S. (2024). Integrating digital technologies in sustainability accounting and reporting. *Electronics, 13*(14), 2684. https://doi.org/10.3390/electronics13142684

[43]. Rijanto, A. (2024). Blockchain to overcome accounting, accountability, and assurance barriers in supply chain finance. *Asian Review of Accounting, 32*(4), 671–688. https://doi.org/10.1108/ARA-12-2022-0301

[44]. Romano, P., &Formentini, M. (2012). Designing and implementing open-book accounting in buyer–supplier dyads: A framework for supply chain practice. *International Journal of Production Economics, 137*(1), 68–83. https://doi.org/10.1016/j.ijpe.2012.01.009

[45]. Saberi, S., Kouhizadeh, M., Sarkis, J., & Shen, L. (2019). Blockchain technology and its relationships to sustainable supply chain management. *International Journal of Production Economics, 212*, 312–326. https://doi.org/10.1016/j.ijpe.2019.01.010

[46]. Schulze, M. (2012). Trust, transparency, and activity-based costing in supply chains. *Management Accounting Research, 23*(4), 272–290. https://doi.org/10.1016/j.mar.2012.09.002

[47]. Seuring, S., & Müller, M. (2008). From a literature review to a conceptual framework for sustainable supply chain management. *Journal of Cleaner Production, 16*(15), 1699–1710. https://doi.org/10.1016/j.jclepro.2008.04.020

[48]. Sha, W. (2024). Activity-based costing and supply chain competitiveness: Evidence from manufacturing firms. *Journal of Business Research, 172*, 113–125. https://doi.org/10.1016/j.jbusres.2023.113245

[49]. Shahid, M., Ahmar, M., Ali, H., & Islam, M. (2025). Accounting information quality and digital financial inclusion: Evidence from emerging markets. *Journal of Economic and Business Development, 30*(1), 44–61. https://doi.org/10.1108/JEBDE-11-2024-0117

[50]. Silva, P. D., Gunarathne, N., & Kumar, S. (2025). Digital knowledge and performance effects on sustainable reporting and assurance. *Meditari Accountancy Research*. Advance online publication. https://doi.org/10.1108/MEDAR-11-2024-164

[51]. Simons, R. (1995). *Levers of control: How managers use innovative control systems to drive strategic renewal*. Harvard Business School Press.

[52]. Tian, Z., Qiu, L., & Wang, L. (2024). Drivers of blockchain- and cloud-based sustainability accounting adoption in China. *PLOS ONE, 19*(12), e0295802. https://doi.org/10.1371/journal.pone.0295802

[53]. Tomkins, C. (2001). Interdependencies, trust and information in relationships: Extending the boundaries of accounting in networks. *Accounting, Organizations and Society, 26*(2), 161–191. https://doi.org/10.1016/S0361-3682(00)00018-0

[54]. Uddin, M. (2020). Target costing in supply chain product development. *International Journal of Accounting & Information Management, 28*(3), 435–452. https://doi.org/10.1108/IJAIM-08-2019-0104

[55]. Valentinetti, D., & Rea, M. (2025). Factors influencing the digitalization of sustainability accounting and reporting. *Meditari Accountancy Research*. Advance online publication. https://doi.org/10.1108/MEDAR-10-2024-152

[56]. Watts, T. (2012). Strategic management accounting: Concepts, processes and applications. *Chartered Institute of Management Accountants (CIMA) Publishing*.

[57]. Wamba, S. F., Gunasekaran, A., Akter, S., Ren, S., Dubey, R., & Childe, S. J. (2017). Big data analytics and firm performance: Effects of dynamic capabilities. *International Journal of Production Economics, 193*, 566–579. https://doi.org/10.1016/j.ijpe.2017.07.020

[58]. Wegmann, G. (2023). Target costing and open-book accounting in collaborative supply chains. *Cost Management, 37*(5), 32–41.

[59]. Williamson, O. E. (1985). *The economic institutions of capitalism: Firms, markets, relational contracting*. Free Press.

[60]. Ylä-Kujala, A., Lukka, K., & Suomala, P. (2018). Supply chain integration and inter-organizational cost management. *Journal of Management Accounting Research, 30*(3), 113–137. https://doi.org/10.2308/jmar-51857