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The Effectiveness of the Sustainability Balanced Scorecard A Sustainable Business Performance Measurement Tool

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Abstract: This study focuses on the sustainability balanced scorecard (SBSC) as a performance measurement and management control tool that can play a significant role in driving companies towards sustainability goals. According to previous studies, research on SBSC can be structured into design, implementation, use, and evolution stages. This study aims to systematize knowledge at the use stage. Specifically, the study discusses the determinants influencing SBSC use, the approaches companies use in SBSC application, and the resulting results in terms of their effects on sustainability control and management. The method used is a systematic literature review (SLR) of 100 journal articles published in Scopus-indexed journals (Q1–Q4) and Sinta 2 to Sinta 4 within the period 2016–2025. The findings add to the body of literature on SBSC in management and accounting, provide an overview of current research, map research streams, suggest potential future research paths, and highlight several managerial implications.

Keywords: Management Control, Performance Measurement, Sustainability, Sustainability Balanced Scorecard, Systematic Literature Review.

INTRODUCTION

The increasingly rapid development of globalization and the global economy has had a significant impact on the dynamics of the business world (Fitriana, 2025). Competition between companies is no longer solely focused on efficiency and profit, but is also shifting toward social and environmental responsibility (Apriansyah & Sisdiyanto, 2024). This is due to increasing public awareness of the importance of sustainability as a fundamental factor in long-term growth. The concept of sustainable development, which balances the needs of the present without compromising the capabilities of future generations, has become a key foundation for the shifting paradigm of modern business (Schmidpeter, 2025).

The demand for ethical and responsible business practices has prompted companies to re-evaluate their strategic orientation (Awa et al., 2024). Companies can no longer ignore the impact of their operations on society and the environment (Wahyuningrum et al., 2025). Issues such as climate change, environmental pollution, social inequality, and natural resource exploitation have become key areas of focus for stakeholders in assessing corporate

performance. Governments, investors, consumers, and the wider public are increasingly paying attention to the extent to which companies are responsible for their operations.

Corporations, as economic entities, play a central role in supporting the achievement of sustainable development goals (SDGs), as they are now seen as key pillars in the implementation of the SDGs across the public and private sectors (Troy et al., 2025). Companies, with their resources, technology, and extensive market reach, are capable of acting as agents of change in creating solutions to social and environmental problems (Dyllick & Muff, 2016; AlHares, 2025). Therefore, corporate sustainability is no longer merely a social responsibility but rather part of an integrated business strategy, addressing regulations, stakeholder demands, and reputational risks (Eccles et al., 2014; Thun et al., 2024). Corporate sustainability is a holistic approach that integrates economic, social, and environmental dimensions into all aspects of a company's operations and decision-making, enabling companies to achieve improved financial performance while simultaneously generating positive socio-environmental impacts (AlHares, 2025).

Corporate sustainability activities are often still based on voluntary principles and reflect the integration of social and environmental concerns through stakeholder engagement in company operations (Van Marrewijk & Werre, 2003; Pigatto et al., 2023). This perspective is reinforced by Lozano & Von Haartman (2018), who emphasize the importance of a holistic approach to implementing sustainability strategies (Schneider et al., 2025). Companies that successfully implement sustainability as part of their long-term strategy also develop shared value models, make responsible investments, and use management tools such as ESG indicators and impact measurement to systematically ensure the achievement of sustainability targets (D'Souza et al., 2024).

Companies need a performance measurement system capable of assessing the success of implementing sustainability strategies (Samiun & Damau, 2024). This system must reflect a balance between economic achievements and social and environmental impacts (Hapsari & Chuang, 2025). The Balanced Scorecard (BSC), introduced by Kaplan and Norton (1992), is a popular strategic management tool used to measure organizational performance through four main perspectives: financial, customer, internal business processes, and learning and growth (Silva et al., 2025). This framework aims to translate a company's vision and strategy into measurable and relevant performance indicators.

The conventional Balanced Scorecard (BSC) has not explicitly addressed sustainability issues. Therefore, it was developed through the integration of social, environmental, and governance (ESG) aspects into the BSC framework, known as the Sustainability Balanced Scorecard (SBSC). Recent research shows that the SBSC provides a multidimensional approach that links sustainability strategy with organizational performance measurement systems (Hansen & Schaltegger, 2018; Kucukubay & Surucu, 2019; Hapsari & Chuang, 2024; Silva et al., 2025). Through the implementation of the SBSC, companies not only evaluate financial performance but also manage social and environmental impacts in a more structured and systematic manner (Samiun & Damau, 2024; D'Souza et al., 2024).

Various approaches can be applied to the development of a SBSC. Figge et al. (2002) identified three main methods for integrating sustainability into the BSC: inserting sustainability indicators into the four classic BSC perspectives, adding new perspectives such as non-market perspectives, and designing separate scorecards specifically addressing social and environmental aspects. These approaches provide companies with the flexibility to adapt the SBSC design to industry characteristics and stakeholder demands (Tuori et al., 2021; Silva et al., 2025). Furthermore, the SBSC serves as a strategic instrument to support data-driven decision-making, enhance accountability, and strengthen corporate transparency in managing sustainability issues (Hapsari & Chuang, 2025; Samiun & Damau, 2024).

Schaltegger & Wagner (2006) explain that SBSC has strategic benefits in supporting sustainability implementation. This instrument helps companies meet reporting requirements,

respond to regulatory demands, and encourage the internal adoption of sustainability standards (Silva et al., 2025). The success of SBSC implementation depends heavily on managerial consistency and integration into the company's management control system (Dolasinski et al., 2025). Therefore, not only the design aspect is important, but also the process of implementing and operating the SBSC at the organizational level (Silva et al., 2025).

Searcy (2012) explains that the SBSC cycle consists of four main stages: design, implementation, use, and evolution. In its development, Hansen and Schaltegger (2016) emphasized that previous SBSC research focused too much on the design and conceptual development aspects, while the implementation and use stages received less attention. This is in line with research by Silva et al. (2025), who, through their systematic review, showed that the greatest barriers to SBSC implementation actually arise at the implementation stage, particularly regarding the integration of social and environmental indicators into management practices. Kang et al. (2025) also reinforced this perspective through a study in the hospitality industry, which proved that the effectiveness of SBSC can only be achieved when this instrument is actually used in strategic communications, such as CEO messages, and operationalized in daily business activities. Thus, recent literature confirms that the success of SBSC is determined not only by the quality of its design, but also by the consistency of its implementation and sustainability of its use in a complex and dynamic organizational context.

The Theory of Performance (ToP), introduced by Elger (2007), is a conceptual framework for analyzing and improving individual and organizational performance. This theory emphasizes that optimal performance is achieved through the interaction of six key factors: identity, skills and knowledge, values and motivation, work context, thinking modes, and reflective awareness. Recent research has shown that the ToP approach is effective in supporting continuous learning and organizational development across various sectors (Hussain & Musa, 2023; Agyemang & Boateng, 2024; Silva et al., 2025). In practice, ToP helps organizations design more targeted and systematic development strategies. By utilizing analysis of these six factors, management can identify the root causes of performance gaps and develop appropriate interventions, ranging from skills enhancement to optimizing the work environment. Recent research has shown that implementing ToP can increase the effectiveness of employee development programs and foster a culture of continuous learning across various sectors (Hussain & Musa, 2023; Agyemang & Boateng, 2024). Therefore, ToP is highly relevant for organizations seeking to improve productivity, efficiency, and service quality, as it ensures that performance improvements are the result of a deliberate and continuous process, rather than simply a coincidence (Silva et al., 2025).

Based on this urgency, this study aims to compile and analyze academic findings regarding the use of SBSC in the context of corporate sustainability through a systematic literature review (SLR) method. This research is expected to broaden the academic discourse regarding the integration of social, environmental, and economic performance into an organization's strategic measurement system. In addition, the results of this study provide a useful reference for future researchers to examine important aspects such as the focus of previous research, the SBSC integration approach, implementation stages, the methodology used, and the sectors or characteristics of the organizations that are the objects of research. Thus, this study is expected to contribute to enriching the literature related to sustainability performance management and deepening understanding of the role of SBSC as a strategic tool in bridging business and sustainability objectives.

METHOD

This study employed a systematic literature review (SLR) based on the PRISMA guidelines, chosen for its rigor, transparency, and replicability. Unlike traditional narrative reviews, the SLR approach allows for systematic synthesis of prior studies, identification of

research gaps, and the development of future research directions (Tranfield et al., 2003; Delbufalo, 2012; Sivarajah et al., 2017).

The review followed three main stages (Tranfield et al., 2003; Sivarajah et al., 2017). First, planning, which included defining objectives and designing a review protocol aligned with Mio et al. (2020). The study focused on three core questions: (1) What are the determinants of SBSC adoption? (2) What approaches are used in SBSC implementation? (3) What outcomes result from its use? Second, implementation, which involved identifying and selecting articles that met specific inclusion criteria: published in English between 2016–2025, indexed in Scopus, categorized under Business, Management, and Accounting, and explicitly referencing “sustain*balanced scorecard.” Both conceptual and empirical studies were included.

Finally, in the reporting stage, descriptive and thematic synthesis was conducted. Data extracted from each article included bibliographic details, journal ranking, citation count, research focus, methodological approach, and industry context. This process ensured a comprehensive overview of the academic discourse on SBSC use

RESULTS AND DISCUSSION

This study employed a Systematic Literature Review (SLR) method, covering a ten-year period, from 2016 to 2025. The analysis was conducted by mapping the frequency distribution of identified articles based on the research scope (the industry in which the research was conducted) and the methodology used. Furthermore, the study results also present the three articles with the highest number of citations, considered to represent the most significant contributions to this field. Table 2 shows the frequency distribution of articles related to SBSC based on research context. From a temporal perspective, interest in SBSC declined slightly from 2016–2018 to 2019–2021, but then increased almost threefold in the most recent period, 2022–2025. Based on the research context, the reviewed articles exhibited diversity. The service sector was the most dominant sector in the sample (38% of companies), but significant proportions of research focused on the manufacturing industry, the public sector, and miscellaneous industries were also present (15%, 17%, and 20%, respectively).

Table 1. Frequency Distribution of Articles Regarding SBSC Based on Research Scope

Scope of research	2016-2018	2019-2021	2022-2025	Total	%
<i>Energy</i>	2		2	4	4%
<i>Hospitality</i>		4	2	6	6%
<i>Manufacturing</i>	4	3	8	15	15%
<i>Public Sector</i>	2	3	12	17	17%
<i>Services</i>	13	7	18	38	38%
<i>Miscellaneous</i>	6	2	12	20	20%
Amount	27	19	54	100	100%

In addition to the distribution of articles based on research scope, this study also analyzes the research methods used in SBSC-related studies. The analysis results in Table 3 show that empirical methods dominate SBSC-related research with the largest portion (40%), followed by conceptual papers/literature reviews at 36%, emphasizing the importance of theoretical foundations and literature reviews in this field. Case studies are still widely used (16%) to understand the in-depth application of SBSC in specific organizational contexts, while surveys account for 6%, and mixed methods and behavioral experiments are relatively rare (1% each). Temporally, there is a significant upward trend in the use of empirical methods (from 11 articles in 2016–2018 to 22 articles in 2022–2025) and literature reviews (from 4 to 23 articles in the 2022–2025 period), indicating that SBSC research is moving toward a more quantitative-

empirical approach while still being supported by conceptual contributions and literature reviews.

Table 2. Frequency Distribution of Articles Regarding SBSC Based on Research Method

Research Methods	2016-2018	2019-2021	2022-2025	Total	%
<i>Conceptual paper/literature review</i>	4	9	23	36	36%
<i>Empirical Study</i>	11	7	22	40	40%
<i>Behavioural experiment</i>			1	1	1%
<i>Case study</i>	7	2	7	16	16%
<i>Mixed methods</i>		1			1%
<i>Survey</i>	2		4	6	6%
Total	24	19	57	100	100%

In addition to analyzing the distribution of articles based on research background and methods used, this study also highlights articles that have had a significant influence on the development of the SBSC concept. This identification was carried out by reviewing the most cited articles in the literature, as citation rates reflect important contributions to the development of theory and practice. Table 4 presents the three articles with the highest number of citations, published in journals ranked ABS-1 to ABS-3. Specifically, one article was published in the Journal of Cleaner Production, one in the Journal of Business Ethics, and one in the Journal of Air Transport Management. Hansen & Schaltegger (2016) emphasize the application aspect of the SBSC by showing how this instrument can be used practically to integrate sustainability objectives into corporate strategy. Hsu & Luo (2017) identify determinants influencing SBSC implementation, particularly those related to regulatory pressure and stakeholder pressure. Meanwhile, Lu et al. (2018) highlight the outcomes of SBSC implementation, finding that integrating a sustainability perspective can improve organizational performance in the air transportation industry. This approach has been proven to help the company’s decision-making process in relation to achieving overall organizational goals

Table 3. Three Articles with the Most Citations Based on the Number of Citations

No .	Total Citations	Researcher	Year	Jurnal (ABS-Journal)	Research Stream
1	729	Hansen & Schaltegger	2016	<i>Journal of Business Ethics (3)</i>	<i>Application</i>
2	299	Hsu & Luo	2017	<i>Journal of Cleaner Production (1)</i>	<i>Determinants</i>
3	184	Lu, et al.	2018	<i>Journal of Air Transport Management (2)</i>	<i>Outcome</i>

This study categorizes the use of SBSC into three research streams: determinants, applications, and outcomes. The determinants cluster examines the factors driving SBSC implementation. The applications cluster focuses on various forms of SBSC implementation, while the outcomes cluster examines the consequences and outcomes of SBSC use, particularly

its impact on sustainability management practices and control systems. Therefore, this literature review on SBSC focuses on three main aspects: the determinants influencing its implementation, the applications in implementation, and the outcomes that emerge as a result. The results of this literature review are presented in the following table.

Table 5. Literature review results

<i>Research Stream</i>	<i>Researcher</i>
<i>Determinants</i>	Hsu & Luo (2017), Vieira <i>et al.</i> (2017), Xia <i>et al.</i> (2017), De Andrade Guerra <i>et al.</i> (2018), Asiaei & Bontis (2019), Alvarez Jaramillo <i>et al.</i> (2019), Yanine <i>et al.</i> (2020), Castillo-Merino <i>et al.</i> (2021), Agarwal <i>et al.</i> (2022), Vosselman & De Loo (2023), Yeh <i>et al.</i> (2023), Sharpe <i>et al.</i> (2023), Rauter <i>et al.</i> (2023), Tawse & Tabesh (2023), Fatima & Elbanna (2023), Leitao <i>et al.</i> (2024), Adel <i>et al.</i> (2024), Zairbani <i>et al.</i> (2024), Huber <i>et al.</i> (2025), Quesado <i>et al.</i> (2025), Gomes & de Azevedo (2025), Akyıldız <i>et al.</i> (2025), Czvetkó dan Rudiyanto <i>et al.</i> (2025)
<i>Applications</i>	Agrawal (2016), Hansen & Schaltegger (2016), Journeault (2016), Haghghi <i>et al.</i> (2016), Sands <i>et al.</i> (2016), Wudhikarn (2016), Aly & Mansour (2017), Ponte <i>et al.</i> (2017), Hahn & Figge (2018), Jassem <i>et al.</i> (2018), Lea <i>et al.</i> (2018), Aliakbari Nouri <i>et al.</i> (2019), Khalid <i>et al.</i> (2019), Kim <i>et al.</i> (2019), Chaker <i>et al.</i> (2020), Fatima & Elbanna (2020), Guix & Font (2020), Yanine <i>et al.</i> (2020), Kayikci <i>et al.</i> (2023), Rodgers <i>et al.</i> (2023), Diaz-Sarachaga & Ariza-Montes (2023), Rasolofo-Distler (2023), Sorrosal-Forradellas <i>et al.</i> (2023), Fernandez Gonzalez <i>et al.</i> (2023), Stavropoulou <i>et al.</i> (2023), Zhang <i>et al.</i> (2023), Saleheen & Habib (2023), Parolin <i>et al.</i> (2023), Thomas & Scandurra (2023), Zhao <i>et al.</i> (2023), Dimes & de Villiers (2024), Busco <i>et al.</i> (2024), Nahar (2024), Galderisi & Limongi (2024), Lagzi <i>et al.</i> (2024), Santos <i>et al.</i> (2024), Hristov & Searcy (2024), Deng <i>et al.</i> (2025), Evans <i>et al.</i> (2025), Ionescu-Feleagă <i>et al.</i> (2025), Yousefi & Tosarkani (2025), Singh <i>et al.</i> (2025), Ahu <i>et al.</i> (2025), Ertuğrul & Özdarak (2025), He <i>et al.</i> (2025), Kaneberg <i>et al.</i> (2025), Gajic <i>et al.</i> (2025), Rouhana & Van Caillie (2025), Bassani <i>et al.</i> (2025), Rosid (2025), Roselló Calzada <i>et al.</i> (2025), Ferawati & Purwanti (2025), Silva <i>et al.</i> (2025), Leni Lastian Nahulae <i>et al.</i> (2025), dan Alessandra Buonasera <i>et al.</i> (2025)
<i>Outcomes</i>	De Villiers <i>et al.</i> (2016), Lin <i>et al.</i> (2016), Ferreira <i>et al.</i> (2016), Raut <i>et al.</i> (2017), Lu <i>et al.</i> (2018), Nicoletti <i>et al.</i> (2018), Deng <i>et al.</i> (2018), Islam <i>et al.</i> (2018), Lee & Hageman (2018), Malviya & Kant (2019), Bom <i>et al.</i> (2019), Sislian & Jaegler (2020), Tsai <i>et al.</i> (2020), Chandra & Kumar (2020), Na <i>et al.</i> (2020), Pereira-Moliner <i>et al.</i> (2021), D’Inverno <i>et al.</i> (2021), António & Rita (2023), Trisyulianti <i>et al.</i> (2024), Forliano <i>et al.</i> (2024), dan Pedro <i>et al.</i> (2025).

a. Key Factors Influencing SBSC Implementation (Determinants)

SBSC implementation is shaped by internal factors such as top management commitment, strategic alignment, resource readiness, and a supportive organizational culture that fosters continuous learning (Hsu & Luo, 2017; Vieira et al., 2017). These elements ensure that the SBSC is not limited to design but effectively functions as a management tool (Asiaei & Bontis, 2019).

Externally, government regulations and stakeholder demands accelerate the integration of social and environmental indicators into performance measurement systems (De Andrade Guerra et al., 2018). At the same time, technological advances, digitalization, and the shift toward a green economy require organizations to adapt quickly, update performance indicators, and enhance human resource capabilities (Huber et al., 2025).

Overall, the determinants of SBSC are multidimensional, covering leadership, strategy, culture, and resources internally, as well as regulatory, social, and technological pressures externally. In line with the Theory of Performance (Elger, 2007), these factors act as levers that transform the SBSC from a measurement tool into a catalyst for strategic sustainability transformation.

b. Different Approaches to SBSC Implementation (Application)

The application of the SBSC has expanded significantly across industrial, public, and service sectors from 2016 to 2025. Initially, the focus was on integrating financial and non-financial dimensions to align sustainability strategies with business objectives, enabling firms to measure both economic and socio-environmental performance more systematically (Hansen & Schaltegger, 2016). Over time, research shows that SBSC has been increasingly used to strengthen environmental performance, operational efficiency, and competitiveness, proving that it is not only reactive to regulatory demands but also proactive in anticipating environmental risks and creating strategic advantages.

A key aspect of successful implementation lies in stakeholder participation. Involving internal and external actors enhances legitimacy, accountability, and balance between business priorities and sustainability expectations (Fatima & Elbanna, 2020). SBSC has also been applied in sustainable supply chains, green logistics, and project governance, extending its function beyond the organizational level to inter-organizational and cross-sector collaboration (Kayikci et al., 2022).

More recent developments highlight the integration of SBSC with digital technologies such as big data and analytics, which allow real-time monitoring and more adaptive decision-making (Deng et al., 2025). Even in developing countries, SBSC demonstrates flexibility by adapting indicators to local resource and institutional limitations (Rosid, 2025; Buonasera et al., 2025). Overall, SBSC has evolved into a strategic transformation tool that enhances organizational capabilities, fosters stakeholder engagement, and supports long-term sustainability in line with the Theory of Performance framework.

c. Outcomes Obtained from Using the SBSC (Outcome)

The literature consistently shows that SBSC implementation delivers both financial and non-financial benefits. It enhances transparency, accountability, and the integration of sustainability into strategic performance systems, ensuring sustainability becomes an embedded managerial practice rather than mere discourse (De Villiers et al., 2016). Beyond measurement, SBSC drives operational efficiency by balancing economic, social, and environmental indicators, leading to improved supply chain coordination, reduced waste, and added value creation (Raut et al., 2017).

SBSC also contributes to higher productivity, greener operations, and stronger governance structures. By identifying inefficiencies, improving processes, and adopting eco-friendly technologies, organizations achieve a balance between growth and environmental

stewardship (Lu et al., 2018). Its structured framework strengthens monitoring and evaluation, enhancing accountability across organizational units and fostering long-term sustainability-oriented governance (Lee & Hageman, 2018).

Consistent use of SBSC further builds sustainable competitive advantage and stakeholder trust. It helps firms design innovative strategies by linking capabilities, processes, and sustainability outcomes (Malviya & Kant, 2019), while also boosting customer satisfaction and corporate reputation (Pereira-Moliner et al., 2021). In line with the Theory of Performance (Elger, 2007), these outcomes highlight SBSC as not just a performance tool but a driver of continuous improvement, long-term value creation, and alignment with the triple bottom line.

CONCLUSION

This study presents a comprehensive systematic review of the role and effectiveness of the SBSC as a performance measurement and management control tool in driving companies towards sustainability goals. The research identifies that the use of the SBSC is strongly influenced by several key determinants, including alignment with the company's sustainability strategy, attention to stakeholder interests, the existence of a sustainability-oriented organizational culture, strong commitment from top management, and a supportive organizational structure. In practice, the application of the SBSC demonstrates high flexibility; companies can choose to add new sustainability perspectives or integrate environmental, social, and ethical indicators into existing BSC perspectives, with contextual adjustments to suit the specific needs of the organization. Results from SBSC implementation consistently demonstrate positive impacts, such as increased efficiency in sustainability management and control, facilitation of the sustainability reporting process, strengthened engagement with stakeholders, and significant contributions to the achievement of ecological and social goals. Thus, the SBSC proves to be a powerful strategic tool for sustainability, although its successful implementation depends heavily on the support of the organizational culture and the unwavering commitment of all levels of management.

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