

Analysis of NPM Based Public Policy to Enhance Sustainability Performance: A Grounded Theory

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ABSTRACT

This study aims to explore the impact of applying New Public Management (NPM) principles on sustainability performance at Perumdam Batiwakkal, Berau Regency, focusing on operational efficiency, service quality, and environmental management. **The theoretical framework** integrates key NPM concepts privatization, decentralization, and performance measurement based on results with environmental sustainability models to offer a comprehensive understanding of managerial and operational impacts. **Utilizing** a Grounded Theory approach, data were collected through in-depth interviews with senior management, operational staff, and service users. **Data analysis** involved open coding, axial coding, and selective coding to develop a conceptual framework on NPM application and sustainability performance. Findings indicate that while NPM principles can enhance operational efficiency and service quality, challenges persist in achieving full sustainability performance. **Key factors** influencing effectiveness include leadership support, resource availability, and policy adaptation. The study provides insights into adapting NPM principles to improve sustainability performance and offers practical solutions for implementation challenges.

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1. INTRODUCTION

Regional Water Supply Companies (Perumdam) in Indonesia play an important role in providing clean water, covering the entire process from production to distribution. Based on Law No. 5 of 1962, Perumdam is a Regional-Owned Enterprise (BUMD) with dual objectives: serving public interests while achieving profitability to support Local Revenue (PAD). Balancing public service and profitability is a major challenge, where performance assessments often focus only on financial, service, operational, and human resource aspects, without considering the increasingly urgent environmental sustainability.

In the global context that increasingly emphasizes environmental sustainability, Perumdam faces pressure to adopt environmentally friendly practices. Although there is growing awareness of the importance of environmental investments, many organizations struggle to meet established environmental performance targets, with only about 2% successfully achieving these targets. The main barrier is the lack of reliable environmental performance reporting information [1, 2]. Therefore, integrating sustainability principles into the performance assessment of Perumdam is crucial.

In this context, the principles of New Public Management (NPM) have been widely applied to improve efficiency and accountability in the public sector. NPM emphasizes principles such as decentralization, result orientation, and the use of efficient managerial methods. Previous studies show that NPM can improve operational efficiency and accountability in various public sectors, including healthcare and education [3]. However, the implementation of NPM principles in the context of Perumdam, particularly regarding environmental sustainability performance, is still limited and receives insufficient attention.

Previous studies assessing the implementation of NPM in the public sector have shown various results. For example, [4] found that the Post-NPM administrative model, which focuses on collaboration and public value, can improve innovation in teaching hospitals in Portugal. However, the application of NPM is not always effective in improving technical efficiency, as found by [5] in hospitals in Madrid. In Indonesia, research by [6, 7] shows that the main doctrines of NPM, such as privatization and de-bureaucratization, aim to improve efficiency and performance, but their implementation faces contextual challenges in developing countries. NPM encourages a shift from the Old Public Administration paradigm to a performance and service-based approach like New Public Service, with the primary goal of creating good governance through decentralization, accountability, and transparency in public administration. Studies also indicate that although many Perumdam have implemented NPM principles, they face challenges in integrating these principles with environmental sustainability goals. This is exacerbated by performance assessments that do not include sustainability perspectives, as seen in Perumdam in Indonesia [8].

Therefore, this research focuses on the implementation of NPM principles in the context of Perumdam Batiwakkal, Berau Regency, specifically how the application of these principles can affect operational performance and sustainability. This study aims to fill the gap in literature regarding the integration of NPM with environmental sustainability and provide public policy recommendations that can improve the performance of Perumdam in Indonesia and other public sectors. The importance of integrating sustainability into Perumdam management aligns with Sustainable Development Goal (SDG) 6, which focuses on universal access to clean water and sanitation and sustainable management of water resources. Perumdam Batiwakkal plays a crucial role in achieving this goal by developing water distribution infrastructure, ensuring water quality through regular monitoring, and implementing sanitation projects and hygiene awareness campaigns. Additionally, the adoption of technology for water conservation and efficiency, as well as collaboration in water resource research, are concrete steps they are taking to reduce the impact of wastewater on ecosystems and promote environmental preservation.



Figure 1. SDG 6: Clean Water and Sanitation - Perumdam Batiwakkal's Impact

Figure 1 the New Public Management (NPM) is an approach that emphasizes efficiency, accountability, and result-oriented management in the public sector. While NPM can improve efficiency and accountability, its implementation often faces challenges in integrating sustainability values. Research shows that although NPM can enhance operational performance, it often fails to accommodate environmental sustainability, as observed in various studies [4, 5]. This highlights the need to adapt and adjust NPM principles to the local context

to address the specific challenges faced by Perumdam.

Research on NPM has focused on various aspects related to public administration, public policy, and organizational performance. Key focuses include the implementation of NPM in public administration, the relationship between NPM and public employee ethics, as well as the application of neo-institutionalism in NPM [6, 9–11]. Research also explores the use of interviews and document analysis in public policy [12, 13], policy experiments, and comparative analysis of NPM in various public organizations [14]. In addition, studies examine the integration of literacy in public management [15, 16], the economic impact of public sector reforms [17] and the acceptance of post-NPM concepts [18]. Various research methods, such as surveys, qualitative analysis, case studies, and performance measurement, are used to assess the impact of NPM on service quality, employee performance, and performance measurement in the public sector. Other studies highlight the importance of internal control in financial system management [19] and the impact of administrative reforms on the performance of faculties and public universities.

Table 1. Research Methods Used in Studies on New Public Management (NPM)

Research Method	Number of Articles	Percentage	Sample References
Qualitative Research	11	22%	[4, 6, 12, 20–24]
Case Study	7	14%	[4, 21, 25]
Phenomenological Approach	1	2%	[23]
Argumentative Approach	1	2%	[26]
Quantitative Survey	6	12%	[19, 24, 27]
Case Study and Institutional Theory Approach	2	4%	[28]
Soft Positivist Approach	1	2%	[16]
Panel Data Analysis	2	4%	[29, 30]
Comparative Qualitative Analysis	1	2%	[31]
Performance Evaluation with BSC	2	4%	[30]
Systems Theory and Holistic Approach	1	2%	[32]
Regression and Bootstrap	2	4%	[24, 33]
Panel Data Regression	1	2%	[30]
Literature Review	5	10%	[1, 34, 35]
Impact Analysis and Economic Theory	1	2%	[17]
Moderation Analysis	1	2%	[36]
Case Study and Impact Analysis of NPM Reforms	1	2%	[25]
Qualitative Content Analysis	1	2%	[37]
Data Envelopment Analysis (DEA)	1	2%	[5]
Systematic Review of BSC for Sustainability	1	2%	[35]
Entrepreneur Case Study	1	2%	[38]
Development of BSC Framework with Sustainability	1	2%	[39]

Furthermore, research on New Public Management (NPM) in the public sector indicates the dominance of qualitative research methods, which appear in 11 articles (22%), contributing to the majority of the distribution (See Table 1). This method allows researchers to deeply explore the context, experiences, and dynamics within public organizations through interviews, document analysis, and case studies. Additionally, quantitative surveys are used in 6 articles (12%) to measure the relationships between variables on a larger

scale, and case studies are used in 7 articles (14%) to analyze specific challenges in particular organizations or policies. Literature reviews appear in 5 articles (10%) to explore theories and gaps in existing research, while methods such as DEA analysis, regression, and theoretical approaches like phenomenology and argumentative methods are used in smaller proportions (4% and 2%), indicating the relevance of theory- and data-based approaches in examining efficiency and change in the public sector. Overall, although there is variation in the methods used, research largely relies on qualitative approaches to gain deeper insights into the implementation and challenges of NPM in the public sector. It can be concluded that qualitative methods using the Grounded Theory Approach are still rare. According to the table presented, no research directly uses the Grounded Theory Approach (GTA) or connects NPM to sustainability. Although various studies address topics related to NPM, such as public sector reforms, performance evaluation, and community-based governance, none specifically integrate NPM with sustainability principles, either from a theoretical or practical implementation standpoint. This shows that while NPM is often studied in the context of efficiency and accountability in the public sector, its connection to sustainability as a social, economic, or environmental dimension has not been widely explored in existing research.

This study focuses on how the application of NPM principles can impact the sustainability performance of Perumdam, specifically in Perumdam Air Minum Batiwakkal, Berau Regency. The study aims to answer several key questions:

- How does the application of New Public Management (NPM) principles in public policies affect the sustainability performance of Perumdam Air Minum Batiwakkal, Berau Regency?
- What are the main factors affecting the effectiveness of NPM implementation in improving sustainability performance at Perumdam?
- What are the major challenges faced in implementing NPM principles in Perumdam, and how can these challenges be overcome to improve sustainability performance?

The goal of this study is to assess the impact of NPM implementation on sustainability performance, identify the factors influencing the effectiveness of NPM implementation, and determine the challenges and strategies for overcoming them. This study is expected to provide valuable insights into integrating modern public management principles with sustainability and offer practical solutions to improve the performance of Perumdam in the specific local context.

2. LITERATURE REVIEW

The classic formulation of NPM suggests that it consists of seven doctrines:

- Focus on direct management and entrepreneurship, as opposed to traditional bureaucratic focus in public administration.
- Explicit standards and performance measures.
- Emphasis on output control.
- Importance of disaggregation and decentralization of public services.
- Shift towards promoting competition in the provision of public services.
- Emphasis on private sector management styles and organizational excellence.
- Promotion of discipline and simplicity in resource allocation.

The application of New Public Management (NPM) principles often shows positive impacts on public administration efficiency. Principles such as privatization, decentralization, and performance measurement oriented towards results can optimize resource use and improve public services in the short term [9, 10]. However, despite acknowledging these benefits, NPM implementation also has limitations, especially concerning relevant performance measurements across various sectors, including the public sector in Indonesia [40].

In the local context, the implementation of NPM often faces significant challenges in adapting to the conditions and culture of developing countries like Indonesia [6, 41]. Adapting to the local context is essential

to ensure that NPM principles are not only mechanically applied but also tailored to address local challenges and characteristics. This highlights the need for a flexible and contextual approach in implementing NPM principles to achieve effective sustainability.

Moreover, the focus of NPM on efficiency often overlooks the ethical and cultural values of public service that are essential for social sustainability [9]. An excessive emphasis on efficiency in NPM may reduce attention to the ethical and social aspects that are crucial in public service. Adams & Muir argue that the public sector in Australia rarely uses sustainability performance measures due to their voluntary nature. Mandatory reporting or competitive mechanisms are needed to encourage the adoption of sustainability. Thus, maintaining a balance between efficiency and social and ethical values is necessary to ensure that policies remain relevant and sustainable.

To achieve better sustainability, approaches that integrate public values and collaboration become important. Studies show that NPM can encourage innovation and collaboration when supported by internal control systems and organizational cultures that support it [21]. Shifting to a model that focuses more on public values and stakeholder engagement, as shown by post-NPM research, can help address the weaknesses of NPM and support sustainable development in the public sector.

3. RESEARCH METHOD

This section is discussed in three sub-segments: design, data collection, and data analysis.

3.1. Design

Based on existing literature input and considering research gaps, this study adopts the Grounded Theory Approach (GTA) to explore the implementation of New Public Management (NPM) policies in Perumdam Batiwakkal, Berau Regency. Grounded Theory, as a systematic inductive method for qualitative research [42], aims to develop theory through observation and critical experiences. This approach allows for the development of data-driven theories based on empirical data obtained through in-depth interviews with various stakeholders in Perumdam Batiwakkal. It provides a sequential guide for conducting qualitative research, integrating data collection and analysis phases, and assisting in conceptual analysis to understand the implementation of NPM policies and their impact on organizational performance.

3.2. Data Collection and Sampling

The primary data collection method for this research is in-depth interviews with participants involved or related to the performance measurement of Perumdam Batiwakkal. The purpose of these interviews is to gain critical insights into the implementation of NPM policies and their impact on the organization. The participants selected are individuals with relevant understanding of the policies implemented and the company's performance. Informants are selected using purposive sampling, allowing the researcher to choose individuals with in-depth experience or knowledge related to the research topic.

The interviewed participants include various structural levels within Perumdam Batiwakkal, including:

- Director - Provides strategic views on New Public Management (NPM)-based public policy in the company
 - Head of General Administration and Finance - Provides financial perspectives related to the implementation of sustainability policies.
 - Head of Technical Department - Discusses the technical implementation of policies related to sustainability and their impact on the technical aspects of the company.
 - Head of Customer Relations - Describes how the policy affects and is received by customers.
 - Head of Internal Audit (SPI) - Provides information on internal control and how the policy is integrated to ensure sustainability.
 - Head of Services - Offers perspectives from their respective fields regarding the implementation of sustainability policies.
-

- Public Information and Documentation Officer (PPID) - Explains how information and documentation related to sustainability policies are managed and accessed.

In addition to interviews, supplementary data will be gathered through analysis of related policy documents, financial reports, and internal records from Perumdam to deepen the understanding of the organization operational and financial context. Theoretical Sampling Procedure will be applied throughout the research to ensure that the developing theory continues to be refined as insights are gained from the interviews. This ensures that the data collected will encompass all important viewpoints relevant to the implementation of NPM policies at Perumdam Batiwakkal.

3.3. Data Analysis

The data collected from in-depth interviews will be analyzed using a Grounded Theory approach, following the principles set by [42]. The analysis process will involve several stages of coding, including:

- Open Coding: The researcher will read the collected information and identify the basic categories that emerge from the interviews. These categories will include various phenomena identified in the implementation of NPM policies.
- Axial Coding: At this stage, the researcher will connect the categories that have been found, analyze the relationships between the categories, and identify the conditions that cause them. This process helps the researcher delve deeper into the factors influencing the events being studied.
- Selective Coding: At this stage, the researcher will filter the most significant categories and integrate these findings into the axial coding model. The goal of selective coding is to identify the main narrative and develop a coherent theory.

The researcher will continue the analysis until data saturation is reached, where no new categories or themes emerge. This indicates that the existing data is sufficient to develop a strong and comprehensive theory about the implementation of NPM policies in Perumdam Batiwakkal. Group coding will be carried out by the research team, who will work together to ensure that the coding process remains transparent, repeatable, and reliable. Consensus among the researchers will be used to develop the main themes and constructs emerging from the data. The final outcome of this analysis will be a conceptual framework that illustrates the social, historical, and economic conditions influencing the implementation of NPM policies and the performance of Perumdam Batiwakkal. By using Grounded Theory, this study aims to provide in-depth insights into the challenges faced in implementing NPM policies and their impact on organizational performance, as well as to develop a theory relevant to the specific context of Perumdam Batiwakkal.

4. RESULT AND DISCUSSION

4.1. Response to the First Research Question: How do the principles of New Public Management (NPM) in public policy affect the sustainability performance of Perumdam Batiwakkal, Berau Regency ?

The application of New Public Management (NPM) principles in public policy can significantly impact the sustainability performance of Perumdam Batiwakkal, Berau Regency, particularly in terms of operational efficiency, service quality, and sustainability performance. Operational Efficiency: Adequate budget allocation policies support investments in infrastructure, technology, and human resources, which are essential for cost reduction and transparent financial management [6, 9, 43]. Optimizing resources is also crucial for improving efficiency and sustainability, addressing issues such as aging infrastructure [10, 41]. Service Quality: The implementation of NPM principles, such as satisfaction surveys and technological innovations, contributes to increased customer satisfaction and operational efficiency through technologies like leak detection systems and digital payment systems [3–5, 20, 23]. Sustainability Performance: Perumdam Batiwakkal sustainability performance is demonstrated through the achievement of environmental goals, such as efficient water resource management and the use of renewable energy, as well as environmental risk management involving the identification and mitigation of climate change and resource degradation risks [12, 21, 44]. The combination of these factors reflects how the application of NPM can enhance the effectiveness and sustainability of Perumdam Batiwakkal. As shown in Figure 2 How do the principles of NPM in public policy affect the sustainability performance of Perumdam Batiwakkal, Berau Regency.

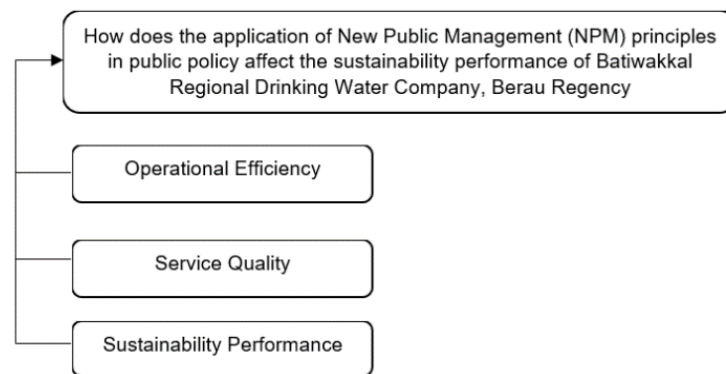


Figure 2. How do the principles of New Public Management (NPM) in public policy affect the sustainability performance of Perumdam Batiwakkal, Berau Regency.

4.2. Response to the Second Research Question: What factors influence the effectiveness of NPM implementation in improving sustainability performance at the Regional Water Supply Company (Perumdam).

Research on the application of New Public Management (NPM) at Perumdam Batiwakkal indicates that several factors significantly influence the effectiveness of NPM in enhancing sustainability performance. **Leadership and Strategic Vision:** Strong leadership and a clear strategic vision are crucial for improving sustainability performance. Management commitment to aligning individual goals with organizational objectives fosters efficiency and innovation [21, 43]. Strategic leadership, with the ability to integrate adaptive governance principles, also enhances efficiency and innovation in the local context [4]. A clear organizational vision and mission ensure effective management and alignment with company goals [10, 41]. **Resources and Infrastructure:** Factors related to resources and infrastructure, such as the availability of funds, technology, and high-quality human resources, support operational efficiency and sustainability [6, 20]. Implementing Standard Operating Procedures (SOPs) and internal policies adapted to the local context helps ensure operational consistency and effectiveness, with support from stakeholders like local governments being crucial to minimize losses and maintain operational continuity [9, 26]. **Performance Management Systems:** Effective performance management systems are necessary to ensure transparency and good governance. As shown in Figure 3 What factors influence the effectiveness of NPM implementation in improving sustainability performance at the Regional Water Supply Company (Perumdam).

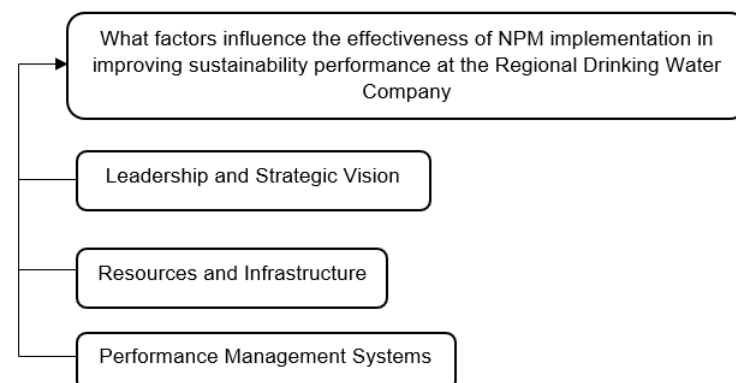


Figure 3. What factors influence the effectiveness of NPM implementation in improving sustainability performance at the Regional Water Supply Company (Perumdam)

4.3. Response to the third Research Question: What are the main challenges faced in implementing New Public Management (NPM) principles at the Perumdam Batiwakkal, and how can these challenges be addressed to improve sustainability performance?

Implementing New Public Management (NPM) principles at Perumdam Batiwakkal faces several key challenges. Internally, the company grapples with resistance to change, as employees accustomed to existing systems may perceive NPM changes as threats to their job security and stability [6]. Additionally, limited financial and human resources hinder effective NPM implementation, restricting the organization's ability to adapt [21, 41]. Moreover, an overemphasis on results can diminish employee motivation and commitment to public service, impacting overall performance [4, 9].

Externally, Batiwakkal encounters challenges from inconsistent or unsupportive government policies, which can obstruct effective NPM implementation, especially when policies affect pricing or operational autonomy [20, 23]. Meeting evolving customer expectations remains another challenge, despite improved efficiency from NPM practices [10, 20]. Furthermore, competition and market pressures vary across contexts, affecting the effectiveness of NPM implementation [3, 26].

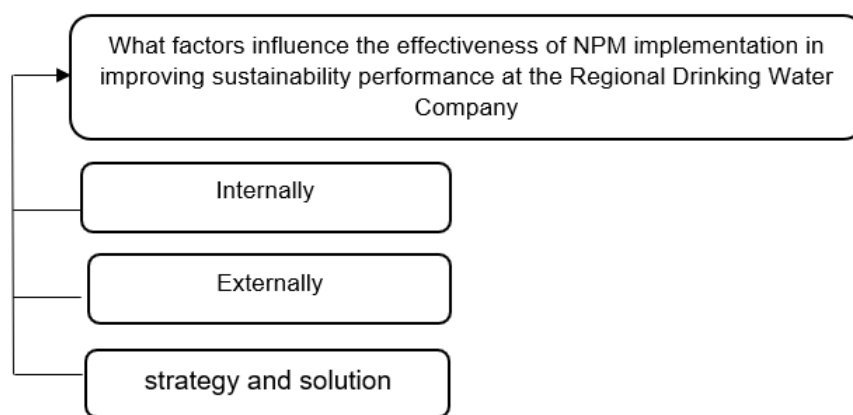


Figure 4. What factors influence the effectiveness of implementing NPM in improving sustainability performance in Regional Water Supply Companies (Perumdam)

To address these challenges, Batiwakkal can adopt several strategies. Policy adaptation is crucial, involving clear goal setting, stakeholder engagement, and regular performance evaluations. Adequate training and development are essential for overcoming resource limitations and enhancing operational efficiency [24]. Finally, collaborating with stakeholders and maintaining transparent communication can help overcome obstacles and achieve sustainable performance [4, 24]. By integrating these strategies, Batiwakkal can improve its NPM implementation and achieve better sustainability outcomes. As shown in Figure 4, what factors influence the effectiveness of implementing New Public Management (NPM) in improving sustainability performance in Regional Water Supply Companies (Perumdam).

5. MANAGERIAL IMPLICATIONS

This research reveals several important implications for applying New Public Management (NPM) theory to enhance the performance of Perumdam Batiwakkal, Berau Regency. Effective budget allocation and efficient resource management are critical for investing in infrastructure, technology, and human resource development. NPM emphasizes improved budget management, decentralization, and the adoption of private sector managerial principles to enhance transparency and reduce operational costs. Fair tariff policies and strict financial management are essential for good governance, ensuring resource availability without overburdening consumers. Additionally, infrastructure improvements and leak detection technology can improve service quality. Reducing political intervention and balancing efficiency with public service are also vital. Integrating NPM principles with sustainable strategies, such as renewable energy use and green technologies, as well as environmental risk management, is necessary for sustainability. Strong management commitment, clear vision and mission, and strategic leadership are required for effective NPM implementation. Emphasizing technological

innovation, improving human resource quality, and applying context-specific SOPs are also crucial. Support from stakeholders and effective internal policies are key to achieving efficiency and sustainable performance. Effective performance management systems are needed to enhance transparency and governance, ensuring that NPM principles are consistently applied and support organizational strategic goals.

5.1. Critique of NPM Theory and Propositions for Future Research

New Public Management (NPM) theory is often criticized for its inadequate consideration of local contexts. The adoption of private sector managerial principles within the public sector does not always align well with local culture, organizational structures, and specific needs. Decentralization, a key focus of NPM, may not be effective if local administrative structures are not prepared for the new responsibilities. Moreover, an excessive emphasis on efficiency and cost management can compromise the quality of public services, potentially undermining values such as fairness, accessibility, and inclusivity. Practical implementation of NPM also faces challenges, such as resistance from employees and issues with inter-departmental coordination.

Propositions for Future Research

- **Contextual Adaptation of NPM Principles:** Future research should focus on adapting NPM principles to specific local contexts, considering organizational culture and administrative structures. This includes exploring how private sector principles can be tailored to fit local conditions and needs effectively, and investigating how technopreneurship can drive innovation in this adaptation process.
- **Balancing Efficiency and Service Quality:** Investigate how to balance efficiency with the quality of public services. Research should evaluate the impact of cost management and decentralization on service quality, ensuring that efficiency measures do not detract from essential values like equity and accessibility. Technopreneurship can play a role in developing innovative solutions that enhance both efficiency and service quality.
- **Effective Implementation Strategies:** Develop and assess strategies for effectively implementing NPM principles. This involves designing policies that address practical challenges in implementation, such as employee resistance and coordination issues. Research should focus on creating clear communication channels, providing necessary training, and leveraging technopreneurial approaches to facilitate successful implementation.

6. CONCLUSION

This study emphasizes the potential of New Public Management (NPM) principles to enhance the sustainability performance of Perumdak Batiwakkal in Berau Regency, particularly in terms of operational efficiency, service quality, and environmental sustainability. However, while the study illustrates the effectiveness of NPM in improving certain operational aspects, the full integration of sustainability remains a challenge. The research indicates that the alignment of NPM principles with local context, leadership commitment, and resource allocation are crucial for achieving sustainable results.

Future research could explore the contextual adaptation of NPM principles, particularly in different regions or sectors, to understand how they can be tailored to meet local challenges and sustainability goals. Additionally, investigating strategies that balance efficiency with service quality could provide further insights into how public service organizations can maintain both performance and social values. Moreover, examining the role of technology in supporting NPM implementation could offer practical solutions for overcoming resource limitations and improving overall effectiveness.

Despite the valuable contributions of this study, there are limitations, notably the focus on a single public organization in Berau Regency, which may not fully represent the diverse challenges faced by other public entities in different contexts. Further studies should involve multiple case studies across various regions to provide a more comprehensive understanding of NPM's impact on sustainability performance. Additionally, the research design, while robust, could be expanded by including quantitative data to validate the findings and enhance the generalizability of the results.

7. DECLARATIONS

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7.2. Author Contributions

Conceptualization: BM, VH, AM and CG; Methodology: BM; Software: BM; Validation: BM; Formal Analysis: BM, VH, AM and RM; Investigation: BM, VH, AM and CG; Resources: BM; Data Curation: BM; Writing Original Draft Preparation: BM and VH; Writing Review and Editing: BM, VH, AM and CG; Visualization: BM; All authors, BM, VH, AM and CG, have read and agreed to the published version of the manuscript.

7.3. Data Availability Statement

The data presented in this study are available on request from the corresponding author.

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7.5. Declaration of Conflicting Interest

The authors declare that they have no conflicts of interest, known competing financial interests, or personal relationships that could have influenced the work reported in this paper.

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