

Reflecting the alignment of key administrative performance indicators with the UN's sustainable development goals in the public sector in the specialized literature

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Abstract.

Objectives: This paper examines how key performance indicators (KPIs) in public administration can be aligned with the Sustainable Development Goals (SDGs). It addresses a clear gap in research and practice by investigating the lack of integration between well-established models of performance measurement in the public sector and sustainability goals. Through a mixed-methods study, structured literature review, and bibliometric analysis, the study examines the current alignment between administrative KPIs and SDGs and identifies strategies for integrating sustainability goals into public sector performance management. It provides guidance to government agencies on aligning performance measurement with sustainable development goals.

Implications: The findings have important implications for both researchers and practitioners. For academia, the interdisciplinary mapping of the literature in this study provides a comprehensive basis for future research on the integration of performance management and sustainability, highlighting key thematic areas and gaps in knowledge. From a methodological perspective, the study demonstrates the value of combining bibliometric analysis with qualitative information to explore complex public management issues. For public sector managers and policymakers, the results underscore the need to integrate sustainability into core performance management practices.

Value of originality: The originality of this study lies in its integrated approach to a fragmented topic. It is one of the first studies to comprehensively examine the intersection of public sector performance management and the SDG agenda, addressing a clear gap in the research. By synthesizing dispersed literature streams and combining bibliometric mapping with qualitative analysis, the paper offers both new theoretical insights and practical guidance. This dual contribution is particularly valuable to the public management and sustainable development communities, as it provides evidence-based strategies for aligning key administrative performance indicators with global sustainability goals.

Keywords: Sustainable Development Goals (SDGs), Public Administration, Performance Measurement, Balanced Scorecard, Strategic Performance Management, Monitoring & Evaluation.

How to cite: DRAGOMIR, L., CROITORU, I. M., Nicoleta Daniela , I., & CHIVU, M. . Reflecting the alignment of key administrative performance indicators with the UN's sustainable development goals in the public sector in the specialized literature. *International Conference of Management and Industrial Engineering*, 12. <https://doi.org/10.56177/12icmie2025.171>

Introduction

Public sector organizations play a key role in promoting sustainable development, both through their policy mandates and operational practices [1]. In recent decades, governments at all levels have adopted performance measurement systems to boost accountability, transparency and effectiveness in public administration. Well-designed KPIs serve as a 'compass' that guides public agencies towards strategic goals and service improvements, while allowing stakeholders to assess progress [2]. These strategic goals include sustainability objectives, reflecting a broad consensus that economic, social and environmental outcomes must be balanced to ensure long-term public value. The adoption of the United Nations 2030 Agenda for Sustainable Development in 2015, with its 17 Sustainable Development Goals (SDGs) and 169 targets, underscores this imperative. The SDG framework translates abstract sustainability aspirations into **232 specific indicators** for tracking global progress. National governments are primarily responsible for realizing the SDGs, and integrating these targets into public sector planning and performance management is considered essential for their achievement [3].

Despite the logical alignment between public sector key performance indicators (KPIs) and SDG indicators, there is still a significant gap between practice and research. Many governments continue to use traditional performance frameworks that have been developed separately from the SDG agenda. Countries' monitoring of the SDGs tends to be done through separate reporting mechanisms, such as national sets of SDG indicators or voluntary national reviews, which may not be reflected in agency-level performance indicators [4]. The result is fragmentation: sustainability performance is assessed through disparate public sector frameworks with few interconnections or holistic perspectives [5]. Recent reviews of the literature show that public organizations lag behind the private sector in measuring and reporting sustainability performance, and that existing public sector sustainability frameworks are often specialized by domain. This fragmentation points to a *clear research gap*: we lack a comprehensive understanding of how performance management models can be unified with sustainability goals in public administration.

Research questions. Given this gap, our study asks the following questions:

RQ1: How have performance measurement frameworks (such as BSC, KPIs, SPM, M&E) been applied in public administration and to what extent do they address sustainability goals?

RQ2: What is the current state of alignment between public sector performance indicators and the SDGs and what patterns or trends are emerging in the academic literature on this integration?

RQ3: What strategies or approaches can effectively link administrative KPIs with the SDGs and what implications do these have for public sector policy makers and managers?

We address these questions through a mixed-method research. First, we conduct a structured literature review of the main performance management frameworks to understand their principles and use in the public sector (addressing RQ1). Next, we conduct a bibliometric analysis of recent international studies (using Web of Science data) to identify thematic clusters and trends related to performance management and sustainable development (addressing RQ2). Finally, we analyze and discuss practical approaches for aligning KPIs with the SDGs, based on the examples and findings of our analysis, to formulate recommendations for integration (addressing RQ3).

In answering these questions, the paper aims to contribute both theoretical insights - by synthesizing scattered streams of literature - and practical guidance for aligning administrative KPIs with global sustainability goals. The following sections of the paper are structured as follows: first, a literature review introduces the main performance management frameworks and their relation to sustainable development. Then, the methodology for the bibliometric analysis is presented. Results follow, including quantitative findings (e.g. keyword frequencies, clusters) and qualitative interpretation of thematic areas. A dedicated section then discusses how KPIs can be aligned with the SDGs, and the paper concludes with implications for policy makers and suggestions for future research.

Literature review

Performance management in the public sector has evolved through various frameworks and tools aimed at translating strategy into results. Three widely used models are the **Balanced Scorecard (BSC)**, **Strategic Performance Management (SPM)** and **Monitoring and Evaluation (M&E)** frameworks. Each offers a distinct approach to defining and measuring key performance indicators in the government context and each can be linked - in principle - to sustainability objectives.

Balanced Scorecard (BSC) is a strategic management framework introduced by Kaplan and Norton in the early 1990's to provide a more "balanced" view of organizational performance beyond financial indicators [6]. Traditionally, the BSC defines four perspectives, financial, customer, internal process, learning and growth, and links them to the organization's vision and strategy through appropriate performance indicators. In the public and not-for-profit sectors, the BSC has been adapted to emphasize mission-driven results and accountability to stakeholders rather than profit. Public school systems and city councils have implemented BSCs to align institutional goals with measurable outcomes. Pereira and Oliveira (2020) document how a Portuguese municipal council designed a Sustainability Balanced Scorecard for Sustainability (SBSC) that integrates environmental and social aspects into traditional BSC perspectives. Their case study demonstrates that BSC's flexible approach based on strategy mapping can accommodate sustainability objectives, effectively creating an 'extended' scorecard that articulates SDG-related objectives alongside conventional service performance measures [7]. Indeed, when the BSC is explicitly modified to address environmental, social or ethical dimensions, it is often referred to as the *Sustainability Balanced Scorecard* [8].

Strategic Performance Management (SPM) refers to a systematic process of defining an organization's strategy and translating it into organization-wide performance measures and targets. In the context of public administration, SPM gained prominence with the advent of the New Public Management reforms, which emphasized strategic planning and results-oriented management in government agencies. A distinctive feature of SPM is that it links high-level strategic objectives to departmental and individual performance indicators, thereby ensuring that day-to-day activities contribute to overall objectives. Researchers have emphasized that *strategic* performance management in the public sector requires a **balanced approach**, focusing not only on the end results, but also on the means and processes for achieving those results. Kloot and Martin (2000), for example, used the multiperspectival framework of the BSC to study Australian local governments, finding that a unidimensional approach (e.g., purely financial or output indicators) was insufficient for the complex objectives of public agencies [9]. They argue that SPM in government should incorporate diverse stakeholder expectations (citizens, politicians, employees) and a combination of quantitative and qualitative performance indicators to capture outcomes such as service quality, community well-being and long-term sustainability. This balanced approach resonates with the SDG ethos, which inherently covers economic, social and environmental dimensions. However, the literature also notes challenges: public managers need to avoid **KPI overload** and ensure that indicators remain aligned with strategic priorities, rather than proliferating without coordination [10].

Monitoring and evaluation (M&E) frameworks are widely used in public administration, particularly in development programs and policy implementation, to systematically assess progress and results. *Monitoring* refers to the continuous tracking of performance indicators against targets, while *evaluation* involves the periodic assessment of the effectiveness and impact of policies or programs, often for learning and accountability purposes. M&E has a strong resonance with sustainable development efforts: the SDGs themselves have been accompanied by a global framework of indicators designed to facilitate continuous monitoring, and countries are encouraged to assess the contributions of their policies to these goals. According to the OECD, a "strong monitoring and evaluation culture" within government promotes accountability and transparency and builds public trust by demonstrating that results are measured and reported [2]. Effective M&E enables a *feedback loop* on performance: data on what works (or does not) can inform policy adjustments and resource allocation. In the context of sustainability, M&E frameworks are essential for tracking progress on cross-cutting issues such as climate action, health equity or poverty reduction, which often involve multiple agencies and long time horizons. Many countries have established sets of indicators or dashboards dedicated to sustainable development for this purpose. International development agencies and the World Bank have promoted "results-based monitoring and evaluation" to help governments unify their monitoring around results [11], which conceptually aligns with the focus on SDG outcomes.

However, the **literature reveals a lack of integration** between these approaches to sustainable development. Previous studies often examine a framework in isolation - for example, implementing a BSC in a municipality or improving M&E for a specific program - without linking them or referencing them to the overarching SDG framework. This piecemeal approach has been noted by recent researchers: Mendes Junior et al. (1993) note that even with numerous studies of BSC or KPI-based accountability in areas such as education, it

remains difficult to get a comprehensive picture of how such models collectively influence outcomes, due to the fragmented treatment of them in the literature [12]. Similarly, Vu (2023) finds that public sector sustainability performance assessment frameworks are diverse and often tailored to specific domains, although many are based on common standards such as the **Global Reporting Initiative (GRI)** or UN-led frameworks. However, *no comprehensive framework* has been universally adopted in the public sector to link internal performance management to the SDGs. This gap constitutes the rationale for our research. By reviewing the international literature through bibliometric analysis, we aim to uncover how researchers and practitioners connect (or not) key performance indicators, performance frameworks and SDGs. Such an overview can identify promising approaches and contribute to the development of integrated models in the future.

Methodology

To investigate the alignment of administrative key performance indicators with SDG targets, we used a **mixed methods research design**, combining bibliometric analysis with qualitative content analysis. Our methodology consisted of the following steps:

- **Data collection:** we consulted the Web of Science (WoS) core collection for literature on public sector performance management and sustainable development. We chose the main search key "Administrative KPIs" and a base of 28,297 articles resulted. We also decided to use a secondary search key in the database related to sustainable development : "Sustainable Development Goals" resulting in 36,244 articles. In order to have up to date data we decided to apply several WOS specific filters. The first filter was the year of publication of the articles we chose as period of analysis 2020-2025 because by analyzing the existing articles in the selection of 36,244 articles the authors noticed a significant increase starting from 2020. To have an economic approach of the indicators we chose the Citation Topics Meso filter with 3 specific indicators: Management or Economics or Education & Educational Research. Following the application of this filter, a sample of 4,137 articles will result on which we will apply bibliometric analysis.

- **Bibliometric mapping:** We used **VOSviewer** (version 1.6.19) for bibliometric mapping of the collected literature. VOSviewer is a software tool for building and visualizing bibliometric networks. In our study, we performed a *keyword co-occurrence analysis*. High co-occurrence suggests a conceptual or thematic link between terms. VOSviewer applies a clustering algorithm that groups keywords into clusters so that terms in the same cluster have stronger interconnections with each other than with terms in other clusters. [13]. We set a minimum occurrence threshold of at least 50

- **Qualitative analysis:** While the bibliometric maps provide the big picture, interpreting the significance of each cluster and the nature of the research themes requires a qualitative reading. We examined representative publications from each identified cluster to understand the content and context of that theme. For example, if a cluster focused on "corporate sustainability" and "governance," we analyzed sample articles at the intersection of public governance and sustainability reporting to understand the focus of that cluster. This step ensured that our labeling and discussion of groups (in the Results section) was based on substantial literature, not just semantic proximity. We also analyzed case studies or frameworks referenced in those publications to find concrete examples of performance-SDG integration . Throughout our analysis, we correlated our findings with the research questions: the analysis of clusters and trends addressed RQ2 (trends in the literature and current state of alignment), while information from specific cases was fed into RQ1 (use of frameworks) and RQ3 (alignment strategies).

Finally, it should be noted that our analysis tools and data are consistent with those used in similar bibliometric studies in the field of public management. Van Eck & Waltman's (2010) methodology for visualizing similarity underlies the cluster mapping we conducted. All data analyses (keyword frequency counts, clustering) were performed by the authors, and all figures or tables are our own representations derived from the WoS dataset.

Results and further discussions

The bibliometric analysis conducted reveals a research landscape that is growing in volume and interdisciplinary in nature. Publications on public sector performance and sustainability have grown significantly in recent years, reflecting real-world trends such as governments' adoption of more rigorous performance regimes and the global focus on the 2030 Agenda [14], as shown in Table 1 where we have presented the distribution over the 5 years. We also chose in the selection the year 2025 because we have droit to capture the novelty elements at the detriment that the year is not complete

Table 1 Distribution of articles by publication years

An de publicare	2021	2022	2023	2024	2025
Numar articole	732	802	907	1,140	556

Source: Authors' own database research WOS

The literature covers multiple disciplines: administration and public policy, environmental studies, business management, economics, education and others all contribute to this discussion [15]. This interdisciplinarity confirms that the alignment of key performance indicators with sustainability is a complex issue that attracts interest from diverse fields.

In total, our refined dataset included over 4,137 scientific papers. Within these, **keyword analysis** revealed the most important topics discussed. **Table 2** below shows the most frequent keywords. Unsurprisingly, "*Sustainable Development Goals* " is the most frequent term, appearing in over 2,000 publications, a testament to the importance that the SDG framework has gained in recent academic discourse on sustainability. Overarching terms such as 'sustainability' and 'sustainable development' also feature prominently, alongside 'performance' and 'management', indicating the central theme of integrating sustainability into performance management. In particular, 'corporate social responsibility' (CSR) appears frequently, reflecting the fact that a significant part of the literature originates from or is influenced by the context of sustainability performance in the private sector

Table 2 Keyword analysis

Keyword	Occurrences	Total link strength
sustainable development goals	2,099	5,718
sustainability	705	2,330
corporate social responsibility	451	1,795
performance	487	1,785
sustainable development	598	1,704
management	397	1,646
impact	353	1,552
governance	303	1,210

Source: Authors' own research, based on Web of Science data using the VOSviewer program

Beyond these individual terms, the **co-occurrence network map** uncovered **four main clusters of** keywords, each representing a distinct thematic area in the research (responding to RQ2 about emerging patterns). **Figure 1** illustrates these clusters, with each cluster's frequent keywords displayed in a word cloud (font size reflecting frequency of occurrence and color indicating cluster membership).

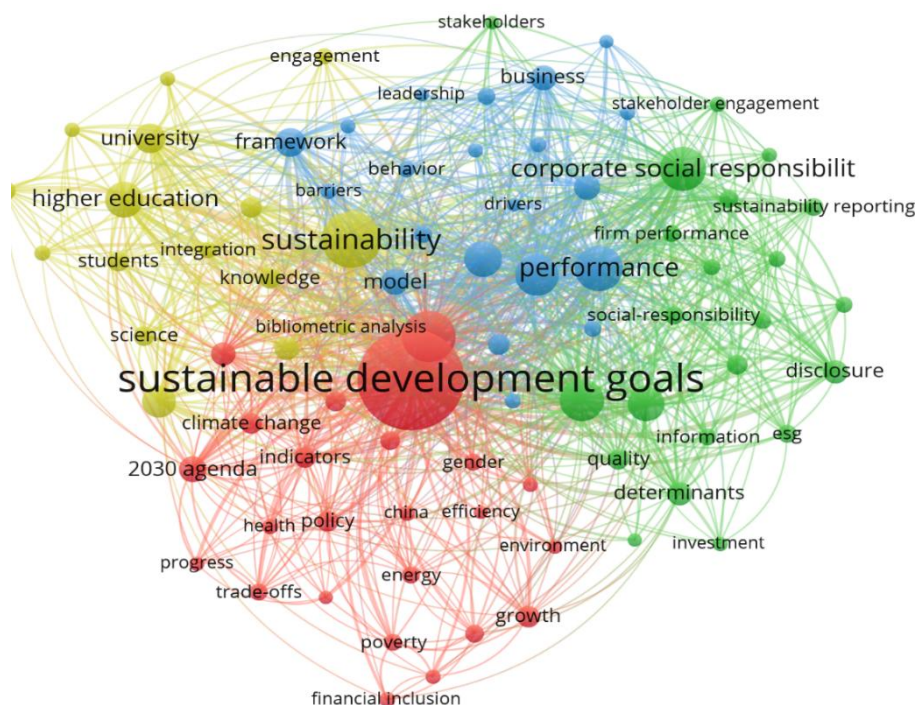


Figure 1: Keyword co-occurrence clusters

Source: Authors' own contribution (VOSviewer analysis).

The clusters have the following content:

Cluster 1 (24 items) : 2030 agenda, challenges, China, climate change, covid-19, economic-growth, efficiency, energy, Environment, financial inclusion, gender, growth, health, index, indicators, inequality, models, policy, poverty, progress, sustainable development goals, technology, trade-offs

Cluster 2 (22 items) : companies, corporate governance, corporate social responsibility, corporate sustainability, determinants, disclosure, environmental performance, esg, financial performance, firm performance, governance, impact, information, investment, legitimacy, quality, responsibility, social-responsibility, stakeholder engagement, stakeholders, sustainability reporting, women.

Cluster 3 (21 items) : barriers, Behavior, Business, circular economy, drivers, entrepreneurship, environmental sustainability, framework, future, green, industry, innovation, leadership, management, mediating role, model, performance, perspective, smes, strategy, systems.

Cluster 4 (16 items): bibliometric analysis, competences, curriculum, development goals, education, education for sustainable development, engagement, higher education, higher education institutions, implementation, integration, knowledge, science, students, sustainability, university.

In the following we will examine the content and try to identify specific research areas:

- **Cluster 1 - "Global policies and goals" (red):** this group focuses on general themes related to *sustainable development policies and the global agenda*. Key terms include '2030 agenda', 'climate change', 'poverty', 'inequality', 'health', 'economic growth', 'policy' and explicitly 'sustainable development goals'. This suggests that Group 1 comprises literature dealing with macro-level policy frameworks, development agendas and overall progress on the SDGs. Many of these studies are likely to discuss government strategies for implementing the SDGs, national indicator systems or cross-national comparisons of SDG performance. The presence of terms such as 'trade-offs' and 'inequality' indicate awareness of the interconnections and sometimes competing objectives of the SDGs, for example, economic growth vs. environmental constraints. 'Climate change' and 'poverty' are prominent terms, consistent with SDG 13 and SDG 1 respectively, indicating research on specific targets. In short, this cluster reflects the *high-level public policy discourse on sustainable development*, including how governments integrate the SDGs into national plans and how they measure progress in terms of overall socio-economic outcomes [1].

- **Cluster 2 - "Sustainability and corporate governance" (green):** the main terms in this cluster are "corporate governance", "corporate social responsibility", "ESG", "sustainability reporting", "stakeholders", "financial performance" and even "women", in relation to gender diversity in corporate leadership, an aspect of governance and

SDG 5. Although we focus on the public sector, the strong presence of corporate-related keywords implies that a substantial part of the knowledge on sustainability performance comes from the business context and is being applied or considered by public sector researchers. Many governments and international organizations have learned from corporate sustainability practices, for example, public agencies could use sustainability reporting guidelines originally designed for corporations, such as the GRI standards mentioned above [16] to disclose their own performance on social and environmental indicators. Cluster 2 is likely to contain studies on public-private sector comparisons, how corporate sustainability initiatives align with public policy, or how principles of good governance and transparency in the private sector can be translated into the government context.

- **Cluster 3 - "Innovation and circular economy in management" (blue):** This cluster includes terms such as "innovation", "circular economy", "SMEs", "industry", "green", "barriers", "drivers", "strategy" and in particular "performance" and "management". It seems to represent a research stream focused on *technological and organizational innovations for sustainability*, including how these innovations are managed and measured. The circular economy is a prominent concept, suggesting that a number of studies in this cluster examine performance indicators related to resource efficiency, waste reduction and 'green' practices, possibly in both the private and public sectors. The inclusion of 'SMEs' and 'business' alongside 'environmental sustainability' implies that this cluster is at the intersection between public policy and enterprise-level innovation. From a public administration perspective, cluster 3 may also cover performance management of environmental programs and how to measure the results of innovative sustainability initiatives. The words 'barriers' and 'drivers' emphasize that these studies often discuss factors that hinder or facilitate the implementation of sustainability practices, which may influence the way key performance indicators are designed.

- **Cluster 4 - 'Education and capacity for sustainability' (yellow):** The fourth cluster includes terms such as 'education for sustainability', 'higher education', 'university', 'students', 'knowledge', 'skills', 'competences' and 'curriculum'. This group clearly corresponds to research on *mainstreaming sustainability in education institutions and human capacity development*. Many universities and schools have integrated the SDGs into curriculum, operations and reporting, and they serve as microcosms for studying sustainability performance frameworks. The presence of the term 'bibliometric analysis' in this context is interesting, possibly indicating that some studies in this group are themselves bibliometric analyses of sustainability education research. Overall, cluster 4 suggests an emphasis on *knowledge, learning and human capital* in achieving sustainable development. In our context, it emphasizes that aligning KPIs with the SDGs is not only a technical exercise, but also an educational one: managers and public sector staff need awareness and skills (competences) to integrate the global goals into their daily performance objectives [17].

These groups collectively address RQ2, showing *where the research community has focused its attention*. They confirm that the topic of performance and sustainability in the public sector is multifaceted: from high-level policy integration (group 1) to borrowing corporate practices (group 2), promoting innovation (group 3) and capacity building through education (group 4). Notably, **no cluster is exclusively dedicated to 'public sector key performance indicators' or 'performance frameworks'** in a narrow sense, instead these concepts are interlinked across all clusters. One conclusion is that the idea of aligning KPIs with the SDGs emerges in different contexts, rather than as a theoretically independent framework. This dispersion might partly explain the fragmented nature of the scientific literature.

The final dataset of 4,137 articles spans multiple disciplines, reflecting the interdisciplinary nature of KPI–SDG research. Roughly 40% of the publications are classified under *Public Administration, Management, and Economics*, 25% under *Environmental Studies and Sustainability Science*, 20% under *Education and Social Sciences*, and the remaining 15% across fields such as *Engineering, Health Policy, and Development Studies*. In terms of type, journal articles account for the vast majority (~85%), with conference proceedings (10%) and book chapters/reviews (5%) making up the rest. This distribution confirms that the topic is anchored in management and policy studies but enriched by contributions from education, environmental science, and applied disciplines.

Conclusion

This study examined how key performance indicators (KPIs) and performance management frameworks in public administration can be aligned with the UN Sustainable Development Goals (SDGs), addressing a critical gap in the literature.

First, while performance measurement is widely recognized as essential for achieving sustainable outcomes, current practice remains fragmented. Traditional tools such as the Balanced Scorecard (BSC) and Monitoring & Evaluation (M&E) are common but often disconnected from the SDG agenda.

Second, our bibliometric analysis reveals emerging interdisciplinary trends—policy integration, corporate sustainability practices, innovation and circular economy approaches, and education/capacity building—that provide opportunities for bridging performance management and sustainability. These findings underscore that KPI–SDG alignment is not only a technical management task but also a process of innovation and institutional learning.

Third, the current state of KPI–SDG alignment is still nascent, but progress is visible. Governments increasingly reference SDGs at the strategic level, yet translating these commitments into revised agency-level KPIs remains incomplete. Effective alignment requires embedding SDGs into existing frameworks, adapting management tools to include social and environmental metrics, using digital innovation and circular economy indicators, and strengthening the skills of public officials in data-driven sustainability management. For policymakers, the central recommendation is to integrate sustainability into the culture of public sector performance, ensuring it becomes part of everyday decision-making rather than a separate reporting exercise.

Finally, alignment alone is not sufficient: without accountability mechanisms and adequate resources, it risks remaining symbolic. Future research should assess whether KPI–SDG alignment translates into measurable improvements in sustainability outcomes, including potential spillover effects across goals (e.g., how education reforms support economic growth or climate action).

Limitations:

The bibliometric approach, by its nature, depends on the search strategy and the quality of data (keywords, abstracts) provided by the authors. The authors have tried to have as comprehensive a sample as possible by using a broad set of search terms and using specific WOS filters. However, some relevant papers may not be indexed in WoS and therefore did not form part of the sample. Despite these limitations, the methodology provides a robust *overview* of the research landscape on public sector performance management models, making it suitable for the exploratory and integrative aims of this study.

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