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The Implementation of ESG in Public Sector Sustainability Reporting: A Systematic Literature Review

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Abstract: This study aims to examine research trends with regard to the implementation of ESG in public sector sustainability reporting. It addresses the gaps identified in the literature and make both empirical and theoretical contributions to the development of Environmental, Social, and Governance (ESG)-based sustainability reporting. The Systematic Literature Review (SLR) approach was employed to ensure traceability, objectivity, and replication of research results. Bibliometric analysis was conducted using VOSviewer. The data comprised articles obtained from Scopus database, published between 2015 and 2025. The articles were selected based on the keyword "sustainability reporting", resulting in 119 documents. The analysis revealed that the trend in publications indicates a sharp increase after 2018, with a significant surge during the 2023–2025 period, peaking in 2025. The most frequently used terms are "sustainability reporting," "sustainability," "ESG," "sustainable development," and "environmental governance." The dominance of these keywords suggests that the focus of ESG research in the public sector has shifted from purely environmental issues to a more holistic understanding of the sustainability of public organizations. Australia and Europe are the most productive and influential countries in the publication of this topic. Bibliometric visualization shows a varied pattern of collaboration, both between interconnected and indirectly connected authors. In addition, five main clusters of keywords were identified, reflecting the thematic focus on sustainability reporting, ESG, and institutional theory. The findings also highlight a number of areas that are still underexplored, such as the development of quantitative indicators, auditability aspects, digital technology integration, and local adaptation in sustainability reporting. This study presents a comprehensive overview of the *development of sustainability research in the public sector and identifies research gaps for future studies.*

Introduction

1. Global Context of ESG and the Public Sector

In the past two decades, the world has faced increasing pressure to ensure that economic development aligns with environmental protection and enhanced social welfare. The global climate crisis, social inequality, and rising demands for transparent and accountable governance have prompted the emergence of a new paradigm in organizational management, referred to as the sustainability paradigm. Within this context, the concept of Environmental, Social, and Governance (ESG) has become an increasingly dominant framework for defining and measuring organizational sustainability performance in both the private and public sectors.

In the private sector, ESG serves as an indicator of corporate social responsibility and non-financial performance, contributing to a company's market value, reputation, and competitiveness (Buallay, 2019; Shakil, 2020). In contrast, the application of ESG approaches in the public sector has different meanings and implications. The public sector is not oriented toward financial gain but rather focuses on public value creation and the enhancement of collective welfare. Consequently, ESG reporting in the public sector functions not only as a means of communication but also as a mechanism for accountability to the public and stakeholders. ESG demonstrates the extent to which public institutions can manage resources responsibly, transparently, and sustainably (Silva et al., 2020).

At the global level, several international organizations, including the Organisation for Economic Co-operation and Development (OECD), the United Nations Development Programme (UNDP), and the World Bank, have affirmed the importance of sustainability reporting in the public sector. The OECD, for instance, emphasizes in the document "Principles of Public Governance for Sustainable Development" (2019) that good governance must balance three main pillars: transparency, efficiency, and sustainability. This principle aligns with the ESG framework, wherein the 'Governance' aspect serves as a crucial foundation for integrating environmental and social dimensions into public policy.

Furthermore, the United Nations Department of Economic and Social Affairs (UNDESA) has emphasized that the achievement of the Sustainable Development Goals (SDGs) cannot be realized without the active involvement of the public sector in internalizing ESG principles into decision-making, budget planning, and performance reporting processes. Thus, ESG functions not only as an external evaluation instrument but also as an integral component of a public sector performance management system oriented toward long-term sustainability.

2. Development of Sustainability Reporting Practices in the Public Sector

Historically, sustainability reporting in the public sector began with the concept of the triple bottom line (TBL), introduced by Elkington (1997), which encompasses three dimensions: people, planet, and profit. This concept subsequently became the basis for the development of international reporting standards, such as the Global Reporting Initiative (GRI) and the Integrated Reporting Framework (IR). Initially, these standards were widely applied in the private sector, particularly by large companies listed on stock exchanges, while governments and public institutions began adopting similar practices starting in the 2010s. In

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Australia, for example, several local councils have published sustainability reports as a form of social accountability (Williams, 2015). Meanwhile, in Europe, the Non-Financial Reporting Directive (NFRD) encourages public institutions and state-owned companies to report their social and environmental impacts (Bryan, 2021). Additionally, in Asia, countries such as South Korea and Japan have developed ESG-based reporting systems in the public sector as part of their national green governance strategies (Kaur & Lodhia, 2018).

The implementation of sustainability reporting in the public sector faces unique challenges compared to the private sector. The challenges include methodological limitations in quantitatively measuring social and environmental impacts, the complexity of public organizational structures, and the disconnection between sustainability indicators and financial performance indicators (Tommasetti et al., 2020). Furthermore, there is no global consensus on ESG reporting standards for public institutions, leading each country to develop its own approach.

In the Indonesian context, public sector sustainability reporting initiatives are still in their early stages. Several ministries and public bodies have begun to introduce environmental and social reporting through the Green Office program, social responsibility reports, and Sustainable Public Procurement policies. The Ministry of Finance, for example, through the Directorate General of Financing and Risk Management, has developed a Green Sukuk Framework and an ESG Evaluation System for public infrastructure projects (Steelyana & Wahyuni, 2024). However, this approach primarily focuses on financial and investment aspects and has not yet integrated a comprehensive sustainability reporting system across public institutions.

This disintegration highlights the urgent need to develop an ESG reporting framework tailored to the characteristics of the public sector. In this context, the role of academic research becomes crucial, which is to identify existing reporting models and frameworks, assess their suitability for public contexts, and propose new, more effective approaches.

3. ESG, Public Governance, and Accountability

The concept of ESG in the context of the public sector cannot be separated from the issue of accountability and institutional legitimacy. According to institutional theory, public organizations are expected to achieve social legitimacy by adhering to societal norms and expectations (Kaur & Lodhia, 2019). ESG reporting serves as a tool for establishing legitimacy, as it demonstrates that public institutions are accountable for their social and environmental impacts, rather than merely fulfilling administrative functions.

Public accountability is a crucial dimension of ESG reporting. According to Tan and Egan (2017), triple bottom line-based reporting on drinking water institutions in Australia not only enhances transparency but also encourages internal improvements in resource management. This concept is further expanded by incorporating a governance dimension, which encompasses ethics, integrity, and public oversight of government decision-making.

Furthermore, ESG serves as a policy instrument to ensure that public policies contribute to sustainability. For example, in green transportation policies, environmental aspects are measured through carbon emissions, social aspects through the inclusivity of transportation access, and governance aspects through budget transparency and performance evaluation. This approach not only strengthens cross-agency coordination but also ensures consistency between national policies and international commitments to the Sustainable Development Goals (SDGs).

In general, the integration of ESG into public governance has not been optimal. Many public institutions still perceive ESG reporting as an administrative obligation rather than as part of a performance achievement strategy. Consequently, the reports produced are often descriptive and lack verifiable quantitative data. Another issue is the low level of stakeholder participation in the reporting process. In fact, community involvement is a key element in strengthening accountability and improving the quality of public information (Kaur & Lodhia, 2018). This situation highlights a theoretical gap in the literature regarding how ESG can be effectively operationalized within the public accountability system. Legitimacy and accountability theories need to be adapted to explain the complex interactions between public institutions, society, and transparent sustainability reporting systems.

4. Sustainability Reporting Frameworks and Models in the World and Indonesia

Sustainability reporting in the public sector is currently experiencing significant developments in various parts of the world. In Europe, the *European Commission* published the *Non-Financial Reporting Directive (NFRD)* and *the Corporate Sustainability Reporting Directive (CSRD)* which require certain public entities to report their environmental and social impacts transparently. Public institutions under the European Union are now required to prepare annual ESG reports that include climate policy, social equality, and governance ethics (Bryan, 2021).

In addition to Europe, similar approaches are also developing in Scandinavian countries, which are known to have the most transparent public governance systems in the world. In Sweden and Norway, local government sustainability reports are directly linked to *the Sustainable Development Goals (SDGs)* targets and community welfare indicators. These countries have not only adopted the Global Reporting Initiative (GRI) framework but have also developed national indicators to measure the impact of policies on the environment and society.

ESG reporting practices in the UK public sector are significantly influenced by the concept of integrated reporting (IR) developed by the International Integrated Reporting Council (IIRC). This model emphasizes the integration of financial and non-financial performance, enabling public institutions to demonstrate the long-term value they create for society. Similar approaches are adopted in New Zealand, Canada, and Australia, where ESG is incorporated into the government's performance management system (Williams, 2015; Tan & Egan, 2017).

In the context of Asia, Japan and South Korea are pioneers in public sector ESG reporting. Japan introduced *the Sustainability Reporting Framework for Public Entities* in 2018, while South Korea implemented the *ESG Public Management Index system* to assess the performance of central and local government agencies. This framework assesses not only environmental and social impacts, but also the level of transparency of decision-making as well as the effectiveness of internal governance (Kaur & Lodhia, 2019). Meanwhile, in developing countries, ESG reporting is still in the transition stage. The biggest challenges lie in the limitations of institutional capacity, the lack of national standards, and the lack of inter-agency coordination.

Indonesian context

In Indonesia, public sector sustainability reporting remains partial, and there is currently no established standard. The Indonesian government has demonstrated its commitment to Environmental, Social, and Governance (ESG) principles through various

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policies, such as the issuance of Green Sukuk (green bonds), the development of the ESG Infrastructure Framework by the Ministry of Finance, and the Sustainable Finance Roadmap guidelines, which encourage the integration of environmental and social aspects into public financing (Steelyana & Wahyuni, 2024). However, these policies primarily focus on financial aspects and do not encompass a comprehensive cross-sectoral sustainability reporting system. Public institutions, such as the Ministry of Environment and Forestry (MoEF), Bappenas, and the Ministry of Home Affairs, have begun preparing environmental and social performance reports; however, the indicators used are often not aligned with global ESG frameworks, such as the Global Reporting Initiative (GRI) or the Sustainable Development Goals (SDGs).

The lack of integration between national indicators and international standards creates challenges for conducting cross-border comparisons and evaluations. For instance, some public institutions in Indonesia report on carbon emissions or social programs without including the governance dimension, which is a crucial element of the ESG framework. This indicates that ESG reporting in Indonesia primarily focuses on activities rather than measurable impacts or performance. Therefore, this research is essential for mapping the ESG models, indicators, and frameworks that have been implemented globally, as well as for identifying conceptual gaps that can serve as a foundation for developing a public sector sustainability reporting framework in Indonesia.

5. Critical Analysis of Previous Literature

A review of the literature reveals that research on sustainability reporting in the public sector has grown rapidly since 2015, aligning with increased attention to global Environmental, Social, and Governance (ESG) issues. However, most research focuses on the private sector, particularly multinational corporations and financial institutions (Lucia et al., 2020; Singh & Jaiwani, 2023).

Some studies have attempted to adapt the concept of ESG to a public context. For example, Tommasetti et al. (2020) emphasize the importance of public value co-creation in sustainability reporting, while Kaur and Lodhia (2019) highlight that stakeholder engagement is a key element that determines the legitimacy of public institutions. Additionally, a study by Silva et al. (2020) demonstrated the link between accountability mechanisms and the sustainability performance of public institutions in Sri Lanka, confirming that oversight and transparency play a crucial role in improving sustainability outcomes.

Although there are several systematic literature reviews (SLRs) and bibliometric analyses on ESG in general (e.g., Tommasetti et al., 2020; Kaur and Lodhia, 2019), no studies have specifically mapped ESG reporting trends in the public sector of developing countries. Existing research remains largely thematic or focused on individual case studies, making it challenging to obtain a comprehensive understanding of the evolution, patterns, and trends in this area.

Some of the key gaps that can be identified from the literature include:

1. Conceptual fragmentation
   Many studies that examine ESG in a public context highlight only one dimension (e.g. the environment) without addressing the integration of social and governance aspects. In fact, true sustainability requires integration between these three dimensions.

2. Methodological limitations
   Most previous studies employed qualitative approaches or limited case studies. Few studies conducted *systematic literature review (SLR)* using the PRISMA method to ensure transparency and replication.
3. Geographical limitations
   Most studies were conducted in Europe and Australia, while literature from developing countries such as Indonesia, Malaysia, and the Philippines remains limited. This highlights the geographic biases that need to be addressed through a data-driven analysis using Scopus database at global level.
4. Absence of bibliometric analysis.
   Although bibliometrics have become a popular approach for mapping research trends, there has been limited research specifically applying this method to ESG topics in the public sector. Consequently, the conceptual structure connecting themes and the trajectory of research evolution has not been systematically documented.

This critical analysis highlights a significant gap. On one hand, there is an academic need for conceptual mapping and systematic synthesis; on the other hand, there is a practical need to provide guidance for public institutions in adopting effective and adaptive ESG frameworks.

6. Research Gaps

Based on a review of the literature and the empirical conditions of the global public sector, this study identifies three main categories of research gaps: conceptual, methodological, and empirical gaps.

1. Conceptual Gaps

The conceptual gap arises due to the lack of a strong theory integrating institutional *theory*, *stakeholder theory*, and *public accountability theory* in the context of public sector ESG. Most studies explain ESG from a corporate management perspective, while the public sector has fundamentally different characteristics including non-profit goals, bureaucratic structures, and attachment to public policy (Ramos et al., 2025). In addition, not many studies review the role of ESG as *a policy instrument* which can connect sustainability goals with public performance. As a result, the existing literature does not provide clear theoretical guidance for public institutions in designing *outcome-based* ESG reporting systems.

2. Methodological Gaps

Most of the existing literature employs a descriptive case study approach, which limits the generalizability of findings. Few studies have utilized systematic reviews following the PRISMA protocol to ensure traceability, objectivity, and transparency in the literature selection process.

In addition, bibliometric analysis that can map the conceptual relationships between topics has not been widely applied. This approach is important for understanding the direction of research evolution and identifying areas that have not yet been explored. The PRISMA-based systematic literature review (SLR) approach and VOSviewer analysis in this study are expected to address this gap by producing a conceptual map that illustrates the main clusters of public sector ESG research over the past decade.

3. Empirical Gap

The empirical gap is evident in the lack of research focusing on the implementation of Environmental, Social, and Governance (ESG) principles in public institutions, particularly in developing countries. Most empirical data was from European, Australian, and North American contexts, while Southeast Asia lags behind in academic publications related to public sustainability reporting.

Research in Indonesia, for example, remains limited to environmental reporting aspects, such as emissions and energy, without adequately addressing social and governance dimensions. These highlight the need for a global literature synthesis that can simultaneously bridge theoretical and empirical contexts. By conducting a Scopus-based bibliometric analysis, this study aims to present a comprehensive overview of global research patterns and identify gaps that can be further explored within the local Indonesian context.

7. The Academic and Practical Urgency of ESG Reporting in the Public Sector

The issue of sustainability and ESG reporting in the public sector is now at a critical intersection between the need for transparency and the demand for sustainable development. Academics and government practitioners recognize that effective public sector governance is measured not only by financial efficiency but also by the extent to which public policies have a positive social and environmental impact. The implementation of ESG in the public sector presents two significant urgencies. First, ESG serves as an instrument of social and environmental accountability, enabling the public to assess the extent to which public institutions fulfill their sustainability responsibilities. Second, ESG functions as an internal mechanism for improving governance, which can enhance the efficiency, transparency, and public legitimacy of government institutions.

Academically, ESG issues in the public sector are a promising space for theoretical exploration. ESG not only reflects the management of resources but also embodies the broader governance logic: how public institutions balance economic, social, and ecological interests within complex political and regulatory contexts. Research in this domain can enhance institutional theory, the theory of public accountability, and the concept of public value creation introduced by Moore (1995).

From a practical perspective, the urgency of ESG considerations in the public sector is increasing as global attention to the climate crisis, social inequality, and bureaucratic corruption increases. ESG reporting offers an integrative approach that enables public institutions to demonstrate their commitment to clean and future-oriented governance. Furthermore, the community demands that the government not only explain the results of its work programs but also articulate the social and environmental impacts of the policies implemented. ESG reporting addresses this demand through a comprehensive, measurable, and easily accessible reporting framework for stakeholders. Thus, ESG serves not only as an evaluation tool but also as an organizational transformation strategy aimed at fostering a more adaptive, participatory, and responsive government in the face of global environmental changes.

In many countries, ESG reporting is also linked to incentive mechanisms and bureaucratic performance evaluations. For example, in Finland and Canada, public institutions with high ESG performance receive additional awards and funding support. This shows that ESG reporting is not only an administrative instrument, but also a real *performance driver* in improving the quality of public services. In the context of developing countries such as Indonesia, ESG reporting can serve as a catalyst in building public trust which is often eroded due to low transparency and bureaucratic accountability.

8. New Directions for the Development of ESG Theories and Methodologies in the Public Sector

In the global literature, public sustainability reporting is now entering a new phase that emphasizes the integration of theory, data, and technology. Some recent research trends show that ESG development in the public sector is no longer limited to the preparation of annual reports, but instead includes the design of digital reporting systems and big *data* analytics-based impact measurement.

1. Multi-theory Integration
   Institutional theory is still the main framework in explaining why public institutions adopt sustainability reporting. However, many researchers have begun to combine it with *legitimacy theory* and *stakeholder theory* to provide a more comprehensive explanation. ESG is considered a form of institutional adaptation to external pressures, such as societal demands, international policies, and market pressures. In the public context, these adaptations also relate to the internal need to maintain credibility and demonstrate moral responsibility.
2. New Quantitative and Analytical Approaches
   The research methodology on public sector ESG is now shifting towards the integration of quantitative data that can objectively measure sustainability impacts. Some new research has begun to use *multivariate analysis*, *structural equation modeling (SEM)* or *machine learning* approaches -to link ESG reporting with public performance indicators (Lucia et al., 2020; Sain & Kashiramka, 2024). However, not been many studies have used the data to build comparative models between countries or between regions, especially in the Southeast Asian region. Thus, there is still room for developing data-based empirical research across sectors and across countries.
3. Bibliometric and PRISMA Approach
   In addition to the theoretical and empirical aspects, methodological developments in ESG studies are also important to note. The *PRISMA-based Systematic Literature Review (SLR)* approach —is becoming an increasingly widely used method because it ensures traceability, transparency, and replication of research results (Moher et al., 2015). In this study, the use of PRISMA was combined with VOSviewer software-based bibliometric analysis to map inter-topic relationships and identify key conceptual clusters in the public sector ESG literature. This approach allows for visualization of research evolution over time, reveals patterns of collaboration between authors, and highlights the most influential research themes.
4. ESG and Digital Transformation of Government
   A new dimension in public sector ESG reporting is also related to *digital transformation*. Various studies show that the use of digital technology can improve the accuracy and transparency of sustainability reporting (Kurniawan & Verawati, 2024). Some countries have leveraged blockchain-based reporting systems, *data analytics*, and *artificial intelligence* to monitor environmental and social impacts in real-time. This transformation not only improves reporting efficiency, but also strengthens data integrity and public trust in the results of the report. Thus, the development of ESG in the public

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sector requires not only a strong theoretical framework, but also methodological and technological support that is adaptive to global dynamics.

Based on the description above, it can be concluded that ESG-based sustainability reporting in the public sector has developed rapidly. However, it still leaves a number of conceptual, methodological, and empirical issues that need to be addressed through more systematic research. Conceptually, the literature is still fragmented between focusing on aspects of institutional legitimacy, public governance, and social accountability. The integration of these three dimensions into a comprehensive ESG framework has not been extensively addressed. Therefore, research is needed to unify various theoretical perspectives and provide a systematic mapping of the relationships between these concepts.

Methodologically, most previous research remains limited to case studies or descriptive analyses. The PRISMA-based Systematic Literature Review (SLR) approach adopted in this study is essential for ensuring that literature synthesis is conducted in a transparent, measurable, and replicable manner. This approach facilitates the identification of research gaps with a high degree of accuracy while providing future research directions based on empirical evidence from the scientific literature.

Empirically, there are still geographical inequalities in public sector ESG research. Most publications were conducted in Europe and Australia, while literature from Asia and Africa remains limited. By conducting a literature search using the Scopus database and employing bibliometric analysis, this study aims to present a global map of trends, collaborations, and thematic focuses of ESG research in the public sector during the period from 2015 to 2025.

The results of this mapping will serve as the foundation for the development of a future research agenda, which will encompass four main directions:

1. Development of a public sector ESG performance measurement model that integrates economic, social, and environmental indicators in a balanced manner.
2. Comparative analysis across countries and levels of government, to understand differences in ESG implementation based on cultural and institutional contexts.
3. Exploring the role of digital technology in strengthening the transparency and effectiveness of ESG reporting in the public sector.
4. A longitudinal study that assesses the long-term impact of ESG implementation on legitimacy, public trust, and governance efficiency.

Thus, this study will not only present a scientific map regarding the ESG literature in the public sector, but also build a solid theoretical and empirical basis for further research in the future.

This research is designed to address the scientific gap by providing a comprehensive understanding of Environmental, Social, and Governance (ESG) performance models, frameworks, and measurements in the public sector through systematic literature review (SLR) approaches and bibliometric analysis. Its primary academic value lies in the effort to synthesize and systematically map the literature, thereby producing state-of-the-art reviews that can serve as key references in the development of public sustainability governance. In addition to its theoretical contributions, this research also holds significant practical value. The results can serve as a reference for public institutions in designing ESG reporting policies that align with international standards, such as the Global Reporting Initiative (GRI) and Sustainable Development Goals (SDGs) indicators. The government can utilize the findings of this research to strengthen the accountability system and enhance the legitimacy of public institutions in the eyes of the public.

Moreover, the results of this review will provide opportunities for the development of an integrated national ESG reporting system, where data from various public institutions can be consolidated to produce comprehensive and accountable sustainability indicators. Thus, ESG reporting serves not only as a communication tool but also as a strategic policy instrument for achieving a sustainable, inclusive, and globally competitive government.

Given the global dynamics in the implementation of Environmental, Social, and Governance (ESG) principles in the public sector, along with the increasing demands for transparency and accountability in governance, the need to review the direction, models, and practices of sustainability reporting has become even more urgent. Previous literature reviews indicate that research on ESG in the public sector remains fragmented, with a focus distributed among conceptual, policy, and technical implementation aspects. This situation creates a significant gap in the understanding of how sustainability reporting can be effectively operationalized within public institutions.

In addition, the absence of systematic scientific standards and synthesis has resulted in disintegration in ESG reporting practices across various countries. While some public institutions have adopted ESG principles to enhance governance, many lack uniform and measurable performance measurement mechanisms. Therefore, it is essential to formulate research questions that can guide the literature analysis process in depth, addressing the conceptual, methodological, and empirical gaps that have been previously identified.

Based on this context, the formulation of the research problem is designed to provide a clear direction for the exploration of the study's focus:

1. How are conceptual models and ESG frameworks applied in public sector sustainability reporting in different countries, and what are the underlying theories?
2. How are ESG performance measurement indicators and methods operationalized in public institutions, and to what extent are they consistent with international standards such as the Global Reporting Initiative (GRI) and the Sustainable Development Goals (SDGs)?
3. What are the *drivers* and *barriers* that affect the adoption and effectiveness of ESG reporting in the public sector, especially in the context of developing countries such as Indonesia?
4. How have thematic trends, collaboration patterns, and research evolutionary directions on public sector ESG reporting evolved over the past decade (2015–2025) based on global bibliometric analysis?
5. What are the main research gaps that can be identified from the results of systematic synthesis and bibliometric mapping, and what direction can future research agendas that can strengthen ESG reporting theory and practice in the public sector?

Research Objectives

In line with the formulation of the problem, this research was designed to address the identified scientific gaps and to make both empirical and theoretical contributions to the development of public sustainability governance. The Systematic Literature Review (SLR) approach and VOSviewer-based bibliometric analysis were selected to ensure traceability, objectivity, and replicability of the research results. Thus, this study not only aims to synthesize the existing literature but also to map the direction of scientific development regarding Environmental, Social, and Governance (ESG) issues in the public sector, providing

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a foundation for policymakers and academics in the future. The main objectives of this research are as follows:

1. Identify and classify various conceptual models and ESG reporting frameworks used in the public sector at the global level.
2. Analyse ESG performance measurement approaches and indicators used in public institutions and evaluate their compliance with international standards such as GRI and SDGs.
3. Identify the drivers and drivers in the implementation of ESG reporting in the public sector, both in developed and developing countries.
4. Map thematic trends, conceptual networks, and the evolution direction of ESG research in the public sector through VOSviewer-based bibliometric analysis.
5. Formulate a future research agenda and proposing an integrative ESG framework for the public sector.

Overall, the formulation and objectives of this study are designed to make a multidimensional contribution to the literature on ESG and public governance. Theoretically, this research aims to strengthen the integration of public accountability theory, institutional legitimacy, and organizational sustainability. Methodologically, this study introduces a combination of the Systematic Literature Review (SLR) approach with bibliometric mapping as a transparent and measurable analytical instrument. Practically, this research provides policy direction and empirical guidance for governments and public institutions to develop an ESG reporting system that is adaptive to global standards while remaining relevant to the national context. Thus, this research is expected to serve as both an academic and practical reference point in the development of sustainable, inclusive, and value-based public sector governance.

Research Method

This study employs the Systematic Literature Review (SLR) approach in accordance with the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. This approach was selected because it provides a transparent, systematic, and replicable framework for reviewing the literature on Environmental, Social, and Governance (ESG-based) public sector sustainability reporting. The primary objective of this approach is to produce a comprehensive conceptual synthesis of ESG performance measurement models, frameworks, and indicators in the public sector, while also identifying existing research gaps in the international literature.

1. Research Design and Approach

The design of this research is descriptive-exploratory, focusing on conceptual mapping and thematic analysis of relevant scientific publications. SLR is used as a primary methodological framework because it provides a rigorous approach in identifying, selecting, and analyzing scientific articles based on specific criteria. In this context, SLR not only aims to collect literature, but also to synthesize the results of previous research in order to uncover patterns, trends, and directions of ESG research development in the public sector.

To strengthen the analysis and ensure breadth, the study also integrated bibliometric analysis using *the VOSviewer* software. This analysis serves to identify relationships between topics and keywords that appear in the literature, map conceptual networks, and show the evolution of ESG research in the past decade. Thus, this study combines qualitative and quantitative analysis, which complement each other in explaining scientific phenomena holistically.

2. Data Sources and Literature Search Strategies

The research data was collected from the Scopus database, which was selected because it is one of academic databases with a high reputation and broad multidisciplinary coverage. The selection of Scopus was carried out to ensure that the literature analyzed is the result of verified research and has gone through *a peer review* process.

The literature search was carried out systematically using a combination of keywords designed based on the conceptual framework of the research, namely:

"Public sector", *"government"*, *"municipal"*, *"public service"*, *"sustainability reporting"*, *"ESG"*, *"environmental social governance"*, *"non-financial reporting"*, *"framework"*, dan *"performance measurement"*.

These keyword combinations are compiled using *Boolean logic* (AND, OR) operators to expand the search range without losing the topic's relevance.

The search process was conducted for the period from 1996 to 2025, with a particular focus on the years 2015 to 2025, as this decade has witnessed a significant increase in ESG-related academic publications in the public sector.

Inclusion and Exclusion Criteria: Once the research question has been established, it is important to define the inclusion and exclusion criteria. These criteria were used in the selection of articles or studies considered relevant to the topic being reviewed. For example, articles that discuss sustainability reporting with the Global Reporting Initiative (GRI) framework may be included, while irrelevant studies will be excluded from searches (Dissanayake et al., 2019; Ferreira-Quilice et al., 2018). A thorough search was conducted through the Scopus database to identify relevant research.

The use of relevant keywords around "sustainability reporting", "ESG framework", and "public sector performance" is critical (Moher et al., 2015). Data from relevant studies was retrieved and extracted according to a predetermined central theme. This process included gathering information on the models, frameworks, and metrics used in sustainability reporting (Farooq & Villiers, 2019). The analysis was carried out to compile findings based on pre-set criteria, so as to distinguish between successful and less successful models in ESG implementation (Haffar & Searcy, 2018).

After the data was extracted, the next step involved compiling the findings into a coherent narrative, identifying trends, research gaps, and drawing conclusions based on the existing evidence. This process entails synthesizing data from various studies to provide a more comprehensive picture of existing models and frameworks (Sofouli et al., 2022; Lennox et al., 2018).

The results of a literature review should be presented clearly and transparently, adhering to recognized reporting standards such as PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses), which provide guidelines for effectively constructing systematic reviews (Moher et al., 2015; Karaman et al., 2018). By adopting this method, a systematic literature review can offer in-depth insights into how sustainability reporting can be optimized in a public sector context, as well as highlight the models and frameworks that contribute to positive performance in this area.

This systematic literature review process follows the PRISMA guidelines to ensure transparency, traceability, and accuracy in the selection of relevant literature. The stages are carried out systematically, starting from identification, screening, and eligibility, to final inclusion of the selected studies. The literature search was conducted through the Scopus database using a combination of keywords, including "public sector," "government,"

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"municipal," "public service," "sustainability reporting," "ESG," "environmental social governance," and "non-financial reporting."

Scopus Search String:

(TITLE-ABS-KEY ("public sector") OR TITLE-ABS-KEY (government) OR TITLE-ABS-KEY (municipal) OR TITLE-ABS-KEY ("public service*") AND TITLE-ABS-KEY ("sustainability report*") OR TITLE-ABS-KEY ("ESG") OR TITLE-ABS-KEY ("environmental social governance") OR TITLE-ABS-KEY ("non-financial report*") AND TITLE-ABS-KEY ("framework") OR TITLE-ABS-KEY ("performance measurement")) AND PUBYEAR > 2014 AND PUBYEAR < 2026 AND (LIMIT-TO (SUBJAREA , "BUSI")) AND (LIMIT-TO (DOCTYPE , "ar")) These criteria are applied to filter out relevant studies.

The initial search yielded 463 articles published between 1996 and 2025. Of these, 35 duplicate articles were removed, and an additional 20 articles were excluded because they did not provide full access or did not align with the context of the research. No articles were deleted using automation tools, as the entire process was conducted manually. After the initial identification stage, a total of 408 articles remained, which were then screened for their relevance to the research focus, specifically ESG-based sustainability reporting in the public sector. At this stage, 180 articles were excluded because they primarily focused on the private sector or did not address relevant ESG frameworks, models, or performance indicators. Furthermore, 228 articles were deemed eligible for full-text retrieval; however, 15 articles were inaccessible due to copyright restrictions or limited database access.

A total of 213 articles were then thoroughly analyzed based on the established inclusion and exclusion criteria. From the results of this assessment, 94 articles were excluded for the following reasons:

1. They do not address ESG models or frameworks in the public sector (n = 45)
2. They were excluded from the Business, Management, and Accounting categories (n = 39)
3. They were not in the form of peer-reviewed journal articles (e.g., proceedings or books) (n = 10)
4. Does not address ESG models or frameworks in the public sector (n = 45)
5. Excluded from Business, Management and Accounting (n = 39)
6. Not in the form of *peer-reviewed* journal articles (e.g. proceedings or books) (n = 10)

The final stage yielded 119 articles that met all inclusion criteria, including relevance to the field of study (Business, Management, and Accounting), document type (journal article), and direct relevance to sustainability reporting or ESG performance measurement in the public sector. These articles serve as the foundation for data analysis and synthesis to identify models, frameworks, and performance indicators in public sector ESG reporting. The following results were obtained from the process:

1. 463 articles identified from 1996–2025
2. 428 articles from the 2015–2025 focus period
3. 185 articles included in the field *of Business, Management and Accounting*
4. 119 articles met the final inclusion criteria

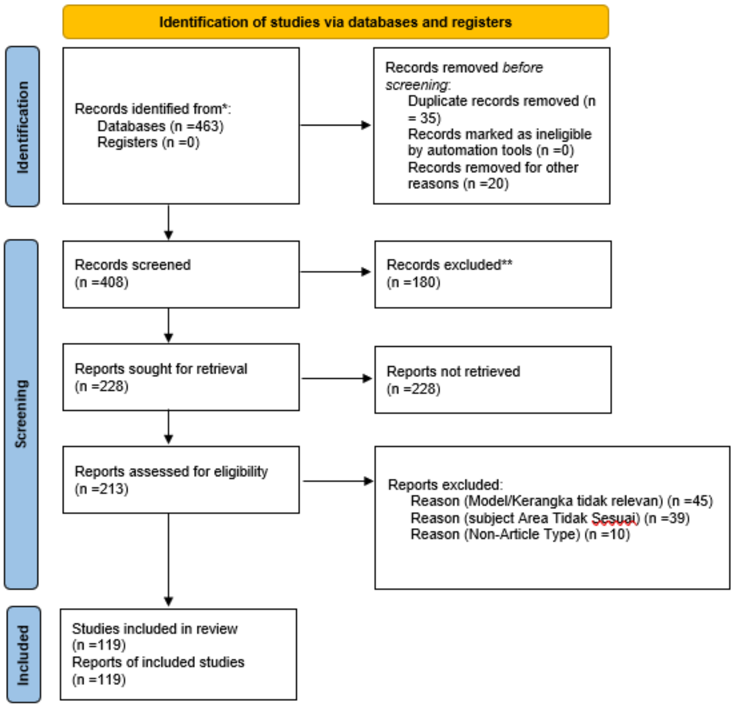

Figure 1. PRISMA Studi Flow Diagram

These results show that research on ESG-based sustainability reporting in the public sector is still growing, with research concentrations increasing significantly after 2015. The PRISMA approach ensures that only articles with high relevance, methodological validity, and strong conceptual contributions are included in further analysis. Thus, the results of this SLR provide a solid scientific basis to understand the evolution of ESG performance models, frameworks, and indicators in the global public sector and the Indonesian context.

Result and Discussion

A systematic analysis of 119 articles indexed by Scopus between 2015 and 2025 reveals that studies on Environmental, Social, and Governance (ESG)-based public sector sustainability reporting have increased dramatically over the past decade. The bibliometric data indicate a sharp rise in publications post-2018, with a significant spike anticipated during the 2023–2025 period. In 2015, there were only three relevant publications; by 2024, this number is projected to reach 28, and in 2025, it is expected to jump to 42. This surge marks a paradigm shift from corporate social responsibility (CSR) reporting to ESG-based sustainable governance, not only in the private sector but also within government institutions.

This increase correlates with the global agenda *of the Sustainable Development Goals* (SDGs) launched by the United Nations in 2015, followed by the emergence of regulations such as *the European Union Non-Financial Reporting Directive (NFRD),* and public pressure on public transparency. This means that ESG has evolved into a strategic instrument for public institutions to measure and communicate their sustainability performance.

In terms of publication outlets, the articles are distributed across leading journals that focus on sustainability, governance, and public accounting. The journals with the highest number of publications include Meditari Accountancy Research (7 articles), the Journal of Cleaner Production (6 articles), Sustainability Accounting, Management and Policy Journal (6 articles), and Public Money and Management (5 articles). These four journals consistently address ESG

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issues related to the integration of accountability, governance, and sustainability reporting theories in public institutions.

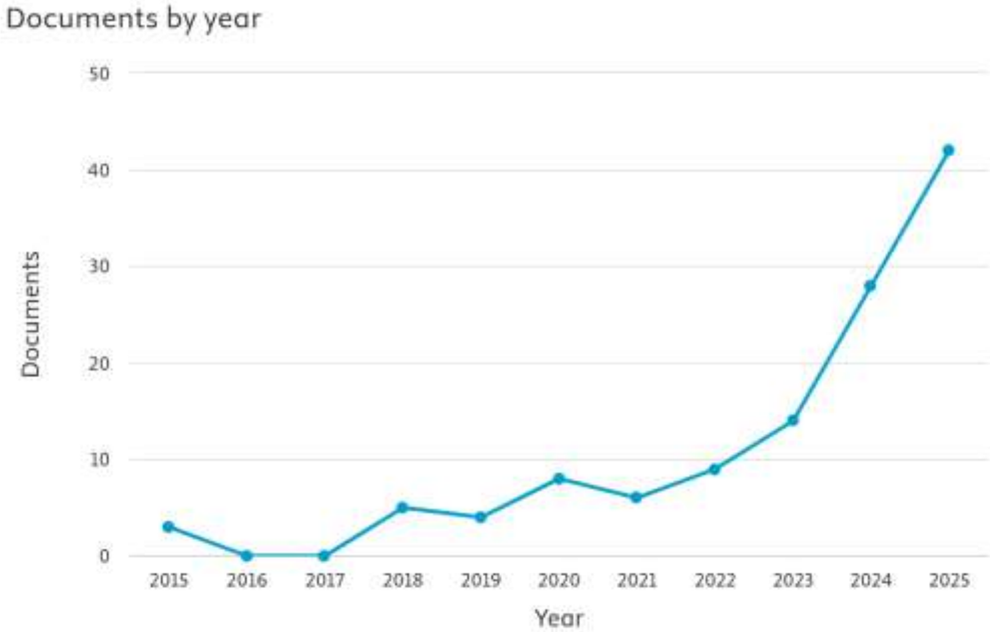

Figure 2. Publication Trends 2015-2025

In addition, the analysis of keywords (author keywords) reveals that the most frequently used terms in the corpus are "sustainability reporting" (26 occurrences), "sustainability" (21), "ESG" (19), "sustainable development" (15), and "environmental governance" (15). The prevalence of these keywords indicates that the focus of ESG research in the public sector has shifted from purely environmental issues to a more holistic understanding of the sustainability of public organizations.

This conceptual shift is also evident in the most influential literature. For example, Camilleri (2015) emphasizes that environmental, social, and governance disclosures in Europe serve as the foundation for building cross-sector accountability. Furthermore, Landrum and Ohsowski (2018) highlight the importance of understanding sustainability worldviews within the context of public institutions, while Tang and Demeritt (2018) affirm the influence of regulation on mandatory carbon reporting behavior in the UK. Other articles, such as those by Chen, Kuo, and Chen (2022) and the journal Organization & Environment (2019), reinforce the argument that ESG is not only a communication tool but also a policy framework for measuring public performance against sustainable development goals.

Overall, the results of this systematic review illustrate that research on ESG-based sustainability reporting in the public sector is evolving in an increasingly strategic direction, with a focus on integration between theory, practice, and policy. The following section discusses these results in more depth based on the formulation of research questions (RQ) that have been determined.

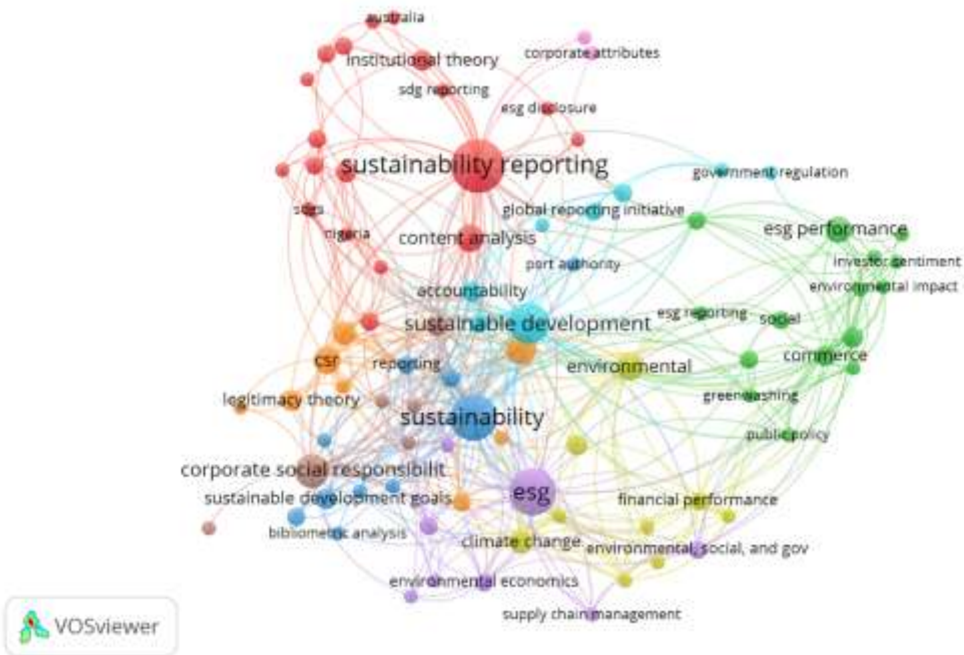

Figure 3. Vosviewer

ESG Conceptual Models and Frameworks in the Public Sector (RQ1)

Theoretical Development and Academic Justification

Conceptually, the public sector ESG literature is rooted in two main theoretical foundations: institutional theory and legitimacy theory, supported by public accountability theory and stakeholder theory. Early studies such as Landrum and Ohsowski (2018) view sustainability reporting as a process of institutionalizing sustainability values in public organizations. ESG reporting is not just an administrative obligation, but also a symbol of social legitimacy that shows the institution's compliance with societal norms and expectations. In line with that, Camilleri (2015) refers to ESG as an evolutionary form of CSR that emphasizes non-financial disclosures within a broader accountability framework. In the public context, ESG is a means to assess the extent to which government institutions create public value (*public value creation*). Institutional theory explains that external pressures—whether regulative, normative, or mimetic—encourage public institutions to adopt ESG reporting practices as a way of gaining public legitimacy and trust.

Most of the 119 articles analyzed refer to international standards such as *the Global Reporting Initiative (GRI), the Integrated Reporting Framework (IR),* and *the United Nations Sustainable Development Goals (SDGs)* as the conceptual basis for ESG reporting. However, not all public institutions implement the three frameworks in an integrated manner. Many studies, especially those focused on Europe, underscore the importance of hybridizing ESG frameworks, where public institutions combine GRI indicators with SDGs goals to be relevant to public service mandates and functions.

A clear example of this hybridization can be seen in Montecalvo, Farneti, and de Villiers (2018) who assessed the potential -of integrated reporting in increasing transparency and accountability in the public sector. This study confirms that the implementation of integrated reporting not only improves the efficiency of information communication, but also strengthens institutional legitimacy.

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Bibliometric analysis shows that about 40% of the articles in this corpus place ESG as a *governance reform framework*, not just a reporting tool. This indicates an important shift: ESG is beginning to be understood as -*a governance paradigm* that integrates sustainability principles into decision-making structures, budget planning, and public policy evaluation. However, a gap still arises between the symbolism of reporting and the substance of implementation. Many public institutions, particularly in developing countries, still view ESG reporting as a legitimacy mechanism, not as a tool for performance improvement. Therefore, institutional theories that emphasize *isomorphism* need to be criticized so that ESG reporting does not stop at the formality aspect.

Table 1. Article *Environmental, Social, and Governance* (ESG)

Author	Year	Title	Journal	Cite
N.E., Landrum, Nancy E.; B.M., Ohsowski, Brian M.	2018	Identifying Worldviews on Corporate Sustainability: A Content Analysis of Corporate Sustainability Reports	Business Strategy and the Environment	273
M.A., Camilleri, Mark A.	2015	Environmental, social and governance disclosures in Europe	Sustainability Accounting, Management and Policy Journal	178
P., Sharma, Preeti; P., Panday, Priyanka; R.C., Dangwal, Ramesh Chandra	2020	Determinants of environmental, social and corporate governance (ESG) disclosure: a study of Indian companies	International Journal of Disclosure and Governance	171
S., Tang, Samuel; D., Demeritt, David	2018	Climate Change and Mandatory Carbon Reporting: Impacts on Business Process and Performance	Business Strategy and the Environment	128
H., Chen, Hsiaomin; T.C.R., Kuo, Tsaichi Chi Robert; J., Chen, Julong	2022	Impacts on the ESG and financial performances of companies in the manufacturing industry based on the climate change related risks	Journal of Cleaner Production	112
W., Wang, Wei; Z., Sun, Ziyuan; W., Wang, Wenjiao; Q., Hua, Qiuyue; F., Wu, Fengzhi	2023	The impact of environmental uncertainty on ESG performance: Emotional vs. rational	Journal of Cleaner Production	101
M., Montecalvo, Monica; F., Farneti, Federica; C.D., Villiers, Charl De	2018	The potential of integrated reporting to enhance sustainability reporting in the public sector	Public Money and Management	100

Author	Year	Title	Journal	Cite
C., Consolandi, Costanza; H., Phadke, Himani; J.P., Hawley, James P.; R.G., Eccles, Robert G.	2020	Material ESG Outcomes and SDG Externalities: Evaluating the Health Care Sector's Contribution to the SDGs	Organization and Environment	89
T., Julia, Taslima; S.H., Kassim, Salina Hj	2020	Exploring green banking performance of Islamic banks vs conventional banks in Bangladesh based on Maqasid Shariah framework	Journal of Islamic Marketing	83
C.A., Tilt, Carol A.; W., Qian, Wei; S.C., Kuruppu, Sanjaya Chinthana; D.M.P.P., Dissanayake, Dinithi M.P.P.	2021	The state of business sustainability reporting in sub-Saharan Africa: an agenda for policy and practice	Sustainability Accounting, Management and Policy Journal	80
M.A., Camilleri, Mark A.	2015	Valuing Stakeholder Engagement and Sustainability Reporting	Corporate Reputation Review	77
D., Gao, Da; X., Zhou, Xiaotian; J., Wan, Jing	2024	Unlocking sustainability potential: The impact of green finance reform on corporate ESG performance	Corporate Social Responsibility and Environmental Management	65
J., Krasodomska, Joanna; J., Michalak, Jan; K., Świetla, Katarzyna	2020	Directive 2014/95/EU: Accountants' understanding and attitude towards mandatory non-financial disclosures in corporate reporting	Meditari Accountancy Research	59
O.A., Erin, Olayinka A.; O.A., Bamigboye, Omololu Adex	2022	Evaluation and analysis of SDG reporting: evidence from Africa	Journal of Accounting and Organizational Change	57
B., Anthony Jnr, Bokolo; M., Abdul Majid, Mazlina; A., Romli, Awanis	2019	Green information technology adoption towards a sustainability policy agenda for government-based institutions: An administrative perspective	Journal of Science and Technology Policy Management	46
T., Ngo, Thanh; T., Le, Tu; S., Ullah, Subhan; H.H., Trinh, Hai Hong	2023	Climate risk disclosures and global sustainability initiatives: A conceptual	Business Strategy and the Environment	38

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Author	Year	Title	Journal	Cite
		analysis and agenda for future research		
I., Shaikh, Imlak	2022	On the relationship between policy uncertainty and sustainable investing	Journal of Modelling in Management	36
S., Pizzi, Simone; F., Caputo, Fabio; A., Venturelli, Andrea	2020	Accounting to ensure healthy lives: critical perspective from the Italian National Healthcare System	Corporate Governance (Bingley)	34
M., Elaigwu, Moses; A.B., Che-Ahmad, Ayoib B.; S.O., Abdulmalik, Salau Olarinoye	2020	Board governance mechanisms and sustainability reporting quality: A theoretical framework	Cogent Business and Management	34
H.C., Nguyen, Huu Cuong; P.M.H., Nguyen, Phan Minh Hoa; B.H., Tran, Bich Hiep; T.T.N., Nguyen, Thi Thien Nga; L.T.T., Hoang, Le Thanh Thuy; T.T.H., Do, Thi Thu Hien	2022	Integrated reporting disclosure alignment levels in annual reports by listed firms in Vietnam and influencing factors	Meditari Accountancy Research	33

ESG Performance Indicators and Measures in the Public Sector (RQ2)
Indicator Complexity and Materiality

The most dominant issue that emerged in the corpus was ESG performance measurement and the materiality of indicators. Many studies highlight the difficulty of public institutions in determining indicators that reflect real impacts on society. Unlike the private sector, which assesses ESG in terms of *shareholder value*, the public sector emphasizes social value and public benefits.

Camilleri (2015) highlights that ESG reporting must consider *double materiality*, namely financial materiality and materiality of socio-environmental impact. In the public context, indicators such as energy efficiency, social inclusion, community participation, and governance integrity are the main metrics that determine the sustainability of institutional performance.

A study by Organization and Environment (2019) expands this concept by emphasizing *ESG outcomes material*, which refers to how ESG indicators contribute to the achievement of SDGs targets. ESG is no longer passive reporting, but a system of *outcome-based governance*.

One of important findings is that there are still limited standard standards of ESG measurement for public institutions. Most studies mention that government agencies use different indicators, depending on the local context and the institution's mandate. As a result, ESG reporting in the public sector tends to be incomparable across countries. Tang and

Demeritt (2018) show that mandatory carbon reporting regulations in the UK improve data quality and reporting consistency, but are only effective if there are adequate audit and assurance mechanisms in place~~–~~. This study emphasizes the importance of external oversight to ensure the reliability of ESG information.

In addition, limited technical capacity and human resources are a significant obstacle in ESG data collection, especially in developing countries. Studies in Southeast Asia, for example, highlight the need *for capacity building* and digitalization of sustainability information systems so that ESG indicators can be measured objectively and sustainably.

Overall, the results of the analysis show that the success of ESG performance measurement in the public sector is determined by three things: (1) the conformity of the indicators with the institution's mandate, (2) consistency between reporting periods, and (3) the existence of an independent verification system. Thus, *double materiality* and *impact assurance* are absolute requirements for the credibility of public ESG reporting.

Factors Driving and Inhibiting ESG Implementation in the Public Sector (RQ3)

Drivers

The thematic analysis reveals three main factors driving the implementation of ESG in public institutions. The first is ~~,~~international regulatory and policy pressures. Regulations such as *the EU NFRD* and national policies such as *the Green Sukuk Framework* in Indonesia have strengthened the government's commitment to ESG reporting.

The second significant driver is stakeholder pressure. Public participation and demands for public disclosure have forced government agencies to adopt ESG reporting in order to maintain public trust.

The third is economic incentives and institutional reputation. ESG is seen as a means to improve operational efficiency, attract sustainable investments, and strengthen organizational legitimacy. Chen, Kuo, and Chen (2022) show that ESG integration with financial governance is able to improve the resilience and performance of public organizations.

Barriers

On the contrary, there are several obstacles that hinder the implementation of ESG in the public sector. Standard fragmentation is a major obstacle. Many agencies use various frameworks (GRI, SDGs, IR) without adequate coordination, leading to overlapping indicators. In addition, limited institutional capacity is also a serious problem. Sharma et al. (2020) highlight that human resource factors, leadership commitment, and information systems play a major role in determining the extent to which ESG can be adopted effectively.

Another obstacle is the risk of symbolism, where public institutions report sustainability only to meet regulatory demands without substantive implementation. Landrum and Ohsowski (2018) warn that this kind of reporting only results in pseudo-legitimacy with no real impact on sustainability.

Thematic Trends and Evolution of ESG Research 2015–2025 (RQ4)

Development Patterns and Thematic Clusters

Keyword analysis from the corpus shows that research on public sector ESG can be classified into five main clusters, namely:

1. *Sustainability reporting and institutional theory*,
2. *ESG performance and public policy*,
3. *Sustainable development and environmental governance*,

4. *Corporate social responsibility and stakeholder legitimacy*, dan
5. *ESG, climate change, and green economy*.

In the initial phase (2015–2018), the research discussed more issues of legitimacy and conceptual frameworks for sustainability reporting. After 2018, the focus began to shift to the integration of public policy, performance measurement, and the linkage of ESG to the SDGs. The 2020–2025 period shows new developments in the use of quantitative data, *machine learning*, and *impact assessment* to evaluate the effectiveness of ESG.

Collaborative Networks and Research Geography

Geographically, public sector ESG research is still dominated by European countries and Australia, while contributions from Asia and Africa began to increase after 2020. Tilt et al. (2021), for example, explore sustainability reporting practices in Sub-Saharan Africa and emphasize the need to adapt indicators according to local contexts.

In terms of the authors' collaboration, the corpus indicates the increasing partnerships between countries and between universities, reflecting the global nature of ESG issues. Journals such as *Sustainability Accounting, Management and Policy Journal* and *Public Money and Management* are the main links for cross-disciplinary researchers.

Future Research Agenda and Practical Contributions (RQ5)

The analysis shows four strategic directions that are on the agenda for further research in the field of public sector ESG.

1. Development of ESG–SDGs quantitative models for public institutions: Future research needs to integrate ESG indicators with public policy evaluation frameworks so that sustainability reporting reflects real impacts on society.
2. Assurance and auditability of ESG reporting:
   A public audit model which can assess the reliability of ESG reporting in government institutions is needed. The results of Tang and Demerit’s (2018) study show that *mandatory reporting* improves data accuracy, but long-term success requires an independent verification system.
3. Integration of digital technology and open government data: Digital transformation can improve the efficiency of ESG data collection and reporting. Innovations such as *big data analytics* and *AI-based impact monitoring* need to be explored further.
4. Adaptation of indicators for developing countries:
   Many ESG indicators are born from the context of private companies in developed countries. So, they are not always relevant for public institutions in developing countries. Local adaptation is a must for ESG to truly function as a tool to improve people's welfare.

Conclusion

Based on the findings, it can be concluded that ESG research in the public sector is undergoing a paradigm transformation. In the early stages, ESG is seen as a reporting and legitimacy mechanism. Now, ESG is evolving into a policy instrument and performance management tool.

Studies such as Organization and Environment (2019) and Chen, Kuo, and Chen (2022) demonstrate that ESG reporting has shifted its function to a strategic accountability system that connects the social, environmental, and economic impacts of public institutions. ESG is no longer just a means of communication, but a foundation for *evidence-based governance*.

In practical terms, the results of this study strengthen the argument that public institutions need to institutionalize ESG in their policy cycle, starting from planning, implementation, to program evaluation. ESG should be positioned as an integral part of the *performance management system* and not as a mere administrative document.

A systematic and bibliometric analysis of the 119 publications shows that ESG-based sustainability reporting in the public sector has evolved from a normative approach to a measurable, results-based strategic approach.

1. ESG now plays a role as a governance framework that strengthens public legitimacy and accountability (Camilleri, 2015; Landrum & Ohsowski, 2018).
2. ESG performance measurement demands the integration of *double materiality* and linkage with the SDGs (Organization & Environment, 2019).
3. The main driving factors are regulation, stakeholder pressure, and green financing incentives (Chen & Kuo et al., 2022), while the main obstacles are the fragmentation of standards and institutional capacity (Sharma et al., 2020).
4. Research trends indicate a shift from a focus on legitimacy towards *impact measurement*, marking a new era of sustainability-based public governance (Tilt et al., 2021).
5. The future research agenda needs to emphasize the development of quantitative indicators, auditability, digital integration, and local adaptation.

Thus, these results confirm that ESG is not just additional reporting for public institutions, but is a new paradigm of governance that is transparent, accountable, and oriented towards long-term sustainability. ESG is changing the way governments are measured, assessed, and accounted for, from just a public service provider to *an agent of sustainable development*.

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