

A Pillar-Based and KPI-Oriented Framework in Business Reporting for Sustainable Development

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Abstract. *The pressing global environmental issues and the constantly shifting socio-economic paradigms have forced sustainability to emerge as an organizational imperative in terms of strategy and performance. The past two decades have demonstrated the exponential attention that ESG (environmental, social, and governance) reporting has received, yet existing models remain fragmented and compliance-driven, lacking granularity and the synergistic vision that can meaningfully capture the multidimensional nature of sustainable development. To complement the literature in this regard, the objective of this research was to introduce an actionable pillar-based KPI (key performance indicator)-oriented framework in business reporting for sustainable development. By employing an exploratory and qualitative research methodology, it was possible to design a creative and robust instrument that can effectively quantify, track, and report organizational sustainability efforts and effects for each component of the three pillars: economic, social, and environmental, based on a systematic approach and KPIs. Thus, the results consist of a framework encompassing specific, actionable KPIs for each pillar, organized into four key components per pillar. This approach enables organizations to meticulously determine and disclose their sustainability performance, thereby facilitating informed decision-making and continuous improvement. KPI areas range from circular economics to employee welfare, societal well-being, carbon emission reduction strategies, resource protection, and overall environmental stewardship. Through its design, the proposed framework transcends traditional reporting boundaries by positioning sustainability as a strategic opportunity for competitive advantage and long-term organizational resilience through constant improvement.*

Keywords: sustainability; ESG reporting; triple bottom line; performance; corporate social responsibility.

Introduction

Over the past few decades, the discourse around sustainable development, and sustainability in general, has transcended from being a peripheral dispute—a concern that some decision-makers at both public and business levels chose to turn a blind eye to in most cases—into a central societal focus, especially after the 2030 Agenda for Sustainable Development was published by the United Nations (2015). Surprisingly or not, companies across the globe appear now to be in a race of who can integrate sustainable practices into their operations as efficiently and swiftly as possible. This priority shift is not only an ethical responsibility, but as a strategic necessity or imperative.

Coupled with socio-economic and governmental pressures, the environmental issues that mankind is facing have compelled organizations to adopt and implement holistic sustainability

frameworks across all the sustainable development pillars: economic, societal, and environmental. This paradigm shift we are witnessing is fundamental for reducing the negative effects of climate change, conserving natural resources, as well as for securing long-term economic viability, and for promoting social equity justice, in the spirit of the 17 Sustainable Development Goals (SDGs).

It is not only the role of governmental actors to instill the principles of sustainability, but also that of stakeholders, investors, and customers. As long as each party places greater emphasis on their roles to reshape the society in the directions of sustainability, businesses are urged to align their operations and strategies with the new market realities and customer expectations. However, there are many challenges hampering this shift, since reshaping business paradigms in the right direction often requires a comprehensive overhaul of existing operational processes to incorporate sustainable practices into every business facet (Burns, 2012; Diaconeasa et al., 2022; Kılıç & Atilla, 2024). In light of this eminent paradigm shift, companies have been facing a lot of pressure from multiple perspectives: starting from designing and implementing sustainable consumption and production models (Andrei et al., 2021; Patarlageanu et al., 2022; Tseng et al., 2018), to green logistics–supply chain management (Prataviera et al., 2023; Wiredu et al., 2024), energy efficiency (Noja et al., 2023), and waste management (Baran et al., 2024; Ikhlayel, 2018; Petrescu et al., 2022)—just to name a few elements of sustainability.

Sustainability reporting should not be approached as a requirement, but rather as an emerged strategic necessity for organizations all around the world. Considering the increased demand for transparency and accountability, companies have become compelled to design complex reporting frameworks for sustainable development based on key performance indicators (KPIs), which help businesses to meticulously track, quantify, and disclose their environmental, social and governance (ESG) performance. In addition, there are some companies that have the ability to effectively report on sustainability efforts, which, on the long run, can build upon a company's competitive advantage (Bhandari et al., 2022; Hurduzeu et al., 2022; Rohendi et al., 2024), since excelling in reporting can lead to better market positions. Wang et al. (2023) argued that companies that succeed in this regard distinguish themselves in the market based on a key differentiator, which is sustainability. In this manner, companies consolidate their competitive advantage, and, in such favorable cases, reporting goes beyond being just a compliance issue—it turns into a competitive advantage.

Although there is a modest body of literature dedicated to ESG reporting, metrics, and KPI-based frameworks (Caraveo Gomez Llanos et al., 2024; Kocmanová et al., 2012; Kocmanová & Dočekalová, 2013; Nielsen et al., 2023; Telukdarie et al., 2024; Yu et al., 2024; Zhou et al., 2022), additional alternatives in KPI-oriented frameworks for reporting sustainable development progress are welcome. Thus, this "invitation" for developing such a framework presents an opportunity to design more nuanced models with potential applications in various business contexts.

In this context, this research was aimed at designing a novel SDG pillar-based approach, KPI-oriented framework, which was tailored to enhance the effectiveness and comprehensiveness of sustainability in business reporting. The proposed reporting framework was built with respect to each sustainable development pillar—economic, societal, and environmental—each requiring measurable, and actionable KPIs aligned with the core values and strategic objectives outlined in the 2030 Agenda for Sustainable Development. Moreover, the proposed reporting framework was intended to address the complexities of sustainability reporting in business, while recognizing, on the one hand—the importance of each pillar, and, on the other hand—the distinct, yet interdependent nature of the three sustainable development pillars. In addition, the proposed framework was also designed and meant to be a tool able to provide a robust business overview that could support well-informed decision making processes for continuous improvement, hence potentially becoming a strategic instrument that meets regulatory requirements, proving the company's commitment to sustainable growth, while assuring satisfactory market position through competitive advantage.

Literature review

Environmental, social, and governance (ESG) reporting—does it really live up to expectations? This topic has gathered momentum over the past years, with a growing body of literature dedicated to the assessment of companies' commitments for sustainability (Arvidsson & Dumay, 2022; Chopra et al., 2024; Liu et al., 2021). However, while this phenomenon does, indeed, encourage fostering decision transparency and accountability, there is also evidence to support that ESG reporting can rapidly fall into the pitfall of being excessively focused on compliance and investor expectations, rather than acting as an actionable instrument meant to deliver sustainability across all pillars and organizational dimensions (Tomlinson & Timmermans, 2024). Furthermore, other authors (Berg et al., 2022; Kotsantonis & Serafeim, 2019) argue that many existing ESG models lack the granularity needed to address SDGs synergies and trade-offs, hence opening an window of opportunity to design alternative reporting models. Thus, unlike ESG reporting, which might treat sustainability based on some standalone metrics, this paper introduces a pillar-based, KPI-oriented framework for business sustainability reporting.

Methodology

The adopted research method was exploratory and qualitative, harmonized with the objective of designing a novel sustainability reporting framework for businesses. This methodological choice was considered optimal for the research goal of addressing the multifaceted nature of sustainability reporting—it demands a profound understanding of both theoretical and practical sustainability-related challenges that businesses encounter, both in terms of applicability and reporting.

With consideration for sustainability, addressed through the lens of the current dynamic regulatory landscape, the exploratory approach facilitated flexibility in the design of a novel and robust reporting framework for businesses. What made this approach viable was consulting various sustainability reports, academic research, policy documents, and case studies before designing the sustainability reporting framework. Although no hypothesis was tested, what this paper sought was to conceptualize a comprehensive and effective reporting system tailored to contemporary business needs. By resorting to the exploratory approach, this paper proposes a self-designed pillar-based, KPI-oriented sustainability reporting framework grounded in the principle that each pillar holds equal importance and interdependence. In addition, this approach facilitates and encourages the study of the relationships between key performance indicators (KPIs) and strategic business goals in the context of sustainable development.

Lastly, the structured design of KPIs per four components identified at the level of pillars added more value to this paper and ensured its novelty factor. This comprehensive segmentation methodologically ensures that the KPIs were aligned with both business reporting necessities, as well as with the SDGs reporting exigencies, hence providing a balanced and integrated approach. Furthermore, strategic decision-making can be facilitated with the use of the reporting instrument proposed in this paper, which is also aimed at enhancing precision, applicability and performance management in sustainability reporting. Using this strategic tool allows businesses to quantify their efforts, effects, and adapt their activities for sustainability at a more granular and actionable level.

Results and discussion

The general overview of the proposed pillar-based, KPI-oriented framework for business reporting in sustainable development is presented in Figure 1, followed by the proposed KPIs per component of each sustainable development pillar: economic (Figure 2), social (Figure 3), and environmental (Figure 4). The framework emphasizes equal importance to all three pillars.

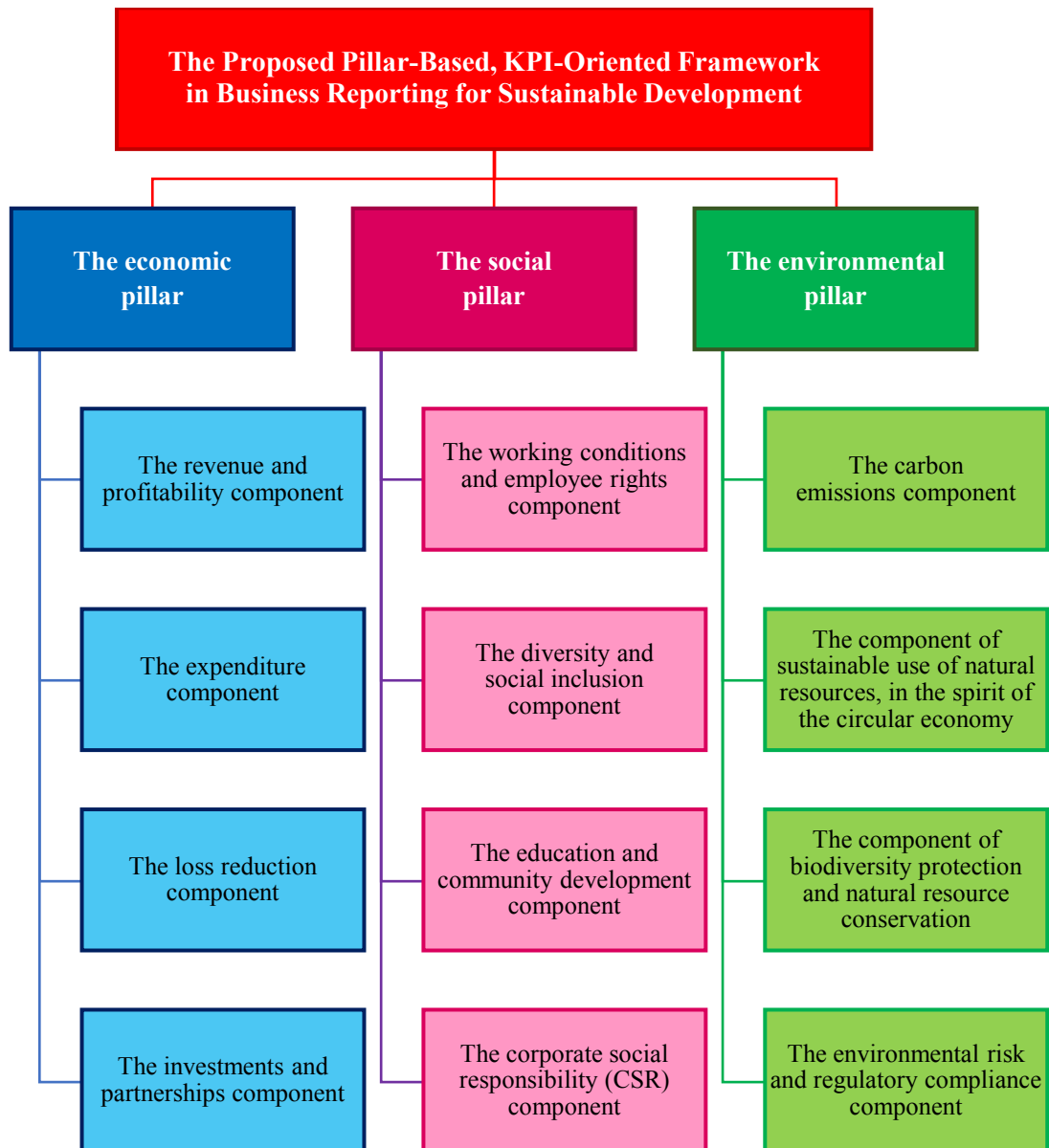


Figure 1. General overview of the proposed pillar-based, KPI-oriented framework for business reporting in sustainable development

Source: Authors' own conceptualization and design.

In line with the sustainable development principles, financial performance must be aligned with sustainable growth, as instilled at the level of the components of the economic pillar included in the proposed business reporting framework for sustainable development.



Figure 2. The proposed KPIs per each component of the economic pillar of sustainable development

Source: Authors' own conceptualization and design.

By prioritizing value generation and co-creation through eco-friendly operational models, corroborated with optimizing expenditures, resource efficiency, green investments, efficient loss management strategies, businesses can achieve long-term sustainable profitability and enhance environmental stewardship. The social pillar with its proposed components and KPIs complements the economic pillar by ensuring ethical practices, employee welfare, and societal well-being.



Figure 3. The proposed KPIs per each component of the social pillar of sustainable development

Source: Authors' own conceptualization and design.



Figure 4. The proposed KPIs per each component of the environmental pillar of sustainable development

Source: Authors' own conceptualization and design.

Minimizing the negative ecological impact is at the core of the environmental pillar's KPIs. By taking immediate action in the sense of enabling and empowering emissions reduction, resource efficiency, biodiversity conservation, and environmental risk mitigation among others, businesses become more sustainable. Moreover, these might even push them to embrace circular economy principles. By connecting environmental ambitions with the economic and social KPIs, companies can build towards long-term sustainable business resilience.

Conclusions

Unprecedented environmental challenges are now defining the global landscape, which is also characterized by social inequalities, constant economic transformations and geopolitical instability. This new paradigm demands a fundamental reimagining of organizational management systems, with sustainability emerging as a critical response to interconnected global challenges.

In this context, the societal role of businesses transcends and goes beyond socio-economic boundaries—businesses now become vectors of continuous transformation in the direction of sustainability by embracing social responsibility, environmental stewardship, and new economic models—circular, efficient, green, waste-free. Business transformation also occurs when reporting progress. Novel reporting mechanisms must be adapted to the modern role of companies, which should align their operational models and KPIs with the SDGs, hence creating long-term value for stakeholders, shareholders, and society at large. Also, what can create a sustainable competitive advantage is the ability to meticulously track, quantify, and communicate sustainability effort—a key differentiator that can transform reporting from a peripheral administrative task into a core strategic instrument.

To respond to these new challenges, this paper proposed a SDG pillar-based approach, KPI-oriented framework, which was tailored to enhance the effectiveness and comprehensiveness of sustainability in business reporting. The framework was aimed to be distinguished through several key contributions: (a) it transcends traditional compliance-driven reporting, since it facilitates organizations to meticulously determine and disclose their sustainability performance, thereby empowering well-informed decision-making and continuous improvement; (b) it aids to effectively quantify, track, and report organizational sustainability efforts and effects for each component of the three pillars: economic, social, and environmental, based on a systematic approach and KPIs; (c) KPI areas range from circular economics to employee welfare, societal well-being, carbon emission reduction strategies, resource protection, and overall environmental stewardship; (d) it approaches sustainability as a strategic opportunity for competitive advantage and potential source of long-term organizational resilience through constant improvement; and (e) the systematic approach, featuring four distinct components within each pillar, allows for a granular and interconnected assessment of sustainable development progress.

Within the proposed sustainability reporting framework, the economic pillar deals with how financial performance can align with sustainable growth through KPIs specific to revenue generated from eco-friendly-produced goods/services, green investments, and others. The KPIs associated to the components of the social pillar provide insight into employee welfare, societal well-being, and other societal aspects. In symbiosis with these two pillars, the third one—the environmental pillar—was also offered a robust tracking system for ecological stewardship through the proposed set of pillar components and KPIs, which addresses carbon emissions, resource use, biodiversity conservation, and regulatory compliance, thereby enabling organizations to transform sustainability from an abstract concept into a measurable, strategic imperative.

This research contributes to the academic discourse and adds new layers to the literature of business reporting for sustainable development through the proposed model that goes beyond traditional reporting boundaries by positioning sustainability as a strategic opportunity for competitive advantage. Another significant strength of the proposed framework lies in its flexibility adaptability, and well-structured approach. It allows organizations to customize and prioritize KPIs based on their specific contexts, industry characteristics, and to align KPIs with strategic objectives, hence ensuring the framework's relevance across diverse organizational settings.

Limitations must be acknowledged—this research was tailored for business organizational contexts. Non-governmental organizations (NGOs) and other organizational typologies were not considered when the reporting framework for sustainable development was designed, which limits universal applicability. Although the proposed model systematically addresses the three sustainable development pillars, there is potential for additional nuanced components that might not have been included in the model, as well as some additional KPIs that were not explored in this study. With respect to the research methodology—exploratory and qualitative—it introduces potential subjective interpretations in the framework design. The omission of the governance dimension, crucial for ESG reporting, negatively impacts the framework, hence elements such as board composition and diversity, shareholder rights, business ethics, anti-corruption measures, risk management systems, and stakeholder engagement mechanisms could be paid more attention to in future studies. In the absence of governance-specific metrics, the proposed reporting model limits organizations' ability to assess and demonstrate transparency commitments, ethical decision-making processes, aspects specific to organizational accountability, as well as other elements concerning governance. Thus, new prospects for future research are identified—the reporting framework introduced in this study could be further expanded by incorporating an additional pillar dedicated to governance. This new pillar, the fourth one, should embody governance-specific components and KPIs, which must be aligned with international standards and best practices in corporate governance. Finally, one last limitation identified in the case of this study refers to the lack of framework validation through empirical testing—it is required for validating the long-term viability and efficiency of the model. Collectively, all these limitations leave the door open for future research endeavors targeting the development of more refined, holistic reporting frameworks for sustainability.

Acknowledgement

This paper is part of the results of the research project titled "The Dimensions of Sustainability Reporting – Opportunities and Challenges for the Business Environment" (Romanian project title: "Dimensiunile raportării privind durabilitatea – oportunități și provocări pentru mediul de afaceri - MESSAGE"), funded by the Bucharest University of Economic Studies.

Funding

This paper was co-financed by The Bucharest University of Economic Studies during the PhD program. The funder had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results

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