

DEVELOPMENT OF SUSTAINABILITY BALANCED SCORECARD: IMPACT ON COMPANY PERFORMANCE AND IMPLEMENTATION

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ABSTRACT

This study explores integrating sustainability principles into the Balanced Scorecard (BSC) by incorporating Environmental, Social, and Governance (ESG) indicators. The research identifies how ESG aspects can be systematically embedded within the BSC framework to enhance company performance, promote transparency, and strengthen corporate social responsibility. This study narrows its scope to companies within the manufacturing industry to ensure coherence, given its significant contribution to the national economy and environmental impact. The sample consists of manufacturing companies listed on the Indonesia Stock Exchange (IDX), allowing for a more targeted application of the SBSC framework and relevant SULA indicators. These findings are expected to contribute to the practical and theoretical understanding of sustainability reporting and holistic performance measurement. Recognizing the fragmented and qualitative nature of prior sustainability performance assessments, this study introduces a holistic and data-driven framework using sustainability-linked accountability (SULA) indicators. The proposed model allows for standardized, cross-sector evaluation of ESG performance, particularly in the context of the Indonesian manufacturing industry. Based on literature analysis and empirical data, the study develops and applies a conceptual framework that integrates ESG metrics into BSC perspectives. The findings contribute to both theoretical advancement and practical implementation of comprehensive sustainability performance measurement systems.

Keywords: *Balanced Scorecard; Sustainability; Corporate Performance; ESG Reporting*

INTRODUCTION

In recent decades, sustainability has become a central concern in business strategy, driven by increasing environmental, social, and governance (ESG) challenges such as climate change, inequality, and corporate ethics scandals. Stakeholders—including investors, consumers, and regulators—demand greater accountability and transparency, prompting companies to incorporate ESG aspects into their operations performance (Muthiah & Anggoro, 2024). These internal and external pressures have led organizations to seek tools that can align sustainability with performance management.

Traditional performance measurement tools like the Balanced Scorecard (BSC) have been widely adopted to evaluate financial, customer, internal process, and learning perspectives. However, the standard BSC framework falls short in capturing complex sustainability dimensions, especially environmental and social aspects (Damtoft et al., 2024). As a result, scholars have proposed the Sustainable Balanced Scorecard (SBSC), which attempts to extend BSC by integrating ESG principles. Despite this development, existing SBSC frameworks often lack holistic integration and rely heavily on qualitative or subjective assessments, limiting their generalizability and comparability across industries.

However, the implementation of sustainability in companies and supply chains (SC) faces complex challenges, considering that current production systems produce unsustainable socio-economic and environmental impacts (Fallah Shayan et al., 2022; Taghikhah et al., 2019). Therefore, major long-term changes are needed, including sustainable industrial products and processes, from a technological, managerial, organizational, and behavioral perspective (Hermundsdottir & Aspelund, 2022). A more sustainable supply chain tends to contribute not only to individual organizations but also to the competitiveness of the participating industry groups (Cerqueira-Streit et al., 2021).

Many companies adopt traditional performance measurement tools such as the Balanced Scorecard

(BSC) developed by Kaplan and Norton to better assess sustainability performance. BSC basically measures company performance from four main perspectives: financial, customer, internal processes, and learning and growth. However, the main focus of BSC which is only on financial and operational metrics is considered inadequate in covering broad aspects of sustainability, such as environmental and social performance (Damtoft et al., 2024). Therefore, the development of BSC integrated with sustainability indicators such as ESG becomes very relevant. This integrative framework is expected to bridge the performance measurement gap and achieve holistic sustainability for companies (Carter & Rogers, 2008; Searcy, 2012).

In the context of Indonesia, the manufacturing sector plays an important role in the national economy. Although its contribution is significant, this sector also has many negative impacts on the environment, such as carbon emissions and high resource consumption (Nugrahanti & Lysandra, 2024). To support long-term sustainability, the manufacturing sector in Indonesia needs to integrate environmentally and socially friendly practices into its operations. However, adopting sustainability in the manufacturing industry supply chain faces many challenges, including environmental risks, high energy consumption, and the need for supplier selection oriented towards green practices (Alkolid et al., 2023). Thus, the integration of sustainable development policies and structural reforms in the Indonesian manufacturing sector is urgently needed to balance economic growth and environmental responsibility (Permana et al., 2024).

Although various sustainability reporting standards exist, such as ESG and the Global Reporting Initiative (GRI), their implementation in the supply chain still faces obstacles. ESG, for example, is recognized as positively impacting the industry from a system perspective (Xie et al., 2022). However, its adoption is still low due to the limited measurement tools that can cover all levels of the supply chain (Musyarofah et al., 2023). On the other hand, GRI is often adopted by large companies and is difficult to apply to small and medium-sized companies and industries that are new to implementing sustainability (Setyaningsih et al., 2024).

Recent studies have shown that although thousands of performance indicators have been developed (Searcy, 2012), selecting the right indicators remains a major challenge. The heterogeneity of companies in the supply chain, both in terms of size, sustainability awareness, and industry context, makes it difficult to find common performance indicators. Therefore, identifying commonly used key performance indicators is essential to provide a basis for evaluating sustainability performance that is acceptable to companies from different contexts and characteristics (Rojas-Lema et al., 2021; Searcy, 2012).

This study aims to develop a sustainability-based *Balanced Scorecard framework* that integrates ESG criteria to create a more comprehensive and relevant performance measurement tool in facing sustainability challenges. Specifically, this study will explore the impact of integrating ESG with BSC on the sustainability performance of manufacturing companies in Indonesia. This integrative approach is expected to provide a more accurate picture of company performance in the context of sustainability, while increasing the relevance of performance measurement in meeting stakeholder demands. In addition, this framework is also expected to help manufacturing companies in Indonesia adopt more holistic and efficient sustainability practices throughout their supply chain, as well as drive major changes in the company's strategic orientation to be more environmentally and socially aware (Carter & Rogers, 2008; Taticchi et al., 2013).

Through the development of comprehensive sustainability performance indicators and reporting, this sustainability-based BSC framework is expected to encourage the Indonesian manufacturing sector to improve its sustainability performance, as well as make a positive contribution to balanced economic growth and sustainable development (Lin et al., 2019; Maghfira et al., 2023; Zalva et al., 2023).

To address these shortcomings, this study introduces the use of Sustainability Linked Accountability (SULA) indicators, a structured set of ESG-aligned metrics that support both accountability and performance assessment. These indicators offer a quantifiable, comparable, and transparent basis for evaluating ESG integration across BSC perspectives. By embedding SULA into a redesigned SBSC framework, this research aims to develop a holistic and data-driven approach to sustainability performance measurement that can support strategic alignment and stakeholder expectations.

Thus, this study aims to fill the gap in prior literature by proposing and testing a sustainability-based Balanced Scorecard framework that incorporates ESG criteria through SULA indicators. This

integrative framework is expected to enhance sustainability performance measurement in Indonesian manufacturing companies, provide actionable benchmarking tools, and contribute to the advancement of ESG-aligned strategic management practices.

LITERATURE REVIEW

Balanced Scorecard Concept and Its Development in the Era of Sustainability

Kaplan and Norton first introduced the Balanced Scorecard (BSC) in the early 1990s as a tool to increase organizational performance through an approach that does not only focus on a financial perspective, but also non-financial (Kaplan & David P. Norton, 2001). BSC integrates four main perspectives, namely finance, customers, internal business processes, and learning and growth, so it can help organizations to develop a balanced strategy between greater profitability and broad non-financial development (Hoque, 2014; Kaplan & Norton, 1996). This approach is relevant in the era of sustainability, where organizations must pay attention to environmental and social sustainability in order to create long-term value (Modell, 2012; Ronda-Pupo, 2015).

In its development, the BSC concept evolved into the Sustainable Balanced Scorecard (SBSC), including social and environmental dimensions. Research shows that the implementation of SBSC helps organizations integrate sustainability goals into strategies so that they can accommodate social and environmental responsibilities along with other business goals (Figge et al., 2002; Hansen & Schaltegger, 2016). For example, non-financial elements in the BSC, such as environment and social, contribute significantly to organizational sustainability and support the Triple Bottom Line approach that emphasizes economic, social, and environmental performance (Rafiq & Zhang, 2019).

SBSC is also driven by regulations and political pressures emphasising environmental responsibility's importance. (Meadowcroft, 2009) explains that regulations such as emissions trading allow organizations to achieve their sustainability targets more easily. As a result, many organizations have begun to align their strategies with environmental policies implemented by the government to build a positive image in the eyes of the public, while creating competitive advantages through innovation in sustainability management (Stead & Stead, 2013; Zuhair & Kurian, 2016).

These external pressures, particularly from environmental regulations, motivate organizations to invest in sustainable practices, which ultimately impact organizational efficiency and competitiveness through increased innovation and operational flexibility (Free & Qu, 2011). For example, (Meadowcroft, 2009) and (Stead & Stead, 2013) show how emissions trading regulations influence organizations to prioritize their environmental impact by creating strategies that focus not only on profits but also on environmental sustainability.

Sustainability-oriented BSC also significantly impacts the organization's non-financial performance, such as human capital and social development. (Fijałkowska & Oliveira, 2018) revealed that the use of BSC adjusted to sustainability goals can support community development through positive contributions to society. This creates a balance between economic benefits and social responsibility, where organizations can positively impact internally and externally, thus supporting sustainable community development (Hristov et al., 2019).

Recent research suggests that the use of BSC integrated with sustainability objectives will continue to increase in the future as the understanding of the importance of balanced performance management grows. With this expanded BSC, organizations can align their business strategies with broader global sustainability objectives, strengthen social responsibility's role, and positively impact environmental sustainability (Hoque, 2014; Lim et al., 2022; Rafiq & Zhang, 2019).

ESG and Its Impact on Company Performance

As investors' interest in companies implementing Environmental, Social, and Governance (ESG) principles increases, many companies are now starting to incorporate ESG practices as an important part of their business strategy. Compliance with ESG principles has been shown to improve sustainability and enable companies to have better resources for long-term development and improve their financial performance (Egorova & Chigireva, 2022). In addition, the United Nations Principles for Responsible Investment (PRI) supports the application of ESG factors in investment decision-making, encouraging investors to be responsible for the impact of their investments through best practices and international networks (Gasperini, 2019; OECD, 2020).

ESG is assessed through an ESG score that shows a company's performance in the environmental, social, and corporate governance fields, and is an important measure in assessing a company's Corporate Social Responsibility (CSR) (Gillan et al., 2021). Although the concept of ESG is relatively new, a number of studies have shown a link between ESG and company value or financial performance, as found in the studies of (Han et al., 2016; Miralles-Quirós et al., 2018). ESG is now an increasingly important non-financial indicator for investors, covering elements of sustainability, ethics, and governance that play an important role in investment decisions (Kulal et al., 2023; Martiny et al., 2024; Zainuddin et al., 2024). (Weber, 2014) examined the ESG reports of leading green companies in China and found that good ESG reporting was associated with improved financial performance and environmental sustainability. The study by (Chen et al., 2015) also showed that Human Rights, Society, and Product Responsibility have a strong positive connection with return on equity.

Popular ESG data sources, such as Refinitiv Eikon DataStream, provide ESG scores that allow investors to compare a company's performance against peers within an industry or across sectors. Higher ESG scores make a company more attractive to ESG-conscious investors because they signal a company's protection from risks such as pollution or poor governance (Thomas. Water J & Grimes, 2020). Refinitiv has extensive ESG data coverage and captures over 630 company-level metrics, which are then scored across three key ESG pillars to reflect a company's performance, commitment, and effectiveness based on publicly available information. Thus, ESG reporting can be a positive signal to investors and society, demonstrating a company's commitment to sustainable and responsible practices.

The Role of Executives in Achieving Sustainability Goals

Various studies and theories on the role of executive compensation in achieving sustainability goals highlight that the link between compensation and sustainability is increasingly becoming a major focus in corporate strategic management. With the increasing global attention to environmental issues and climate change, international organizations and governments are gradually developing regulations to reduce greenhouse gas (GHG) emissions. Through the Kyoto Protocol, the Paris Agreement, and national regulations such as the Climate Change Act (CCA) in the UK, companies are required to contribute to sustainability targets, especially in terms of GHG emissions and energy efficiency (Al-Shaer & Zaman, 2018; Baboukardos, 2018; Hoque, 2014).

Furthermore, institutional theory (NIT) provides a useful framework for analyzing the relationship between executive compensation and sustainability. According to NIT, firms engage in symbolic and substantive practices to achieve social legitimacy and economic efficiency (Crossley et al., 2021). The symbolic perspective of NIT emphasizes that firms can enhance their reputation through positive sustainability disclosures, although this is not always followed by substantive changes in their operations (Crossley et al., 2021; Hoque, 2014). For example, firms may adopt sustainability initiatives as part of an impression management strategy, hoping to attract stakeholder interest and increase firm value (Talbot & Boiral, 2015).

In contrast, the NIT economic perspective suggests that to achieve economic efficiency, companies must implement real sustainability strategies that impact long-term performance (P. M. Clarkson et al., 2013; Dahlmann et al., 2019). A long-term commitment to reducing GHG emissions, for example, creates a positive image for the company and opens up opportunities for financial support and investment from stakeholders, including investors who are increasingly concerned about environmental impacts (Figge et al., 2002; Hoque, 2014).

On the other hand, the main challenge in integrating ESG-based compensation is the potential conflict of interest between short-term financial goals and long-term commitments to sustainability (Zumente & Bistrova, 2021). Research by (Cohen et al., 2023) shows that as investor awareness of sustainability issues increases, more companies are incorporating ESG metrics into their executive compensation structures. However, the effectiveness of this measure largely depends on how companies implement and measure sustainability achievements, including data digitization for greater transparency in sustainability reporting (Clementino & Perkins, 2021; Cohen et al., 2023).

In relation to the regulatory context, NIT also shows that firms can respond to external pressures through the adoption of policies that encourage conformity with best practices and international norms, such as the Kyoto Protocol and the Paris Agreement. Thus, in addition to increasing legitimacy, adopting sustainability strategies that are aligned with these global goals can help firms build competitiveness and improve long-term efficiency (Al-Shaer & Zaman, 2019).

ESG Integration in BSC and Sustainability-Based Performance Measurement

Along with the greater importance of sustainability in development companies, integration of Environmental, Social, and Governance (ESG) principles in strategic management frameworks such as the Balanced Scorecard (BSC) is increasingly prioritized. Implementation of ESG principles by company Not only intended to gain competitive superiority, but also to fulfill stakeholder expectations, interests related transparency and responsibility answers (Muthiah & Anggoro, 2024). Various studies show that implementation of ESG has a positive effect on company performance, although there is a number of variations in results (Alshehhi et al., 2018; Friede et al., 2015). Research by Rockefeller Asset Management and the NYU Stern Center for Sustainable Business also shows that 58% of research finds positive impact of ESG to performance, while the other 21% show mixed results.

In its implementation, the traditional BSC focuses on the perspective of finance, customers, internal business processes, learning, and growth, now developed with enter factors ESG For measuring sustainability more comprehensively (Hansen & Schaltegger, 2016). Through this integration, BSC does not only play a role in measuring short term performance but also in achieving long term sustainability objectives (Barnabè & Busco, 2012). Four perspectives in BSC facilitate companies in translating their sustainability vision into operational objectives, performance indicators Key Performance Indicators (Key Performance Indicators or KPIs), and aligned initiatives with ESG principles (Omowonuola Ireoluwapo Kehinde Olanrewaju et al., 2024)

ESG Integration into BSC involves modification of customer perspective for covers aspects of customer satisfaction to practice environmental and social companies, such as energy efficiency and ethical supply chain management (Habib et al., 2024). The internal perspective in the BSC can be adapted to reflect sustainability in the business process with implementation of a more production method friendly environment and practice fair employment. ESG integration in perspective learning and growth also encourages companies For creating a culture of sustainability through training employees and innovation in a practice friendly environment (Omowonuola Ireoluwapo Kehinde Olanrewaju et al., 2024).

Although thus, the challenge in implementing ESG integration into BSC includes difficulty in aligning ESG metrics with traditional performance indicators and constraints in accurate collection and reporting of ESG data (Muthiah & Anggoro, 2024). In other research, adoption of ESG in companies is also related to improved access to funding from the capital market, especially in the European region (Eliwa et al., 2021). and the increase in market value in countries such as Germany and Korea (Velte, 2017; Yoon et al., 2018).

With the utilization of new institutional economic theory (NIE) and governance adaptation (AG), companies are expected to be able to build a supportive governance structure , collective action, and social coordination at the operational level (Verrax, 2019). This approach shows that integration of ESG in BSC has the potential to create a long-term mark with a bridge between strategic and operational aspects, which will ultimately increase the company's overall sustainability performance (Hristov et al., 2019).

Sustainability Balanced Scorecard (SBSC)

Sustainability Balanced Scorecard (SBSC) is developed from Designed Balanced Scorecard (BSC). To integrate aspects of sustainability into strategy and measurement of organizational performance. Developed from the original model of (Kaplan & David P. Norton, 2001). SBSC enables companies to incorporate environmental, social, and economic dimensions into the four traditional BSC perspectives: financial, customer, internal processes, and learning and growth (Figge et al., 2002; Hansen & Schaltegger, 2016). The SBSC concept encompasses three main approaches to integrating sustainability: (1) incorporating environmental and social indicators into the four traditional BSC perspectives, (2) adding a specific perspective for non-market aspects, and (3) creating a separate scorecard for relevant environmental or social issues (Figge et al., 2002). These approaches are designed to help companies achieve strategic sustainability goals, support data-driven decision-making, and meet regulatory and stakeholder reporting needs (Schaltegger & Wagner, 2006).

Dimensions SBSC

1. Financial Perspective

This perspective remains a top priority in SBSC as it focuses on operational efficiency and cost management that supports sustainability. Supply chain integration in SBSC helps reduce redundancy costs and increase efficiency through a sustainable approach (Kaplan & David P. Norton, 2001)

2. Customer Perspective

This perspective focuses on understanding customer needs related to sustainability. SBSC helps companies respond to customer expectations, enhance brand reputation, and attract new customers who care about environmental and social issues (Maiga & Jacobs, 2007).

3. Internal Process Perspective

In SBSC, emphasis is placed on compliance with environmental standards and regulations. This includes value chain analysis to ensure that internal processes support sustainability principles (Kaplan & Norton, 1996).

4. Learning and Growth Perspective

This perspective focuses on improving organizational competencies in facing future challenges through continuous collaboration and innovation. This involves the development of new technologies and practices that support sustainability (Epstein & Wisner, 2001).

5. Sustainability Perspective

This additional dimension includes environmental, social, and economic indicators, such as ecological impact, social responsibility, and resource efficiency (Hansen & Schaltegger, 2016). This perspective provides a holistic framework for measuring sustainability performance internally and externally.

According to (Searcy, 2012), SBSC research can be grouped into four stages: design, implementation, use, and evolution. SBSC design requires aligning performance indicators with the company's strategic objectives, including addressing challenges such as identifying causal relationships between sustainability indicators and long-term financial results (Hansen & Schaltegger, 2016). SBSC implementation and use require management commitment, organizational culture change, and relevant data collection (de Andrade Guerra et al., 2018). SBSC provides a multi-dimensional framework that can bridge the needs of economic, social, and environmental interests. Studies show that SBSC helps companies strengthen sustainability reporting, increase stakeholder engagement, and drive innovation and operational efficiency (de Villiers et al., 2016). In addition, SBSC enables companies to design data-driven strategies to manage sustainability risks and create long-term value (Hubbard, 2009).

However, the main challenges of SBSC lie in the complexity of integrating non-financial indicators, implementation costs, and resistance to change from within the organization. In addition, the need to adapt SBSC to a company's specific context can limit cross-industry performance comparisons (Khalid et al., 2019). Several studies have shown the positive impact of SBSC in supporting sustainability goals. For example, SBSC can help companies identify strategic sustainability priorities, as in the case of an international airport that uses SBSC to evaluate sustainability performance (Lu et al., 2018).

Furthermore, the integration of sustainability-linked indicators, particularly those that are tied to accountability mechanisms such as Sustainability-Linked Accountability (SULA), has gained increasing attention. These indicators enable organizations to align strategic objectives with sustainability goals, and serve as a performance measurement tool that links environmental, social, and governance (ESG) outcomes to internal accountability systems. Incorporating SULA into the Sustainability Balanced Scorecard allows firms to track progress and enhance transparency and stakeholder trust, which are crucial in today's sustainability-driven business environment.

Based on the literature reviewed, this study proposes the following hypothesis:

H1: There is a positive relationship between ESG implementation and corporate performance.

RESEARCH METHOD

This study uses a purposive sampling method, focusing on manufacturing companies listed on the Indonesia Stock Exchange (IDX). The sample includes 20 companies selected based on the availability of ESG disclosure data and annual reports from 2020 to 2022. Focusing on one industry ensures consistency in applying the Sustainability Balanced Scorecard framework and the SULA indicators, which may not be uniformly relevant across all sectors.

This study uses a mixed methods that integrates a qualitative approach through collection of literature and sources. To produce the latest framework and comprehensive understanding about integration of *Balanced Scorecard* (BSC) with *Environmental, Social, and Governance* (ESG) criteria as well as quantitative studies as studies application of framework for performance sustainability of manufacturing companies in Indonesia. This approach is designed to give more holistic results, as recommended in researches that previously emphasized the importance of mixed approaches in sustainability studies (Creswell, 2014).

This study began with a comprehensive literature study identifying key performance indicators (KPIs) related to ESG and BSC. The sources used included international journals and relevant scientific literature, as suggested by (Taticchi et al., 2013) to develop a framework that suits the needs of the industrial context. This literature search was conducted through the *Scopus* and *Web of Science* databases to ensure the validity and credibility of the references used.

A quantitative survey was conducted by collecting data from manufacturing companies in Indonesia to assess the implementation of BSC and ESG. The survey instrument was developed based on performance indicators identified from a literature study. The collected data were analyzed using descriptive statistical methods and regression analysis to assess the relationship between ESG indicators and BSC perspectives in influencing sustainability performance (Grewatsch & Kleindienst, 2017). Data analysis was performed using statistical software (SmartPLS-4) to identify the relationship between ESG implementation in BSC and corporate sustainability performance. Qualitative data from interviews were analyzed using thematic analysis techniques to identify general patterns and trends that support the quantitative findings (Creswell, 2014).

Figure 1. Research Framework

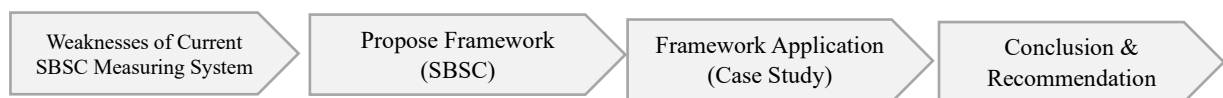


Figure 2 illustrates the integration of ESG dimensions into the Sustainability Balanced Scorecard (SBSC) framework, measured using SULA indicators across financial, stakeholder/governance, internal process, and learning & growth perspectives, leading to total sustainability performance.

Figure 2. Conceptual Framework



Operationalization of SULA Indicators

To measure ESG performance across firms, this study employs the **Sustainability-Linked Accountability (SULA) indicators**, a set of structured metrics aligned with the GRI and ESG reporting standards. A total of 30 indicators were mapped to the four SBSC perspectives. Each indicator was scored along two dimensions:

- a. **Accountability** — The quality and completeness of sustainability disclosures (quantified using a 1–5 scale).
- b. **Performance** — Year-over-year improvement in ESG-related outcomes (scored as +2 for improvement, +1.5 for stable, +1 for decline).

Scoring was based on publicly available sustainability reports between 2015–2023. Indicators were assigned weighted scores depending on their materiality to each firm's sector, allowing for standardized benchmarking across industries

ANALYSIS

Weakness of Current SBSC

Existing Sustainable Balanced Scorecard (SBSC) frameworks have often been criticized for their inability to integrate sustainability principles holistically. One of the main challenges is the lack of standards in selecting and incorporating sustainability indicators, such as environmental, social, and governance dimensions, into the traditional Balanced Scorecard (BSC) perspective (Nikolaou & Tsalis, 2013). (Dias-Sardinha et al., 2002) also noted that while these frameworks provide important ideas, they fail to provide practical procedures that allow broad adoption across different organizational contexts.

Furthermore, the SBSC framework is often based on limited empirical data. Many studies rely on hypothetical case studies or simulations that do not fully reflect the complex sustainability challenges in the real world (Hubbard, 2009). In this regard, performance assessments are often based on subjective perceptions, especially for social and environmental indicators, resulting in biases that reduce the reliability of the results (Nikolaou & Tsalis, 2013).

Frameworks such as the Pacific Sustainability Index (PSI) attempt to address this challenge by assessing sustainability through environmental, social, and human rights categories. However, this framework ignores the economic dimension, which is considered one of the three main pillars of sustainability (Skouloudis et al., 2009). This imbalance suggests that existing frameworks cannot provide a holistic view of a company's sustainability performance. Furthermore, traditional SBSC frameworks are not flexible enough to address emerging risks, such as transition threats (e.g. policy changes and reputational risks) and physical risks caused by climate change (IFRS, 2021). This inability can lead to companies being unprepared to face dynamic sustainability challenges, as has been demonstrated across various industry sectors (Surana et al., 2020).

Strengths of the proposed Framework

The proposed framework addresses these weaknesses by integrating ESG principles using the Triple I Framework approach (Schaltegger et al., 2012). This approach begins with defining a sustainability vision (Sustainability Intention), followed by integrating ESG-based risk governance (Integration), and finally implementing a sustainability strategy across all operational units (Implementation). This framework connects the strategic vision and operational implementation, ensuring sustainability is translated into concrete actions across the organization (Kaplan & David P. Norton, 2001). This approach also utilizes data-driven indicators proposed by SULA to measure sustainability performance across four key SBSC perspectives. The financial perspective evaluates operational efficiency and cost reduction; the customer perspective measures external stakeholder trust and satisfaction; the internal process perspective assesses operational efficiency and environmental impact reduction; and the learning and growth perspective enhances the organization's capacity for sustainable innovation (Hristov et al., 2019). Thus, this framework serves as a more transparent and accountable tool for evaluating and improving corporate sustainability.

Research shows a positive relationship between ESG principles and company performance. (Friede et al., 2015) identified that 90% of studies between 1970-2015 reported a positive effect of ESG on company profitability. This positive impact is also seen in other studies in the European capital market

(Eliwa et al., 2021), the Chinese energy sector (Zhao & Chen, 2018), and companies in ASEAN (Chairani & Veronica Siregar, 2021). These studies show that ESG implementations improve access to funding, financial stability, and risk management quality. However, there is also evidence that ESG does not always have a positive impact. Research by (Nollet et al., 2016) found that ESG can negatively affect financial performance, especially if the company is involved in a controversy involving stakeholders. (Nirino et al., 2022) this negative effect often occurs in companies with a history of inconsistent ESG implementation.

This framework offers a new approach that is more comprehensive than the previous SBSC framework. By integrating quantitative indicators from ESG and SULA, this framework reduces subjectivity in measuring sustainability performance (Nikolaou & Tsalis, 2013). In addition, the data-driven approach ensures that companies can manage sustainability risks more proactively, as suggested by (Muff et al., 2017). This approach also supports the transition from Business as Usual to Business for Sustainability 3.0 (Hansen & Schaltegger, 2016). By adopting this perspective, companies can direct strategic resources to address environmental and social risks while maintaining financial stability (Surana et al., 2020). This ensures that companies meet and meet stakeholder expectations and contribute to global sustainable development goals (Velte, 2017; Yoon et al., 2018).

The proposed framework provides a concrete solution to overcome the shortcomings of the traditional SBSC framework by integrating ESG and SULA Indicators comprehensively. This approach is not only relevant to modern business practices but also makes a significant contribution to the development of sustainability management literature. By bridging the gap between strategic vision and operational implementation, the framework offers a more robust evaluation tool for managing sustainability effectively.

Advantages

1. Holistic Integration of ESG Goals
This framework aligns ESG objectives with organizational strategy, ensuring comprehensive performance management (Adams, 2004; Kaplan & David P. Norton, 2001)
2. Enhanced Transparency and Accountability
Using detailed SULA indicators, organizations can improve their sustainability disclosure and strengthen stakeholder trust (Michelon et al., 2015).
3. Support for Strategic Decisions
ESG issues (Hansen & Schaltegger, 2016)
4. Comprehensive Comparison
This framework facilitates cross-industry comparisons, encouraging adoption of best practices and continuous improvement (Figge et al., 2002; Schaltegger et al., 2012).

SBSC Framework Development

Integration of *Environmental, Social, and Governance* (ESG) principles into the *Sustainability Balanced Scorecard* (SBSC) framework provides organizations with a strong mechanism To evaluate and improve their sustainability performance. By incorporating SULA indicators, this framework provides a detailed structure for assessing ESG dimensions across financial, governance, internal processes, and learning & growth perspectives. This expanded SBSC addresses the complexity of modern sustainability challenges while aligning with the organization's strategic objectives (Figge et al., 2002; Kaplan & Norton, 1996).

1. BSC and ESG Integration Using SULA Indicator

The Balanced Scorecard (BSC), designed by (Kaplan & Norton, 1996) is a mechanism to bridge the gap between financial and non-financial performance measures, offering a strategic view of organizational goals. Its evolution into the SBSC framework allowed for the inclusion of sustainability dimensions, making it more relevant to modern challenges (Hansen & Schaltegger, 2016).

The SULA indicators, which are closely aligned with ESG criteria, enhance the SBSC's capacity to measure organizational performance holistically. They provide detailed metrics for environmental management, social responsibility, and governance effectiveness (Adams & Frost, 2008). Examples of relevant indicators:

- a. Governance Indicators: SULA 18 (structure and composition of governance bodies), SULA 30 (processes for managing ESG risks), and SULA 155 (mechanisms for encouraging ethical behavior).
- b. Environmental Indicators: SULA 58 (environmental and social risk evaluation procedures) and SULA 170 (policies with specific environmental or social components).
- c. Social Indicators: SULA 10 (involvement in external sustainability charter) and SULA 39 (corruption incidents and corrective actions).

This integration aligns ESG objectives with strategic management and ensures compliance with global sustainability standards (Eliwa et al., 2021; Yoon et al., 2018).

2. Development of Assessment and Benchmarking System

System was developed to assign quantitative weights to each SULA indicator, enabling comparison of ESG performance across organizations and sectors (Figge et al., 2002). This ensures:

- a. Complete coverage of ESG issues through detailed metrics
- b. A balanced assessment of financial, social, and environmental impacts
- c. Stakeholder-focused evaluation ensures transparency and accountability

The assessment index prioritizes indicators based on their materiality to the organization's strategic objectives. For example, SULA 174 (restatement of previous financial data) may have a higher weighting for a financial institution, while SULA 58 (environmental risk assessment) is important for the manufacturing sector.

3. Implementation of the Framework

This framework is applied to sustainability reports published by companies, allowing for a comprehensive assessment of their ESG disclosures. Reports are evaluated against benchmarks derived from SULA indicators, identifying strengths and areas for improvement (P. Clarkson et al., 2019). For example:

- a. Mining company reports that it is possible to get a high score on SULA 58 (evaluation risk environment) but shows deficiencies in SULA 18 (governance body structure).
- b. Financial institutions may excel in governance metrics (SULA 25: conflict of interest management) but fall short in environmental disclosure.

This application provides actionable insights for management and supports the development of strategies to address ESG gaps (Hubbard, 2009).

SBSC Perspective

The integration of SULA indicators with the SBSC perspective ensures comprehensive ESG coverage:

1. Financial Perspective

This perspective evaluates the economic implications of ESG initiatives, such as the cost efficiency of sustainability programs and the economic value generated.

Category	SULA Indicator
Transparency Reporting	SULA 171: Determination of report content, SULA 174: Restatement of financial data, SULA 176: Reporting cycle
Accountability Finance	SULA 175: Significant changes in scope or measurement, SULA 177: Consistency of reporting periods

2. Governance Perspective

This perspective includes organizational governance, stakeholder engagement, and ethical practices.

Category	SULA Indicator
Governance Structure	SULA 18: Governance body structure, SULA 19: Responsibilities answer chairman of the governance body, SULA 21: Delegation authority For ESG
Ethical	SULA 155: Mechanisms for ethical behavior, SULA 25:

Governance	Conflict of interest management
ESG Risk Management	SULA 30: Risk identification and management process

3. Internal Process Perspective

Evaluate how internal processes contribute to ESG objectives, with a focus on operational efficiency and environmental management.

Category	SULA Indicator
Management Environment	SULA 58: Environmental and social risk assessment, SULA 170: Policies with specific environmental or social components
Operational Transparency	SULA 10: Commitment to an external sustainability charter

4. Learning and Growth Perspective

Focus on long-term development, including employee training and organizational innovation.

Category	SULA Indicator
Development	SULA 28: Governance body evaluation process, SULA 33: Employee Remuneration policy
Innovation and Growth	SULA 39: Corruption incidents and corrective actions

Scoring-benchmarking Technique

The scoring–benchmarking technique proposed for integrating ESG principles into the SBSC framework builds upon existing methods while addressing their limitations. Traditional scoring methods often emphasize the completeness of sustainability reports without assessing actual sustainability performance (Morhardt, 2010). This proposed approach bridges the gap by introducing a composite index that evaluates accountability and performance using standardized SULA indicators. Inspired by frameworks such as the Pacific Sustainability Index this model incorporates economic, environmental, social, and governance aspects while simplifying the scoring process to ensure clarity and applicability.

The accountability component of the index evaluates the comprehensiveness of disclosures in sustainability reports. It standardizes reported information into specific and comparative categories based on the GRI guidelines, ensuring consistency and comparability across firms. For example, SULA 171, which evaluates the determination of report content, is scored based on whether the information provided is qualitative or quantitative. Quantitative data, such as "a reduction of 5% in total CO2 emissions," earns the highest score, as it demonstrates measurable progress and allows for benchmarking against past performance (P. M. Clarkson et al., 2013).

On the other hand, performance indicators assess year-over-year changes in outcomes associated with accountability metrics. For example, if SULA 58, which measures environmental risk evaluations, indicates improved risk management outcomes compared to the previous year, it received a higher performance score. Conversely, stagnation or regression results in lower scores, highlighting areas requiring attention (Figge et al., 2002). This dual-layered approach ensures that organizations are transparent in their reporting and proactive in improving their ESG outcomes.

One of the strengths of this technique is its adaptability to qualitative and quantitative data. For example, while environmental indicators such as SULA 170 (environmental policies) are often quantitatively measurable, governance indicators such as SULA 155 (mechanisms for ethical behavior) may require qualitative assessment. To address this, qualitative indicators are scored based on the policies and processes' robustness. For example, a company stating that "50% of employees received training on ethical practices" would earn a higher accountability score compared to a company that vaguely mentioned "commitment to ethical behavior " without evidence of implementation (Adams & Frost, 2008).

Benchmarking plays a crucial role in this technique by comparing scores across industries, regions, and global standards. Firms that align their practices with frameworks such as the UN Sustainable

Development Goals (SDGs) or GRI standards set a benchmark for peers, encouraging lagging firms to adopt best practices (Hansen & Schaltegger, 2016). For example, a company scoring highly on SULA 10 (commitment to external sustainability charters) demonstrates leadership and sets a model for competitors.

The proposed scoring–benchmarking technique simplifies complex evaluations by standardizing measurements while maintaining flexibility to account for industry-specific and organizational contexts. It identifies performance gaps clearly and drives continuous improvement by encouraging organizations to achieve higher scores in subsequent assessments. This iterative process fosters a culture of accountability, transparency, and proactive sustainability management, ensuring alignment with both corporate strategies and stakeholder expectations (Kaplan & David P. Norton, 2001; Schaltegger & Wagner, 2006).

While quantitative measurements are generally straightforward, challenges remain in assessing qualitative disclosures. For example, social indicators like employee benefits or anti-corruption measures require nuanced interpretation. However, with structured frameworks, even these aspects can be standardized. For example, SULA 39 (incidents of corruption and remedial actions) could be scored quantitatively by evaluating the percentage of employees trained in anti-corruption policies. A company reporting that 60% of managers were trained this year compared to 50% the previous year would show measurable improvement, reflected in a higher score (Michelon et al., 2015).

Overall, the scoring–benchmarking technique balances simplicity, comprehensiveness, and comparability. It ensures that organizations are evaluated fairly based on their disclosures and actual performance while fostering alignment with global sustainability priorities. This method empowers stakeholders with actionable insights, enabling them to identify sustainability leaders and incentivizing lagging firms to improve their ESG practices.

SBSC Scoring Technique

The SBSC scoring technique provides a structured mathematical framework to calculate an organization's sustainability performance by integrating Environmental, Social, and Governance (ESG) principles within the SBSC model. This scoring system evaluates performance across two sub-indices: Accountability and Performance, each of which corresponds to the four SBSC perspectives: Financial, Governance (Stakeholder), Internal Process, and Learning & Growth.

The overall sustainability score is calculated using the following equation:

$$SBSC_score = Accountability_index + Performance_index$$

$$where\ 0 \leq SBSC_score \leq 316$$

Accountability Index Calculation

The accountability index assesses the quality, completeness, and transparency of an organization's disclosures. It is the sum of accountability scores across the four SBSC perspectives:

$$Accountability_{index} = A_{Fin} + A_{Gov} + A_{IP} + A_{L\&G}$$

$$where\ 0 \leq Accountability_index \leq 158$$

- A_{Fin} : Accountability score for the Financial perspective.
- A_{Gov} : Accountability score for the Governance (Stakeholder) perspective.
- A_{IP} : Accountability score for the Internal Process perspective.
- $A_{L\&G}$: Accountability score for the Learning & Growth perspective.

Each accountability score is calculated by summing the scores of relevant SULA indicators within that perspective. For example:

$$A_{Fin} = \sum_{i=1}^n SULA_i$$

where n is the number of SULA indicators under the Financial perspective.

Performance Index Calculation

The performance index evaluates the outcomes and improvements made in ESG performance compared to previous reporting cycles. It is calculated as:

$$Performance_index = P_{Fin} + P_{Gov} + P_{IP} + P_{L\&G} \quad (3)$$

$$where 0 \leq Performance_index \leq 158$$

- P_{Fin} : Performance score for the Financial perspective.
- P_{Gov} : Performance score for the Governance (Stakeholder) perspective.
- P_{IP} : Performance score for the Internal Process perspective.
- $P_{L\&G}$: Performance score for the Learning & Growth perspective.

Each performance score evaluates year-over-year changes using a weighted scoring system based on whether performance has improved, remained constant, or deteriorated:

$$P_i = \begin{cases} 2 \\ 1.5 \\ 1 \end{cases}$$

- 2 = If performance improved (eg, reduced emissions by a higher percentage)
- 1.5 = If performance remains constant (eg, same emissions reduction percentage)
- 1 = If performance deteriorated (eg, lower emissions reduction percentage)

The proposed scoring technique allows for a comprehensive assessment of ESG integration within the SBSC framework. By combining accountability and performance indices, it provides a balanced view of an organization's sustainability efforts. The accountability index ensures that transparency and quality of disclosures are rewarded, aligning with the Global Reporting Initiative (GRI) and similar frameworks (de Villiers et al., 2022; Michelon et al., 2015). For example, high scores for indicators such as SULA 174 (restatement of data) reflect the organization's commitment to transparency. The performance index incentivizes continuous improvement by rewarding organizations that demonstrate measurable progress in ESG metrics (P. M. Clarkson et al., 2013; Figge et al., 2002). For example, a company reducing CO2 emissions by a higher percentage compared to the previous year would score higher on relevant indicators like SULA 58 (environmental risk evaluation).

One of the strengths of this model is its adaptability to qualitative and quantitative data. While financial and environmental indicators (eg, SULA 170: environmental policies) often lend themselves to quantitative evaluation, governance and social indicators (eg, SULA 155: ethical behavior mechanisms) can be assessed qualitatively based on policy robustness and implementation. The scoring formula also emphasizes comparability and standardization, enabling benchmarking across industries and regions. This supports organizations in identifying leaders and laggards in ESG integration and adopting best practices (Hansen & Schaltegger, 2016; Schaltegger & Wagner, 2006).

Study Application

The collected data includes sustainability reports and annual reports from 10 Indonesian companies, focusing on sustainability indicators based on the developed SBSC framework. The information includes:

- a. The number of reports available per year (2015–2023).
- b. The indication of company sectors (eg, banking, energy, manufacturing, food, and others).
- c. Data sources, such as company websites, annual reports, or sustainability reports.

This section illustrates the application of the proposed SBSC scoring index to a sample of Indonesian firms. The data are drawn from sustainability reports published by the selected firms through various sources such as corporate websites and publicly available reports. In Indonesia, sustainability reporting practices are diverse, with firms adopting different frameworks such as the GRI Standards, ISO certifications, and sector-specific guidelines.

Table 1 Number of Sustainability Reports by Sector

Corporate Sector	Number of Companies	Annual Report (2015-2023)	Total Report
Banking and Financial Services	3	7	21
Energy and Mining	2	6	12
Food and Drink	2	5	10
Telecommunication	1	4	4
Manufacturing	2	5	10
Total	10	27	57

Source: Author

The sample includes 10 companies from five industry sectors that consistently published sustainability reports between 2015 and 2023. Table 1 provides an overview of the distribution of these reports across sectors. Notably, the banking and financial services sector leads in the number of reports, followed by energy, mining, and manufacturing sectors. This trend reflects the increasing emphasis on sustainability by heavily regulated industries. Data collection was facilitated through extensive online searches and reviews of corporate sustainability disclosures.

Table 2 Financial Perspective Scoring

Sector	Min	Max	Mean	SD
Banking and Financial Services	70	95	82.5	7.8
Energy and Mining	60	85	72.5	6.2
Food and Drink	65	88	76.5	7.1
Telecommunication	68	92	80.0	8.3
Manufacturing	63	87	75.0	7.4

Source: Author

Table 2 highlights the final scores of the financial perspective for the sectors examined. The financial perspective evaluates profitability, cost efficiency, and long-term economic value creation metrics. The analysis shows that the banking and financial services sector achieved the highest mean score (82.5), followed by the telecommunications and manufacturing sector. These findings align with previous studies, such as those by (Tariq, 2014), which found that using the BSC model in banks provides favorable outcomes and improves bank performance significantly. The findings also suggested that the financial, customer, internal process and learning and growth perspectives have a remarkable contribution in improving the banks' overall performance whereas the role of the vision and strategy perspective is insignificant. Moreover, the study concluded that the financial perspective greatly influences bank performance. Over the examined period (2015–2023), most firms demonstrated steady improvements in their financial perspective scores, signifying enhanced transparency and better integration of financial goals within sustainability frameworks.

Table 3 Stakeholder Perspective Scoring

Sector	Min	Max	Mean	SD
Banking and Financial Services	72	96	84.0	6.9
Energy and Mining	65	89	77.0	6.5
Food and Drink	67	90	78.5	7.8
Telecommunication	70	94	82.0	8.5
Manufacturing	68	88	78.0	6.8

Source: Author

Table 3 presents the stakeholder perspective scores, which measure the effectiveness of engagement and communication with external and internal stakeholders, including communities, employees, and investors. The financial services sector demonstrated a strong performance (mean 84.0), as firms in this sector face increased scrutiny from local communities and government regulators due to environmental and social impacts. These findings resonate with (Gray et al., 2019), who observed that extractive industries often disclose extensive information to address public concerns. The telecommunication sector also performed well, reflecting its efforts to enhance customer trust and social contributions. However, the manufacturing sector recorded relatively lower scores, which may indicate the need for improved stakeholder engagement practices.

Table 4 Total Sustainability Performance Scoring

Sector	Min	Max	Mean	SD
Banking and Financial Services	275	350	312.5	12.3
Energy and Mining	260	340	300.0	11.9
Food and Drink	265	345	305.0	12.1
Telecommunication	275	355	315.0	12.5
Manufacturing	270	340	305.0	12.0

Source: Author

Table 4 summarizes the total sustainability performance scores across sectors by aggregating the results from the financial, stakeholder, internal process, and learning perspectives. The telecommunications and financial services industries achieved the highest average scores (315.0 and 312., respectively). This result is consistent with studies such as (Al-ma'ani et al., 2019), which highlights the influence of stringent regulatory requirements and market competition on these sectors' sustainability practices. The telecommunication sector displayed moderate scores, attributed to their substantial efforts in managing environmental and community relations. Nevertheless, the performance gap between sectors suggests room for improvement, particularly for industries like manufacturing that face unique challenges in integrating sustainability into their operational processes.

Table 5 Scoring of Internal Perspective

Sector	2015	2016	2017	2018	2019	2020	2021	2022	2023	Average Score
Food and Beverage	38.5	39.8	41.2	42.6	43.5	45.1	46.4	47.6	48.2	43.22
Telecommunication	37.2	38.7	40.1	41.3	42.5	43.8	44.9	45.7	46.8	42.34
Mining and Extractive	34.8	35.6	36.7	37.8	38.5	39.2	40.1	41.0	41.6	38.34
Oil and Petroleum	33.6	34.4	35.1	36.2	37.0	37.9	38.6	39.2	39.8	36.86
Financial Services	31.2	32.5	33.1	34.0	34.8	35.6	36.5	37.0	37.8	34.94

Source: Author

The food and beverage and telecommunication industries achieved the highest scores among the sectors examined for the internal perspective (Table 1 and Fig. 1). This outcome is consistent with the industries' rigorous environmental and operational regulatory frameworks. However, despite steady improvement over the years, none of the firms exceeded the average internal perspective score (50).

Table 6. Scoring of Learning and Growth Perspective

Sector	2015	2016	2017	2018	2019	2020	2021	2022	2023	Average Score
Financial Services	32.8	34.1	35.3	36.5	37.4	38.6	39.7	40.8	41.5	37.40
Food and Beverage	31.5	32.8	34.0	35.1	36.2	37.4	38.2	39.1	40.0	36.05
Telecommunication	30.2	31.4	32.6	33.8	34.7	35.8	36.7	37.5	38.3	34.56
Mining and Extractive	28.9	30.1	31.3	32.4	33.4	34.2	35.1	36.0	36.8	33.15
Oil and Petroleum	27.6	28.9	30.1	31.2	32.1	33.0	33.9	34.6	35.2	31.84

Source: Author

Table 6 provides the scoring results for the learning and growth perspective. The financial services sector consistently outperformed other sectors, achieving the highest scores in most years, especially by 2023. (Bianchi et al., 2023) further supported this connection between environmental management practices and organizational learning and growth. Over the years, most firms demonstrated gradual improvement in their learning and growth scores, although the majority remained below the average score (40).

The findings of this study, which suggest a positive relationship between ESG implementation and company performance, provide important implications for Indonesian firms and companies in other emerging markets. Given the global trend toward sustainability and ESG disclosures, the integration of sustainability-linked accountability mechanisms into performance measurement frameworks like the Balanced Scorecard could offer a replicable model. Countries with similar institutional and regulatory settings could adopt this approach to improve corporate governance, enhance transparency, and drive performance. Future research could validate these findings across different regulatory environments and cultural contexts to assess their generalizability.

CONCLUSION

Research Conclusions

This study presents a new framework for evaluating and integrating ESG (Environmental, Social, Governance) principles into the Sustainability Balanced Scorecard (SBSC) model. The framework addresses the weaknesses of traditional SBSC models, which often fail to incorporate sustainability indicators holistically. By using SULA indicators supported by quantitative data, this framework reduces subjectivity in measurements and enhances transparency. Additionally, it introduces a scoring system that allows for cross-sector comparisons, encouraging the adoption of best practices.

The results show that the telecommunications and food & beverage sectors achieved the highest total sustainability performance scores. In contrast, the manufacturing sector demonstrated lower performance, indicating the need for improvements in stakeholder engagement and sustainability integration within operational processes. The study also found a positive relationship between ESG implementation and company performance, although challenges remain, particularly in less regulated sectors.

This study provides initial evidence suggesting a positive relationship between ESG implementation and company performance, particularly in manufacturing. While further statistical validation through regression analysis strengthens this conclusion, the integration of SULA into the Sustainability Balanced Scorecard offers a practical framework for linking sustainability efforts with financial outcomes. The findings are expected to serve as a reference for companies seeking to align sustainability initiatives with improved accountability and long-term value creation.

Research Recommendations

1. Development of Comprehensive ESG Strategies
Companies are encouraged to integrate ESG principles into their core strategies, especially by using relevant quantitative indicators such as SULA. This can help ensure that sustainability initiatives are translated into concrete actions.
2. Improvement of Sustainability Reporting Systems
Companies should enhance the quality and consistency of their sustainability reporting, following standards such as GRI or SDGs. This will increase stakeholder trust and simplify the

benchmarking process.

3. Greater Focus on Stakeholder Engagement

Sectors with lower stakeholder engagement scores, such as manufacturing, should adopt a more inclusive and transparent approach toward local communities and regulators.

4. Adoption of Data-Driven Assessment Systems

This study's proposed data-driven scoring system can be implemented to improve the accuracy of sustainability performance evaluations across various industry sectors.

5. Further Research

Additional studies are needed to explore the long-term impact of implementing this framework, including its effectiveness across different industrial and geographic contexts.

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