



Digital Transformation and Innovation on Service-Oriented Performance through Technology Capability

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Abstract

Public sector organizations are increasingly required to enhance service performance in response to rapid technological changes and growing demands for efficient and responsive service delivery. This study aims to examine the influence of digital transformation and innovation on service-oriented performance, with technology capability acting as a mediating variable. A quantitative approach with an explanatory research design was employed, involving employees of the Jember Transportation Agency as the unit of analysis, with a total population of 406 employees. The sample size was determined using the 10-times rule in Partial Least Squares, resulting in a minimum requirement of 210 respondents. A total of 210 valid responses were collected through a structured questionnaire using a five-point Likert scale. Data were analyzed using Structural Equation Modeling with the Partial Least Squares approach. The results indicate that digital transformation and innovation have positive and significant effects on service-oriented performance. In addition, both variables significantly influence technology capability, which in turn plays a crucial role in improving performance. Technology capability is also found to partially mediate the relationship between digital transformation, innovation, and service-oriented performance. These findings highlight the importance of aligning technological capability with transformation and innovation initiatives to achieve sustainable performance in public sector organizations.

Keywords: *digital transformation, innovation, service-oriented performance, technology capability.*

INTRODUCTION

Public sector organizations are increasingly required to respond to rapid technological changes in order to maintain effective and responsive service delivery in the digital era. Digital transformation has fundamentally reshaped organizational processes by integrating technology into operational systems, enabling greater efficiency and coordination in service delivery. In addition, digital transformation is not only limited to technological adoption but also involves organizational capability development that supports value creation and performance improvement [1]. Innovation has also been identified as a critical factor that enables organizations to adapt to dynamic environments and enhance service outcomes [2]. The interaction between digital transformation and innovation plays a significant role in improving organizational performance, particularly in environments that require continuous service improvement [3]. However, the effectiveness of these initiatives depends on the organization's capability to utilize technology effectively in supporting operational processes. Therefore, understanding the relationship between digital transformation, innovation, and technology capability becomes essential in explaining how service-oriented performance can be enhanced in public sector organizations [4], [5], [6], [7]. Furthermore, digital transformation can enhance



innovation capability by enabling organizations to leverage data, systems, and technological tools more effectively [8]. Despite these advantages, the successful implementation of digital transformation and innovation often depends on internal organizational readiness and supporting capabilities [9], [10].

Technology capability has emerged as a critical factor that determines the extent to which organizations can effectively implement digital transformation and innovation initiatives [11]. It reflects the organization's ability to utilize technological resources, including infrastructure, systems, and tools, to support operational activities and decision-making processes [12]. Organizations with strong technology capability are more likely to successfully translate digital transformation strategies into tangible performance improvements [13]. In addition, technology capability plays a vital role in enhancing innovation processes by enabling the efficient integration and utilization of technological resources [14]. Previous studies also indicate that technology capability can act as a bridging mechanism that strengthens the relationship between transformation initiatives and organizational performance [15]. However, not all organizations are able to fully leverage their technological resources, which may limit the effectiveness of digital transformation and innovation efforts. Therefore, examining technology capability as a mediating variable becomes essential to better understand how digital transformation and innovation influence service-oriented performance [16].

Service-oriented performance has become an essential indicator in evaluating how effectively organizations deliver value through service quality, responsiveness, and operational efficiency [17]. The shift toward service-oriented performance reflects a broader transformation from traditional output-based evaluation to value-based service delivery outcomes [5]. The integration of digital technologies and innovation has further strengthened service-oriented performance by enabling faster and more accurate service delivery [14]. However, achieving optimal service-oriented performance remains a challenge when organizations lack the capability to effectively utilize technological resources [11]. Despite this, prior studies have not sufficiently explained the mediating role of technology capability in linking digital transformation and innovation to service-oriented performance, particularly in public sector contexts.

Empirical studies on digital transformation and innovation have reported mixed findings regarding their impact on organizational performance, indicating the need for further investigation [18]. Several studies demonstrate that digital transformation significantly enhances innovation performance and organizational outcomes by enabling firms to adapt to technological changes [19]. However, other findings reveal that digital transformation does not always produce a direct significant effect on performance due to high implementation costs and organizational adaptation challenges [20]. In addition, innovation has been found to play varying roles, where it can significantly improve performance in some contexts but fail to act as an effective mediating mechanism in others [21]. These inconsistencies suggest that the relationship between digital transformation, innovation, and performance is not always linear and may depend on supporting organizational capabilities [22]. Furthermore, prior studies indicate that capability-based factors, such as technological and dynamic capabilities, play a crucial role in mediating the relationship between transformation initiatives and performance outcomes [23]. Therefore, this study addresses the existing gap by examining technology capability as a mediating variable that explains how digital transformation and innovation influence service-oriented performance in organizational contexts [24].

Public sector organizations, particularly those operating in service-oriented environments, continue to face challenges in achieving optimal performance, even with the growing adoption of digital technologies. In many cases, digital transformation initiatives have not been fully supported by adequate technological infrastructure and organizational readiness. As a result, public organizations may still experience inefficiencies and inconsistent service delivery outcomes. In addition, innovation efforts within public institutions are often fragmented and



have not been systematically integrated into organizational processes, which limits their contribution to performance improvement. These conditions suggest that technology alone is not sufficient unless organizations also have the capability to use it effectively and align it with their strategic objectives.

In the context of the Jember Transportation Agency, these challenges can be seen in several operational conditions. The implementation of digital systems in transportation services, including administrative processing and service coordination, has not been fully optimized due to limited system integration and uneven levels of technological proficiency among employees. Furthermore, innovation initiatives tend to be sporadic and specific to certain departments, rather than being developed as part of a comprehensive organizational strategy. This situation may lead to delays, service inconsistencies, and differences in responsiveness, which can ultimately affect service-oriented performance. These circumstances highlight a gap between the adoption of technology and actual performance outcomes within the organization. Therefore, this study aims to examine the influence of Digital Transformation and Innovation on Service-Oriented Performance, with Technology Capability serving as a mediating variable in the context of the Jember Transportation Agency.

METHOD

This study employs a quantitative approach with an explanatory research design to examine the relationships between digital transformation, innovation, technology capability, and service-oriented performance. The unit of analysis is individual employees of the Jember Transportation Agency, with a total population of 406 employees. The sample size was determined using the 10-times rule based on the total number of indicators [25]. This study utilizes a total of 21 indicators, consisting of five indicators for digital transformation, four indicators for innovation, seven indicators for technology capability, and five indicators for service-oriented performance. Based on this criterion, the minimum required sample size is 210 respondents (21×10).

Data were collected through a structured questionnaire using a five-point Likert scale ranging from strongly disagree to strongly agree. The instrument was designed to reflect internal organizational conditions and employees' perceptions regarding technology utilization, innovation practices, and service performance. Digital transformation was measured using five indicators, reflecting the integration of digital systems, digitalization of work processes, adaptability to digital changes, utilization of digital tools, and alignment of digital initiatives with organizational activities, adapted from recent digital transformation studies [18]. Innovation was measured using four indicators, including the development of new service methods, process improvement, implementation of creative solutions, and organizational support for innovation, based on innovation capability literature [16].

Technology capability was operationalized using seven indicators, representing a more comprehensive construct, including the availability of technological infrastructure, adequacy of work equipment, system reliability, ease of technology use, accessibility of systems, technological support for task completion, and frequency of technology utilization in daily activities, adapted from studies on technological capability and performance [15]. Meanwhile, service-oriented performance was measured using five indicators, consisting of service quality, responsiveness, timeliness, effectiveness, and consistency in meeting service standards, reflecting performance measurement in service-based organizations [5].

Data analysis was conducted using Structural Equation Modeling (SEM) with the Partial Least Squares (PLS) approach through SmartPLS software. The analysis consists of two main stages, namely the evaluation of the measurement model and the structural model. The measurement model was assessed using convergent validity with loading factor values ≥ 0.70 and Average Variance Extracted (AVE) ≥ 0.50 , while reliability was evaluated using Composite Reliability and Cronbach's Alpha with threshold values ≥ 0.70 [26]. However, AVE values below 0.50 may still be considered acceptable when composite reliability exceeds 0.70, as this



indicates adequate internal consistency and convergent validity [25], [27]. The structural model was evaluated using the coefficient of determination (R^2) and adjusted R^2 to assess the explanatory power of the model. Hypothesis testing was conducted by analyzing direct and indirect effects using path coefficients, with statistical significance determined by t-statistics ≥ 1.96 at a 5% significance level [26]. The mediating role of technology capability was examined through indirect effect analysis to determine its function in strengthening the relationship between digital transformation, innovation, and service-oriented performance [26].

Table 1. Outer Loading Test

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
X1.1 <- Digital Transformation (X1)	0.801	0.802	0.029	28.057	0.000
X1.2 <- Digital Transformation (X1)	0.784	0.781	0.043	18.393	0.000
X1.3 <- Digital Transformation (X1)	0.882	0.882	0.018	50.205	0.000
X1.4 <- Digital Transformation (X1)	0.841	0.840	0.025	33.496	0.000
X1.5 <- Digital Transformation (X1)	0.768	0.767	0.092	2.819	0.000
X2.1 <- Innovation (X2)	0.760	0.757	0.066	10.036	0.000
X2.2 <- Innovation (X2)	0.816	0.817	0.038	21.683	0.000
X2.3 <- Innovation (X2)	0.838	0.838	0.036	23.012	0.000
X2.4 <- Innovation (X2)	0.768	0.765	0.094	3.914	0.000
Y1.1 <- Service-Oriented Performance (Y)	0.897	0.896	0.015	61.439	0.000
Y1.2 <- Service-Oriented Performance (Y)	0.763	0.761	0.067	9.871	0.000
Y1.3 <- Service-Oriented Performance (Y)	0.874	0.873	0.021	42.602	0.000
Y1.4 <- Service-Oriented Performance (Y)	0.858	0.859	0.020	42.267	0.000
Y1.5 <- Service-Oriented Performance (Y)	0.760	0.757	0.089	2.927	0.003
Z1.1 <- Technology Capability (Z)	0.754	0.754	0.032	23.641	0.000
Z1.2 <- Technology Capability (Z)	0.708	0.706	0.050	14.207	0.000
Z1.3 <- Technology Capability (Z)	0.737	0.735	0.044	16.786	0.000
Z1.4 <- Technology Capability (Z)	0.822	0.822	0.022	38.132	0.000
Z1.5 <- Technology Capability (Z)	0.794	0.794	0.027	29.122	0.000
Z1.6 <- Technology Capability (Z)	0.733	0.733	0.026	28.168	0.000
Z1.7 <- Technology Capability (Z)	0.732	0.730	0.092	2.511	0.012

Source: Author's analysis (2026)

The outer loading evaluation shows that all indicators have satisfactory loading values above the minimum threshold. This indicates that each measurement item is able to properly represent its corresponding latent construct. The loading coefficient range also reflects a strong relationship between the indicators and their respective variables, particularly in measuring the dimensions of Service-Oriented Performance and Digital Transformation, which appear to be highly representative. In addition, the statistical results show that all indicators are significant, confirming their consistency in measuring the intended constructs. Overall, these findings indicate that the measurement model has achieved acceptable convergent validity. Therefore, all indicators can be retained for the next stage of structural analysis without requiring any modification.

Table 2. Validity & Reliability Test



	AVE	rho_A	CR	CA
Digital Transformation (X1)	0.554	0.841	0.844	0.752
Innovation (X2)	0.485	0.787	0.777	0.718
Service-Oriented Performance (Y)	0.562	0.867	0.852	0.770
Technology Capability (Z)	0.501	0.855	0.867	0.815

Source: Author's analysis (2026)

The results of the validity and reliability assessment indicate that the constructs generally meet the established criteria for measurement adequacy. Most constructs exhibit Average Variance Extracted (AVE) values above the recommended threshold of 0.50, demonstrating sufficient convergent validity and confirming that these constructs explain a substantial proportion of variance in their indicators. However, the AVE value for innovation is slightly below the threshold (0.485). Despite this, the construct is still considered acceptable, as it demonstrates adequate composite reliability (CR > 0.70), indicating sufficient internal consistency and convergent validity [25], [27]. In terms of reliability, the values of rho_A, Composite Reliability (CR), and Cronbach's Alpha (CA) for all constructs exceed the recommended threshold of 0.70, indicating a high level of internal consistency. These findings suggest that the measurement model is acceptable and reliable, thereby supporting its suitability for further analysis in the structural model.

RESULTS AND DISCUSSION

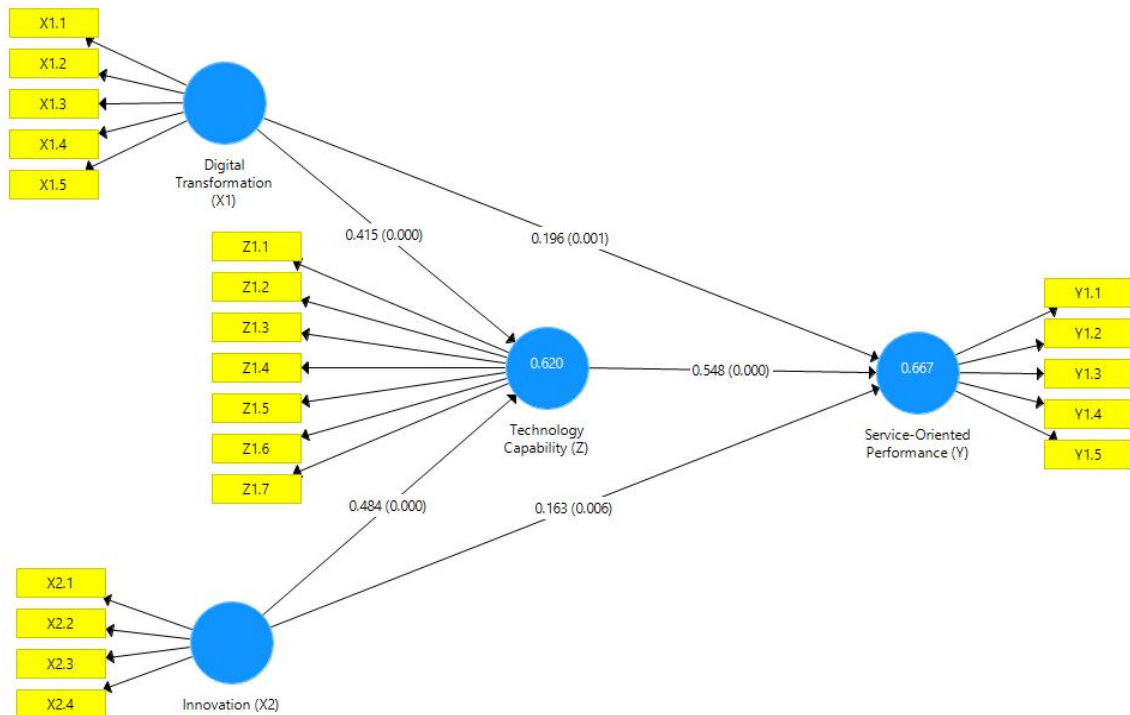


Figure 1. Inner Model Result

Source: Author's analysis (2026)

The structural model shows the relationships among Digital Transformation, Innovation, Technology Capability, and Service-Oriented Performance. Overall, the results indicate that the proposed model is empirically supported. The path coefficients show that both Digital



Transformation and Innovation have a positive contribution to Technology Capability. This suggests that organizational efforts to adopt digital processes and encourage innovation can strengthen the ability to use technological resources effectively.

Furthermore, Technology Capability has a meaningful influence on Service-Oriented Performance. This indicates that technology capability plays an important role in transforming digital and innovation initiatives into better service outcomes. The presence of both direct and indirect relationships also shows that Technology Capability functions as an important intervening variable, as it helps strengthen the effect of Digital Transformation and Innovation on performance. Overall, the structural model reflects a coherent and theoretically relevant framework. These findings confirm that organizational performance in service-oriented contexts is shaped by the integration of digital transformation initiatives, innovation practices, and technological capabilities.

Table 3. Coefficient Determination Test

	R ²	R ² Adjusted
Service-Oriented Performance (Y)	0.672	0.667
Technology Capability (Z)	0.624	0.620

Source: Author's analysis (2026)

The coefficient of determination results show that the structural model has strong explanatory power in predicting the endogenous variables. The R² value for Service-Oriented Performance indicates that a substantial proportion of its variation can be explained by Digital Transformation, Innovation, and Technology Capability. This suggests that the model is able to capture the main factors influencing performance dynamics.

Similarly, the R² value for Technology Capability shows that this variable is well explained by Digital Transformation and Innovation. This indicates that both variables make an important contribution to shaping technological readiness within the organization. The adjusted R² values are slightly lower than the R² values, but they remain consistent, which further supports the stability and robustness of the model. Overall, these findings indicate that the proposed model has adequate predictive relevance and is effective in explaining the relationships among the variables examined in this study.

Table 4. Path Coefficient Result

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Digital Transformation (X1) -> Service-Oriented Performance (Y)	0.196	0.196	0.059	3.324	0.001
Digital Transformation (X1) -> Technology Capability (Z)	0.415	0.417	0.049	8.500	0.000
Innovation (X2) -> Service-Oriented Performance (Y)	0.163	0.165	0.059	2.776	0.006
Innovation (X2) -> Technology Capability (Z)	0.484	0.484	0.055	8.818	0.000
Technology Capability (Z) -> Service-Oriented Performance (Y)	0.548	0.550	0.066	8.293	0.000
Digital Transformation (X1) -> Technology Capability (Z) -> Service-Oriented Performance (Y)	0.228	0.229	0.037	6.215	0.000
Innovation (X2) -> Technology Capability (Z) -> Service-Oriented Performance (Y)	0.265	0.266	0.045	5.934	0.000

Source: Author's analysis (2026)

The direct effect analysis shows that all hypothesized relationships are positive and



statistically significant. This reflects a consistent pattern within the structural model. Digital Transformation has a meaningful influence on Service-Oriented Performance, indicating that the integration of digital processes can improve the effectiveness of service delivery. Innovation also has a significant effect on performance, suggesting that new ideas, process improvements, and better working methods contribute to improved service outcomes. In addition, Digital Transformation and Innovation both have strong relationships with Technology Capability. This means that organizational transformation and innovative practices play an important role in strengthening technological readiness. Technology Capability also emerges as a key determinant of Service-Oriented Performance, highlighting its role in helping organizations convert technological resources into better service quality, coordination, and responsiveness.

The indirect effect analysis further shows that Technology Capability acts as a significant mediating variable in the model. Digital Transformation and Innovation influence Service-Oriented Performance not only directly, but also indirectly through Technology Capability. This indicates the presence of partial mediation. In other words, the impact of transformation and innovation becomes stronger when the organization has adequate technological capability to support the effective use of systems and resources in operational activities. These findings suggest that performance improvement is not driven only by digital transformation initiatives or innovation efforts. Rather, it depends on the organization's ability to integrate these elements through strong Technology Capability. Therefore, Technology Capability serves as an important link that connects transformation and innovation with better service-oriented performance.

Digital Transformation appears to be a fundamental driver of Service-Oriented Performance in public sector organizations. The findings indicate that integrating digital systems into organizational processes can improve efficiency, coordination, and service delivery outcomes. This is consistent with previous studies which emphasize that Digital Transformation enables organizations to restructure workflows and enhance operational effectiveness through technology integration [13], [14]. The ability to embed digital processes into daily activities reflects a shift toward more adaptive and responsive organizational practices that are essential in modern public service environments. Innovation also plays a significant role in strengthening organizational performance, particularly in service-oriented contexts. The results suggest that innovation contributes to performance improvement by enabling organizations to develop new service approaches and refine existing processes. This aligns with prior research highlighting that innovation enhances organizational adaptability and supports continuous improvement in service delivery [2], [6]. The presence of innovation within the organization reflects a proactive approach in responding to dynamic environmental demands, which is crucial for maintaining competitiveness and relevance in public services.

The relationship between digital transformation and innovation further reinforces the importance of integrating technological and creative capabilities within organizations. The findings suggest that digital transformation facilitates innovation by providing the necessary infrastructure and tools for developing new solutions. This supports earlier studies indicating that digital transformation enhances innovation capacity by enabling better utilization of data and technological resources [3], [8]. Such integration highlights that transformation and innovation are not independent processes but are interconnected elements that jointly contribute to organizational advancement. Technology capability emerges as a critical factor that translates digital transformation and innovation into tangible performance outcomes. The findings indicate that organizations with stronger technological capability are better positioned to leverage digital initiatives and innovative practices effectively. This is in line with previous research emphasizing that technological capability determines the success of transformation efforts by enabling the efficient use of systems and resources [11], [12]. The ability to utilize technology effectively reflects not only the availability of resources but also the organizational competence in integrating these resources into operational processes.

The role of technology capability as a mediating variable provides deeper insight into the



mechanism through which digital transformation and innovation influence performance. The findings suggest that the impact of these variables becomes more substantial when supported by strong technological capability, indicating that capability acts as a bridge between strategic initiatives and operational outcomes. This supports prior studies demonstrating that capability-based factors strengthen the relationship between transformation initiatives and organizational performance [15], [23]. Such evidence highlights the importance of considering intermediary mechanisms in understanding performance dynamics. Service-oriented performance, as reflected in the findings, is strongly influenced by the organization's ability to integrate technology and innovation into service processes. The results indicate that performance is not merely determined by output efficiency but also by the quality and responsiveness of services delivered. This aligns with the evolving perspective that emphasizes value-based service delivery and stakeholder-oriented performance evaluation [7], [17]. The shift toward service-oriented performance reflects broader changes in how public sector organizations define and achieve effectiveness. The findings also address inconsistencies identified in previous studies regarding the impact of digital transformation and innovation on performance. While some studies report strong positive effects, others highlight limited or indirect relationships due to contextual and organizational factors [18], [20].

The inclusion of Technology Capability in this study provides a more comprehensive explanation of how performance outcomes are achieved. It shows that organizational performance does not only depend on the adoption of digital systems or the presence of innovation, but also on the organization's ability to use technological resources effectively. In this regard, Technology Capability helps clarify the relationship between digital transformation, innovation, and service-oriented performance by highlighting capability as an important determining factor. Overall, the findings emphasize that improving Service-Oriented Performance requires an integrated approach that combines Digital Transformation, Innovation, and Technology Capability. In the context of the Jember Transportation Agency, these results suggest that efforts to improve service performance should not only focus on adopting digital systems. They should also include strengthening employees' technological competencies and ensuring that systems are effectively integrated across departments. The findings also indicate that fragmented innovation initiatives and limited technological utilization within the organization can be addressed through a more coordinated strategy. Such a strategy should align digital transformation programs with organizational capabilities and service objectives. Furthermore, strengthening Technology Capability in the Jember Transportation Agency is essential to ensure that digital initiatives and innovation efforts lead to real service improvements, particularly in terms of responsiveness, efficiency, and consistency. Therefore, a holistic approach that integrates technology, innovation, and human resource capability is necessary to achieve sustainable improvements in service-oriented performance within the organization.

CONCLUSION

This study shows that Digital Transformation and Innovation play important roles in improving Service-Oriented Performance, both directly and indirectly through Technology Capability. The results indicate that Digital Transformation helps improve organizational efficiency and process integration, while Innovation supports the development of more adaptive and responsive service practices. However, the effectiveness of these factors depends greatly on the organization's ability to use technological resources effectively, as reflected in Technology Capability. This confirms that performance improvement in public sector organizations is not determined only by the adoption of digital initiatives or innovation practices, but also by how well these elements are implemented in daily organizational activities. The role of Technology Capability as a mediating variable provides a more complete understanding of the performance mechanism, as it bridges strategic initiatives and service outcomes.



From a practical perspective, particularly in the context of the Jember Transportation Agency, the findings highlight the importance of aligning Digital Transformation and Innovation with organizational capabilities to achieve optimal service performance. Public organizations should not only invest in technological systems, but also strengthen employees' technological competencies and ensure that systems are effectively integrated across operational units. In addition, building a culture of innovation and embedding technology into daily service processes are important steps to improve responsiveness, efficiency, and consistency in public service delivery.

This study has several limitations. First, the research was conducted in a single public sector organization, which may limit the generalizability of the findings to other institutional contexts. Second, the use of a cross-sectional research design limits the ability to capture changes and causal relationships over time. Therefore, future research is encouraged to involve multiple organizations across different sectors to improve the generalizability of the results. Longitudinal research designs may also be used to better understand how the effects of Digital Transformation and Innovation on performance develop over time. Future studies may also include additional variables, such as Leadership, Organizational Culture, and Digital Readiness, or apply alternative analytical approaches to provide a broader understanding of performance mechanisms in public sector organizations.

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