

SBSC and Digital Capabilities: The Key to Sustainable Performance of MSMEs (A Systematic Literature Review)

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ABSTRACT

This study aims to map the current literature landscape, identify scientific consensus, and identify theoretical and methodological gaps in the implementation of SBSC and digital technology in MSMEs. This study applies the Systematic Literature Review (SLR) method based on the PRISMA protocol. Secondary data were sourced from the Scopus database using a specific query with inclusion criteria: scientific journal articles, open access, in English, and published between 2020 and 2026. Based on strict screening, nine primary studies were selected for in-depth analysis. The findings demonstrate a consensus that the BSC/SBSC framework is highly adaptive for MSMEs to synergize non-financial aspects with long-term strategies. Information technology (IT) capabilities, CEO digital leadership, and the integration of Artificial Intelligence (AI) have been empirically proven to improve operational efficiency and organizational knowledge absorptive capacity. However, formal sustainability reporting (such as the GRI standards) is often considered too complex and expensive for micro-scale businesses. A research gap was detected due to the dominance of cross-sectional designs and the minimal exploration of Legitimacy Theory related to non-market social motives. This research responds to this gap by integrating Legitimacy Theory into the SBSC architecture, proposing a simplification of sustainability indicators for micro-administrative capacity, and encouraging a shift in research focus towards a longitudinal approach in the digital service MSME sector.

Keywords: Sustainability Balanced Scorecard (SBSC), Digital Capabilities, MSMEs, Systematic Literature Review, Sustainable Performance

INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) are a key pillar of the global economy, contributing up to 90% of all businesses and contributing up to 50% of Gross Domestic Product (GDP) in various countries (Dewi et al., 2025). In Indonesia, this sector employs approximately 97% of the workforce and contributes 60% to national GDP (Zulfiati et al., 2026). Traditional performance measurement often focuses solely on short-term, lagging financial metrics (Córdova-Aguirre & Ramón-Jerónimo, 2024; Park & Jung, 2025). The Balanced Scorecard (BSC) framework provides a comprehensive lens for evaluating financial results, customer satisfaction, internal business processes, and organizational growth and learning.

The Sustainability Balanced Scorecard (SBSC) extends the traditional BSC framework by explicitly integrating economic, social, and environmental pillars into a company's strategy. Many MSME managers still face difficulties in accurately implementing sustainable management due to the limitations of control systems that focus solely on operational economic results. Integrating knowledge management and



corporate social responsibility helps organizations align intangible assets with long-term strategic objectives. Formal sustainability reporting based on global standards is often considered complex and expensive for small businesses with limited resources.

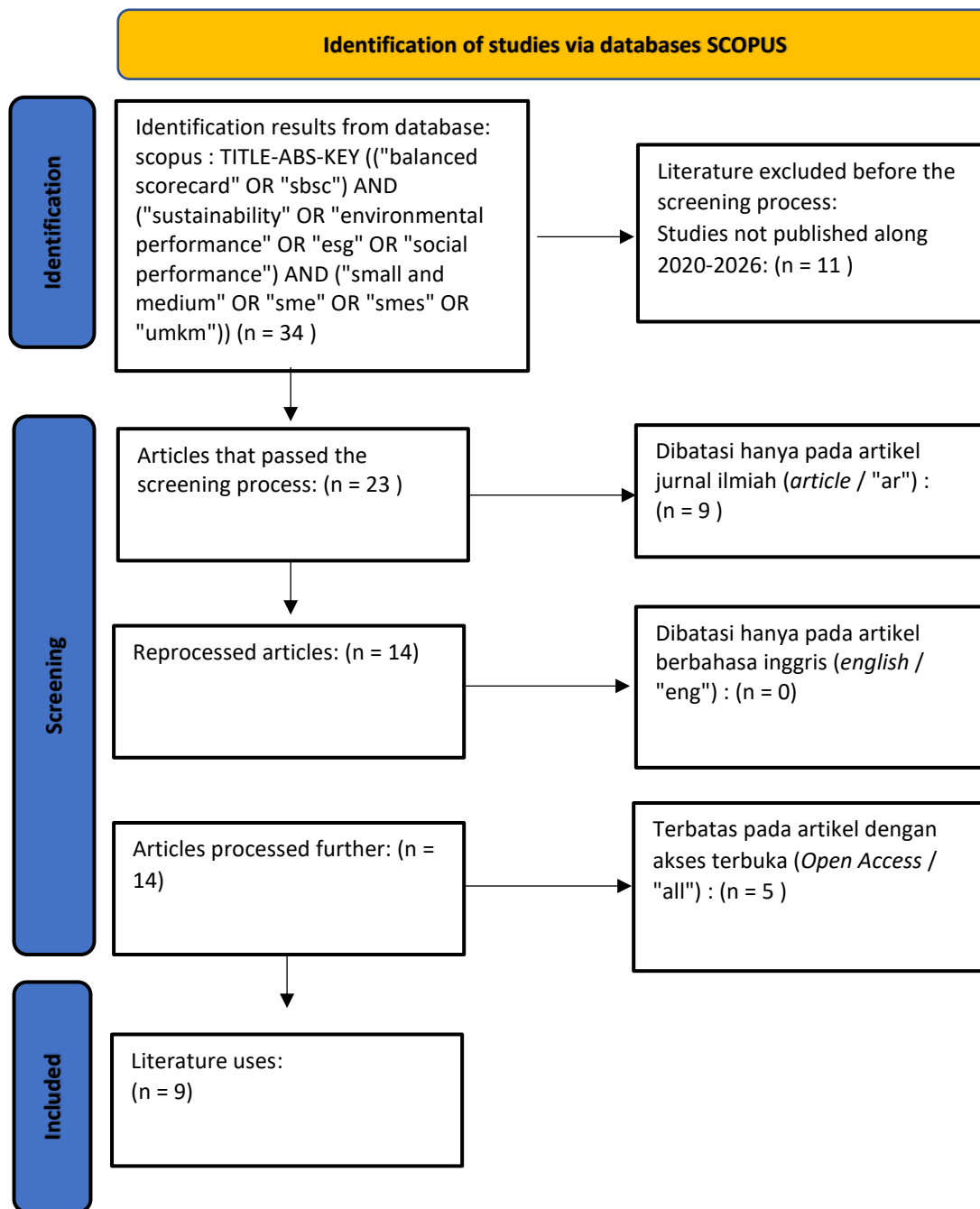
Information technology (IT) capabilities and organizational learning significantly impact organizational performance by strengthening knowledge absorption capacity. Integrating artificial intelligence (AI) into management models improves route operational efficiency by 25% and reduces inventory holding costs by up to 30%. Informatization leadership from CEOs positively impacts long-term business performance, although it does not directly impact immediate financial profitability. In the food sector, halal compliance serves as a strategic asset that enhances consumer trust, customer loyalty, and sustainable competitiveness.

The current literature still lacks an integrated framework that simultaneously encompasses all dimensions of the triple bottom line in the context of MSMEs in emerging markets. Most studies use cross-sectional research designs, which limit understanding of causal relationships and long-term organizational transformation processes. The role of SBSC as an instrument for gaining social legitimacy from non-market stakeholders has not been explored in depth by previous researchers. This study conducted a systematic literature review to map the current state of knowledge and identify methodological gaps in the domain of MSME sustainable management.

METHODS

This study applies a Systematic Literature Review (SLR) approach to map and in-depth analyze previous research on the integration of the Balanced Scorecard (BSC) or Sustainability Balanced Scorecard (SBSC) in the context of sustainability, environmental performance, social performance, and Environmental, Social, and Governance (ESG) aspects in Micro, Small, and Medium Enterprises (SMEs).

The secondary literature search and screening process was conducted in a structured manner using the Scopus database. The article selection process was systematically processed following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) methodology protocol to ensure transparency and accountability in determining the final sample of literature analyzed. The specific query formula used was: TITLE-ABS-KEY (("balanced scorecard" OR "sbsc") AND ("sustainability" OR "environmental performance" OR "esg" OR "social performance") AND ("small and medium" OR "sme" OR "smes" OR "umkm")). To ensure the relevance and quality of the analysis, the literature collected was then strictly screened based on the following inclusion and exclusion criteria: Limited to scientific journal articles (article / "ar"). Limited to open access articles (Open Access / "all"). Written in English. Published between 2020 and 2026 were deliberately selected to ensure that the reviewed literature is contemporary, relevant to the current digital economy ecosystem, and able to capture the paradigm shift of MSMEs from being purely profit-oriented (shareholder) to seeking social legitimacy and environmental sustainability (stakeholder theory).



RESULTS AND DISCUSSION

This study synthesizes nine Scopus-indexed studies. The results of the systematic literature review are presented in Table 1 below.

Table 1. Summary of Systematic Literature Review on SBSC and SME Performance (2021–2026)

No.	Author & Year	Variable / Topic	Main Theory	Method	Key Findings
1	Dewi et al., 2025	Organizational structure,	Contingency Theory	Quantitative (PLS-SEM)	Innovation mediates the

No.	Author & Year	Variable / Topic	Main Theory	Method	Key Findings
		innovation, and multidimensional performance			relationship between structural flexibility and SME performance.
2	Zulfiati et al., 2026	Sustainability reporting (SR) and supply chain management	Stakeholder Theory	Mixed Methods	Formal SR is perceived as complex and costly, while operational supply chain practices more strongly drive performance.
3	Wijaya et al., 2023	IT capabilities and organizational learning	Resource-Based View (RBV)	Quantitative (PLS-SEM)	Absorptive capacity mediates the effect of IT on BSC performance of halal SMEs.
4	Córdova-Aguirre & Ramón-Jerónimo, 2021	Sustainability in strategy and management control systems	Levers of Control (Simons)	Multiple Case Study	Sustainability is only partially embedded in strategy, as managers prioritize short-term operational economic control.
5	Ferber Pineyrua et al., 2021	Knowledge Management (KM), CSR, and SBSC	BSC Indicator Mapping	Projective (Tool Development)	Integration of 45 KM indicators and 102 CSR indicators aids alignment of intangible assets in service SMEs.
6	Córdova-Aguirre & Ramón-Jerónimo, 2024	Stakeholder-based SMESBSC framework	Stakeholder Theory	Multiple Case Study	The SMESBSC model replaces the financial perspective with 'Sustainability' to balance economic, social,

No.	Author & Year	Variable / Topic	Main Theory	Method	Key Findings
					and environmental pillars.
7	Goga et al., 2024	AI integration in the ESG-BSC model	McKinsey 7S	Mixed Methods	AI improves operational efficiency by 25%, but risks reducing demand for manual labor.
8	Park & Jung, 2025	CEO informatization leadership and business performance	BSC Perspective	Quantitative (Regression)	Informatization leadership positively impacts long-term BSC performance but not short-term profitability.
9	Akhiroh et al., 2025	Halal compliance and supply chain performance	Stakeholder Theory	Mixed Methods	The customer perspective is the strongest driver of halal supply chain performance in SMEs.

Source: Compiled by the authors from various sources (2021–2026)

The landscape of SBSC research on SMEs spanning the period 2021 to 2026 is predominantly concentrated in developing economies such as Indonesia, Peru, and South Korea (Dewi et al., 2025; Córdova-Aguirre & Ramón-Jerónimo, 2024; Park & Jung, 2025). The quantitative approach employing Partial Least Squares Structural Equation Modeling (PLS-SEM) has emerged as the primary analytical method for examining relationships between internal capabilities and multidimensional performance outcomes (Wijaya et al., 2023). More recent literature has increasingly adopted mixed-methods designs to provide qualitative context for the implementation of advanced technologies such as artificial intelligence and for the integration of global reporting standards such as the Global Reporting Initiative (GRI) (Goga et al., 2024; Zulfiati et al., 2026).

A consensus pattern in the literature identifies the Balanced Scorecard (BSC) framework as the most adaptive performance measurement instrument for SMEs, owing to its capacity to synergize non-financial dimensions with long-term strategic objectives (Dewi et al., 2025; Akhiroh et al., 2025). Information technology (IT) capabilities and digital leadership are consistently demonstrated to enhance operational efficiency and organizational competitiveness (Wijaya et al., 2023; Park & Jung, 2025).

Research gaps are identified in the limited exploration of SBSC as a social legitimization strategy for gaining recognition from non-market stakeholders (Zulfiati et

al., 2026). Additionally, the absence of longitudinal research designs impedes a deeper understanding of the evolution of work culture transformation in SMEs during the process of sustainable management implementation (Goga et al., 2024).

Analysis of the literature confirms that the Balanced Scorecard (BSC) framework is well-established as the primary instrument for measuring multidimensional SME performance beyond traditional financial metrics (Dewi et al., 2025; Wijaya et al., 2023). The extension of this model into the Sustainability Balanced Scorecard (SBSC) enables firms to explicitly integrate economic, social, and environmental pillars into their core strategies (Córdova-Aguirre & Ramón-Jerónimo, 2024; Akhiroh et al., 2025).

Although the traditional hierarchical architecture remains dominant, a discernible shift is occurring toward semi-hierarchical models that position sustainability on an equal footing with financial returns (Córdova-Aguirre & Ramón-Jerónimo, 2024; Ferber Pineyrua et al., 2021). The SMESBSC model proposed by Córdova-Aguirre & Ramón-Jerónimo (2024) replaces the conventional financial perspective with a 'Sustainability' perspective, thereby creating a more balanced integration of the three pillars of sustainable development. However, real-world implementation of these strategies frequently remains partial, as managers tend to prioritize short-term operational economic controls (Córdova-Aguirre & Ramón-Jerónimo, 2021).

The alignment of knowledge management (KM) and corporate social responsibility (CSR) indicators within the BSC perspective further enhances the quality of strategic decision-making in service-based SMEs (Ferber Pineyrua et al., 2021). The integration of 45 KM indicators and 102 CSR indicators assists firms in aligning their intangible assets with long-term strategic goals. Investments in human resource competency development and technological infrastructure are prerequisites for overcoming managerial barriers to the accurate implementation of sustainable management practices (Córdova-Aguirre & Ramón-Jerónimo, 2021; Ferber Pineyrua et al., 2021).

Information technology (IT) capabilities and CEO informatization leadership represent crucial determinants of SME competitiveness and sustainability (Wijaya et al., 2023; Park & Jung, 2025). The integration of Artificial Intelligence (AI) has been empirically demonstrated to improve operational route efficiency by 25% and reduce inventory storage costs by up to 30% (Goga et al., 2024). Furthermore, the use of AI-based predictive analytics reduces procurement costs by 15%, reflecting a substantial operational advantage for SMEs that successfully adopt these technologies.

Strong digital leadership has a significantly positive impact on long-term business performance from the BSC perspective, although its direct effect on short-term operating profits is often not immediately apparent (Park & Jung, 2025). This finding suggests that the benefits of technology leadership are more visible in strategic and non-financial dimensions, including customer satisfaction, internal process improvements, and organizational learning capacity. IT capabilities also function as a learning mechanism that reinforces organizational knowledge absorptive capacity, thereby strengthening the firm's adaptive capacity in dynamic environments (Wijaya et al., 2023).

Cross-document findings reveal that operational supply chain management (SCM) practices — including product development and production processes — serve as stronger performance drivers than formal sustainability reporting in micro-scale enterprises (Zulfiati et al., 2026). Formal sustainability reporting based on global standards (GRI) is frequently perceived as excessively complex and financially burdensome for small-scale business operators (Zulfiati et al., 2026; Córdova-Aguirre &

Ramón-Jerónimo, 2024). This condition creates a paradox in which standards designed to increase accountability instead become barriers to adoption by the very actors they seek to encompass.

In the food sector, halal compliance emerges as a strategic asset that differentiates market positioning by strengthening consumer trust and loyalty (Akhiroh et al., 2025). The customer perspective emerges as the most powerful driver of supply chain performance, attributable to the moral and emotional bond between consumers and the authenticity of halal products. Transactional supplier relationships, on the other hand, inhibit the effectiveness of strategic collaboration in sustainable supply chains (Zulfiati et al., 2026).

Organizational structures with high flexibility dimensions are demonstrated to promote adaptive capacity and strategic agility in SMEs operating within dynamic environments (Dewi et al., 2025). Innovation plays a crucial role as a mediating variable that transforms organizational structure design into tangible performance outcomes. The dimensions of organizational flexibility and structural complexity enhance the adaptation capacity and strategic agility of business units in the face of environmental uncertainty.

This finding underscores the importance of designing organizational structures that are not rigid but adaptable to environmental changes. Innovation, in this context, serves not only as an output of strategy but also as a transmission mechanism that converts structural design into real competitive advantages. SMEs that adopt flexible structures and foster internal innovation cultures therefore exhibit superior multidimensional performance compared to those adhering to conventional hierarchical models.

This study responds to identified research gaps by shifting focus to the high-technology service sector SMEs that have been underrepresented in conventional manufacturing literature (Wijaya et al., 2023; Córdova-Aguirre & Ramón-Jerónimo, 2024). The theoretical foundation is expanded by applying Legitimacy Theory to explain the motives of business owners in adopting SBSC beyond purely economic efficiency motives. This perspective acknowledges that SME owners may embrace sustainable practices not solely for operational benefits but also to secure social recognition and legitimacy from diverse stakeholders.

The research methodology is directed toward simplifying complex sustainability indicators to align with the limited administrative capacity of micro-scale enterprises (Zulfiati et al., 2026). Investments in green and social aspects confront a 'green cost dilemma,' whereby economic returns are often deferred and not perceived in the short term (Zulfiati et al., 2026; Córdova-Aguirre & Ramón-Jerónimo, 2021). This positioning facilitates the development of a more applicable sustainable management accounting model for today's digital economic ecosystem, providing a practical framework that bridges theoretical sustainability aspirations with the operational realities of resource-constrained SMEs.

CONCLUSIONS

This study integrates Legitimacy Theory into the Sustainability Balanced Scorecard (SBSC) architecture through a longitudinal approach to examine the social motives and transformation processes of sustainable management in digital service sector SMEs. Previous research has confirmed the effectiveness of the Balanced Scorecard (BSC) framework in measuring multidimensional performance and synergizing sustainability strategies in SMEs (Dewi et al., 2025; Park & Jung, 2025).

Nevertheless, the current literature remains dominated by cross-sectional research designs in the physical manufacturing sector, which tend to overlook social legitimation motives in the adoption of sustainable management systems (Zulfiati et al., 2026; Akhiroh et al., 2025).

This study addresses that gap by integrating Legitimacy Theory into the SBSC model to explain how external pressures drive SMEs to adopt sustainability standards amid resource constraints. Through a longitudinal case study method applied to digital service sector SMEs, this research traces the evolution of organizational culture transformation that has thus far been underrepresented in single time-point studies (Goga et al., 2024; Wijaya et al., 2023). A methodological contribution is also made by simplifying GRI standard indicators to be more applicable to the administrative capacity of micro-scale enterprises.

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